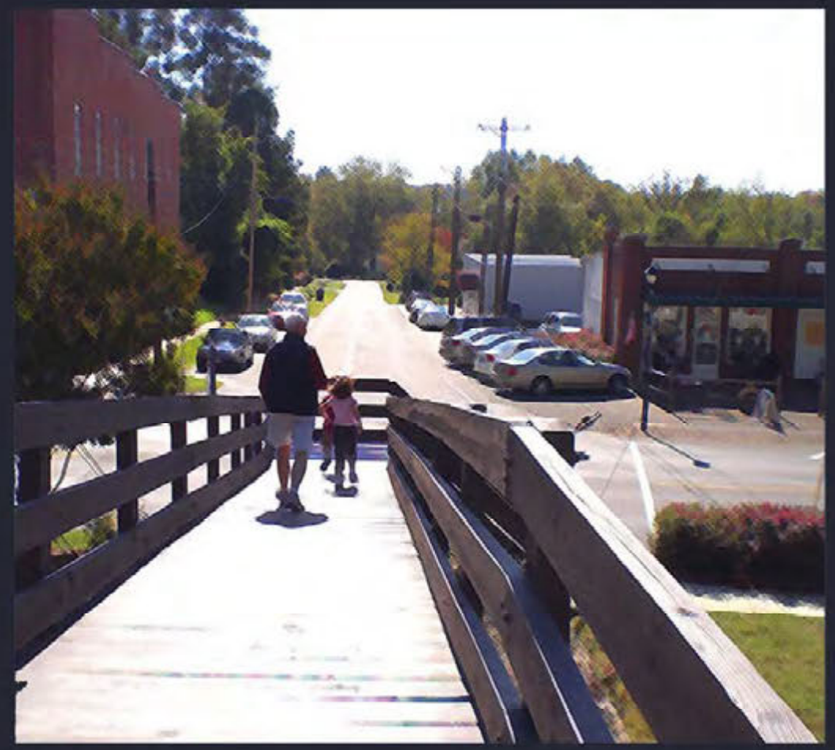

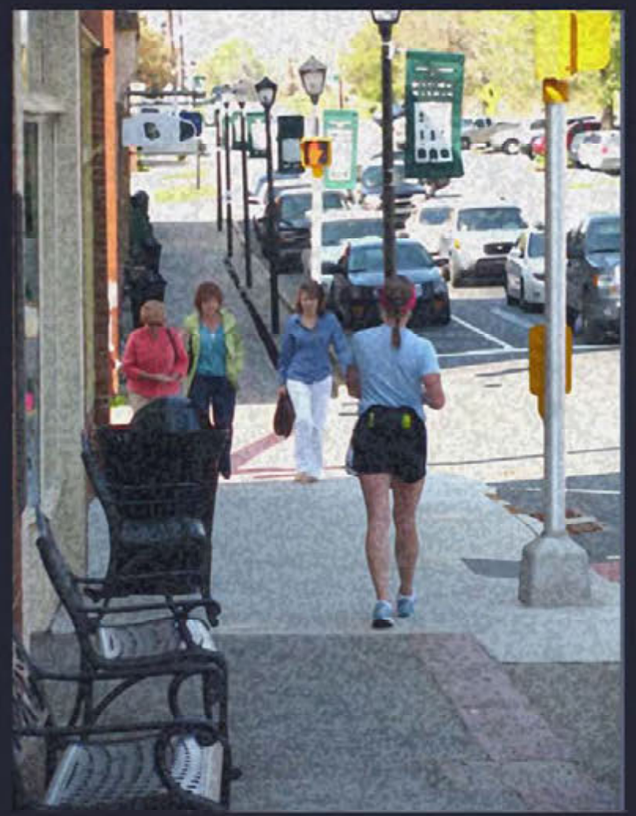

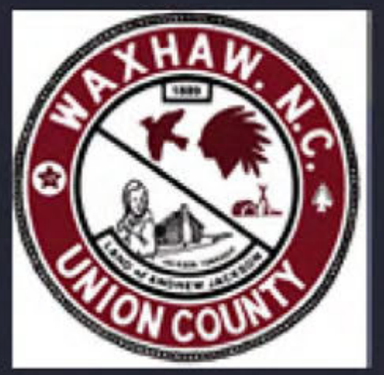

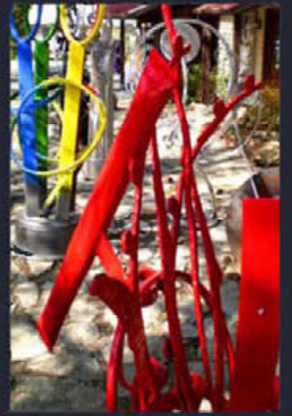

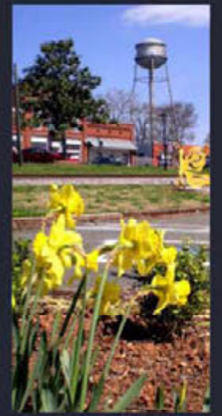

THE TOWN OF WAXHAW North Carolina

Division of Bicycle & Pedestrian Transportation

CCOG Centralina Council of Governments

WAXHAW North Carolina Comprehensive Pedestrian Plan

September 2012

FUNDED BY
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DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION
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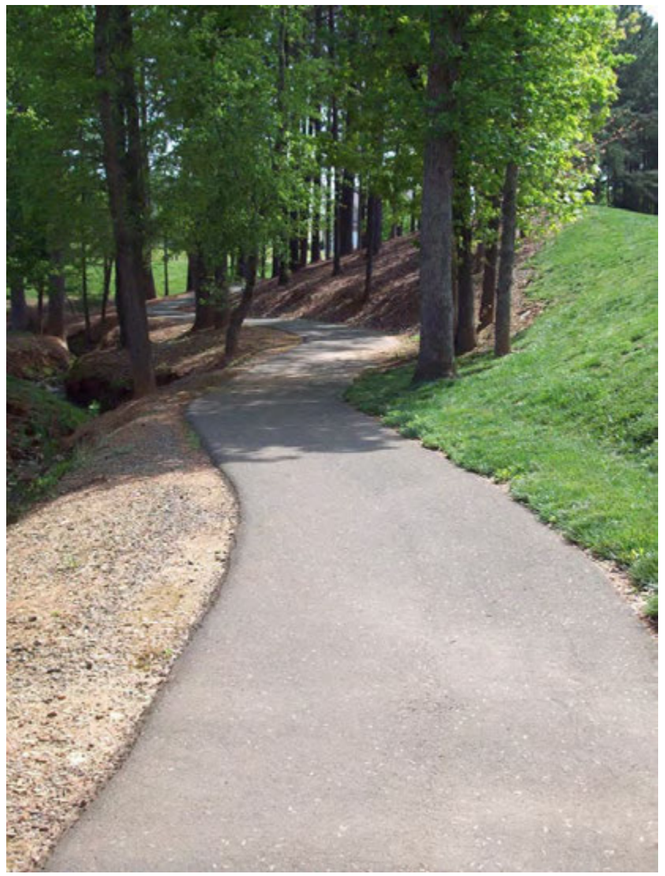

GREENWAY AT CURETON, WAXHAW

Acknowledgements

The Waxhaw Comprehensive Pedestrian Plan could not have been developed without the assistance of interested citizens, municipal staff, and officials. Their enthusiastic participation and review of the products developed as a part of this Plan was essential to the process.

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Mayor Pro Tem Erin Kirkpatrick
Commissioner Joyce Blythe
Commissioner Sean Poccia
Commissioner Brett Diller
Commissioner Michael Stewart

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Maureen Colouna
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Heather Corn
Brett Diller
Gay Diller
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Tom Risser
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Emily Thornton
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Kevin Tillett
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Footbridge, Museum of the Waxhaws

EXECUTIVE SUMMARY

Purpose

How this plan should be utilized in order to achieve the stated pedestrian vision for the town:

- **POLICY REVISION**
  A clear blueprint for revising local ordinances and supporting policies that guide development in order to better support Waxhaw's vision and goals
- **IMPLEMENTATION TOOL**
  A comprehensive and prioritized guide for building or improving local pedestrian routes and amenities
- **FINANCIAL ASSISTANCE**
  A firm basis for seeking financial assistance in the form of grants and other support from various outside sources in order to implement the plan
- **PROMOTION**
  A compelling tool for promoting Waxhaw's pedestrian vision
- **EDUCATION**
  An effective source for conveying the values and methods of creating and maintaining a pedestrian-friendly community with decision makers and the general public

Current Pedestrian CONCERNS

- **Town contiguity**
  The pattern of growth and incorporation has taken the town from its original tight-knit historic walkable core, to a very non-compact geometry.

- **Gaps in the Existing Pedestrian Network**
  Despite its significant miles of constructed sidewalk, much of the newer town remains disconnected. Sidewalk facilities often stop at subdivision entrances. Existing greenway segments also fail to connect neighborhoods.

- **Safety**
  Insufficient street lighting, speeding vehicles, and busy intersections with low visibility inhibit walking in various parts of town.

- **Aesthetics**
  Community appearance can influence the decisions of individuals to walk about town. Beautification efforts, such as street trees, signature street lighting, and cleaned up private properties, also contribute to the general comfort level, safety and practicality for pedestrians and improve community pride.

- **Destinations**
  Despite the Town's existing opportunities for employment, shopping, dining and recreation, many citizens must get in the car and drive to reach things they desire.

Specific Pedestrian Barriers and Constraints

- **CSX Railway** divides the town at its core.
- **Twelve Mile Creek** separates the north end of community from downtown.
- **NC 16** is mentioned most often as the greatest challenge to Waxhaw's walkability.
- **NC 75** heavy traffic, including lumber trucks, inhibit safe walking in the downtown.

Pedestrian Plan GOALS

- **Connect the town** for pedestrians, from end to end, closing gaps in the existing pedestrian system.
- **Foster activity** in the downtown area.
- **Make more accessible** the Waxhaw's historic places and other significant destinations.
- **Improve the NC 16 corridor** walking conditions.
- **Encourage a greater awareness** and experience of the unique qualities of the community.
- **Create a safer environment.**
- **Promote healthy lifestyles.**

Recommended Actions

1. **Form a PAC! (Pedestrian Access Committee)**
   A stakeholder based Pedestrian Access Committee (PAC) can represent a wide variety of pedestrian interests and populations in the Town. An existing committee may already be in place to perform this function. Members should include representatives of the business community, long-time residents, and residents of newer residential developments.

2. **Address safety concerns over street crossing conditions.**
   Crosswalks are strategically where high pedestrian activity encounters the greatest potential conflict with vehicular traffic. Properly designed crosswalks not only facilitate safer street crossing opportunities for pedestrians, they also offer a secondary pedestrian benefit of calming traffic.

3. **Enhance Conditions and Accessibility of Existing Sidewalk System.**
   Segments of existing sidewalks throughout the Town are in sub-standard condition and/or inaccessible to handicapped users. These include sidewalks that are partially obstructed by utility poles and other objects that can impede the travel path. Accessible ramps are needed for curbs at intersections. Crosswalk striping at some intersections has faded. Some curbs have given way due stress from heavy vehicles.

4. **Implement existing development policy.**
   Much of Waxhaw's current policy complements the Pedestrian Plan goals and can work in tandem with its recommendations.

5. **Initiate recommended programs.**
   Pedestrian programs can help raise community awareness, and encourage healthy and safe activity.

6. **Expand, fill gaps, and remove barriers in the current sidewalk and crosswalk system.**
   The Town enjoys an extensive sidewalk system, with facilities in place along many of its primary roads and in newer pockets of development. But critical gaps in the system prevent its full use,

particularly for accessing downtown. These isolated segments need to be connected in order to form a more complete pedestrian transportation system.

7. **Develop a safe and inviting trail and greenway system.**
   Help link disconnected portions of the municipality and provide greater pedestrian connectivity and recreational opportunities throughout the Town and its surroundings. In addition to an improved sidewalk system, the Pedestrian Plan outlines an interconnected system of trails that link primary destinations, neighborhoods, existing and planned municipal greenways systems, outlying areas of the Town including island annexations, adjacent municipalities, and the proposed regional Carolina Thread Trail. This proposed greenway network is designed to complement and extend both the existing greenways in Waxhaw and its planned system.

8. **Coordinate with neighboring municipalities and Union County on projects in the vicinity of Waxhaw's corporate limits.**
   Waxhaw can directly determine what happens within its borders, but not what happens just over the line. However, the Town has a history of local coordination, such as the LARTP, that it can build upon.

9. **Engage in community planning for infill of under-developed parcels.**
   As part of the land use planning process, serious discussions at the community level should guide the desired character infill development on large parcels, and how much street connectivity and pedestrian-friendly actions should be promoted in that development. These discussions should occur sooner rather than later, before these properties are developed, so that pedestrian facilities can be included in planning (as it is usually much more costly and difficult to successfully retrofit). As a part of these discussions, current zoning restrictions for these properties should be evaluated in terms of pedestrian-friendliness. A higher density and broader mix of uses (such as permitted in the Town's C-4 and TND zoning, for example), along with sidewalks and street trees, could support walking as a desirable means of transportation. Mixed-use zones would allow a variety of destination to closely exist in these areas – restaurants, stores and offices, for instance – providing citizens more opportunities to walk in their daily routine and work near their homes. Widely spaced and dispersed uses tend to discourage walking as a form of transportation between them.

10. **Highlight Historic and Cultural Landmarks.**
    Reinforce the unique identity of Waxhaw through its historic landmarks and cultural elements.

11. **Provide multi-modal transit opportunities**
    With a substantial percentage of Waxhaw's citizens daily or weekly making the trip to Charlotte for employment and other purposes, exploring a variety of opportunities for shared rides makes sense. Public transportation provides an important alternative to improve transportation efficiency. Public transportation reduces or eliminates the amount of time spent in traffic jams; provides a much needed service for elderly and disabled by giving them the freedom to leave their homes if necessary; promotes independence for those who need public transportation to get to work; and improves road conditions and the environment by reducing the number of cars on the highways (for every bus full of passengers 40 cars are removed from traffic). Cities and towns with good public-transit options offer more convenience for residents. And studies indicate that towns with good transit options recover faster from recession. Lack of access to public transportation can be a major barrier keeping out-of-work people, especially those in lower-income groups, from finding jobs.

12. **Update the Waxhaw Unified Development Ordinance.**
    Specific revisions to the UDO could help achieve the expressed pedestrian vision of the Town and positively impact the community's pedestrian quality. New sidewalks, trails and associated pedestrian facilities will become available to the Town through the development process, with minimal public expense.

Recommended Ordinance Modifications

Mix of Land Uses

1. Consider what additional areas within Waxhaw would benefit from a mix of residential and other land uses (Refer to the 2030 Comprehensive Plan and current development proposals). Note the current dominant zoning of these locations and consider how broadening allowable uses to include some forms of residential could allow greater pedestrian conditions within these areas.

2. Review the intent of primary zoning districts similar to C-4 that allow a limited mix of uses, such as the Neighborhood Business District (C-1) and consider amending those zones to allow compatible residential uses.

Street Connectivity

3. Provide an objective standard or goal for internal and peripheral connectivity. This could be accomplished by:
   a) Limiting the percentage of streets within a subdivision that can be cul-de-sacs;
   b) Institute a connectivity ratio for all subdivisions which uses an established mathematical standard for street connections both within the subdivision and connections to other streets and properties at the subdivision periphery.

4. Increase the minimum number of required points of ingress/egress to three when the exterior frontage of the subdivision on a particular public road is more than 750 feet (see Block Length); or when the subdivision contains more than 100 lots.

5. State that additional points of ingress/egress may be required when the Planning Board determines that physical characteristics (such as the location of opposing driveways) would render the additional entrance practical for vehicles and pedestrian use.

Cul-de-sac Length

6. Reduce the maximum allowable length of cul-de-sacs to 400 feet. This value decreases the maximum number of lots permitted on any single cul-de-sac and equates to the degree of connectivity permitted by block lengths of 800 feet, where the distance to an intersection is no greater than 400 feet.

Block Length

7. Apply the TND block length ordinance to all zoning districts, but allow an increase in the maximum to 600 feet.

8. Include objective guidelines in the UDO for determining "unusual topography". Recommended standards: slopes exceeding 15% for a sustained length (fifty feet), or stream valley widths in excess of 20 feet.

Crosswalks

9. Amend UDO to require that all uses that might typically generate a significant amount of pedestrian traffic (e.g., schools, parks) be subject to a conditional use. A condition that could be placed on such uses is the installation of crosswalks on major streets that abut such facilities.

10. Amend UDO to require midblock crosswalks along collector streets within subdivisions for block lengths of greater than 500 feet.

11. Reference the Town's Comprehensive Pedestrian Plan and other future related planning documents for location of proposed crosswalks.

Sidewalks

12. Utilize the Town's Comprehensive Pedestrian Plan as an additional reference for the location of required sidewalks.

13. In order to provide safe pedestrian connections to schools, amend the UDO to include a condition on schools for the installation of an internal sidewalk system connecting to sidewalks along major streets that abut or join school facilities.

14. Amend UDO 9.22 C.1 with a revised statement that resolves the questions and ambiguities.

15. Amend UDO 9.22 C.1 with a revised statement that resolves the questions and ambiguities.

16. Reference the Town's Comprehensive Pedestrian Plan for location of required sidewalks.

Greenways, Trails and Open Space

17. Include objective guidelines by which the Zoning Administrator can base a determination of conditions being "impractical" for sidewalk or multi-use trail connections. These guidelines should include maximum degree of slope, maximum distance, or presence of wetlands.

18. Reference the Town's Comprehensive Pedestrian Plan and other future related planning documents for location of proposed greenways and multi-use trails.

Street Trees

19. Incorporate a municipal tree ordinance into the UDO to provide standards for public and private tree installation and maintenance.

Building Setbacks and Parking

20. Revise the UDO to clearly define parking minimums (e.g. Parking minimums for all uses are equal to 20% of the parking maximum required per UDO **Table 12.3.4 d. 2. c**.).

21. Remove parking minimums from commercial zoning districts but maintain parking maximums. Many zoning ordinances either waive or significantly limit the amount of off-street parking required in a settings that are intended to be pedestrian-friendly.

Driveway Curb Cuts / Access Management

22. Include within the UDO, standards for minimum distances between curb cuts based upon the permitted travel speed of the road.

Recommended Programs

The Heart Walk

An annual American Heart Association ***Start! Heart Walk*** for Heart Disease can feature many events, including 10K and 8K runs, a 5K walk, a Tot Trot, a 1 mile "Fun Run" or even a half or full marathon. These popular events are sponsored by various businesses and can be organized by an independent contractor.

Walk a Kid to School event

On special days each year, non-profit organizations, teaming up with area restaurants, could provide school children breakfast before leading them on a community group walk to school. Programs like these help children, parents and all participating adults see for themselves the benefits and viability of children walking to and from school.

Walking School Bus

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

Crossing Guards

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

Pedestrian Safety Roadshow

In an effort to reduce pedestrian injuries and fatalities in North Carolina, the Division of Bicycle and Pedestrian Transportation (DBPT) hosts this special program to train facilitators who could help communities identify and solve problems that affect pedestrian safety and walkability.

Pedestrian Safety Roadshows:

- Increase awareness of pedestrian safety and walkability concerns
- Provide information about the elements that make a community safe and walkable
- Channel community concerns into a plan of action for addressing pedestrian issues.

Adopt a Sidewalk/Trail Program

As in the Adopt-a-Road program, interested individuals or organizations can care for their "own" section of trail. They may adopt a favorite site or a Beautification Committee can suggest a trail or sidewalk section most in needing. Volunteers pick up litter four times annually, or more if necessary. They also serve as an extra set of eyes to watch for downed trees and branches or report other maintenance issues.

Waxhaw Walks

Social media is becoming more influential with a growing audience every year. The *Waxhaw Walks* Facebook page was developed and used during the pedestrian planning process to announce public input meetings, seek public input on the plan, share findings, and foster a community that enjoys the benefits of walking. *Waxhaw Walks* can continue to be a great place to carry on that effort. It provides the community a way to announce and promote public outdoor events, community planning meetings and workshops, and community activities and programs that get people connected and walking.

The Waxhaw Walkers (NEW PROGRAM)

The proposed trail network will provide opportunities for the community to meet, socialize, and exercise. As part of initial promotions for particular trails, the "Waxhaw Walkers" would provide an organized opportunity to gather for a trek along the trails. As part of the weekly event, refreshments could be provided by sponsoring area restaurants and served by volunteers. Printed T-shirts or ball caps could also be made available to initial participants, along with area retail coupons. The Waxhaw Walkers could also hold events like Special Olympics and charity relay races, walkathons and marathons. Proceeds could be directed toward park or trail improvements. Such events would also draw attention to the health benefits of walking.

Education and Enforcement Programs

It is important to educate not only pedestrians and motorists, but also local law enforcement about pedestrian laws. Under North Carolina law, pedestrians have the right of way at all intersections and driveways. However, pedestrians must act responsibly, using pedestrian signals where they are available. When crossing the road at any other point than a marked or unmarked crosswalk or when walking along or upon a highway, a pedestrian has a statutory duty to yield the right of way to all vehicles on the roadway. It is the duty of pedestrians to look before starting across a highway, and in the exercise of reasonable care for their own safety, to keep a timely lookout for approaching motor vehicle traffic. On roadways where there is no sidewalk, pedestrians should always walk facing traffic.

Lowest-Cost Project List

A listing of all sidewalk and trail projects costing less than $100,000, complete with a description of location, estimated project costs, and project score.

SIDEWALKS

INCLUDES 4 OF THE TOP 11 RANKED SIDEWALK PROJECTS BASED UPON TOTAL SCORE OF PLAN GOALS, COST, LEVEL OF DIFFICULTY, STEERING COMMITTEE VOTES AND PUBLIC VOTES

Proj. #	Location	Side	From	To	Description	Estimated Cost (ROW not included)	PROJECT SCORE TOTAL POINTS
S7	Brevard St.	S	East South Main St. (NC 75)	*Fitness Trail*		$81,000	10
S17	S. Broad St.	W	S. Main St.	Givens St.	Link to proposed trail.	$66,150	4
S20	N. High St.	W	Price St.	N. Main St.	Determine optimal side of street in field.	$62,100	4
S23	McCain St.	N	E. South Main St. (NC 75)	S. Providence St.		$87,750	10
S24	McKibbin St.	N	E. South Main St. (NC 75)	S. Providence St.	Includes E side of S. Providence along DS Mem'l Garden	$94,500	6
S26	Caldwell St.	N&S	*David Barnes Park*	S. Providence St.	Connect existing sidewalks/trails.	$94,500	6

TRAILS

INCLUDES 1 OF THE TOP 5 RANKED TRAIL PROJECTS BASED UPON TOTAL SCORE OF PLAN GOALS, COST, LEVEL OF DIFFICULTY, STEERING COMMITTEE VOTES AND PUBLIC VOTES

Proj. #	Location		Trailheads	Description/Features	Estimated Cost (ROW not included)	PROJECT SCORE TOTAL POINTS
T1	South Providence Greenway I	FIELD DETERMINE EXACT ALIGNMENT	*David Barnes Park* , Givens St., Lynn St., Brevard St., *Fitness Trail*	Sanitary Sewer, connect to existing Trail (TR)	$82,000	15
T5	Price Chapel Path		*Existing g-way* , Crewe Hall Ln., *Price Chapel Cemetery* , Pine Oak		$24,500	5
T9	Thorncrest Park Path		Eutaw Dr. (Wisackola Park), *Thorncrest Park (Harrison Park)*	Connect Eutaw to Thorncrest through park	$2,500	3
T10	Anklin Path		Arnsberger Dr. (*Anklin Forest*), Kensington Dr.	TR/RD intersection to planned path	$7,250	5

Highest-Priority Project List

A listing of the top ranked sidewalk and trail projects, complete with a description of location and estimated project costs.

SIDEWALKS

Thread Trail

TOP 11 RANK PROJECTS BY TOTAL SCORE OF PLAN GOALS, COST, LEVEL OF DIFFICULTY, STEERING COMMITTEE VOTES AND PUBLIC VOTES

Proj. #	Location	Side	From (North and West)	To (South and East)	Description	Estimated Cost (ROW not incl.)
S2	Waxhaw Parkway	N&S	*Oaks on Prov., Harrison Pk.*	*Old Hickory S.Ctr., Hook Tire*	Connect existing sidewalks.	$259,875
S3	East South Main St. (NC 75)	N&S	McKibben	*McNeely Branch (Union Co.)*	N side ends at *American Legion* , S side begins at Old Providence	$942,300
S5	Bivens St., Jackson Ave.	N,W	N. Broad St.	N. Church St.	Included in CD-2009-001 development plans, with Broad St. segment.	$282,150
S7	Brevard St.	S	East South Main St. (NC 75)	*Fitness Trail*		$81,000
S8	Providence Rd. (NC 16)	W	*Cureton*	Providence Farms	Include seperated bike/ped facilities with bridge replacement.	$843,750
S12	Waxhaw-Marvin Rd.	E	Kensington Dr.	*Prescot*	Link to existing trail.	$239,625
S23	McCain St.	N	E. South Main St. (NC 75)	S. Providence St.		$87,750
S24	McKibbin St.	N	E. South Main St. (NC 75)	S. Providence St.	Includes E side of S. Providence along DS Mem'l Garden	$94,500
S26	Caldwell St.	N&S	*David Barnes Park*	S. Providence St.	Connect existing sidewalks/trails.	$94,500
S27	Waxhaw-Marvin Rd.	E	Prescot Glen (*Prescot*)	Eutaw Dr.	Includes Union County.	$769,500
S31	Kensington Dr.	N	Sunset Hill (Cureton)	Waxhaw-Marvin Road		$729,405

TRAILS

Thread Trail

TOP 5 RANK PROJECTS BY TOTAL SCORE OF PLAN GOALS, COST, LEVEL OF DIFFICULTY, STEERING COMMITTEE VOTES AND PUBLIC VOTES

Proj. #	Location		Trailheads	Description/Features	Estimated Cost (ROW not incl.)
T1	South Providence Greenway I	EXACT ALIGNMENT TO BE DETERMINED IN FIELD	*David Barnes Park* , Givens St., Lynn St., Brevard St., *Fitness Trail*	Sanitary Sewer, connect to existing Trail (TR)	$82,000
T2	South Providence Greenway II		Wall St., Jerry Ln., Arbor Dr., *Fitness Trail*	Sanitary Sewer, connect to existing SW & TR	$306,450
T4	Providence Greenway		N. Broome St., Howie Mine Rd., Price St., Leafmore Ct., Armfield St.	Unused Town-owned street rights-of-way	$749,250
T8	Wysacky Greenway III		Pine Oak Rd.(2x), Maplewood Rd., Cassidy, Kingston Dr.	Sanitary Sewer along Twelve Mile Creek	$531,900
T14	Blythe Creek Greenway		Proposed TR (T12), Ski Trail, Trace Ck., Mtn. Folk, Wax-IT Rd., Deer Ck., *White Oak Manor* , NC 75, T15, T11,T-15, Old Wax-Monroe Rd.		$4,360,950
	Includes shared equestrian route				

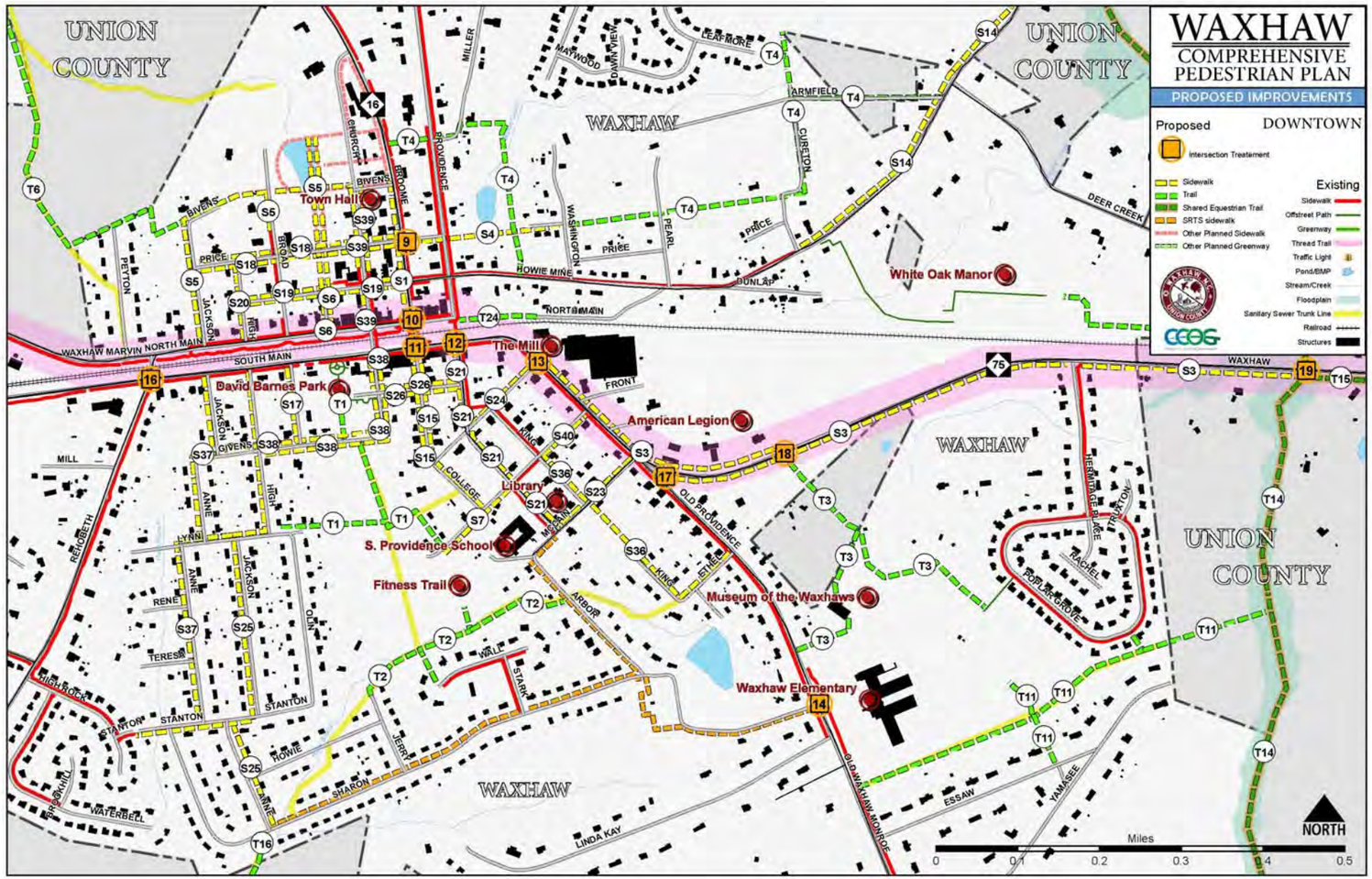
High-Priority Crosswalk Projects

A listing of crosswalk projects that most directly address the plan goals:

- Create a safer environment
- Foster downtown activity
- Improve conditions along NC 16
- Close gaps in the current system
- Serve historic destinations

CROSSWALKS		Side	Description	PROJECT COSTS
C9	Price @ Broome (NC 16)	W,S,E	Ped-activated audible signal with striping and signage	$63,000
C10	N. Main @ Broome (NC 16)	N&E	Ped-activated warnings at Broome & N. Main. See, Part 4.4.1.	$32,000
C11	S. Main @ Broome (NC 16)	W	Additional crosswalk signalization on S. Main. See Part 4.4.1.	$21,000
C12	Providence @ S. Main (NC 75)	W	Bulb-out SW corner, apply vivid crosswalk striping.	$31,000
C13	McKibben @ S. Main (NC 75)	N	Flashing warning light with striping and signage	$11,500
C16	Rehobeth @ S. Main	S&E	Flashing warning light with striping and signage	$13,000

Proposed Improvements for Downtown



PART 1: PLAN OVERVIEW

1.1 Realizing the Vision

NEED

The Town of Waxhaw is an historic community, possessing a clearly discernable downtown business area, with schools, civic buildings, public parks and historic landmarks in close proximity. Waxhaw has a unique charm highly valued by its citizens. As the Town continues to grow, however, it is being faced with challenges to its pedestrian character:

- **Gaps in the current sidewalk system** deter many from walking longer distances to reach desired destinations, particularly along busier roads.
- **Heavy vehicular traffic**, particularly trucks passing through Town on deliveries as well as speeding cars, make crossing high volume streets hazardous.
- **Current crosswalk facilities are insufficient** for current pedestrian needs.
- **Trail linkages** are lacking between neighborhoods, schools, businesses, parks, and historic destinations.
- **Waxhaw is looking for opportunities to increase the vitality of its downtown**, including more places for its citizens to work, shop and dine in their own community rather than nearby Charlotte.
- **The town is not compact.** Its island annexations and "donut holes" of county land has fostered a sprawling development pattern with significant gaps in facilities like sidewalks and trails.
- **The town is divided** by the CSX Railroad corridor. The tracks and right-of-way create a barrier for pedestrians in some parts of the community.

Each of these conditions calls for specific actions that will produce tangible results. Such actions are most effective when they flow from a broad, cohesive strategy that the community supports and can realistically implement. This comprehensive plan for pedestrian transportation improvements provides a systematic approach to the town for taking on these challenges and others that threaten its pedestrian environment, and to do so with community consensus and a coordinated effort.

North Main Street, Waxhaw

VISION

The Steering Committee began with a vision for the Pedestrian Plan which they conceived. That vision was in keeping with their vision for the Town and guided decisions throughout the formation of the Pedestrian Plan:

> *The Waxhaw Pedestrian Plan is intended to help preserve and foster the traits that make Waxhaw a great place to live, work and walk, so that citizens and visitors will enjoy the town's unique character and history, small town charm, safe and neighborly environment, and active downtown.*

GOALS

In order to attain this vision for the community, the Committee determined specific goals that were vetted with the community:

- Connect the town for pedestrians, from end to end, closing gaps in the existing pedestrian system.
- Foster activity in the downtown area.
- Make more accessible the Waxhaw's historic places and other significant destinations.
- Improve walking conditions along the primary corridor of NC 16.
- Encourage a greater awareness and experience of the unique qualities of the community.
- Create a safer environment.
- Promote healthy lifestyles.

PURPOSE

There are five key ways the comprehensive pedestrian plan should be utilized in order to achieve the stated pedestrian vision for the town:

- **POLICY REVISION**
  A clear blueprint for revising local ordinances and supporting policies that guide development in order to better support Waxhaw's vision and goals
- **IMPLEMENTATION TOOL**
  A comprehensive and prioritized guide for building or improving local pedestrian routes and amenities
- **FINANCIAL ASSISTANCE**
  A firm basis for seeking financial assistance in the form of grants and other support from various outside sources in order to implement the plan
- **PROMOTION**
  A compelling tool for promoting Waxhaw's pedestrian vision
- **EDUCATION**
  An effective source for conveying the values and methods of creating and maintaining a pedestrian-friendly community with decision makers and the general public

SCOPE

The Pedestrian Plan examines a broad range of pedestrian-related issues and recommends actions that address them in a comprehensive manner, including:

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

METHOD

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

Task 1: Gather relevant documents relating to pedestrian concerns in the town.

Task 2: Determine the project scope, schedule, points of contact with municipal staff; identify stakeholder groups, potential Steering Committee members, target meeting dates and planning budget.

Task 3: Conduct ground reconnaissance and gather additional input on pedestrian conditions from the community.

Task 4: Create composite maps of existing conditions to include current facilities and traffic conditions.

Task 5: The Board of Commissioners appoints the project Steering Committee to review the project maps and other information, provide additional stakeholder input, and guide the development of the Plan.

Task 6: Conduct Stakeholder Interviews on pedestrian needs and preferences.

Task 7: Conduct an interactive public meeting to review initial Steering Committee input and interview results with the general public, obtain feedback, and gather additional input on pedestrian and mobility issues and concerns.

Task 8: Review the public meeting results with the Steering Committee in order to gather direction for preparation of a Draft Pedestrian Plan.

Task 9: Prepare the Draft Pedestrian Plan based upon input from the Steering Committee and citizen comments.

Task 10: Facilitate a follow-up public meeting to review the Draft Pedestrian Plan and address how the input received through previous public processes has been incorporated. Conduct online survey for additional public input and prioritization of projects.

Task 11: Submit the Draft Plan to the Steering Committee and NCDOT for preliminary review and comment.

Task 12: Revise the Draft Plan based on input received and meet with the Steering Committee to finalize approval of the Plan.

Task 13: Submit the revised Draft Plan to the Planning Board and Board of Commissioners for review. Additionally, submit the plan to the Mecklenburg-Union MPO for endorsement.

Task 14: Upon adoption, furnish the Town of Waxhaw and NCDOT with all plan documents.

PROCESS

In 2010, Waxhaw was awarded a $20,000 matching Pedestrian Planning Grant by the North Carolina Department of Transportation (NCDOT) Division of Bicycle and Pedestrian Transportation (DPBT) for the creation of a comprehensive pedestrian plan. The Town of Waxhaw selected Centralina Council of Governments to develop the plan. Together with the Waxhaw planning staff, Centralina guided the town through a thorough, public-input driven planning process, involving a steering committee to oversee the elements of the plan. The steering committee members represented a variety of local interests including:

- Schools
- Medical Services
- Police Department
- Local Property Owners
- Local History
- Public Services/Utilities
- Avid Walkers
- Local Retail

Pedestrian Plan Steering Committee Meeting

1.2 Benefits of Pedestrian Lifestyle

Throughout the country and only a few decades ago, streets and sidewalks served as the center of neighborhood life, where people of all ages walked, biked, shopped, ate, played, and met their neighbors. But today, streets with this kind of activity are the exception rather than the rule. New developments are full of barriers that discourage walking and often make a pedestrian feel like an outcast in a world designed primarily for cars. Overcoming these barriers requires more than simply constructing more sidewalks or trails. Land use and transportation planning, ordinance revision, and economic and community programs all play important roles toward creating an environment that makes walking practical, safe and convenient, and brings vitality back to the streets.

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

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

1. **Local Economy**
   Retail and commercial developers have learned that walkable context sells. Pedestrian-oriented streets encourage shoppers to linger and enjoy the setting. Furthermore, works such as Richard Florida's *Rise of the Creative Class* indicate that the population segments most likely to contribute to thriving economic conditions are attracted by amenities such as walkability, street trees, linkages to outdoor activities, etc. In short, pedestrian-oriented communities are more likely to attract new residents and stimulate the local economy.

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

3. **Public Health**
   A key concern in all aspects of community planning and design is the health, safety and welfare of citizens. There is growing recognition of how the built environment influences health-related behavior. Decisions about zoning, transportation, land use and community design influence the distances people travel by foot and by car, and the general safety and attractiveness of neighborhoods for walking. Fitness experts agree that regular daily activity is the key to good health. Walking is the most affordable and convenient way for most people to stay active. Whenever walking becomes a reasonable alternative to driving, many people will choose to walk rather than drive. As walking becomes an even more significant part of daily life for citizens of Waxhaw, it will yield healthier lifestyles and ultimately impact community health care costs in a positive manner.

4. **Elderly and Youth Friendly**
   When communities are pedestrian-friendly, the elderly retain greater independence and freedom, and young people are free to rely less on parents to drive them to school and other activities. As young people become accustomed to walking and biking, they are also less likely to depend on automobiles for short trips as they grow older. With a more complete system of sidewalks, trails, and other pedestrian amenities helping to connect a mix of significant destinations within close proximity of each other, walking becomes a safer and more reasonable option, particularly to those who need it most.

5. **Friendly to Disabled Populations**
   Another group for whom pedestrian friendliness means independence are those with disabilities. For those who cannot drive independently, mobility is severely limited in communities that are designed around the car. Walkable communities maximize the independence and mobility for disabled persons, in ways that auto-dependent communities cannot.

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

7. **Reduced Crime and Better Emergency Access**
   Streets that draw more pedestrians and encourage social interaction tend to have lower crime rates and other social problems than those that are isolated and unpopulated. Furthermore, streets that are connected and useful for pedestrians make communities much more accessible to emergency vehicles such as EMS and fire, as they have more than one way to reach an emergency location. Encouraging increased connectivity in future developments in Waxhaw will help the current system of streets function best for both pedestrians and vehicles.

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

9. **Transportation**
   Pedestrian-friendly communities make full use of the most affordable and efficient transportation system available: walking. As various concentrated centers of development occur throughout Waxhaw, these locations will provide further transit options in the future. Such transportation hubs will allow Waxhaw citizens, commuters and non-commuters alike, to access work, shopping and recreational opportunities without need of a car.

A surprising number of people, when asked to recall or identify venues that make them feel comfortable or in which they would like to live, work, and play, will identify tree-lined streets with sidewalks, and pedestrians of all ages using them. While "pedestrian friendliness" may not be the cure-all for all the economic, social, or political ills experienced by modern society, it is also true that the creation of more livable public spaces and the de-isolation of citizens by allowing them greater freedom from car dependence is an important part of the remedy.

ATHENS, GEORGIA

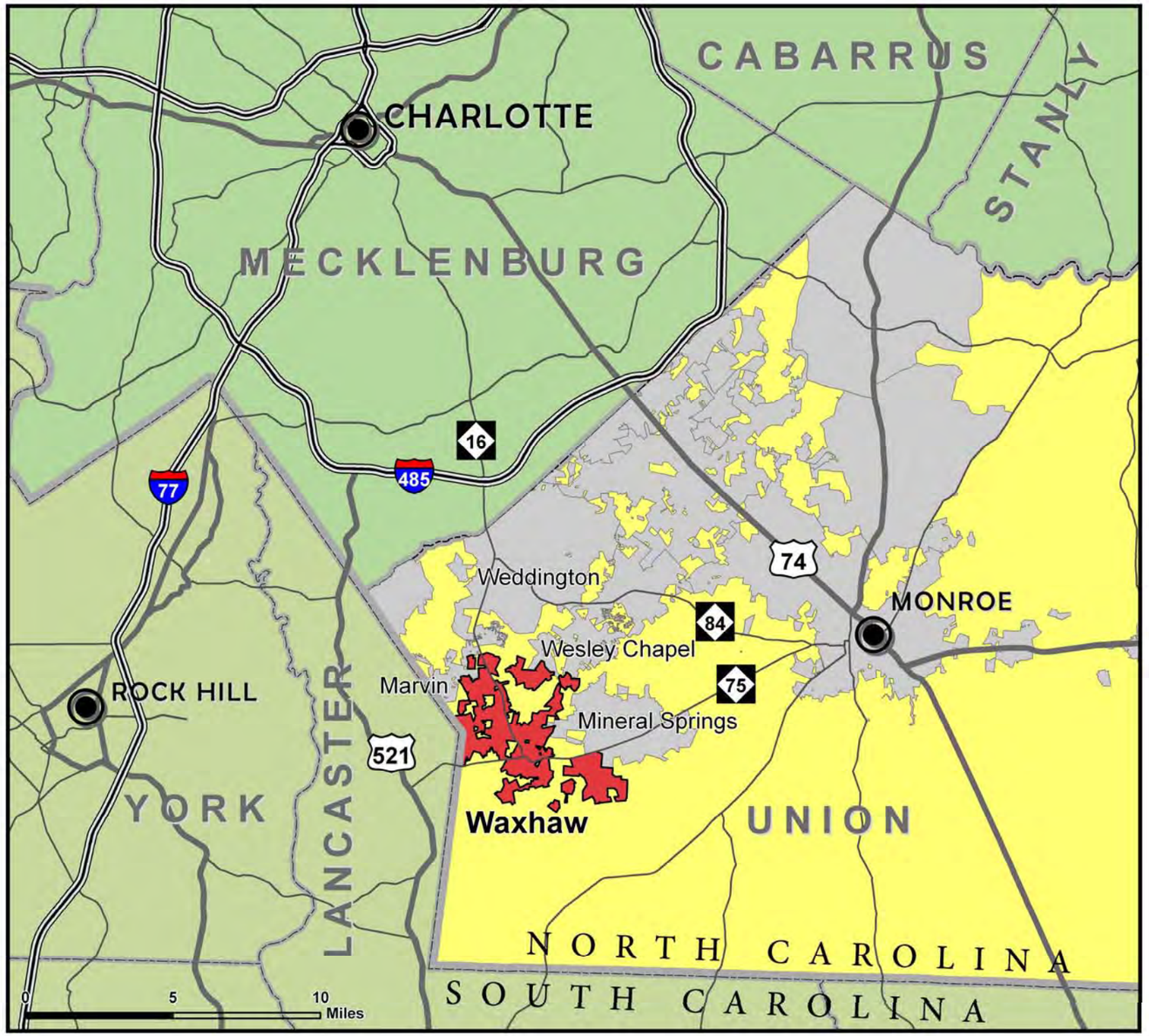
PART 2: CURRENT CONDITIONS

2.1 Waxhaw at a Glance

LOCATION:
Waxhaw is a small rural town located in western Union County, North Carolina. Typical for a historic community, the town center is situated at a historic crossroads. Providence Road and Waxhaw Highway intersect locally as Broome Street and (North and South) Main Street. From Waxhaw, Providence Road (NC 16) continues northward into Mecklenburg County and Uptown Charlotte, nearly 23 miles away. Waxhaw Highway (NC 75) heads east out of Waxhaw to reach the City of Monroe in just over 13 miles. The South Carolina border is just 2.5 miles west of Waxhaw along NC 75. Waxhaw's immediate municipal neighbors include Marvin to the northwest, Wesley Chapel to the northeast and Mineral Springs to the east. These municipalities each share common borders with Waxhaw. Interspersed amidst and within these four interlacing towns are various fingers and island pockets of Union County land. To the south of Waxhaw lies land held by JAARS, a non-profit organization that provides technical support services for worldwide Christian mission organizations.

The total incorporated area of Waxhaw – with island annexations but not including pockets of Union County land - currently comprises about twelve square miles.

South Main Street, Waxhaw



Waxhaw Regional Context

TOPOGRAPHY

The landscape of Waxhaw is primarily gently rolling. Elevations range from 720' to 520' above sea level. The crossroads of Waxhaw, in typical fashion, follow ridgelines. Old Providence Road follows a topographic ridge that extends from higher land southward, and continues northward along Waxhaw Marvin Road. Highway 16 follows a lesser ridge before intersecting as Broome Street at North Main Street. Lowlands characterize the town's northern portions.

HYDROLOGY

The primary hydrologic feature in and around Waxhaw is Twelve Mile Creek and its tributaries. Flowing westward just south of Kensington Drive and Cuthbertson Road, the creek divides the town's northern and southern portions with a floodplain measuring between .1 and .4 miles across. Branches of the Creek and floodway extend into areas throughout town and into the surrounding area. These floodways are designated by the U.S. Federal Emergency Management Agency (FEMA) and are included in the town's Flood Hazard Overlay District which restricts the development of these areas.

A map featuring the town's topographic and hydrologic features can be found in **Part 7: System Maps**.

TWELVE MILE CREEK AT NC 16

HISTORIC ORIGINS

The Waxhaw settlement dates back to the mid-1700s when Scots-Irish families arrived to clear the rich land between two creeks they named Waxhaw and Cane. The area had previously been occupied by the Waxhaw tribe, originally called "Wisacky". The settlement was established on busy Trader's Path which ran from Petersburg, Virginia to Augusta, Georgia. The Town of Waxhaw was chartered in 1889, making it the 3rd oldest town in Union County.

http://www.museumofthewaxhaws.com/

PHOTO FROM
A WALKING TOUR OF
HISTORIC WAXHAW

POPULATION

Located in what was until recently one of the fastest growing areas of the country, Waxhaw has seen amazing spurts of population growth in recent decades. In the 1990s, the town's population nearly doubled to 2630 as reported by the 2000 U.S. Census. But the 2010 Census reveals that Waxhaw's population grew from 2000 to 2010 at an even greater rate (275.6%), compared to 18.5% state-wide, increasing local population to 9,859. About 1/3 of that number is under 18 years of age. The 2010 Census also reports 82.1% of the town's population as white, and 11.2% as black. 6.4% of the town's population is Hispanic. The 2010 median household income was $69,873, compared to the state median of $45,570.

HOUSING

The 2010 Census reports 3,517 housing units in Waxhaw; 92.2% of those homes were occupied. Residential development in Waxhaw and the surrounding area has seen a marginal slowdown in recent times, evidenced by a number of partially developed subdivisions where construction has tapered.

EMPLOYMENT CENTERS

There are no major industries or large employment centers in Waxhaw. The largest industries in town are in the form of retail and food service. A modest downtown retail center lines North and South Main Street. Beginning at North and South Providence Street, this commercial area runs about three blocks, after which buildings of retail or other uses become more sporadic. Other businesses are concentrated along both sides of NC 16, particularly near Cureton Town Center at Cuthbertson Road, and Old Hickory Shopping Center at Waxhaw Parkway.

VEHICULAR TRAFFIC

With the rapid rise in population during the past decade – both locally and regionally - traffic conditions have also rapidly changed. As a recent area transportation plan notes: "The conversion of the area from primarily a rural region to one that is more suburban in nature has led to increased daily traffic levels." (Western Union County Local Area Regional Transportation Plan (LARTP), 2009) The LARTP documents that Waxhaw's primary roads - NC 16 and NC 75 – are two of the most heavily utilized roads in its study region of western Union County, primarily because of the area's proximity to Charlotte. While a modicum of travel occurs between Waxhaw and its neighboring communities, the majority of traffic related to employment, recreation, and shopping is generated to and from Charlotte.

Most of Waxhaw's employed do not work in the immediate area. The American Community Survey estimates for 2010 indicate that over half of Waxhaw resident commuters (over 16 years old) spend more than 30 minutes commuting to work. The average commute time statewide is 23.4 minutes. 86% of residents drive to work alone, while approximately 7% carpool. Of the remaining workers, approximately 6% work at home, but an estimated 19 citizens of Waxhaw (1%) walk to work. The Survey reports that 28 households in Waxhaw are without a vehicle entirely (given a 1.4% margin of error), and that about one in five households make do with a single vehicle.

A Charlotte Area Transit System (CATS) van pool currently serves the Waxhaw area.

Residents and community leaders describe traffic congestion as a significant problem for the town. Areas experiencing the greatest congestion include the NC 16 corridor, and the downtown area. High volume commuter and heavy vehicle traffic (particularly logging trucks) pose a hazard to downtown pedestrian life. The logging traffic varies, depending upon which locations are being logged at any particular time, but it is substantial. Town staff estimates 20-30 trucks a day on average travel through downtown Waxhaw on NC 75, on their way to a nearby pulp mill in South Carolina.

Existing Daily traffic volumes are shown in **Part 7.3.10: Vehicular Traffic Conditions**.

URBAN FORM

Waxhaw's urban form tells a story typical of many historic American towns. Its downtown core was established in a tight, rectilinear grid of streets and blocks, complete with a railway paralleling the original main street. Much of the subsequent commercial growth in this rural area occurred along the main highway with residential growth in the form of limited access developments popping up primarily behind the commercial strip. Island annexations occur around outlier residential developments that are eventually absorbed within the contiguous area of the Town. Waxhaw's current municipal boundary is extremely non-compact, with many fingers of incorporated area, disconnected islands, and pockets of unincorporated land within its boundaries. This is somewhat typical of Waxhaw's neighboring towns in the municipal patchwork of western Union County.

As NC 16 enters Downtown Waxhaw, it is known as Broome Street. This two-lane street serves as the main spine of the Town. The CSX Railroad line runs perpendicular to Broome and between North and South Main Street. The downtown grid pattern extends north from North Main for only two blocks before dissipating. Below South Main, this grid breaks down almost immediately, but another grid pattern follows the extension of South Main along Old Providence Road (NC 75), continuing in a southwesterly direction for about 3 blocks. Separated by a wooded area, a partial elongated grid runs southward of West South Main Street for a distance of about nine blocks.

Aerial View of Downtown Waxhaw

The Town grid is oriented to its central CSX Railroad corridor that runs between North and South Main Street and bisects the Downtown. Within the current municipal limits, there are only four streets that cross the tracks. One is isolated at the South Carolina border. The other three are located in the Downtown. Waxhaw's signature Overhead Bridge - located one block east of Broome Street - provides an additional unhindered crossing opportunity for pedestrians.

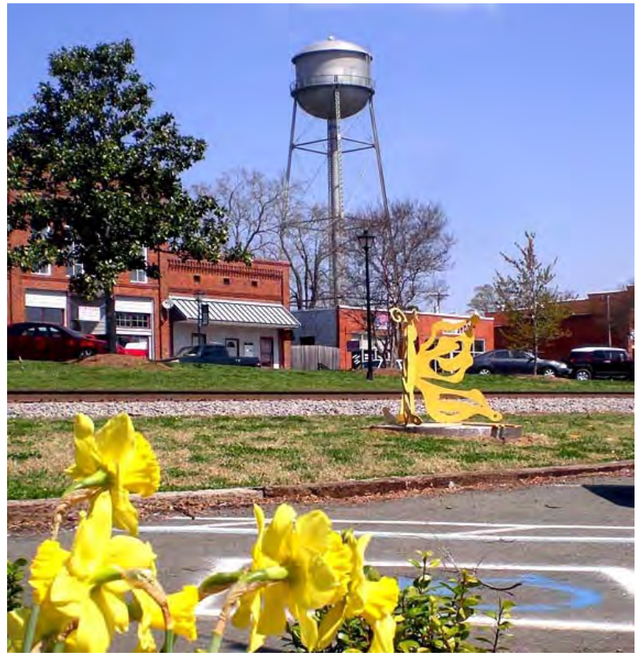
For the entire eight block length of Downtown, the railroad right-of-way creates a continuous green swath. Waxhaw has utilized this space by creating a path complete with historic landmarks and memorials, art displays, and a walking path that continues as a sidewalk along Waxhaw-Marvin Road. These features along the railway have helped to unite the north and south sides of the Downtown. Diagonal parking is also located along some of the length.

The number of trains that pass thru Waxhaw varies from 10 – 25 each day.

Overhead Bridge

Downtown path

The historic well and new path
Between north Main Street
and the CSX Tracks



Art on display by the CSX Tracks

CSX Railroad

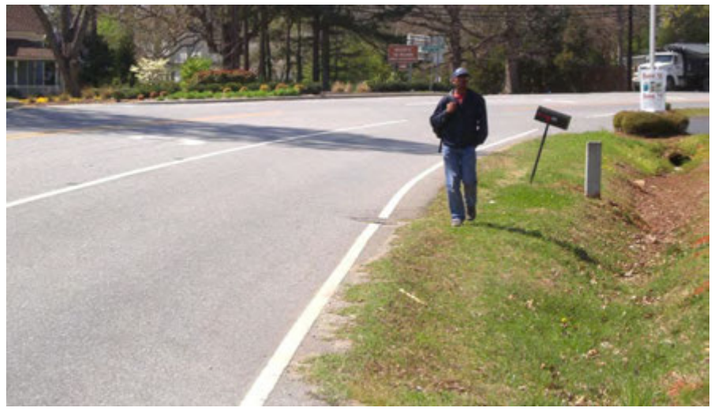
2.2 Existing Pedestrian Facilities

SIDEWALKS

Waxhaw's current sidewalk system is extensive, covering North and South Main Street, and reaching out from Downtown along primary roads. To the east of Downtown, Howie-Mine Road features sidewalk for almost ½ mile. To the southeast, along Old Providence Road, sidewalks extend nearly one mile. To the southwest, the Rehobeth Road sidewalk continues for 0.4 miles. To the northwest, Waxhaw-Marvin Road continues the sidewalk for .75 miles. Heading north on Broome Street and NC 16, existing sidewalk continues along the east side of the highway for 1.3 miles to Kingston Drive. North of Twelve Mile Creek, sidewalk exists in a few isolated, sporadic segments along either side of NC 16. Many of the individual neighborhoods within Waxhaw offer sidewalks, but these serve mainly their particular neighborhood and lack connection to primary destinations and other neighborhoods.

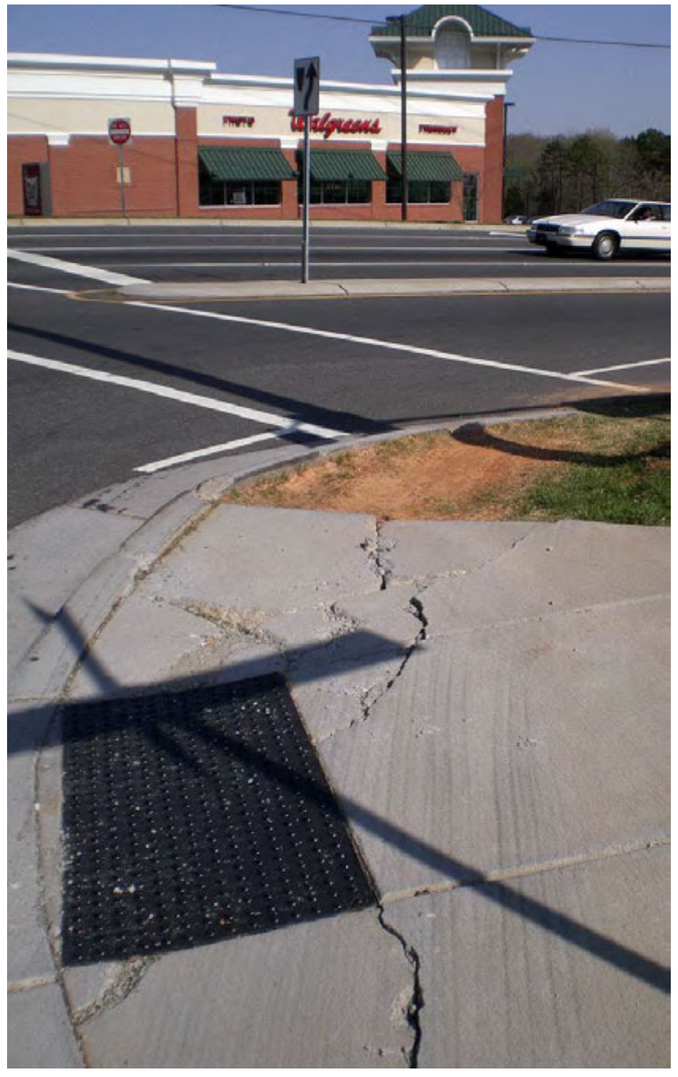
Sidewalks are generally in a good state of repair, but certain more established neighborhoods have sidewalks showing signs of wear. Some newer sections have also been damaged likely by heavy vehicle traffic.

Sidewalk Terminus on NC 16



Waxhaw Highway near Old Providence Road

Aging Sidewalk at South Providence School



Sidewalk ramp damaged by heavy vehicle traffic at Cureton Town Center

TRAFFIC LIGHTS

There are currently only four traffic lights serving Waxhaw. Three of these are located along NC 16, including the crossing of South Main Street and the intersections at Cuthbertson Road and Sunset Hill serving the Cureton area. The fourth is on Kensington Road at Waxhaw-Marvin Road.

Midblock Crosswalk on South Main at David Barnes Park

CROSSWALKS

Some of Waxhaw's heavier trafficked intersections, as well as a few midblock locations, feature striped crosswalks. The Town has provided striped crosswalks at a few of the heavy pedestrian trafficked locations. Locations include the following:

- North Main & Broome
- South Main & Broome (**signalized**)
- South Main at Providence and the Overhead Bridge
- South Main at David Barnes Park (midblock)
- Old Providence at Sharon serving Waxhaw Elementary
- NC 16 south of Waxhaw Parkway (midblock)
- Near Waxhaw Parkway at the CVS Pharmacy
- NC 16 & Kensington/Cuthbertson (**signalized**)
- Kensington within Cureton Town Center
- At clubhouse on Twinberry near Barrington Ridge

As indicated, only two of these crosswalk facilities are signalized with pedestrian activated crossing signals. Existing crosswalks generally feature some supporting pedestrian warning signage, but no additional warning lights to alert approaching drivers. Some of the crosswalk striping is in need of immediate maintenance.

TRAILS

Various segments of private greenways have been constructed as part some of the newer communities within Waxhaw, including Providence Grove, Prescot, Lawson, Cureton, Quellin, Millbridge and Hermitage Place communities. A more elabrate network is planned for the next phase of Prescot Village. Plans are also in place for an elaborate network of greenways connecting the neighborhoods of Cureton, Quellin, and Millbridge. These planned trail networks will help tie some of the existing isolated greenway segments to each other and to primary destinations, such as Cureton Town Center and H. C. Nesbit Park. However, other existing segments (e.g. Lawson) lie outside of these planned networks.

The Museum of the Waxhaws also features a trail network that weaves about its various historic structures.

Trail at Museum of the Waxhaws

Trails at Lawson Community

The physical conditions and layout of Waxhaw, including all existing pedestrian facilities described in this section, are shown on the **Existing Conditions Map** in Part 7.

2.3 Primary Destination Points

Downtown
Many of the most visited destination points within Waxhaw are clustered in the downtown area. Beginning at North and South Providence Street and lining the north side of North Main Street and the south side of South Main Street, a very modest retail center runs about three blocks, after which buildings of retail or other uses become more sporadic. Along these historic street fronts are clustered a number of civic and cultural destinations along with many popular retail businesses, offices, and restaurants.

A few of the primary destinations downtown include:

- Town Hall
- Waxhaw Woman's Club
- David G. Barnes Park
- SK8 Park
- Waxhaw Tack Exchange

A walking tour map of Waxhaw features historic destinations that help tell the story of Waxhaw. These locations are all clustered in the downtown area (see Walking Tour) and include among them:

- Waxhaw United Methodist Church (1)
- The Duncan McDonald House (2)
- The Old Post Office (4)
- Niven-Price Company (5)
- The McDonald Hotel (6)
- R. J. Belk Store - now Waxhaw Woman's Club (17)
- Rodman-Heath Cotton Mill (20)

Cureton Town Center
The intersection of the NC 16, Kensington Drive and Cuthbertson Road is a focal point for newer commercial development in Waxhaw. Cureton Town Center is the retail component of Cureton, a master planned mixed use project that has been partially built out. The first phase of the Town Center opened in 2007. It includes a Harris Teeter supermarket with adjacent specialty retail shops and restaurants, and out parcel businesses located at the intersection.

Howards Mill
Across from the Cureton Town Center, the Shoppes at Howard's Mill is anchored by a Lowe's Home Improvement center and includes a drug store, fast food, with other facilities including a medical office building. This development is laid out in a typical automobile-centric arrangement.

Old Hickory Shopping Center
Located on NC 16 at Waxhaw Parkway, this earlier retail center lies closer to Downtown. It includes a grocery store, restaurants and retail.

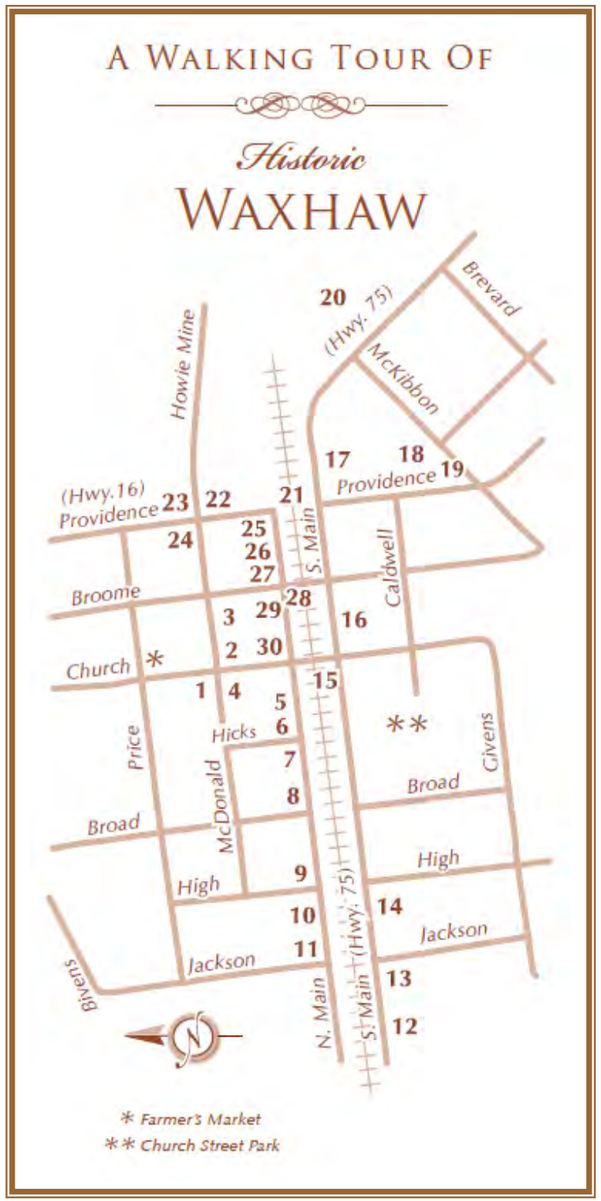
Museum of the Waxhaws
About one half mile southeast of downtown, the Museum is set in a wooded area that features a number of various historic structures. Here, visitors can learn about the history of the Waxhaw area, the Waxhaw Indians and Andrew Jackson's connection to the region.

Library/Providence School/Fitness Trail
Clustered together in the southeast part of Downtown, sits the Town's only library, an alternative school for middle and high school students, and a 0.2 mile exercise track open to the public.

H. C. Nesbit Park
The Town's newest public park is located adjacent to Kensington Elementary School and the new Millbridge neighborhood. The park includes active recreation fields and connections to a planned greenway system.

Area Schools
Perhaps the most critical pedestrian destinations in Waxhaw are its public schools, as the majority of their visitors are not licensed to drive. Waxhaw's newest school is Kensington Elementary, located on the west side of Town adjacent to the Twelve Mile Creek floodway and near the South Carolina border. Waxhaw Elementary School is located southeast of Downtown on Old Providence Road not far from South Providence School. Also serving Waxhaw, but just northeast of its town limits, is the Cuthbertson Middle and High School complex.

To view the location of the destination points listed above and others, see the **Existing Conditions Map** in Part 7.



2.4 Specific Pedestrian Barriers and Constraints

Some particular barriers pose a considerable challenge to pedestrians wanting to safely reach destinations on foot or to walk for recreation and exercise. In Waxhaw, these barriers consist primarily of major corridors that cross the town.

- **CSX Railway**
  Approximately 1.5 miles of Waxhaw is physically divided by the CSX Railway, including the downtown area. A number of cultural amenities and pedestrian facilities – including a greenway - have been located within the rail right-of-way downtown in an effort to lessen the effect of the gap. The most notable and effective of these is the historic Overhead Bridge. However, outside of the downtown area, there is only one additional outlying street crossing of the railway and no additional pedestrian crossings located in the town.

- **Twelve Mile Creek**
  From its east end to its west, with a number of tributaries in-between, the Town is divided by the surface waters and floodplain of Twelve Mile Creek. West of NC 16, the Creek flows south of Kensington Road to South Carolina. East of NC 16, the Creek divides into three branches. The northern branch crosses Cuthbertson Road and divides the Cureton area from the Lawson community and Cuthbertson Schools. Another branch of Twelve Mile flows from a more easterly direction, providing an edge between Wesley Chapel and a portion of northwest Waxhaw. The lesser, southern tributary at NC 16, named Blythe Creek, flows from the southeast of Town reaching almost into Mineral Springs. Much of the land adjacent to these waterways remains undeveloped and unincorporated, and there are very few bridges to provide crossing opportunities for pedestrians.

- **North Carolina Highway 16**
  Throughout development of the Pedestrian Plan, this busy highway dividing Waxhaw, east from west, was mentioned most often as the greatest challenge to Waxhaw's walkability. NC 16, also named Providence Road and North Broome Street in segments, provides Waxhaw's direct connection to Charlotte. Particularly at peak commuting times, the volume of cars utilizing this business-laden stretch of road is substantial. NCDOT reports average daily trips (AADT) along NC 16 within Waxhaw currently as much as 15,000 vehicle trips per day.

- **North Carolina Highway 75**
  Known as Waxhaw Highway, NC 75 passes east-west through Downtown as South Main Street. Among its reported 7800 vehicles per day (NCDOT, 2010), heavy trucks utilize this road to transport freshly cut lumber into South Carolina. At least three vehicular accidents involving pedestrian have been reported along NC 75 within Waxhaw since 1996. Two of those events resulted in evident injuries, with one as recently as 2006.

2.5 General Anti-pedestrian Conditions:

The problem corridors described previously focus on specific locations, but they are all part of a larger system that requires attention on a number of fronts. The general conditions listed below each exert a negative influence on the community and limit pedestrian activity. Each may contribute in some way to the reality or perception that walking is not as safe, practical or enjoyable as it should be. This may prohibit a necessary trip for those unable to drive. Or it may tip the scale for those who can drive but would have preferred to enjoy the benefits of walking.

- **Town contiguity**
  Though Waxhaw began from a compact historic center core, its pattern of growth has resulted in a very non-compact geometry. The incorporated area of the town can be described as full of fingers, islands and holes, interlacing with neighboring municipalities and County land.

- **Gaps in the Existing Pedestrian Network**
  While the town can boast significant mileage of constructed sidewalk, much of it tends to be confined in isolated networks within newer subdivisions. Sidewalk facilities often stop at subdivision entrances. Existing greenway segments also fail to connect neighborhoods. See Gaps in Pedestrian Linkage map, **Part 7.3.9.**

- **Safety**
  Hazardous conditions inhibiting walking in Waxhaw include insufficient street lighting in many areas, speeding vehicles, and busy intersections with low visibility. But many members of the public also complain that leash laws are not enforced and that unleashed dogs present a danger. NCDOT crash data from 1990 through 2010 reports 12 pedestrian-related accidents in Waxhaw. About ½ of those happened downtown. However, two fatal accidents occurred nearby on Waxhaw-Indian Trail Road. See **Part 7.3.10 Vehicular Traffic Conditions**.

- **Aesthetics**
  High on the list of improvements desired by Waxhaw citizens is town beautification. Aesthetics can have a great affect on an individual's willingness to walk about their community. Many desired beautification features, such as street trees, signature street lighting, and cleaned up private properties, can also affect general comfort, safety and practicality for pedestrians and improve community pride.

- **Destinations**
  The key to walkability is having places nearby to walk to. Despite the Town's existing opportunities for employment, shopping, dining and recreation, many citizens must get in the car and drive to reach things they desire. More downtown businesses and other destinations would mean a more walkable community.

2.6 Public Survey Results

An online pedestrian survey, posted during the planning process, received 222 responses. 90% of the responders were of ages between 25 and 65. Over 60% of the survey responders said they are active walkers on a daily or weekly basis. Almost 90% said they walk primarily for recreation rather than transportation. About 30% walk to accomplish errands or visit people. Roughly 20% of responders complained that safety conditions kept them from walking more. When asked about what would encourage more pedestrian activity in town, more than 50% of responders said trails or greenways, while about 30% said more sidewalks. Nearly 60% said they definitely would support public funding for pedestrian facilities such as sidewalks, safer crosswalks, or greenway paths. About 25% said they might support it. About 10% said they would not. The development of trails was considered the most important pedestrian-related goal at 39%, and filling gaps in the current sidewalk system second with 27%. See **Appendix A.1.9** for full survey results.

2.7 Unique Opportunities

Though faced with many challenges, Waxhaw possesses a number of features that make it an inviting place for pedestrians. Each of these deserves a spotlight so that their value can be understood, and their characteristics preserved and enhanced.

1. **A highly connected historic core**
   Like many historic cities in America, Waxhaw's urban core is a tight-knit network of streets. This time-honored arrangement provides a convenient and inviting setting for pedestrian life where businesses can flourish and residents can enjoy the convenience of a walkable community.

North Main Street

2. **Existing sidewalks and greenways**
   Much of Waxhaw's Downtown is lined with wide sidewalks and other pedestrian amenities. The beginnings of a greenway network are already in place between North and South Main Streets. Waxhaw's central corridors - NC 16 and NC 75 - feature lengthy segments of sidewalk. A number of more recently built neighborhoods include networks of sidewalks and localized trails. This collection of existing facilities provides a core for a pedestrian system that could branch out to serve more of the Town.

Typical Newer Neighborhood Street in Waxhaw

3. **Opportunities for new and re-development**
   Opportunities remain for infill development in vacant or underdeveloped land within the Town. Waxhaw could potentially benefit from new development that blends into the traditional walkable arrangement of the downtown.

Underdeveloped Land In & Around Downtown Waxhaw

4. **Greenway opportunities along creeks and utility corridors**
   Some attractive wooded creek beds run through and about Waxhaw, weaving a natural linkage within and about Town. Utility rights-of-way follow many of these creek corridors and cut additional grassy swaths. These corridors could provide opportunities for a system of greenways and allow an alternative transportation route to some key areas of the Town and its surroundings, and help knit together the Town's detached incorporated areas.

5. **Historic Setting**
   The Walking Tour of Historic Waxhaw features 30 destinations downtown that tell a story of the Town and region dating back 130 years. The Museum of the Waxhaws documents more of the tale. In an area dominated by so much recent development, the historic richness of Waxhaw offers a unique draw.

Waxhaw Woman's Club

Building upon these strengths and assets of the Town, **Part 3: Recommendations** of the Pedestrian Plan will outline specific strategies to meet the community's pedestrian goals.

Twelve Mile Creek at NC 16

PART 3: EXISTING POLICIES, PLANS & PROGRAMS

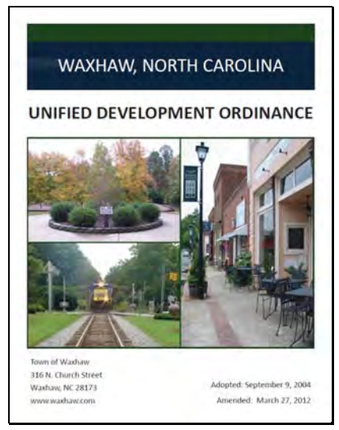
3.1 CURRENT ORDINANCE

While existing physical conditions have the greatest impact upon the Town's current pedestrian conditions, Waxhaw's land development policy – which guides how the Town grows and develops – will ultimately have the greatest impact as it influences future pedestrian conditions. Waxhaw's land development ordinance is briefly examined here in terms of how it supports or possibly inhibits the pedestrian-friendly goals recorded at the outset of this Plan.

Waxhaw's land development in recent years has been guided by Town policies that were intentionally crafted to foster a pedestrian-friendly environment. These documents are both inspired by the Town's historic core layout, as well as urban planning principles of walkability that have gained greater acceptance in recent years. A quick examination of various neighborhoods throughout the Town built over time reveals how more recent Town policy has in part yielded an increasingly pedestrian-friendly environment.

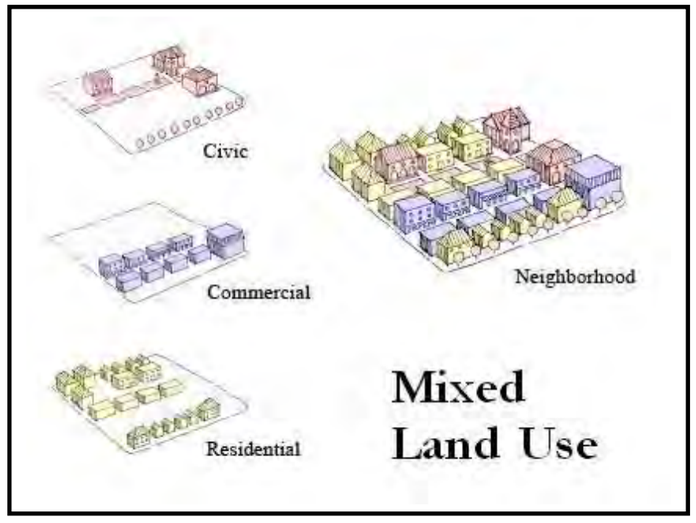
Issues commonly governed by local ordinance that tend to have the most direct bearing on walkability include:

1. Mix of Land Uses
2. Street connectivity
3. Cul-de-sac length
4. Block length
5. Crosswalks
6. Sidewalks
7. Greenways, Trails and Open Space
8. Street Trees
9. Building Frontages and Streetscape
10. Building Setbacks and Parking
11. Driveway Curb Cuts/ Access Management



The ordinance having overriding authority on each of these issues within the municipal limits of Waxhaw is the Unified Development Ordinance for the Town of Waxhaw, North Carolina (UDO). Waxhaw originally adopted its UDO in September of 2004. The version of the UDO examined for this plan includes amendments up to March 2012. The UDO is the most binding legal document affecting the contemporary form of Waxhaw and its future development patterns. As the Town grows and changes with economic conditions, the degree to which it will develop in a pedestrian-friendly manner – with all the benefits thereof – will depend largely upon the continuing development of this document as it provides guidance or direct rulings on the various land use issues described in this section.

A brief explanation of each of these pedestrian related issues and how it influences conditions of walkability is provided in this section as each subject is explored within the UDO. Later in **PART 4.2,** the Pedestrian Plan provides specific recommendations for revisions to these policies in order to enhance their positive effect on the Town's pedestrian quality.



Issue 1: Mix of Land Uses within a Walkable Scale

When various land uses are mixed together in close proximity – for instance: residences, commercial establishments and civic buildings – more activities can be accomplished on foot. For instance: one can walk to the corner store or restaurant.

Of the sixteen primary zoning districts described in the UDO, two districts are described as accommodating or encouraging a mix of uses. Both of these are described as intentionally pedestrian-oriented. Section 4 describes the intent for each of the districts.

> **Section 4 Primary Districts Established**
> **4.1 General Purpose**
>
> **11. C-4 Central Business**
> The purpose of the C-4, Central Business District is to encourage land uses which are characteristic of main streets and pedestrian districts and that are solely intended for application in the central core of the Town. The district will allow a mixture of complementary land use types, which may include housing, retail, offices, commercial services, and civic uses. The C-4 district is intended to be a predominantly pedestrian area, while also catering to bicycle traffic with shops and store fronts close to the road. The district shall be designed at a pedestrian scale with wide walkways, street trees and limited off-street parking. Development should be compatible with the fabric of the surrounding uses and preexisting development to promote an active live, work, play setting. The C-4 Zoning District should be considered vital to all members of the community and enhanced to ensure continual significance in the local economy. It is to be expected that the C-4, Central Business District, will be expanded over time through the zoning change process with the Future Land Use Plan to be used as a guide for the limitations of that district. This district shall not be applied to outlying commercial areas.
>
> **16. TND Traditional Neighborhood Development**
> The purpose of the TND zone is to create traditional neighborhood developments as alternatives to conventional subdivisions. TND's tend to be much more pedestrian oriented than other developments with interconnected streets, a mixture of housing units that are in close proximity to each other, and neighborhoods with identifiable centers. Block lengths in TND's tend to be small. On-street parking is allowed. Accordingly, conventional street design standards are modified. TND's may only be created in an area that has first been zoned to a TND district.

Section 11 provides the description of regulations governing the districts. Its supplementary use regulations provide a list of twelve criteria for TNDs that cover most of the subjects explored in this

section of the Pedestrian Plan. TNDs exemplify the walkable principles of mixed-use development with the first three:

Section 11 Schedule of District Regulations
11.3.77 Traditional Neighborhood Developments (TND)

1. SIZE: A TND should be designed at a walkable scale - considered to be approximately a 5 to 10 minute walk from core to edge, or a 1/4 to 1/2 mile maximum distance. All or most residential development must fall within this range. The proposed development should be a minimum of 40 acres and a maximum of 400 acres.
2. COMPOSITION: This is a discernible community center or core area. Elementary schools are in important community element. Public structures, such as schools, churches and civic buildings, and public open spaces, such as squares, parks, playgrounds and greenways, shall be integrated into the neighborhood pattern.
3. DENSITY AND INTENSITY: Residential densities, lot sizes and house types may be varied, but the average density of the developed area should be at least 4.5 units per acre. Higher densities, often involving multifamily or attached dwelling units, are generally proposed in, adjacent to or within close proximity to the core area. Lower densities, usually detached single-family dwellings, are generally located towards the edge.

The C-4 and TND zoning districts are the most intentionally pedestrian-oriented zones of Waxhaw's primary districts. They are explicitly designed to be walkable in terms of scale, mix of land uses, and density.

STREET PATTERNS NEAR ATLANTA, GEORGIA DISPLAYING EXTREMELY POOR CONNECTIVITY

Issue 2: Street Connectivity

"Connectivity" means being able to get from one place to another without having to go long distances out of the way. Communities with high connectivity can be more walkable because destinations are within easier reach and there are more choices of routes. A connected network of streets also gives drivers more choices of vehicular routes. Allowing drivers a greater choice in routes helps decrease vehicular congestion. When more streets interconnect, local vehicular traffic can take shorter routes and avoid busy arterial roads, as can pedestrians.

Street connectivity can be compromised both by limiting access points into and out of developments, and by limiting the number of opportunities that streets intersect within developments. Over the last few decades, many residential developments have been designed with fewer street intersections in favor of incorporating more cul-de-sacs. Cul-de-sacs were initially used to avoid terrain that would prohibit streets from connecting. However, development practices grew to rely upon them, even on flat land, as a way of discouraging traffic in front of individual homes, turning public throughways into semi-private drives that dead-end into semi-private courts. While this arrangement does reduce non-residents cutting through the neighborhood, it also gives residents very limited travel options. Traffic can back up into the neighborhood during rush hour, as everyone tries to get out by the same street onto busy arterial roads. Emergency vehicle access is also severely limited. Children going to school, events, or just wanting to visit friends in neighboring areas, must often walk or bike much greater distances, often upon busy main thoroughfares or be driven by a parent.

The UDO refers to street connectivity within its section covering Off-Street Parking and Loading. Here the UDO provides a list of reasons why connectivity is such an important issue for Waxhaw.

12.9 Connectivity
A. Purpose and Scope
The purpose of this section is to support the creation of a highly connected transportation system within the town in order to provide choices for drivers, bicyclists, and pedestrians; promote walking and bicycling; connect neighborhoods to each other and to local destinations such as schools, parks, and shopping centers; reduce vehicle miles of travel and travel times; improve air quality; reduce emergency response times; increase effectiveness of municipal service delivery; and free up arterial capacity to better serve regional long distance travel needs.
B. Consistency with Other Documents
The design and evaluation of vehicular, bicycle, and pedestrian circulation systems built in conjunction with new residential and non-residential development shall adhere to the requirements of this section.

In keeping with its pedestrian-oriented intention, the TND regulations provide some actual description of good connectivity and relate it directly to street pattern.

11.3.77 Traditional Neighborhood Developments
4. STREET PATTERN: All or most streets within the proposed network must be part of a dense, interconnected pattern. TND streets should connect with adjacent street networks as much as possible. The degree of interconnectivity should be assessed by its ability to permit multiple routes, to diffuse traffic and to shorten walking distances…

To ensure that good connectivity is established as subdivisions occur, the UDO's Minimum Standards of Design, in Section 18.9.2, contains requirements regarding the connection to existing streets and greenways, inclusion of stub streets, and the prevention of strategies intended to discourage connectivity.

18.9.2.A Coordination and Continuation of Streets and Greenways
The proposed street and greenway layout within a subdivision shall be coordinated with the existing street and greenway system of the surrounding area and where possible, existing principal streets and greenways shall be extended.

18.9.2.B Access to Adjacent Properties
Where, in the opinion of the Planning Board, Administrator or the Board of Commissioners, it is necessary to provide for street and greenway access to an adjoining property, proposed streets and greenways shall be extended to the boundary of such adjoining property and barricaded with signage indicating it. Said street access shall be professionally engineered allowing a street extension into the adjoining property, a minimum of three hundred feet.

18.9.2.C Reserve Strips
There shall be no reserve strips platted in any subdivision.

Though the UDO encourages connectivity to existing streets and between subdivisions, it places no limit on the use of cul-de-sacs internal to the development by way of a connectivity ratio or other objective means.

As the UDO prescribes the number of connections to be made to public roads along each frontage of a subdivision, it does not state clearly whether that number is a minimum, or a required total.

18.9.7. Points of Ingress and Egress
Each subdivision shall be provided with two external points of ingress and egress on a public road at the subdivision's periphery, except under the following conditions…

TYPICAL CUL-DE-SAC

Issue 3: Cul-de-sac Length

One method of encouraging connectivity and curtailing the overuse of cul-de-sacs in the design of developments, while still permitting their inclusion when necessary, is to limit their allowable lengths. As cul-de-sac lengths increase, connectivity decreases. Properties accessible from only one direction become more isolated and difficult to reach. And vehicular traffic on these cul-de-sacs increases in speed and volume. All of these issuse are critical factors affecting the walkability of such neighborhoods.

18.9.2.L Cul-de-sacs
Permanent dead-end streets shall not exceed eight hundred (800) feet in length…

Per Section 11.2, the UDO sets the minimum lot widths for R-3, R-4 and RM-1 at 60 feet. Excluding the use of "flag lots" (where minimal lot width is provided where the lot meets the street – a practice commonly employed at the terminus of cul-de-sacs), an 800' cul-de-sac will permit as many as 26 lots of this length of cul-de-sac.

Issue 4: Block Length

Connectivity is also product of block length. Short blocks and frequent cross streets open up more direct routes. Pedestrians benefit from more opportunities for choice in travel path for a given distance. More choices mean a greater variety in the walking experience, an increase in walk-in customer exposure for businesses, and more opportunities for new neighbors to meet and interact. There is also a psychological benefit of short blocks: pedestrians do not have a sense of having to walk "forever" to get to a crossing. People tend to judge such distances as "too far to walk" before they can turn a corner to get to the next street. A dense network of streets also disperses traffic, making streets more pleasant to walk along and easier to cross. Short block lengths are an effective way to reduce motor vehicle speeds. Long streets without interruption encourage drivers to travel at excessive unsafe speeds.

A review of the best block sizes for walkable neighborhoods was performed for TND Design Rating Standards. A wide range of sources was consulted, including *Great Streets* by Allan Jacobs, *Planning for Street Connectivity* by Handy et al., various municipal ordinances, and direct evidence from historic neighborhoods and towns in the U.S. The following guidelines were developed:

BLOCK LENGTH (RANGE IN FEET)

Excellent	**250-400**
Good	**200-250 or 400-500**
Acceptable	**500-600**
Fair	**150-200 or 600-800**
Poor	**Less than 150 or more than 800**

In car-free or car-restricted areas, smaller block sizes are more viable and should not be given low ratings.
–TND Design Rating Standards, Version 1.5 (2005)

The UDO prescription for TND once again includes very pedestrian friendly parameters when specifying maximum block length.

11.3.77.B.5 Traditional Neighborhood Developments (TND)
4. BLOCK LENGTH: All or most low speed, low volume streets should have short block lengths of between 250 and 500 feet. Exceptions may be needed due to topography, environmental protection, preservation of cultural resources, and similar considerations.

For the remaining districts, the UDO sets the limitation on block dimensions by an overall perimeter in its MINIMUM STANDARDS OF DESIGN.

18.9.3 Block Length and Width

A. Blocks shall not exceed a perimeter length of five thousand (5,000) feet, perimeter length being the shortest perimeter measurement along the abutting right-of-way line.

B. Blocks shall be at least wide enough to allow two (2) tiers of lots of minimum depth, except where prevented by topographical conditions or the size of the property. A single tier of lots may be used adjoining a major thoroughfare where access is provided from a minor interior street.

Per Section 11.2, the UDO sets the minimum lot depths for R-3, R-4 and RM-1 at 60 feet. Two tiers of such lots would create a block width of 120 feet, which would permit a block perimeter length of 2,380 feet, or nearly ½ mile. For blocks that are geometrically square, the 5,000 feet limit allows a block perimeter length of up to 1,250 feet, or nearly ¼ mile.

CROSSWALK EXAMPLE

Issue 5: Crosswalks

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

All ordinance requirements pertaining to pedestrian facilities in the UDO are grouped under the topic of "Sidewalks".

12.11 Standards for Pedestrian Facilities

1.A. Sidewalks

2. Pedestrian crossings shall be made safer for pedestrians whenever possible by shortening crosswalk distance with curb extensions, reducing sidewalk curb radii, and eliminating free right-turn lanes. Signals that allow longer crossing times in shopping districts, mid-block crossings in high-pedestrians use areas (if well marked and traffic speeds are low), and raised crosswalks and medians shall be provided as appropriate.

Similar language is included in a section pertaining to crosswalks for TND.

11.3.77 Traditional Neighborhood Developments (TND)

B.9 Pedestrian Street Crossings: Street crossings must be no longer than are actually necessary. The needs of pedestrians should be balanced with the needs of vehicular traffic. Mid-block crossings, bulb-outs, raised crosswalks and similar techniques are commonly used to accommodate pedestrians when appropriate for traffic conditions and site-specific situations.

The UDO provides no additional guidelines for strategic crosswalk placement. Specific requirements for developers are not specified, and no reference is made to other guiding policies for the placement of these facilities. The UDO provides no additional guidance to the Town for determining the need for crosswalks based upon street configuration and pedestrian-oriented areas of use. See **PART 5 Facility Standards & Guidelines** for general information about crosswalk design.

NEIGHBORHOOD SIDEWALK EXAMPLE

Issue 6: Sidewalks

Sidewalks form the backbone of a pedestrian system in urban and suburban environments. They can provide highly visible, accessible and practical pedestrian connections to common destinations points. They can also serve as vital public space in themselves, particularly in front of retail shops, restaurants, and civic buildings. For many pedestrians, sidewalks provide the most common opportunity for public interaction.

In addition to strategic placement within the community and proper construction standards, critical design features for sidewalks include:

- Width of pavement
- Width of planting strip
- Pavement type

See **PART 5 Facility Standards & Guidelines** for additional sidewalk information.

The UDO includes general standards for the design and placement of sidewalks in Sections 9, 12 and 18, and requirements for some

specific districts in Section 11. The UDO also includes related Union County School ordinace in Section 9.

> **9.13 Curb, Gutter, and Sidewalk Requirements**
> All new development(s) except for a single family or duplex structure shall be required to provide… a minimum 5 ft. concrete sidewalk in all zoning districts... Sidewalks should be located within the street right-of-way. In order for a sidewalk to be located outside the public right-of-way, the Zoning Administrator must approve the location and an approved sidewalk easement must be recorded with the Union County Register of Deeds prior to issuance of final Zoning Compliance. The sidewalks and curb and gutter shall be built to NCDOT and/or Waxhaw standards, whichever is most restrictive…

Waxhaw standards for pedestrian facilities in general are included in **Section 12 Parking, Loading and Lighting.**

> **12.11 Standards for Pedestrian Facilities**
> **1.A. Sidewalks**
> **1.** Sidewalks shall be installed on both sides of all arterials, collector streets, and nonresidential cul-de-sacs, and within and along the frontage of all new development or redevelopment. Sidewalks should be located within the street right-of-way. In order for a sidewalk to be located outside the public right-of-way, the Zoning Administrator… (see UDO 9.13)
> **3.** Within residential and/or non-residential developments, pedestrian ways, crosswalks, or multi-purpose trails no less than five feet in width, shall be constructed near the center and entirely through any block which is 900 feet or more in length where necessary to provide adequate pedestrian circulation or access to schools, churches, retail stores, personal service establishments, recreational areas, or transportation facilities.
> **4.** Pedestrian walkways shall form an on-site circulation system that minimizes conflict between pedestrians and traffic at all points of pedestrian access to onsite parking and building entrances. Pedestrian walkways shall connect building entrances to one another and from building entrances to public sidewalk connections and existing or planned transit stops. Pedestrian walkways shall be provided to any pedestrian access point or any parking space that is more than 50 feet from the building entrance or principal on-site destination. All developments that contain more than one building shall provide walkways between the principal entrances of the buildings. All non-residential buildings set back more than 100 feet from the public right-of-way shall provide for direct pedestrian access from the building to buildings on adjacent lots.
> e. Where residential developments have cul-de-sacs or dead-end streets, such streets shall be connected to the closest local or collector street or to cul-de-sacs in adjoining subdivisions via a sidewalk or multi-use path, except where deemed impractical by the Zoning Administrator.

The UDO **Section 18 Subdivision Regulations** also addresses sidewalk design standards.

> **18.9 MINIMUM STANDARDS OF DESIGN**
> **18.9.1.F Sidewalks**
> Sidewalks shall be required in subdivisions on both sides of the street and on the perimeter of the development along any existing streets. Sidewalks shall provide public access and be dedicated to the Town upon request. All sidewalks shall be connected to existing sidewalks within 500 feet. Sidewalks should be located within the street right-of-way…
> (1.) On all thoroughfare, collector, and commercial streets where sidewalks are provided, there shall be a planting strip placed between the inner edge of the sidewalk and the outer edge of the curb. Said planting strip shall be a minimum of five (5) feet in depth. All sidewalks shall otherwise be built in compliance with current NCDOT Standards for sidewalks in public rights-of-way.

> **11.3.74 Multi-Family Developments (RM-1, RM-2 District)**
> **(B) POINTS OF INGRESS AND EGRESS; SIDEWALKS**
> 4. Sidewalks shall be constructed within the development to link the interior of the development with residential buildings within the development and to other destinations such as, but not limited to: adjoining streets, mailboxes, trash disposal areas, onsite amenity areas, etc. These sidewalks shall be constructed in accordance with the standards for sidewalk construction found in Section 9.13

> **11.3.77 Traditional Neighborhood Developments (TND)**
> **B.8** SIDEWALKS: To comply with the Americans with Disabilities Act, sidewalks are a minimum of 5 feet wide and should be wider in commercial or higher intensity areas, when directly abutting curbs without a planting strip or parked cars, or when adjacent to walls or other built elements which reduce usable width. Sidewalks should be on both sides of the street. Wherever possible, there should be a continuous pedestrian network adjacent to the streets. Curb cuts should be minimized to reduce conflicts with pedestrians.

With respect to sidewalk placement, the UDO makes no reference to any plans or policies, nor refer to specific destination types, or current or future land use or transportation facilities or issues. However, it does include specific language regarding public schools.

Public schools have the potential to be a prime focus of pedestrian activity, attracting high numbers of students, employess and visiting users of school property throughout the week. Waxhaw's UDO directly incorporates ordinance language from Union County regulations regarding sidewalks serving public schools.

> **9.22 Union County Public School Zoning Regulation**
> C. Sidewalks:
> .C.1 Sidewalks shall be installed unless they present a public health and safety hazard. If shown as a hazard, then a waiver from town staff must be approved and the ordinance pertains to Union County Schools only. Sidewalks on the school property that connect to an existing sidewalk infrastructure will be provided by UCPS. Except as provided above, the municipalities shall be responsible paying for and constructing sidewalks.
> .C.2 UCPS will dedicate appropriate easement or road right of way needed for sidewalks if requested by municipality.
> .C.3 UCPS will grade areas for sidewalks if requested by municipality.
> .C.4 UCPS will cooperate with municipality to apply for grants for sidewalks.

This ordinance language describes the relative responsibilities of Union County Public Schools (UCPS) and municipalities in the funding and installation of sidewalks in the vicinity of UCPS school sites. The language does not specify the Town of Waxhaw, but that is assumed.

The language includes a stipulation unique to the UDO regarding the placement of sidewalks. In other pertinent sections quoted above, there is mention of the Zoning Administrator having final say regarding whether a sidewalk location can be deemed "impractical". Here the language allows the omission of an otherwise required sidewalk to be based upon a judgment of whether the facility can be deemed "a public health and safety hazard". Accordingly, this stipulation does not apply to other property owners or developers, but "pertains to UCPS only".

The language does not make clear what party has the final authority to make the judgment on the potential health and safety of the as yet un-built facility. Nor does it state any nationally recognized standards on which that judgment can be based (i.e. Manual of Uniform Traffic Control Devices, USDOT Federal Highway Administration Sidewalk Design Guidelines).

The language does not state whether the waiver is intended to allow the sidewalk to be installed in spite of the perceived hazard, or allow the requirement for the sidewalk to be waived.

GREENWAY PATH (EXAMPLE)

Issue 7: Greenways, Trails and Open Space

Parks and other open space are intended to accommodate a community's recreational needs, provide vital public space and accommodate public functions that help reinforce a town's identity. A network of connecting greenways and trails can provide vital corridors as they link these spaces with neighborhoods and other destinations points, functioning as a transportation resource for pedestrians and bicyclists. Parks and greenways are often located in otherwise undevelopable land, such as streams and floodways, required buffers, utility right-of-ways or abandoned railroad corridors.

The UDO Definitions in Section 8.2 include general descriptions of Open Space, and Common Open Space in unimproved and improved states.

> **Open Space** - An area (land and/or water) generally lacking in man-made structures and reserved for enjoyment in its unaltered state.
>
> **Common Open Space** - Land and/or water areas within the site designated for a particular development, not individually owned or dedicated for public use, which is designed and intended for the common use or enjoyment of the residents of the development but not including any lands occupied by streets, street rights-of-way, or off-street parking.
>
> **Common Open Space, Improved -** Common open space which has been improved with recreational areas and amenities such as, but not limited to, ball fields, tennis courts, swimming pools, nature trails, clubhouses, etc.

Minimum open space is required in both Planned Residential Developments (PRD) and Traditional Neighborhood Developments (TND). PRDs are required to meet specific dimensional limits and be accessible by sidewalk:

> **11.3.77 Planned Residential Developments**
> **A.** Usable common open space or recreational areas shall be provided within the P.R.D. Common open space area shall consist of a minimum area of at least twenty (20) percent of the total acreage within the entire project. All common open space areas shall be accessible by sidewalk from the residential developed portions of the P.R.D.

> **11.3.77 Traditional Neighborhood Developments**
> **B.** COMPOSITION: …public open spaces, such as squares, parks, playgrounds and greenways, shall be integrated into the neighborhood pattern.

The UDO also provides for the maintenance and liability of TND and PRD open space.

> **11.3.77 Planned Residential Developments**
> **A**. All of the common open space required under this Section shall be either conveyed to the Town of Waxhaw, if the Town agrees to accept ownership of and maintenance responsibilities, or conveyed to one or more homeowner associations created for the development, or with respect to outdoor recreation facilities to the owner or operator thereof…

The PRD section further describes the responsible parties for open space maintenance:

> (5)…The covenants and easements shall also prohibit future development of any common open space, for other than open space or recreational purposes, and shall provide for continued maintenance of any common open space and recreational facilities. Such covenants shall also provide that any change of use in the open space may only occur upon consent of the homeowners association and the Town of Waxhaw.

The UDO permits walkways within buffer areas according to the following restrictions:

> **9.8.5. Walkways in buffers:**
> B. Pedestrian walkways are allowed within buffers, subject to the following standards:
> 1. Walkways shall not exceed 5 feet in width,
> 2. Walkways may cross buffers at an angle between 60 and 90 degrees, and
> 3. Walkways may only run along the length of a buffer if the buffer is at least 40 feet in width, and the walkway is located within the inner 25% of the buffer.

The UDO includes a requirement for the installation of sidewalks or multi-use paths that could potentially create a profoundly positive effect on the walkability of Waxhaw. Pedestrian connectivity is required in the UDO through the use of sidewalks or multi-use paths to physically connect cul-de-sacs or dead ends to other nearby streets.

12.11 Standards for Pedestrian Facilities
1.A. Sidewalks
5. Where residential developments have cul-de-sacs or dead-end streets, such streets shall be connected to the closest local or collector street or to cul-de-sacs in adjoining subdivisions via a sidewalk or multi-use path, except where deemed impractical by the Zoning Administrator.

The degree to which this requirement is carried out is entirely within the discretion of the Zoning Administrator. The UDO provides no consistent standards or parameters (such as maximum degree of slope, maximum distance, or presence of wetlands) by which to measure the impracticality of installing the sidewalk or multi-use path connection.

Greenways are further proposed as a viable means of pedestrian connectivity in the UDO. **Section 18.9.2 Streets** requires that neighborhoods with greenways provide trail links to greenways in adjacent neighborhoods, other adjoining properties, and public rights-of-way.

18.9.2.A Coordination and Continuation of Streets and Greenways
The proposed street and greenway layout within a subdivision shall be coordinated with the existing street and greenway system of the surrounding area and where possible, existing principal streets and greenways shall be extended.

For adjoining properties that do not currently feature greenways, the decision to require a connecting trail link is left to the discretion of the Town officials.

18.9.2.B Access to Adjacent Properties
Where, in the opinion of the Planning Board, Administrator or the Board of Commissioners, it is necessary to provide for street and greenway access to an adjoining property, proposed streets and greenways shall be extended to the boundary of such adjoining property and barricaded with signage indicating it. Said street access shall be professionally engineered allowing a street extension into the adjoining property, a minimum of three hundred feet.

The above provision does not require reference to any adopted plans to guide the decision of whether such a connection to adjacent lands should be deemed necessary.

FLOWERING TREE-LINED STREET (EXAMPLE)

Issue 8: Street Trees

Street trees provide a variety of environmental and economic assets to communities. Waxhaw's UDO lists many benefits of trees in its section on Tree Preservation:

9.21.1 B Tree Preservation - Purpose
The Town Board finds it has been established that trees stabilize the soil and control water pollution by preventing soil erosion and flooding, reduce air pollution, provide oxygen, yield advantageous microclimatic effects, temper noise, provide a natural habitat for the wildlife of the town, and further, that unusual, large and old trees have unique aesthetic and historic values.

Simply put, trees offer a broad range of air and water quality benefits. They also offer pedestrians shade, a physical buffer to traffic, and bring a human scale to an otherwise car-oriented landscape. Properly selected, planted and maintained street trees can make the difference in how pedestrians experience a street and whether they will consider it "walkable" or not.

The UDO provides street tree and landscaping requirements in **Section 9.21 Tree Preservation**. It includes policy designed to ensure high standards of planting materials and quality placement of trees. Street Trees are defined in the UDO in **Section 9.21.17** as:

Street Tree – A tree planted within or adjacent to a public right-of-way as required by the town

Specifics of street tree location are provided in UDO General Provisions **Section 9.8.2.E**.

The UDO includes guidance for the placement of street trees in neighborhoods of Single-Family homes

9.21.10 Tree Planting Mitigation
G. New Tree Planting for Single-Family Subdivisions:
(1) Street Trees: Street trees shall be planted along all new public streets. Tree planting shall follow the following criteria:
b. New trees shall be spaced between 40 feet and 65 feet on center.

See **Section 5: Facility Standards & Guidelines** for general information about street trees.

Issue 9: Walkable Streetscapes

Streets that invite active pedestrian life involve many parts working together. Along with the other elements of the pedestrian-friendly environment treated in this section, walkable streetscapes feature active businesses on narrow lots fronting the sidewalk, uninterrupted facades with ample doors and windows at street level, wide sidewalks with space for activity, and some protection from the elements in the form of awnings, arcades, street trees, etc. Such streets are where people gather and neighborhood bonds are formed. Cars are welcome, but traffic is slow and unthreatening to pedestrians.

The Waxhaw UDO provides guidance for a number of those elements in order to foster walkable streetscapes.

Under its **Architectural Standards** in **Section 20**, the UDO speaks to the look its streets should portray.

> **20.5 Streetscapes for Non-Residential and Multi-family Buildings**
> A. The streetscapes of Waxhaw should be visually dominated by buildings rather than parking areas.

Under this section, a variety of standards are listed, governing the siting of buildings and parking, and façade treatments.

Each of the primary zoning districts described in the UDO has front yard setback requirements. These dimensions are provided in **Section 11 Schedule of District Regulations** for all of the districts except TND. Of the primary districts listed in **Section 11 Schedule of District Regulations**, only the C-4 district allows zero front setbacks, as well as zero side-yard lot setbacks required for an uninterrupted row of facades. The C-4 district is imparted with additional walkable streetscape features as described in **Section 4 Primary Districts Established.**

In keeping with their consistent pedestrian-friendly design, TND areas have guidelines for how buildings are sited in relation to the street to help create walkable streetscapes.

> **11.3.77.B Traditional Neighborhood Developments (TND)**
> 6. RIGHT-OF-WAY: Within a TND, the right-of-way is an important design element of the public space or "streetscape." The right-of-way width should be the minimum needed to accommodate the street, median, planting strips, sidewalks, utilities, and maintenance considerations…
> 7. RELATIONSHIP OF BUILDINGS TO STREET: Buildings are oriented toward the street. Buildings within the core area are placed close to the street. All lots and sites must have pedestrian connections and the core area must be fully accessible to pedestrians.

LARGE RETAIL STORE SET BACK FROM STREET TO ALLOW FRONT YARD PARKING

Issue 10: Building Setbacks and Parking

A particular attribute that plays an essential role in making streets walkable is the relationship of the building facades to the street. Excessive building setbacks are disadvantageous and even problematic to communities for reasons of safety, economic vitality, and general pedestrian friendliness. With no regulations to establish maximum setbacks (or "build-to" lines), retailers can create very deep front yards to accommodate their off-street parking, if otherwise permitted to. Although off-street parking lots provide a convenience to motorists, they can significantly diminish the pedestrian quality of a community. Such strip-development arrangement deteriorates street definition, creating a hot, barren car-dominated landscape that is unsafe, uncomfortable, and impractical for pedestrian use. Property owners with expansive impervious areas also incur substantial maintenance costs to maintain valuable land that is yielding a less-than-profitable use. Parking lots (like other impervious surfaces) also negatively impact the local environment, particularly with respect to water supplies and water quality. **See Section 5** for information regarding off-street and on-street parking.

On the other hand, minimal setbacks provide a number of advantages:

1. **Safety.** Buildings set close to the street do not require visitors on foot to navigate significant distances through parked cars (and moving ones!) in parking lots to reach their desired destination point – an often unsafe experience for pedestrians.
2. **Good business.** Buildings in a central business district are ideally built with little or no front yard setback. Businesses built close to the street offer pedestrians opportunity to "window-shop" or walk into a business immediately from the sidewalk.
3. **Comfort.** Streets with minimum setbacks are usually more inviting to walk along. This phenomenon is largely due to a sense of enclosure that buildings can impart to a street, along with the lack of large, hot expanses of asphalt. Buildings set close to the street help make the street viable and interesting public space rather than the vast, open no-man's land often found with strip development.

Minimum front yard setback requirements for each standard zoning district are listed in **Section 11 Schedule of District Regulations**. Further setback restrictions by use are provided in **Section 11.3 Supplementary Use Regulations.**

The UDO describes the various parameters set on off-street parking in **Section 12.3 Off-Street Parking Requirements.** The maximum parking requirements are provided for each use in table **Section 12.3.4.D.2.c.** Exceeding the maximum number of spaces may be permitted by the Zoning Administrator, but additional requirements are placed upon the owner/applicant in such cases.

> **Section 12.3.4.D.2.a.** No use shall install more than the maximum number of parking spaces allowed per section **12.3** of this Ordinance.
> b. If additional parking is needed, the property owner/applicant may request a waiver from the Town of Waxhaw Zoning Administrator…

By setting parking maximums, the UDO curtails the construction of excessively large parking lots that can conflict with the potential pedestrian quality of the area.

The UDO also describes a procedure by which an applicant may request to provide 20% fewer parking spaces than the maximum.

> **12.3.4 Computation of Off-Street Parking Requirements**
> **D. Off-Street Parking**
> **1. Parking Minimums**
> The applicant may request a 20% reduction in the parking maximum required per Section 12.4 of this Ordinance. This request may be approved by the Zoning Administrator.

The language is unclear as to whether 20% of the maximum is the absolute minimum that can be requested, or whether such a request is necessary if the developer wishes to provide less than the maximum, but not 20% less.

An additional reduction in required number of parking spaces is provided for in **Section 12.4.8**

> **Section 12.4 Design and Location of Parking Areas/ Stacking Spaces**
> **8. Reduction in Number of Required Off-Street Parking Spaces**
> **A.** As part of its review and approval of a site plan for a development, the Board of Commissioners may allow a reduction of up to 10 percent in the number of designated parking spaces from the allowed parking minimum **(Section 12.3.4.D.1)** upon finding that such a reduced number will be sufficient to satisfy the demand for parking expected for the use during the normal shopping season, i.e. times other that November, December, and January, based on the nature of the use, the number of trips generated, the times of day when the use generates the most trips, and the extent to which other establishments are located on the same property and may reduce the number of vehicle trips required between different establishments. A parking study must be submitted to the Board of Commissioners to determine if a reduction in parking is allowable.

The procedure described above for further reducing the parking minimums is contingent upon the development of a parking study and the approval of that study's findings by the Board. The UDO does not explicitly provide guidelines upon which the Board shall base that approval.

The UDO does provide additional strategies by which minimum parking space requirements may be met. Shared parking is permitted according to the requirements in **Section 12.5.1.**

The UDO also recognizes the challenges off-street parking lots present to pedestrian safety and experience, and requires that they are designed with pedestrian use in mind.

> **12.4 Design and Location of Parking Areas/Stacking Spaces**
> **1.** … Pedestrian pathways shall be provided within parking areas in accordance with Section 12.11.

Section 12.11 provides standards for pedestrian facilities that are to be applied to on-site circulation.

The UDO encourages the limitation of off-street parking for the stated purpose of enhancing pedestrian quality.

> **4.1.11**
> **C-4 Central Business**
> The district shall be designed at a pedestrian scale with… limited off-street parking.

This limitation is particularly stringent between a building and the street:

> **20.5 Streetscapes for Non-Residential and Multi-family Buildings**
> 8. When a property Owner proposes to place parking in front of the building adjacent to a street, the site plan must be reviewed by the Planning Board, and the Owner shall present justification for why this approach is appropriate.

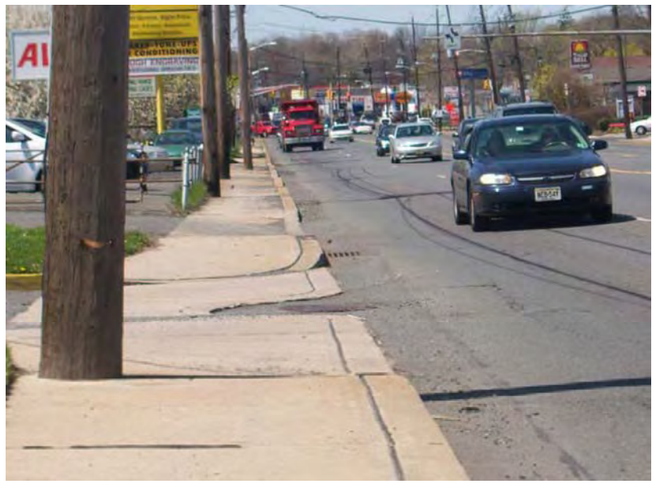
Conversely, the positive value of on-street parking for pedestrian quality is also recognized in the UDO. This is seen particularly in proscriptions for TND.

> **11.3.77.B Traditional Neighborhood Developments (TND)**
> 12.ON-STREET PARKING: Many streets have on-street parking. On-street parking is a common traffic-calming element of a TND, in that it slows vehicular traffic while providing a buffer between street and sidewalk.

On-street parking can also satisfy parking requirements in other zoning districts.

> **12.3.4 Computation of Off-Street Parking Requirements**
> **C. 1.** On-Street Parking may be utilized to fulfill the parking requirements outlined in this section… The Zoning Administrator may approve existing on-street parking as a way to

fulfill the requirements in this section in the C-4 Zoning District, where applicable.



DRIVEWAYS CAN PROLIFERATE ALONG COMMERCIAL STRIPS, INCREASING THE POTENTIAL FOR DRIVER/PEDESTRIAN CONFLICT.

Issue 11: Driveway Curb Cuts / Access Management

Busy vehicular activity at driveways and intersections presents a safety risk for pedestrians. Unmanaged vehicular access means that pedestrians traversing corridors are faced with potential points of conflict with motorized vehicles. Such conditions can lead individuals or families who might prefer walking, to drive instead, in order to avoid the potential of being hit by a car while on foot.

The exercise of control and coordination of driveways and intersections is known as access management. The purpose of access management is to strategically and fairly provide vehicular and non-vehicular access to land development while, at the same time, preserving the safety and efficiency of the transportation system. Proper access management not only helps to reduce traffic congestion and improve the appearance of roadway corridors, it makes the roads safer for drivers, pedestrians, and bicyclists.

The UDO includes driveways as one distinction between Individual Establishments and Combined Developments in **Section 8.2**.

> **Individual Establishment or Business** - …a single enterprise that does not share off-street parking, driveways, or other common facilities with an adjacent establishment or development.
>
> **Combined Development** - Two or more establishments… designed and developed in a coordinated manner and which share parking, driveways and other common facilities.

To minimize driveway curb cuts, the UDO proposes the use of frontage roads in **Section 18 – Subdivision Regulations and Bonding Regulations.**

> **18.9.2.D. Marginal Access Streets**
> Where a tract of land to be subdivided adjoins a major thoroughfare, the subdivider may be required to provide a marginal access street parallel to the major thoroughfare or reverse frontage on a local street for the lots to be developed adjacent to the major thoroughfare. Where reverse frontage is established, private driveways shall be prevented from having direct access to the major thoroughfare.

An additional comment regarding access management is included in the TND section.

> **11.3.77.B. Traditional Neighborhood Developments (TND)**
> **8.** Curb cuts should be minimized to reduce conflicts with pedestrians.

Though direction is given to "minimize" curb cuts in TNDs, no absolute minimum standard is applied.

Direct access to roadways is also controlled through the use of residential alleys.

> **20.4 Architectural Standards: One and Two Family Residences**
> **13.** Special Standards for an Alley-Loaded House
> **a.** For dwellings taking access from an alley, no parking shall be permitted in the required front yard, no driveways are permitted in the front yard and on-street guest parking is required.

Minimum distance standards between driveways are not provided in the UDO.

3.2 Current Plans & Studies

WAXHAW 2030 COMPREHENSIVE PLAN

The Waxhaw 2030 Comprehensive Plan was originally adopted in April 2009, and was most recently amended September 2009. The vision guiding the 2030 Plan has a strong emphasis on walkability, including statements such as:

"Waxhaw's commercial activity centers will be well designed, pedestrian-friendly and accessible by a variety of transportation modes… Waxhaw's commercial activity centers will respect the town's historic character through their design and will provide pedestrian and bicycle oriented amenities such as well placed sidewalks, benches, outdoor eating establishments, bike racks, and street lighting."

"The town's business parks and industrial uses will be low impact, environmentally sound, and connected to the community."

"…a healthy mix of housing… both in older and newly developed portions of Waxhaw.

"The town also will have a thriving multifamily housing market ranging from infill town homes to upscale apartments to condominiums located in mixed use areas that combine commercial and residential uses..."

"New developments in Waxhaw will be pedestrian and bicycle friendly and well connected to each other and to destinations by roads, sidewalks, and trails."

"The town's residents will have easy access to a network of greenways, parks, and open space. New developments will set aside public green space and cluster development to conserve environmentally sensitive areas… Various transportation options and mixed land uses will reduce automobile dependency and encourage Waxhaw's residents to lead healthy, active lifestyles."

"Waxhaw will continue to embrace its small town historic and rural atmosphere while keeping its doors open to new visitors, residents, and developments."

The recommended goals and policies of the 2030 Plan are structured on these key planning themes:

- Managing and Directing Growth and Infrastructure (GI)
- Expanding Context Sensitive Economic Development (ED)
- Enhancing Quality of Life (QL)
- Improving Design (ID)
- Building a Sense of Community (SC)
- Strengthening Collaboration with Regional Partners (RC)

Each of these categories addresses some issues that have direct bearing on walkability. Some key examples are shown below along with some of the suggested policy:

- A more compact development form (GI Goal #1)
  - GI Policy 1.1: Promote mixed-use downtown and in activity centers.
  - GI Policy 1.2: Increase densities in downtown and in activity centers.
- Increased transportation options (GI Goal #3):
  - GI Policy 3.3: Develop an interconnected system of sidewalks, bicycle paths, and greenways.
- A logical town boundary (GI Goal #4): connected town boundary without unincorporated "islands"
- Development of mixed-use commercial activity centers (ED Goal #2): "…use existing transportation infrastructure more efficiently"
- Expanded Housing Opportunities (QL Goal #1):
  - QL Policy 1.2: Increase senior housing opportunities…to allow the town's citizens to "age-in-place". These developments should occur in higher density locations.
- Enhanced Cultural Activities (QL Goal #2):
  - QL Policy 2.2: Develop a public arts policy encouraging the display of public art.
- Improved community access to parks, greenways, and open spaces (QL Goal #3):
  - QL Policy 3.3: Create an interconnected network of parklands, greenways, and open spaces that link residential neighborhoods, commercial and employment centers, downtown, and other community destinations.
- High quality design of new developments (ID Goal #2):
  - ID Strategy 2.3.1: "Amend the town's development ordinance to include standards for new employment centers … Guidelines should address site design, street connectivity, access management, parking, pedestrian and bicycle accessibility, public art, landscaping and tree protection."
- Public spaces for community gatherings (SC Goal #1)
- Regular Communication with Neighboring Jurisdictions (RC Goal #1)

The 2030 Plan takes special note of strip development patterns along the Providence Road corridor (NC 16) and recommends an overlay district with specific pedestrian-oriented design guidelines, including "building orientation, location and amount of parking, pedestrian and bicycle facilities, signage, architectural requirements" as well as standards for transportation design to include access management.

WAXHAW PARKWAY

The 2030 Plan refers to the inclusion of the Waxhaw Parkway in the Mecklenburg-Union Metropolitan Planning Thoroughfare Plan. It states:

> "The planned expansion of the parkway would create a northern bypass around downtown Waxhaw, linking NC 16 to US 75 west and east of town. The eastern route calls for an improvement linking to two sides of Old Waxhaw Monroe Road. The Thoroughfare Plan shows this as a proposed improvement on the 2010, 2020, and 2030 Thoroughfare Plan maps. This means that the planned expansions are not expected to occur before 2030 under the current transportation planning priorities. However, communities in western Union County,

including Waxhaw, have created a consortium to develop a western regional Union County transportation study. This planning effort will provide an opportunity for Waxhaw to provide support for needed transportation improvements and services. Based on anecdotal evidence, Providence Road (NC 16), particularly the section that runs through downtown Waxhaw and terminates at NC 75, is heavily used by town residents and visitors creating traffic congestion and commuting delays."

2030 Plan, p. B-9f

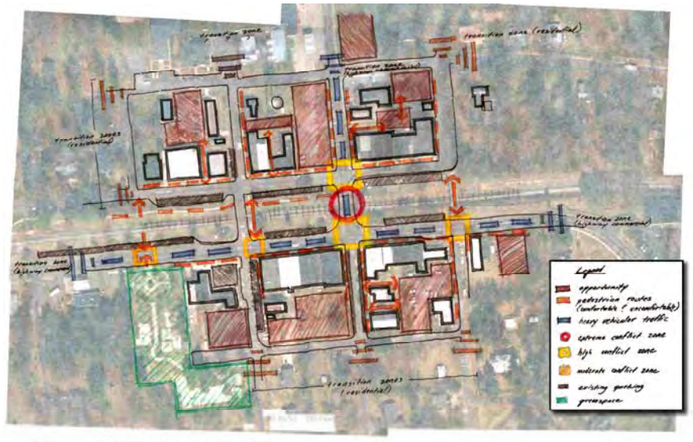
See **Appendix A.1.5** for a draft conceptual plan of the Parkway.

SCHOOL WALKABILITY STUDY

This study was funded by the NC Department of Health as part of a Physical Activity in the Built Environment Policy Initiative Grant program. With the growing awareness of childhood obesity in mind, and other problems associated with dependency upon automobile trips, Centralina Council of Governments (CCOG) proposed a study of new school placement and of the safety and feasibility for students to walk to those schools. The study examined pedestrian accessibility of existing school sites in Waxhaw and of potential sites under county and State standards, then compared that w/ standards from other states.

Currently the State and the Union County School Board could determine that the next school that serves Waxhaw could be located on any of the large tracts in the vicinity. The study examined the standards by which the board determines school sites, and how the location of existing neighborhoods and pedestrian infrastructure (such as sidewalks) may or may not be factored in. If new schools are placed where the land is cheapest to purchase, costs may be incurred later for the community associated with sprawl (increased infrastructure, negative health effects) and generate increased traffic on heavily travelled major roads. Through the School Walkability Study, CCOG analyzed these issues to determine methods and policies for school siting that will take these issues into account, comparing North Carolina with other states. These findings were submitted to and well received by the North Carolina Department of Public Health, December of 2011, and submitted to planning and governing boards and boards of education, January of 2012, in order to influence decisions that will lead to better school placement policy throughout the state.

See analysis maps from the School Walkability Study in **Part 4.4 Focus Areas** and analysis results in **Appendix A.1.18**.



"Conflict Zone" Diagram
Waxhaw Downtown Marketplace Study

DOWNTOWN MARKETPLACE STUDY

This study of Historic Downtown Waxhaw was conducted by Small Town Main Street (STMS) and presented to the Town in April 2010. The study analyzes the downtown physical, financial and market environment. Among the physical observations, the study notes that the distinctly pedestrian scale of downtown suffers fragmentation where pedestrians, vehicles and trains come into conflict. The study identified the "conflict zones" (indicated in yellow, orange and red colors on the diagram) where pedestrian connections need to be re-emphasized and re-connected. The study emphasizes the value of a contiguous downtown pedestrian experience, identifying the synergistic effect of a single destination with multiple retailers creates. It notes that "streets, sidewalks, and public spaces play a key role in downtown's success; they represent the connective tissue in downtown, holding together the discrete retailers. One of the attractive features of a functioning historic downtown marketplace is the ability to get out of your car and walk everywhere."

THE CAROLINA THREAD TRAIL

The Carolina Thread Trail (CTT) is a proposed regional network of multi-purpose greenways, serving 15 counties and over 2 million people. This greenway system will eventually link communities and attractions throughout the region by connecting smaller trail systems throughout its bi-state area. Waxhaw is located along the proposed alignment of the CTT in the Carolina Thread Trail Master Plan for Union County and Participating Municipalities. The Town of Waxhaw adopted this plan in June 28, 2011. The plan was adopted by Union County, August 15, 2011.

CTT segments are defined as ¼-mile wide "opportunity corridors" in which segments of the actual trail are intended to be located. The Town of Waxhaw will ultimately determine the exact alignment of the CTT segments within its jurisdiction.

Amendments to the Master Plan may be made as circumstances change or more information becomes available through subsequent planning work. As an example, the Waxhaw Comprehensive Pedestrian Plan process has involved on-the-ground reconnaissance and evaluation of these CTT corridors as well as other greenway opportunities within the Waxhaw jurisdiction, and recommends a number of pedestrian facility project segments to be located within or near proposed CTT alignments included in the Union County Greenways Master Plan. These projects are indicated in the Proposed Projects List in **PART 6: Project Recommendations**, and shown on the Proposed Routes & Facilities Map included, along with the draft Unions County Greenway Master Plan, in **PART 7: System Maps**.

The Union County Greenway Master Plan includes these recommendations for implementation of greenways:

Build public support for trail implementation.
Advocacy from individuals with a personal and professional interest in these topics is essential. It is recommended that a Trail Advisory Committee be formed for these leaders to discuss and celebrate progress with public events, share resources/tools, and otherwise coordinate trail planning and development activities. Other organizations can assist in identifying viable trail opportunities and working with willing landowners to build support and interest in trails and greenways. For example, early collaboration with county schools will encourage more partners to become vested in local greenways.

Knit together various public and private funding sources. Trail networks are generally funded by piecing together funding from multiple sources, creating a "funding quilt." The CTT Master Plan lists local, state, federal and other funding sources, many of which local communities will need to acquire land, construct trails, and operate and maintain these facilities and amenities. The Carolina Thread Trail organization, housed within the Catawba Lands Conservancy, can provide assistance with funding strategies, as well as potential catalytic seed funding for planning and implementation from its private capital campaign.

Evaluate land or right-of-way acquisition options.
Where public land is not already available or private developers are not already building trails along the planned trail route, conversations with private landowners are recommended to assess their interest in trails through their communities. This will assist with route feasibility and alignment.

Complete top priority segments.
The CTT Master Plan recommends certain trail segments in Union County that exhibited broad support and available land. Though Waxhaw is not currently listed among them, its trails may become priorities as local support grows and opportunities are identified.

Design, construct and maintain trails.
Communities should work through a public process to determine intended use of the particular segment at issue, and design with that in mind, as well as safety and affordable maintenance.

Steps to the Carolina Thread Trail

CAROLINA THREAD TRAIL

	Planning	Corridor Design	Acquisition	Construction
Objective	Create a countywide Master Plan, adopted by elected officials, identifying regionally significant legs as the Carolina Thread Trail and an action plan for implementation of those corridors.	Create actionable, detailed corridor designs for specific legs of The Thread.	Acquire land or easements for The Thread, as well as open space along the designated corridors.	Complete construction design and build segments of The Thread.
Description	Plan incorporates GIS modeling, assessment of current trail conditions (existing and planned trails), identification of key destinations, connection points and corridors. Includes community meetings for public input and implementation plan.	Counties & municipalities conduct detailed planning to include route identification at a parcel level, a plan for landowner outreach, general design elements, implementation budget and a financial strategy.	Practitioners and conservation groups acquire parcels (outright or through easements) that will become The Thread, as well as open space along the designated corridors.	Practitioners contract for construction drawings and construction of The Thread segments.
Grant Type – private funds that will serve as catalytic seed funding for segments of The Thread	Planning Grants- Cash grants to lead organization. Counties, municipalities and NGOs are partners.	Corridor Design Grants- Cash grants to counties, municipalities and NGOs.	Land Acquisition Grants- Cash grants and grants of donated land to counties, municipalities & NGOs.	Construction Grants- Cash grants to counties and municipalities.
Participants	Community steering committee, planning consultant (may include sub-contractors designated by committee), TPL (manages mapping process), Thread staff	Local practitioners and steering committee, consultants, Thread staff	Local practitioners and steering committee, consultants, conservation groups, Thread staff	Practitioners, consultants, Thread staff

TREE MANAGEMENT PLAN

As part of an effort to provide care for trees in public right-of-way and maintain a sufficient overall tree canopy, the Town adopted the Tree Management Plan in November 2010. The Plan includes tree inventory data, a tree maintenance plan, an urban forestry management plan, and education and outreach strategies. The 2010-12 Tree Maintenance Plan focuses on the intersection of NC 75 and NC 16 in downtown. The plan reports that the Town received $550,000 in federal stimulus money in 2009 to improve the intersection of NC 75 and NC 16. It describes this intersection as "heavily travelled by automobiles and large distribution trucks" and states that the maturing trees lining the streets and railroad provide beautiful streetscapes for pedestrians.

WESTERN UNION COUNTY LOCAL AREA REGIONAL TRANSPORTATION PLAN (LARTP)

In response to the tremendous growth pressures in western Union County, four area communities - including Waxhaw, Weddington, Wesley Chapel and Marvin - together with the assistance of the Mecklenburg-Union Metropolitan Planning Organization and Centralina Council of Governments, collaborated to create a unified, multi-modal transportation plan. The plan was developed by Martin/Alexiou/ Bryson, PLLC and Clarion Associates. Its final report was completed in 2009.

Included among the key elements of the LARTP are strategies for improving bicycle and pedestrian facilities, as well as recommendations for land use policies and ordinances to promote more efficient land use patterns.

Section 4.5 of the LARTP includes general comments and recommendations for pedestrian facility improvements, on the basis that "Developing comprehensive and connected pedestrian systems can add numerous quality of life benefits to a community, in addition to providing another alternative to trips made by car."

The LARTP provides the following comments regarding on-road facilities:

Sidewalks
Sidewalks are sometimes constructed as required by local development ordinances as lands are subdivided and developed. This can lead to a disconnected pattern of new and old sidewalks throughout an area. Recording, assessing, maintaining, and connecting sidewalks is an important process for filling in "missing links" in the sidewalk system and enhancing pedestrian connectivity.

Safe intersections
Intersection crossings are common conflict points between pedestrians and vehicles. The Report's Intersection Plan (LARTP Section 4.3) makes recommendations for specific intersection improvements to enhance safety and increase capacity. Three of those intersections lie within the Town of Waxhaw. Intersection X18 and X19 are along Waxhaw Marvin Road at Gray Byrum and Kensington respectively. For these two intersections, the LARTP makes only a general recommendation of improving the intersection "as warranted, with turn lanes, signalization/timing, channelization, etc." The remaining Waxhaw intersection cited in the LARTP (X21) is located on NC 75 at Old Providence Road. The LARTP recommends:

> "Improve intersections & coordinate operations; manage access & permitted movements; re-align/ consolidate adjacent intersections if feasible"

Connected systems
Walkability is also a reflection of the general connectivity between pedestrian systems and facilities. Physical barriers or gaps between constructed pedestrian facilities are major obstacles to walking. When faced with such obstacles the options are generally to (a) walk in unsafe conditions, such as along roadways, or (b) select an alternative mode of transportation, typically driving. The emphasis should be on connecting pedestrian facilities and allowing them to work as a system rather than individual components.

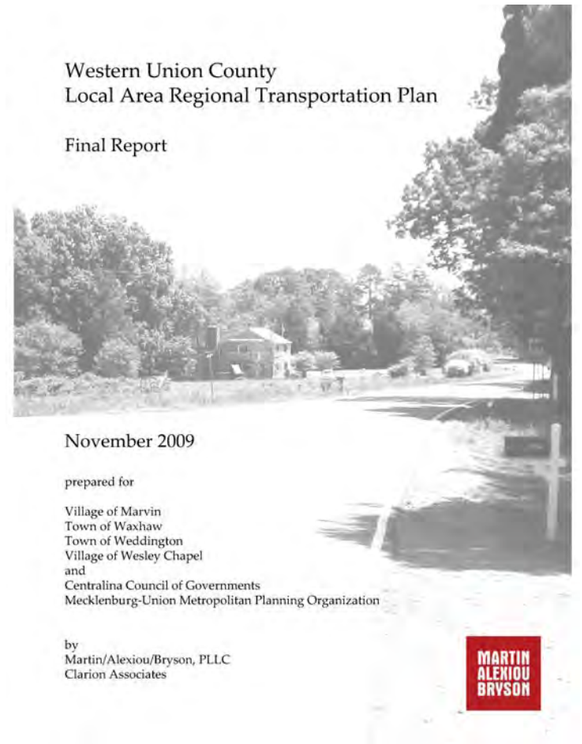
Intermodal connectivity
Combining modes of transportation is another measure of walkability. This would include developing locations with considerations for not only vehicles, but also for pedestrians, bicycles, and transit. Some examples would include a development with:

- Vehicular considerations (parking, access, signage, traffic signals, turn lanes)
- Pedestrian considerations (connected sidewalks, direct routing, curb cuts and ramps, signage, lighting)
- Bicycle considerations (bicycle parking, curb cuts and ramps, access paths)
- Transit considerations (pick up/drop off location, signage, shelter, lighting)

The ultimate goal of intermodal connectivity would be a reduction in the number of single-purpose and single-occupant vehicular trips made within a community. The benefits would be reduced traffic congestion along roads, increased safety and efficiency of the entire system, improved air and water quality, and a better quality of life for citizens.

Recommendations
Recommended pedestrian improvements include:

- Implement sidewalk improvements as part of roadway improvement projects on the Thoroughfare Plan
- Implement intersection improvements as part of Intersection Plan
- Develop a local sidewalk ranking system that identifies needed sidewalk projects and ranks them on a series of measurable criteria. Projects would be built as funding sources become available.
- Provide pedestrian and bicycle accessibility within and between adjoining neighborhoods.
- New developments should be designed to provide internal accessibility for multiple modes of transportation throughout the development, and particularly to points of interests, such as parks and schools.



3.3 Current Projects, Programs & Events

MECKLENBURG - UNION METROPOLITAN PLANNING ORGANIZATION

As a member government of **MUMPO**, the Town of Waxhaw participates in transportation planning initiatives for the region, and enjoys the benefits and resources available through the organization.

Transit

According to the 2030 Plan:

> "The Union County Transportation system provides special transportation services to the county's elderly and disabled populations at no charge; general customers can also receive service at a specified fare. At this time, no other public transportation services are provided in Waxhaw." (p. B-10)

The LARTP states:

"There are no plans for extending mass transit into the study area, although planned future Charlotte transit extensions would come closer to the study area (to Matthews) and make it easier for Western Union County residents to use transit. An express shuttle from Waxhaw to downtown Charlotte has been discussed but is not currently funded."

First Friday on South Main Street, Waxhaw

Local Festivals & Events

Waxhaw celebrates a number of events that draw crowds of participants on foot, particularly to the downtown area.

Spring Fest takes place downtown the second weekend of May each year. It features artists and crafters, activities for children, live entertainment and food. This event reportedly attracts over 10,000 people.

First Fridays occur on the first Friday evening of each month. On these nights, Downtown restaurants and business stay open late helping to create a lively street atmosphere.

The July 4th Parade takes place on Main Street in Waxhaw and is attended by over 12,000 people. The day includes a "Beach Party", which takes place just north of downtown on Providence Road at the Waxhaw Parkway intersection. Fireworks are launched from Jackson Station.

Military Ceremonies are an important of this community steeped in military history and very proud of its past and present military service members. Military personnel are honored on both Veteran's Day and Memorial Day with a remembrance ceremony on North Main Street.

Autumn Treasures is held downtown the second weekend in October. This event highlights local artisans and crafters and features similar activities as Spring Fest.

Christmas Parade, Snack with Santa, and Official Tree Lighting ceremony occurs on the second Sunday in December. The afternoon parade is attended by over 10,000 people. The evening includes a production of the Twelve Days of Christmas and thousands of lights on the green, and wraps up with Christmas carols and the tree lighting.

PART 4: GENERAL RECOMMENDATIONS

Communities can employ a number of differing strategies to improve pedestrian facilities depending upon the methods of the local leadership. They may choose to:

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

Many municipalities will, by default, take the first approach, or else employ a more coordinated effort the second two require. The Town of Waxhaw is committed to integrating current and future pedestrian needs into its comprehensive planning efforts through this Pedestrian Plan process. Through this process, policy tools are put into place to ensure that future development decisions strongly consider pedestrian interests, and that the developing pedestrian system will work toward the realization of the overall vision and goals of the community by helping to engender a cohesive and compact Town where walking is not only a viable option but often the preferred way of getting to destination points. It will help Waxhaw develop as a community whose initial historic urban core provides the framework for future growth.

This plan is based upon the realization that transportation needs are interwoven with other needs reflected in the way land is used. Transportation systems and land use patterns must be mutually supportive for either to work in a fully functional and efficient manner. This is particularly true in the case of pedestrian planning, where a number of land-use factors often determine whether even the "best" pedestrian facilities actually ever get used.

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

Waxhaw Pedestrian Plan – Open House Meeting II

4.1 Recommended Actions

Before zooming in on focus areas or individual site-specific projects, a broad description of recommended pedestrian initiatives for Waxhaw is provided here. Each of these actions or strategies is intended to help improve pedestrian conditions in terms of increased safety and mobility. For a quick comprehensive schedule of implementation steps, refer to **Part 8.2: Key Action Steps** and **Appendix A.3: How to Build a Sidewalk**. Individual projects and project priorities are described in detail in the **Part 6**: **Project Recommendations**, and are also depicted on the Comprehensive System Maps in **Part 7: System Maps**.

Each of the strategies and actions listed below are interdependent steps. Each will help put the pieces in place necessary for effectively building pedestrian projects and meeting the vision set forth in the Pedestrian Plan. These strategies should be addressed simultaneously to the greatest degree possible.

1. **Form a PAC! (Pedestrian Access Committee)**
   A stakeholder based Pedestrian Access Committee (PAC) can represent a wide variety of pedestrian interests and populations in the Town. An existing committee may already be in place to take on this function. Members should include representatives of the business community, long-time residents, and residents of newer residential developments. Various areas of expertise represented by the PAC should include:

   - Transportation
   - Commerce
   - Industry
   - Health and Fitness
   - Safety and crime prevention
   - Recreation
   - Education
   - Aesthetics
   - Environment
   - Engineering and Design
   - Public outreach

The purpose of the PAC is to ensure that the Pedestrian Plan stays in the forefront of public awareness, that it is implemented through ordinance changes, grant opportunities, and as development occurs in the private and public sectors. The PAC should also help ensure that the Pedestrian Plan is updated as needed to reflect changing conditions and pedestrian needs. The PAC can be an important avenue for integrating pedestrian needs with other planning processes. The group can serve as advocate, monitor, facilitator, and educator, and see that emerging public needs are addressed in the planning process. The PAC should also ensure that citizens are alerted of planning efforts, changes in facilities, and upcoming construction.

Implementation Strategy:

a.) The Town Board shall appoint the PAC members, or recognize an existing committee, and invest them with the training, authority and charge to pursue the Pedestrian Plan strategies.

b.) Evaluate current Town staffing needs. Implementation of the Pedestrian Plan may require some additional staff responsibilities to coordinate individual improvement projects and work with the Pedestrian Access Committee.

c.) Utilize the **Waxhaw Walks** Facebook site, or the Town's existing website, to foster a walking-friendly community. The website can be a great place to announce pedestrian workshops and meetings, and promote community activities and programs that get people connected and walking.

2. **Address safety concerns over street crossing conditions.**
Crosswalks are strategically where high pedestrian activity encounters the greatest potential conflict with vehicular traffic. Properly designed crosswalks not only facilitate safer street crossing opportunities for pedestrians, they also offer a secondary pedestrian benefit of calming traffic.

Implementation Strategy:

a.) Contact NCDOT Division 10 and formally request a site visit to existing crosswalks and other crossing points recommended in this Plan as needing particular attention.

b.) Request that consideration be given to the need for crosswalk signalization, pedestrian activation mechanisms, signage and striping in locations listed in **Part 6.2 Crosswalk Project Descriptions**.

3. **Enhance Conditions and Accessibility of Existing Sidewalk System.**
Segments of existing sidewalks throughout the Town are in sub-standard condition and/or inaccessible to handicapped users. These include sidewalks that are partially obstructed by utility poles and other objects that can impede the travel path. Accessible ramps are needed for curbs at intersections. Crosswalk striping at some intersections has faded. Some curbs have given way due stress from heavy vehicles.

Implementation Strategy:

a.) The Town's sidewalk maintenance schedule may require revision to keep up with the Town's increasing pedestrian infrastructure requirements. Review the dedicated fund referenced by the schedule along with the funding sources provided in **Part 8: Implementation** of this plan to see if additional funding sources could be tapped to increase a steady flow of maintenance funds.

b.) Perform spot improvements to existing sidewalks in accordance with the plan's priorities. Sidewalk conditions to be considered for improvements may include:

i. Pavement condition and type
ii. ADA compliance
iii. Path width
iv. Drainage
v. Removal of obstructions
vi. Lighting
vii. Planter islands
viii. Landscaping
ix. Trash cans, benches, and other "pedestrian furniture"

c.) Handicapped pedestrians are particularly sensitive to sidewalk maintenance and accessibility needs. Contact these users directly, or through local organizations that work with the physically challenged, and develop a volunteer reporting system that helps these users record and report maintenance and accessibility problem spots.

d.) Develop a maintenance reporting system for Town staff that travel town streets weekly. Maintenance needs can be reported by cell phone or radio to a central dispatch, or be recorded on a laminated map with grease pencil, or by using an adapted GPS system. For more information, call PinPoint Geotech at (864) 643-0344, or visit: www.PinPointGeoTech.com.

e.) Review pedestrian warning signage of current facilities. Repair, replace and augment signs where necessary for increased safety and clarity.

f.) Examine and improve landscaping conditions associated with pedestrian facilities. Ensure existing landscaping is properly maintained to provide pedestrian clearance. Provide shade trees for sidewalks where conditions permit. See **Part 8.4 Maintenance Programs**.

4. **Implement existing development policy.**
Much of Waxhaw's current policy complements the Pedestrian Plan goals and can work in tandem with its recommendations.

Implementation Strategy:

a.) Review adopted policies, particularly those cited in the Pedestrian Plan. Resolve any conflicts that may exist between these documents.

b.) Identify the complementary goals, any common funding strategies, and potential private partners. Discuss priorities, strategies and responsibilities with all pertinent municipal staff, planning board and local, area, and county officials.

c.) Resolve local roadblocks to development projects that would improve local pedestrian conditions. The Waxhaw Parkway, for example, could redirect though-traffic, heavy-vehicles, to improve downtown walkability conditions.

d.) Establish partnerships with local businesses, citizen action groups, and regional public organizations (such as Centralina COG).

e.) Target specific projects for funding and implementation efforts.

f.) Engage the public and development community with education campaigns and open house events.

5. **Initiate recommended programs.**
Pedestrian programs can help raise community awareness, and encourage healthy and safe activity.

Implementation Strategy:

a.) The PAC and Town staff shall work with stakeholders to determine what programs might work best in Waxhaw. For some initial ideas, see **Part 4.3: Recommended Programs**.

b.) Involve stakeholder groups such as the Police Department, health experts, fitness enthusiasts, school officials, town historians, et al. These volunteer advocates can manage programs, distribute materials, and encourage participation.

SIDEWALK CONSTRUCTION

6. **Expand, fill gaps, and remove barriers in the current sidewalk and crosswalk system.**
The Town enjoys an extensive sidewalk system, with facilities in place along many of its primary roads and in newer pockets of development. But critical gaps in the system prevent its full use, particularly for accessing downtown. These isolated segments need to be connected in order to form a more complete pedestrian transportation system.

Implementation Strategy:

a.) Utilize the Pedestrian Plan to help locate, design and construct sidewalk and associated facilities.

b.) Closely monitor the schedule of improvements to existing roads and new construction. Many of the Pedestrian Plan's recommended sidewalk projects are to be constructed as road improvements are implemented by NCDOT.

c.) Ensure that all new development respect planned or proposed sidewalk alignments and follow development ordinance regarding sidewalks.

d.) Utilize existing undeveloped Town-owned street right-of-way for sidewalk and trail development.

e.) Locate and remove needless barriers to pedestrian passage.

f.) Apply for recommended funding and enact revisions to the local budget. Refer to **Part 8: Implementation & Funding** and Local Budget Recommendations in this Plan for various options of land acquisition and public-private partnerships.

g.) Initiate right-of-way agreements for sidewalks and associated improvements. All pedestrian projects should be coordinated with the appropriate right-of-way owners, including NCDOT Division 10, local utility companies, and individual parcel owners to be identified. Coordinate with neighboring municipalities and/or Union County where trails leave Waxhaw municipal limits.

7. **Develop a safe and inviting trail and greenway system.**
Help link disconnected portions of the municipality and provide greater pedestrian connectivity and recreational opportunities throughout the Town and its surroundings. In addition to an improved sidewalk system, the Pedestrian Plan outlines an interconnected system of trails that link primary destinations, neighborhoods, existing and planned municipal greenways systems, outlying areas of the Town including island annexations, adjacent municipalities, and the proposed regional Carolina Thread Trail. This proposed greenway network is designed to complement and extend both the existing greenways in Waxhaw and its planned system.

It should be noted that the term "trail" refers to a path other than a sidewalk that links destination points (and thus is useful for transportation) as well as a path that may be used simply for recreation. A trail may (or may not) be part of a greenway. The Carolina Thread Trail organization defines greenways as:

> "Linear natural spaces, often containing trails that link parks, nature reserves, cultural features or historic sites with each other, for recreation, transportation and conservation purposes."

Implementation Strategy:

a.) Locate, design, and construct trails and their supporting facilities according to the Pedestrian Plan. Require trails and their associated facilities (including associated parking areas) with minimum deviation from alignments shown in the **Comprehensive System Maps**, to be built according to the Facility Standards and Guidelines.

b.) Establish conservation easements for farmland that incorporates planned greenways.

c.) Initiate right-of-way agreements for trails and associated improvements. All pedestrian projects should be coordinated with the appropriate right-of-way owners, including NCDOT Division 10, local utility companies, and individual parcel owners to be identified. Coordinate with neighboring municipalities and/or Union County where trails leave Waxhaw municipal limits.

d.) Ensure that all new developments respect planned or proposed corridors for greenways. New trail easements may be acquired through a subdivision process, or through various other means including:
   i. Donation of right-of-way or easements by public or private landowners
   ii. Public purchase of right-of-way or easements
   iii. Public/private partnerships

e.) Explore opportunities to utilize creek lands and floodways, utility rights-of-way, and existing parks.

f.) Utilize existing undeveloped Town-owned street right-of-way for sidewalk and trail development.

g.) Coordinate greenway planning with the Union County Public Works baseline infrastructure study.

h.) Incorporate equestrian facilities into greenways, such as shared or parallel paths, and parking for horse trailers. Refer to **Part 5: Facility Standards & Guidelines (11.3)** for details. For description and location of proposed equestrian paths and parking facilities, see **Part 6.3: Trails: Project Descriptions & Ranking.** Proposed facilities are depicted on the **Comprehensive System Maps** in **Part 7: System Maps**.

i.) Apply for recommended funding and enact revisions to the local budget. See **Part 8: Implementation & Funding**.

j.) All projects must meet all local ordinance buffer requirements and state wetlands requirements.

8. **Coordinate with neighboring municipalities and Union County on projects in the vicinity of Waxhaw's corporate limits.**
Waxhaw can directly determine what happens within its borders, but not what happens just over the line. However, the Town has a history of local coordination, such as the LARTP, that it can build upon.

Implementation Strategy:
a.) Initiate other regional plans beginning with partnerships established in the LARTP process.
b.) Monitor land development near Waxhaw, and coordinate with the Western Union Municipal Coalition, Union County Planning Department, neighboring municipalities, and the Carolina Thread Trail.
c.) Initiate right-of-way agreements for sidewalks, trails and other planned improvements
d.) Foster the development of regional initiatives.
e.) Continue proactive involvement in regional organizations such as MUMPO and Centralina COG.

9. **Engage in community planning for infill of under-developed parcels in and around Town.**
As part of the land use planning process, serious discussions at the community level should guide the desired character infill development on large parcels, and how much street connectivity and pedestrian-friendly actions should be promoted in that development. These discussions should occur sooner rather than later, before these properties are developed, so that pedestrian facilities can be included in planning (as it is usually much more costly and difficult to successfully retrofit). As a part of these discussions, current zoning restrictions for these properties should be evaluated in terms of pedestrian-friendliness. A higher density and broader mix of uses (such as permitted in the Town's C-4 and TND zoning, for example), along with sidewalks and street trees, could support walking as a desirable means of transportation. Mixed-use zones would allow a variety of destination to closely exist in these areas – restaurants, stores and offices, for instance – providing citizens more opportunities to walk in their daily routine and work near their homes. Widely spaced and dispersed uses tend to discourage walking as a form of transportation between them.

Implementation Strategy:
a.) The Town planning staff, the Planning Board and the PAC should evaluate public input and present recommendations for adoption by the Town Board.

10. **Highlight Historic and Cultural Landmarks.**
Reinforce the unique identity of Waxhaw through its historic landmarks and cultural elements.

Implementation Strategy:
a.) Identify additional strategic locations for public art display.
b.) Identify and catalog additional historic landmark elements that express the Town's unique heritage. Some these locations have been identified in this Plan as destinations along greenways, such as the Gold Mine and Civil War Cemetery. **See Part 7: System Maps**.
c.) Develop a local way-finding system.

11. **Provide multi-modal transit opportunities.**
With a substantial percentage of Waxhaw's citizens daily or weekly making the trip to Charlotte for employment and other purposes, exploring a variety of opportunities for shared rides makes sense. Public transportation provides an important alternative to improve transportation efficiency. Public transportation reduces or eliminates the amount of time spent in traffic jams; provides a much needed service for elderly and disabled by giving them the freedom to leave their homes if necessary; promotes independence for those who need public transportation to get to work; and improves road conditions and the environment by reducing the number of cars on the highways (for every bus full of passengers 40 cars are removed from traffic). Cities and towns with good public-transit options offer more convenience for residents. And studies indicate that towns with good transit options recover faster from recession. Lack of access to public transportation can be a major barrier keeping out-of-work people, especially those in lower-income groups, from finding jobs.

Implementation Strategy:
a.) Continue to solicit Charlotte DOT to extend current bus lines.
b.) Promote the Charlotte Area Transit System (CATS) van pool to make more people aware of this service.
c.) Develop local car pools. The Sustainable Environment for Quality of Life (SEQL) program offers a guideline for starting these services locally. See **Appendix A.1.21**.

12. **Update the Waxhaw Unified Development Ordinance.**
Specific revisions to the UDO could help achieve the expressed pedestrian vision of the Town and positively impact the community's pedestrian quality. New sidewalks, trails and associated pedestrian facilities will become available to the Town through the development process, with minimal public expense.

Implementation Strategy:
Examine in **Part 4.2** the summary of concerns with current ordinances in the UDO and the recommended ordinance modifications. These pedestrian-related issues are reviewed in **Part 3.1: Current Ordinance**. Refer to **Part 3.1** for specific references within the UDO. Revise the UDO according to the procedures outlined in **UDO Section 16: Amendment to Unified Development Ordinance.**

4.2 Recommended Ordinance Modifications

1. Mix of Land Uses

Concern #1:
The UDO limits mixed-use "pedestrian-oriented" development to C-4 and TND zones. According to the June 2011 Zoning Districts map, only twelve blocks are currently zoned C-4, all located in the Downtown core of Waxhaw, and no areas within Waxhaw are indicated as TND. The predominant segregation of allowable land uses in the Town's arrangement of zoning districts encourages or necessitates the use of a car for many citizens.

Recommendations:

a.) Consider what additional areas within Waxhaw would benefit from a mix of residential and other land uses (Refer to the 2030 Comprehensive Plan and current development proposals). Note the current dominant zoning of these locations and consider how broadening allowable uses to include some forms of residential could allow greater pedestrian conditions within these areas.

b.) Review the intent of primary zoning districts similar to C-4 that allow a limited mix of uses, such as the Neighborhood Business District (C-1) and consider amending those zones to allow compatible residential uses.

2. Street Connectivity

Concern #1:

The UDO places no limit on the use of cul-de-sacs internal to the development by way of a connectivity ratio or other objective means.

Recommendations:
Provide an objective standard or goal for internal and peripheral connectivity. This could be accomplished by:

a.) Limiting the percentage of streets within a subdivision that can be cul-de-sacs;

b.) Institute a connectivity ratio for all subdivisions which uses an established mathematical standard for street connections both within the subdivision and connections to other streets and properties at the subdivision periphery. For an example, see **Appendix A.1.16.**

Concern #2:
The UDO's language on the minimum of required connections for subdivisions to public roads along each frontage can potentially decrease connectivity in ways that stifle walkability.

Recommendations:

a.) Require additional pedestrian connections to public roads along each exterior frontage of a subdivision when that frontage on a particular public road is more than 750 feet (see Block Length); or when the subdivision contains more than 100 lots.

b.) State that additional points of ingress/egress may be required when the Planning Board determines that physical characteristics (such as the location of opposing driveways) would render the additional entrance practical for vehicles and pedestrian use.

3. Cul-de-sac Length

Concern #1:
As cul-de-sacs lengths increase, connectivity decreases. Properties accessible from only one direction become more isolated and difficult to reach. Vehicular traffic also increases in speed and volume. The UDO allows cul-de-sacs to stretch a distance approaching almost three football fields in length. This length will permit as many as 26 lots to occupy one cul-de-sac in some of the Town's residential districts.

Recommendation:
Reduce the maximum allowable length of cul-de-sacs to 400 feet. This value decreases the maximum number of lots permitted on any single cul-de-sac and equates to the degree of connectivity permitted by block lengths of 800 feet, where the distance to an intersection is no greater than 400 feet.

4. Block Length

Concern #1:
For all zoning districts aside from TND, the UDO's 5,000 foot perimeter limitation on block dimensions permits blocks in some residential zones to reach a length of nearly ½ mile.

Recommendation:
Apply the TND block length ordinance to all zoning districts, but allow an increase in the maximum to 600 feet.

Concern #2:
The UDO allows exceptions to the allowable span for block lengths in TND based upon topography, but the UDO offers no objective standard as to what degree of slope necessitates a longer block.

Recommendation:
Include objective guidelines in the UDO for determining "unusual topography". Recommended standards: slopes exceeding 15% for a sustained length (fifty feet), or stream valley widths in excess of 20 feet.

5. Crosswalks

Concern:
The UDO provides no guidelines for strategic location of crosswalks.

Recommendations:

a.) Amend the UDO to require that schools and recreation facilities (which typically encourage increased pedestrian traffic) be subject to a conditional use. A condition that could be placed on such uses is the installation of crosswalks on major streets that abut such facilities.

b.) Amend UDO to require midblock crosswalks along collector streets within subdivisions for block lengths of greater than 500 feet.

c.) Reference the Town's Comprehensive Pedestrian Plan and other future related planning documents for location of proposed crosswalks.

6. Sidewalks

Concern #1:
The UDO provides insufficient guidelines for location of future sidewalks.

Recommendation:
Utilize the Town's Comprehensive Pedestrian Plan as an additional reference for the location of required sidewalks.

Concern #2:
The UDO includes a section excerpted directly from the Union County Public School Zoning Regulations. The text contains a number of ambiguities concerning the requirement for sidewalk placement in the vicinity of Union County Public Schools.

Recommendations:

a.) In order to provide safe pedestrian connections to schools, amend the UDO to include a condition on schools for the installation of an internal sidewalk system connecting to sidewalks along major streets that abut or join school facilities.
b.) Amend UDO 9.22 C.1 with a revised statement that resolves the questions and ambiguities described in **Part 3.1**.
c.) Reference the Town's Comprehensive Pedestrian Plan for location of required sidewalks.

7. Greenways, Trails and Open Space

Concern #1:
The UDO includes a requirement for the installation of sidewalks or multi-use paths to physically connect cul-de-sacs or dead ends to other nearby streets; however, the degree to which this requirement is carried out is left entirely to the discretion of the Zoning Administrator. The UDO provides no consistent standards or parameters by which to measure the impracticality of installing the sidewalk or multi-use path connection.

Recommendation:
Include objective guidelines by which the Zoning Administrator can base a determination of conditions being "impractical" for sidewalk or multi-use trail connections. These guidelines should include maximum degree of slope, maximum distance, or presence of wetlands. Recommended standards: slopes exceeding 15% for a sustained length (fifty feet), or distance of paved road separation exceeding 500 feet.

Concern #2:
The decision to provide greenway connections to adjoining properties where greenways do not yet exist is left to the opinion of Town officials, but the UDO makes no reference to any adopted plans or standards to guide or base such decisions.

Recommendation:
Reference the Town's Comprehensive Pedestrian Plan and other future related planning documents for location of proposed greenways and multi-use trails.

8. Street Trees

Concern:
Current UDO language governing the location and mitigation of street trees, together with the Waxhaw Tree Management Plan concerning the management of trees in the public right-of-way, may prove insufficient for Waxhaw's needs.

Recommendation:
Incorporate a municipal tree ordinance into the UDO to provide standards for public and private tree installation and maintenance.

9. Walkable Streetscapes

No concerns with current ordinance language.

10. Building Setbacks and Parking

Concern #1:
Minimum numbers of required off-street parking spaces are required for various uses in the UDO, though the actual minimum numbers are not clearly defined therein.

Recommendation:
Revise the UDO to clearly define parking minimums (e.g. Parking minimums for all uses are equal to 20% of the parking maximum required per UDO **Table 12.3.4 d. 2. c.**).

Concern #2:
Setting a minimum required number of parking spaces can inadvertently encourage the construction of excessively large parking lots, which conflicts with a pedestrian-friendly environment.

Recommendation:
Remove parking minimums from commercial zoning districts but maintain parking maximums. Many zoning ordinances either waive or significantly limit the amount of off-street parking required in a settings that are intended to be pedestrian-friendly.

11. Driveway Curb Cuts / Access Management

Concern:
Though direction is given to "minimize" curb cuts in TNDs, no particular standards are provided for doing so. Minimum distance standards between driveways are not provided for any land use zone classification in the UDO.

Recommendations:
Include within the UDO, standards for minimum distances between curb cuts based upon the permitted travel speed of the road. For example, see the table below:

Distance Between Curb Cuts

Travel Speed Minimum	Distance (feet) Between Curb Cuts
30 mph	100
35 mph	150
40 mph	200
45 mph	250
50 mph	300
55 mph	350

City of Rogers Street Master Plan
http://www.rogersarkansas.com/planning/Access_management_doc_%20(4).pdf

4.3 Recommended Programs

Pedestrian facilities, old or new, will receive greater use if certain programs are in place to promote and encourage pedestrian activity, especially for people who are not accustomed to walking much. Many such programs are already in existence throughout the country. The following existing programs are recommended for the Town of Waxhaw.

The Heart Walk
An annual American Heart Association ***Start! Heart Walk*** for Heart Disease can feature many events, including 10K and 8K runs, a 5K walk, a Tot Trot, a 1 mile "Fun Run" or even a half or full marathon. These popular events are sponsored by various businesses and can be organized by an independent contractor. Find out more by visiting:
http://www.heart.org/presenter.jhtml?identifier=3053039
To talk to an experienced consultant about beginning a program, contact the First Health Center for Health & Fitness,
(910) 715-1843
or see http://www.firsthealth.org/

American Heart Association
Learn and Live

Walk a Kid to School event
On special days each year, non-profit organizations, teaming up with area restaurants, could provide school children breakfast before leading them on a community group walk to school. Programs like these help children, parents and all participating adults see for themselves the benefits and viability of children walking to and from school. NCDOT has more information about this type of initiative and related ones at:
http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/walk2school_intro.html

Walking School Bus
The walking school bus idea encourages students to walk together with supervision of one or more adults, depending on the size of the group. Adults can take turns walking with students by having assigned days of duty. The group follows a planned route, similar to the traditional school bus, on their commute to and from school. Children can be met by the group at their homes or at supervised "bus stops". The bus participants can have fun with the idea by wearing a specific color, use a wagon for the backpacks, or hold a rope linking them all together. Adults can use the opportunity to teach pedestrian safety skills to students while walking to school as well. Special days can be designated, like "Walking Wednesdays", on a weekly or monthly basis to encourage participation. Classes that have the greatest percentage of students participating can be recognized and rewarded.

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

Students can also serve as safety patrol volunteers. The AAA School Safety Patrol program has helped reduce injuries and deaths among younger students most at risk for pedestrian injury. The AAA program also instills students with a sense of responsibility and leadership, as each day they protect classmates going to and from school. Contact the AAA School Traffic Safety Coordinator for North Carolina, at (888) 274-4459x6201, or visit AAA at:
http://www.aaapublicaffairs.com/Main/Default.asp?CategoryID=7&SubCategoryID=25&ContentID=71

Pedestrian Safety Roadshow
In an effort to reduce pedestrian injuries and fatalities in North Carolina, the Division of Bicycle and Pedestrian Transportation (DBPT) hosts this special program to train facilitators who could help communities identify and solve problems that affect pedestrian safety and walkability. The Federal Highway Administration (FHWA) developed this program in conjunction with the National Highway Traffic Safety Administration (NHTSA).

The objectives of the Pedestrian Safety Roadshow are these:

- Increase awareness of pedestrian safety and walkability concerns
- Provide participants with information about the elements that make a community safe and walkable
- Channel community concerns into a plan of action for addressing pedestrian issues.

Led by a trained facilitator, the Roadshow brings together community officials, concerned citizens, and local business leaders for an educational workshop about pedestrian issues. An accompanying slide show illustrates both problems and solutions to help pedestrians. The Roadshow also addresses health, environmental, and quality of life concerns that impact a community. After the classroom portion of the Roadshow, participants are asked to visit a particular street, neighborhood, or area of their community to identify pedestrian concerns and then to discuss possible solutions. The participants are then challenged to follow up on the Roadshow with a plan of action to develop and implement appropriate solutions. To request a Pedestrian Safety Roadshow for Waxhaw, contact the DBPT at (919) 707-2600 or bikeped_transportation@dot.state.nc.us.

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

Wireless Internet (Wifi) and trail webcam coverage.
Wifi allows people to enjoy a mobile workplace. Anyone working on a laptop computer can choose to work inside or outside, wirelessly, anywhere within the Wifi range. Wireless broadband access can be set up in areas where people are likely to want to gather outside, such as existing parks, area restaurants, or open spaces provided within new communities. Wireless webcams can also work off of the same system and be incorporated into greenway trails. These "trailcams" would enhance public safety and provide promotion for greater trail use. Additionally, 911 call buttons could also be stationed along various parts of each trail.

Waxhaw Walks

Social media is becoming more influential with a growing audience every year. The *Waxhaw Walks* Facebook page was developed and used during the pedestrian planning process to announce public input meetings, seek public input on the plan, share findings, and foster a community that enjoys the benefits of walking. *Waxhaw Walks* can continue to be a great place to carry on that effort. It provides the community a way to announce and promote public outdoor events, community planning meetings and workshops, and community activities and programs that get people connected and walking. The Town may want to explore and utilize other social media sites as well.

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

Pedestrian-related Action Items include:

- **Pedestrian Friendly Streetscapes**
- **Connectivity for Multi-Modal Transit**
- **Greenways and Open Space**

SEQL | SUSTAINABLE ENVIRONMENT for QUALITY of LIFE

The Waxhaw Walkers (NEW PROGRAM)

The proposed trail network will provide opportunities for the community to meet, socialize, and exercise. As part of initial promotions for particular trails, the "Waxhaw Walkers" would provide an organized opportunity to gather for a trek along the trails. As part of the weekly event, refreshments could be provided by sponsoring area restaurants and served by volunteers. Printed T-shirts or ball caps could also be made available to initial participants, along with area retail coupons. The Waxhaw Walkers could also hold events like Special Olympics and charity relay races, walkathons and marathons. Proceeds could be directed toward park or trail improvements. Such events would also draw attention to the health benefits of walking. Waxhaw's current historic walking tour provides an example of how successful such walking groups can be.

Education and Enforcement Programs

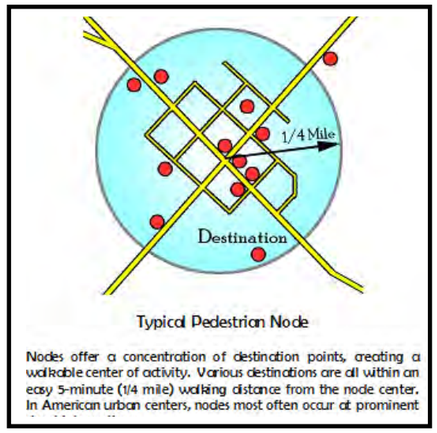
It is important to educate not only pedestrians and motorists, but also local law enforcement about pedestrian laws. Under North Carolina law, pedestrians have the right of way at all intersections and driveways. However, pedestrians must act responsibly, using pedestrian signals where they are available. When crossing the road at any other point than a marked or unmarked crosswalk or when walking along or upon a highway, a pedestrian has a statutory duty to yield the right of way to all vehicles on the roadway. It is the duty of pedestrians to look before starting across a highway, and in the exercise of reasonable care for their own safety, to keep a timely lookout for approaching motor vehicle traffic. On roadways where there is no sidewalk, pedestrians should always walk facing traffic.

NCDOT has a number of related resources available. See more about pedestrian law in North Carolina at:
http://www.ncdot.gov/bikeped/lawspolicies/laws/

WAXHAW'S HISTORIC WALKING TOUR

4.4 Project Focus Areas

The Pedestrian Plan recommends projects throughout the entire area in and around the corporate limits of Waxhaw. Specific areas of the Town, however, call for concentrated attention and are described here in greater detail. These focus areas are considered as either existing or potential **nodes** of pedestrian activity that include key destinations such as schools or mixed use centers, and provide critical linkages for the Town. Each area is shown shaded by a blue circle measuring either ¼ mile in radius for the four southern areas near the center of Town, or as a ½ mile radius for the remaining northern areas. A ¼ mile distance can be easily traversed on foot within five minutes, and a half mile within 10 minutes. These shaded circles are intended to help provide a sense of scale and only loosely define the area indicated.



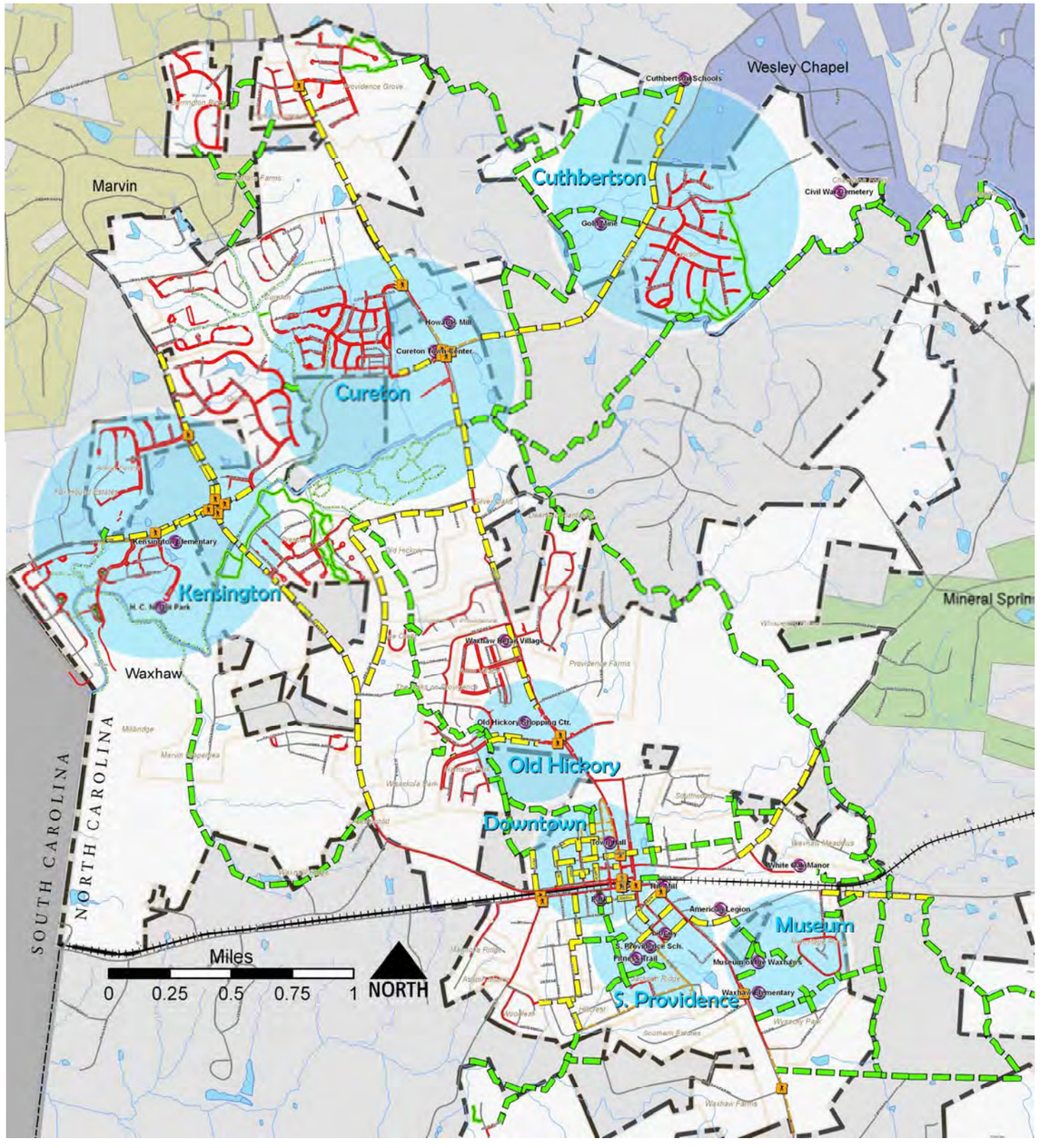
Typical Pedestrian Node

Nodes offer a concentration of destination points, creating a walkable center of activity. Various destinations are all within an easy 5-minute (1/4 mile) walking distance from the node center. In American urban centers, nodes most often occur at prominent

Seven Focus Areas:

1. Downtown
2. South Providence School & the Library
3. Museum Area including Waxhaw Elementary School
4. Old Hickory Shopping Center
5. Cureton
6. Kensington Elementary School & Nesbit Park
7. Cuthbertson Schools and the Lawson community

For each Focus Area, certain pedestrian planning objectives are highlighted, as well the primary projects that will help to accomplish them. Some of the projects may continue outside of the shaded area. Additional projects may also be visible but not described in this section. However, all projects are listed in **Part 6: Project Recommendations**. See **Part 5: Facility Standards & Guidelines** for additional information on recommended facility types.



1. Downtown

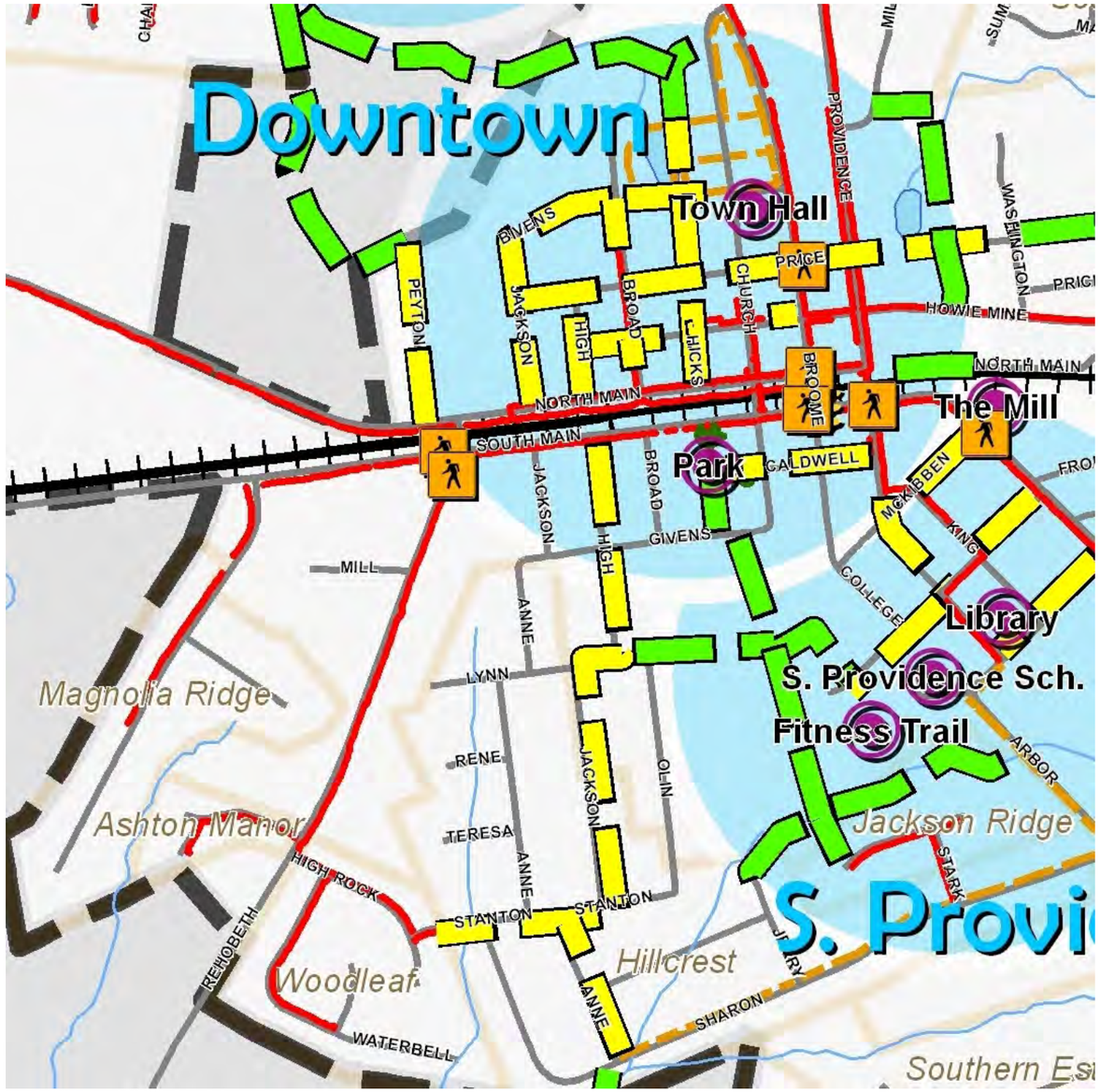
Area Objectives:

- Improve crossing conditions at high-traffic intersections.
- Close gaps in existing sidewalk system.
- Provide more connections to adjacent neighborhoods.
- Connect to potential park site identified in 2030 Plan.

Primary Projects:

- Reconfiguration of crosswalk pattern for North and South Main at Broome (See illustrations on following pages.)
- Pedestrian Activated Crosswalk at Broome and N. Main intersection using Rectangular Rapid Flashing Beacons
- Continuation of sidewalk grid in the downtown area
- Continuous sidewalk link from South Main to Hillcrest and Woodleaf neighborhoods along High, Jackson and Stanton Streets. Establish paved connection on Stanton to Woodleaf neighborhood. Meet planned sidewalk on Sharon, and proposed greenway connection to existing sidewalks on Waxhaw Crossing.
- Greenway connection along sewer easement from Downtown Park to Fitness Trail to Wall Street sidewalk.
- Pedestrian Activated Crosswalk across S. Main at Overhead Bridge using Rectangular Rapid Flashing Beacons
- Pedestrian Activated Crosswalk across Old Providence at McKibben (Old Mill) using Rectangular Rapid Flashing Beacons

South Main Street



Crossing Waxhaw's Crossroads

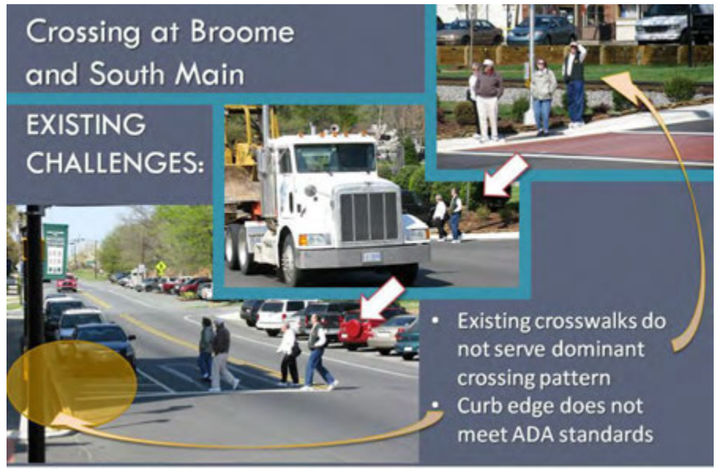
As with many historic communities, Waxhaw is centered upon historic crossroads. And as is typical for historic roads, they follow ridgelines. The crossroads of Waxhaw, where NC 16 and NC 75 meet, consist of a pair of intersections on either side of the CSX railway line. This junction of primary roads and railway in the heart of downtown makes this area the busiest meeting place of cars, trucks, trains, bicyclists and pedestrians.

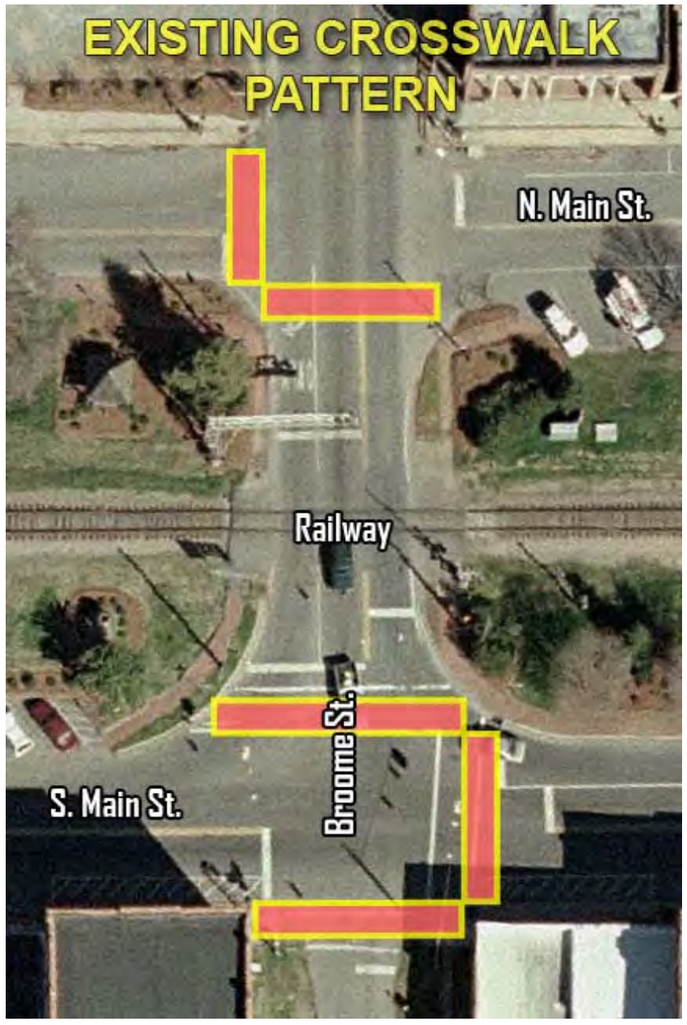
In addition to the high volume of multi-modal traffic, the area also presents a visibility challenge. As Broome Street approaches from the north, the road ascends to crest at North Main, and promptly descends toward South Main at a considerable slope. The crest prevents drivers, cyclists and pedestrians from seeing oncoming traffic on Broome or cross traffic on North Main.

To compensate for the slope, sections of the existing historic sidewalks along North Main rise above the street level by as much as 22 inches. At the intersection of Broome Street, this change in grade is easily compensated for by steps and handrails. A short, elegant ramp is also located to the southeast of the intersection.

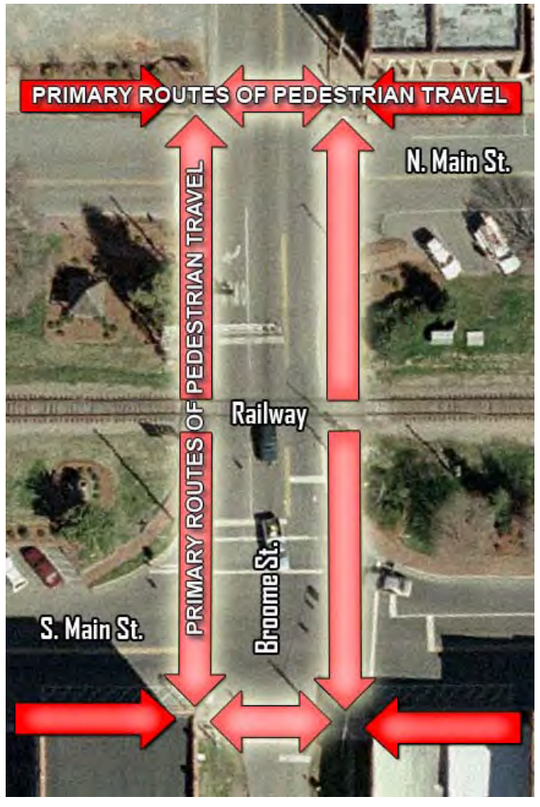
Along South Main Street, the sidewalk compensates for the cross-slope southwest of the Broome Street intersection with a slightly raised curb and a linear sub-grade drainage structure.

Simple and efficient as the historic pedestrian design solutions of these two street corners may be, they present a challenge with current ADA standards and strategies for crosswalk placement. Consequently, the current crosswalk arrangement for this central pair of Waxhaw intersections is designed to avoid rather than engage these critical corners. Though the addition of the current crosswalks has in some ways improved pedestrian conditions at these busy intersections, visibility and dominant travel paths are compromised by this arrangement, which in turn increases safety risks.



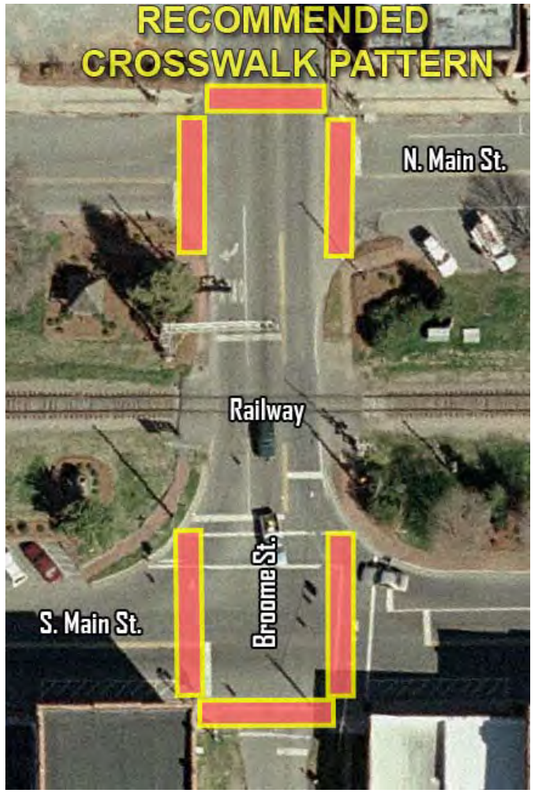


Existing Crosswalk Pattern



To provide the safest and most ideal crosswalk arrangement for pedestrian use in these primary intersections, the dominant crossing pattern for pedestrians must be respected. This pattern is the geometric extension of the existing sidewalk grid which serves the store-fronts lining the streets. While secondary paths and destinations do lie within the central greenstrip of the railway right-of-way, the crosswalk pattern should serve the primary routes of pedestrian travel. This recommended correction would also place pedestrians within better visibility of vehicles approaching from the north on Broome Street.

In order to achieve this proposed rectangular arrangement, the ADA challenges at the northeast and southwest corners of the rectangle must be resolved. However, these engineering solutions are straight forward and would incur a minimum of expense.



The northeast corner at Broome and North Main already features an ADA compliant ramp to the sidewalk. A crosswalk facility crossing Broome Street along the north side of North Main should meet the steps leading to the existing sidewalk but, for ADA compliance, must also continue around the edge of the sidewalk to meet the existing ramp (see illustration). A crosswalk along the east side of the intersection, crossing North Main, would simply meet this proposed path. Some minimal grading may be required at the existing drain grate, which should also be replaced with an ADA compliant structure.

To accommodate a crosswalk across the west side of the southern intersection, to and from the southwest corner of Broome and South Main, some construction is required, including the following elements (see illustration.):

N. Main Street at Broome Street (facing west):

S. Main Street at Broome Street (facing east):

- Reduce the height of the existing raised curb at the proposed crosswalk to make flush with existing street-level pavement.
- Construct platform at existing street level and ramp to meet existing sidewalk grade. Provide railing.
- Install necessary drainage structures.

2. South Providence School & the Library

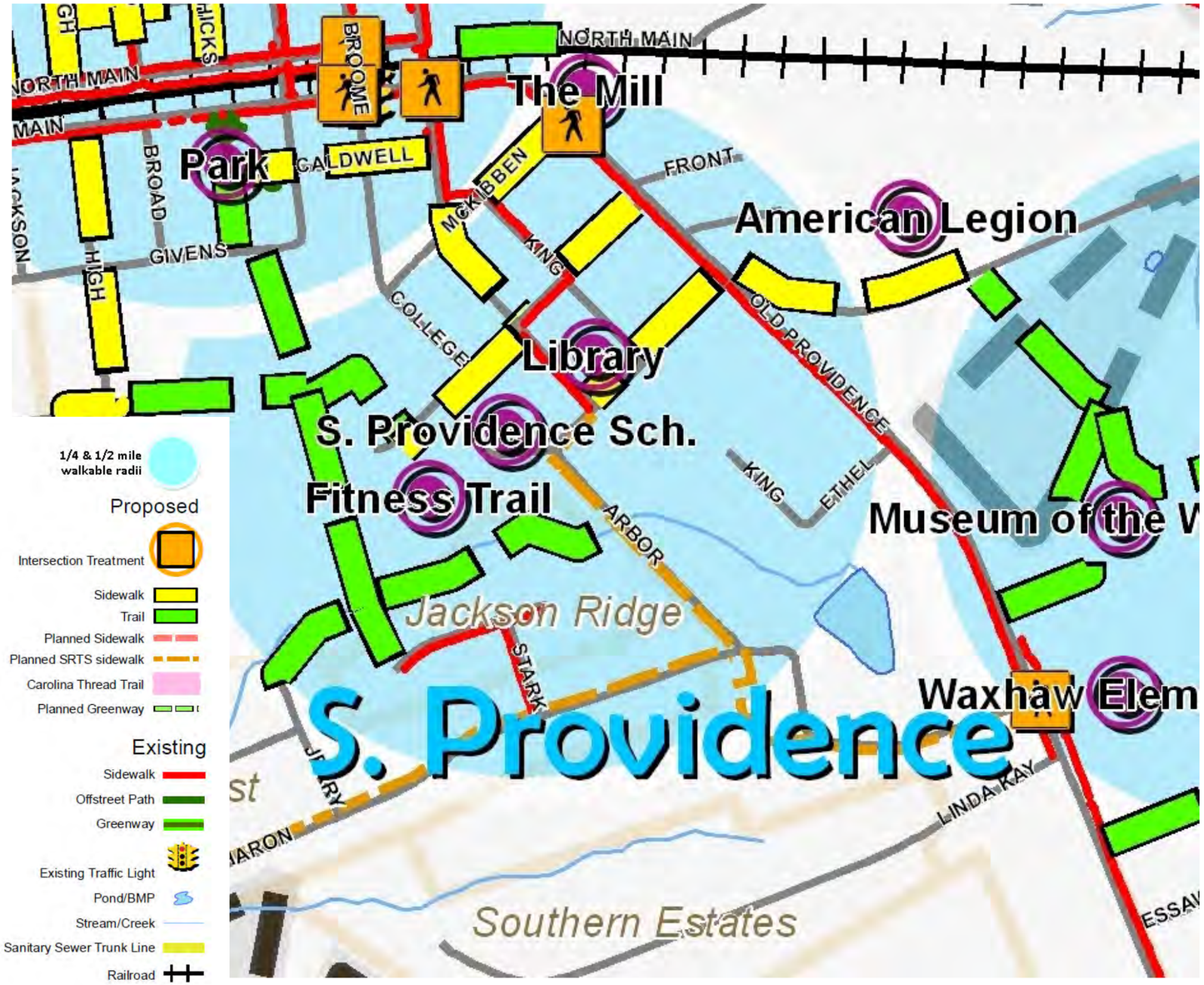
Area Objectives:

- Close gaps in existing sidewalk system.
- Provide greenway connections to the school and other primary destinations with adjacent neighborhoods.
- Provide safe crossings to pedestrian-oriented destinations.

Primary Projects:

- Repair/replacement of existing sidewalk on S. Providence Street near Brevard Street in front of school
- Continuation of sidewalk grid in the school area to better connect to Downtown and Old Providence Road
- Trail connections to neighborhoods south and west

Fitness Trail adjacent to South Providence School



South Providence School is located in an older, residential neighborhood adjacent to downtown. With its traditional rectangular grid of streets, much of the area around the school is inherently walkable. The grid possesses a high degree of connectivity, making it easier for cars and students on foot to reach the school. However, many of the residences within that walkable distance must negotiate gaps in the sidewalk system as well as considerable physical barriers.

The School Walkability Study documents residential properties within a ½ mile radius of the school's front entrance, and determines which residences can take advantage of that walkable distance. For a description of the Study, refer to **Part 3.2 Current Plans & Studies**.

Connectivity is one indicator of how walkable a neighborhood may be. Within the ½ mile radius of the school, 95 intersections (nodes) connect 127 street segments (links), giving the total area a connectivity measure of 1.34 (See **Appendix A.1.16**). However, this overall measurement does not indicate where any challenges may be.

A proximity study identifies the properties within the walkable radius and determines which of the area residents can reach the school on foot. The proximity map depicts the school at the center of a ½ mile radius circle measured from the front entrance. Dashed red lines show the paths available. These paths follow any available streets or trails. Only some of these streets include sidewalks or other pedestrian improvements. The residential properties immediately adjacent to these paths are highlighted in green, indicating that these residents can reach the school by walking ½ mile or less. The properties highlighted in blue represents those remaining residents within the ½ mile radius that must walk further due to barriers.

As shown in the map, the paths are concentrated north of the school and immediately east within the grid of streets (A few minor trail connections are assumed). Some additional paths lie south, but very few project westward or further southward to serve these residential areas, or far to the northeast. Of the 548 residential properties that lie within the ½ mile radius of South Providence School, only 186 of these properties lie along a ½ mile walkable route, which means only a third of the residences within this walkable distance can reach the school in ½ mile or less. Those residents that cannot (properties highlighted in blue) require additional pedestrian linkages, primarily in the form of off-road multi-purpose paths to connect to existing streets. While residents in green highlighted properties would enjoy greater safety with a more complete system of sidewalks.

Legend

- Structures
- 1/2 mile walking route
- 1/2 mile radius (MS & HS)
- Residences on 1/2 mile route
- Residences within 1/2 mile radius
- Waxhaw Town Limits

Land Uses

- Other Uses
- Waxhaw school land
- Residential property
- Open Space

Residential properties shown in blue are located within ½ mile of the school entrance. The ½ mile distance is indicated by the light shaded area circle.

South Providence School Proximity Map

3. Museum Area & Waxhaw Elementary School

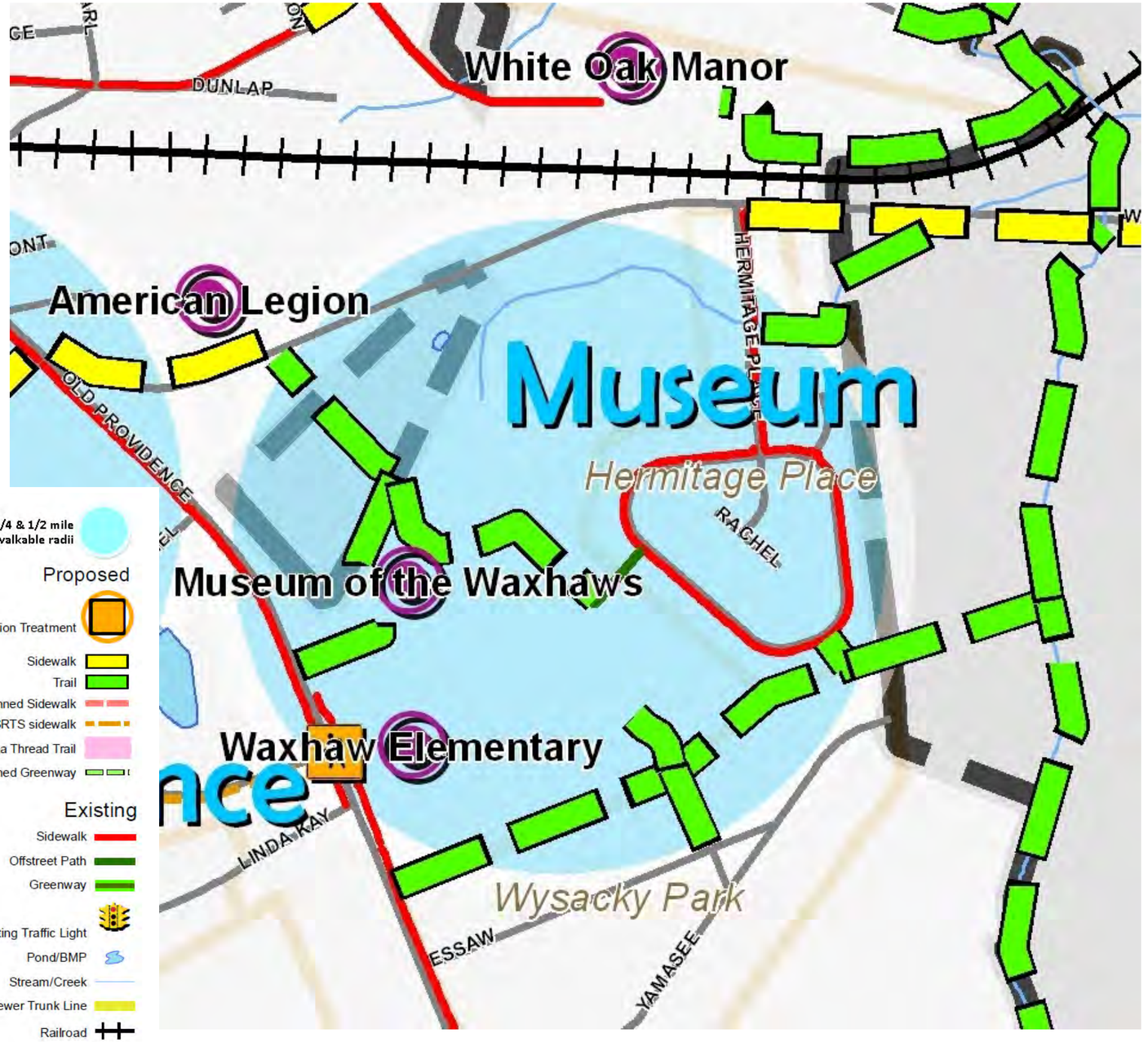
Area Objectives:

- Provide walkable links to primary destinations, including downtown and adjacent neighborhoods.
- Link disconnected incorporated areas of Town.
- Connect to two potential park sites identified in 2030 Plan.

Primary Projects:

- Trail connections to Waxhaw Highway, Old Providence Road, Hermitage Place and Wysacky Park neighborhoods, to proposed Carolina Thread Trail, and to proposed southeastern quadrant greenway system along creek beds and power line easements
- Pedestrian Activated HAWK (High-intensity Activated crossWalK) signal at crosswalk across Old Providence at school entrance

Waxhaw Museum Trail Bridge



Waxhaw Elementary School is located only ½ mile away from South Providence School. It also lies nestled within residential neighborhoods. Hermitage Place at the east end of the school property features a trail that connects this neighborhood directly to the school property. Other neighborhoods adjacent to the school could also benefit from similar facilities.

The School Walkability Study examined a radius of ¼ mile for elementary schools. With 95 nodes connecting 127 links (including street segments and the off-road trail), the overall connectivity measure within the ¼ mile radius comes to 2.0, which is considered fair. (For explanation, see **Appendix A.1.16**).

The proximity study identified 85 residential properties within the study radius. Of these, only 47 were located along a street or walkable path that would allow residents to reach the school within ¼ mile. These results do not take into account the need for additional facilities along existing roads, such as sidewalks and crosswalks, to relieve gaps in the current system. It is only an indication of the need for additional connections to overcome barriers within the study area.

As the Proximity Map indicates, a significant portion of these residences located proximal to the school but without a direct walkable path are located in adjacent Wysacky Park to the south of the school property. The barrier that separates this neighborhood from the school is itself a perfect opportunity for a pedestrian amenity: a wide, grassed sanitary sewer easement that could potentially provide pedestrian connections from Old Waxhaw Monroe Road to a north-south aligned floodplain that eventually connects to twelve Mile Creek..

WAXHAW ELEMENTARY SCHOOL AND ADJACENT SANITARY SEWER LINE

Residential properties shown in blue are located within ¼ mile of the school entrance. The ¼ mile distance is indicated by the light shaded area circle.

WAXHAW ELEMENTARY SCHOOL PROXIMITY MAP

4. Old Hickory Shopping Center

Area Objective:

- Improve safety conditions for crossing NC 16.
- Provide more pedestrian links to adjacent neighborhoods and activity hubs.

Primary Projects:

- 4-way Pedestrian Activated Crosswalks at NC 16 and Waxhaw Parkway
- Sidewalks continuing along Waxhaw Parkway to existing sidewalks in Harrison Park
- Trail connections along sewer right-of-way on Twelve Mile Creek from Old Hickory northward to Prescot and southward to downtown

Post Office on Highway 16
at Waxhaw Parkway

5. Cureton

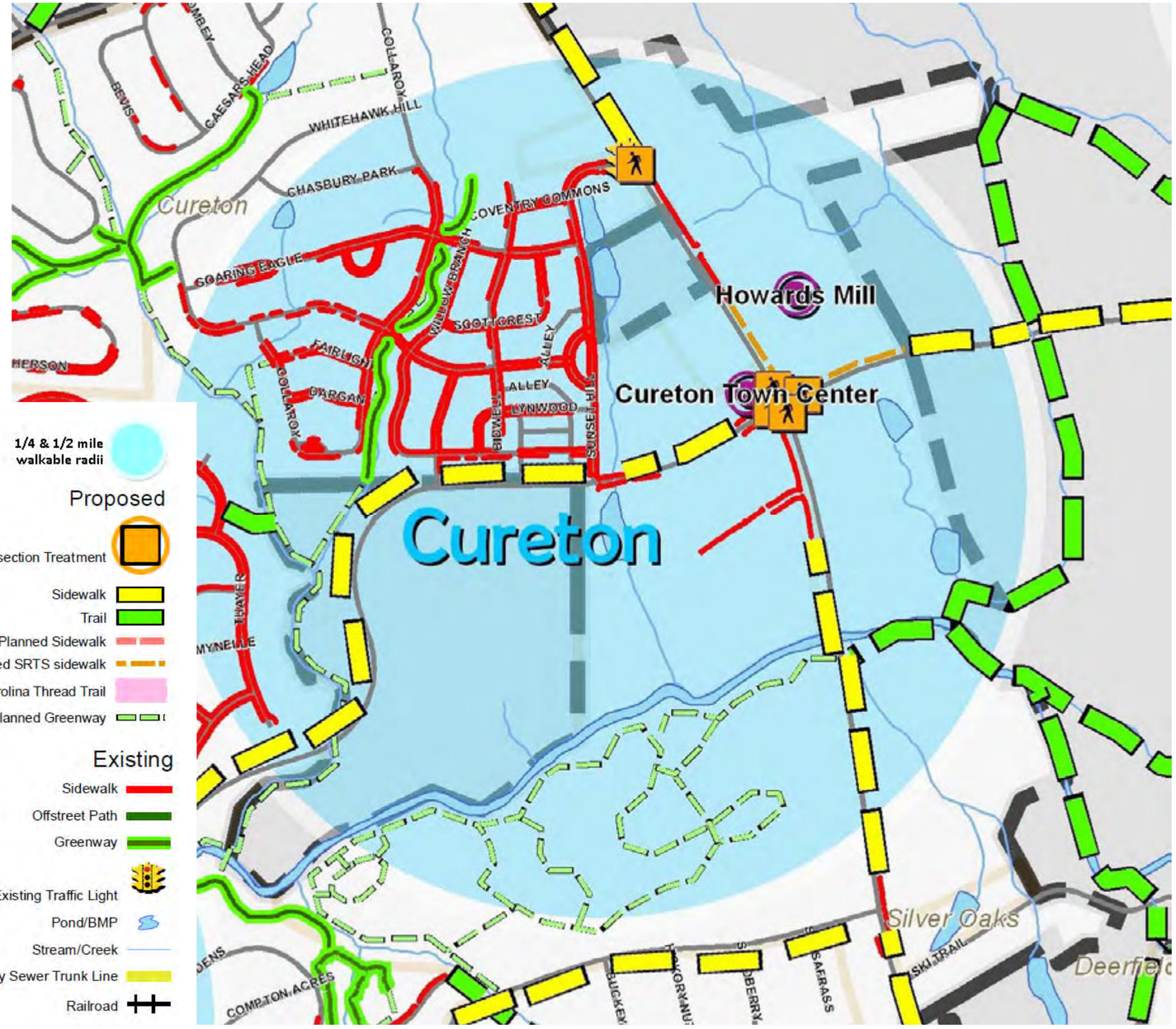
Area Objectives:

- Improve safety conditions for crossing NC 16.
- Provide more pedestrian links to this activity hub, utilizing existing and planned sidewalks and trail network.

Primary Projects:

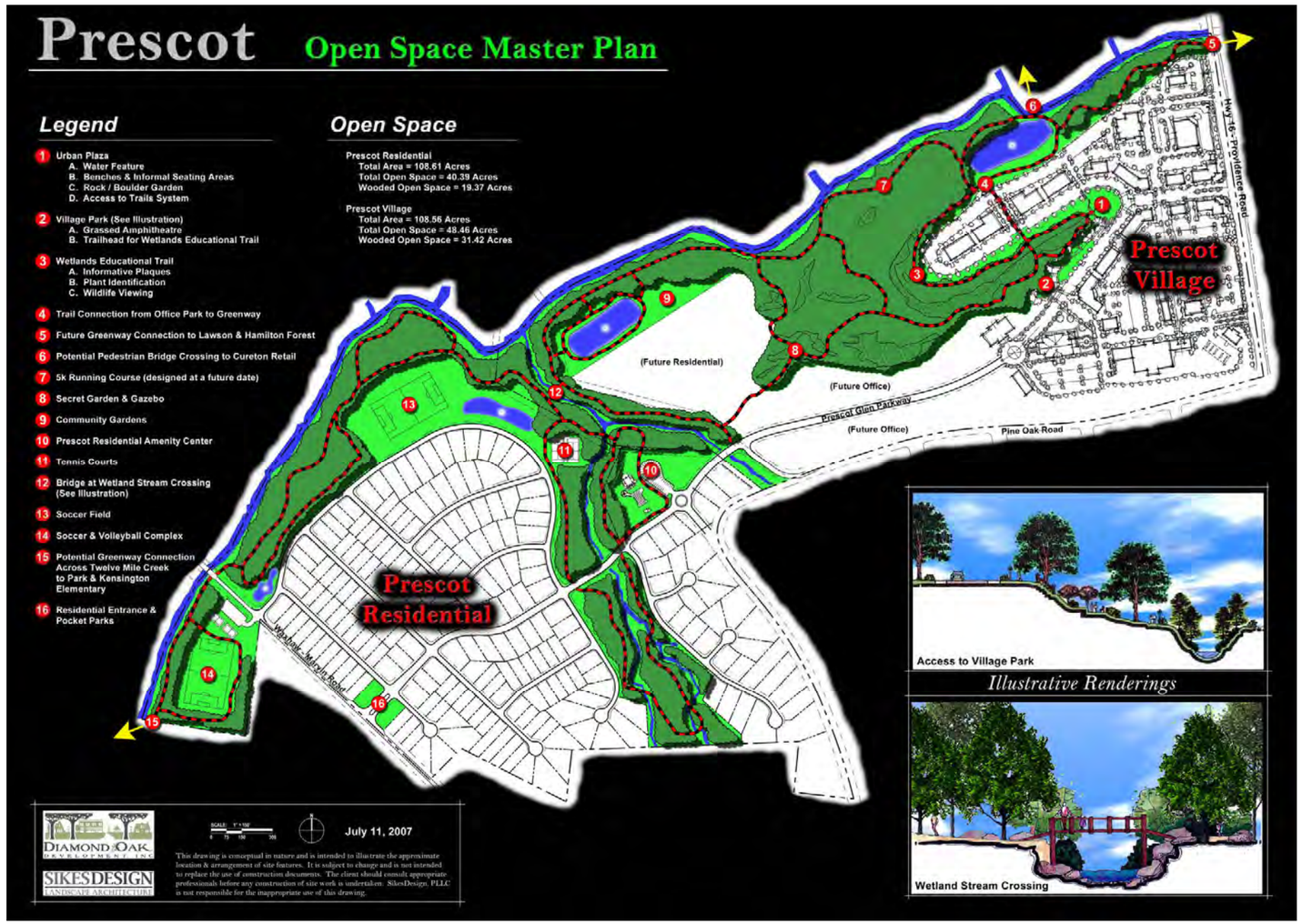
- Repair of existing facilities and provision of missing sidewalk and ramp connections at 4-way Pedestrian Activated Crosswalk on NC 16 at Sunset Hill and Cuthbertson
- Sidewalk connections along Cuthbertson to Cureton and Lawson neighborhoods
- Sidewalk connections along NC 16 from Cureton southward to Pine Oak Road
- Connection of existing sidewalks to planned trail network
- Multi-purpose trail crossing under current NC 16 bridge at Twelve Mile Creek (grade permitting) and connection to proposed greenway network
- At-grade, separated pedestrian (and bike) facilities with replacement of NC 16 bridge over Twelve Mile Creek, with below-grade trail crossings on both sides of Creek

Cureton Town Center



The **Cureton** Focus Area extends southward along NC 16 and includes the cleared but undeveloped area between Twelve Mile Creek and Pine Oak Road. This broad swath of land was slated for the Prescot Village development, which includes a greenway network that runs along the south side Twelve Mile Creek. At the eastern end of the planned greenway, the Prescot Master Plan indicates a future greenway connection across Twelve Mile Creek under NC 16 (see #5 in detail below).

Twelve Mile Creek floodplain divides the north portion of Waxhaw from the south, while NC 16 divides the west side of Town from the east. The NC 16 bridge crossing Twelve Mile Creek provides the opportunity to connect all four separated quadrants of Waxhaw for pedestrians and bicyclists.



DETAIL AT NC 16 AND 12-MILE CREEK

A multi-purpose greenway is proposed to cross under the existing bridge and continue eastward for a distance along both sides of Twelve Mile Creek. This trail facility would also connect to both the east and west sides of NC 16 at both the north and south ends. Pedestrians would access a proposed sidewalk running along the west side of NC 16 from Pine Oak Road to the existing sidewalk south of Cureton Towne Center. At-grade, separated pedestrian and bicycle facilities are proposed as part of a new bridge when the current NC 16 bridge is replaced.

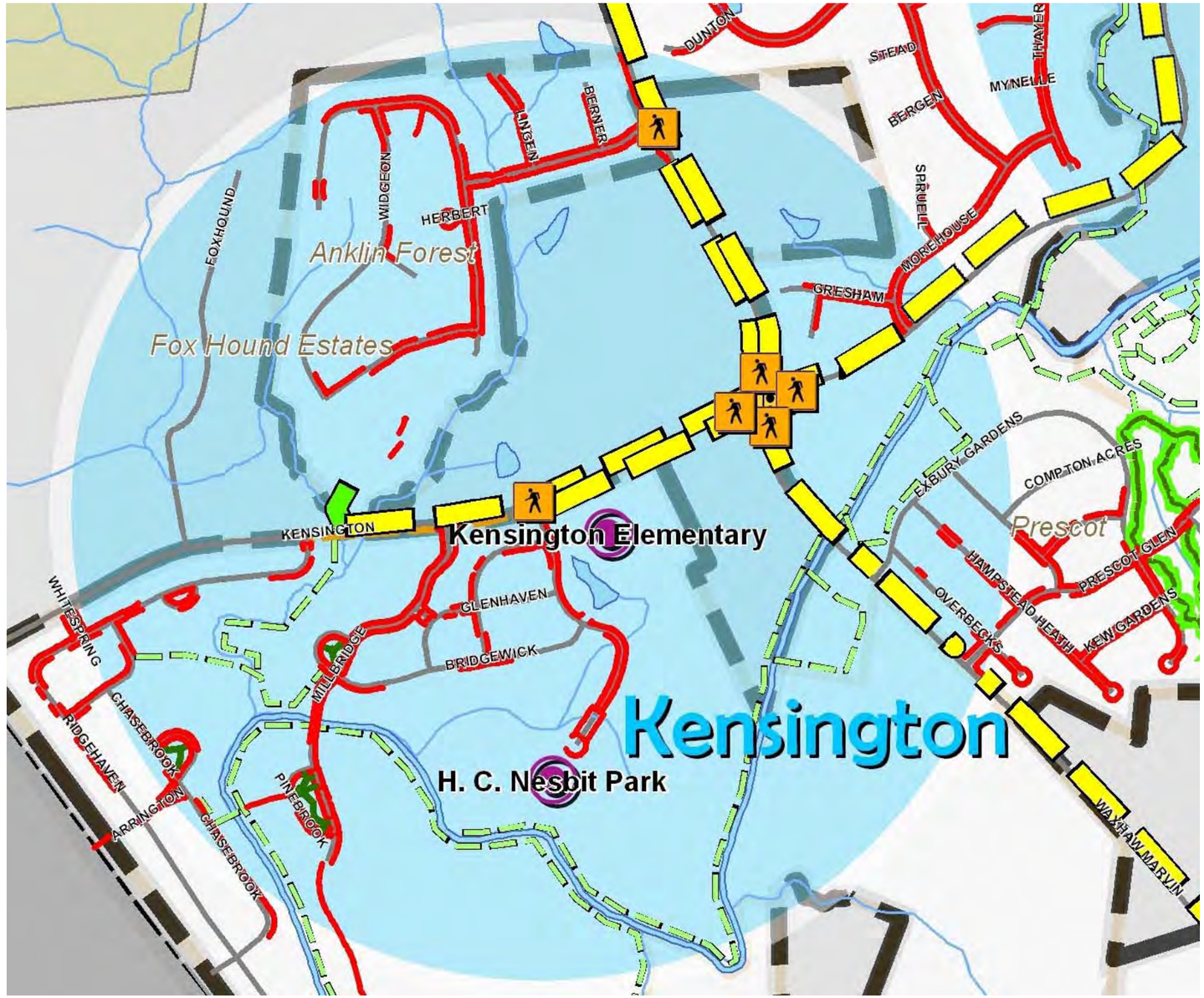
6. Kensington Elementary & Nesbit Park

Area Objectives:

- Provide more pedestrian links and safe crossings to these pedestrian-oriented destinations.
- Connect to planned greenway system and H. C. Nesbit Park

Primary Projects:

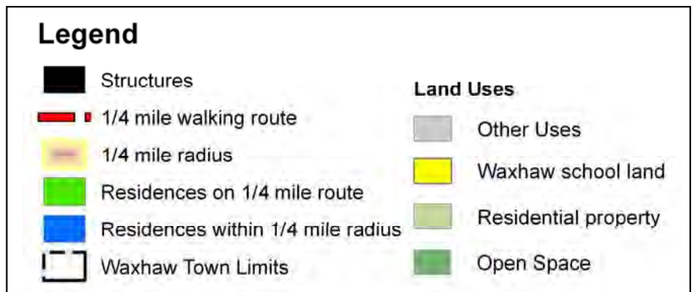
- Sidewalk connections to school along Kensington from Quellin neighborhood (continuing further to Cureton) to planned greenway system at Millbridge.
- Sidewalk connections to Kensington Road along Waxhaw-Marvin Road from Quellin and Anklin Forest neighborhoods and Prescot neighborhood
- Pedestrian Activated HAWK (High-intensity Activated crossWalK) signal at crosswalk across Kensington at school entrance
- 4-way standard Pedestrian Activated Crosswalks at Kensington and Waxhaw-Marvin Road
- Pedestrian Activated Crosswalk across Waxhaw-Marvin Road at Anklin Forest
- Short trail connection from Kensington Road to Anklin Forest



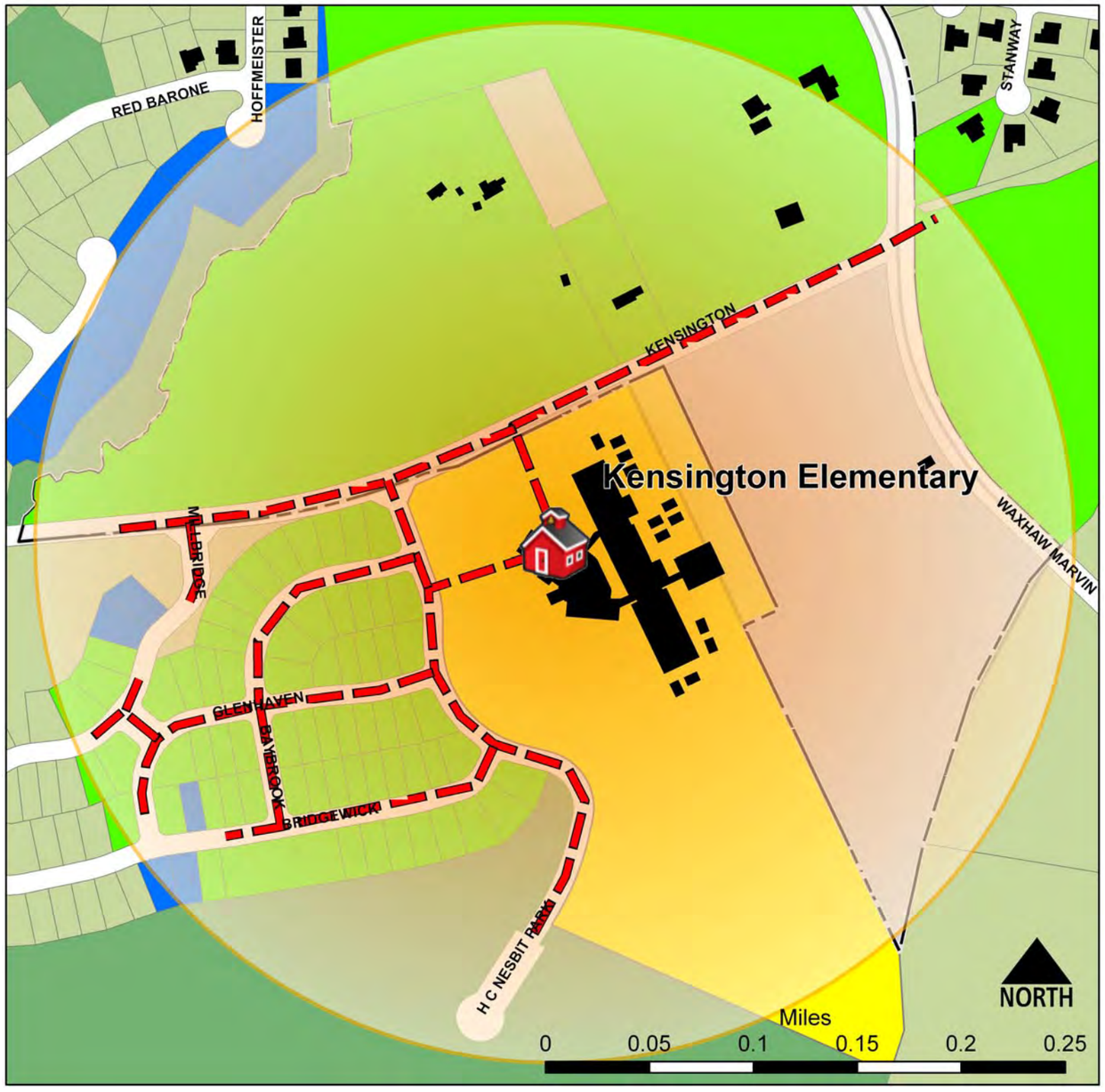
Kensington Elementary is a recently built school in western Waxhaw. Adjacent concurrent development includes a residential neighborhood to the west of the school property and H. C. Nesbit Park directly south. Large tract residential land lies to the north and east of the school.

In an area that is sparsely developed, the connectivity ratio is less revealing, but in this case has a value of 1.58, with only 12 nodes and 19 links (For explanation, see **Appendix A.1.16**). This ratio and the following proximity results for the school do not take into account a greenway currently planned for Twelve Mile Creek that borders the southern end of the school property.

The proximity study identified 90 residential properties within the ¼ mile study radius. Of these, 71 were located along a walkable route of ¼ mile or less to the school.



Residential properties shown in blue are located within 1/4 mile of the school entrance. The 1/4 mile distance is indicated by the light shaded area circle.



Kensington Elementary School Proximity Map

7. Cuthbertson Schools & the Lawson Community

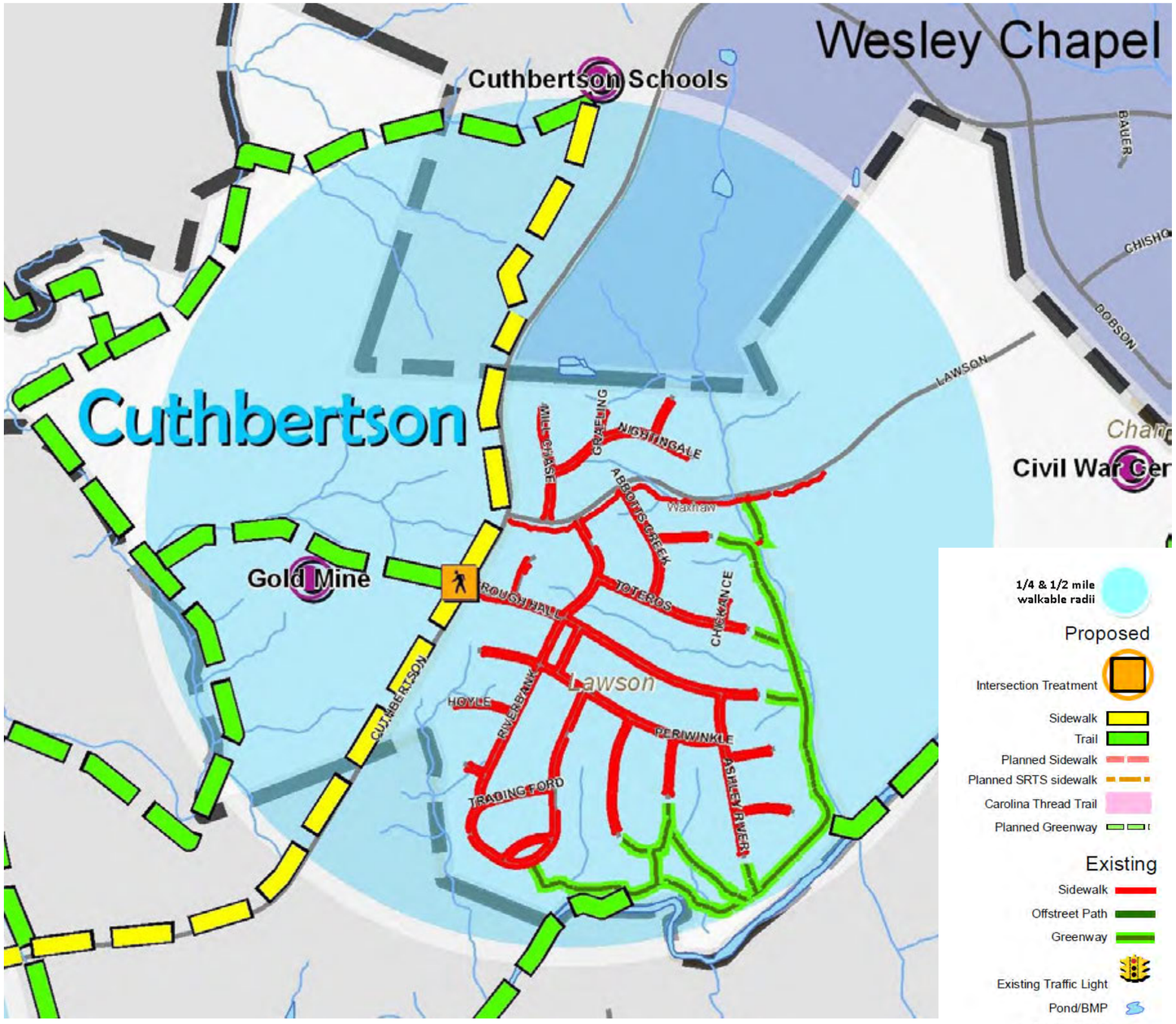
Area Objectives:

- Provide walkable links to primary destinations and neighborhoods.
- Link disconnected incorporated areas of Town.
- Connect to potential park site identified in 2030 Plan

Primary Projects:

- Trail connections from Lawson to Cuthbertson School property and historic landmarks, and along Carolina Thread Trail toward Cureton and Wesley Chapel
- Sidewalk connection to Cuthbertson School property
- Flashing warning light at intersection of Cuthbertson and Brough Hall, with textured pavement crossing Brough Hall.

Lawson Neighborhood greenway



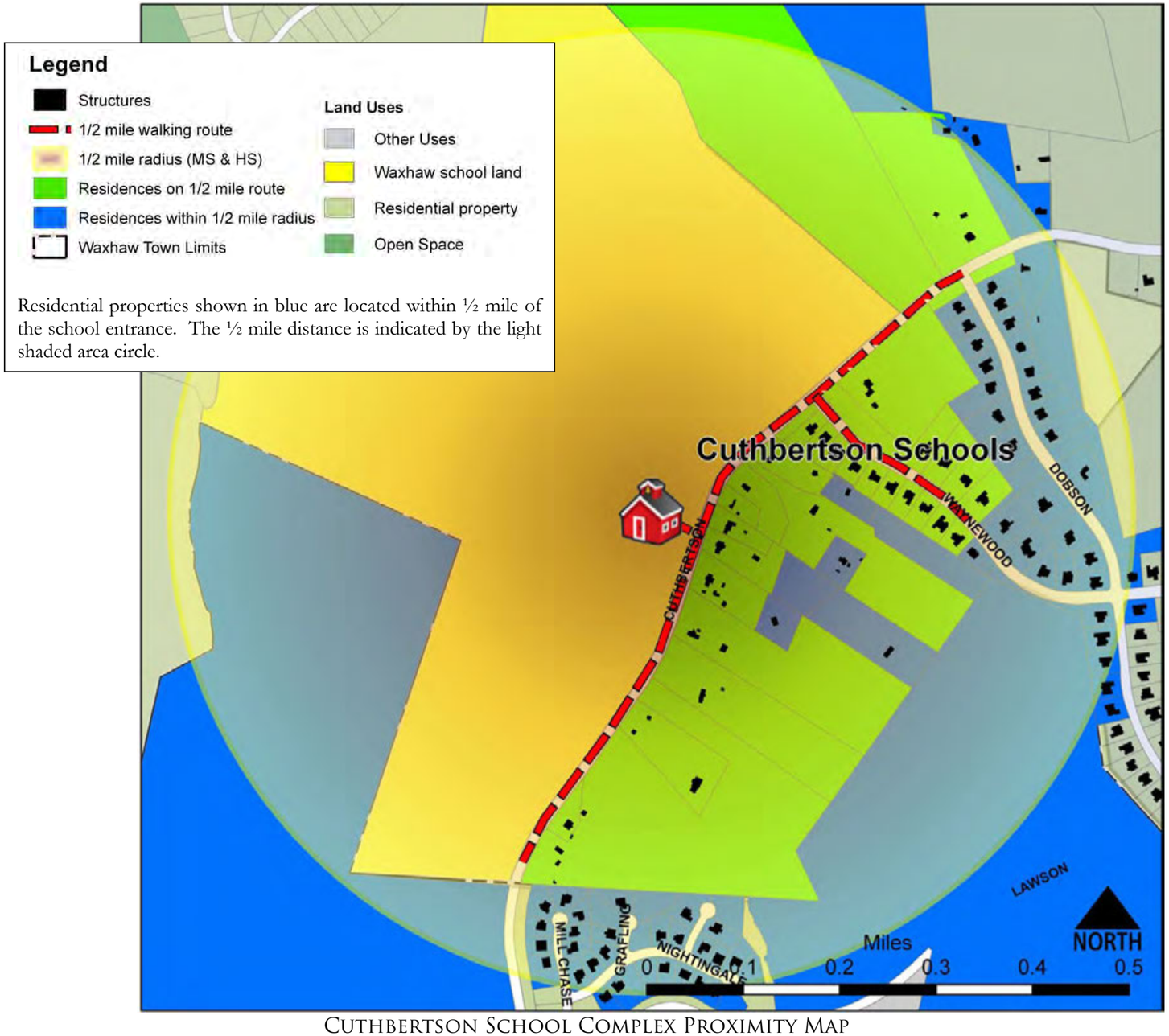
The Cuthbertson School complex includes both a middle and high school. Both have been constructed only within the last two years. While the school complex is located outside of current Waxhaw municipal limits, its property line abuts both Waxhaw and Wesley Chapel. Much of the land around the school is still undeveloped or underdeveloped but new neighborhoods within walking distance are currently under development or have been developed relatively recently, including the Lawson community.

Within the study radius of ½-mile, there are currently very few roads. The connectivity ratio comes to 1.33, with 9 nodes and 12 links (For explanation, see **Appendix A.1.16**). However, this value reveals little about how walkable the Cuthbertson School complex actually is.

The proximity study identified 118 residential properties within the study radius. Of these, only 34 were located along a path of less than ½-mile to a point considered for the study's purposes as the school's front door. In actuality, there are multiple entrances to the complex. However, this condition does not result in a significant increase of homes within walkable proximity.

Again, these results do not take into account the need for sidewalks and crosswalks along existing roads. There are currently none that serve the school. Pedestrians from most nearby residences must cross five lanes of traffic with the aid of no crosswalk facilities.

For Waxhaw residents living in Lawson or in a future residential community southwest of the school, this plan proposes a sidewalk along the west side of Cuthbertson that would continue along the lengthy stacking lane that traverses the front of the school property. In addition, a greenway opportunity exists along the creek in the wooded land southwest of the school that would connect the school and its athletic fields to Lawson and other communities south and west.



CUTHBERTSON SCHOOL COMPLEX PROXIMITY MAP

All project locations depicted in the previous maps are shown on the **Comprehensive System Maps** included in **Part 7: System Maps.** For a detailed listing of the location, length, and approximate cost of each project, refer to **Part 6: Project Recommendations**. Project distance and cost estimates provided in this Plan are approximate. All sidewalk and trail projects will require sufficient right-of-way to permit the paved area, necessary grade changes, shoulders or planter strips, and other accessories. For further general description of these facilities, see **Part 5: Facility Standards and Guidelines**.

All improvements shall be designed and constructed in accordance with the descriptions in **Facility Standards and Guidelines**, all pertinent NCDOT specifications and the most current **Manual on Uniform Traffic Control Devices** (MUTCD). All improvements in NCDOT right-of-way are contingent upon NCDOT Division 10 approval.

CUTHBERTSON SCHOOL COMPLEX

4.5 PROJECT PRIORITIZATION

Prioritizing pedestrian infrastructure projects is by nature a fluid process. Priorities depend upon a number of factors that are each subject to change; factors such as traffic demands, individual parcel sales, development trends, and employment opportunities. The projects recommended by the Pedestrian Plan are prioritized using three sets of criteria:

1. **Pedestrian Plan Goals**
   The goals for the Pedestrian Plan are listed in **Part 1.1** as:

- Connect the town for pedestrians, from end to end, closing gaps in the existing pedestrian system.
- Foster activity in the downtown area.
- Make more accessible the Waxhaw's historic places and other significant destinations.
- Improve walking conditions along the primary corridor of NC 16.
- Encourage a greater awareness and experience of the unique qualities of the community.
- Create a safer environment.
- Promote healthy lifestyles.

These goals represent the values shared among the Steering Committee and are focused upon realizing their expressed pedestrian vision. From these goals, along with ideals expressed in the Town's other ongoing planning efforts, the following prioritization criteria were distilled:

- Connects neighborhoods to identified **destinations**
- Increases connections within and to the **downtown** area
- Closing **gaps** in the existing pedestrian system
- Improving walking conditions along **NC 16**
- Provides significant pedestrian benefits at **low cost**

As each project contributes to meeting these criteria, it is rewarded prioritization points. Other elements of the goals - creating a safer environment, promoting healthy lifestyles, and fostering a greater awareness and experience of the community - are part of an overall strategy that has guided the development of each of the recommendations of the Plan. Additional priority points are awarded to projects of lower implementation costs. Projects costing under $300,000 that do not require public bidding (See **Appendix A-3**) receive one point, while projects costing <$100,000 receive three points.

Each project was evaluated in terms of either the number of instances it met the criteria (for example: the number of destinations adjacent to a sidewalk or trail), or in terms of whether or not the project served the criteria (i.e. the project does or does not reach or lie within downtown). The specific point system used for meeting each criterion is illustrated in the project matrices found in **Part 6: Project Recommendations**.

In addition to the points received for meeting the criteria, each project was evaluated in terms of project difficulty. Difficulty was based upon various factors that are rated as either positive or negative:

+ The project lies within the Carolina Thread Trail (CTT) adopted alignment. The CTT can potentially provide a significant source of funding for the project through its quarterly Implementation Grants. See **Part 8.3: Funding Strategies**.

+ The project or portion thereof is already included within an adopted plan or proposed development, or lies within a utility right-of-way such as a sanitary sewer or power line corridor, or within an undeveloped Town-owned right-of-way.

- The project or a portion thereof is located outside of the Town's jurisdiction. Certain projects include land that lies within the jurisdiction of Union County or an adjacent municipality.

2. **Public Input Votes**
   The public was invited to view and evaluate the proposed projects through an Open House as described in **Part 1.1 – Method, Task 10**. Each participant was asked to select twelve most favored sidewalk and trail projects, and indicate up to 6 projects they did not prefer. See **Part 6** project descriptions for Open House project voting results and **Appendix A.1.13** for Open House public comments. After the negative votes were subtracted from the total, a resulting (net) count of votes for each project was recorded. This sum was then divided by the total number of votes overall to derive a percentage vote for each project.

3. **Steering Committee Votes**
   The Committee conducted a similar project voting exercise. Their votes were similarly tallied and a percentage vote for each project was calculated. See **Part 6** project descriptions for Steering Committee project voting results.

A final score for each project was determined by adding the goals score and the public and committee percentage votes. The final project rank was determined by a comparison of the final score each

project received. The highest ranking sidewalk and trail projects are indicated in the tables. To see the final ranking results for each project, along with the individual criterion ratings, refer to **Part 6: Project Recommendations**. Crosswalk projects are not ranked. It is recommended that the installation of crosswalk facilities be coordinated with associated sidewalks and trail projects.

Short Term and Long Term Projects

Project prioritization is also a function of balancing short-term projects to meet immediate needs and long-term projects to achieve overall community goals. Various recommended projects fall into either category.

Short-term Project Types

Projects are generally considered "short-term" when effective results can be achieved in a relatively short time. They generally satisfy the following conditions:

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

The coordinated construction of short-term projects can help accomplish the overall long-term goals of the Pedestrian Plan.

Long-term Project Types

Long-term projects often have greater impact than short-term ones but may require the following:

- Coordination within NCDOT right-of-way
- NCDOT funding, engineering and construction
- Coordination with neighboring jurisdictions such as Union County or adjacent municipalities
- Coordination with public utilities
- Ordinance modification
- Right-of-way or easement acquisition from private land owners
- Public-private coordination for projects involving private development initiatives, private land, or private funding

To help achieve an appropriate balance of project types, refer to **Part 8.5 Performance Measures**

For the complete list of individual recommended project with their assigned prioritizations, see the Part 6: Project Recommendations.

NEW SIDEWALK CONSTRUCTION

4.6 MAINTENANCE PROGRAMS

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

In general, maintenance costs include:

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

Maintenance Considerations for Landscaped Areas

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

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

Maintenance & Operations of Off-road Trails

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

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

1. **Long-term maintenance programs** - includes renovation of facilities and trail resurfacing. Comprehensive inspections should occur twice a year to record user impacts, general wear and tear, and other factors that may affect safety, environmental features, or structural integrity of the facility. If long-term maintenance programs are deferred, the safety of the trail is compromised and costly capital improvement funds to renovate damaged areas may be required. Typical long-term maintenance activities include:
    - Annual vegetation clearance (June and September)
    - Annual inspection by engineer to identify potential repairs needed for bridges and structures, drainage structures, pavement, railings, and fences
    - Revegetation during planting seasons

2. **Routine maintenance** – includes safety and repair issues that occur throughout the life of the facility. Frequency of routine maintenance should take place on a monthly basis, dependent upon the amount of usage and availability of funds. Typical routine maintenance activities include:
    - Removal of litter and general cleaning
    - Sweeping and leaf removal
    - Mowing and weed control
    - Pruning and removal of encroaching/fallen branches
    - Trail edging
    - Route signage maintenance
    - Graffiti control
    - Regular presence of volunteers to report faults

3. **Emergency repairs** - necessitated when storm damage makes the trail unsafe for daily use. Severe weather may occasionally cause damage to the facility either through wind, erosion, or fallen trees. Emergency repair funds for severe weather should be allocated and allowed to rollover from year to year for this inevitability.

Volunteer programs

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

TRAIL VOLUNTEERS PERFORMING ROUTINE MAINTENANCE

4.7 EVALUATION PROCESS

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

1. Pedestrian Access Committee (PAC) should meet periodically to confirm and re-evaluate the priorities of this Plan and its recommended projects, particularly as tracts of land are developed.

2. The Public Services Director should regularly report facility conditions and needs.

3. Public surveys can be used to solicit the opinions of everyday users to determine if the plan and its rate of execution are adequately meeting the needs of the populace.

PART 5: FACILITY STANDARDS & GUIDELINES

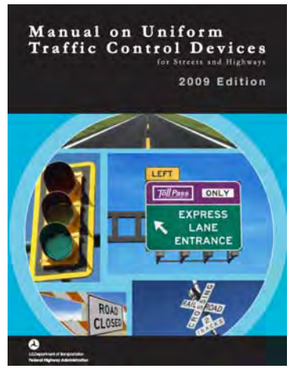
CONTENTS:

- **Facilities:**
  1. **SIDEWALKS –** width, connectivity, paving
  2. **PEDESTRIAN BUFFER ZONES** – planting strips, paved buffer zones, on-street parking
  3. **STREET TREES** – planting and maintenance, visibility, tree characteristics, pits & grates
  4. **CROSSWALKS**
  5. **SIGNAGE, SIGNALS & STRIPING**
  6. **TRAFFIC CALMING DEVICES**
  7. **ON-STREET PARKING**
  8. **LIGHTING** – location, type, style
  9. **STREET FURNITURE** – seating, trash receptacles, bike racks, raised planters, water features
  10. **PEDESTRIAN OVERPASSES/UNDERPASSES**
  11. **OFF-ROAD PATHS/TRAILS** – trail types, paving, environmental concerns, grade and site lines, accessibility, multi-use, acquisition and ownership, liability, security and safety, front-yard v. backyard paths, access points, maintenance and operations
- **Additional Accessibility Information**
- **Information Sources**

Specific locations for facility installation and site improvements are provided in the **Project Identification and Priority List.** Any recommended improvements proposed to be located in the North Carolina Department of Transportation (NCDOT) right-of-way are under the jurisdiction of NCDOT Division 10. Contact the Division 10 Engineer before considering implementation of any improvements in the NCDOT right-of-way.

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

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



For markings, dimensions and other standards, refer to the **Manual on Uniform Traffic Control Devices** (MUTCD) 2009 edition. The MUTCD is published by the Federal Highway Administration (FHWA) and defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways. See: http://mutcd.fhwa.dot.gov/

1. SIDEWALKS

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

Width of travel path
The Plan recommends a minimum travel path width of 5 ft. for a sidewalk or walkway, in accordance with the Federal Highway Administration (FHWA) and the Institute of Transportation Engineers (ITE). This width allows two people to pass comfortably or to walk side-by-side. Where sidewalks abut public or commercial buildings, or anywhere high concentrations of pedestrians are expected, a minimum travel path of 8 ft. should be allowed for. This minimum width of the travel path must be free of obstructions, such as utility poles, or pedestrian amenities such as street furniture, trashcans, etc. and shall meet all requirements of the ADA standards for "accessible pathway".

Sidewalks should have a running grade of five percent or less and a maximum cross-slope of no more than two percent.

OLD TOWN ALEXANDRIA SIDEWALK
(PHOTO BY EDAW)

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

Connectivity
Design and build new sidewalks to serve pedestrians in the most direct and convenient manner possible without causing undue physical or aesthetic damage to existing trees or other site features. New sidewalk design shall also respect all required or proposed landscaping and other site features.

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

PRAGUE, CZECH REPUBLIC

Paving type
Alternative paving should be considered in these applications:

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

STREET TREES IN PLANTING STRIPS & PARALLEL PARKING BUFFER PEDESTRIANS FROM TRAFFIC.

2. Pedestrian Buffer Zones

Buffer zones between pedestrian paths and vehicular traffic impart an increased sense of security to those on foot or in wheelchairs. They also help define the path and give it a more comfortable scale. Buffers also provide additional benefits depending on the type used.

Planting Strips of sufficient width provide a zone for street trees and other landscaping, creating a more comfortable and attractive environment for pedestrians and drivers. Street trees are most effective when placed between the walkway and the curb. When planting strips are properly engineered to provide storm water drainage, they can eliminate the need for curb and gutter, thereby vastly reducing the cost of road and sidewalk construction while providing an environmental benefit. The recommended width for planting strips to permit healthy tree growth is six to eight feet measured from the edge of pavement or back of curb. While planting strips are the preferred means of providing a buffer, they are not always feasible or appropriate. Areas of high foot traffic may preclude landscaping due to maintenance or space considerations. Buffers of less than 4-feet in width may be preferred on certain lower volume local and collector streets. Additional information about street trees is provided on the following page.

Paved buffer zones are appropriate in more urbanized settings. This zone is located between the travel path of the sidewalk and the curb, though an additional buffer zone may also exist along the opposite side of the travel path, adjacent to buildings, open space, or off-street parking. Though a constant width is preferred for the buffer zone, widths may vary as long as the buffer does not interrupt the pedestrian travel path. Items such as street furniture, trees planted in tree grates, streetlights, street signs, fire hydrants, parking meters, etc., are placed in the buffer zones so as not to restrict pedestrian flow in the travel path. The buffer zone may be a good location to use paver stones for easy and affordable access to underground utilities.

SIDEWALK BUFFER ZONE

On-street parking provides another opportunity to physically shield pedestrians from vehicular traffic, making them feel safer and more comfortable. On-street parking allows pedestrians to clearly see into the street and allows drivers to clearly see pedestrians. See more about on-street parking further along in Facilities section 7.

3. Street Trees

This Pedestrian Plan recommends adopting a Municipal Tree Ordinance to provide guidance for tree installation and maintenance. For more information about developing a Tree Ordinance and related policies and programs, see: http://www.seql.org/actionplan.cfm?PlanID=10

Planting and Maintenance requirements
All street trees should be selected according to the standards described in the *American Standard for Nursery Stock* of the American Nursery and Landscape Association.
See:
http://www.anla.org/applications/Documents/Docs/ANLAStandard2004.pdf
Install and maintain trees according to the International Society of Arboriculture (ISA) guidelines. See: http://www.treesaregood.com/treecare/treecareinfo.aspx or contact: ISA, P.O. Box 3129, Champaign, IL 61826-3129, USA. E-mail: isa@isa-arbor.com

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

Tree characteristics
- **Form** - To maintain visibility and provide shade for a comfortable pedestrian corridor, street trees should be vase shaped, columnar, or oval in form (habit) with large spreading crowns.
- **Leaf** - Street trees should primarily be deciduous, losing their leaves in the winter season.
- **Roots** - Avoid trees with aggressively invasive roots adjacent to pavement or buildings.

Refer to the Town's adopted tree ordinance for approved species, spacing and other specifics (**UDO General Provisions, Section 9.21: Tree Preservation**).

Tree Pits and Tree Grates
Street trees should generally be located in open planting strips, however tree pits with tree grates may be a practical (though expensive) alternative in very high pedestrian traffic areas. Tree pits should be constructed so that a continuous channel of soil under the pavement connects the individual pits and allows greater volumes of soil for root growth and water storage. Raised tree planting areas should likewise be designed to accommodate multiple rather than single trees. Tree grates should generally not encroach upon the travel path. However, for optimal pedestrian safety and comfort, all tree grates used should meet the ADA standards for "accessible pathway". Gratings should have openings not greater than 1/2" wide with slots perpendicular to the general direction of travel and have a coefficient of friction at least 0.6 on flat surfaces and 0.8 on ramps.

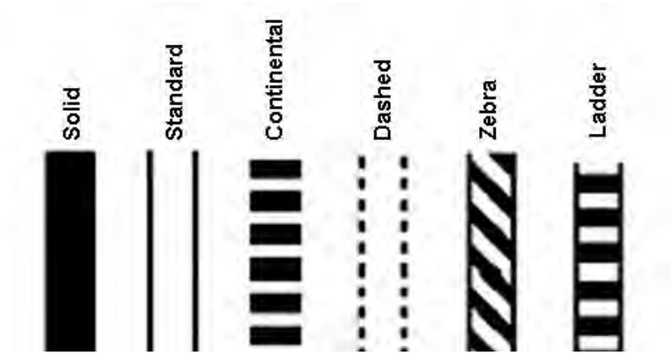
Street tree planting comparison
Charlotte, North Carolina
(Trees shown vary in maturity)

4. Crosswalks

Marked crosswalks indicate preferred locations for pedestrians to cross streets. They provide paths of increased safety to pedestrians as they warn motorists to yield to pedestrians in this designated right-of-way. Their presence encourages people to walk. Crosswalks should be placed strategically at high pedestrian volume locations, such as signalized intersections and high volume mid-block locations.

The design of safe and effective road crossings for pedestrian involves the coordination of a variety of elements including:

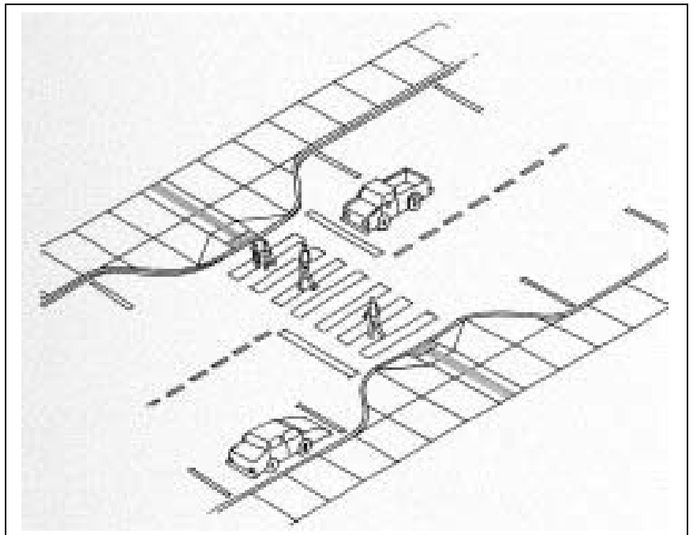
- Signs, signals and markings
- Turning radii
- Crossing times
- Medians
- Refuge islands and slip lanes
- Curb ramps
- Sight lines
- Traffic patterns
- Onset of signal phases
- Crosswalks striping



Types of Crosswalk Striping

Considerations for location and design:

- Crosswalk locations should be convenient for pedestrian access.
- Crosswalks should be used in conjunction with other measures that help reduce speeds and warn drivers to be prepared to stop, such as advance warning signs, warning signs, stop bars, median crossing islands and curb extensions (only where there is on-street parking), to improve the safety of a pedestrian crossing, particularly on multi-lane roads with average daily traffic (ADT) above about 10,000.
- Recommended width for crosswalks is six feet. Higher pedestrian volume crossings may require wider crosswalk paths (ten feet or more).
- Crosswalk markings must be placed to include the ramp to allow wheelchair users access without leaving the marked crosswalk.
- NCDOT typically requires sidewalks on both sides of roadways when placing crosswalks.
- Pedestrians will generally wait only 30 seconds at crossings before looking for opportunities to cross, regardless of the walk indication and the crossing location.
- Pedestrian walking speeds generally range between 2.5 to 6.0 ft/s.
- Marked crosswalks are particularly important for pedestrians who are visually impaired. "Continental" and "Ladder" styles are preferred.



Midblock curb extension with striped crosswalk

Curb extensions can enhance the effectiveness of crosswalks, either midblock or at intersections. Curb extensions shorten the crossing distance for pedestrians and improve their visibility of the crosswalk to oncoming vehicular traffic. They also serve as traffic calming devices whether pedestrians are crossing or not. Curb extensions also provide opportunities to enhance the street through landscaping.

Typical Crosswalk Speed Table

Typical Brick Crosswalk

Raised crosswalks, constructed 3-4 inches above the elevation of the street can be appropriate for midblock pedestrian crossings where vehicle speeds are excessive. They are typically used on two-lane streets with less than 35 mph speed limits. Textured paving should be incorporated into the edges in order to provide visual and tactile cues.

For more information about curb extensions and raised crosswalks, see **Traffic Calming Devices** in Section 6. For crosswalk markings, dimensions and other standards, refer to the Manual on Uniform Traffic Control Devices (MUTCD).

NCDOT Standards for Mid-Block (Unsignalized) Crossings
Mid-Block Crosswalks are defined as crosswalks not located within an intersection. It will be the standard practice of NCDOT to install Mid-Block Crosswalks based on an engineering study. All Mid-Block Crosswalks shall be signed and marked in compliance with the MUTCD, the North Carolina Supplement to the MUTCD, and current NCDOT Roadway Standard Drawings.

Installation of a Mid-Block Crosswalk shall be made only after an NCDOT engineering study determines that other alternative traffic control measures are not justified and that a Mid-Block Crosswalk can enhance transportation operation and pedestrian safety.

CRITERIA

- Unless otherwise determined on the basis of the engineering study, Mid-Block Crosswalks should not be installed on roadways with a speed limit greater than 35 MPH.
- Mid-Block Crosswalks should not be located within 300 feet of a non-signalized intersection and 400 feet of a signalized intersection, as to not interfere with the functionality of the intersection.
- On street parking spaces should be eliminated adjacent to each Mid-Block Crosswalk to allow adequate visibility for motorists approaching and/or departing the crosswalk. Parking removal should include no less than 50 feet on each curbside approach lane to the Mid-Block Crosswalk and no less than 25 feet on each curbside exiting lane leaving the Mid-Block Crosswalk. If sidewalk bulb-outs are constructed in the parking lane, removal of on street parking may not be necessary.
- Installations of refuge or safety islands should be installed for Mid-Block Crosswalks on multi-lane roadways if sufficient roadway width is available.
- Mid-Block Crosswalks should not be installed on streets with an ADT volume exceeding 12,000 vehicles per day. If a raised pedestrian refuge median is provided the ADT should not exceed 15,000 vehicles per day.
- A minimum pedestrian crossing volume of 25 pedestrians per hour for at least four hours of a typical day should be met in order to warrant a Mid-Block Crosswalk.
- In-street signing should only be used if deemed adequate by an engineering study. If the in-street signs (R1-6, R1-6a) are used, the supports shall be constructed of a breakaway material as to reduce harm to the vehicle and the pedestrian. In-street signs shall be constructed of a non-metal material as to also reduce harm to the vehicle and the pedestrian.

RECOMMENDATIONS

- Unsignalized Mid-Block Crosswalks should not be provided on streets where traffic volumes do not have gaps in the traffic stream long enough for a pedestrian to walk to the other side or to a median refuge. At locations with inadequate gaps that also meet MUTCD (Manual on Uniform Traffic Control Devices) signalization warrants, consider a signalized Mid-Block Crosswalk. Also consider a signalized Mid-Block Crosswalk when the average wait time for pedestrians to cross is more than 60 seconds.
- On streets with continuous two-way left-turn lanes, provide a raised median pedestrian refuge with a minimum refuge length of 20 feet and a minimum width of 6 feet.
- Provide raised median pedestrian refuge at Mid-Block Crosswalks where the total crossing width is greater than 60 feet.
- Use high-visibility (ladder-style) crosswalk markings to increase visibility longitudinally.
- Provide advance stop or yield lines to reduce multiple threat collisions.
- Provide advanced crosswalk warning signs for vehicle traffic.
- Use curb extensions (see Figure 1) to increase the visibility of the driver and the pedestrian.
- "Z" crossing configurations should be used for Mid-Block Crosswalks with medians wherever possible (see Figure 1). Provide an at-grade channel in median at a 45-degree angle toward advancing traffic to encourage pedestrians to look for oncoming traffic.

RIGHT-OF-WAY
North Carolina General Statute §20-155

The driver of any vehicle upon a highway within a business or residence district shall yield the right-of-way to a pedestrian crossing such highway within any clearly marked crosswalk, or any regular pedestrian crossing included in the prolongation of the lateral boundary lines of the adjacent sidewalk at the end of a block, except at intersections where the movement of traffic is being regulated by traffic officers or traffic direction devices. (d) The driver of any vehicle approaching but not having entered a traffic circle shall yield the right-of-way to a vehicle already within such traffic circle.

PEDESTRIANS' RIGHTS AND DUTIES
North Carolina General Statute §20-173

(a)Where traffic-control signals are not in place or in operation the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to so yield, to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at or near an intersection, except as otherwise provided in Part 11 of this Article. (b) Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle. (c) The driver of a vehicle emerging from or entering an alley, building entrance, private road, or driveway shall yield the right-of-way to any pedestrian, or person riding a bicycle, approaching on any sidewalk or walkway extending across such alley, building entrance, road, or driveway.

5. Signage, Signals & Striping

Signage can serve effectively to alert drivers to reduce speeds and to warn pedestrians to use extra caution. However, too much signage can produce visual "clutter" and can encourage complacency and noncompliance with signs in general. Signs, and the sign text, should be large enough to be seen from a distance. The distance is dependent upon the road speeds. It is imperative that all signs be properly located so as not to obstruct the pedestrian and visibility triangles of motorists.

Way-finding signage is intended to orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity. Signage regulations should address the orientation, height, size, and style of signage to comply with a desired local aesthetic.

It is recommended that municipalities adopt consistent and descriptive graphics to identify pedestrian routes. This signage system would assure pedestrians that they are safe and will not encounter gaps in facilities along these routes. A map should be incorporated into each route illustrating the entire pedestrian system and their location. Bus stops, destinations, and mileage should also be identified on the signs. Maps and route signs are particularly recommended for use with greenway systems, both to help users find trailheads and be guided along paths, and promote the trail system to those unaware of the amenity.

Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians.

Though traffic signage can carry legal authority, it should not be relied upon as the primary or sole means of influencing driver or pedestrian behavior. However, it is essential to anticipate the need for traffic signs in every situation to provide clear direction for both pedestrians and drivers. It is also important to avoid unnecessary signs as they may cause physical or visual obstruction, will require maintenance, can confuse and erode the significance of necessary signage and add to visual blight. Signs should only be installed when they fulfill a need based on an engineering study or engineering judgment.

Sample Wayfinding Signage

All pedestrian and vehicular pavement striping, signage and signals, and the locations thereof shall conform to the MUTCD (Manual on Uniform Traffic Control Devices).

SIGNALS, or traffic control devices, include those intended to direct vehicle drivers, such as traffic signals and flashing warning lights, and pedestrian signals, directing pedestrians to walk/don't walk.

Traffic signals create gaps in the traffic flow, providing intervals where pedestrians can cross streets safely. These intervals should allow adequate crossing time for pedestrians and based upon a maximum walking speed of 3.5 ft/s. Most traffic signals are installed based on vehicular traffic considerations, but some high-volume pedestrian circumstances warrant traffic signals themselves. Judgment must be used on a case-by-case basis. For example, a new facility being built, such as a park, recreational path, or school, will create a new demand. A new signal could be installed based upon the projected crossing demand. There may also be latent demand if a destination is not currently accessible, but could become so with new facilities or redesign. According to the MUTCD, a traffic signal may be warranted when the pedestrian volume crossing a major street or mid-block location during an average day reaches 100 or more for each of any 4 hours; or 190 or more during any 1 hour. Prohibiting Right Turn on Red should be considered at intersections with high pedestrian volumes, or where there is a proven problem with motorists conflicting with pedestrians.

In downtown areas, signals are often closely spaced, sometimes every block. When high or regular pedestrian traffic exists during a majority of the day, fixed-time signals should be used to consistently allow crossing opportunities. Pedestrian activated signals should only be used when pedestrian crossings are intermittent and should be made accessible to all pedestrians, including those with disabilities. Signal cycles should be kept short (90 seconds maximum) to reduce pedestrian delay. Pedestrians are very sensitive to delays. Marked crosswalks at signals should always be installed at all four legs. They encourage pedestrians to cross at the signal and discourage motorists from encroaching into the crossing area.

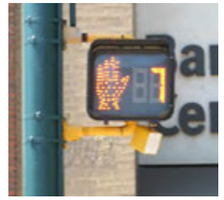
Signals can be timed to allow a leading pedestrian interval (LPI) which gives pedestrians several seconds to start in the crosswalk before the motorists get a green light. This makes pedestrians more visible to motorists who will then more likely yield to them.

PEDESTRIAN ACTIVATED WARNING SIGNALS WITH SIGNAGE AT A MIDBLOCK CROSSWALK (TYPICAL)

WARNING SIGNALS WITH SIGNAGE CAN ALERT DRIVERS TO PEDESTRIANS AT AN OTHERWISE UN-SIGNALIZED INTERSECTION (TYPICAL)

Simply meeting certain MUTCD warrants for signalization, however, does not always justify installation of a traffic signal. Traffic signals can sometimes cause excessive delay for drivers and pedestrians alike, and may lead to an increase in certain accident types.

Overhead warning signals warn drivers of crossing pedestrians at midblock crosswalks, or at intersections that periodically see heavy pedestrian traffic but do not otherwise warrant traffic signals. These signals are most effective when triggered directly by pedestrian activity, or when flashing only during peak pedestrian times, such as school commute times.



Pedestrian signal devices are recommend at all traffic signals, unless the signal is located on a highway where walking is prohibited. Pedestrian signals should be clearly visible to the pedestrian at all times when in the crosswalk or waiting on the far side of the street.

Countdown signals are pedestrian signals that show how many seconds the pedestrian has remaining to cross the street. The countdown can begin at the beginning of the WALK phase, perhaps flashing white or yellow, or at the beginning of the clearance, or DON'T WALK phase, flashing yellow as it counts down.

Audible signals - Audible cues can be used to pulse along with a countdown signal. The signals are used for visually and audibly impaired individuals. Audible pedestrian signals should be carefully placed to ensure that false readings of the signal are not presented where there is a free-right or "slip" lane, in the presence of complex signal phasing, or other conditions where background noise can interfere with the audible signal. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals.

High-intensity Activated Crosswalk Signals - known as "HAWK" signals - provide enhanced warning to drivers at pedestrian crossings as a way to increase safety. It is used only for pedestrian crossings. It does not control traffic on side streets.

To cross the street, the pedestrian pushes a button to activate the signal. A flashing yellow light warns drivers approaching the crosswalk of a pedestrian wishing to cross. The flashing yellow light is followed by a solid yellow light telling drivers to prepare to stop.

The signal then changes to a solid red for drivers to stop at the intersection. At this point, pedestrians can cross safely. The solid red signal then converts to a flashing red signal after a predetermined amount of time, indicating to drivers they may proceed through the intersection when it is clear and safe to do so. The HAWK signal will then go dark and drivers can continue through the intersection without stopping until the button is again activated

Rectangular Rapid Flashing Beacons (RRFBs) are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. RRFBs use an irregular flash pattern that is similar to emergency flashers on police vehicles. RRFBs may be installed on either two-lane or multi-lane roadways. Some potential benefits include:

- A lower cost alternative to traffic signals and hybrid signals
- Found by the FHWA to be dramatically more effective at increasing driver yielding rates to pedestrians than traditional overhead beacons. The novelty and unique nature of the stutter flash may elicit a greater response from drivers than traditional methods.
- Can be powered by standalone solar panel units, ot wired to a traditional power source

Pedestrian detectors automatically activate the red traffic and WALK signals when pedestrians are detected. As only half of pedestrians utilize pushbutton devices (even fewer where there are sufficient motor vehicle gaps), new "intelligent" microwave or infrared pedestrian detectors are now being considered in many locations. Detectors can also extend the crossing time for slower moving pedestrians. Automatic detectors have been found to improve pedestrian signal compliance and also reduce pedestrian conflicts with motor vehicles. The reliability of these devices, however, may vary under different environmental conditions. A motion activated warning systems is one example of a pedestrian detector.

Motion activated warning systems present an option where trails intersect roads. When triggered by path activity, these devices flash warning beacons to signal approaching motorists of path users near the intersection, without altering the existing flow of traffic. This solution is ideal for mid-block crossings or intersections where crosswalks that stop traffic are not warranted. The system also flashes beacons to pathway users warning them to stop. Active warning systems are more effective than 24-hour flashes that motorists come to ignore over time. Such devices can be equipped with trail counters to provide data of trail use. Solar energy with battery backup systems can be used to power the signal. For an example of this system, visit www.crossalert.com.

Motion Activated Warning System

In-pavement flashing warning light systems consist of a series of high-intensity luminaries buried in the pavement on both sides of the crosswalk that direct light along the road towards oncoming traffic. When activated - either by a pedestrian pressing a signal button or by some form of automatic pedestrian detection system - the lamps in each luminary flash for a fixed time, effectively alerting drivers that the crosswalk is in use. These systems can be integrated with other traffic signal lights if required. The MUTCD contains language that makes the use of in-pavement flashing warning lights at crosswalks acceptable and gives guidance for their application.

In-pavement Flashing Warning Light System

Striping is a warning and directional feature to be used in conjunction with other devices. It can include crosswalk striping, stop bars, etc. One of the best materials for marking crosswalks is tape, which is installed on new or repaved streets. It is highly reflective, long lasting, slip-resistant, and does not require much maintenance if installed properly. However, it does require a higher level of expertise to install well. Although initially more costly than paint, both inlay tape and thermoplastic are more cost-effective in the long run. Inlay tape is recommended for new and resurfaced pavement, while thermoplastic may be a better option on rougher pavement surfaces. Both inlay tape and thermoplastic are more visible and less slippery than paint when wet.

Advanced stop bar lines benefit pedestrians, giving them and drivers a clearer view and more time to assess each other's intentions. At signalized pedestrian crossings, the vehicle stop line can be moved 15 to 30 feet further back from the pedestrian crossing than the standard four feet distance to improve visibility of through cyclists and crossing pedestrians for motorists (and particularly truck drivers) who are turning right.

6. Traffic Calming Devices

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

The following TCDs are generally recommended for consideration by the Town on a project-by-project basis:

- **Textured pavements** - stamped pavement or alternate paving materials to create an uneven surface for vehicles and pedestrians to traverse. Textured street pavement provides a visual and tactile cue for both drivers that they are driving in an area of high pedestrian use. Similarly, they cue pedestrians that they are entering a vehicular zone, and are a particularly effective treatment to warn visually impaired pedestrians. Textured street pavements should be used in areas of substantial pedestrian activity and where noise is not a major concern.
- **Curb radius reduction** - Reconstructing turning radii to a tighter turns will reduce turning speeds, shorten the crossing distance for pedestrians, and also improve sight distance between pedestrians and motorists.
- **Curb extensions** – also referred to as bulb-outs, neckdowns, or chokers, extend the sidewalk or curb line out into the parking lane, which reduces the effective street width from curb to curb. Curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street. Curb Extensions slow vehicles by alerting drivers to potential pedestrians, visually tightening the vehicular path, and physically reducing the turning radii. Curb extensions can provide adequate space on narrow sidewalks for curb ramps and landings. Curb extensions should only be used where there is a parking lane. Curb extensions can create additional space for curb ramps, landscaping, and street furniture that are sensitive to motorist and pedestrian sightlines; this is especially beneficial where sidewalks are otherwise too narrow. Care should be taken to ensure that street furniture and landscaping do not block motorists' views of pedestrians.
- **Medians/pedestrian islands** – an island located along the centerline of a street that may or may not narrow the vehicular travel lanes at that location. Medians can be combined with crosswalks to provide pedestrians a temporary "refuge" as they cross the street. They are often landscaped to provide a visual amenity. Placed at the entrance to a neighborhood, and often combined with textured pavement, and called "gateway islands." Crossings greater than 60 feet should provide a median or crossing island preferably combined with curb extensions. Medians should be at least six feet wide. They may be raised or partially sunken and combined with hydrophilic landscaping and drainage infrastructure to treat and drain storm water.
- **Raised crosswalks** - speed tables outfitted with crosswalk markings and signage. Raised crosswalks are intended to reduce vehicle speeds specifically where pedestrians will be crossing a street. By raising the level of the crossing, pedestrians are more visible to approaching motorists. Raised crosswalks can be appropriate for midblock pedestrian crossings where vehicle speeds are excessive.
- **Raised intersections** - raised flat areas that cover an entire intersection, with ramps on all approaches. By modifying the level of the intersection, the crosswalks are more readily perceived by motorists to be "pedestrian territory". Raised intersections should be used only where there is substantial pedestrian activity where other traffic calming measures have not been effective.
- **Speed humps** - raised mounds placed across residential streets to control chronic speeding problems where other methods of slowing traffic have not been effective. They are designed to calm traffic in residential areas, particularly near parks and schools. Similar to a speed bump, the speed hump is wider and has a more sloping side taper. The physical impact on passing vehicles is less severe at slower speeds than at higher speeds. Speed humps reduce vehicular speeds between intersections.
- **Speed Tables** - flat-topped speed humps typically long enough for the entire wheelbase of a passenger car to rest on the flat section. They often constructed with brick or other textured materials on the flat section.

Intersection crosswalk with curb extension (Typical)

Raised median with crosswalk (Typical)

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

7. On-street Parking

On-street parking benefits both pedestrians and drivers in a variety of ways, as well as contributing to the economic viability of a street.

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

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

1. **Parallel parking** is preferred. Parallel parking permits drivers a clear view of oncoming traffic. And it requires the least amount of additional right-of-way depth to accommodate parked cars.

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

Learn more about parking management at:
http://www.seql.org/actionplan.cfm?PlanID=13

Parking Lots and Community Water Management Issues

~ Water Quantity Issues ~

Impervious parking lots do not permit rainwater to soak into the ground. So as large areas of vegetative cover are cleared and replaced with impervious surfaces, two water management problems occur:

1. Water that was formerly available to recharge local groundwater aquifers is now lost. This can turn into a problem for communities that depend on groundwater for their drinking water, as they are more likely to face shortages.
2. Instead of recharging the aquifer, or being absorbed by vegetation, this rainfall now has to be managed as storm water runoff.

Storm water that was formerly an asset has now become a liability.

~ Water Quality Issues ~

In the first few minutes of a rainstorm, the things that normally end up in parking lots (dripping oil, anti-freeze, grease, gas, trash, etc.) get flushed into stormwater catchments leading to streams that empty into nearby water basins. These "non-point source" pollutants (NPS), and the high-velocity, heated runoff waters that carry them, degrade streams and water basins, as well as the living environment within them.

NPS accounts for at least half of the water pollution problem nationwide and poses a major threat to water supplies.

8. Lighting

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

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

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

9. Street Furniture

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

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

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

Park walk lined with seating (Typical)

Seating

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

  1.) Hold a community meeting to determine optimal locations for benches.
  2.) Select appropriate bench design based on utility, maintenance and aesthetic concerns.
  3.) Determine ongoing maintenance procedures and responsibilities.
  4.) Identify parcel owners if easement acquisition is required and acquire easement.
  5.) Involve community volunteer workers in installing benches where practical.

Trash receptacles

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

Bike racks

- Bike racks encourage pedestrian life by providing greater opportunity for people to leave their cars at home.
- Rack design should be attractive to encourage use by cyclist and property owners.
- Racks must allow the bike frame and wheel(s) to be locked securely.
- Racks should be built from heavy duty, weather & tamper resistant materials.
- Racks must support the bicycle frame and not hold the wheel.
- Most racks are misused to some degree. Look for racks that provide the same opportunity for security whether the bike is on the end or middle of the rack.
- Locate racks next to entrance doors and in line of site of a window.

Bike Racks (Typical)

Raised Planters

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

Water features

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

10. Pedestrian Overpasses/Underpasses

Grade-separated crossings include bridges or underpasses that provide continuity of a pedestrian or multi-purpose facility over or under a barrier. Barriers can include high volume multi-lane roadways, active multi-track railroads, streams, or environmentally sensitive areas. Grade-separated crossings are often expensive and difficult to implement. For these reasons, advanced planning, identification of a source of funds, and a compelling purpose and need are primary factors in obtaining approval for construction. These facilities should be considered only when no other solution is expected to be effective and where continuity is critical and well justified. Research shows that pedestrians will avoid using such facilities if they perceive the ability to cross at grade as taking about the same amount of time.

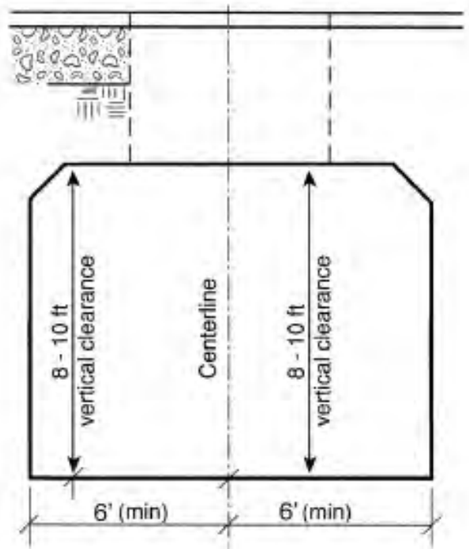
Overpasses and underpasses should be considered for high volume traffic areas such as freeways, and other high volume arteries, only where traffic volumes exceed 20,000 vehicle trips per day with speeds 35 - 40 mph and over.

These facilities may be specially constructed, or make use of an existing culvert or vehicular bridge. However, ADA accessibility requirements for stairs, ramps, and elevators can require the construction of an enormous structure that is visually disruptive.

Minimum widths for these structures should follow the guidelines for sidewalk width. Underpasses should have a daytime illumination minimum of 10 foot-candles achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a nighttime level of 4 foot-candles. Consider acoustics measures within underpasses to reduce noise impacts to users. In underpasses, where vertical clearance allows, the pedestrian walkway should be separated from the adjacent roadway by more than a standard curb height.

Pedestrian Undercrossing, Bradford Park, Davidson, NC

TYPICAL CULVERT CROSSING FOR MULTI-USE PATH



Bicycle/Pedestrian underpass examples

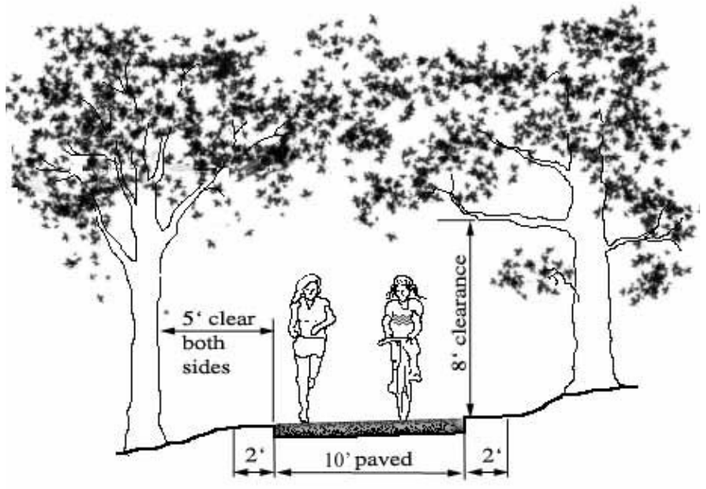
11. Off-Road Trails

Trails can be used for walking, bicycling, horseback riding or other forms of recreation or transportation. Some trails are located in corridors of protected open space known as greenways. Greenways often follow natural land or water features. They may also provide an additional complimentary use for existing utility rights-of-way. Greenways improve the quality of life for a community not only by providing additional recreation opportunities and connections between points of interest, they are also a tool to help preserve open space, improve environmental quality, facilitate economic development, and celebrate the unique heritage of the area they traverse. A network of connecting greenways results in a system that can be greater than the sum of its parts.

When developing pedestrian trails (and/or greenways), the following steps should be considered:

1.) Identify, plan and develop trails and greenways in cooperation with all affected landowners, local businesses, civic organizations, pertinent citizen advisory groups, utility companies, jurisdictions, and local law enforcement. A "Greenways Partnership" can facilitate communication between these groups.
2.) Ensure the preservation, protection and appropriate management of significant and sensitive environmental, ecological and cultural resources within greenways through conformance with the standards and criteria identified in this Plan and other pertinent policies and plans.
3.) Where acquisition of land needed for a greenway or trail is not feasible or desirable, work with landowners to protect identified resources, and provide public access where appropriate, through voluntary means such as conservation and trail easements and/or cooperative agreements.
4.) Identify roadside segments of the greenway/trail plan. Ensure that these segments are incorporated into local and state transportation plans and developed and maintained through appropriate agencies.
5.) Design for all users. Most off-road trails should accommodate a wide range of user-types and activities going on simultaneously, including walking, running, bicycling, wheelchairs, skateboarding, and other non-motorized uses. Trail alignment (turning radii and sightlines), slope, pavement width and paving materials should be designed with the needs of each user type in mind.

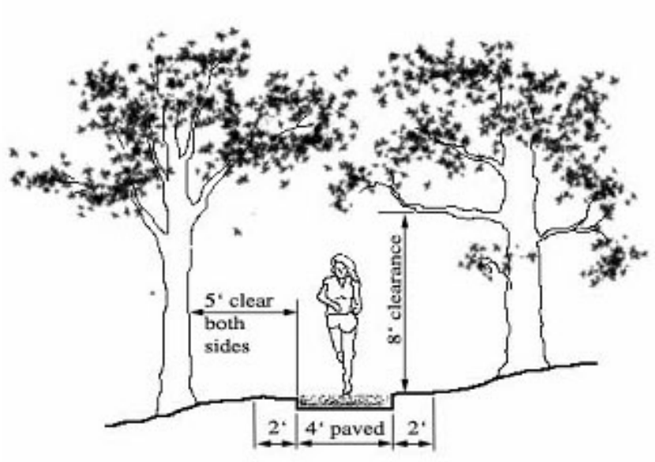
Multi-purpose Trails – Particularly in and near populated areas, trails systems should be composed primarily of pathways that can accommodate a variety of user types, including walkers, runners, bicyclists, and other non-motorized users. These multi-purpose paths must meet certain design criteria to simultaneously accommodate these different needs. Clearance dimensions are critical. Width of pavement should be maintained ideally at ten feet, with two feet improved shoulders on both sides. Some rural trails with hard surfaces include a soft shoulder for joggers. Deviations for very short distances may be acceptable when existing conditions do not physically permit standard trail width, but paved trail surfaces must maintain at least 6 ft. in width to allow accessibility for maintenance equipment (ATV type). Pavement types may vary between conventional or pervious concrete, asphalt or crusher fines. Maximum slope shall not exceed 8%. Maintain a vertical clearance minimum of eight feet.



Multi-purpose Trail

Secondary Footpaths – Some trails in the system may be considered secondary or alternate paths, particularly in cases of challenging topography where ADA compliance is impractical, or particularly sensitive environmental areas. These secondary "footpaths" should be limited to pedestrian use only. Here a soft pavement surface may be preferred (crusher fines recommended). Where a minimum width is necessary due to these conditions, maintain a four feet wide path with two feet wide improved shoulders. Maintain a vertical clearance minimum of 8 ft. Be sure that the main destinations footpaths serve can still be reached by a multi-purpose path.

All trails should be maintained with a 5 ft. cleared area from the edge of the trail on each side. Trails should be pitched to drain with a 2% minimum grade. Paving materials may vary in specific locations.



Secondary Footpath

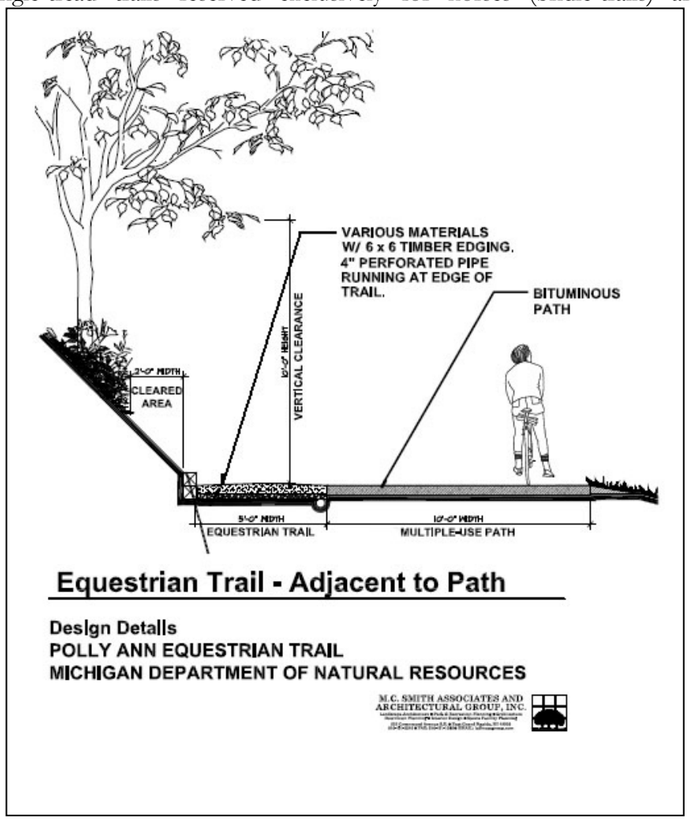
Equestrian-shared Trails – In areas where equestrian use is desirable, use horse-friendly surfaces such as pea-gravel or mulch, or provide a parallel trail with suitable surface. Trails must have enough space for horses to feel at ease. Horses tend to travel about 18 inches from the edge of the tread surface and tend to stay a comfortable distance away from other trail users and from walls or fences they cannot see through or over, sometimes even moving to the far side of the trail to avoid them. Accommodate this behavior by widening the trail, routing it away from disturbing objects or activity, locating the horse tread on the far side of the trail corridor, providing a physical separation or visual screen, installing barriers, or increasing the horizontal distance—also called the shy distance—from the discomfort. Shy distance is in addition to tread width.

Single-tread trails reserved exclusively for horses (bridle-trails) are uncommon particularly in urban settings. Most public trails are designated for shared use, although there may be instances where a trail is not appropriate or safe for all users—for example, a narrow and winding recreation trail with a steep drop-off.

Whether or not equestrians and bicyclists can share a trail without conflict depends on local expectations and cycling style. Mountain bikers have different needs than road cyclists. While there are situations where bicyclists and horses don't coexist well, in other situations they may be very compatible.

Here are three approaches to consider:

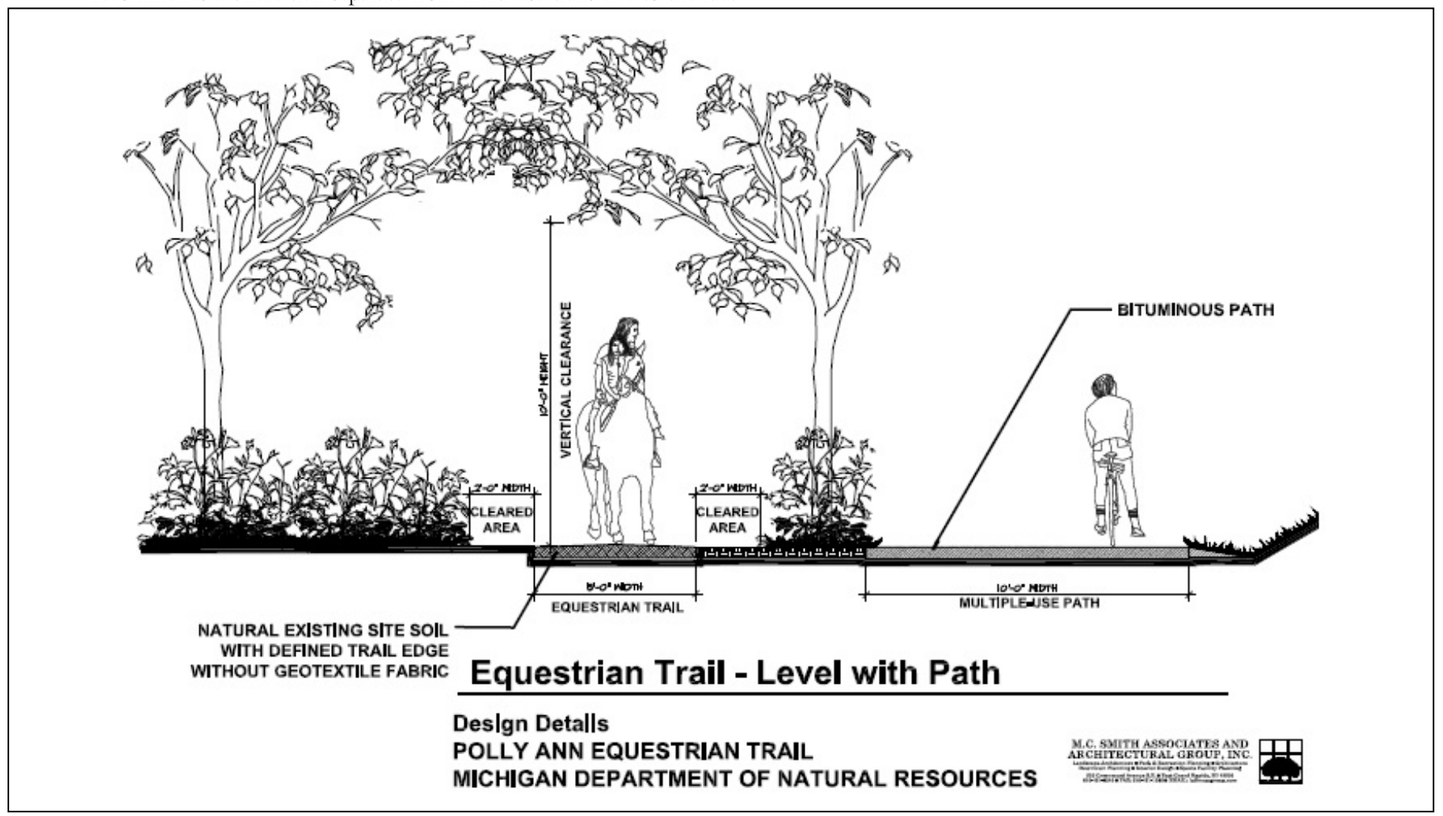
- The Guide for the Development of Bicycle Facilities (AASHTO 1999) recommends a bridle trail separate from multi-use trails due to the fact that many bicyclists are ill-informed about the need to slow down and make room for horses, and horses may be unpredictable if they think a bicyclist poses a danger.
- The Pedestrian and Bicycle Information Center (PBIC) notes that some hard surface trails already include a soft shoulder for joggers. The PBIC recommends providing a parallel trail with suitable surface for horses where adequate width is available.
- Michael Kelley's address at the National Symposium on Horse Trails in Forest Ecosystems held at Clemson University (1998), made a case for trails shared by bikers and riders, explaining that "problems are often matters of perception rather than reality, and those that are real can almost always be solved with a proactive approach…"



Equestrian Trail - Adjacent to Path

Design Details
POLLY ANN EQUESTRIAN TRAIL
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

M.C. SMITH ASSOCIATES AND ARCHITECTURAL GROUP, INC.



Equestrian Trail - Level with Path

Design Details
POLLY ANN EQUESTRIAN TRAIL
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

M.C. SMITH ASSOCIATES AND ARCHITECTURAL GROUP, INC.

At-Grade Railroad Crossing

When designing railroad crossings for multi-use trails, both pedestrian and other forms of non-motorized traffic must be considered. Railroad crossings have flangeway gaps that allow passage of the wheels of the train. These gaps can sometimes exceed 1/2 inch, making them hazardous for pedestrians as well as bicyclists, those using wheelchairs, and other non-motorized traffic. Narrow tires can easily get caught in the flangeway gap. In addition, rails or ties that are not embedded in the travel surface create a tripping hazard. Pedestrian safety and accessibility at railroad crossings can be enhanced by the following actions:

- Raise the approaches to the track and the area between the tracks to the level of the top of the rail creating flat level areas to cross. When casters on wheelchairs hit changes in level, they rotate and may drop into the flangeway gap.
- Utilize a surface material that will not buckle, expand, or contract significantly (e.g., textured rubber railroad crossing pads) in all areas adjacent to the tracks so that the surface material will not interfere with railway function or degrade with use.
- Design crossings so that the pedestrian paths of travel intersect the railroad track at a 90 degree angle, which minimizes problems with the flange-way gap width.
- Widen the crosswalk when a perpendicular crossing cannot be provided so that pedestrians have room to maneuver and position themselves to cross the tracks at a 90 degree angle.
- Install detectable warnings similar to a transit platform if the railroad crosses the sidewalk.
- Provide railroad crossing information in multiple formats, including signs, flashing lights, and audible sounds. The MUTCD requires railroad crossing signs whenever railroad tracks intersect the street.

TEXTURED RUBBER RAILROAD CROSSING PADS
(RATHER THAN ASPHALT) DESIGNED TO MEET RAILROAD FLANGEWAYS REDUCE CHANGES IN LEVEL FOR PEDESTRIANS AND OTHER NON-MOTORIZED TRAFFIC.

Paving

Each trail is unique in terms of its location, design, environment, and intended use. For each segment of the trail, care should be given to selecting the most appropriate pavement type, considering cost-effectiveness, environmental benefit, accessibility and aesthetics. Various pavement types can be used to meet ADA standards, as long as the surface is "firm and stable." Pavement options include:

- **Conventional Concrete** – Costly installation and maintenance, but requires less periodic maintenance than asphalt or crusher fines. Install 4-inch thickness on compacted 4-inch aggregate base course.
- **Pervious Concrete** – Allows storm water to percolate when used over permeable soils, superior traction, unfavorable to rollerblading and skateboarding, higher installation cost. Install according to manufacturer's specifications.
- **Asphalt** – smooth, joint free and softer than concrete, preferred by runners, roller-bladers, cyclists, handicap users, and parents pushing strollers. Construction is quicker and costs significantly less than a concrete. Repair is quick and inexpensive. Install a minimum 2-inch I-2 asphalt thickness with 4-inch aggregate base course. Pavement can last up to 20 years with periodic maintenance.
  See additional information at:
  http://www.americantrails.org/resources/trailbuilding/betterAsphalt.html
- **Crusher fines** – Excellent for running trails, as well as walking, mountain bike and equestrian use. Can be constructed to meet ADA requirements. Constructed of small, irregular and angular particles of rock, crushed into an interlocking tight matrix. A crusher fine trail combines the rustic feeling of a natural surface trail with a surface type that's durable (but not concrete or asphalt). The natural gravel-like surface feels more like a trail than a hard surfaced path and fits in well with primitive settings. Typically costs about 1/3 the price of concrete paths, installed. More susceptible to erosion than asphalt or concrete. For detailed information, see:
  http://www.americantrails.org/resources/trailbuilding/BuildCrushFinesOne.html
- **Dirt** – Recommended for mountain bikes and equestrian uses.
- **Boardwalk** – very expensive, for environmentally sensitive areas and wetlands.

For comparative costs of pavement types, see **Part 8.1: Sample Cost Estimates for Facilities**.

Road Crossings

In order to maximize the safety and accessibility of trail-to-street intersections, the following trail design considerations are recommended:

- The trail should intersect the street at a 90-degree angle
- Increase trail width at the intersection to reduce user conflicts
- Provide good sight lines for both motorists and trail users
- Provide signage to ensure that motorists are aware of the trail crossing
- Provide a visible crosswalk across the intersection to increase trail user and motorist awareness
- Locate signage to clearly indicate right of way to both drivers and the trail
- Use curb ramps as required. Include detectable warnings to ensure that trail users with vision impairments are aware of the street.

Accessibility

The trail system should be designed to accommodate all people, regardless of age and ability. Off-road trails should meet ADA accessibility requirements whenever possible in the design. Does an accessible trail have to be paved with concrete or asphalt? Not as long as the surface is "firm and stable". Packed crushed stone, gravel fines compacted with a roller, packed soil and other natural materials bonded with synthetic materials can provide the required degree of stability and firmness. For additional paving information, refer to: http://www.americantrails.org/resources/accessible/ADASummFeb00.html

Environmental Concerns

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

percolate into the ground and recharge aquifers, or be absorbed and transpired by plants.

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

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

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

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

1. **Local government** – An existing department within the municipal government (usually a department of parks and recreation) is assigned to manage and maintain the corridor.
2. **Non-profit association** – A non-profit association or council may assume ownership of the corridor or control of the trail property. Local organizations that are experienced in trail management have distinct advantages in managing the trail system and responding to public needs. Local land trusts or trail conservancies may also be formed to take ownership of the trails.
3. **Private landowners** – May open their land to trail use by formal or informal agreement, and may sell or donate conservation easements while retaining other rights to the land.

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

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

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

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

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

For detailed information concerning liability, see:
http://www.americantrails.org/resources/adjacent/RailLiability.pdf

Security & Safety

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

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

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

Maintenance & Operations
Facility inspections are an essential part of maintaining any facility. Planning and design of all off-road trails should include management plans that help gauge operational funds for various maintenance projects. Proper maintenance must address both the performance condition of the trail preserving

the environmental integrity and character of any environmental areas that are adjacent to the trail. Maintenance and repair projects can be managed either through annual service contracts put out to bid, or become an integral part of the facilities management maintenance program. Annual budgets for trail maintenance and operations should document maintenance items, facility improvements, and other related costs to ensure the long-term health of trail facilities, the environment, and safety for users.

Additional Accessibility Information

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

A Checklist for Accessible Sidewalks and Street Crossings

The Americans with Disabilities Act (ADA) requires that new and altered facilities be accessible. Title II of the ADA covers sidewalk and street construction and transit accessibility, referencing the ADA Accessibility Guidelines (ADAAG) or the Uniform Federal Accessibility Standards (UFAS) for new construction and alterations undertaken by or on behalf of a state or local government. The Department of Justice (DOJ) title II regulation specifically requires that curb ramps be provided when sidewalks or streets are newly constructed or altered. (Requirements for existing pedestrian networks not otherwise being altered are also included in the DOJ regulation, available on line at www.ada.gov/reg2.html). The ADA Accessibility Guidelines (www.access-board.gov/adaag/html/adaag.htm) include standards for site development applicable to new construction and alterations in the public right-of-way.

CURB RAMPS

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

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

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

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

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

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

SIDEWALKS

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

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

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

STREET CROSSINGS

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

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

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

TEMPORARY WORK

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

OTHER PEDESTRIAN FEATURES

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

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

Information Sources:

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

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

James City County Greenway Master Plan (2002)
Greenway Maintenance and Management, www.jccegov.com

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

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

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

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

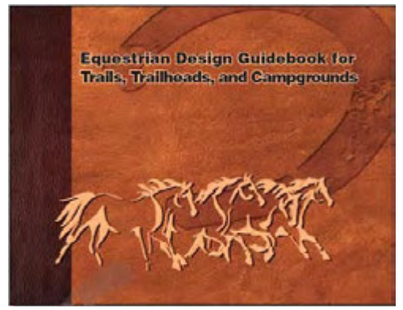
Walkinginfo.org

Trafficcalming.org

Federal Highway Administration
http://www.fhwa.dot.gov/environment/sidewalk2/contents.htm
http://www.fhwa.dot.gov/environment/fspubs/07232816/page05.htm
http://www.fhwa.dot.gov/ENVIRonment/fspubs/07232816/page06.htm

Materials, Design and Cost Study
Polly Ann Equestrian Trail Improvements
Michigan Department of Natural Resources
Forest, Mineral and Fire Management Division

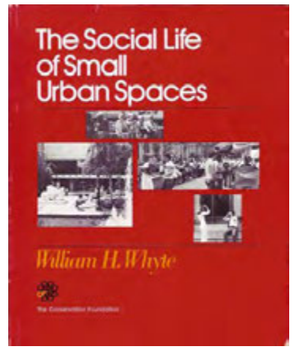
Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds
United States Department of Agriculture (USDA)
http://www.fs.fed.us/t-d/pubs/htmlpubs/htm07232816/index.htm



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

"This book is about city spaces, why some work for people and some do not, and what the practical lessons may be. It is a by-product of first-hand observation."

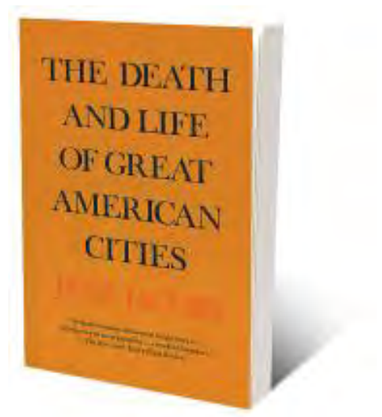
- William H. Whyte



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

"In setting forth different principles, I shall mainly be writing about common, ordinary things: for instance, what kinds of city streets are safe and what kinds are not; why some city parks are marvelous and others are vice traps; why some slums stay slums and others regenerate themselves even against financial opposition; what makes downtowns shift their centers; what is a city neighborhood, and what jobs neighborhoods in great cities do. In short, I shall be writing about how cities work in real life, because this is the only way to learn what principles of planning and what practices in rebuilding can promote social and economic vitality in cities."

- Jane Jacobs



Part 6: Project Recommendations

1. SIDEWALKS: Project Descriptions, Costs and Evaluation
2. CROSSWALKS: Project Descriptions and Costs
3. TRAILS: Project Descriptions, Costs and Evaluation
4. PROJECT CATEGORY TOTALS

6.1 SIDEWALKS:
Project Descriptions & Ranking

PROJECT DESCRIPTIONS						PROJECT COSTS				PROJECT EVALUATION											
Thread Trail	SIDEWALKS				TOP 11 RANK PROJECTS BY TOTAL SCORE OF PLAN GOALS, COST, LEVEL OF DIFFICULTY, STEERING COMMITTEE VOTES AND PUBLIC VOTES	Length or Qty.	Unit	Unit Cost	Estimated Cost (ROW	Destinations	Downtown	Closes Gaps	NC 16	Low Cost	Difficulty	TOTAL	Public Votes		Steering Cmte.		PROJECT Rank
										GOALS & CONSIDERATIONS							OF 120	%	OF 67	%	TOTAL POINTS
Proj. #	Location	Side	From (North and West)	To (South and East)	Description																
S8	Providence Rd. (NC 16)	W	*Cureton*	Providence Farms	Include seperated bike/ped facilities with bridge replacement.	6,250	LF	$135	$843,750	3	0	1	1	0	0	5	*17*	14	*7*	10	29
S3	East South Main St. (NC 75)	N&S	McKibben	*McNeely Branch (Union Co.)*	N side ends at *American Legion* , S side begins at Old Providence	6,980	LF	$135	$942,300	2	1	1	0	0	2	6	*2*	2	*4*	6	14
S23	McCain St.	N	E. South Main St. (NC 75)	S. Providence St.		650	LF	$135	$87,750	2	1	1	0	3	0	7	*0*	0	*2*	3	10
S7	Brevard St.	S	East South Main St. (NC 75)	*Fitness Trail*		600	LF	$135	$81,000	3	1	1	0	3	0	8	*2*	2	*0*	0	10
S27	Waxhaw-Marvin Rd.	E	Prescot Glen (*Prescot*)	Eutaw Dr.	Includes Union County.	5,700	LF	$135	$769,500	0	0	1	0	0	-2	-1	*4*	3	*4*	6	8
S31	Kensington Dr.	N	Sunset Hill (Cureton)	Waxhaw-Marvin Road		$5,403	LF	$135	$729,405	1	0	1	0	0	0	2	*0*	0	*4*	6	8
S5	Bivens St., Jackson Ave.	N,W	N. Broad St.	N. Church St.	Included in CD-2009-001 development plans, with Broad St. segment.	2,090	LF	$135	$282,150	1	1	1	0	1	2	6	*0*	0	*1*	1	7
S12	Waxhaw-Marvin Rd.	E	Kensington Dr.	*Prescot*	Link to existing trail.	1,775	LF	$135	$239,625	0	0	0	0	1	0	1	*6*	5	*1*	1	7
S2	Waxhaw Parkway	N&S	*Oaks on Prov., Harrison Pk.*	*Old Hickory S.Ctr., Hook Tire*	Connect existing sidewalks.	1,925	LF	$135	$259,875	1	0	1	0	1	0	3	*0*	0	*3*	4	7
S24	McKibbin St.	N	E. South Main St. (NC 75)	S. Providence St.	Includes E side of S. Providence along DS Mem'l Garden	700	LF	$135	$94,500	1	1	1	0	3	0	6	*0*	0	*0*	0	6
S26	Caldwell St.	N&S	*David Barnes Park*	S. Providence St.	Connect existing sidewalks/trails.	700	LF	$135	$94,500	1	1	1	0	3	0	6	*0*	0	*0*	0	6
S9	Kensington Dr.	N&S	Sunset Hill (*Cureton*)	*5/3 Bank/Cureton Towne Ctr.*	Connect existing sidewalks.	1,290	LF	$135	$174,150	1	0	1	0	1	0	3	*1*	1	*1*	1	5
S13	Waxhaw-Marvin Rd.	E,N	Carindale (*Cureton*)	Morehouse (*Quellin*)	Connect existing sidewalks. Includes Union County.	3,488	LF	$135	$470,880	0	0	1	0	0	-2	-1	*4*	3	*2*	3	5
S40	Brevard St.	S	E. South Main St. (NC 75)	King St.	Connect existing sidewalks.	400	LF	$135	$54,000	0	1	1	0	3	0	5	*0*	0	*0*	0	5
S11	Kensington Dr.	S	*Kensington Elementary*	Waxhaw-Marvin Road		1,310	LF	$135	$176,850	1	0	0	0	1	0	2	*1*	1	*1*	1	4
S25	*Hillcrest Neighborhood Link*		S. Main St.	Sharon Dr. & High Rock Dr.	Includes portions of High, Jackson, Lynn, Stanton, and Anne St.	3,900	LF	$135	$526,500	0	1	1	0	0	0	2	*1*	1	*1*	1	4
S6	Hicks St.	E&W	undeveloped	N. Main St.	Included in CD-2009-001 development plans.	2,500	LF	$135	$337,500	0	1	1	0	0	2	4	*0*	0	*0*	0	4
S15	S. Broome St. & College St.	W&E	S. Main St.	Brevard St.	W side ends at McKibben, E side ends at Brevard.	1,750	LF	$135	$236,250	1	1	0	1	1	0	4	*0*	0	*0*	0	4
S17	S. Broad St.	W	S. Main St.	Givens St.	Link to proposed trail.	490	LF	$135	$66,150	0	1	0	0	3	0	4	*0*	0	*0*	0	4
S20	N. High St.	W	Price St.	N. Main St.	Determine optimal side of street in field.	460	LF	$135	$62,100	0	1	0	0	3	0	4	*0*	0	*0*	0	4
S21	S. Providence St.	W&E	S. Main St.	McCane St.	W side north of McKibbin, E side south of McKibbin	1,400	LF	$135	$189,000	1	1	1	0	1	0	4	*0*	0	*0*	0	4
S35	Campfield		Campfield Ct.	Waxhaw Parkway	Link to plannedbypass	50	LF	$135	$6,750	0	0	1	0	3	0	4	*0*	0	*0*	0	4
S39	N. Chruch St.	W&E	Bivens St.	N. Main St.	Connect existing sidewalks. East side ends north of McDonald.	1,230	LF	$135	$166,050	1	1	1	0	1	0	4	*0*	0	*0*	0	4
S29	Gray Byrum, Waxhaw-Marvin Rd.	S,E	Providence Rd. (NC 16)	Carindale (*Cureton*)	Connect existing sidewalks.	6,500	LF	$135	$877,500	0	0	1	0	0	0	1	*0*	0	*2*	3	4
S4	Price St.	S	N. Broome St. (NC 16)	Washington St.	Determine optimal side of street in field.	1,025	LF	$135	$138,375	0	1	1	0	1	0	3	*0*	0	*0*	0	3
S18	Price St.	N&S	Bivens	N. Broome St. (NC 16)		2,650	LF	$135	$357,750	1	1	1	0	0	0	3	*0*	0	*0*	0	3
S19	McDonald	N&S	N. High St.	N. Broome St. (NC 16)	Connect existing sidewalks.	1,700	LF	$135	$229,500	0	1	1	0	1	0	3	*0*	0	*0*	0	3
S38	S. Chruch St., Givens St.	Both	S. Main St.	S. Jackson Ave.	Givens St. south side ends at High St.	2,700	LF	$135	$364,500	1	1	1	0	0	0	3	*0*	0	*0*	0	3
S28	Providence Rd. (NC 16)	E	Bonds Grove Church Rd.	Sunset Hill Rd.	Connect existing sidewalks. Includes Union County.	5,900	LF	$135	$796,500	0	0	1	1	0	-2	0	*0*	0	*2*	3	3
S32	Pine Oak	S,E	Providence Rd. (NC 16)	Waxhaw-Marvin Road		6,500	LF	$135	$877,500	1	0	0	0	0	0	1	*0*	0	*1*	1	2
S22	Cuthbertson Rd.	N	*Howards Mill*	*Cuthbertson School complex*	Link to existing sidewalks. Includes Union County.	8,475	LF	$135	$1,144,125	2	0	1	0	0	-2	1	*1*	1	*0*	0	2
S14	Waxhaw Indian Trail, Howie Mine	NW	Blythe Creek/FutureBypass	Cureton St.		3,030	LF	$135	$409,050	0	0	0	0	0	0	0	*2*	2	*0*	0	2
S33	Blythe Mill Rd.	N	N. Providence St.	planned bypass	Link to South Cliff Dr. and planned bypass. Includes Union County.	2,110	LF	$135	$284,850	0	0	1	0	1	-2	0	*0*	0	*1*	1	1
S10	Waxhaw-Marvin, Kensington Dr.	W,N	*Anklin Forest*	Creek at Ridgehaven	Link to planned greenway at town border. Includes Union County.	3,900	LF	$135	$526,500	1	0	0	0	0	-2	-1	*1*	1	*1*	1	1
S1	Broome St (NC 16)	W	Bivens St	N. Main St.	Connect existing sidewalks.	900	LF	$135	$121,500	0	0	0	0	1	0	1	*0*	0	*0*	0	1
S36	King St. & Ethel St.	N	Brevard St.	Old Providence Rd.		1,720	LF	$135	$232,200	0	0	0	0	1	0	1	*0*	0	*0*	0	1
S37	S. Jackson, Anne, Lynn	W,N	S. Main St.	Stanton St.	Lynn St. segment connects Anne St. to Jackson St.	2,700	LF	$135	$364,500	0	1	0	0	0	0	1	*0*	0	*0*	0	1
S34	Waxhaw-Marvin Rd.	W	Kensington Rd.	Eutaw Dr.	Connect existing sidewalks/trails. Includes Union County.	7,770	LF	$135	$1,048,950	0	0	1	0	0	-2	-1	*0*	0	*1*	1	0
S30	Gray Byrum Rd.	N	Waxhaw-Marvin Rd.	Prince Valiant Dr.	Link to planned greenway. Includes Union County.	2,500	LF	$135	$337,500	0	0	0	0	0	-2	-2	*0*	0	*1*	1	-1
S16	Waxhaw Farms Road	N	terminus	Old Waxhaw Monroe Rd.	Link to proposed trail. Includes Union County.	4,470	LF	$135	$603,450	0	0	0	0	0	-2	-2	*0*	0	*0*	0	-2

For an explanation of project prioritization, Public and Steering Committee voting procedures, and assigned values for **Goals & Considerations,** see Part 4.5 Project Prioritization.

Difficulty (constraints and opportunities):
(+2) Included in Thread Trail or approved development plans, utility or street ROW
(-2) Falls outside Town of Waxhaw jurisdiction

Highest ranked

6.2 Crosswalks: Project Descriptions

PROJECT DESCRIPTIONS															PROJECT COSTS	
Trail X-ing	CROSSWALKS	Side	Featured facilities					(Recommended components)						Description	TOTAL COSTS =	$1,716,000
			stripe	signs	flash	count	motion	audible	radrx	curbx	txpvt	isle	grade			
C1	Brisbin @ Providence (NC 16)	S	$500	$1,000		$15,000			$20,000							$36,500
C2	Sunset Hill @ Providence (NC16)	4way	$2,000	$2,000				$80,000						Complete as development of NE corner property occurs.		$84,000
C3	Kensington/Cuthbertson @ NC16	4way										$30,000		Sidewalk & ramps on W side corners. Cureton Focus Area.		$30,000
C4	Kensington @ Waxhaw-Marvin	4way	$2,000	$2,000				$80,000		$40,000						$124,000
C5	Anklin Forest @ Waxhaw-Marvin	S	$500	$1,000	$10,000											$11,500
C6	Kensington @ Nesbit Park	W&S	$1,000	$1,000				$40,000								$42,000
C7	Cuthbertson @ Brough Hall	N&E	$1,000	$1,000	$10,000						$5,000			Warning lights on Cuthbertson, textured pvmt. on Brough Hall.		$17,000
C8	Waxhaw Pkwy @ NC 16	4way	$2,000	$2,000				$80,000						Coordinate with development of bypass.		$84,000
C9	Price @ Broome (NC 16)	W,S,E	$1,500	$1,500				$60,000								$63,000
C10	N. Main @ Broome (NC 16)	N&E	$1,500	$500	$20,000						$10,000			Ped-activated warnings at Broome & N. Main. See, Part 4.4.1.		$32,000
C11	S. Main @ Broome (NC 16)	W	$500	$500				$10,000			$10,000			Additional crosswalk signalization on S. Main. See Part 4.4.1.		$21,000
C12	Providence @ S. Main (NC 75)	W	$500	$500				$20,000		$10,000				Bulb-out SW corner, apply vivid crosswalk striping.		$31,000
C13	McKibben @ S. Main (NC 75)	N	$500	$1,000	$10,000											$11,500
C14	Arbor @ Old Providence	S	$500	$1,000				$20,000				$15,000		Median island ped. refuge at N side, relocate striping. Part 4.4.3.		$36,500
C15	Waxhaw Farms @ Old Wax-Monroe	N	$500	$1,000	$10,000											$11,500
C16	Rehobeth @ S. Main	S&E	$1,000	$2,000	$10,000											$13,000
C17	S. Main @ Old Providence (NC75)	E	$1,000	$2,000		$30,000			$10,000					X-walks on Old Providence & NC 75, reduce radius of NE curve.		$43,000
C18	Waxhaw Hwy (NC 75) @ T3 & S3		$500	$1,000	$10,000											$11,500
C19	Waxhaw Hwy (NC 75) @ T14		$500	$1,000	$10,000								$150,000	(midblock) Crossing below road if grade permits		$161,500
C20	Waxhaw-Indian Trail @ T14, S14		$500	$500			$20,000							(midblock)		$21,000
C21	Ski Trail @ T14		$500	$1,000	$20,000		$20,000							(midblock) Advance warning lights at curves		$41,500
C22	Cuthbertson @ T19			$1,000									$150,000	(midblock) Crossing below road at existing bridge		$151,000
C23	NC 16 @ T12, T19, & T25	N,W,S	$500	$1,000								$15,000	$300,000	Multi-use path crossings under NC16 bridge, both sides of creek		$316,500
C24	Pine Oak @ T8		$500	$1,000	$10,000		$20,000							(midblock) Advance warning lights at curve		$31,500
C25	Pine Oak @ T5 & T8		$500	$1,000										(midblock)		$1,500
C26	Wax-Marvin @ Exbury Gardens		$500	$1,000	$10,000											$11,500
C27	Waxhaw Pkwy @ T6 & T7		$500	$500			$20,000							(midblock)		$21,000
C28	Kensington @ T10		$500	$500	$10,000									Equestrian signage and improvements to T23 recommended.		$11,000
C29	Gray Byrum @ Prince Valiant, T22		$500	$500		$30,000										$31,000
C30	Wax-Marvin @ planned bypass	N&E	$1,000	$1,000				$40,000					$150,000			$192,000
C31	T14 & RR		$500	$500										See RR crossing detail 5.11.4.		$1,000
C32	T27 & Old Waxhaw-Monroe Rd.		$500	$500			$20,000							(midblock)		$21,000

SEE INDIVIDUAL FEATURE COST ESTIMATES IN PART 8.1

RECOMMENDED CROSSWALK FEATURES (SEE PART 5.4 - 5.7)		Average Unit Costs
Pink indicates feature is recommended.		
stripe	crosswalk lines and advanced stop bars per street	$500
signs	pedestrian warnings, STOP, No-R on red, per street	$500
flash	flashing warning or upfit of existing traffic lights	$10,000
count	pedestrian-activated crossing lights w/ countdown signals	$15,000
motion	motion-activated warning systems	$20,000
audible	audible accessible ped-activated countdown signals	$20,000
radrx	curb radius reductions	$10,000
curbrx	curb extension/bulb out	$10,000
txpvt	textured pavement	$5,000
isle	pedestrian island/median	$15,000
grade	above grade or below facility where conditions permit	$150,000

6.3 TRAILS:
Project Descriptions and Ranking

PROJECT DESCRIPTIONS

Thread Trail	TRAILS		TOP 5 RANK PROJECTS BY TOTAL SCORE OF PLAN GOALS, COST, LEVEL OF DIFFICULTY, STEERING COMMITTEE VOTES AND PUBLIC VOTES		PROJECT COSTS				PROJECT EVALUATION												
Proj. #	Location		Trailheads	Description/Features	Length or Qty.	Unit	Unit Cost	Estimated Cost (ROW	Destinations	Downtown	Closes Gaps	NC 16	Low Cost	Difficulty	TOTAL	Public Votes		Steering Cmte.		PROJECT Rank
									GOALS & CONSIDERATIONS							OF 120	%	OF 67	%	TOTAL POINTS
T14	Blythe Creek Greenway		Proposed TR (T12), Ski Trail, Trace Ck., Mtn. Folk, Wax-IT Rd., Deer Ck., *White Oak Manor*, NC 75, T15, T11,T-15, Old Wax-Monroe Rd.		26,430	LF	$165	$4,360,950	1	0	0	0	0	0	1	22	18	0	0	19
T1	South Providence Greenway I		*David Barnes Park*, Givens St., Lynn St., Brevard St., *Fitness Trail*	Sanitary Sewer, connect to existing Trail (TR)	2,050	LF	$40	$82,000	2	1	0	0	3	2	8	3	3	3	4	15
T4	Providence Greenway		N. Broome St., Howie Mine Rd., Price St., Leafmore Ct., Armfield St.	Unused Town-owned street rights-of-way	5,550	LF	$135	$749,250	0	1	0	0	0	2	3	11	9	1	1	14
T8	Wysacky Greenway III		Pine Oak Rd.(2x), Maplewood Rd., Cassidy, Kingston Dr.	Sanitary Sewer along Twelve Mile Creek	3,940	LF	$135	$531,900	0	0	1	0	0	2	3	1	1	6	9	13
T2	South Providence Greenway II		Wall St., Jerry Ln., Arbor Dr., *Fitness Trail*	Sanitary Sewer, connect to existing SW & TR	2,270	LF	$135	$306,450	2	0	0	0	0	2	4	3	3	3	4	11
T3	Museum Greenway		NC 75, Old Providence Rd., Hermitage Place Tr., Museum Trails, *Waxhaw Elementary Sch.*		2,700	LF	$135	$364,500	3	0	0	0	0	0	3	2	2	3	4	9
T24	North Main Path		Providence St. (at *Overhead Bridge*), East North Main St.	Follow existing grass path beside RR.	500	LF	$25	$12,500	0	1	0	0	3	0	4	2	2	2	3	9
T11	Waxhaw Elementary Trail		Old Waxhaw-Monroe Rd., *Waxhaw Elem. Sch.*, Essaw Rd., Poplar Grove Cir., proposed TR	Sanitary Sewer, Union County	3,710	LF	$135	$500,850	2	0	1	0	0	-2	1	5	4	1	1	7
T10	Anklin Path		Arnsberger Dr. (*Anklin Forest*), Kensington Dr.	TR/RD intersection connection to planned path	290	LF	$25	$7,250	0	0	0	0	3	0	3	1	1	1	1	5
T5	Price Chapel Path		*Existing greenway*, Crewe Hall Ln., *Price Chapel Cemetery*, Pine Oak Rd. (S32, C25)		980	LF	$25	$24,500	1	0	1	0	3	0	5	0	0	0	0	5
T13	Lawson Wesley Chapel Greenway		*Lawson Greenway*, Dobson Dr., Lowergate Dr., Waxhaw-Indian Trail Rd.	Sanitary Sewer & floodplain. Union Co. Parking.	12,000	LF	$165	$1,980,000	1	0	1	0	0	2	4	1	1	0	0	5
T23	Waxhaw Ridge Trail		Planned g-way, Creekview Rd., Katherine Antoon (*Waxhaw Ridge*), Waxhaw-Marvin Rd.	Floodplain, Union Co. Cont. eques. to Kensington.	8,310	LF	$165	$1,371,150	0	0	1	0	0	2	3	0	0	1	1	4
T18	Denholme Connector		Denholme Dr. (*Quellin*), planned greenway	Floodplain	280	LF	$135	$37,800	0	0	1	0	3	0	4	0	0	0	0	4
T12	Cureton Lawson Greenway		Providence Rd. (NC16), proposed gway (T14), Duxbak Ln., *Lawson Greenway*	Sanitary Sewer & floodplain. Union County	6,350	LF	$165	$1,047,750	0	0	0	0	0	2	2	2	2	0	0	4
T9	Thorncrest Park Path		Eutaw Dr. (Wisackola Park), *Thorncrest Park (Harrison Park)*	Connect Eutaw to Thorncrest through existing park.	100	LF	$25	$2,500	0	0	0	0	3	0	3	0	0	0	0	3
T20	Gold Mine Trail		T19, *Gold Mine*, Cuthbertson Rd. (C7)	Floodplain	2,030	LF	$135	$274,050	1	0	0	0	1	0	2	1	1	0	0	3
T17	Fairgreen Path		Fairgreen Ave. (*Barrington Ridge*), Cutters Spring Dr. (*Park Providence*)	Union County	1,130	LF	$25	$28,250	0	0	1	0	3	-2	2	0	0	0	0	2
T6	Wysacky Greenway I		Waxhaw Parkway, Harrison Park Dr., Peyton, Ct. Jackson Ave.	Sanitary Sewer. Union County.	3,730	LF	$135	$503,550	0	1	0	0	0	0	1	1	1	0	0	2
T7	Wysacky Greenway II		Cassidy, Kingston Dr., Forest Oaks Ln., Sun Bonnet Rd., Country Oaks Dr., Thorncrest Dr. (2x), Spanish Oaks Dr., Waxhaw Pkwy.		4880	LF	$135	$658,800	0	0	1	0	0	0	1	1	1	0	0	2
T16	Rane Branch Greenway		Rehobeth Rd., Waxhaw Crossing/High Bluff, Waxhaw Farms Rd., Sharon Dr.	Connect to extg SW & SRTS. Union County	5,130	LF	$135	$692,550	0	0	1	0	0	-2	-1	3	3	0	0	2
T15	McNeely Branch Greenway		T14, NC 75, proposed bypass, T25, joint T28/T25, proposed bypass, T14	Floodplain & utility R-O-W. Union County	8,670	LF	$165	$1,430,550	0	0	0	0	0	0	0	0	0	1	1	1
T21	Cuthbertson School Trail		T19, *Cuthbertson School*, S22	Floodplain and creek, Union County	4,020	LF	$135	$542,700	1	0	0	0	0	0	1	0	0	0	0	1
T22	Vahalla Trail		Blue Sky (*Barrington*), Coltsgate Rd., Rainbow Dr. (*Marvin*), Gray Byrum (*Valhalla Farms*)	Connects to planned gway. Marvin, Union County	4,810	LF	$135	$649,350	0	0	1	0	0	-2	-1	0	0	1	1	0
T19	Cuthbertson Greenway		*Providence Grove* Greenway, T21, T20, Cuthbertson Rd. (C22), NC16	Floodplain, Union County	14,860	LF	$135	$2,006,100	0	0	0	0	0	0	0	0	0	0	0	0
T27	Waxhaw Creek Trail		T25, Old Waxhaw Monroe Road (C32), Town Limit	Old W-M Rd, utility R-O-W, creek to floodplain	6,300	LF	$165	$1,039,500	0	0	0	0	0	0	0	0	0	0	0	0
T25	Adam's Loop		T15, T26, T28, T27, Old Waxhaw Monroe Rd., Adams Rd., T28, T15	Floodplain, creeks, roadsides, Union County	18,320	LF	$165	$3,022,800	0	0	0	0	0	-2	-2	0	0	0	0	-2
T26	Plaxico Trail		T-25, Plaxico Rd. (*Mineral Springs*)	Floodplain and creek, Mineral Springs	3,750	LF	$165	$618,750	0	0	0	0	0	-2	-2	0	0	0	0	-2
T28	McLaurin Way		T15, T25	Utility R-O-W, Union Co.	5,330	LF	$165	$879,450	0	0	0	0	0	-2	-2	0	0	0	0	-2
		EXACT ALIGNMENT TO BE DETERMINED IN FIELD																			

Includes shared equestrian route

For an explanation of project prioritization, Public and Steering Committee voting procedures, and assigned values for **Goals & Considerations**, see Part 4.5 Project Prioritization.

TRAIL TYPES

See **Part 5.11** for trail type descriptions.

- Shared equestrian path
- Multi-use path
- Foot path

Difficulty (constraints and opportunities):

(+2) Included in Thread Trail or approved development plans, utility or street ROW

(-2) Falls outside Town of Waxhaw jurisdiction

Highest ranked

6.4 PROJECT CATEGORY TOTALS

Project Category Totals	
SIDEWALKS	$15,604,785
CROSSWALKS	$1,716,000
TRAILS	$23,725,750
TOTAL	$41,046,535

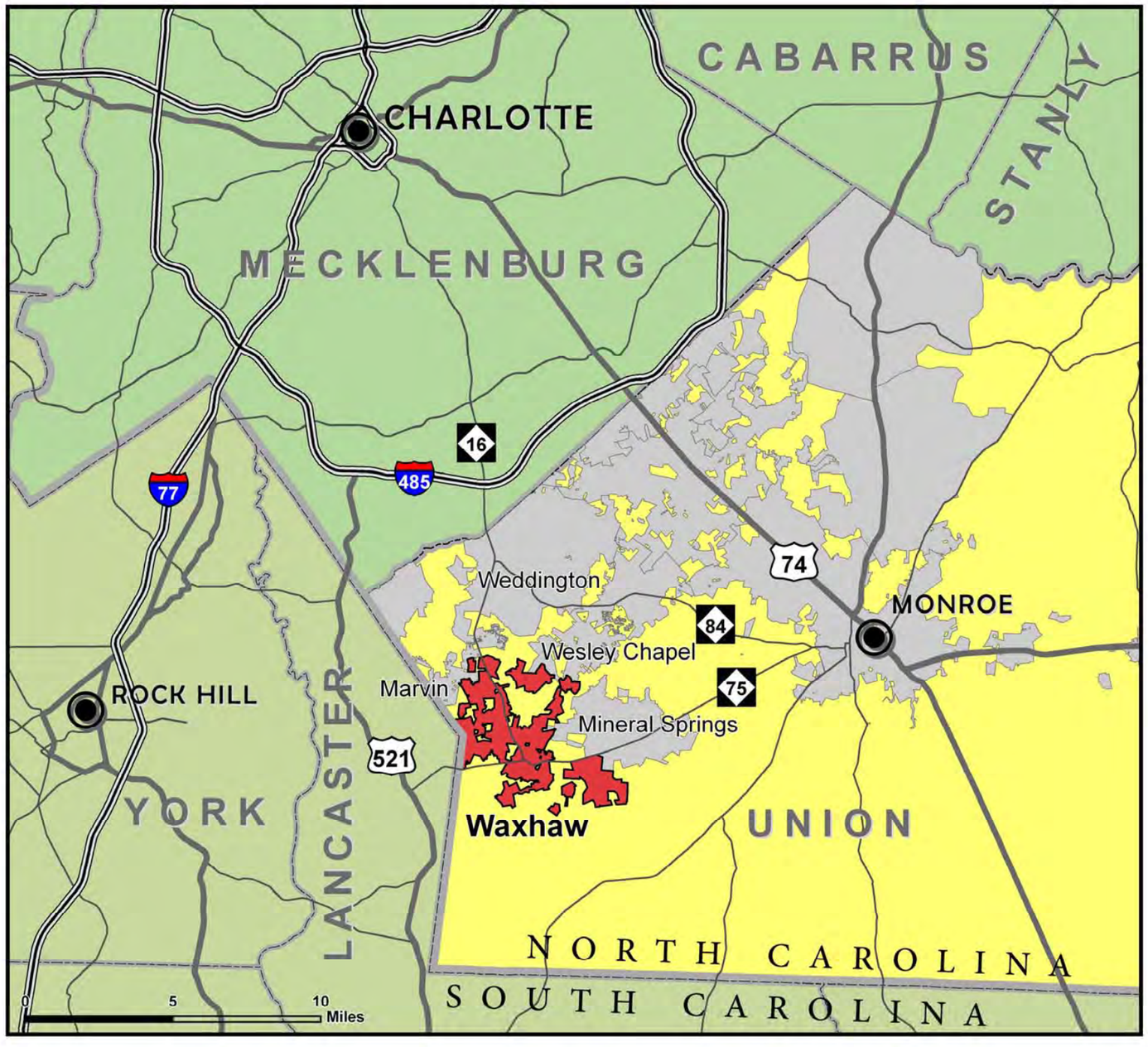
PART 7: SYSTEM MAPS

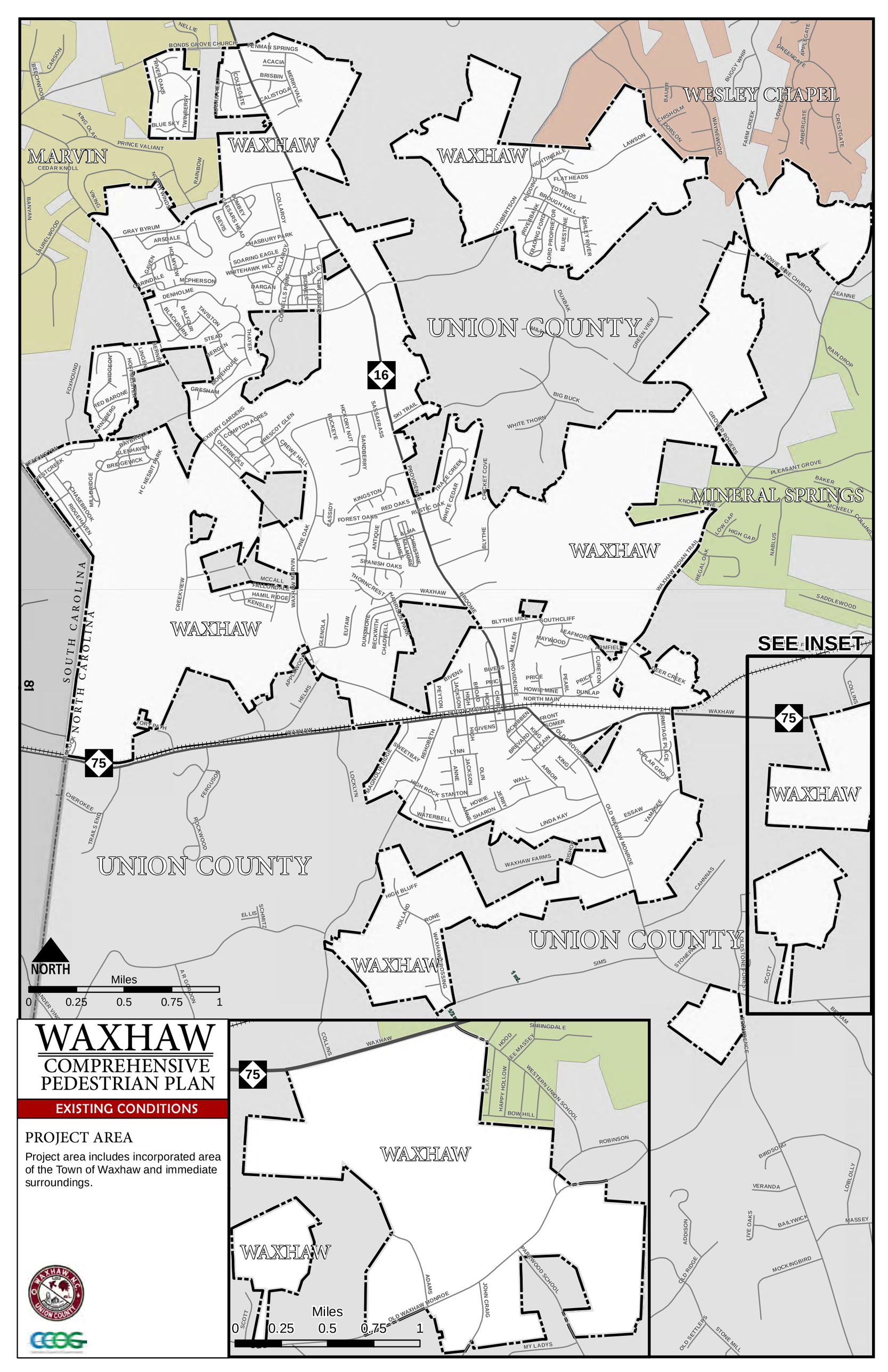
MAP INDEX:

NOTE:
"Other Planned Sidewalk" and "Other Planned Greenway" shown in the Comprehensive System Maps refer to facilities that are included in development plans that are currently adopted by the Town.

7.2 MAPS

1. Regional Context



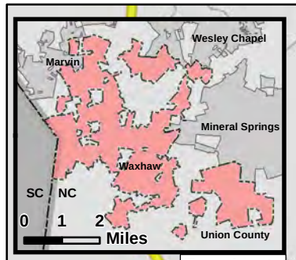


WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

EXISTING CONDITIONS

PROJECT AREA

Project area includes incorporated area of the Town of Waxhaw and immediate surroundings.



Town Limits

Proposed Mixed-Use Development

1/4 mi. 5 minute walk

Town Hall

Veterans Memorial

Overhead Bridge

CBD

Park

Skateboard Park

Library

S. Providence Sch.

Waxhaw

Hillcrest

BIVENS
JACKSON
PRICE
HIGH
BROAD
HICKS
CHURCH
MCDONALD
BROOME
HOWIE MINE
PROVIDENCE
WASHINGTON
NORTH MAIN
SOUTH MAIN
WAXHAW MARVIN
REYNOLDS
REHOBETH
ANNE
LYNN
GIVENS
CALDWELL
MCKIBBEN
FRONT
SOMER
KING
COLLEGE
MCCAIN
BREVARD

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

DOWNTOWN

Existing Conditions

(& currently planned)

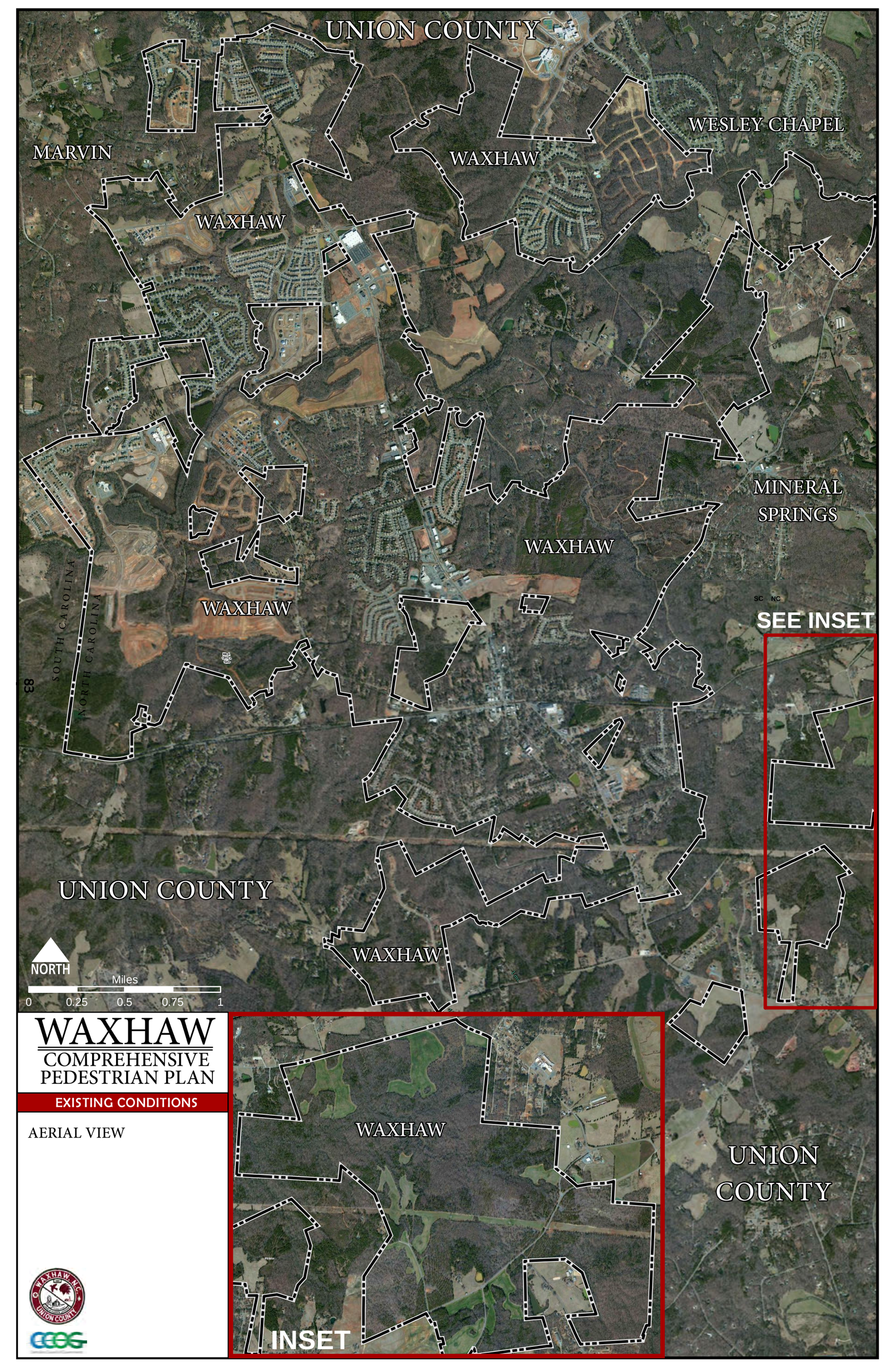
March 30, 2011

- Destination
- Existing Sidewalk
- Existing Offstreet Path
- Existing Greenway
- Existing Crosswalk
- Existing Traffic Light
- Planned Side Walk
- Planned SRTS sidewalk
- Planned Greenway
- Pond/BMP
- Stream/Creek
- Sanitary Sewer Trunk
- Railroad
- Subdivision
- Waxhaw Town limit

NORTH

0 0.05 0.1 0.15 0.2 0.25

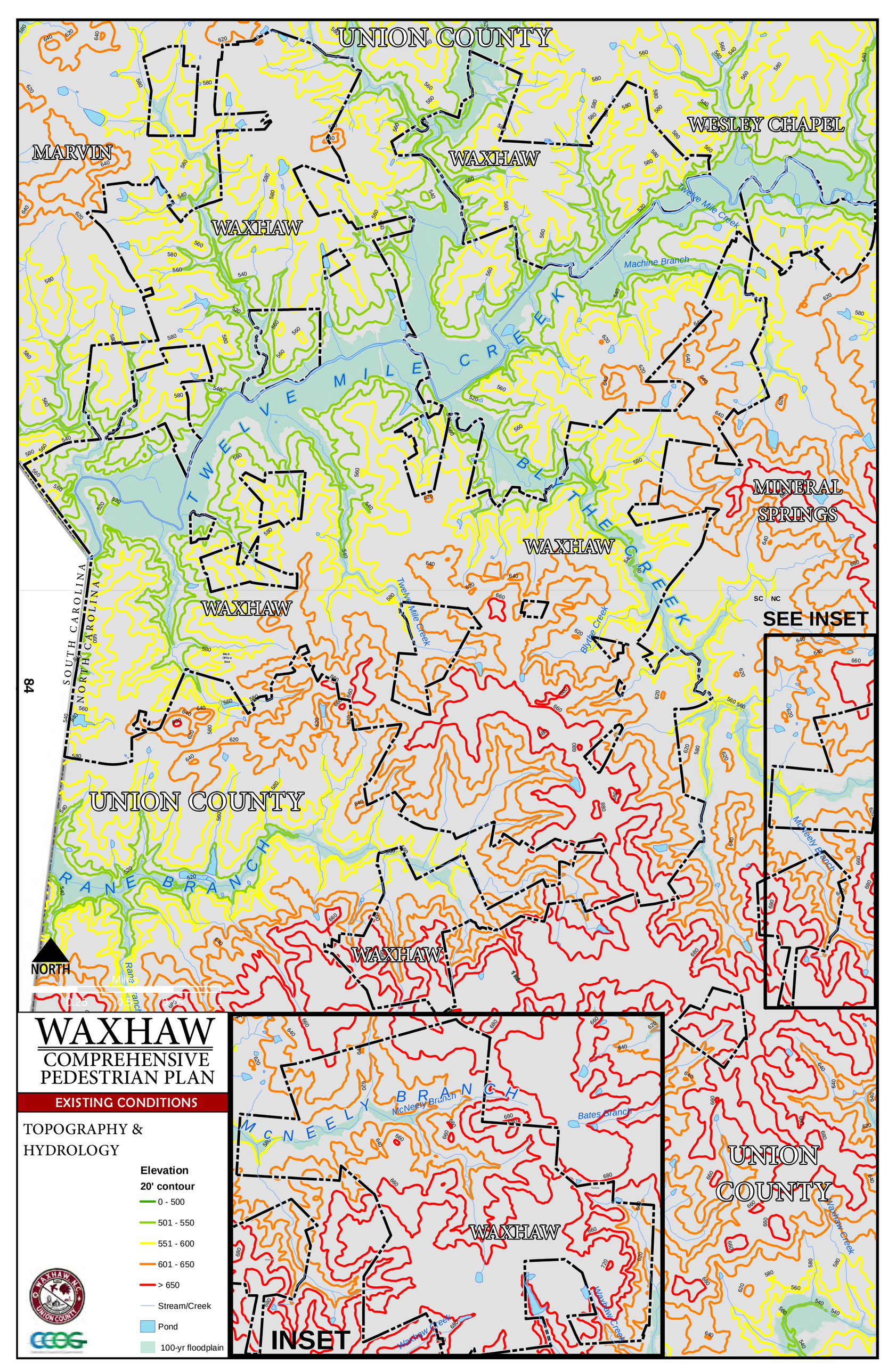
Miles



WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

EXISTING CONDITIONS

AERIAL VIEW

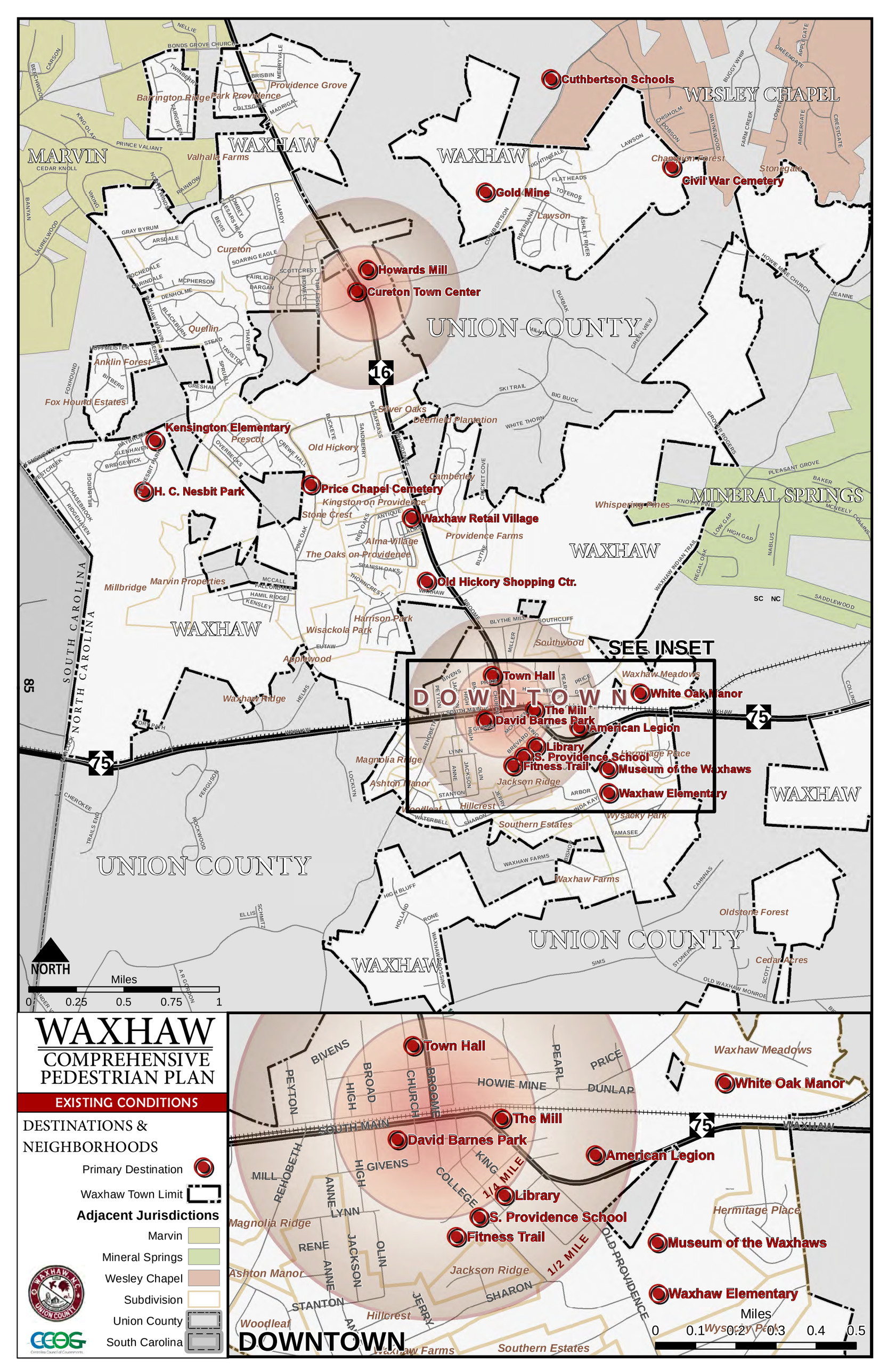


WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

EXISTING CONDITIONS

TOPOGRAPHY & HYDROLOGY

Elevation
20' contour
- 0 - 500
- 501 - 550
- 551 - 600
- 601 - 650
- > 650
- Stream/Creek
- Pond
- 100-yr floodplain



WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

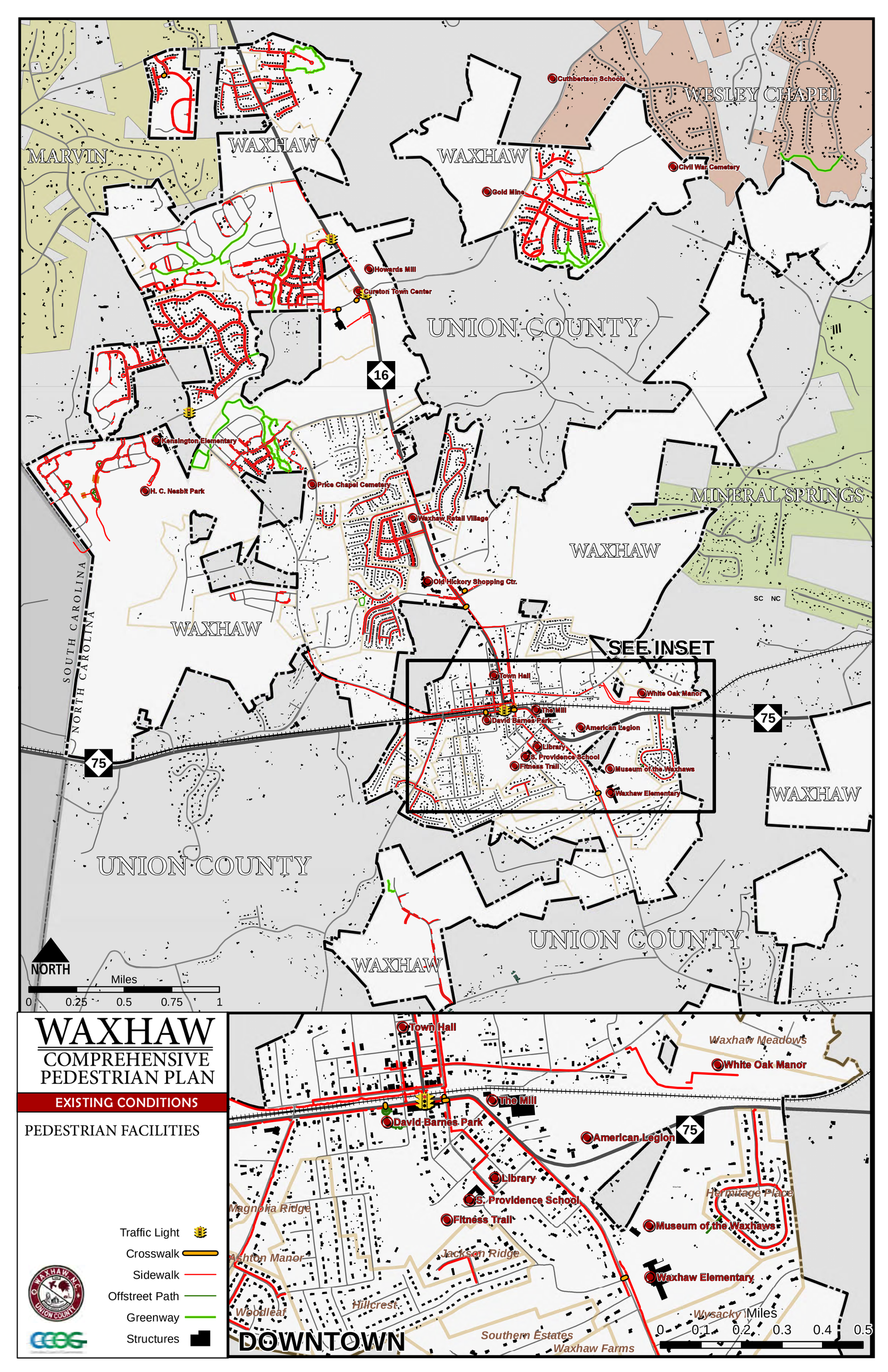
EXISTING CONDITIONS

DESTINATIONS & NEIGHBORHOODS

- Primary Destination
- Waxhaw Town Limit

Adjacent Jurisdictions

- Marvin
- Mineral Springs
- Wesley Chapel
- Subdivision
- Union County
- South Carolina

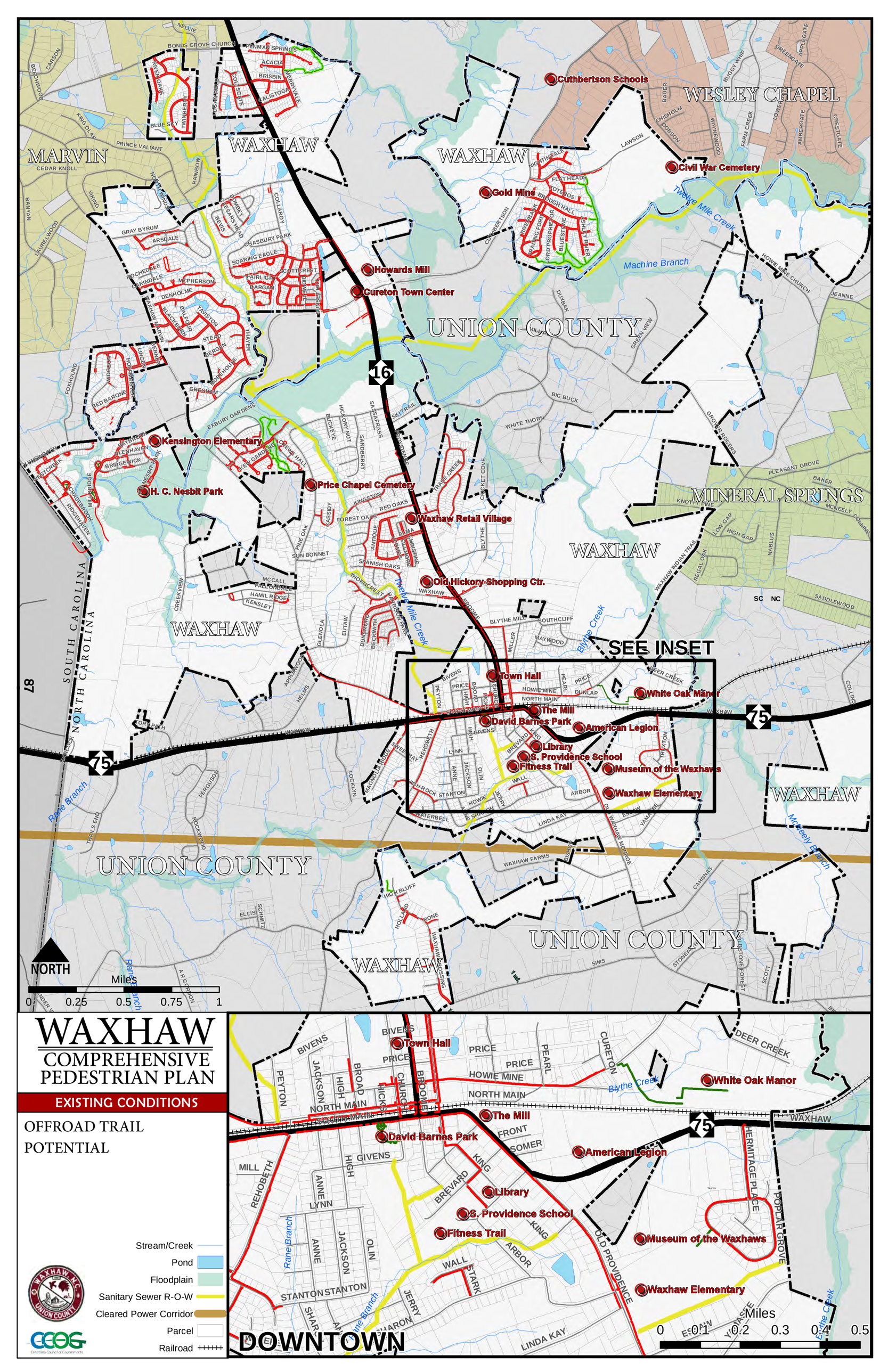


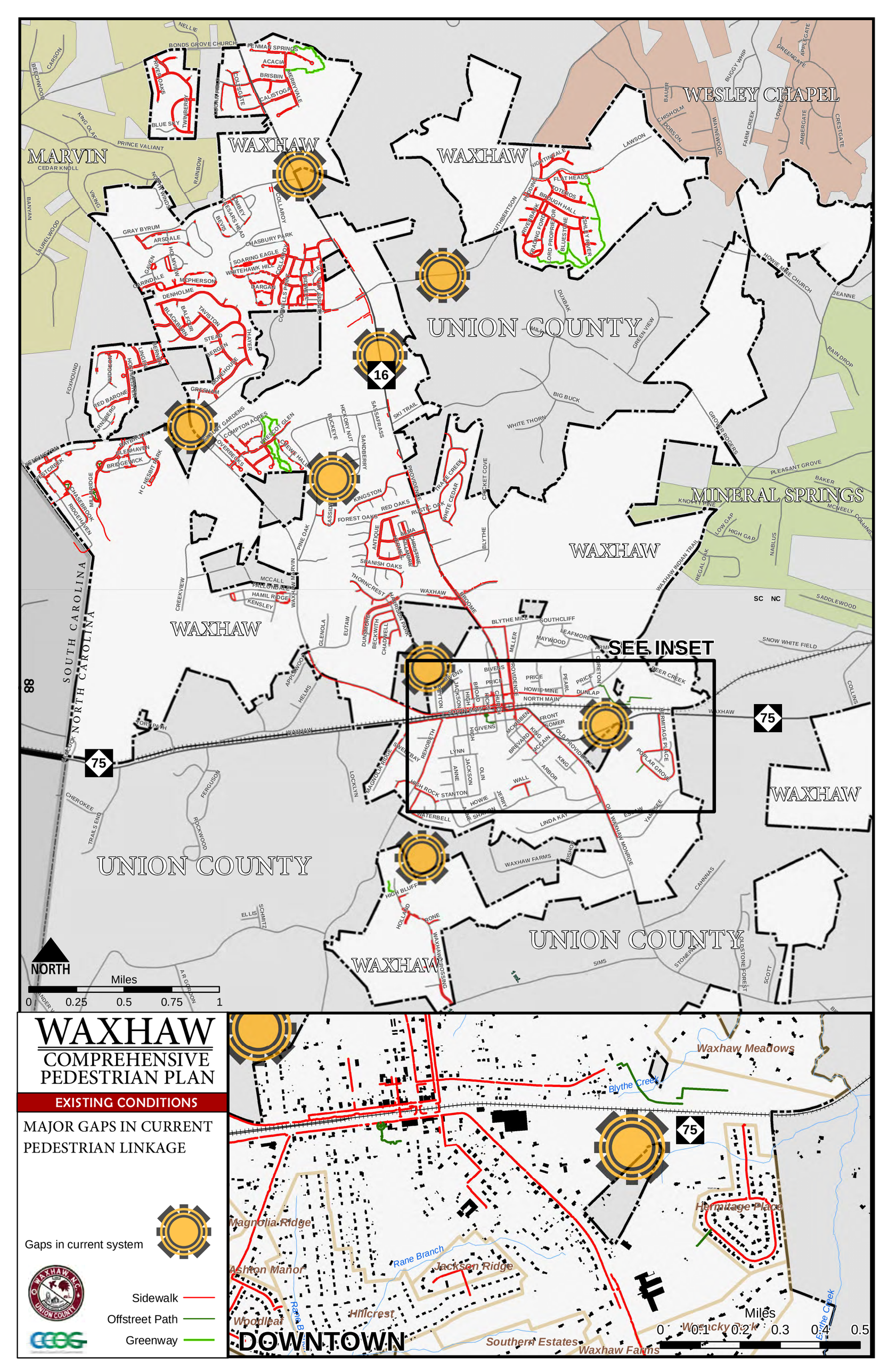
WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

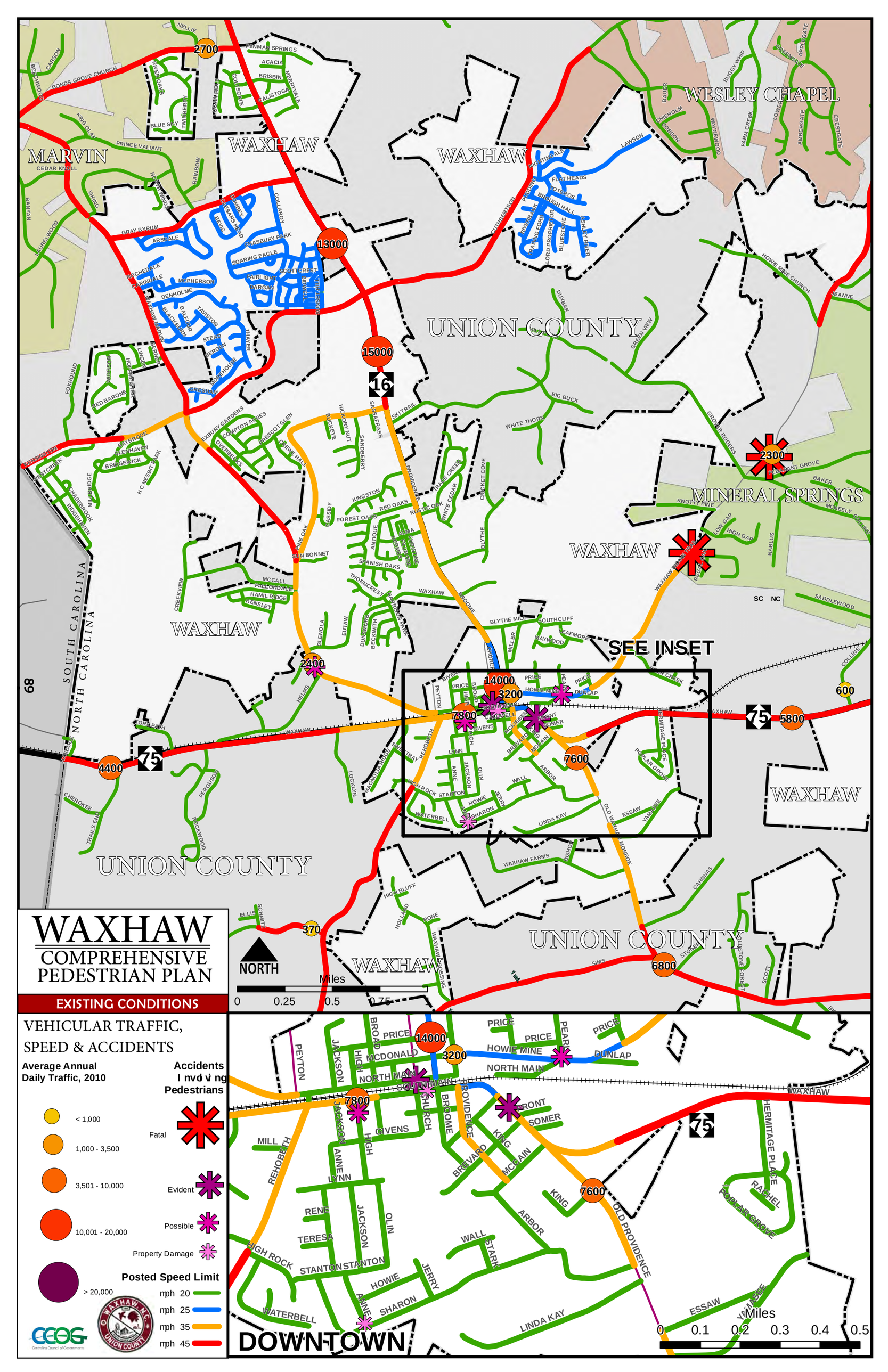
EXISTING CONDITIONS

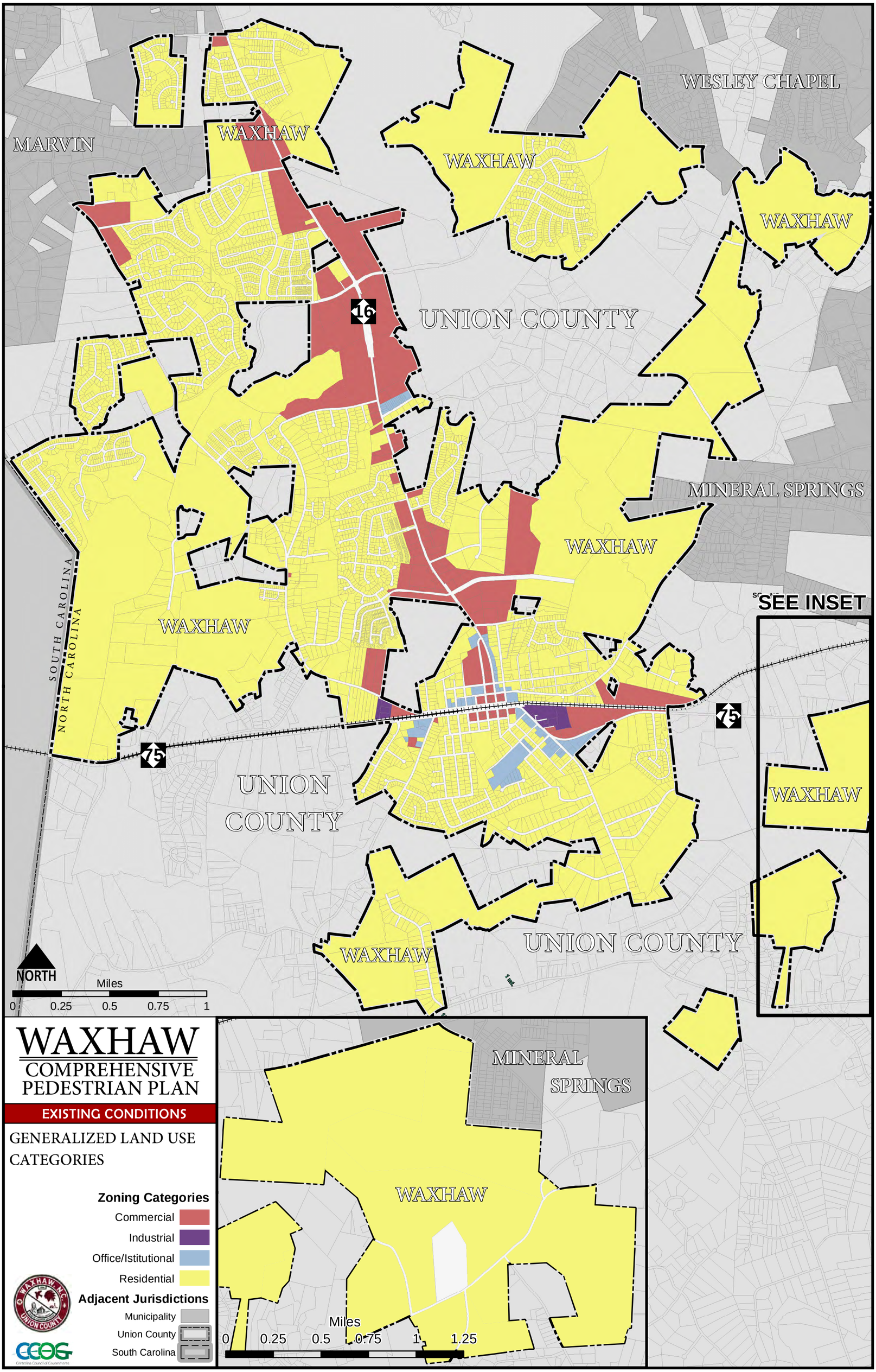
PEDESTRIAN FACILITIES

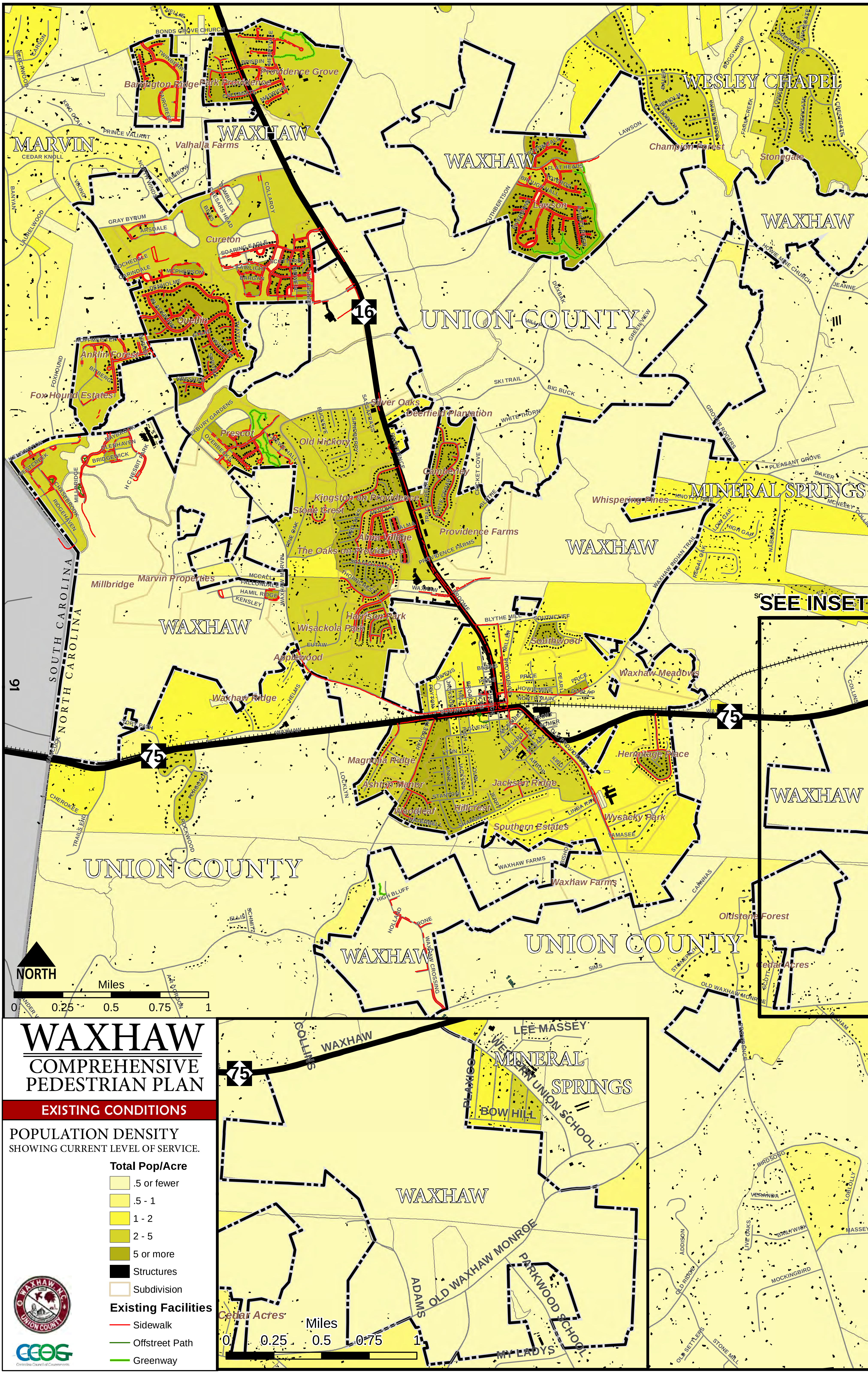
Traffic Light
Crosswalk
Sidewalk
Offstreet Path
Greenway
Structures

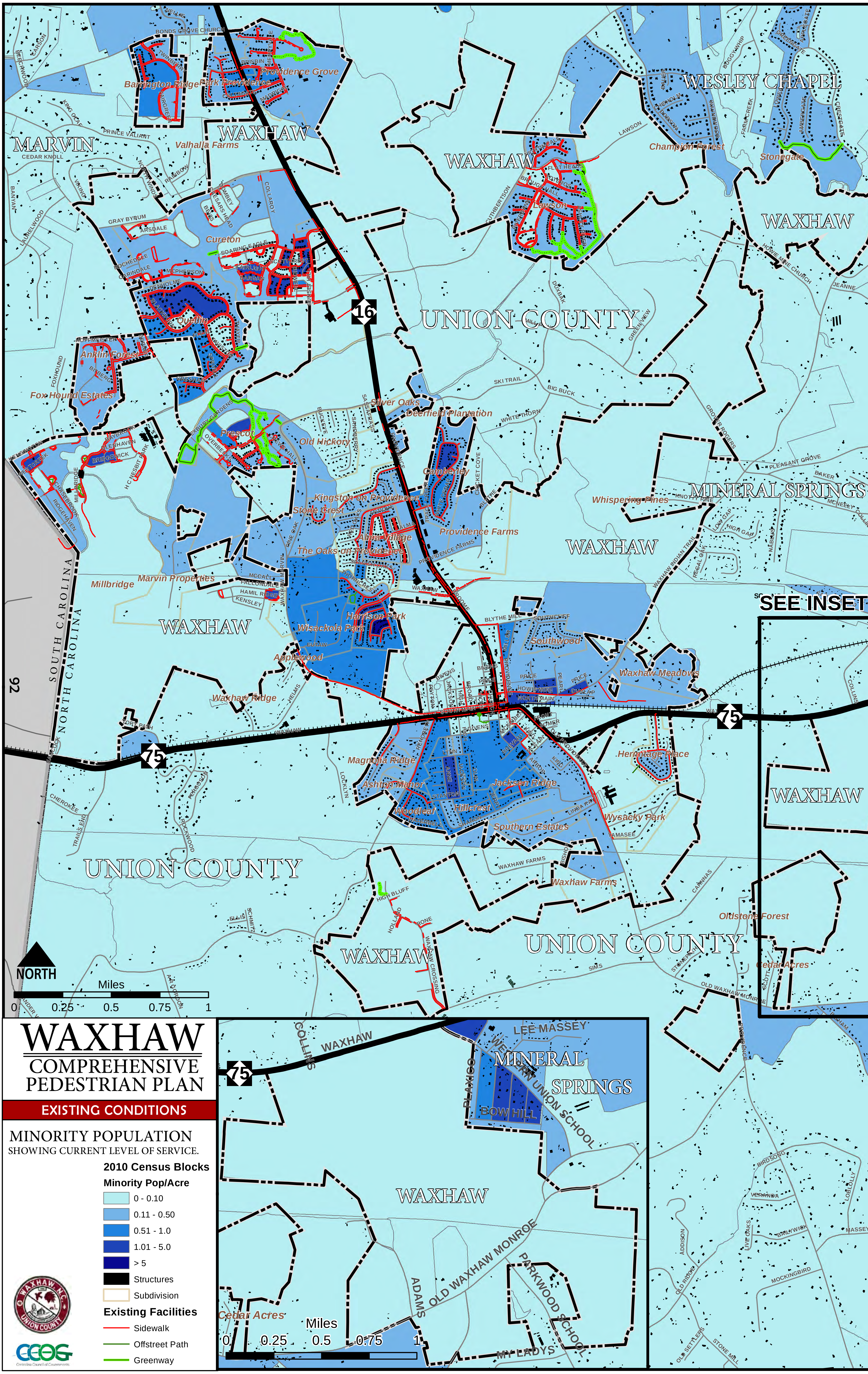

WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
OFFROAD TRAIL
POTENTIAL
Stream/Creek
Pond
Floodplain
Sanitary Sewer R-O-W
Cleared Power Corridor
Parcel
Railroad
NORTH
Miles
0
0.25
0.5
0.75
1
SEE INSET
DOWNTOWN
Miles
0
0.1
0.2
0.3
0.4
0.5
Cuthbertson Schools
Civil War Cemetery
Gold Mine
Howards Mill
Cureton Town Center
Kensington Elementary
H. C. Nesbit Park
Price Chapel Cemetery
Waxhaw Retail Village
Old Hickory Shopping Ctr.
Town Hall
The Mill
David Barnes Park
White Oak Manor
American Legion
Library
S. Providence School
Fitness Trail
Museum of the Waxhaws
Waxhaw Elementary
MARVIN
WESLEY CHAPEL
WAXHAW
UNION COUNTY
MINERAL SPRINGS
SOUTH CAROLINA
NORTH CAROLINA
SC
NC
Twelve Mile Creek
Machine Branch
Blythe Creek
Rane Branch
McKee Branch
16
75
87

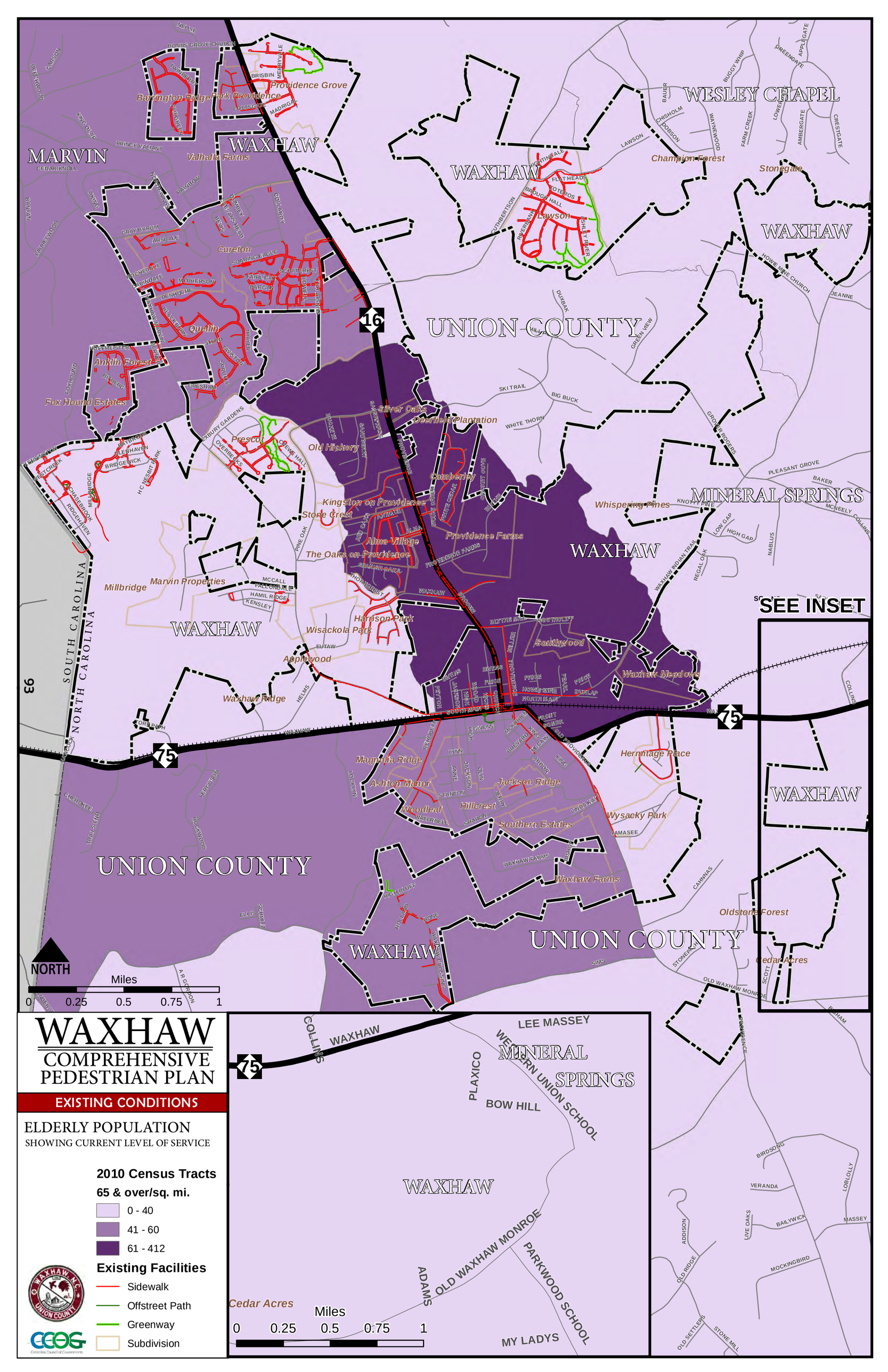

WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
MAJOR GAPS IN CURRENT
PEDESTRIAN LINKAGE
Gaps in current system
Sidewalk
Offstreet Path
Greenway
NORTH
Miles
0 0.25 0.5 0.75 1
SEE INSET
DOWNTOWN
Miles
0 0.1 0.2 0.3 0.4 0.5
WAXHAW
WESLEY CHAPEL
MARVIN
MINERAL SPRINGS
UNION COUNTY
SOUTH CAROLINA
NORTH CAROLINA
Waxhaw Meadows
Blythe Creek
Magnolia Ridge
Ashton Manor
Rane Branch
Jackson Ridge
Hillcrest
Woodleaf
Southern Estates
Waxhaw Farms
Hermitage Place
Lucky Creek

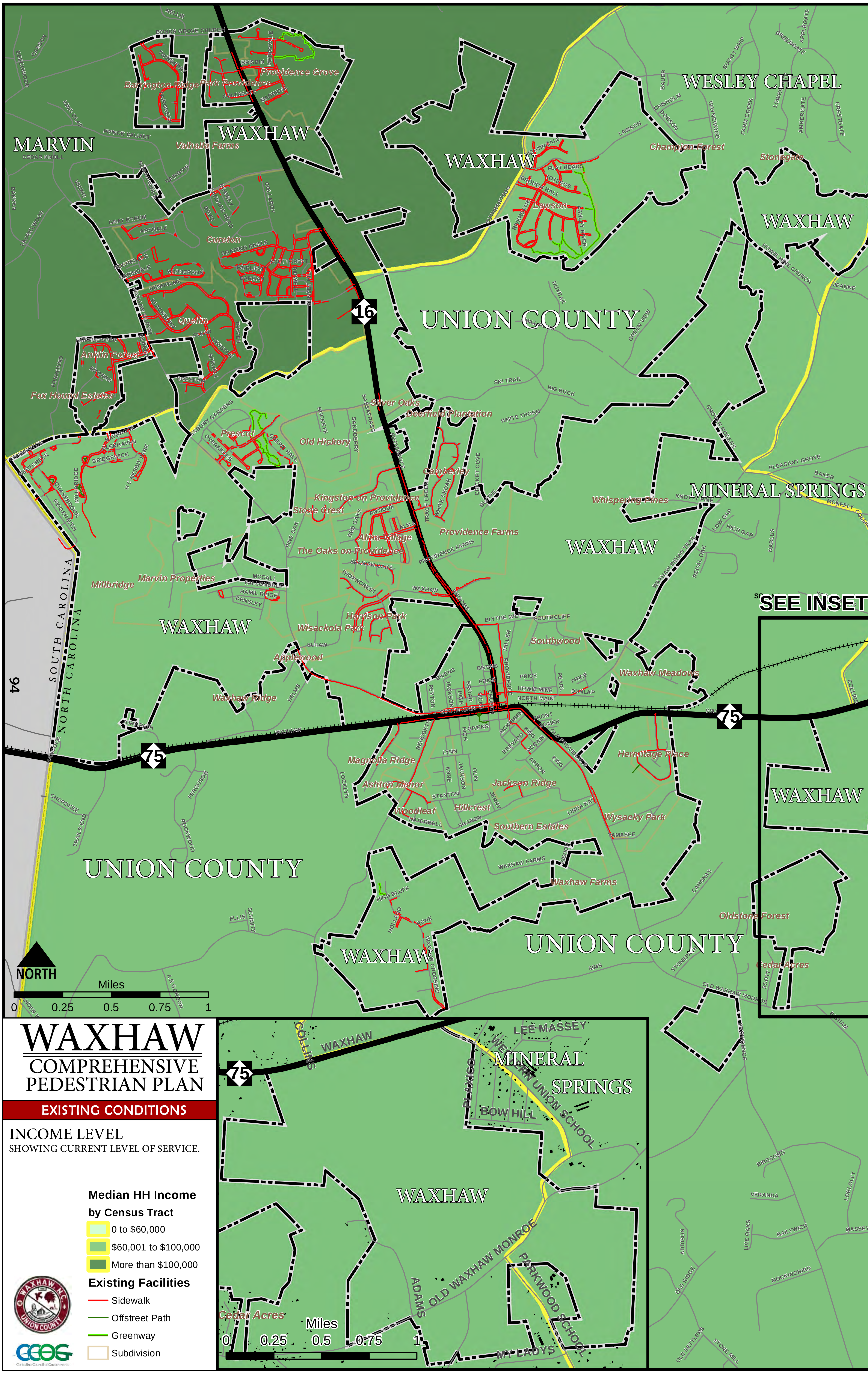

WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
VEHICULAR TRAFFIC,
SPEED & ACCIDENTS
Average Annual
Daily Traffic, 2010
< 1,000
1,000 - 3,500
3,501 - 10,000
10,001 - 20,000
> 20,000
Accidents
Involving
Pedestrians
Fatal
Evident
Possible
Property Damage
Posted Speed Limit
mph 20
mph 25
mph 35
mph 45
NORTH
Miles
0 0.25 0.5 0.75
SEE INSET
DOWNTOWN
0 0.1 0.2 0.3 0.4 0.5
MARVIN
WAXHAW
WESLEY CHAPEL
MINERAL SPRINGS
UNION COUNTY
SOUTH CAROLINA
NORTH CAROLINA
SC NC
2700
13000
15000
16
2300
2400
14000
3200
7800
7600
5800
4400
75
600
68
370
6800


WESLEY CHAPEL
MARVIN
WAXHAW
WAXHAW
WAXHAW
16
UNION COUNTY
MINERAL SPRINGS
WAXHAW
SEE INSET
SOUTH CAROLINA
NORTH CAROLINA
WAXHAW
75
75
UNION
COUNTY
WAXHAW
WAXHAW
UNION COUNTY
NORTH
Miles
0
0.25
0.5
0.75
1
WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
GENERALIZED LAND USE
CATEGORIES
Zoning Categories
Commercial
Industrial
Office/Istitutional
Residential
Adjacent Jurisdictions
Municipality
Union County
South Carolina
MINERAL
SPRINGS
WAXHAW
Miles
0
0.25
0.5
0.75
1
1.25


WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
POPULATION DENSITY
SHOWING CURRENT LEVEL OF SERVICE.
Total Pop/Acre
.5 or fewer
.5 - 1
1 - 2
2 - 5
5 or more
Structures
Subdivision
Existing Facilities
Sidewalk
Offstreet Path
Greenway
NORTH
Miles
0
0.25
0.5
0.75
1
SEE INSET
WAXHAW
UNION COUNTY
MARVIN
WESLEY CHAPEL
MINERAL SPRINGS
SOUTH CAROLINA
NORTH CAROLINA
16
75
Barrington Ridge
Park Providence
Providence Grove
Valhalla Farms
Champion Forest
Stonegate
Lawson
Cureton
Quellin
Anklin Forest
Fox Hound Estates
Prescot
Old Hickory
Silver Oaks
Deerfield Plantation
Camberley
Kingston on Providence
Stone Crest
Atma Village
The Oaks on Providence
Providence Farms
Whispering Pines
Millbridge
Marvin Properties
Harrison Park
Wisackola Park
Applewood
Southwood
Waxhaw Meadows
Waxhaw Ridge
Hermitage Place
Magnolia Ridge
Ashton Manor
Jackson Ridge
Woodleaf
Hillcrest
Southern Estates
Wysacky Park
Waxhaw Farms
Oldstone Forest
Cedar Acres
LEE MASSEY
BOW HILL
PLAXICO
WEST UNION SCHOOL
OLD WAXHAW MONROE
PARKWOOD SCHOOL
ADAMS
MY LADYS
COLLINS


WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
MINORITY POPULATION
SHOWING CURRENT LEVEL OF SERVICE.
2010 Census Blocks
Minority Pop/Acre
0 - 0.10
0.11 - 0.50
0.51 - 1.0
1.01 - 5.0
> 5
Structures
Subdivision
Existing Facilities
Sidewalk
Offstreet Path
Greenway
NORTH
Miles
0 0.25 0.5 0.75 1
SEE INSET
WAXHAW
UNION COUNTY
MARVIN
WESLEY CHAPEL
MINERAL SPRINGS
SOUTH CAROLINA
NORTH CAROLINA


WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
EXISTING CONDITIONS
ELDERLY POPULATION
SHOWING CURRENT LEVEL OF SERVICE
2010 Census Tracts
65 & over/sq. mi.
0 - 40
41 - 60
61 - 412
Existing Facilities
Sidewalk
Offstreet Path
Greenway
Subdivision
NORTH
Miles
0 0.25 0.5 0.75 1
SEE INSET
UNION COUNTY
WAXHAW
MARVIN
WESLEY CHAPEL
MINERAL SPRINGS
SOUTH CAROLINA
NORTH CAROLINA
Providence Grove
Barrington Ridge Park Providence
Valhalla Farms
Champion Forest
Stonegate
Lawson
Cureton
Quailing
Ankrim Forest
Fox Hound Estates
Silver Oaks
Deerfield Plantation
Old Hickory
Camberley
Kingston on Providence
Stone Crest
Alma Village
Providence Farms
The Oaks on Providence
Whispering Pines
Millbridge
Marvin Properties
Harrison Park
Wisackola Park
Applewood
Waxhaw Ridge
Southwood
Waxhaw Meadows
Hermitage Place
Magnolia Ridge
Ashton Manor
Jackson Ridge
Woodleaf
Hillcrest
Southern Estates
Wysacky Park
Waxhaw Farms
Oldstone Forest
Cedar Acres
LEE MASSEY
MINERAL SPRINGS
WESTERN UNION SCHOOL
PLAXICO
BOW HILL
ADAMS
OLD WAXHAW MONROE
PARKWOOD SCHOOL
MY LADYS



WAXHAW

COMPREHENSIVE PEDESTRIAN PLAN

EXISTING CONDITIONS

INCOME LEVEL

SHOWING CURRENT LEVEL OF SERVICE.

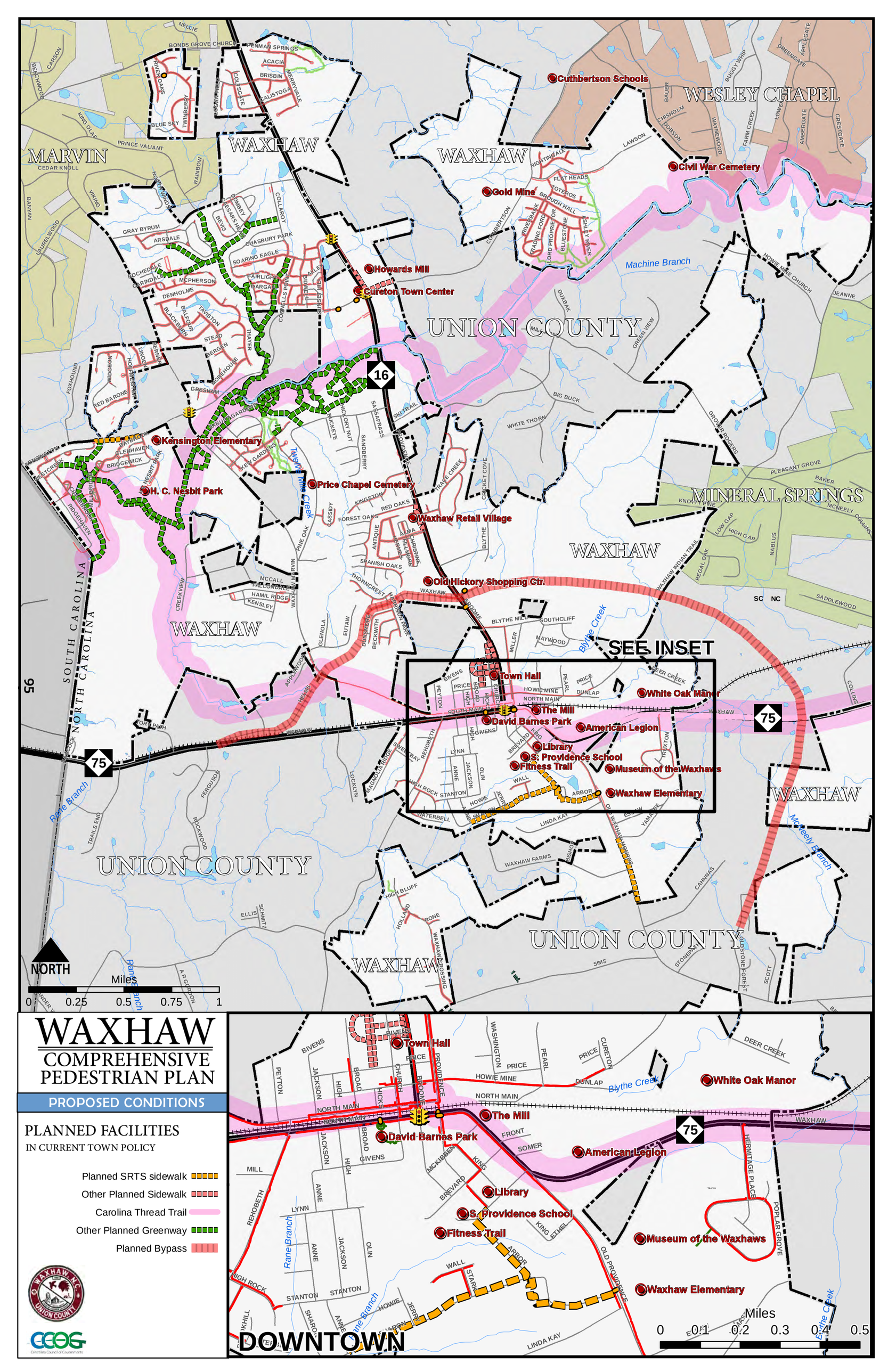
Median HH Income by Census Tract

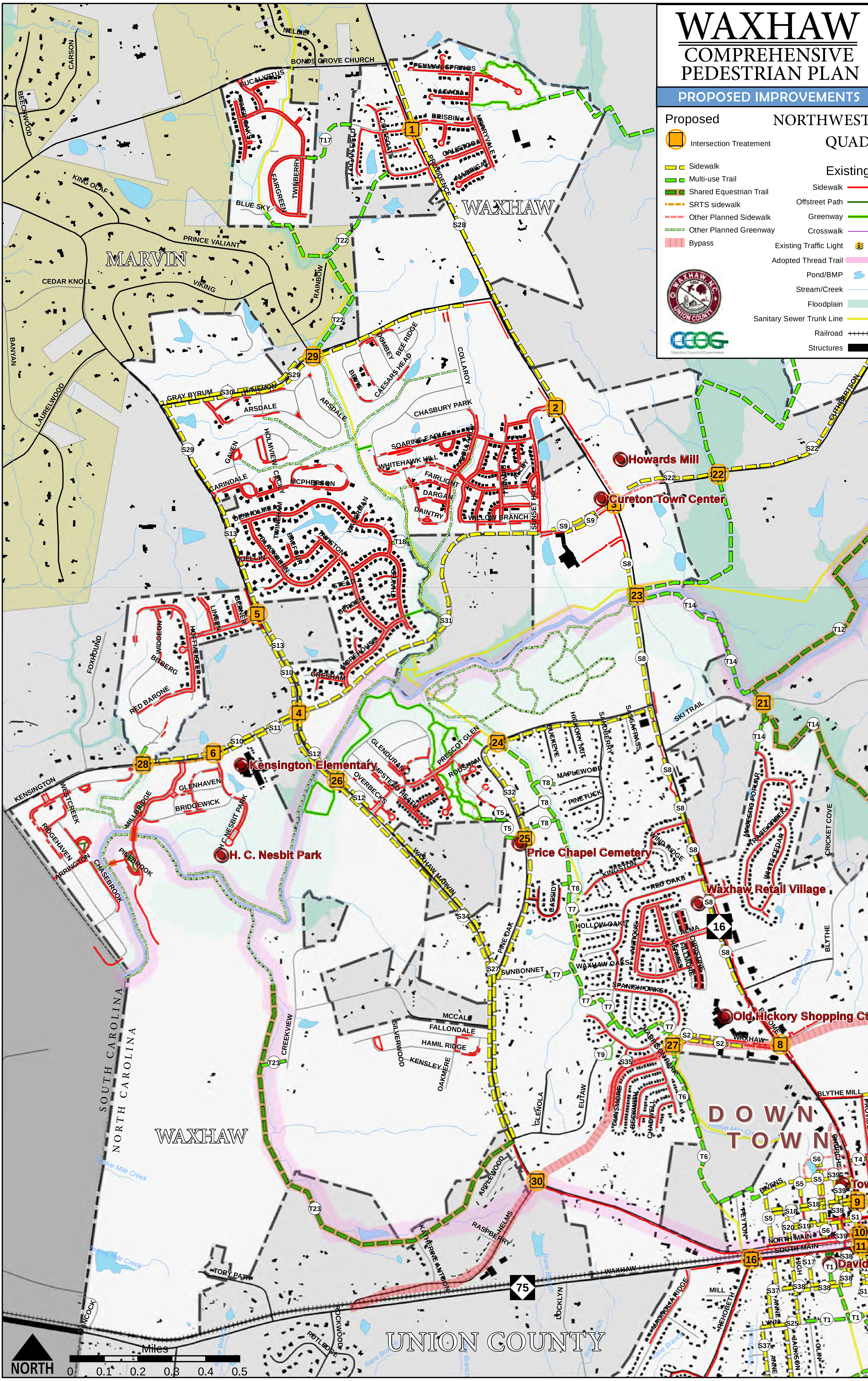
- 0 to $60,000
- $60,001 to $100,000
- More than $100,000

Existing Facilities

- Sidewalk
- Offstreet Path
- Greenway
- Subdivision

Centralina Council of Governments


WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
PROPOSED CONDITIONS
PLANNED FACILITIES
IN CURRENT TOWN POLICY
Planned SRTS sidewalk
Other Planned Sidewalk
Carolina Thread Trail
Other Planned Greenway
Planned Bypass
NORTH
Miles
0 0.25 0.5 0.75 1
SEE INSET
DOWNTOWN
0 0.1 0.2 0.3 0.4 0.5
Cuthbertson Schools
Civil War Cemetery
Gold Mine
Howards Mill
Cureton Town Center
Kensington Elementary
H. C. Nesbit Park
Price Chapel Cemetery
Waxhaw Retail Village
Old Hickory Shopping Ctr.
Town Hall
The Mill
David Barnes Park
White Oak Manor
American Legion
Library
S. Providence School
Fitness Trail
Museum of the Waxhaws
Waxhaw Elementary
WESLEY CHAPEL
MARVIN
MINERAL SPRINGS
UNION COUNTY
WAXHAW
SOUTH CAROLINA
NORTH CAROLINA
Machine Branch
Twelve Mile Creek
Rane Branch
Blythe Creek
McNeely Branch
16
75
95


WAXHAW
COMPREHENSIVE
PEDESTRIAN PLAN
PROPOSED IMPROVEMENTS
NORTHWEST
QUAD
Proposed
Intersection Treatement
Sidewalk
Multi-use Trail
Shared Equestrian Trail
SRTS sidewalk
Other Planned Sidewalk
Other Planned Greenway
Bypass
Existing
Sidewalk
Offstreet Path
Greenway
Crosswalk
Existing Traffic Light
Adopted Thread Trail
Pond/BMP
Stream/Creek
Floodplain
Sanitary Sewer Trunk Line
Railroad
Structures
WAXHAW
MARVIN
DOWN TOWN
UNION COUNTY
SOUTH CAROLINA
NORTH CAROLINA
Howards Mill
Cureton Town Center
Kensington Elementary
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Old Hickory Shopping Ctr.
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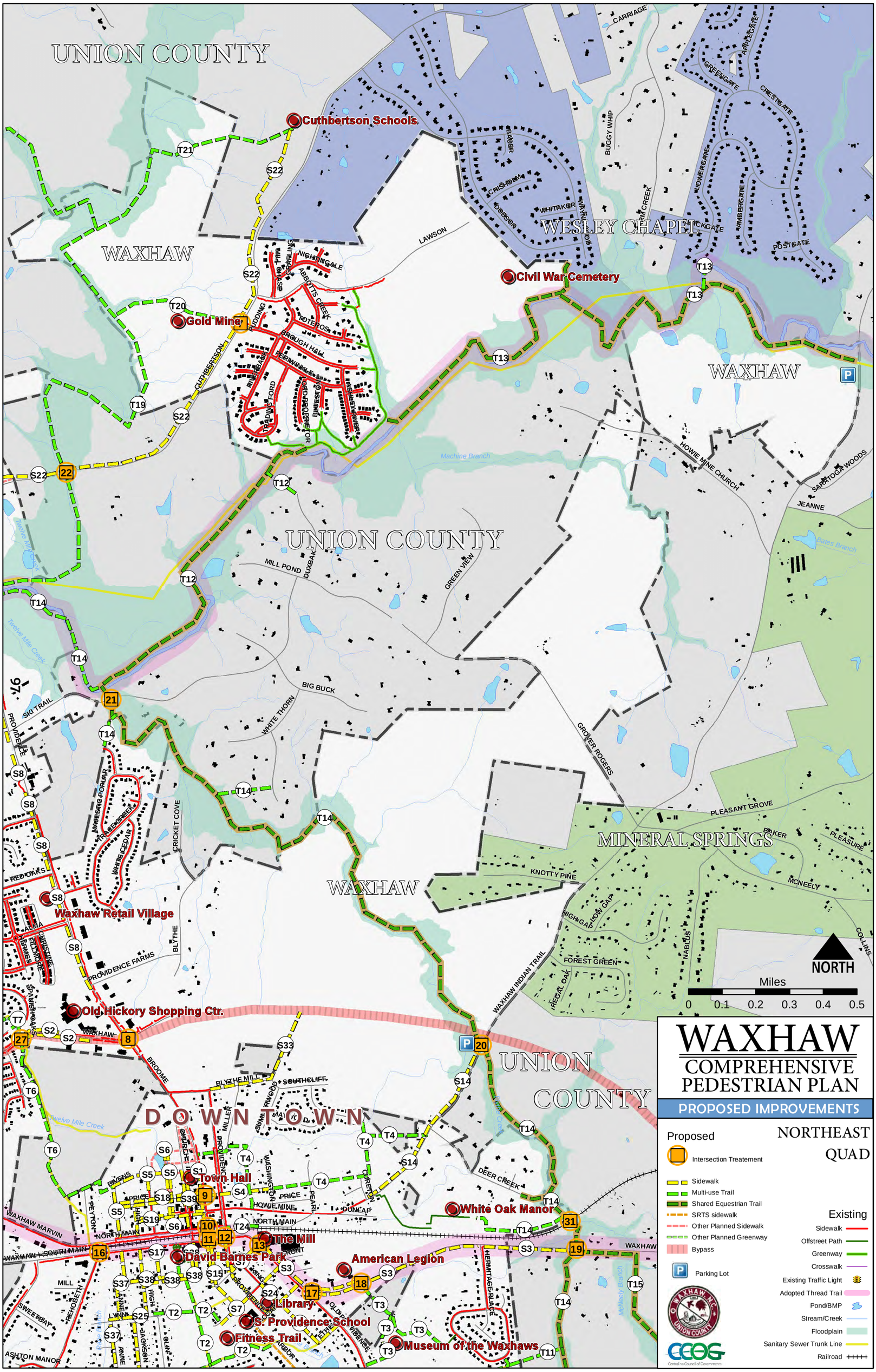


WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

PROPOSED IMPROVEMENTS

NORTHEAST QUAD

Proposed

- Intersection Treatement
- Sidewalk
- Multi-use Trail
- Shared Equestrian Trail
- SRTS sidewalk
- Other Planned Sidewalk
- Other Planned Greenway
- Bypass
- Parking Lot

Existing

- Sidewalk
- Offstreet Path
- Greenway
- Crosswalk
- Existing Traffic Light
- Adopted Thread Trail
- Pond/BMP
- Stream/Creek
- Floodplain
- Sanitary Sewer Trunk Line
- Railroad

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

PROPOSED IMPROVEMENTS

Proposed

- Intersection Treatement
- Sidewalk
- Trail
- Shared Equestrian Trail
- SRTS sidewalk
- Other Planned Sidewalk
- Other Planned Greenway
- Bypass
- Parking Lot

SOUTH HALF

Existing

- Sidewalk
- Offstreet Path
- Greenway
- Crosswalk
- Existing Traffic Light
- Adopted Thread Trail
- Pond/BMP
- Stream/Creek
- Floodplain
- Sanitary Sewer Trunk Line
- Railroad
- Utility Corridor
- Structures

Old Hickory Shopping Ctr.

DOWNTOWN

Town Hall

White Oak Manor

The Mill

David Barnes Park

American Legion

Library

S. Providence School

Fitness Trail

Museum of the Waxhaws

Waxhaw Elementary

UNION COUNTY

MINERAL SPRINGS

WAXHAW

SEE INSET

INSET

98

NORTH

Miles 0 0.1 0.2 0.3 0.4 0.5

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

PROPOSED IMPROVEMENTS

Proposed

- Intersection Treatement
- Sidewalk
- Trail
- Shared Equestrian Trail
- SRTS sidewalk
- Other Planned Sidewalk
- Other Planned Greenway

Existing

- Sidewalk
- Offstreet Path
- Greenway
- Thread Trail
- Traffic Light
- Pond/BMP
- Stream/Creek
- Floodplain
- Sanitary Sewer Trunk Line
- Railroad
- Structures

DOWN TOWN

UNION COUNTY

WAXHAW

Town Hall
David Barnes Park
The Mill
American Legion
Library
S. Providence School
Fitness Trail
White Oak Manor
Museum of the Waxhaws
Waxhaw Elementary

Miles 0 0.1 0.2 0.3 0.4 0.5

NORTH

PART 8: IMPLEMENTATION

8.1 Sample Cost Estimates for Facilities

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

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

Virginia Creeper Trail

Sidewalks and Trails

Surface Material (width)	Costs per LF/per mile	Longevity
Concrete (5')	$135 / $700,000	20 years +
Pervious Concrete (10')	$50 / $245,000 – 265,000	unestablished
Asphalt (10') - 2" w/6" base	$135 / $700,000	7-20 years
Crushed stone walkway (10')	$15 - 25 / $80,000 -106,000	7-10 years
Wood chips (10')	$14 - 18 / $ 70,000 - 90,000	1-3 years
Soil cement (10')	$14 - 22 / $ 70,000 -110,000	5-7 years
Native soil (10')	$11 - 15 / $ 55,000 - 75,000	variable
Boardwalk (6' – 8') - wood or recycled material	$200 - 250 / $1.0 – 1.3 million	7-15 years
Polyurethane track (8') - or Rubberized running track	$22 / $110,000	13-15 years

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

Total Cost of Resurfacing Trails

Concrete	$ 25 LF
Asphalt	$ 10 LF (per linear foot) ($ 5 LF to overlay w/ top coat)
Crushed Stone	$ 5 LF
Polyurethane track	$70,000/mile to re-spray after 6 years

Typical Annual Maintenance Costs for a 1-Mile Paved Trail

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

Street Improvements

Crosswalks
Approximate installation costs per unit:

Regular striped	$ 100
Ladder crosswalk	$ 300
Stamped asphalt	$1,100 ($50/square yard)
Patterned concrete	$3,000
Raised	$2,000 - $5,000

Warning signage: $50 to $150 per sign plus $150/sign in installation costs.

Traffic signals $40,000 to $200,000 per signal

Pedestrian signals $20,000 to $40,000 for all four legs

Traffic signal enhancements: $10,000 to add new pedestrian signals

Motion activated crossing: $20,000 per typical two-pole system (excluding installation)

Striping: 12-inch: $1 per linear yard (LY)
4-inch: $10 K per mile, or $2 LF
Costs do not include maintenance, which varies according to materials used.

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

Curb inlets $2000 per unit

Curb extensions: $5,000 - 10,000 per corner or midblock section.
Costs vary with design and site conditions, particularly utilities, control boxes and drainage considerations. Special pavement, street furnishings and landscaping are recommended but contribute to costs.

Crossing Islands/Medians: $8,000 to $15,000 for a raised curbed island with minimal landscaping.

Reconstructing turning radius: $5,000 to $30,000 per corner, depending on site conditions (e.g., drainage and utilities may need to be relocated).

Speed humps: $1,700 per unit

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

Trees: $200/tree, installed

Lighting: $ 45/LF frontage

Street Furniture:
Prices vary greatly according type of facility, brand, and level of customization. Benches or outdoor trashcans installed start at approximately $600/unit.

General park facilities $ 25/SF
The construction of new park or open space facilities on land not currently used as park, with some furniture and amenities

Cost Estimate Sources:

- NCDOT DBPT
- Walkinginfo.org – Pedestrian & Bicycle Information Center
- "Trails For The 21st Century," published by Rails-To-Trails Conservancy
- http://www.trafficcalming.org/measures2.html
- http://www.nysphysicalactivity.org/site_beactiveenv/nybc/source_files/3_pedfac_improve/FHA_EmergTechPedXWalk.pdf
- http://www.charmeck.org/Departments/Transportation/About+Us/Speed+Humps.htm
- National Trails Training Partnership http://www.americantrails.org/resources/trailbuilding/AsphaltCO.html

8.2 Key Action Steps

Provided here is a quick reference schedule to help ensure that recommendations in the plan are addressed. Associated sections of the pedestrian plan are provided for easy reference.

STEP	REFERENCE
1. Adopt the pedestrian plan.	**8.4**
2. Form Action Committee.	**4.1.1**
3. Make modifications to ordinances.	**4.1.12, 4.2**
4. Initiate programs.	**4.1.5**
5. Identify funding sources.	**8.3**
6. Begin construction of priority projects.	**Part 4.4, 6.1-3 Appendix A.3**
7. Develop a maintenance program.	**4.6**
8. Evaluate progress.	**8.5**

8.3 Funding Strategies

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

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 section 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

North Carolina Department of Transportation

Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bi-cycle-safe bridge design are frequently included as incidental features of highway projects. The NCDOT Complete Streets Program is expanding this policy.

State Transportation Improvement Program (STIP)
The primary NCDOT source for developing pedestrian and bike facilities involves securing identification of a project in the State Transportation Improvement Program. Every two years projects are submitted by regional planning organizations (metropolitan planning organizations (MPO) and rural planning organizations (RPO) throughout the state. Submitted bike and pedestrian projects are prioritized by the Division of Bike and Pedestrian Transportation staff. High priority projects will be used to populate the 5-Year Work Program and the delivery STIP. For further information, see: http://www.ncdot.gov/performance/reform/

Incidental Projects
The NCDOT Board of Transportation approved in 2009 a "Complete Streets" policy to consider and incorporate multimodal alternatives in the design and improvement of all appropriate transportation projects within a growth area of a municipality unless exceptional circumstances exist. Routine maintenance projects may be excluded from this requirement. As NCDOT designs or develops individual highway or bridge projects along the proposed route, recommended bicycle improvements should be included in the design. These accommodations may increase the cost of the project. Local governments typically are asked to participate in funding such improvements, with implementation by the NCDOT.

NCDOT may require local financial participation in the construction of such facilities, but the cost to include as a part of a larger project is always less than as a stand-alone one. The affected MPO and its member governments should reference the Plan's recommendations when reviewing projects throughout the development process.

Congestion Mitigation and Air Quality (CMAQ)
CMAQ is a program that currently allocates approximately $20 million annually to North Carolina to fund programs in "non-attainment areas" (i.e., areas that do not meet federal air quality standards) and projects designed to improve air quality and reduce congestion, without adding single-occupant vehicle capacity to the transportation system. The funds originate from the Federal Highway Administration but are passed through to local entities by NCDOT. The Town of Waxhaw lies inside of the current non-attainment boundary and therefore is eligible for CMAQ funding. CMAQ funds are distributed through the Mecklenburg-Union Metropolitan Planning Organization (MUMPO).

Road Resurfacing
The Town can request that NCDOT evaluate future road repaving projects in its jurisdiction to determine if a two-foot paved shoulder, or a four-foot bicycle-lane can be installed without significant drainage, Right-of-Way, or grading work required. Where such work is feasible, NCDOT can then inform the Town of the upcoming work and offer the opportunity to financially contribute for the marginal cost associated with these improvements.

Signage
Bicycle route signage is installed by either the local NCDOT District Office or, when on municipal roads or multi-purpose paths, the affected municipality. When the District 10 does not have resources to purchase signage, NCDOTs Bicycle and Pedestrian Transportation Division (DBPT) may be able to assist with purchasing signage.

All signage on NCDOT-owned facilities must meet the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD). The DBPT will work with NCDOT divisions to determine signage locations and designations.

Bicycle and Pedestrian Planning Grant Initiative
NCDOT-DBPT and Transportation Planning Branch (TPB) created this annual matching grant program to encourage municipalities to develop comprehensive bicycle plans and pedestrian plans. This program was initiated in January 2004 and is currently administered through NCDOT-DBPT. The development of this pedestrian plan was guided and largely funded through this program.

Funding for the program comes from an allocation first approved by the North Carolina General Assembly in 2003 in addition to federal funds earmarked specifically for bicycle and pedestrian planning through the TPB.

See additional information about NCDOT pedestrian funding and other funding sources at:
http://www.ncdot.gov/bikeped/funding/default.html

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 receives $100,000 annually 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.

Safe Routes To School (SRTS): The SRTS program is funded under SAFETEA-LU and administered by NCDOT. The program provides approximately $15 million in North Carolina over five years for improvements within two miles of elementary and middle schools. Some of these funds are provided to the local highway division who distributes the funds at their own discretion. Individual grant awards are limited to approximately $200,000. No local match is required. These grants can pay for pedestrian and bicycle facilities and intersection improvements. The funds can also be used for education and enforcement efforts. The target population for these activities must be K-8 students.

For more information about the SRTS program, contact:
Ed Johnson, ASLA, RLA
SRTS Coordinator
NCDOT, Division of Transportation Mobility and Safety Traffic Management Unit
1552 Mail Service Center, Raleigh, NC 27699
Email: erjohnson2@ncdot.gov
Phone: 919.707.2604

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/.

The North Carolina Conservation Tax Credit
This program, managed by the North Carolina Department of Environment and Natural Resources (NCDENR), 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. 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 was $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 NCDENR. 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, go to:
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)
This 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 or municipal governments. 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%** to the state parks through the N.C. Division of Parks and Recreation
- **30%** as dollar-for dollar matching grants to local governments for parks and recreation
- **5%** 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 G.S. 136-41.1 through 136-41.4. The Town of Waxhaw received $122,525.42 in fiscal year 2010-2011, but should

receive almost double that in 2011-2012 due to the new population numbers reflected in the 2010 US Census and additional streets. Powell Bill funds shall be expended only 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. Communities are able to use Powell Bill funds to build and maintain bicycle lanes on roads that they maintain.
For recent Powell Bill allocation to Waxhaw, see **Appendix A.15.**
For more information about the Powell Bill in North Carolina, see:
http://www.ncdot.org/programs/Powell_Bill/

Clean Water Management Trust Fund
North Carolina's Clean Water Management Trust Fund (CWMTF) 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 money 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/, or contact Bern Shumack at (336) 366-3801.

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. Therefore, municipalities must work with State level partners to access this fund. Additional information is available from the NC Natural Heritage Program. Visit www.ncnhtf.org/

North Carolina Conservation Tax Credit Program
North Carolina has a unique incentive program to help landowners protect the environment and 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 (NCDFR) 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 and a grant application, contact NCDFR and/or visit:
http://www.dfr.state.nc.us/urban/urban_grantprogram.htm.

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

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 North Carolina. Information on the program is available by contacting the Natural Heritage Program of NCDENR. For more information, call 919-715-0476, or visit:
www.nceep.net/pages/partners.html.

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 that 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. For more information, 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 for promoting 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.
Call 919-733-2853, or visit:
www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin/

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. Fit Community benefits 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 capaTown, and opportunity for positive change in addressing physical activity and/or healthy eating. For more information, visit: www.healthwellnc.com/

Funding Allocated by Federal Agencies

Congestion Mitigation and Air Quality (CMAQ):
CMAQ is a program that currently allocates approximately $20 million annually to North Carolina to fund programs in "non-attainment areas" (i.e., areas that do not meet federal air quality standards) and projects designed to improve air quality and reduce congestion, without adding single-occupant vehicle capacity to the transportation system. The funds originate from the Federal Highway Administration but are passed through to local entities by NCDOT. Waxhaw lies within the current non-attainment boundary and is therefore eligible for CMAQ funding. CMAQ funds are distributed through MUMPO. About half of the total candidate projects for fiscal years 2013- 2015 in MUMPO's 2010 call received funding. The projects that were not funded are to be added to the project list in fiscal years 2016 and 2017 when additional funding may become available as a result of a project viability assessment currently underway. The CATS vanpool serving the local area was paid for through CMAQ funding. There are currently no construction projects for Waxhaw on MUMPO's CMAQ list.

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 and can thereby assist with trail/greenway funding efforts. 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. Visit: www.hud.gov/offices/cpd/communitydevelopment/programs/.

USDA 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. 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. 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/

FHWA Recreational Trails Program
This Federal program is administered by the FHWA from the Highway Users Trust Fund dollars derived from Federal fuel tax. Each state receives an annual portion for recreational trail projects. Contact:
http://www.ils.unc.edu/parkproject/trails/home.html

Local Funding Sources

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

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

Capital Improvement Programs
Municipalities often plan for the funding of pedestrian facilities or improvements through development of Capital Improvement Programs. 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 is described here:

- **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, duration, approximate amount, 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 Town-wide 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 increase in 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 raise 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. A few of them include:

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 municipalities 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 create 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 state 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 the municipality 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).

SOUTH MAIN STREET, WAXHAW

Other Local Options

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 methodology and will explore implementation strategies. The municipality can manage maintenance responsibilities either through its own staff or through private contractors. The public, particularly those within the FMD, should be periodically informed about whom to contact about maintenance issues.

Partnerships
Due to the linear and connective nature of many pedestrian facilities, improvements may present complex challenges of working with multiple property owners and jurisdictions. Creating partnerships may help solve problems that ensue, and help with the inevitable web of utility and transportation corridors. Though partners may have some diverse and sometimes conflicting interests, there may be greater opportunities for funding, support and publicity.

Multiple uses of utility corridors provide one example of effective partnership. Most utilities use a linear corridor but occupy only a small portion of the ground surface. These valuable rights-of-way can often include a complementary public transportation and recreation use along with the utility functions. Utilities can benefit from sharing corridors with trails through maintenance savings.

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. Specific planned routes that make critical connections to place of business would be targeted for private partners' monetary support. Potential partners include major employers that are located along or accessible to pedestrian facilities such as greenways. Name recognition for corporate partnerships can be accomplished through signage trailheads or interpretive signage along greenway systems. It is important to have the Town attorney review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement. Get more information about partnerships at:
http://www.americantrails.org/resources/greenways/GrnwyUrbanSHM.html

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 workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

GREENWAY CONSTRUCTION BY VOLUNTEERS, MARIN COUNTY, CALIFORNIA

Private Foundations and Organizations

Carolina Thread Trail

The Carolina Thread Trail (CTT) is a regional network of greenways and trails currently being designed and developed over a region that includes Union County. It is intended to ultimately reach 15 counties and over two million people, linking cities, towns and attractions. Its multi-purpose paths are intended to be primarily off-road facilities that will also serve to help preserve natural areas and provide opportunities for exploration of nature, culture, science and history.

The Catawba Lands Conservancy is the lead organization for the CTT. The Conservancy is a regional land trust that has worked closely with regional stakeholders to protect natural areas, water quality, working farms and other special places in the region. Funding opportunities for both design and construction of trail facilities are identified annually for CTT designated trail projects.

The Union County Greenways Master Plan, adopted by Waxhaw in 2011, includes designated CTT alignments within and around the Town's incorporated limits. Greenway facilities located within these alignments will be eligible for CTT design and implementation grants.

For additional information concerning Waxhaw's participation in the CTT, refer to **PART 3: Existing Policies, Plans & Programs.** For more about CTT grants and related funding opportunities, see: http://www.carolinathreadtrail.org/resources/funding-sources/

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. Their goal is to ensure 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.

These are some of the conservation services of TPL:

- 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

Robert Wood Johnson Foundation

The Foundation seeks to help communities become increasingly walkable and thereby promote more active lifestyles that include exercise, like walking or biking, as a part of daily routine, particularly for children. **Active Living by Design** is a national program of The Robert Wood Johnson Foundation and is a part of the UNC School of Public Health in Chapel Hill, North Carolina. The program will establish and evaluate innovative approaches to increase physical activity through community design, public policies and communications strategies. For more information, visit www.activelivingbydesign.org.

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.

Types of projects will American Hiking Society considers, include:

- Acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Construction and maintenance of trails that result in improved access, hiker safety, and/or avoidance of environmental damage.
- Building constituency around specific trail projects - including volunteer recruitment and support.

See more at: www.americanhiking.org/alliance/fund.html

Find additional information about funding sources and procedures in **Appendices A.3 - How-to Build a Sidewalk** (and other pedestrian facilities).

8.4 Plan Adoption and Approval Process

Upon final approval of the Pedestrian Plan by the Steering Committee and NCDOT's Division of Bicycle and Pedestrian Transportation, the Steering Committee will submit the Plan to the Waxhaw Planning Board for review. At this time the Plan Consultant (Centralina Council of Governments) will also submit the Plan to the Mecklenburg-Union Metropolitan Planning Organization (MUMPO) for endorsement.

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

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

Once adopted, the Plan should be referred to and used in making future land use decisions.

Charleston, South Carolina

8.5 Performance Measures

Performance measures help keep a plan on track over the years it takes to implement it. These measures should serve as standards by which to evaluate the efficacy of various projects or programs, and as an impetus to keep the community on the task of completing projects, starting programs, or changing policy. As such, performance measures should be reported publicly at regular intervals.

Performance measures are best determined locally to fit local means and expectations. But to serve effectively and practically for any community, they should include the following:

- A clear description of the data to be collected
- An cost-effective and reliable means of collecting the data
- Straight-forward results related to common factors such as:
  - **linear miles** – on-street or off-road facilities, road or trail miles signed, pedestrian connectivity, etc.
  - **years** – over which measureable quantities of improvements are made, etc.
  - **number of users** – participant count at events, number of reported accidents, participants in education programs.
  - **dollars spent** – amount budgeted, amount received through grants, percentage of overall budget spent on various categories of pedestrian-related expenditures, etc.

Example measures/goals:

- 1 mile of on-street or off-road pedestrian facility to be implemented each fiscal year.
- 1,000 participants in a certain event costing ____ dollars to sponsor

Ultimately, the Waxhaw Comprehensive Pedestrian Plan could be considered successful as it meets its stated goals. Therefore, each project should be considered and evaluated in terms of how it contributes to meeting those goals. The goals of this plan are:

- Connect the Town for pedestrians, from one end to the other
- Create a safer environment
- Promote healthy lifestyles
- Make more accessible the Town's historic places and other significant destinations
- Foster activity in the downtown area
- Encourage a greater awareness and experience of the unique qualities of the community

APPENDICES

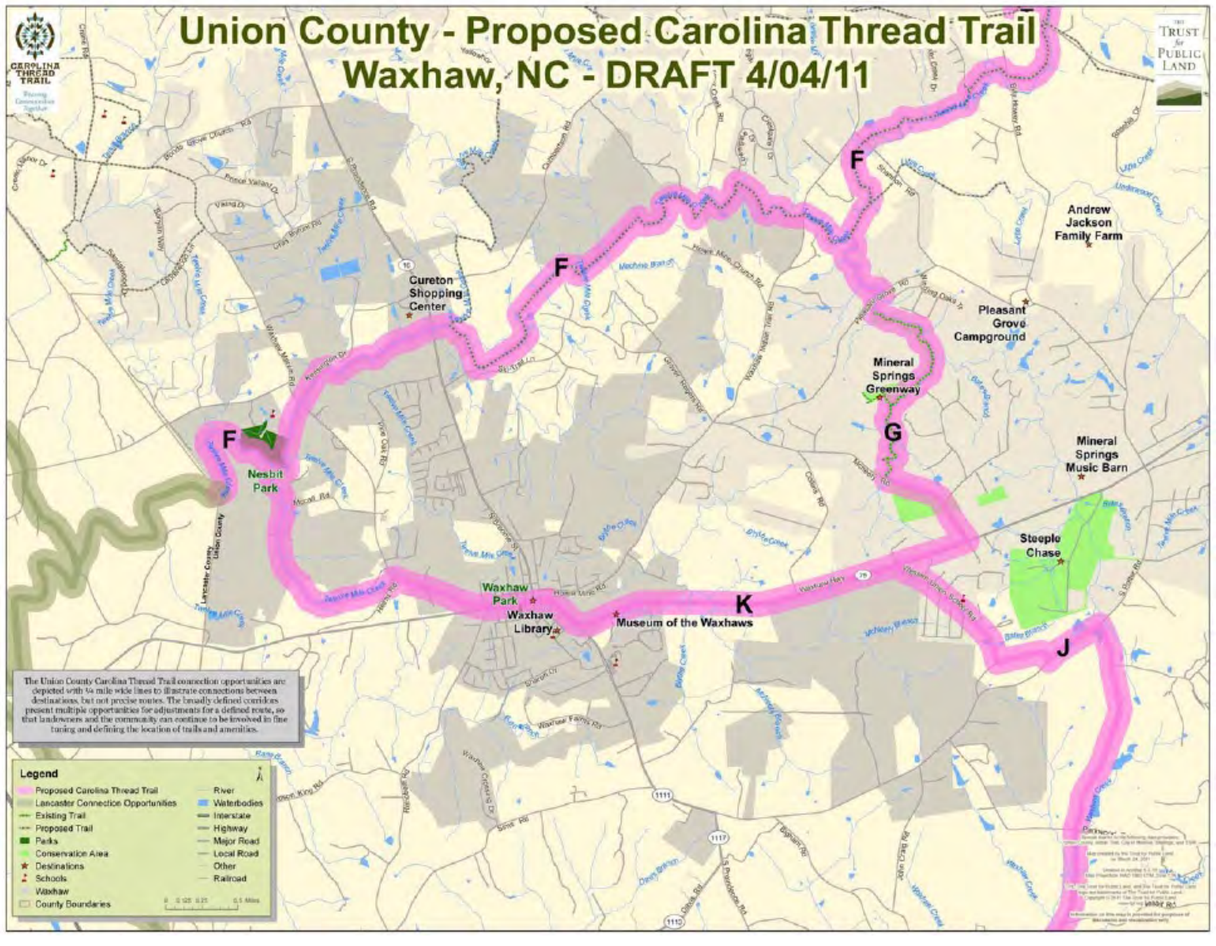
CONTENTS

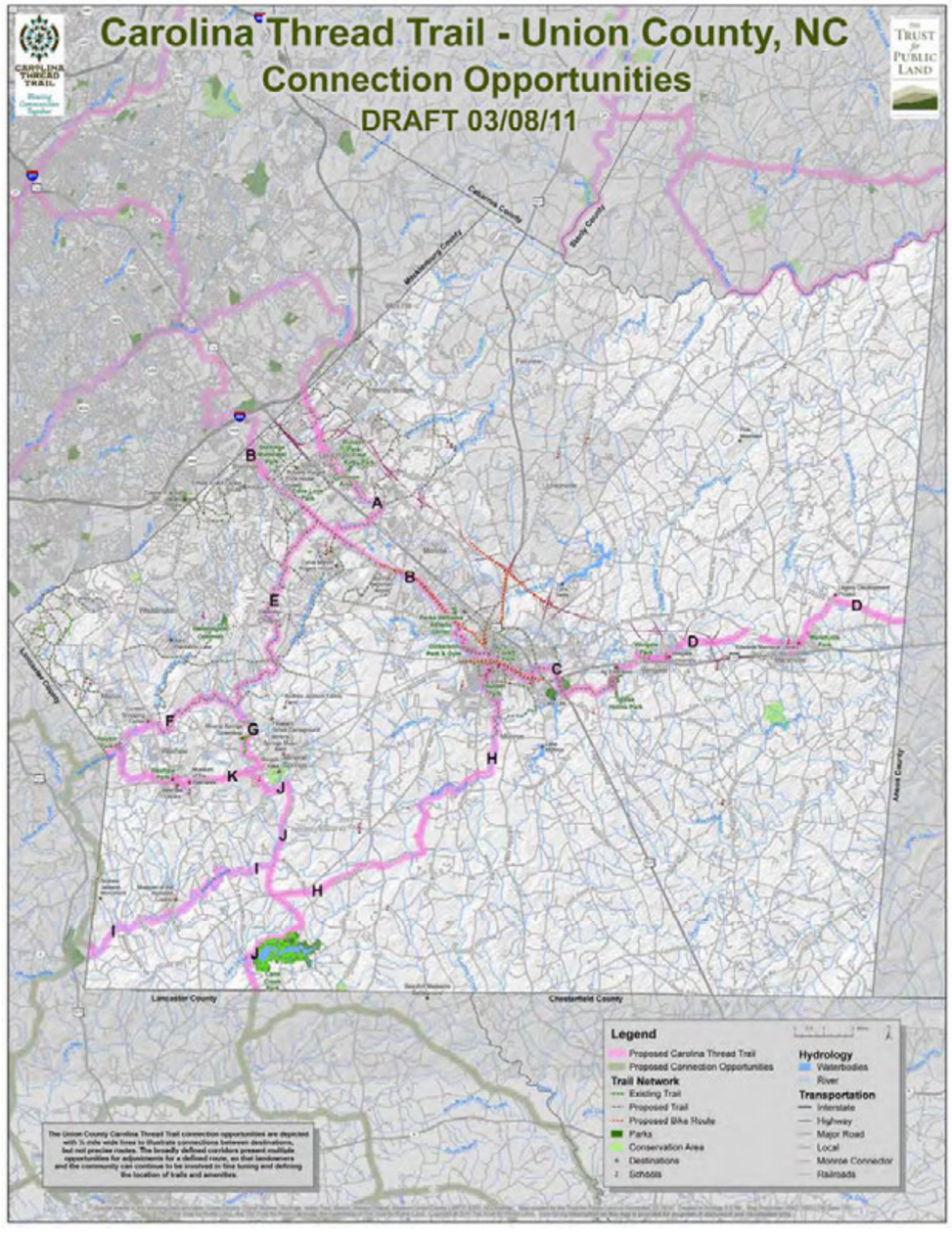
A.1 MAPS

A.1.1
ZONING MAP, WAXHAW UNIFIED DEVELOPMENT ORDINANCE

To view map, visit: waxhaw.connectgis.com

A.1.2
UNION COUNTY GREENWAYS MASTER PLAN
Adopted by Union County, August 15, 2011





A.1.3
Western Union County
Local Area Regional
Transportation Plan
(LRTP)

Road Project Identification Map

Martin-Alexiou-Bryson
Clarion Associates
2009

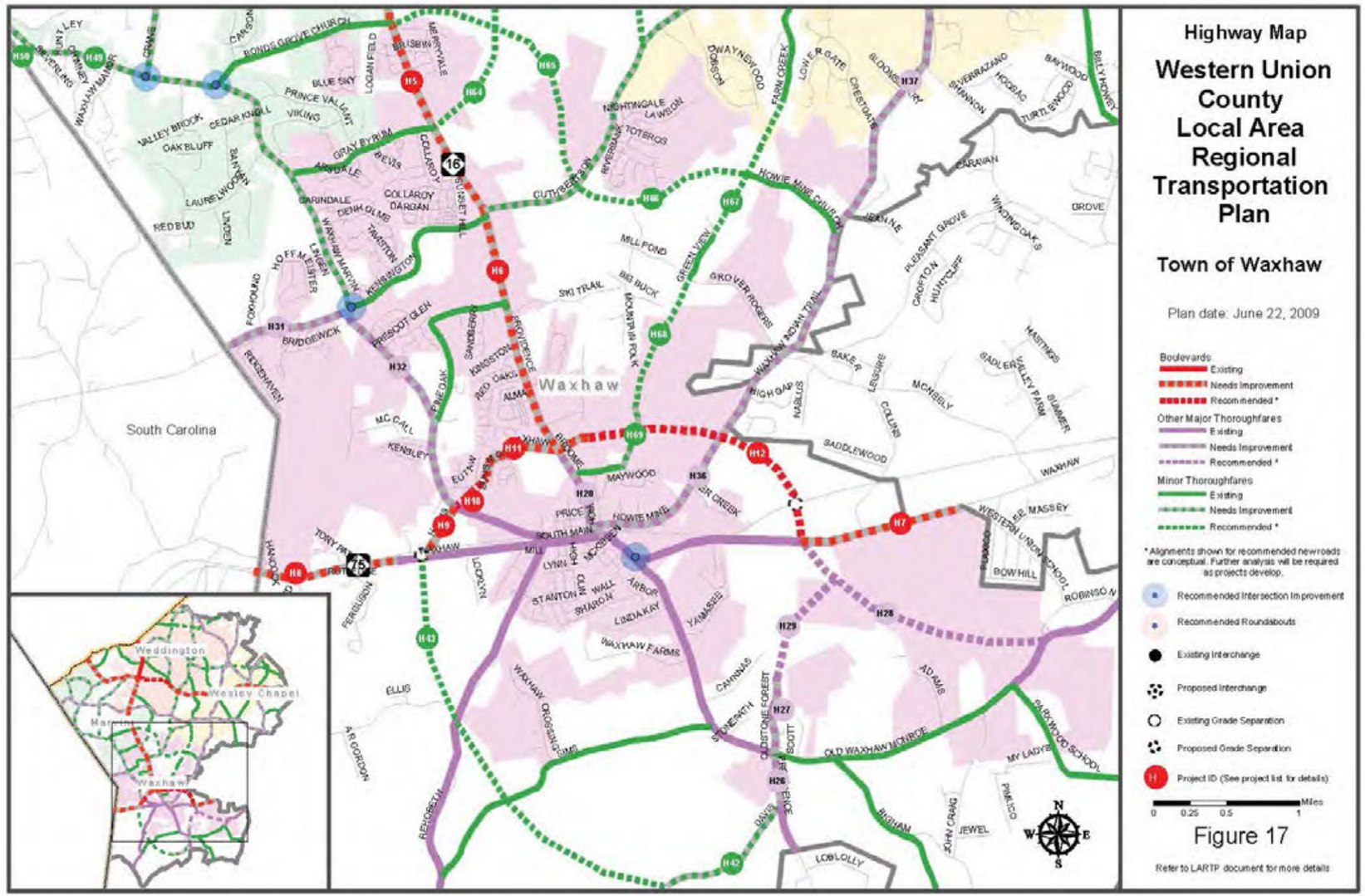


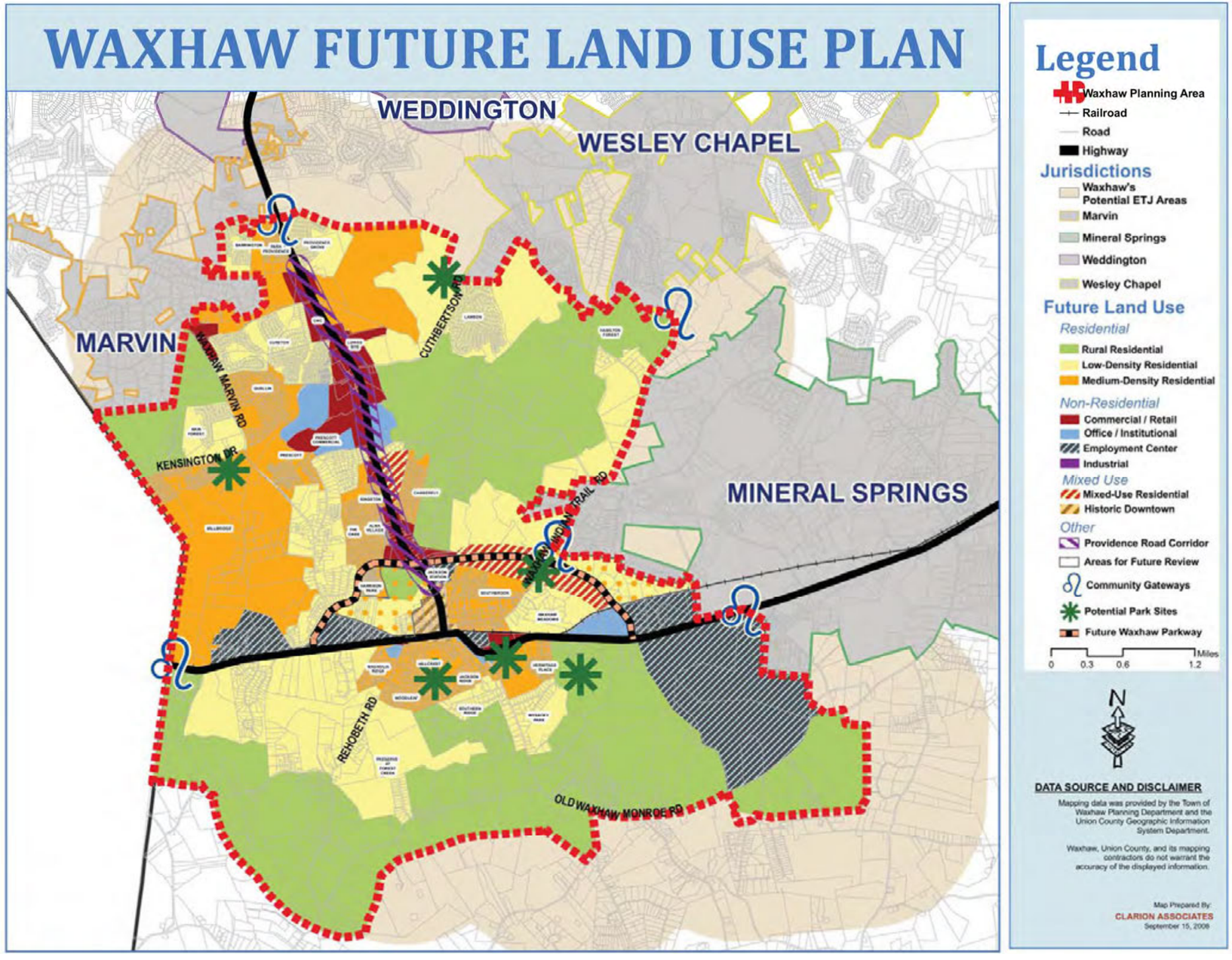
Figure 17

Refer to LARTP document for more details

A.1.4
Waxhaw 2030 Plan

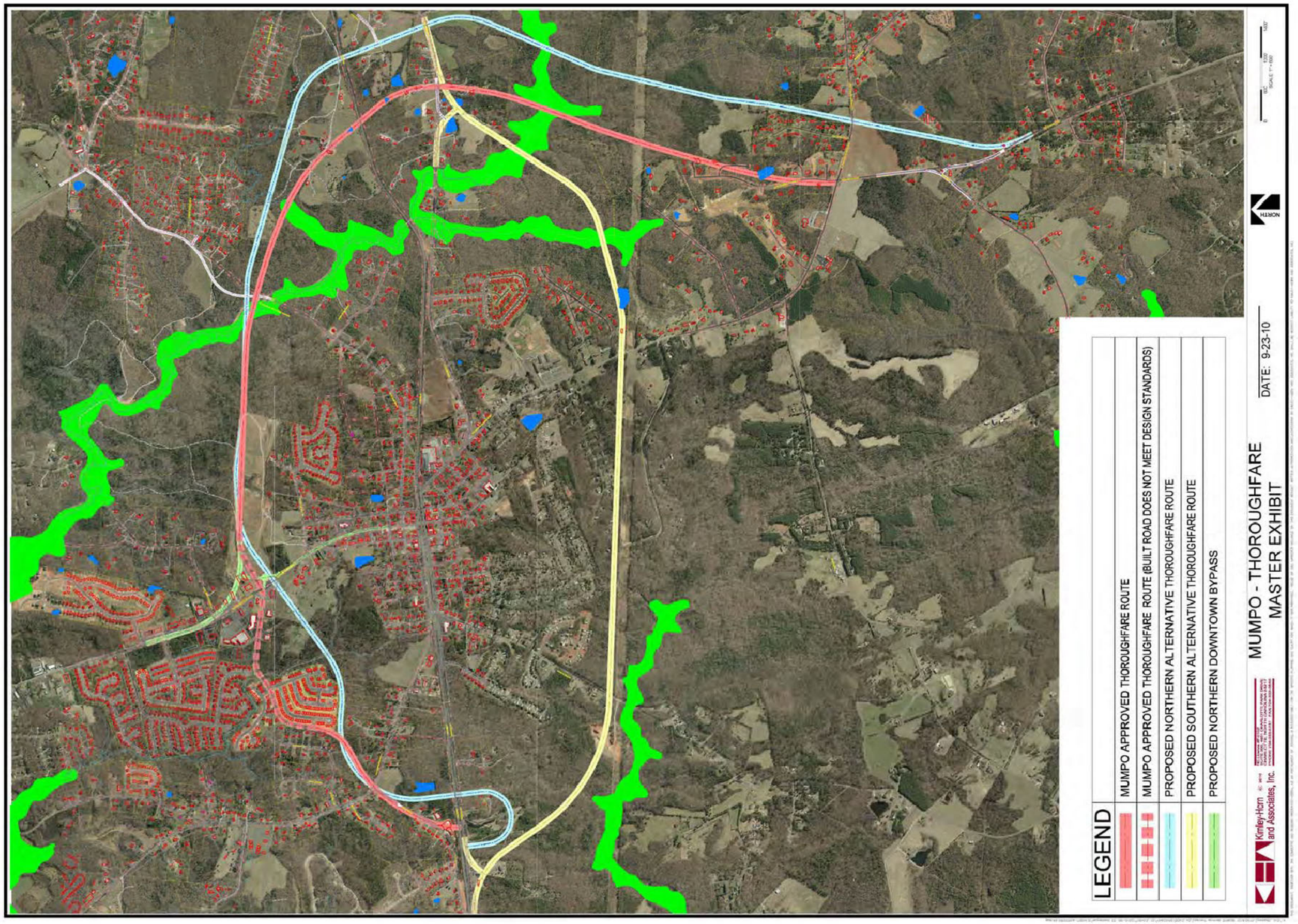
Clarion Associates, 2008

Available at:
http://www.waxhawnc.govoffice2.com/vertical/Sites/%7BB71F8B2C-49E4-4CB6-8B8A-5D0ABA591922%7D/uploads/%7BC28FB780-EBC4-452B-982D-4EE4FBF2278E%7D.PDF

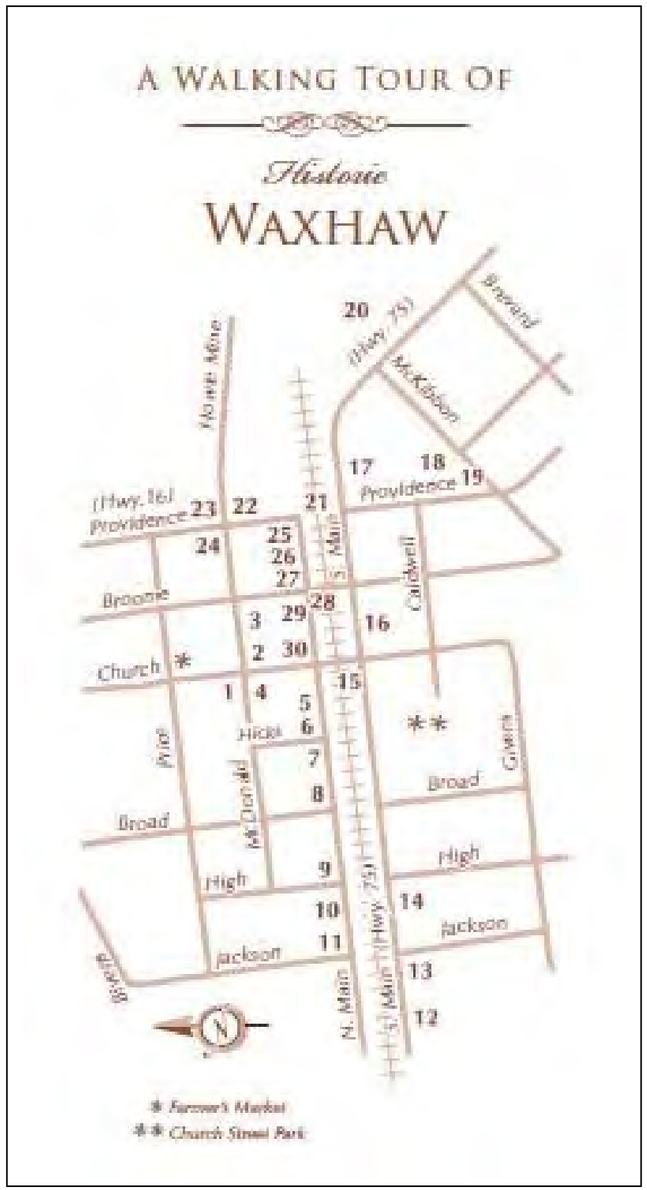


A.1.5
Waxhaw Parkway
Master Plan Layout

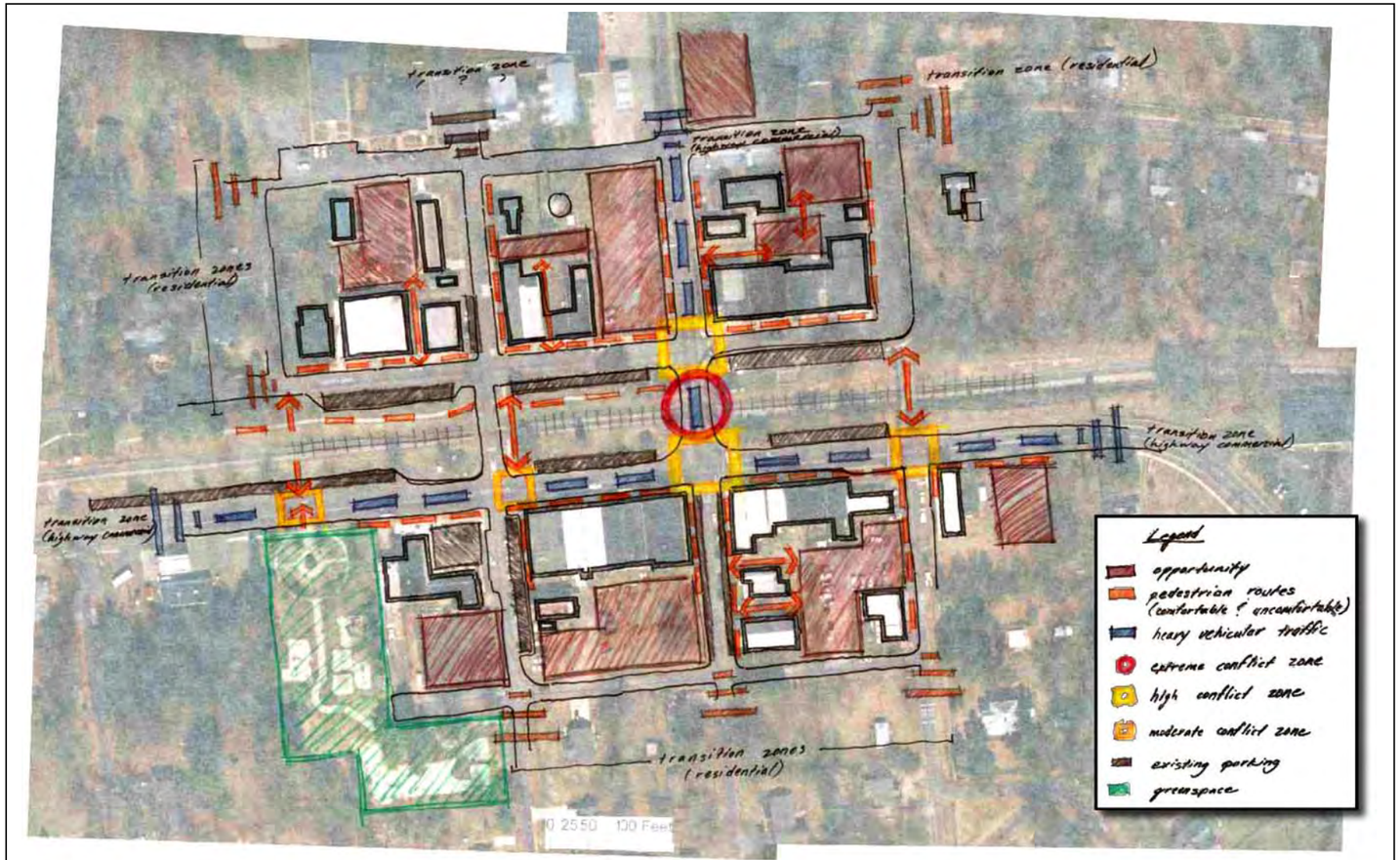
Kimley-Horn & Associates, 2010



A.1.6
Waxhaw Historic Walking Tour Map



A.1.7
Waxhaw Market Study
Main Street Sketch



A.1.8
Crash Data

North Carolina
Department of Transportation

REPORTED BICYCLE AND PEDESTRIAN CRASHES IN WAXHAW, NC
FOR THE REPORTING PERIOD OF JANUARY 1, 1990 TO SEPTEMBER 30, 2010

DATE	TIME	VEHICLE TYPE	SEVERITY	ON ROAD	MILES	DIRECTION	FROM ROAD	TWRDS ROAD
7/20/1991	2:50 AM	PEDESTRIAN	C-INJURY (POSSIBLE)	PEARL CT	0.002	N	SR 1008	DEAD END RD
9/16/1991	2:55 PM	BICYCLE	A-INJURY (DISABLING)	NC 16	0.25	N	SR 1303	PROVIDENCE FARMS RD
1/16/1993	4:25 PM	PEDESTRIAN	C-INJURY (POSSIBLE)	HIGH ST	0.036	S	NC 16	GIVENS ST
2/11/1993	4:30 PM	BICYCLE	PDO	NC 75	0.019	N	CHURCH ST	NC 16
3/27/1996	6:20 PM	PEDESTRIAN	B-INJURY (EVIDENT)	NC 75	0.51	E	SR 1325	SR 1327
1/24/1997	4:17 PM	BICYCLE	A-INJURY (DISABLING)	HOWIE MINE RD	0.019	E	WASHINGTON ST	PEARL ST
5/16/1997	5:20 PM	BICYCLE	B-INJURY (EVIDENT)	MAIN ST	0.08	W	NC 16	BROAD ST
3/10/1998	1:40 PM	PEDESTRIAN	C-INJURY (POSSIBLE)	SR 1301	0.047	S	APPLEWOOD LN	SR 1300
8/5/2001	1:37 PM	PEDESTRIAN	PDO	NC 75	0.018	SW	NC 16	S CHURCH ST
6/13/2006	9:19 PM	PEDESTRIAN	B-INJURY (EVIDENT)	NC 75	0	E	SHUTE ST	MCKIBBEN ST
5/6/2007	7:14 PM	BICYCLE	PDO	S HIGH STREET	0		W SOUTH MAIN	GIVENS ST
5/10/2007	5:54 PM	PEDESTRIAN	PDO	ANNE AVE	0	N	SHARON DR	STANTON DR
9/18/2008	3:41 PM	PEDESTRIAN	B-INJURY (EVIDENT)	N CHURCH ST	0		WAXHAW MARVIN	

A.1.9 Interview Results Summary

Interview Subjects:

Laurie Curtis	Bike Depot
Melvin Faris	Waxhaw History Walk
Daune Gardner	Mayor
Lisa & Tim Giovannello	Developers
Jim Howie	Land owner, lifelong resident
Sandy Keesler	Long-time resident
Art O'Donnell	Rails-to-Trails, walkable neighborhood
Stephen Pace	Developer (Lawson), local history interest
Donna Prendergast	Waxhaw Tack Exchange

Significant Destinations:

- Civil War Cemetery
- Gold Mine
- Harris Teeter (NC 16)
- Price Chapel cemetery on Pine Oak
- Cane Creek Park
- NC 16 @ Kensington shopping
- A. Jackson State Park on 521
- Museum of the Waxhaws
- Andrew Jackson Memorial
- Outdoor art

General Issues & Needs:

- More East-West connections are need, particularly from NC 16 to Waxhaw-Marvin Road.
- More emphasis on sidewalks and sidewalk repair.
- More crosswalks throughout town
- More pedestrian warning signage
- More traffic lights
- More parking
- There was a Rails-by-Trails plan done awhile back.
- Lack of shade trees along sidewalks.
- I do not want public walking paths across our farm land.
- Focus more on local history. Preserve old buildings. We need a town assessor of historical properties.
- Document the Waxhaw (building) style
- Historic plaques (and something additional for kids, like G'ville mice) that can be discovered
- Too much traffic, especially trucks!
- Loose dogs
- Many cyclists from Charlotte turn around at Waxhaw or continue on the Cane Creek Park
- Everything comes with a cost and someone has to pay for it. I will use the new crossing and lights at the intersection of Hwy 16 and 75. It is beautiful no doubt. But what did it cost? Where did the money come from? I don't think it came from Waxhaw funds and I am glad. But if it came from federal funds then I paid for part of that.
- Siting of schools in a more walkable manner
- Incorporate a way-finding system
- Waxhaw needs a draw, like old Deerstigns?
- Sharing utility easements with equestrian trails
- Make the right development choice easy
- High horse population in Waxhaw, but no actual equestrian trails in town
- Concentration of ridership near rifle range by Foxhound Estates, north of Kensington Drive, could connect to planned greenways around Nesbit Park.
- Would like to see trails with natural paving materials (pea gravel or mulch, not asphalt), with trailer parking areas at trail heads.
- Preferred equestrain trail locations could include log cabin area on Waxhaw-Marvin Road south of Kensington and Waxhaw-Indian Trail Road proposed trailhead near Weddington.
- Bikes can be an issue for some horses on multi-use trails, but the mix has worked elsewhere.

Specific problem locations / opportunity areas:

- Crosswalks at Main & Broome were upgraded just last year, but it seems like they could still be better.
- Crosswalks at the 16/75 intersection Downtown should be redone. Pedestrians can't cross directly from sidewalk to sidewalk, which is needed to maintain a continuity of the businesses. People will cross on the north side anyway, but this causes them to jay-walk. The current crosswalk location is not as visible to cars coming south on NC 16. But the continuity of the trail in the railway green is important too.
- They just repaved and widened by ACE Hardware & PO and they left off. Bypass there? There's a stretch where the turning lane stops.
- Crossing 16 at Price St.
- Terrain on 16 shoulders is sloped, not safe.
- The Museum amphitheatre is in disrepair.
- Crossing the street at the Old Hickory Shopping Ctr.
- Hwy 75 at Rehobeth Rd., crossing RR track
- Sidewalk repair near Rehobeth at Captain's Galley & Waxhaw Elem.
- Library is not accessible across in S. Providence HS area
- Hospital site at Cureton
- Waxhaw-Monroe Road sees a lot of bicycle-car conflict.
- Waxhaw-Marvin Road needs a bike lane.

Programs & Outdoor Events:

- Local running events.
- Parades
- Spring Fling
- Spring Fest
- Fall Fest
- Missions in town: WaxIT Rd from 16 out a mile east, out WaxMarvin Rd from Eutaw to Pine Oak out toward 12 mile creek.

Future Needs & Goals

- Quality economic development & job opportunities (live/work)
- More business downtown
- More restaurants and social activities - Stay current but provide basic needs: shopping, restaurants; more updated things, but keep a certain look.
- The Waxhaw Parkway east-west bypass at the PO and intersect 75 to divert truck and commuter traffic.
- More industrial growth. It is very hard for a town to provide the services that folks want on the backs of residential development. I think that Waxhaw, as are all levels of government, are going to have to tighten some belts because the economy is not growing as it was and we cannot continue to spend as there is no tomorrow.
- Paved shoulders for bicyclists to get downtown to walk, bike racks and public bikes provided.
- More emphasis put on our agricultural heritage. Waxhaw was built on the backs of farmers and agriculture.
- Our wonderful museum is always having trouble getting funded.
- Community built for people, not cars or investors.
- Light rail access
- Waxhaw Area Research Park

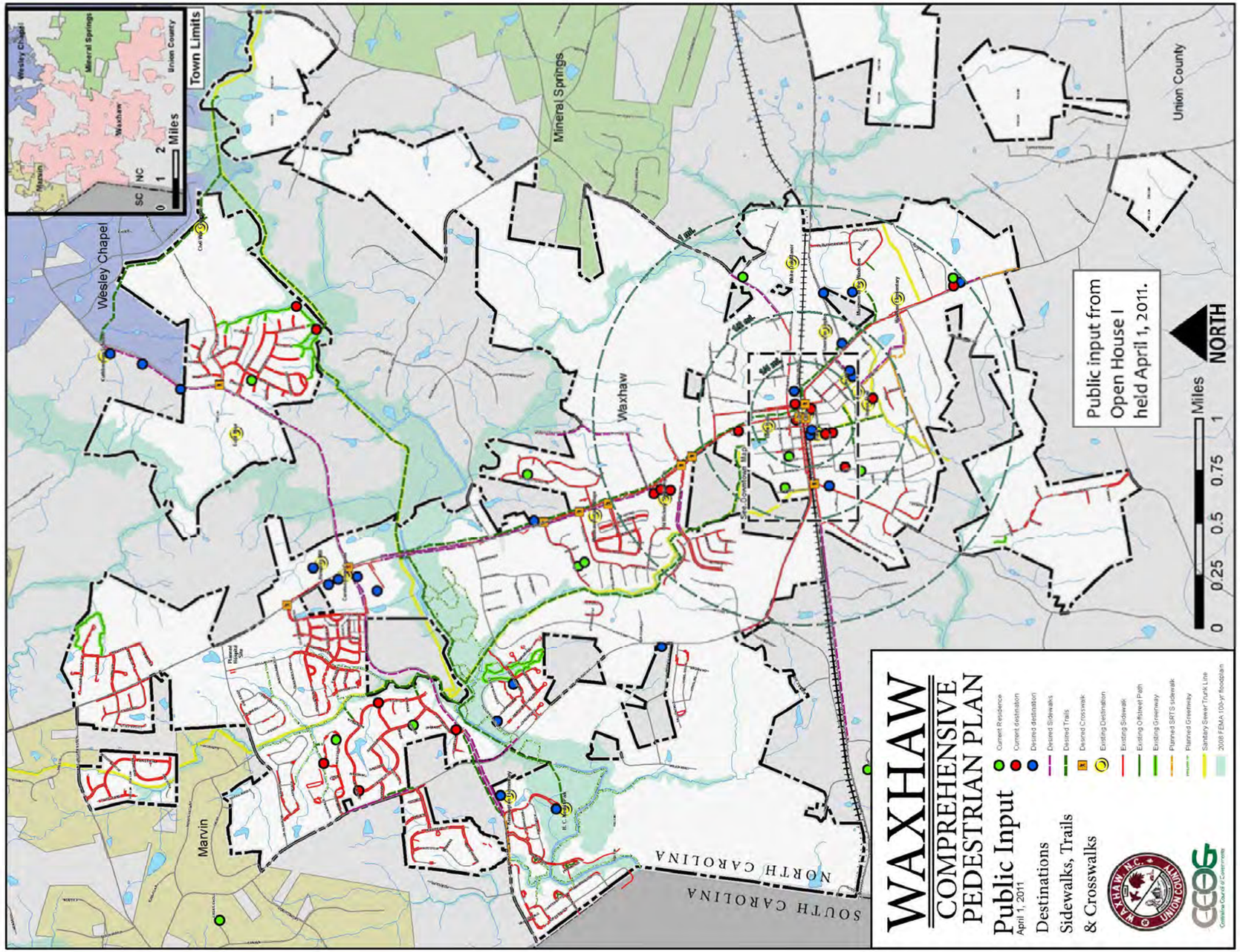
A.1.10 Open House I Results: Destinations & Facilities Map

A.1.11 Open House I Results: Comments

- Subdivisions along Providence probably don't need signalized crosswalks, but could really use plain line-on-the-road crosswalks to give walkers more respect from drivers when they try to cross to the sidewalk.
- People may become more motivated to run/walk if Waxhaw has more 5ks and 3ks.
- Bring back downtown sculptures – public art promotes walking
- Work with CATS and funding to get bus runs to Charlotte (and Monroe) – rush times a.m. and p.m.
- People in S. Waxhaw need the transportation and recreational others can afford to get elsewhere. Also people on east and west - W. Marvin and H. Mine Road
- Curbs and drainage in older Waxhaw. Town looks messy – road chip away.
- More public art
- More sidewalks

Notes from Survey where places to enter comments were not available

- Sidewalks too close to street – right beside street
- Cars too fast – dangerous
- Dogs in neighborhood – (Waxhaw is addressing this issue)
- Need more sidewalks – (past WxW school)
- More visual interest



A.1.12
Open House II:
Focus Area Project Descriptions

Waxhaw Comprehensive Pedestrian Plan – FOCUS AREA PROJECTS

A short description of featured projects in critical areas

Northwest Quadrant

Barrington Ridge, Park Providence and Providence Grove

OBJECTIVE: Link these disconnected neighborhoods to each other and the Town.

PROJECTS:

- Sidewalk connection along east side of Hwy 16 from Brisbin to Cureton
- Trail connections between Barrington Ridge & Park Providence, thru Marvin to planned greenway behind Cureton, and from Providence Grove greenway to Lawson
- 1-way Pedestrian Activated Crosswalk across Hwy 16 at Brisbin

Cureton

OBJECTIVES:

- Make crossing Highway 16 safer.
- Provide more pedestrian links to this activity hub.

PROJECTS:

- 4-way Pedestrian Activated Crosswalk on Hwy 16 at Sunset Hill and Cuthbertson
- Sidewalk connections along Cuthbertson to Cureton and Lawson neighborhoods
- Sidewalk connections along Hwy 16 from Cureton to Silver Oaks and Kingston On Providence neighborhoods.
- Below grade multi-purpose trail crossing under Hwy 16 at Twelve Mile Creek beneath existing bridge. Connect to proposed greenway network.
- Multipurpose separated path along west side of Hwy 16 along Twelve Mile Creek bridge

Kensington Elementary & Nesbit Park

OBJECTIVES:

- Provide more pedestrian links and safe crossings to these pedestrian-oriented destinations.
- Connect to planned greenway system

PROJECTS:

- Sidewalk connections to school along Kensington from Quellin neighborhood to planned greenway system at Millbridge.
- Sidewalk connections to Kensington Road along Waxhaw-Marvin Road from Quellin and Anklin Forest neighborhoods and Prescott neighborhood
- 1-way Pedestrian Activated Crosswalk across Kensington at school entrance
- 4-way Pedestrian Activated Crosswalk at Kensington and Waxhaw-Marvin Road
- 1-way Pedestrian Activated Crosswalk across Waxhaw-Marvin Road at Anklin Forest
- Short trail connection from Kensington Road to Anklin Forest

Northeast Quadrant

Lawson, Camberly & Cuthbertson School

OBJECTIVES:

- Provide walkable links to primary destinations and neighborhoods.
- Link disconnected incorporated areas of Town.

PROJECTS:

- Trail connections from Lawson to Cuthbertson School property and historic landmarks, and along Carolina Thread Trail to Cureton and Wesley Chapel
- Trail connections from Camberly to Cureton, Lawson and Museum area.
- Sidewalk connection to Cuthbertson School property

Southeast Quadrant

Waxhaw Elementary & Museum Area

OBJECTIVE:

- Provide walkable links to primary destinations, including Downtown and adjacent neighborhoods.
- Link disconnected incorporated areas of Town.

PROJECTS:

- Trail connections to Waxhaw Highway, Old Providence Road, Hermitage Place and Wysacky Park neighborhoods, to proposed Carolina Thread Trail, and to proposed southeastern quadrant greenway system along creek beds and power line easements.
- 1-way Pedestrian Activated Crosswalk across Old Providence at school entrance

Southbrook & Waxhaw Meadows

OBJECTIVE: Provide walkable links to primary destinations, including Downtown and adjacent neighborhoods

PROJECTS:

- Below grade multi-purpose trail crossing beneath Waxhaw Highway to Waxhaw Meadows
- Additional sidewalk and trail connections in Southbrook neighborhood and Waxhaw Meadows
- Continuation of sidewalk along Howie Mine Road to proposed greenway

Southwest Quadrant

Old Hickory Shopping Center

OBJECTIVES:

- Make crossing Highway 16 safer.
- Provide more pedestrian links to activity hubs.

PROJECTS:

- 2-way Pedestrian Activated Crosswalk at Hwy 16 and Waxhaw Road
- Sidewalk connections along west side of Hwy 16 from Old Hickory to Waxhaw Retail Village
- Continue sidewalks along Waxhaw Road to existing sidewalks in Harrison Park.
- Trail connections along sewer right-of-way on Twelve Mile Creek from Old Hickory northward to Prescott and southward to Downtown

Applewood, Wisackola Park & West Waxhaw

OBJECTIVES:

- Close gaps in existing sidewalk system
- Connect to planned greenway system

PROJECTS:

- Continuation of sidewalk along Waxhaw-Marvin Road to Prescott
- Trail connection from Waxhaw-Marvin Road at Eutaw to planned greenway at Nesbit Park

Downtown

Main & Broome street grid

OBJECTIVES:

- Make crossings safer at high-traffic intersections
- Close gaps in existing sidewalk system

PROJECTS:

- Reconfiguration of crosswalks at North and South Main at Broome
- Continuation of sidewalk grid in the downtown area
- Continuous sidewalk link from South Main to Woodleaf neighborhood, planned sidewalk on Sharon, and proposed greenway connection to existing sidewalks on Waxhaw Crossing
- Greenway connection from Park to Fitness Trail to Wall Street along sewer easement.
- 1-way Pedestrian Activated Crosswalk across South Main at Overhead Bridge
- 1-way Pedestrian Activated Crosswalk across Old Providence at McKibben (Old Mill)

South Providence School & Library

OBJECTIVES:

- Close gaps in existing sidewalk system
- Provide greenway connections to primary destinations
- Provide safe crossings to pedestrian-oriented destinations.

PROJECTS:

- Continuation of sidewalk grid in the school area to better connect to Downtown and Old Providence Road
- Trail connections to neighborhoods south and west

A.1.13 Open House II results: Comments & Ideas

GENERAL COMMENTS

- Trail connecting 15 + 16 + 17 + 19 that would connect to Blythe Mill Road & N. Providence Street that would create a circle to ride my bike!
- Consider connection of sidewalks on Kensington between projects 45 & 39.
- Re: sidewalks on N. Providence Street from Howie Mine Road to dead end at Blythe Mill Road (extend sidewalks on both sides, not just one)
- N. Providence Street gets a lot of use by walkers, joggers, etc. on a regular basis. Also is used by people walking to Main St. activities, restaurants, etc. I live on N. Providence & walk everywhere. The existing sidewalk is wonderful but because it isn't on both sides it is often necessary (b/c of the volume of users) for someone to walk in the street.
- Follow the pattern and plans that other successful pedestrian friendly communities have used; i.e. Greenville. SC & Chapel Hill, NC.
- Great information. Shows a real concern for public by town managers. Thank you for your great work. Let's keep this town alive.
- Trim trees that are hanging over some sidewalks (Blythe Mill) and trim bushes that grow into sidewalk area (Providence)
- Project 8 at Old Hickory Shopping Center: Dangerous, multiple intersections and split sidewalks
- Project 12: pedestrian crossing strengthened and enforced at bridge. Warning lights, crosswalks, pedestrian right of way.
- Project 106/107: bridge, sidewalk, bike lane
- Projects 30 + 27: Oaks Neighborhood very concerned about safety. Drug activity from Harrison Park and unknowns has been an issue. Concerned about trails proposed behind our neighborhood.
- Equine trails: Project 17, 166 + 72. Also: 65 + 66 + 74 + 57 to 70 + 53 + 54 + 72 + 73 to 84 to 87
- Create a greenway loop for equestrians. 60 & 72 could be horse trailer parking areas
- Capitalize on equestrian community and visitors.
- Consider East-West connectors of proposed sidewalk system along Grey Byram, Kensington, Pine Oak and proposed Rt. 75 bypass Roads between Providence & Waxhaw Marvin Roads. This would make multiple ped loops and maybe eliminate part of the proposed greenway northwest of Old Hickory Plaza area , that some residents in this area are opposed to.

IDEAS FOR REACHING STATED GOALS

Create a **more connected** Town for pedestrians, from one end to the other :

- Extend sidewalk all the way to Lowes from boat place.
- Bike lanes
- Connected sidewalks

Contribute to a **safer** environment :

- "Yield to pedestrians" crosswalk at crossover bridge on South East Broome St.
- Police patrol
- Neighborhood Watch
- Cameras
- Pedestrian crosswalks

Promote **healthy** lifestyles :

- "Creating accessible safe walking/bicycling trails are easy ways to promote healthy lifestyles and easy exercise."
- Establish a walking club (suggested name: "Western-Union Walking Club")
- Bike lanes
- Connected sidewalks
- Post mile markers on well-used walking trails
- Attention to senior citizens access to promote a healthy lifestyle is critical.

Make more accessible the Town's **historic** places and other significant destinations :

- Plaques showing information on historic sites & buildings (tourists are interested)
- Walking tours
- Specific annual events that promote the history

Foster activity in the **downtown** area :

- "Pedestrian friendly communities encourage neighborhood residents to WALK."
- Street dance
- Concert in the Park
- Monthly auction at Old Fire Station
- Open traffic flow – consult w/ Skip Wright and his idea to promote movement

Encourage a greater awareness and experience of the **unique qualities** of the community :

- Do something to the water tower – maybe a train & bridge picture. (examples:
- Knights Stadium baseball, Gaffney Peachoid)
- Schools/Waxhaw Family Physicians etc. team w/ town to promote healthy lifestyle @ all ages

A.1.14
Relevant Federal and State Policies

- NCDOT Policy & Procedure manual: Sidewalks http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/doh/preconstruct/altern//value/manuals/ppm/ppm28/ppm28-1.pdf

- NCDOT Greenway Policy http://www.ncdot.gov/bikeped/download/bikeped_laws_Greenway_Admin_Action.pdf

- NCDOT Complete Streets Policy http://www.bytrain.org/fra/general/ncdot_streets_policy.pdf

- NCDOT Board of Transportation Resolution for Bicycling and Walking - http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html

- NCDOT's Traditional Neighborhood Development Street Design Guidelines (http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf). These guidelines are available for proposed TND developments and permits localities and developers to design certain roadways according to TND guidelines rather than the conventional subdivision street standards. The guidelines recognize that in TND developments, mixed uses are encouraged and pedestrians and bicyclists are accommodated on multi-mode/shared streets.

- United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (March 2010) - http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm

- FHWA Policy for Mainstreaming Nonmotorized Transportation (FHWA Guidance – Bicycling and Pedestrian Provision of Federal Transportation Legislation) - http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm

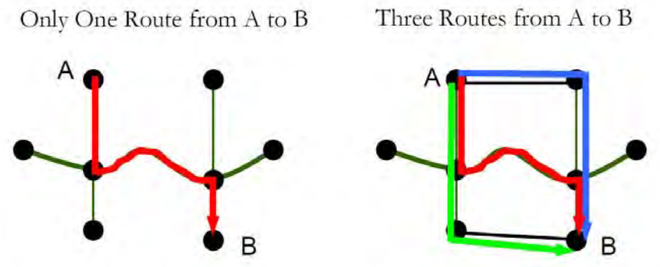
A.1.15
2010 North Carolina State Street-Aid Adjusted Allocations to Municipalities Powell Bill Allocations

Municipality	Waxhaw
County	Union
Division #	10
Annual Estimated Population	4,241
Increment Award 3/4	$ 3,338.65
Certified Non-System Mileage	25.68
Increment Awards (1/4)	$ 1,586.45
Allocation From Powell Bill Funds	$ -
Allocation from Highway Trust Fund	$ 4,925.10
Total Allocation	$ 4,925.10

http://www.ncdot.org/programs/Powell_Bill/

A.1.16
Example Street Connectivity Calculation Method

Street Connectivity: Link Node Ratio



Link Node Ratio = 7/8 = 0.88 Link Node Ratio = 9/8 = 1.13

Source & Presentation Idea : Dill, 2004

A.1.17
NCDOT Bicycle and Pedestrian Prioritization Presentation

A.1.18
SCHOOL WALKABILITY STUDY

CENTRALINA COUNCIL OF GOVERNMENTS
2011

1. PROXIMITY

Cuthbertson Middle School
118 Residences within 0.5 of school entrance
34 Residences along 0.5 path to school entrance

Kensington Elementary School
90 Residences within 0.25 of school entrance
71 Residences along 0.25 path to school entrance

South Providence Middle School
548 Residences within 0.5 of school entrance
186 Residences along 0.5 path to school entrance

Waxhaw Elementary School
85 Residences within 0.25 of school entrance
47 Residences along 0.25 path to school entrance

2. CONNECTIVITY

Cuthbertson Middle School
Connectivity Index = 1.33 (12 links/ 9 nodes)
Path vs. Actual = .29 (34/118)

Kensington Elementary School
Connectivity Index = 1.58 (19 links/ 12 nodes)
Path vs. Actual = .79 (71/90)

South Providence Middle School
Connectivity Index = 1.34 (127 links/ 95 nodes)
Path vs. Actual = .34 (186/548)

Waxhaw Elementary School
Connectivity Index = 2.00 (14 links/ 7 nodes)
Path vs. Actual = .55 (47/85)

3. NET RESIDENTIAL DENSITY

Residential density permitted under current zoning for lots built out or completely subdivided within 0.5 miles of high school and middle school entrances, and within .25 miles of elementary/primary schools.

Planned density indicated by the Waxhaw future land use plan does not indicate a change in density; therefore the results for future density are considered the same.

640 acres/sq. mi.
½ mi. RADIUS = 0.7854 sq. mi. = 502.656 ac
¼ mi. RADIUS = 0.1964 sq. mi. = 125.696 ac

dwelling units = du

Cuthbertson Middle School
TOTAL =281 du/502.656 ac
= .56 du/ac

Kensington Elementary School
TOTAL =228 du/125.696 ac
= 1.81 du/ac

South Providence Middle School
TOTAL =590 du/502.656 ac
= 1.17 du/ac

Waxhaw Elementary School
TOTAL = 82 du/125.696 ac
= 0.65 du/ac

4. BIKE & PED FACILITIES (COMPLETE STREETS)

Number of pedestrian & bicycle connections to the school grounds from offsite. The Town has no Park & Ride locations.

Cuthbertson Middle School
Existing Connections: 0
Additional Connections Proposed: 2

Kensington Elementary School
Existing Connections: 4
Additional Connections Proposed: 2

South Providence Middle School
Existing Connections: 2
Additional Connections Proposed: 8

Waxhaw Elementary School
Existing Connections: 3
Additional Connections Proposed: 3

5. BIKE & PED PROGRAMS

Waxhaw does not currently participate in any pedestrian or bicycle programs.

Waxhaw Walks

SurveyMonkey

1. How often do you walk or run for pleasure, exercise, or to reach a destination in mind?

		Response Percent	Response Count
I don't or am unable to.		2.3%	5
Hardly ever.		10.4%	23
Maybe a few times a month.		23.4%	52
A few times a week.		**33.8%**	**75**
Daily, or nearly so.		30.2%	67
		answered question	**222**
		skipped question	**0**

2. For what reasons do you most often walk?

	Response Percent	Response Count
I don't walk or run.	0.9%	2
For pleasure, recreation, or exercise.	**89.3%**	**191**
To get to school.	0.5%	1
To get to work.	1.9%	4
To shop, visit friends, for errands, etc.	29.4%	63
It's the only way I have of getting places.	2.3%	5
Other (please specify)	2.8%	6
answered question		**214**
skipped question		**8**

3. What keeps you from walking or running more than you do now?

	Response Percent	Response Count
I can't, due to poor health or physical inability.	2.8%	6
It feels unsafe to walk or run in town.	19.3%	41
I'm too busy or just not interested.	29.7%	63
The weather.	**33.0%**	**70**
Some other reason?	24.5%	52
answered question		**212**
skipped question		**10**

4. Where do you prefer to walk or run?

	Response Percent	Response Count
Outside of Town.	15.9%	31
Lots of areas in and around Town	**48.7%**	**95**
Particularly on certain streets or within a certain neighborhood	47.2%	92
Please list the main streets you most often walk or run (or would like to if conditions improved).		78
answered question		**195**
skipped question		**27**

5. What one most important thing do you think would encourage more walking or running in and around Town?

	Response Percent	Response Count
More sidewalks	29.4%	62
Trails or greenways	**53.6%**	**113**
More traffic signals or pedestrian-related warning signs	3.8%	8
Better police enforcement of traffic laws	0.9%	2
Getting the community more involved through programs or events	4.3%	9
Anything else?	8.1%	17
answered question		**211**
skipped question		**11**

6. Would you support public funding for pedestrian facilities such as sidewalks, safer crosswalks, or greenway paths?

	Response Percent	Response Count
Yes	**59.7%**	**126**
Maybe	24.2%	51
No	9.5%	20
I don't know	6.6%	14
	answered question	**211**
	skipped question	**11**

7. What is the goal most important to you below?

	Response Percent	Response Count
Fill the gaps in the current sidewalk system.	27.0%	57
Make only the least expensive kinds of improvements.	4.3%	9
Concentrate improvements in the Downtown area.	16.6%	35
Focus on improvements for schools.	13.3%	28
Create more walking trails for transportation or recreation purposes, or to attract more tourism.	**38.9%**	**82**
	answered question	**211**
	skipped question	**11**

8. Please tell us your age bracket.

	Response Percent	Response Count
Younger than 16	1.4%	3
16 - 24	3.8%	8
25 - 39	33.0%	69
40 - 65	**56.9%**	**119**
Older than 65	4.8%	10
	answered question	**209**
	skipped question	**13**

"ORIGINAL"

North Carolina Department of Transportation
Application for Bicycle and Pedestrian Planning Grant Funds
2010 Call for Proposals

Submittal Deadline is December 4, 2009

Applicant Information			FOR NCDOT USE ONLY Proposal eligible ☐ Yes ☐ No
Name of Municipality: Waxhaw, NC	Population 7,500	County Union	NCDOT Division 10
Total Cost for Plan Development: $25,000	NCDOT Planning Funds Requested: $20,000	Local Match: $5,000	
Municipality agrees to enter into a reimbursement agreement with NCDOT: ☒ Yes ☐ No		Municipality is member of: ☒ MPO ☐ RPO ☐ neither	
Department applying for grant: Planning & Community Development			
Contact Person: Greg Mahar	Title: Director, P&CD	Work Phone Number: 704-843-2195 Ext. 32	
Work Fax Number: 704-243-3276	E-mail Address: gmahar@waxhaw.com		
Mailing Address: P.O. Box 617	City: Waxhaw	State: NC	Zip Code: 28173

I certify that the City/Town of Waxhaw, NC, in applying for Bicycle or Pedestrian Planning Grant funds, attests a commitment to the plan's development, management, financing and completion within 15 months from receipt of a Notice to Proceed from NCDOT, and that the completed plan will be submitted to the City/Town Council or other approving authority for adoption.

Michael McLaurin — Signature*
Michael McLaurin — Name (printed)
Town Manager — Title
December 2, 2009 — Date

Eligibility Criteria	
Plan Category – Check only one category ☐ Bicycle Plan ☒ Pedestrian Plan Due to limited planning grant funds, municipalities may apply for funding to undertake **either** a bicycle plan or a pedestrian plan in any given fiscal year. Please indicate the type of plan for which you are submitting this application.	
Has the City/Town Council passed a resolution supporting this application?	☒ Yes, attached ☐ Pending** _____ Date anticipated
For municipalities within a Metropolitan Planning Organization (MPO), has the MPO passed a resolution supporting this application?	☒ Yes, attached ☐ Pending** _____ Date anticipated
For municipalities within a Rural Planning Organizations (RPO), has the RPO passed a resolution supporting this application?	☐ Yes, attached ☐ Pending** _____ Date anticipated

***THE SIGNATURE OF AN AUTHORIZED STAFF PERSON (I.E. CITY/TOWN MANAGER, ADMINISTRATOR, ETC.) IS REQUIRED FOR PROPOSALTO BE ELIGIBLE.**

****A RESOLUTION BY THE APPROPRIATE MUNICIPALGOVERNING BODY AND BY THE MPO, IF APPLICABLE, MUST ACCOMPANY THE APPLICATION, OR MUST BE SUBMITTED PRIOR TO DECEMBER 31, 2009 TO BE ELIGIBLE FOR FUNDING. RPO RESOLUTION, IF APPLICABLE, IS HIGHLY ENCOURAGED. PLEASE INDICATE THE DATE YOU ANTICIPATE RECEIVING A PENDING RESOLUTION.**

*****APPLICANTS WILL NOT BE REWARDED BY THE REVIEW COMMITTEE'S SCORING FOR REQUESTING A FUNDING AMOUNT THAT IS LESS THAN THE MAXIMUM AMOUNT ALLOWED FOR THE PARTICULAR POPULATION CATEGORY OF THE APPLYING MUNICIPALITY.**

Narrative Description
Please limit descriptions to space provided

1) Please describe the vision and goals for your municipality related to improving bicycle **OR** pedestrian transportation. Be sure your goals are realistic and measurable. Refer to any plans adopted within the last five (5) years that support this vision (may include comprehensive plan, land use plan, transportation plan, etc). Note that the vision and goals for your community need to be focused upon transportation and not solely upon recreation.

Waxhaw has experienced exponential growth due to the boom in the banking industry in Charlotte. Waxhaw's population was 2,625 in 2000 and is presently estimated to be about 7,500. With this growth pressure, the need for better planning within the Town has increased. The Town of Waxhaw adopted its 2030 Comprehensive Plan (Exhibit J) in April of this year and a Local Area Regional Transportation Plan (LARTP) for western Union County (Exhibit K) in August of this year. Both plans reflect the Town's need and goal for a truly comprehensive pedestrian plan and network that link neighborhoods, businesses, schools and recreation facilities (*Q.L. Strategy 3.3.2* p. 32 Exhibit J). The Town's goal is to become the leader in Union County for smart planning and smart growth. With the other plans in place, Waxhaw is much better equipped to take on some of the pressing issues it faces as a growing municipality in the Charlotte region. A pedestrian plan would be another important piece to help the Town implement many of the goals of the other plans. The Town is aware of the gaps in its pedestrian infrastructure and wishes to create a pedestrian plan that would not only give guidance to the Town on when and where this infrastructure would be constructed, but would also help to solidify many of the goals of the 2030 Comprehensive Plan and the LARTP. Waxhaw is also a part of the Carolina Thread Trail network (Exhibit L), which is a regional network of greenways and trails that will reach 15 counties and 2.3 million people in North and South Carolina. The trail will link people, places, cities, towns, and attractions, and a pedestrian plan for the Town would help the Town and the Carolina Thread Trail organization to determine where in Waxhaw the larger, regional trail would be most appropriate. The Waxhaw Public Services Department maintains all of the Town's public sidewalk facilites. In the 2009-2010 fiscal year, Waxhaw started its first Capital Budget Program. Designated in this budget is a line item for $55,000 to improve existing sidewalks and install new sidewalks (Exhibit M).

2) Describe your municipality, including demographic information and the physical setting. Explain how the demographics and physical setting of your municipality support the need for a pedestrian or bicycle plan. Highlight any special features (e.g. resort community, college town, etc.), high-use bicycle **OR** pedestrian areas and areas with a high incidence of bicycle crashes **OR** pedestrian crashes. Identify and describe any special user populations or areas deserving special focus.

Waxhaw is located approximately 20 miles south of Charlotte in Union County. The Town has an area approximately 5 square miles. With a slightly younger population than the national average (32.7), Waxhaw's need for better pedestrian infrastructure is great so that our younger families can access our downtown park and two elementary schools safely. There are always residents out walking, mainly in and around the downtown area. However, once one leaves the immediate area surrounding downtown the pedestrian infrastructure is lacking. In most cases, residents will walk the length of a sidewalk and then turn around and head back in the direction from which they came. If the Town was able to identify the critical areas that have the highest priority for pedestrian infrastructure, staff and the Board of Commissioners would be better equipped to allocate money to these areas. The Town also has two lower-income neighborhoods flanking our downtown core that have a large number of people who walk to access neighborhood services and retail businesses. The neighborhood to the east of downtown (Howie Mine Road) has some infrastructure due to the age of the area, but some of the side streets barely have pavement much less sidewalks or greenways to safely connect them to existing infrastructure. The neighborhood to the west has one sidewalk that was constructed about 5 years ago on Waxhaw-Marvin Road, but the sidewalk ends at Eutaw Road. This partial sidewalk is the only pedestrian infrastructure in this neighborhood. In both cases, a pedestrian plan identifying the gaps in our infrastructure, the areas that are under-serviced, and the infrastructure needing maintenance or replacement would arm the staff and the Board of Commissioners with the information to budget pedestrian infrastructure dollars appropriately. Because the pedestrian planning process is a public one in which the residents will be deeply involved, staff and the Board will also be making decisions based on a plan that has the Town's residents "stamp of approval". While there have not been a large number of pedestrian crash incidents in recent years, the potential for incidents is very high at 4 intersections in Town which are signalized and carry high volumes of traffic, but lack adequate pedestrian facilities to allow for safe crossing. To improve one of those dangerous intersections, Waxhaw has been awarded $550,000 for the NC-16 and NC-75 intersection to improve turning radii, signalization and pedestrian facilities through the American Recovery and Reinvestment Act.

3) Provide an overview of the current bicycling **OR** pedestrian transportation system, including an assessment of strengths and weaknesses of the system. Describe facilities currently in place or planned for completion in the next two years (e.g. designated bicycle route system, miles of off-road paths, extent of sidewalk network, etc.) as well as potential barriers that inhibit developing the system. Please enclose any relevant documents or maps, or provide links to on-line materials.

The Town of Waxhaw is a 120 year old town with a historic downtown core. Our strength in our pedestrian network exists in this area, while our weakness lies outside of the downtown core where the pedestrian infrastructure is lacking. Some of the newer residential developments have installed sidewalks and even greenways due to the Town requiring these amenities per our Unified Development Ordinance(UDO) (Exhibit N). However the UDO in its current form wasn't adopted until 2004, so many of the older neighborhoods weren't required to install sidewalks and have added to the gaps in our pedestrian network. Over the winter of 2008-2009, the Town of Waxhaw hired Avioimage to do a complete inventory of our pedestrian facilities, both private and public. They delivered the geodatabase of our pedestrian infrastructure in February 2009 with features identified such as condition, length, ADA facilities, and type. For the first time, the Town of Waxhaw was able to visualize our pedestrian network. According to this inventory, the Town has 48.61 miles of sidewalk compared to its 104.09 miles of roads. The sidewalk inventory is maintained by the Town of Waxhaw GIS staff, and will be very beneficial to our future pedestrian planning efforts (Exhibit G). The Town of Waxhaw was awarded the 2009 North Carolina Department of Transportation Safe Routes to School Infrastructure grant. This grant was focused around our two elementary schools, Kensington Elementary and Waxhaw Elementary (Exhibits O & P). The Kensington Elementary project will place sidewalks along Kensington Road, approximately 1,572 feet, allowing for a safer route to and from the school to the neighboring Millbridge and Anklin Forest communities. The Waxhaw Elementary project, approximately 5,863 feet, will extend the sidewalk on Old Waxhaw-Monroe Road to our city limits. It will also provide sidewalks on Arbor Drive, Sharon Drive, and McCain Street. This will allow the Hillcrest neighborhood safe access to not only Waxhaw Elementary but also the Waxhaw Public Library and our historic downtown business district. The only barrier in providing a more comprehensive pedestrian network system is the lack of planning.

4) Describe any bicycle and/or pedestrian education, enforcement or encouragement programs and initiatives underway or planned. List any key issues that have been identified, such as safety, health and well-being, connectivity, etc. Describe what value programs or initiatives of this kind would bring to your community.

In 2009 The Town of Waxhaw was a recipient of an NCDOT Safe Routes to School Infrastructure Grant for the construction of sidewalks within the vicinity of Kensington and Waxhaw Elementary schools. However, prior to receiving the grant, the Town of Waxhaw established a Safe Routes to School (SRTS) program to include both elementary schools. The SRTS program focuses on education, enforcement and encouragement to help achieve better bicycle and pedestrian safety in and around both of the elementary schools. To date, Waxhaw's SRTS program has formed a taskforce consisting of school officials, teachers, parents, police and Town staff, all of whom support the program's mission for safer routes to school through education, enforcement, encouragement and engineering. Both elementary schools participated in the 2009 International Walk to School Day event (Exhibits Q & R). This event served as the public kick-off for the SRTS program and to raise awareness with both students and parents about bicyclist and pedestrian safety. Educating parents and students on proper bike and pedestrian safety as well as encouragement activities will have lasting effects and hopefully get more parents and children walking/biking to and from school. Pedestrian and bicyclist programs such as SRTS that incorporate education, encouragement and enforcement programs in tandem with infrastructure improvements will have better success rates. The Waxhaw community realizes the value of pedestrian programs focused on education, encouragement and enforcement. These programs help to create awareness, provide valuable feedback and teach proper safety skills to the target audience. The Town understands that active participation, education and awareness are key ingredients to make any program successful. This proactive approach to non-infrastructure activities that promote and educate pedestrian safety will be a major component of the pedestrian planning process for the Town. It is the Town's intent to reinforce and support these programs with additional infrastructure improvements following the completion of the pedestrian plan, demonstrating a tangible return on investment to our citizens.

5) Provide a brief description of any municipal bicycle planning and/or pedestrian planning activities that are currently underway or have been undertaken in the past (list years). List may include bicycle, pedestrian, or greenway elements in any municipal, county or regional planning documents. Describe what value bicycle planning or pedestrian planning bring to a municipality. Please enclose any relevant documents or maps, or provide links to on-line materials. Describe the results of these planning efforts in terms of improvements in bicycle and/or pedestrian facilities, accessibility, and/or safety.

Pedestrian planning in Waxhaw has been a part of the two major plans, the 2030 Comprehensive Plan and the Local Area Regional Transportation Plan (LARTP), undertaken by the Town within the last two years. While both plans discuss the need for pedestrian facilities, their primary focus is not on pedestrian planning or pedestrian infrastructure, though they do both identify the Town's pedestrian network as an inherent piece of the larger puzzles they present. The 2030 Comprehensive Plan (2007-2009) identifies the needs for Waxhaw to create a pedestrian plan within the next 3-5 years (Exhibit J). The Comprehensive Plan states, "Waxhaw's commercial activity centers will be well-designed, pedestrian-friendly and accessible by a variety of transportation nodes" (p.5 Exhibit J). Waxhaw's residents incorporated the need for pedestrian facilities into the 2030 Comprehensive plan to not only provide for recreational activities, but more importantly, to provide for alternative modes of transportation. A pedestrian plan would strengthen our other adopted Town documents. The planning process will demonstrate the importance that the community places on alternative forms of transportation to the Board of Commissioners, which will likely result in larger annual appropriations for pedestrian facilities in the Capital Budget. A major goal of the LARTP, adopted August 2009, is to provide a walkable, connected transportation system (p.55 Exhibit K). The development of a pedestrian plan would allow the Town to identify the areas where this doesn't exist. While the Carolina Thread Trail is still in preliminary planning stages in Union County, Waxhaw will be an integral part of the planning process that will take place. A pedestrian plan would go a long way towards implementing and reinforcing many of the goals, policies, and strategies of the 2030 Comprehensive Plan, the LARTP, and the Carolina Thread Trail.

6) Describe how the development of a comprehensive bicycle transportation **OR** pedestrian transportation plan will benefit your municipality and meet the needs of diverse populations (residents and, where appropriate, students and/or visitors).

.The Town of Waxhaw has a mixture of new residents, who are primarily younger families, and residents who have lived in the Town most of their lives. The common link between these groups is that they have either come to, or stayed in the community because of its small-town charm and the quality of life it affords. The growth in the number of young families has caused a dramatic increase in the number of children living in Town as well. There are now two elementary schools within the Town in order to service these increased educational needs. Town residents want to be able to properly manage the growth that the community is experiencing and, at the same time, plan for needed facilities. A common theme regarding community facilities that has emerged from the recent planning processes, which were developed with input from citizens with a broad range of backgrounds, was an overwhelming desire in the community for an integrated, town-wide pedestrian network. The Town has done a good job in requiring sidewalks and other pedestrian facilities to be included as a part of new developments; however, there are gaps in the network. Most of the gaps exist between the newer communities and the older portions of Town. Residents and community leaders have envisioned creating a pedestrian plan that will allow the Town to make deliberate improvements, eventually resulting in a pedestrian network that allows children to safely walk to school and recreational facilities as well as allowing all residents to walk between major business/commercial and residential areas - creating a truly walkable community. Because many of Waxhaw's residents commute to work each day, they have a real desire to be able to park their cars at the end of each workday/work week and walk to the major facilities and centers within the Town. For many residents, the ability to do this is truly a "quality of life" issue and is one of the things that will keep them in Waxhaw for many years to come. This strong and dedicated community feeling is one of the major life lines for maintaining a vibrant and healthy small town where people want to continue to live and work.

7) List the name and title/position of the municipal staff person responsible for project oversight. Please note that this person **must** be a full-time permanent employee of the municipality. Also list any others who will have involvement in plan development and their experience. Please describe any prior experience these individuals have in the preparation and/or implementation of a bicycle plan and/or a pedestrian plan or other transportation/community planning efforts and include copies or links to relevant documents. Provide resumes/qualifications for each individual listed, including the overseeing staff person.

Greg Mahar, Director of Planning and Community Development (Exhibit C)
Besides his other accomplishments, Mr. Mahar was Waxhaw's staff representative working on the Local Area Regional Transportation Plan (LARTP). He is also the Town's representative on the TCC committee for the Mecklenburg Union Metropolitan Planning Organization (MUMPO).

Lori Oakley, Planning & Zoning Administrator (Exhibit D)
Mrs. Oakley joined the Town staff in May 2009 with 12 years of planning related experience. Prior to working for Waxhaw, Lori was instrumental in updating comprehensive plans for both Harnett County, NC (http://www.harnett.org/downloads/Land%20Use%20Plan.pdf) and the Town of Huntersville, NC (http://www.huntersville.org/planning_2.asp). Mrs. Oakley is the Administrator of the Town's UDO and is working with staff on updates to the UDO based on recommendations made in both the 2030 Comprehensive Plan and the Western Union County LARTP.

LeRae Davis, Planner (Exhibit E)
Mrs. Davis came to Waxhaw in July 2008. She sat in on committee meetings to provide technical advice for the 2030 Comprehensive Plan. Mrs. Davis is also the spearhead for the Safe Routes to School committee and grant application. She was able to secure almost $250,000 in the 2009 Safe Routes to School Infrastructure grant for sidewalk installation around Waxhaw's two elementary schools.

Katie Ross, Planner (Exhibit F)
Ms. Ross also came to Waxhaw in July 2008. She provided technical assistance to the 2030 Comprehensive Plan Steering Committee. Ms. Ross was also responsible for developing and reviewing the Request for Proposals for the GIS sidewalk inventory. She maintains all of the Town's GIS data.

8) Describe how your plan will be developed, specifying whether the work will be done through the services of a paid consultant (indicating whether you have decided yet to hire a private consultant or a COG), a combination of municipal staff and consultant, or through some other process. Briefly describe how duties and tasks will be divided. Indicate how MPO or RPO staff and resources may be utilized.

The Town of Waxhaw has determined that the utilization of the services of a planning consultant will be the most effective method of preparing a pedestrian plan. The Town's Planning and Community Development staff members will supplement the consultant's work and serve as local coordinators through the planning process. Citizen involvement and oversight of the project will be achieved through an appointed steering committee as well as the provision of opportunities for public input and review throughout the planning process. The consultant will be tasked with establishing the planning process, facilitating steering committee and public input meetings, analyzing data, developing recommendations and preparing and presenting the draft and final versions of the pedestrian plan. Town staff will coordinate activities between the consultant and the steering committee, organize public meetings, coordinate the dissemination of information to the public through the media, the Town's website and newsletter, gather and provide local data to the consultant and review and comment on the consultant's work throughout the process. The Town intends to involve the staff of the MUMPO in an advisory role to ensure that the Town's plan is integrated and coordinated with larger regional objectives and priorities where appropriate.

9) Indicate the level of support from elected officials and municipal decision-makers for bicycle and/or pedestrian programs and projects. Describe what elected officials, municipal decision-makers, representatives of other agencies, interest groups, commissions and boards, individuals and other stakeholders have done to support bicycle and/or pedestrian programs and projects in the past. Describe how they or others will be involved in development of this plan. List any existing bicycle, pedestrian, greenway, open space or other relevant committees and task forces in your area that are charged with addressing bicycle issues and/or pedestrian issues. Provide letters of support, if available. Describe what kind of citizen participation will be sought. Describe the benefits of networking with and involving stakeholders and/or appointing a steering committee.

As the Town's 2030 Comprehensive Plan and the Local Area Regional Transportation Plan (LARTP) documents illustrate, Waxhaw's residents, elected officials and community leaders have recognized the need for, and support the development of, a pedestrian plan. The Town's elected officials committed $16,500 from the Town's budget for the completion of the detailed GIS sidewalk/greenway inventory and established a Parks and Recreation committee. The Town also prides itself on community involvement in the planning process. The Town has demonstrated this through holding public forums, putting updated information on the Town's website, and including specific details and publicizing upcoming public forums in the Town's newsletter. All of these vehicles will be utilized in the process for developing Waxhaw's pedestrian plan. As this planning process begins, the Town and its consultant will look for other opportunities to bring Town residents,advisory boards and other stakeholders into the process. The Town's dedication and need for the plan is further demonstrated by letters of support for this project from the MPO (Exhibit B) and the two elementary schools (Exhibits H & I) within Waxhaw, and the resolution (Exhibit A) adopted by the Waxhaw Board of Commissioners. As previously mentioned, the Town of Waxhaw has a Safe Routes to School Taskforce devoted to addressing bicycle and pedestrian issues in and around the elementary schools. In addition, the Town received $242,000 from the NCDOT Safe Routes to School Infrastructure Reimbursement Grant for sidewalk installation. Town elected officials realize the value in creating safe routes for our children as well as improving the overall pedestrian network and are willing to support Town Staff in their initiatives to procure funding sources for such activities.

10) Describe how your community will implement the programs, policies, projects and initiatives identified and prioritized in the plan. Indicate what municipal, regional, state or federal resources may be sought. List any departments, agencies, organizations or other partners that may be involved. Attach letters of support, if available.

The Town intends on developing this initial pedestrian plan as a vehicle for identifying and prioritizing needs for completing an integrated pedestrian transportation system within Waxhaw. A major part of the planning process will be the identification of resources that the Town will be able to utilize as it pursues the implementation steps outlined in the plan. The Town has already secured Safe Routes to School funding and will be looking into the Parks and Recreation Trust Fund (PARTF) grant and Carolina Thread Trail sources as well. The Town will also identify opportunities for public/private partnerships and community participation in funding the future needs associated with the pedestrian plan. Because the Town doesn't have such a plan in place at this time, it is expected that other opportunities and funding sources will be identified once all of the needs are fully vetted. Because of the support from the local schools and our local Safe Routes to School Taskforce, the Town intends to continue to partner with the school communities in Town to provide education and outreach to students and parents, and work with the schools to ensure adequate pedestrian linkages between schools and neighborhoods. Additionally, Waxhaw was selected as a 2009 Small Town Main Street Community. The STMS Committee will be a valuable partner in providing input, specifically for the downtown core, in the pedestrian planning process. The goal of the STMS program is to promote the downtown, and walkability is key to accomplishing that goal. During, and following, the planning process, the Town will engage with its partner communities in the LARTP to share ideas and resources, building greater regional capacity and interest in pedestrian planning, as well as greater coordination between planned pedestrian infrastructure improvements. Waxhaw anticipates that many other ideas, opportunities and needs will come out of this plan and that the plan will be successfully implemented simply because of the local buy-in and support that exists for this project. This plan will affect the majority of residents living in Waxhaw, and when partnered with the Carolina Thread Trail organization, has the potential for having an impact on the entire region.

List activities involved in developing the plan and provide a Plan Development Schedule, beginning with NCDOT notification of grant award, scheduled for June 2010. Note whether the task will be undertaken by staff, consultant, or both. Please state when municipality anticipates executing the Municipal Reimbursement Agreement, entering a contract with a consultant, and receiving the Notice to Proceed. Note that certain items must be received from the grantee, in order that the Notice to Proceed may be issued within the 6 months of the day of the award notification. The items that must be submitted to NCDOT include: 1) Executed Municipal Reimbursement Agreement 2) Executed contract between municipality and consultant; and 3) Listing of steering committee members. List activities by quarter. The municipality will have 18 months to complete the plan, from the date that the MRA is executed. Please be sure that your schedule is a planning schedule and not a construction schedule.

June to September 2010

June/July 2010 -

- The Town receives the grant award notification from NCDOT and the Town Board of Commissioners vote to execute the Municipal Reimbursement Agreement.

August 2010 -

- NCDOT issues the notice to proceed and staff drafts an RFP and makes it available on the Town's website and the Planning Listserv with the UNC School of Government.

September 2010 -

- Receive RFPs from consultants and the Waxhaw Board of Commissioners votes to approve a contract with the chosen consulting firm for the project.
- Consultant will have initial meeting with Town Staff to set up the project schedule and meeting dates.

October to December 2010

October 2010 -

- Consultant reviews base data, existing plans and ordinances, conducts field survey of pedestrian facilities and establishes additional project data needs.
- Town staff collects and provides additional base data to the consultant.
- Town staff and consultant hold initial meeting with steering committee to establish initial goals and priorities and set forth the planning process.
- Town staff and consultant hold public input workshop to receive initial citizen/stakeholder input on community goals.

November 2010 -

- Consultant prepares initial pedestrian network diagnostic report with background data analysis for staff review.
- Staff reviews and comments on pedestrian network diagnostic report.
- Consultant updates initial report based on Town staff comments.
- Town staff provides project updates to the Town Board of Commissioners and Planning Board

December 2010 -

- Consultant and Town staff hold steering committee meeting to receive feedback on pedestrian network diagnostic report.
- Consultant begins preparation of draft policy recommendations, goals and proposed system maps.

January to March 2011

January 2011 -

- Consultant finalizes the draft policy recommendations, goals and proposed system maps.
- Staff provides comments to consultant on draft policy recommendations goals and proposed system maps.
- Consultant revises draft recommendations based on staff feedback.
- Consultant and Town staff hold steering committee meeting to review draft policies and refine pedestrian network priorities.

February 2011 -

- Consultant incorporates steering committee comments into draft policies and priorities and prepares initial plan draft.
- Town staff provides project updates to the Town Board of Commissioners and Planning Board.

March 2011 -

- Consultant and staff present initial plan draft to the steering committee for review and comment.
- Consultant and staff present initial plan draft in a public forum to receive citizen and stakeholder input.
- Initial draft of the pedestrian plan is forwarded to NCDOT and MUMPO for review

(Plan development activities, continued from previous page)

April to June 2011

April 2011 -
- Consultant revises the first draft of the pedestrian plan based on steering committee, citizen and staff input.
- Town staff provides project updates to the Town Board of Commissioners and Planning Board.

May 2011 -
- Town staff and consultant present second draft of pedestrian plan to the steering committee for final comments.
- Second draft of pedestrian plan forwarded is to NCDOT and MUMPO for comments.

June 2011 -
- Consultant incorporates final steering committee comments and prepares final plan draft.
- Town staff provides project updates to the Town Board of Commissioners and Planning Board.

July to September 2011

July 2011 -
- Town staff and consultant present the final draft of the pedestrian plan at a public meeting.
- Consultant and staff present the final draft of the pedestrian plan to the steering committee for its recommendation.

August 2011 -
- Town staff and consultant present the final draft of the pedestrian plan to Planning Board for its recommendation.
- Consultant meets with Town staff to discuss initial implementation steps.

September 2011 -
- Town staff and consultant present the final draft of the pedestrian plan to the Board of Commissioners at a workshop, and the Town Board of Commissioners sets a public hearing to consider adoption of the pedestrian plan.

October to December 2011

October 2011 -
- The Town Board of Commissioners holds a public hearing and adopts the pedestrian plan.
- The Town Board of Commissioners appoints a pedestrian plan implementation committee and establishes staff support roles to assist with implementation.

November 2011 -
- Consultant and Town staff meet with the plan implementation committee to establish meeting schedules, assign roles, and establish work plan.
- Consultant submits all final project documents and data to the Town.

December 2011 -
- Consultant and staff hold a project closeout meeting to discuss final project details.
- Town staff begins working on plan implementation with oversight by the pedestrian plan implementation committee.

Project Cost Information

Total Project Cost*:	Total NCDOT Planning Funds Requested:	Total Local Match Committed:	Source(s) and Amount(s) of Local Matching Funds (list all applicable):
$25,000	$20,000	$5,000	General Fund Operating Budget - $5,000

*Municipalities awarded a grant will be required to submit a detailed budget including a breakdown of allowable costs. Staff time is not an allowable cost, nor can it be considered as an in-kind contribution for matching funds.

Attachments

Required:	Optional (if information is available on-line, please list link):
☒ Municipal Resolution	☒ Letters of Support 2 attached or were sent
☒ MPO Resolution (if applicable)	☐ Copies of previous plans (summaries and/or web links preferred)
☐ RPO Resolution (if applicable)	☒ Other Maps Safe Routes to School
☒ Resume(s) of overseeing staff and other individuals 4 attached	☒ Other (please identify): 2030 Comprehensive Plan
☒ Map of Municipality	☒ Other (please identify): LARTP
	☒ Other (please identify): Carolina Thread Trail Map

Preparer Information

Please provide information on the primary person who prepared this application and indicate the municipal department, local agency, consulting firm, or other organization with which they are affiliated.

Agency/Consulting Firm/Organization: Waxhaw, NC			
Name of Preparer: Katie Ross	Title: Planner	Work Phone Number: 704-843-2195 Ext. 38	
Work Fax Number: 704-243-3276	E-mail Address: kross@waxhaw.com		
Mailing Address: P.O. Box 617	City: Waxhaw	State: NC	Zip Code: 28173

Submittal Information

For more detailed information on completing the application please see the Step-by-Step Instructions online at www.ncdot.org/transit/bicycle/safety/programs_initiatives/Planning_Grant/application.html.

Please mail **one original and nine copies** of the completed application, including attachments, to the NCDOT Division of Bicycle and Pedestrian Transportation at the address to the right.

Double-sided copies are acceptable.

Applications will be accepted no later than 5:00 pm on December 4, 2009.

Mailing Address:
Helen Chaney
NCDOT Division of Bicycle and Pedestrian Transportation
1552 Mail Service Center
Raleigh, NC 27699-1552

Delivery Address:
Helen Chaney
NCDOT Division of Bicycle and Pedestrian Transportation
Suite 250
401 Oberlin Road
Raleigh, NC 27605

RESOLUTION OF SUPPORT

WHEREAS, The Town of Waxhaw Board of Commissioners, having received a request from the Town of Waxhaw Planning and Community Development Department, has considered the need for grant money to create a pedestrian network plan for the Town of Waxhaw, and

WHEREAS, The Town of Waxhaw Board of Commissioners has, by said Resolution agreed to use the grant money available through the North Carolina Department of Transportation for pedestrian planning purposes, and

WHEREAS, The Town of Waxhaw Board of Commissioners did, at its October 13, 2009 meeting, adopt a Resolution to agree to share the costs incurred in creating a pedestrian network plan if awarded grant money by the North Carolina Department of Transportation, and

NOW, THEREFORE, BE IT RESOLVED that the Town of Waxhaw Board of Commissioners supports the action of the Town of Waxhaw Planning and Community Development Department in its decision to apply for the North Carolina Department of Transportation Bicycle and Pedestrian Planning Grant.

Adopted this the 13th day of October, 2009.

TOWN OF WAXHAW
INCORPORATED
1889
NORTH CAROLINA

Daune Gardner, Mayor

Attest: Bonnie McManus
Bonnie McManus, Town Clerk

EXHIBIT A

RESOLUTION

ENDORSING THE BICYCLE & PEDESTRIAN PLANNING GRANT PROPOSAL OF THE TOWN OF WAXHAW

A motion was made by Brian Sisson and seconded by MPO Member Ted Biggers for the adoption of the resolution, and upon being put to a vote was duly adopted.

WHEREAS, the North Carolina Department of Transportation has issued a call for projects for the Bicycle & Pedestrian Planning Grant Initiative; and

WHEREAS, the rules associated with the Program require MPO endorsement of projects in urban areas; and

WHEREAS, the Town of Waxhaw will use the grant to create a comprehensive pedestrian plan that will enable the Town to plan a prioritized list of areas where sidewalks and greenways need to be constructed, would help properly allocate funds to these projects and would help implement some of the key goals of the recently adopted Local Area Regional Transportation Plan; and

WHEREAS, the Mecklenburg-Union Metropolitan Planning Organization has consistently supported bicycle and pedestrian planning initiatives by its member jurisdictions; and

WHEREAS, the Technical Coordinating Committee reviewed the proposal and recommended that it be endorsed by the MPO.

NOW THEREFORE BE IT RESOLVED by the Mecklenburg-Union Metropolitan Planning Organization that it endorses the Bicycle & Pedestrian Planning Grant proposal of the Town of Waxhaw on this the 18th day of November 2009.

****

I, R. Lee Myers, Chairman of the Mecklenburg-Union Metropolitan Planning Organization, do hereby certify that the above is a true and correct copy of an excerpt from the minutes of a meeting of the Mecklenburg-Union Metropolitan Planning Organization, duly held on November 18, 2009.

R. Lee Myers, Chairman

Robert W. Cook, Secretary

EXHIBIT B

UCPS
UNION COUNTY PUBLIC SCHOOLS
www.ucps.k12.nc.us

Waxhaw Elementary
Cheryl L. Lawrence, Principal
1101 Old Providence Road
Waxhaw, North Carolina 28173
Phone 704.290.1590
Fax 704.843.4259
http://wxes.ucps.k12.nc.us/

November 10, 2009

Helen Chaney
NCDOT Division of Bicycle and Pedestrian Transportation
1552 Mail Service Center
Raleigh, NC 27699-1552

Dear Ms. Chaney,

This letter is in support of the Town of Waxhaw's application for the NC DOT Pedestrian Grant. My school, Waxhaw Elementary, supports the grant as it will directly benefit the students of Waxhaw Elementary.

Currently, sidewalk accessibility and proper places for walking and bicycling are limited in Waxhaw, especially near the school. This grant would allow the Town of Waxhaw to create a pedestrian plan for the area near our school, as well as other parts of the town. By improving the opportunities for pedestrian travel, we would create an infrastructure that would promote walking and bicycling to and from school. This would increase physical activity with our students, a key initiative in our schools today. In addition, there would be fewer students traveling to and from school as car riders which would help our environment and improve traffic concerns.

Waxhaw Elementary supports the NCDOT Bicycle and Pedestrian Planning Grant and we look forward to its implementation to assist the Town of Waxhaw fund the development of a master pedestrian plan.

Sincerely,

Cheryl L. Lawrence

Cheryl L. Lawrence
Principal
Waxhaw Elementary

EXHIBIT H

UCPS
UNION COUNTY PUBLIC SCHOOLS
www.domain.us

Kensington Elementary
Dr. Rachel Clarke
8701 Kensington Dr
Waxhaw, NC 28173
Phone 704.290.1500
Fax 704.243.3821

November 17, 2009

To Whom It May Concern:

The purpose of this letter is to demonstrate Kensington Elementary's support for the Town of Waxhaw pursuing the Pedestrian Planning Grant.

Currently, I am a principal of a school with over 700 students. Because of the lack of safe pedestrian routes and bike paths, my students are forced to either ride the bus or have their parents drive them to school. Most students live less than three miles from the school.

We have a definite interest in pursuing these safe and healthy routes to school. This past fall, we participated for the first time in "International Walk to School Day". Despite the rain, we had a large turnout. Such practices that promote healthy activity and a safe environment are supported by the school and community. In addition, the Town of Waxhaw has been the driving force behind such activities, and has worked to involved stakeholders from all areas of the community with its "Safe Routes" initiative.

I wholeheartedly support this effort. If you have any questions, please do not hesitate to contact me.

Sincerely,

Rachel Clarke, Ed.D.
Principal
Kensington Elementary

EXHIBIT I

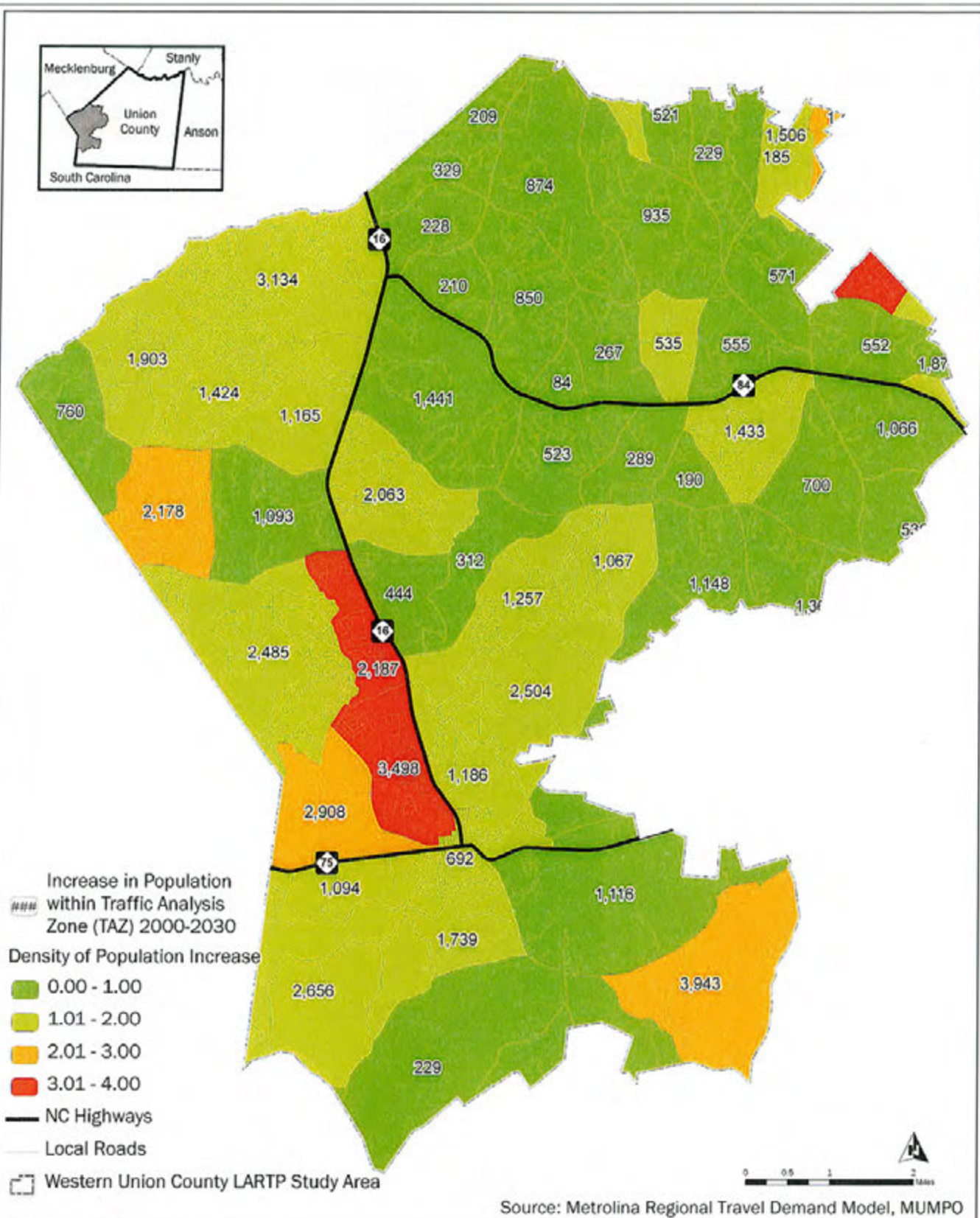


Figure 10: Projected Population Growth

Western Union County Local Area Regional Transportation Plan

MARTIN ALEXIOU BRYSON

EXHIBIT K

Table 11: Implementation Plan - Recommended Intersection Projects

ID	Intersection	Description	Affected Municipality[1]				Potential Funding Source	Comments
High Priority Projects			Mar	Wax	Wed	WCh		
X2	Weddington-Matthews Road @ Hemby Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted); consider installing roundabout			•		Multiple sources (NCDOT Division funds; bonds; developer contributions; CMAQ; Enhancement Grants)	
X4	Weddington Road @ Weddington Matthews Road & @ Providence Road; Providence Road @ Weddington School Road	Improve intersections & coordinate operations; manage access & permitted movements; re-align/consolidate if feasible			•			Component of potential Town Center
X6	Beulah Church Road and Antioch Church Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)			•	•		
X8	NC 84 / Weddington Road @Twelve Mile Creek Road	Improve intersection; coordinate with Baron Hills and Skytop Road intersections			•			
X10	NC 84 / Weddington Road @ Waxhaw-Indian Trail Road, & @ Antioch Church Road; Waxhaw-Indian Trail Road @ Billy Howey Road	Improve intersections & coordinate operations; manage access				•		
X12	New Town Road @ Marvin School Road; Waxhaw-Marvin Rd @ New Town Rd	Improve intersections & coordinate operations; manage access & permitted movements; re-align/consolidate adjacent intersections if feasible; consider installing roundabout or pair of roundabouts	•					Component of potential Town Center; potential gateway
X14	New Town Road from Cuthbertson Road to Will Plyler Road; Cuthberson Road @ Farm Creek Road	Improve intersections & coordinate operations; manage access & permitted movements; re-align/consolidate where feasible				•		School site
X15	New Town Road and Waxhaw Indian Trail Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)				•		
X18	Waxhaw-Marvin Road @ Bonds Grove Church Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)	•	•				
X21	NC 75 @ Old Providence Road, & @ McCain Street	Improve intersections & coordinate operations; manage access & permitted movements; re-align/consolidate where feasible		•				Downtown Waxhaw; high pedestrian activity
X26	Weddington-Matthews Road @ Tilley Morris Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)			•			
Medium Priority Projects			Mar	Wax	Wed	WCh		
X7	Waxhaw-Indian Trail Road @ Beulah Church Road, & @ Potters Road; Beulah Church Road @ Potters Road	Improve intersections & coordinate operations; manage access & permitted movements			•	•	Multiple sources (NCDOT Division funds; bonds; developer contributions; CMAQ; Enhancement Grants)	
X9	NC 84 / Weddington Road @ Deal Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)			•	•		School site
X11	Wesley Chapel Road @ NC 84 / Weddington Road, & @ Potters Road; Potters Road @ Chambwood Road	Improve intersections & coordinate operations; manage access; consider connecting Antioch Church & Billy Howey Roads				•		
X16	New Town Road @ Billy Howey Road, & @ Chambwood Road	Improve intersections & coordinate operations; manage access				•		
X17	New Town Road @ South Potter Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)				•		
X19	Kensington Drive @ Waxhaw-Marvin Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)		•				School site
X20	Rea Rd @ Tom Short Rd	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)	•					
X22	New Town Road @ Marvin Road, & @ Meadowlark Lane	Consider installing roundabout	•					Component of potential Town Center; potential gateway
X24	New Town Road @ Twelve Mile Creek Rd	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)			•	•		
Low Priority Projects			Mar	Wax	Wed	WCh		
X1	Antioch Church Road @ Forest Lawn Drive	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted); consider installing roundabout			•		Multiple sources (NCDOT Division funds; bonds; developer contributions; CMAQ; Enhancement Grants)	
X3	Potter Road and Forest Lawn Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)			•			School site
X5	Beulah Church Road @ 12 Mile Creek Road, & @ Huntington Road	Improve intersections & coordinate operations; realign/combine into single intersection			•			School site
X13	New Town Road and Crane Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)	•					School site
X23	Waxhaw Marvin Road @ Crane Road	Improve intersections; sight distance and safety improvements	•					
X25	Weddington-Matthews Road @ Cox Road	Improve intersection (turn lanes, signalization/timing, channelization, etc – as warranted)			•			

Notes:

1. Mar = Marvin; Wax = Waxhaw; Wed = Weddington; WCh = Wesley Chapel
2. Projects are not ranked within priority levels.

EXHIBIT K

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

Steering Committee Kick-Off Meeting

Museum of the Waxhaws
February 15, 2011, 6:00-8:00 p.m.

Minutes

Attendees:

Marion Morton	Police Department (substituting)
Todd Matthews	Public Services
Joyce Blythe	Town Commission
Warren Sileo	Lowe's
LeRae Davis	Town staff
Blair Israel	Centralina COG

1. **Review of Pedestrian Plan purpose and content**
   (See attachment)

2. **Review of project scope & schedule**
   (See attachment)

3. **Review of existing conditions map**
   a. Map issues
      - Show the developed area of Town larger on map.
      - Add sewer line from Downtown southward to creek.
   b. Additional destination points:
      - H.C. Nesbit Park
      - Civil War cemetery near Cuthbertson
      - School complex along Cuthbertson
      - "Dave Steel" area on McKibbin at King
      - Walking trail circuit on Arbor near creek
   c. Gaps, barriers, problem areas? See Item 5 notes below.
   d. Opportunity areas?
      - Opportunities for trail facilities in flood plains from Nesbit Park area to Waxhaw-Indian Trail Road

   (See attached revised map)

4. **Vision elements:** What does Waxhaw want to be?
   These elements will be incorporated into an overall vision statement that will direct the formulation of the plan. Potential pedestrian-related objectives are listed.
   a. Connected for walking from one end to the other:
      - Eliminate gaps in pedestrian facilities
      - Explore possibilities for additional trail connections between neighborhoods.
   b. Safe:
      - Eliminate the need to frequently cross the street to find a sidewalk
      - Provide adequate street lighting, especially at crossing points
   c. Compact:
      - Reduce “donut holes” and “islands” to form contiguous town limits
   d. Active downtown:
      - Encourage elements downtown that attract locals to be a part of the community and invite visitors from throughout the region.
      - Redirect undesirable forms of downtown traffic, while still welcoming visitors by car, bike or on foot.
   e. Historic:
      - Emphasize Waxhaw’s historic features and locations.
   f. Uncongested:
      - Alleviate congested traffic downtown and on main arteries (particularly Providence Road and Waxhaw-Marvin Road) through increased street connectivity. Explore possibilities for additional street connections between neighborhoods, as well as a truck bypass route.

5. **Gaps in current and currently planned pedestrian facilities**
   - Museum to Waxhaw Highway (Hwy 75)
   - Kensington to Waxhaw-Marvin Road on Kensington Drive (through County land)
   - Eutaw to Kensington on Waxhaw-Marvin Road
   - Waxhaw-Marvin Road to Providence Road (Hwy 16) on Pine Oak Road
   - Prescott Glen Parkway to Pine Oak Road
   - Across 12-mile Creek and 4-mile Creek
   - Kensington School to Cureton Town Center on Kensington Road
   - Places currently identified as “blocked escape routes”

6. **Specific Pedestrian Issues/Needs**
    - Traffic lights with pedestrian crossing signals at Post Office and intersections further north on Hwy 16.
    - Street lights along state roads, particularly 1008, 1111, and 16.
    - Lighting issues crossing the RR tracks along Hicks and Providence and along Broome between North Main and McDonald.
    - Safety concerns at the intersection of Broome and North Main. Issues include visibility, accessibility, and clarity for drivers and pedestrians.
    - Safety concerns at East South Main Street (Hwy 75) bend at the Mill include: poor visibility, excessive speeds, proximity to the pedestrian bridge crosswalk.
    - Congestion and volume along Hwy 16.
    - More sidewalks are needed in the Cureton Town Center area.

7. **Input from additional stakeholders**
    a. All other steering committee members will be contacted for their input at this initial stage and throughout the process.
    b. Who else should we talk to?
        - Steven Pace – developer of Lawson, knowledgeable of local Civil War history, local cemetery, other local history. Contact Greg Mahar for phone number.
        - Melvin Faris – historic walk. Joyce Blythe to supply phone number.
        - Fire Department

8. **Public Input**
    The first Open House (Task 7 in the Project Scope) will take place as part of the downtown event on the first Friday of April.

Adjourn

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

Steering Committee Kick-Off Meeting

Museum of the Waxhaws
March 15, 2011, 6:30-8:30 p.m.

Minutes

Attendees:

Todd Matthews	Public Services
Joyce Blythe	Town Commission
Sgt. Mike Lovingood	Waxhaw Police Dept.
Jennifer Cooke	CMC
Bonnie McManus	Town Clerk
Ann Marie Barbrey	Resident
Robert Steere	Resident
Lisa Thornton	Resident
Michael McLaurin	Town Manager
Lori Oakley	Town Planning & Zoning Administrator
LeRae Davis	Town Planner
John Vine-Hodge	NCDOT
Blair Israel	Centralina COG

1. **Review of Pedestrian Plan purpose and content**
   See "What is a Pedestrian Plan" attachment.

2. **Review of project scope & schedule**
   See scope and spreadsheet schedule attachments.

3. **Review of existing conditions map**
   a. Overall map issues:
      - Show preliminary Carolina Thread Trail alignment.
      - Reveal proposed Safe Routes to School sidewalk at Kensington Elementary.
      - Show existing sidewalk from Hermitage Place to Waxhaw Elementary, and additional existing trail connection?

   b. Additional destination points:
      - Overhead Bridge
      - Veterans Memorial
      - Fitness Course at Providence School
      - American Legion building

(See attached revised map)

4. Gaps, barriers, and problem areas

- Various segments of Hwy 16/Providence Road lack sidewalks, particularly from Cureton Town Center south to Waxhaw Road (Post Office). Sidewalks are needed on both sides of this road.
- Crossing at the intersection of Providence Road and Waxhaw Road is dangerous.
- Waxhaw Road needs sidewalks and speed controls.
- Pedestrian connection to Lawson Neighborhood is needed.
- Sidewalk needed on McCain Street from South Main to South Providence Street.

5. Opportunity Areas deserving focused improvements:

- Potential for trail connection between Kingston on Providence, Stone Creek, and Old Hickory neighborhoods.
- Potential for trail connection between Downtown and Harrison Park neighborhood via sanitary sewer easement, but this involves a property owner in Union County who might not be likely to permit it.
- The Cureton Town Center area has great potential, with shopping, services, and planned evening entertainment. It features plenty of parking, and it is close to many residences. Care should be given that it encourage rather than drain life from the downtown.
- Connection opportunities between Downtown and Museum area, perhaps with a trail running parallel and south of the railroad.
- Area south of Downtown and north of Jackson Ridge has sewer easement and creek connections that could help tie Downtown park to South Providence School
- Nesbit Park
- David Barnes Park
- The Museum area currently features trails over its 17 acres.
- Downtown –
    1. Aspects:
        a. charm,
        b. historic
        c. "what the South is all about"
        d. pedestrian friendly
    2. Features:
        a. Dining
        b. Shopping
        c. Skate Park
        d. Overhead Bridge

3. Events:
    a. Movies in summer
    b. Lively on Fridays with Fiesta Band at Maxwells,
    c. Craft shows
    d. 1st Friday, Spring Festival and Autumn Treasures
    e. 12 days of Christmas, July 4th
    f. Two 5K events
    g. Gingersnap-girls on the run (Dec)
    h. Veteran and Memorial Days
    i. Living and Listening Day
4. Negatives:
    a. Not enough parking
    b. Need bandstand activity
    c. Needs more activities in general
    d. Needs infill development to fill in gaps

6. General Values and Vision Elements

- Waxhaw is "Proud of our Past, Passionate at our Future"
- "You are amongst friends"
- Historic
- Healthy lifestyles
- Family friendly
- Accessible
- Safe
- Good law enforcement, with a reputation of intolerance towards crime – "Safe because we are proactive."
- Active downtown
- Open to all but unique to us
- "Uniquely diverse" with many transplants from the North. Waxhaw almost has "boroughs".

7. Unique Features

- Museum of the Waxhaws
- Overhead Bridge
- Civil War Cemetery

8. General Pedestrian Issues

- Additional linkages: weighing the advantages of more pedestrian connections against any disadvantages such as the potential for "crime routes"
- Greenway safety:
    1. Lighting
    2. Security/police presence

3. Night use closed
4. Encourage lots of foot traffic on trails
5. Good visability

- Insufficient crosswalks
- Street lighting in some areas
- Need signage to encourage pedestrian activity, such as designated trails with mileage markers
- Saturday morning bicycle crowds
- Negative attitudes toward walking and pedestrians
    1. Walking is a learned behavior, an attitude
    2. Competing with big city
    3. We need greater pedestrian awareness
    4. Waxhaw should be a walking community, both day and night.

9. Potential Programs

- Pedometer give-away promotional
- Signage with mile markers
- Historic trail and historic walk
- Health walk
- "Couch Potatoes" group (Bonnie M. is contact)

10. Additional Stakeholders

- Lisa Giovanelli of Historic Ventures – (Lisa T. is contact)
- Trip Drawdy of Snap Fitness – Greg M. is contact)
- Melvin Farris (historic resources)
- Jeff Blythe – (Joyce B. is contact)

11. First Open House Promotion

Event Schedule for First Friday in April at Five Stones Church from 6-8 pm.

- Leaflets should be created and distributed
- PTA announcement
- Automated phone calls (need school principal approval)

Adjourn

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

Steering Committee Kick-Off Meeting

Museum of the Waxhaws
May 3, 2011, 6:30-8:00 p.m.

Minutes

Attendees:

Marion P. Morton	Public Services
Art O'Donnell	Resident
Chris Anderson	Waxhaw Police Dept.
Warren Sileo	Resident
Robert Steere	Resident
Greg Mahar	Director of Planning and Community Development
Katie Ross	Town Planner
Lori Oakley	Town Planning & Zoning Administrator
LeRae Davis	Town Planner
Blair Israel	Centralina COG

1. **Review of Open House meeting results**
   a. **Destination Map** – the Committee noted which neighborhoods were represented by visitors to the Open House, the locations they normally walk to, and the locations they would like to walk to if conditions were improved. From this information, Committee concluded the following:
      - People want to walk to Cureton Town Center but don't feel they can.
      - The south side of Town was underrepresented, as were some other neighborhoods noted.
      - The Museum, the Library, Nesbit Park, and Kensington and Cuthbertson Schools are also desired locations for pedestrian improvements.
      - Committee members suggested the old gold mine of Cuthbertson Road across from Lawson as a potentially significant destination.

   b. **Crosswalk, Signal & Signage Map** – the committee reviewed locations for improvements of these types indicated by the public on the map.

- The Committee emphasized the need for improvement of crosswalk conditions in the Howard's Mill/Cureton Town Center area. Road misalignment and visibility are particularly problematic.
- Three adjacent crosswalks suggested by the public between Kingston and Alma across NC 16 were viewed as less needed if sidewalk were to be installed for this segment of NC 16 on its west side.
- The crosswalk suggested at Rehobeth was deemed a good idea.
- Crossing facilities at Waxhaw Road and NC 16 should be rethought.
- The new crossing facilities at South Main and NC 16 have been generally well received by the public and the committee, except that there is no crosswalk on the west side of that busy intersection. But crossing North Main at NC 16 is recognized as problematic, primarily due to visibility. Staff noted that NCDOT deemed a previous crosswalk proposal for the north side of that intersection as not meeting ADA requirements.
- The committee decided favorably on the public comment for a stronger pedestrian connection is needed between downtown and the mill area to the east. An additional crosswalk at McKibben Street across East South Main would provide a visible location past the curve that could also help decrease traffic speeds for vehicles approaching downtown.

c. **Sidewalk Map** – the committee reviewed locations for new sidewalks indicated by the public on the sidewalk map.
   - Staff said a new sidewalk now exists along the west side of NC 16 between Providence Farms and Alma that is not shown in the existing conditions files they previously provided Centralina. Staff agreed to provide Centralina any plans or diagrams that will give Centralina an up-to-date record of existing (or soon to be existing) conditions.
   - The Committee agreed with the public desire for sidewalks along Kensington Road from Sunset Hill to Waxhaw-Marvin Road, but noted that this segment of road is held privately.
   - The public comment map included a desired sidewalk segment from its current western terminus at Magnolia Ridge to Rockwood Drive. The committee judged this mile-long segment to rank very low in project priorities.
   - The continuation of the sidewalk along Howie Mine Road to Deer Creek Road was deemed to be a worthwhile project due to the amount of walkers and runners seen on this segment of road and its unsafe current conditions.

- The committee urged that sidewalks on Waxhaw Road be completed.
- The committee had mixed reaction to the desired sidewalk shown along Cuthbertson Road from the Cureton Town Center on NC 16 to the Cuthbertson School complex. This nearly 2-mile stretch would connect significant destinations, including the Lawson neighborhood. Most of this area is undeveloped and unincorporated. However, as development occurs along Cuthbertson Road, the area will likely be incorporated, and the development will facilitate the construction of this segment through private funds, if the segment is included in a Town adopted plan.
- Additional segments were indicated along Waxhaw Marvin Road connecting the Prescott and Quellin neighborhoods to Kensington. Committee members deemed these to be worthwhile projects.
- Desired sidewalk shown along Providence Farms, Blythe, and Cricket Cove Roads was considered low priority by the committee.
- Additional segments were shown that are already planned Safe Routes to School projects.

d. **Trail Map** - the committee reviewed locations for new trails indicated by the public on the trails map.
   - The committee voiced a strong priority for connecting the downtown to the Museum area that could serve as a continuation of the Town's designated "Historic Trail".
   - Much of the Twelve-Mile Creek Trail was shown as "proposed" on the map. This trail was favored by the public and the committee, stretching from Nesbit Park to the northeastern-most incorporated area of Waxhaw, just south of Lowergate Drive in Weddington.
   - Trail routes were considered appropriate for segments adjacent to existing roads where sidewalk construction would prove unfeasible. This may include, for example, portions of NC 16 and Cuthbertson Road.
   - The public and committee recognized the opportunity for trail connection in the south part of town utilizing the sanitary sewer easement from Givens Street to creek north of Wall Street. The committee further voiced approval for connecting that trail to South Providence School and the adjacent fitness trail.
   - Committee members familiar with the creek corridor running west of The Oaks on Providence, Kingston on Providence, and Old Hickory neighborhoods, and east of Harrison Park and

Stone Crest neighborhoods, suggested that the corridor is too narrow for a trail, even though that trail would serve as a connection to the downtown.

2. **Review of Vision & Goals statements**
   The Committee suggested an additional goal of the Plan include an equitable level of service throughout the community. The Committee also approved Katie's idea of adding "a great place to work" in the Vision statement.

3. **Public Outreach, Interviews & Second Open House**
   The committee was encouraged to "get the word out" about the pedestrian plan, promoting the Waxhaw Walks facebook site, the public survey, and the second Open House scheduled for July. Staff and committee were also encouraged to suggest additional persons for interviews and provide contact information.

   Ideas were discussed for reaching neighborhoods that were not represented at the first Open House and may not have had opportunity to weigh in. Emphasis was placed on promoting the second Open House meeting. A strategy will be finalized by the staff with assistance from Centralina.

Adjourn

WAXHAW
COMPREHENSIVE PEDESTRIAN PLAN

Steering Committee Meeting

Museum of the Waxhaws
August 29, 2011, 6:30-8:00 p.m.

Minutes

Attendees:

Art O'Donnell	Resident
Robert Steere	Resident
Mike McLaurin	Town Manager
Lori Oakley	Town Planning & Zoning Administrator
Katie Ross	Town Planner
Josh Grant	Town Planning Tech/Code Enforcement Officer
Blair Israel	Centralina COG

1. **Review of Open House II meeting results**
   a. **Project Preference Results** – the Committee reviewed the four quadrant maps showing project preferences indicated by the public using red and green sticker dots. Green dots indicted preferred projects, while red dots indicted projects not favored. The locations of all the voting dots have been recorded and will be used to tabulate final project preferences. The Committee noted particularly areas with high concentrations of dots, whether red, green or both. These included:
      - Twelve Mile Creek crossing with sidewalk along NC 16 in the Prescott Village area - GREEN
      - Sidewalk lining Waxhaw-Marvin Road - GREEN
      - Greenway along the south side of Waxhaw Elementary continuing into a north-south greenway along the eastern edge of Town - GREEN
      - Greenways in the Howie Mine-Southwood area – GREEN
      - Intersection improvements at Waxhaw Parkway and NC 16 – GREEN
      - Sidewalks along Kensington Road near the elementary school - GREEN
      - Greenway connection from Downtown to Kingston on Providence neighborhood using the creek and sewer easement west of Oaks on Providence and east of Harrison Park – RED & GREEN

   b. **Public Comments** – The Committee reviewed all comments from the public meeting.

2. **Interview Results**
   A total of nine interviews have been conducted, with individuals representing long-time residents and land owners, developers, local government, relatively new residents, Waxhaw history interests, and bicycle and equestrian interests. The Committee reviewed all comments from the interviews.

3. **Focus Area Strategies**
   The Committee reviewed and discussed detailed strategies for the following seven "focus areas" defined in the Plan. In addition to discussion points throughout the meeting
   1. **Museum** – Provide sidewalk along south side of NC 75.
   2. **South Providence** – Crosswalk over NC 75 at McKibben Road to Mill would be useful for new development at the Mill and for slowing traffic approaching Downtown.
   3. **Downtown** – Suggested crosswalk realignment was well received.
   4. **Old Hickory** – A new traffic light is proposed for the intersection of Alma Road and NC 16, but additional crossing facilities (with warning lights) are needed on NC 16 north of the Waxhaw Parkway intersection near the new sidewalk extension west of Providence Farms Road (shown as Project #37 on these draft maps).
   5. **Kensington** – no additional comments
   6. **Cureton** – Intersection at NC 16 is need of improvements.
   7. **Cuthbertson** – no additional comments

4. **Project Prioritization**
   A similar project prioritization exercise was conducted with the Committee. Each member was given twelve dots with which to indicate high priority or highly favored projects, and six dots to mark unfavorable projects. The locations of all Committee voting dots from this meeting will be used to tabulate final project preferences. Results yielded concentrations of dots in the following areas:
   - NC 16 from Waxhaw Parkway to Coventry Commons, particularly at Twelve Mile Creek - GREEN
   - Sidewalks along Kensington Road near the elementary school - GREEN
   - Trail connections from Pine Oak and Prescott Glen to proposed greenway along the creek between these neighborhoods - GREEN
   - Crossing facilities and sidewalks along NC 16 and Waxhaw Parkway in the Old Hickory Shopping Center area – GREEN
   - Connections from Stone Crest neighborhood to Waxhaw-Marvin Road via sidewalk and Kingston on Providence by trail - GREEN
   - Sidewalks along NC 75 from Old Providence Road to Hermitage Place – GREEN
   - Crossing improvements at the Overhead Bridge across NC 75

- Additional sidewalks Downtown south along Anne Street and north along Broad Street GREEN
- Greenway segment from Waxhaw Parkway to Kingston using the creek and sewer easement west of Oaks on Providence – RED & GREEN
- North-south greenway segment from Downtown (Peyton Court) to Harrison Park using the creek and sewer easement – RED & GREEN
- East-west greenway segment from Church Street to Harrison Park using the creek and sewer easement – RED

5. Conclusions

General discussion throughout the meeting generated the following conclusions concerning development of the Plan:

- Some proposed greenway segments received both red and green votes at the public meeting, particularly along the route utilizing the floodway and sewer easement that connects Downtown to neighborhoods and other primary destinations to the north. The Committee expressed mixed views on these segments, recognizing their value to the community as a whole, but anticipating that some residents currently do not favor the idea of a public easement for travel adjacent to (or within) their property.
- Proposed sidewalks should be indicated along both sides of Waxhaw-Marvin Road.
- Additional existing sidewalk should be indicated on the project maps at Gray Byrum and NC 16. Additional existing trails should also be indicated (see public input maps).
- Additional sidewalks should be proposed for the Hillcrest neighborhood along Lynn and Anne Streets.
- Pedestrian-related recommendations are needed for the proposed bypass.
- Proposed locations should be determined for parking lots to serve users of proposed greenways, particularly equestrian users. This need has been documented in areas with greenway networks, like Charlotte.
- Wayfinding signage would complement the pedestrian network.
- The Plan should include a statement indicating flexibility for the Town to determine at the time of development whether a pedestrian facility indicated on the Plan should ultimately be built as a trail or a sidewalk.
- Roundabouts should be a consideration for proposed street intersections, including intersections with the proposed bypass.
- Additional proposed sidewalk locations should be considered for the following street segments:
    - South side of Gray Byrum from existing sidewalk near NC 16 to Waxhaw-Marvin Road
    - North Side of Gray Byrum from creek to Waxhaw-Marvin Road

- East side of Waxhaw-Marvin Road from Carindale to Gray Byrum
- North side of Pine Oak Road from NC 16 to existing trail connection to Prescott Glen Parkway.
- West side of Pine Oak Road from Waxhaw-Marvin Road to Stonecrest (Price Chapel Cemetery)

Adjourn

SEQL | *SUSTAINABLE ENVIRONMENT for QUALITY of LIFE*

CARPOOL/VANPOOL

What is it?

Vanpooling/carpooling is an arrangement by a group of commuters to ride together from home or a prearranged meeting place in a van or a car to their destinations in a single round trip, with the driver as a fellow commuter. Vanpools/carpools usually consist of individuals who live near each other and are employees of the same company, or are employees of different companies located only a short distance apart, and have the same work hours. The great advantage of vanpools and carpools is that it reduces vehicle trips, reduces vehicle miles traveled, and therefore reduces auto emissions that result in poor air quality.

Costs

Usually vanpoolers/carpoolers will share the costs of gasoline, maintenance, and/or leasing the vehicles. By offering commuter benefits, including carpooling and vanpooling, a company with 1,000 employees can lower its annual parking expenses by more than $70,000 and save participating employees $13,000 each year in taxes and $160,000 each year in gasoline, parking, and vehicle costs.

This Action Item can be implemented as a

- ☐ POLICY
- ☐ ORDINANCE
- ☑ PROGRAM

Shared Impact and Benefits

- Car- and van-pooling reduces overall auto emissions by reducing vehicle miles traveled, and by doing so, improve air quality. Ground-level ozone formation is reduced through the reduced levels of oxides of nitrogen from auto exhaust.
- The American Lung Association reports that low levels of ground-level ozone adversely affect nearly one-third of our population. So improvements in air quality result in improvements in public health.
- Peak hour traffic congestion (and resulting gasoline consumption) are reduced. Nine billion gallons of fuel are wasted in traffic congestion each year—800 times the amount of oil spilled by the Exxon Valdez.
- Employers will be able to offer employees a value-added benefit and take a tax-write-off. Eight of 10 U.S. workers believe commuter benefits are valuable to employees. Furthermore, employers that pay for employee parking costs can save money.
- Vanpool/carpool participants save money by sharing commuting costs.
- Vanpool/carpool riders have lower stress commutes to work. Employers will also have more productive employees with higher morale.

How long does this take to implement?

A vanpooling/carpooling program can be implemented within a few months. Once the program is established, individual pools can be set up in less than a few weeks.

The Bottom Line

Carpooling and vanpooling commuters get to work in ways that reduce air pollution and traffic congestion, save employers and employees money, reduce the environmental impacts associated with driving single-passenger vehicles, reduce parking space demand and expenses, and relieve commuter stress.

Interested? Read on!

Who needs to be involved in implementation?

- Governing board and/or management (to endorse a vanpool/carpool policy and support a program that provides incentives for employees who participate in a vanpool or carpool)
- Businesses and their human resource or fiscal office staff
- Transit providers and/or private vanpool leasing companies
- Private parking deck and lot owners
- Employees willing to start up their own vanpool or carpool

Action Steps

The following is geared towards starting a vanpool, however, these same principles can be used as a helpful guide to carpooling:

1. Set a start date and time line for when you expect to have the vanpool on the road. Allow about three weeks to complete the preparation steps.
2. Determine the basic route and times.
3. Estimate fares. If you are planning to lease a van, compare rates and shop around.
4. Advertise the route and sign-on riders. Be sure to describe the general route.
5. Draft a rider agreement containing ground rules to be signed by your riders. Rules should address topics such as: How long will you wait for tardy riders? Is smoking allowed? See "carpool rules" in the **Basic Information** section for further examples.
6. Set policies for fare and payment, such as when fares are due and paying for days not present.
7. Meet with potential riders to review the vanpool arrangement and answer questions. Collect information of potential riders and any signed rider agreements.
8. Fulfill requirements for driving a vanpool listed in **Resources** section below.
9. Confirm route, start date and riders, and collect payments.
10. Get in the van and go! Start a little early the first few days until you get the schedule down.
11. Celebrate your Employees' Participation – During National Try Transit Week (annually held the first full week after Labor Day), partner with your local transit authority to acknowledge your Best Workplaces for Commuters employees.

For a complete, detailed, easy-to-read guide through the process, check out the handy online booklet: *Ten Steps for Starting a Vanpool* at: http://www.socalcommute.org/P2-9+Bcvr.pdf

Who's doing this?

- The Charlotte Area Transit System (CATS) has a vanpool program available to commuters throughout the region in both North and South Carolina. CATS also oversees a ride sharing database that can assist you in the development of a carpool. For more information see: http://www.charmeck.org/Departments/CATS/Home.htm
- Mecklenburg County has recently become a "Best Workplaces for Commuters" employer.
- Triangle Transit Authority (TTA): http://www.ridetta.org/vanpool.html & http://www.niehs.nih.gov/eaac/home.htm#carpool
- Southern California Rideshare, the nation's first and largest commute assistance agency: http://www.socalcommute.org
- To find a carpool operating in your area, try the search tool at: http://www.carpoolconnect.com/

Resources

Different categories of commuter ride-sharing groups qualify for vehicle tax exemptions if they meet certain legal requirements. Employers have four options:

1. Benefits in addition to salary— Employers may provide up to $100 per month to employees who commute to work by transit or vanpools. The employer pays for the benefit and receives the equivalent deduction from business income taxes. Employees receive the benefit completely free of all payroll and income taxes, in addition to their current salary.
2. Benefits Instead of Salary— Employers may permit their employees to set aside up to $100 per month of their pretax income to pay for transit or vanpools.
3. Combination— Employers may share the cost of commuting with their employees. Employers can give their employees part of the share in addition to salary and allow their employees to set aside part of their pre-tax income to pay the remaining amount.
4. Parking Cash Out— Employers may offer employees the option of cashing out the value of employer provided parking. Employees forego the parking and either receive the taxable cash value of the parking space, or a tax-free transit or vanpool benefit of up to $100 per month.

- For a more complete explanation of tax exemptions, refer to the **Tax-free Commuting Benefits** SEQL document.

- For more information about costs and benefits associated with vanpooling, see the Do-It-Yourself Vanpool Guide at: http://www.wsdot.wa.gov/mobility/tdm/DoVanpool/diyvg.html

Basic Information

- Vanpools can be operated or sponsored by an employer, be contracted through an outside leasing company that independently charges a monthly fare for a group of co-workers, or can be operated and administered through a public transit provider.
- Vanpools typically require 9-14 participants and sometimes require two to three dedicated drivers.
- If available, use an existing vanpool coordinator that can match up people with similar origins and destinations.
- Similarly, utilize any existing centralized commuter registration programs that may exist in your region. These help you more easily identify potential carpool buddies.

Guaranteed rides home are important. By offering a guaranteed ride home, employers remove a major barrier to alternative commute methods—employee fears of being "stranded" at work due to unforeseen circumstances. This type of program provides employees who commute via transit, carpool, or vanpool with transportation home in the event of a personal emergency or unscheduled overtime. Although some employers run their own programs, others participate in programs administered by rideshare organizations, transportation management associations, and transit agencies.

Benefits to Employees:
- Allows flexibility for occasional users of transit and vanpools
- Reduces personal income taxes

Benefits to Employer:
- Enhances your benefits package at little to no cost
- Requires minimal paperwork
- Reduces payroll and business income taxes

Just So You Know...
- Benefits in addition to salary are treated as a regular business expense similar to medical insurance premiums.
- Transportation benefits are excluded from cafeteria plans. IRC Section 125 covers cafeteria plans and flexible spending accounts. Section 132(f) covers transportation benefits.
- Section 132(f) benefits are exempt from anti-discriminatory requirements. The employer decides who receives the benefits.
- There is no "use it or lose it" rule. Any amount not used by the employee at the end of the year is returned to the employee the following year

Basic Information

- Compare statistics of the different modes of shared commuter transport options:

MODE	VANPOOL	MOTORBUS	HEAVY RAIL	LIGHT RAIL	COMMUTER RAIL
AVERAGE DISTANCE (MILES)	33	4	5	4	23
AVERAGE SPEED (MPH)	36	13	21	14	34
FATALITIES PER 100 MILLION MILES	0.0	2.4	3.2	1.2	25.4
PASSENGERS SERVED (MILLIONS)	8	4554	2430	259	311
VEHICLES MILES (MILLIONS	33	1719	558	41	2165

Source: National Transportation Statistics, 1999 (Bureau of Transportation Statistics, 2000)

- When planning for carpooling, set "carpool rules" (from *Southern California Rideshare*). The more you discuss in advance, the fewer problems you'll encounter once you're carpooling. Some of the ground you should cover:
  - Who drives, and when.
  - How often will you carpool. Every day? Once a week?
  - Arrangements for pick-ups and drop-offs. For example, will you meet at a Park & Ride lot, a childcare center, or at one person's home?
  - What you should do on days when you can't carpool - especially if it's your turn to drive.
  - What you should do if you have to work late or must go home during the day because of an emergency. (Many companies now offer free taxi or rental car rides home to carpoolers under some circumstances – the "guaranteed ride".)
  - How long the carpool will wait if someone is late.
  - What sort of music will be allowed, if any.
  - Whether smoking is allowed.
  - Types of stops you are willing to make on the way, if any.
  - Duties of the driver, such as filling up the gas tank before

For a complete, detailed, easy-to-read guide through the process, check out the handy online booklet: *Ten Steps for Starting a Vanpool* at: http://www.socalcommute.org/P2-9+Bcvr.pdf Or call the vanpool helpline, (213)630-1551.

- You may also want to set up a probation period. That way, if you're not comfortable with the arrangement, you can easily bow out and find another carpool.

FAQ's

Q: Why promote commuter benefits?

A: Commuting to and from work is a primary cause of increased traffic congestion and air quality problems in many areas across the United States. Reducing the number of cars commuting during rush hour can reduce traffic and improve air quality. In fact, if half of all employees worked for "Best Workplace for Commuters" employers, 15 million cars would be removed from the road daily.

Q: Are there any government incentives offered to businesses for starting a carpool or vanpool program?

A: Yes. Through the Best Workplaces for Commuters program, the EPA and DOT provide a number of benefits, including:

1. Public recognition and employee recruiting—EPA and the US Department of Transportation (DOT) provide credible, third-party public recognition to employers meeting the National Standard of Excellence, helping these employers gain recognition as commuter friendly and environmentally responsible.
2. Commuter Benefits Seminar—the American Management Association, in cooperation with the EPA, DOT, and the Association for Commuter Transportation, developed a one-day seminar designed to help employee benefit managers create, implement, and integrate a commuter benefits program into their organization.
3. Technical briefs and assistance—EPA and DOT are developing commuter benefit briefs that answer commuter benefit implementation and management questions. DOT offers expertise in transportation choices and advanced transportation information systems and services using its network of relationships with state transportation offices and transit companies.
4. Comparative benchmarking—as employers report their results, EPA will compile this information and give it back to those companies in very useful ways. EPA will provide information that allows an employer to see how they are doing compared to others in their region or industry or the program as a whole.

Q: What are the requirements to become a Best Workplaces for Commuters® Employer?

A: To qualify as a Best Workplaces for Commuters employer, a company must offer one primary benefit such as tax-free transit or vanpool passes, telecommuting, or parking cash-out (enabling workers to trade free parking for its cash equivalent). Most organizations must also offer three secondary benefits, choosing from options such as shuttles to and from transit stations (provided directly by the employer or contracted through a service), ridesharing or carpool matching, preferred or reduced-cost parking for carpools and vanpools, and compressed work schedules. Finally, Best Workplaces for Commuters employers must offer a guaranteed ride home, which provides participants with a ride at no charge if they need emergency transport home due to special circumstances.

Q: Why work for a Best Workplaces for Commuters Employer?

A: Best Workplaces for Commuters employers are among a select group that provides their employees with an excellent package of commuter benefits. The package of benefits they agree to provide represents the National Standard of Excellence for commuter benefits. The benefits can include a wide variety of commuting choices, choices that make commuting less stressful and less costly for employees. For example, many employers offer benefits packages that are the equivalent of receiving more than $1,000 in additional salary at significantly less than that in actual cost to the employee. Best Workplaces for Commuters employers demonstrate that they care about the welfare of their employees, not only on the job, but getting to and from it as well.

Intersecting Interests

AIR AWARENESS

Considering the negative effects of auto combustion, incentives to provide carpools and vanpools should be strongly considered to promote cleaner air.

CLEAN AIR POLICY

An effective clean air policy should address prime sources of air pollution and identify positive, feasible actions for improving air quality. Carpools and vanpools are perfect examples to include.

ENHANCED OZONE AWARENESS

Carpooling and vanpooling reduces the number of cars on the road during peak commuter times, which helps keep ozone concentrations from rising to dangerous levels.

TRANSIT CONNECTIVITY

Carpools and vanpools give commuters more choice, and can be incorporated as part of the commute path with other modes of transport such as buses, biking, or walking.

EFFICIENT PARKING

Space needed to meet parking requirements is obviously reduced significantly with the use of carpools and vanpools.

TAX-FREE COMMUTER BENEFITS

Employers and employees can both save money through commuter tax benefits applied to vanpool program participation.

Prepared by Centralina Council of Governments in collaboration with Catawba Regional Council of Governments,

For More Information

- Charlotte Area Transit System
  - Vanpools: http://www.charmeck.org/Departments/CATS/Virtual+Transit/Vanpool+-+Start.htm
  - Carpools: support:http://www.charmeck.org/Departments/CATS/Virtual+Transit/Carpool+.htm
- Triangle Transit Authority, P.O. Box 13787, Research Triangle Park, NC 27709, Ph: (919)549-9999, http://www.ridetta.org/vanpool.html
- Best Workplaces for Commuters -
  - A Getting started checklist: *America's Way to Work* http://www.fta.dot.gov/library/policy/cc/qs.htm
  - benefits by employers to employees: http://www.fta.dot.gov/library/policy/cc/cc.htm
- In South Carolina, look into the "Take A Break From The Exhaust" program. Concentrates on SC Department of Health and Environmental Control employees but is an evolving program open to anyone. Contact Jack Porter, Environmental Health Manager, at 803-898-3829 or porterje@dhec.sc.gov.
- The TDM Resource Center (WSDOT) - *The Do-It-Yourself Vanpool Guide*: http://www.wsdot.wa.gov/mobility/tdm/DoVanpool/diyvg.html
- NIEHS Environmental Awareness Advisory Committee (EAAC) http://www.niehs.nih.gov/eaac/home.htm

A.2 Articles

The 13 points of pedestrian-oriented development

Duany Plater-Zyberk & Company

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

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

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

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

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

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

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

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

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

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

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

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

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

Outdoor Market, Roanoke, VA

Some Benefits of Greenways

From the Great Rivers Greenway District in St. Louis

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

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

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

Research from the National Park Service:

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

Greenway corridors provide a variety of amenities, such as attractive views, open space preservation, and convenient recreation opportunities. People value these amenities. This can be reflected in increased real property values and increased marketability for property located near open space. Developers also recognize these values and incorporate open space into planning, design, and marketing new and redeveloped properties.
Cases and examples: http://www.nps.gov/pwro/rtca/propval.htm)

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

- From San Marco Greenbelt Alliance:
  Several examples of development and tax revenue
  http://www.smgreenbelt.org/benefits.htm

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

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

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

GREENWAY IN GASTONIA, NORTH CAROLINA

tml#economicprosperity

Excerpts from studies concerning Safety along Greenways and Trails

"Generally speaking, where there is no desirable activity, there is undesirable activity."

Greenways are areas of high utilization for recreational purposes. There is little evidence to support the fear that these natural spaces encourage criminal activity.

Evidence supports the notion that greenways, trails and converted rail beds may actually discourage crime and vandalism in many areas. These areas no longer serve as places for people to hang out, dump trash, vandalize or engage in criminal activity because there is too great a risk that they will be discovered.

Police Chief Terry Sult from the Town of Unionia stated recently:

> "[Greenways/trails] just don't tend to be a magnet for crime as a lot of people might think. That doesn't mean greenways don't need to be patrolled, and they must be in use to become criminal deterrents. But the good people who use them for recreation are like unofficial police… The reality is, if you can make sure the [greenways/trails] are activated, it creates more eyes and ears than areas that don't have them. Anything you can do to raise the risk level of a criminal is going to deter crime."

Safety Studies

- A study conducted by UNC-Charlotte explored property crime rates on the entire Mecklenburg County greenway system between 2001 and 2003. The study compared crime on properties next to greenways with those of surrounding neighborhoods. Researchers found that the properties adjacent to the greenways actually experienced less crime during the majority of the years surveyed concluding that greenways do not incur a greater risk of crime. (Assessment of Crime Risk along Greenways in Charlotte, North Carolina 1994-2003 by Walter Martin Presented at the Association of American Geographers 2005 Annual Meeting, Denver, CO, April 8, 2005)

  Conclusions:
  - The data suggests that Greenways are not significantly more prone to property crimes than their parent neighborhood. Crime rates were lower along greenways in 3 of the 4 years and significantly lower in 2001.
  - The assertion that greenways are inherently unsafe is merely an urban legend.
  - By challenging the baseless fear of greenways, similar studies can support development and extension of these delightful linear parks.

- A survey of persons using greenways in Raleigh and Charlotte, NC found that 59 % of Raleigh users and 75% of Charlotte users felt that crime was not a problem.
  www.fogvg.org/trail_user_faq.php

- A report in Asheville, NC 1998 Master Greenway Plan called *Benefits of Greenway*s stated that Americans are concerned with crime. Some of the most successful deterrents to criminal activity have involved increased neighborhood awareness by citizens and participation in community watch programs.

  Conclusions:
  - Greenways have proven to be an effective tool to encourage local residents to participate in neighborhood watch programs.
  - Some greenways have even been developed as part of efforts to deter criminal activity in a neighborhood.
  - Crime statistics and reports from law enforcement officials have shown that parks and greenways are typically land uses with the lowest incident of reported criminal activity.
  - As a recreation resource, alternative transportation corridor, or area where fitness activities can take place, most greenways provide a much safer and more user-friendly resource than other linear corridors, such as local roads.
  - Greenways typically attract local residents, who use the facility frequently, creating an environment that is virtually self-policing.
  - Additionally, greenways--whether publicly or privately owned—are dedicated for multiple use and are normally designed to meet federal, state and local standards for public safety and use.

- Another study conducted on the effects of three Cary, NC greenways on adjacent residents found that no substantial evidence that these trails negatively impacted public safety. "Only one resident interviewed was concerned with the issue, and none of the police officers interviewed believed that trails had any effect on public safety."

  Conclusions:
  - Overall, the study found that *"The trail does not encourage crime, and in fact, probably deters crime since there are many people, tourists and local citizens using the trail for many activities at various hours of the day."*—Pat Conlin, Sheriff,Green County, WI
  - These figures are very low considering the 372 trails surveyed cover nearly 7,000 miles of trail and more than 45 million estimated annual users.
  - Letters from law enforcement agencies support these findings. They consistently report that rail-trails do not encourage crime; rather, several letters cited heavy trail usage as a crime deterrent in areas of former isolation: *"The trail has not caused any increase in the amount of crimes reported and the few reported incidents are minor in nature...We have found that the trail brings in so many people that it has actually led to a decrease in problems we formerly encountered such as underage drinking along the river banks. The increased presence of people on the trail has contributed to this problem being reduced."*—Charles R. Tennant, Chief of Police, Elizabeth Township, Buena Vista, PA

Planning on Walking?

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

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

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

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

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

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

In the same issue of the JAPA, there is also an article entitled: Many Pathways from Land Use to Health <http://www.planning.org/japa/pdf/JAPAFrank06.pdf>, that examines the link between walkability and air quality. The researchers asked if more walkable environments led to reduced auto

use and, in turn, better air quality. Using a "walkability index" that factored in things like net residential density and street connectivity, they found that more walkable neighborhoods yield at least some improvements in air quality (also pointing out that "greater improvements in walkability should lead to larger effects").

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

Advocating for the opposite end of the age spectrum, AARP has started a major "livable communities" initiative. In Burlington, Vermont, one of the pilot communities in this project, seniors have taken neighborhood walks, where they've evaluated the condition of sidewalks, crosswalks, and signal timing -- with the aim of enabling more seniors to be able to walk from where they live to nearby stores and community services.

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

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

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

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

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

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

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

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

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

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

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

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

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

The Importance of On-Street Parking

http://newurbannetwork.com/news-opinion/blogs/steve-mouzon/15124/importance-street-parking

Photos by Steve Mouzon, New Urban Network

On-street parking is important to good urbanism on many counts. Let's have a look at some of the most important reasons why it's essential:

Commercial parking lots

If people can't park on-street, then off-street parking lots are essential in all but the most highly walkable places where cars are unnecessary (think Manhattan.) Surface parking lots do lots of damage. First, if they are built in front of a building, then they pretty much guarantee that nobody will ever walk on the sidewalk that runs between the parking lot and the street. Pedestrians aren't stupid… you'd be taking your life in your own hands by walking in a place like this because you have no protection from cars zipping by just a few feet away from you.

The second-worst place for a parking lot is beside the building because this creates a big gap in the urbanism. This condition is known as a "snaggletooth streetscape." One of its worst features is that it interrupts the continuity of the street face, making the place seem incomplete, or decaying. Another really bad feature is the fact that it bores the pedestrians, because when they're walking beside it, they get a steady view of cars that doesn't change very quickly. Unlike a parking lot in front, which completely kills pedestrianism in only one block, parking lots beside buildings only injure it, and the extent of the injury to walkability depends on how big the gaps between buildings are.

The third place for a parking lot is behind the building. This isn't as bad as the other two places, but it has problems as well. If everyone parks in back, then it seems logical to the building owner to put the front door in the back. This not only creates a weird and confused floor plan, but it also means the building is less likely to pay the proper attention to the street, usually resulting in boring the pedestrians. And all parking lots have the unfortunate distinctions of being really bad heat sinks, and of creating lots of stormwater with all that impervious asphalt or concrete.

Residential parking

There's almost as much driveway as there is front yard in this subdivision.

Subdivisions that ban on-street parking force the paving of much of the lot because you've gotta have enough parking places for all of your family plus all of your guests… at your biggest party or other gathering of the year. Many builders will build a double-wide driveway all the way to the front facing garage of their "snout houses" so visitors can park on all that extra paving. This has all of the environmental problems that parking lots do: double-wide driveways are big heat sinks with lots of stormwater runoff. Big heat sinks aren't just environmental problems; they hurt walking as well. By heating up the micro-environment around them, they make it more uncomfortable to walk in their vicinity. And if driveway crossings take up a big percentage of the length of the sidewalk, then much of a walk along that sidewalk is spent subconsciously aware that cars might back out of the driveways and hit you. When fear arrives, pedestrians depart.

Parking decks

A parking deck next to a sidewalk

A parking deck next to a sidewalk creates a terrible pedestrian environment, as you can clearly see in the fourth image on the right. First, it's the most boring thing possible to walk beside, and most of the time, it's terminally ugly because people don't generally lavish a lot of money on a parking deck.

Bore the pedestrians, and they won't walk there. Build ugly buildings, and they'll abandon your sidewalk as well.

But that's not the worst of it. Parking decks are broadly perceived as being scary places. How many movies have you seen where the ax murderer waits in a dark corner of the parking deck for his next victim? The only thing worse for pedestrians than boredom and ugliness are danger and fear. So put a parking deck right beside those sidewalks where you never, ever, ever want pedestrians to walk.

Liner buildings

This liner building in Bath, England is less than 12 feet thick, and it has some of the coolest shops in town.

It is possible to fix parking decks by building what is known as a "liner building" between them and every adjacent sidewalk. A liner building is a thin building that "lines" the parking deck's outer edges. You see the storefronts of the liner building's shops at the first level and you see the windows of the offices or apartments above. It looks like any perfectly normal downtown building… it just happens to not be very thick, and to have a parking deck behind it. Liner buildings are hardly ever more than 30 feet thick. 18 feet is a good thickness because that's often the depth of a parking space. But they can be even thinner, like the one shown in the next image.

The pedestrian shield

Clearly, forcing cars off the street has lots of negative consequences. But on-street parking isn't just a car storage device. There are other benefits as well. Remember what we said earlier about "when fear arrives, pedestrians depart"? One major source of fear is the possibility that a car might run off the street and hit you. On-street parking alleviates this fear, because each of those parked cars acts as a shield of several thousand pounds of metal between you and the moving traffic. People don't consciously realize this all the time, but you've never seen a sidewalk cafe next to the expressway, have you?

Thriving retail

Retail expert Bob Gibbs says that every on-street parking space in a thriving retail district is worth $250,000 in sales to the nearby merchants on that street. People will walk much further along an interesting Main Street to get from their parking space to the store they're going to than they will walk from a parking lot. I blogged about Pedestrian Propulsion a couple years ago; that post explains why this is so. Simply put, if you want to kill the businesses along a thriving commercial street, just remove the on-street parking. Works every time.

A.3 How to Build a Sidewalk

A STEP-BY-STEP GUIDELINE FOR BUILDING PEDESTRIAN IMPROVEMENTS

I. PROJECT REQUEST

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

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

II. PROJECT EVALUATION PHASE

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

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

2. **Ownership of the land**
   Does the Town already own the right-of-way? If not, the PNC should determine and recommend the most appropriate course of action:
   a. Purchase the property required by fee simple.
   b. Acquire an easement on the property.
   c. Condemn the portion of the property needed.
   d. Find an alternate project to meet the goal.

3. **Source and availability of proper funding**
   The PNC should determine and recommend a funding strategy that would be most appropriate to the project. The PNC may consider:
   a. Powell Bill funds
   b. Applicable grants
   c. Other sources (see **Funding Opportunities**).

III. PROJECT DESIGN/CONSTRUCTION PHASE

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

1. **Project Area**
   Larger projects require additional state permitting. If the project involves one acre or more of disturbed earth, a plan must be submitted to the North Carolina Department of Natural Resources (NCDENR) for a 30-day review of the project. The process for submitting projects to NCDENR, as well as the application forms required, can be found at their Division of Land Resources webpage: http://www.dlr.enr.state.nc.us/pages/sedimentforms.html
   Additional permits may be required for particular projects depending upon the site involved. For more information, contact the local NCDENR office at 704-663-1699.

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

   Project cost <$300,000
   Project does not require public bidding, however obtaining multiple bids, informally, is recommended to find the most competitive price for project construction.

Project cost >$300,000

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

3. **Project Property Owners**

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

4. **Project Design**

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

NCARPO
North Carolina Association of Rural Planning Organizations

The **North Carolina Association of Rural Planning Organizations** website has answers for an array of transportation questions, including how to fund projects.
Find the NCARPO at http://www.kerrtarcog.org/rpo/NCARPO.php

The following is an excerpt from their page on constructing sidewalks:

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

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

On-Road Pedestrian Facilities

Federal

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

State

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

Local

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

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

Before considering sidewalk construction, be sure to review the NCDOT Policy & Procedure Manual: Sidewalks
http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/doh/preconstruct/altern//value/manuals/ppm/ppm28/ppm28-1.pdf

For further information about funding projects, see:
PART 8: IMPLEMENTATION & FUNDING.