



PEDESTRIAN NETWORK

3

CHAPTER OUTLINE:

3.0 OVERVIEW

3.1 METHODOLOGY

3.2 THE PEDESTRIAN NETWORK

3.3 NETWORK CORRIDORS

3.4 INTERSECTIONS

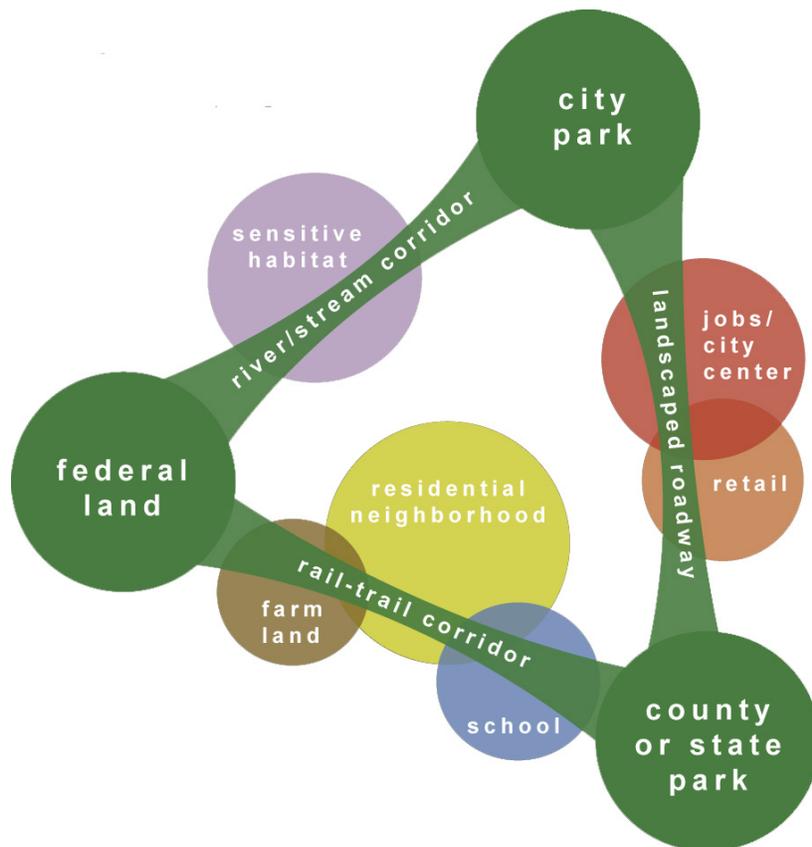
3.5 REGIONAL CONNECTIVITY

3.0 OVERVIEW

The proposed pedestrian network for the Town of Pittsboro is a series of pedestrian improvements that creates a more connected, comprehensive system. It has been developed from past planning efforts, public input, field analysis, and geographic information systems (GIS) mapping. This chapter presents the methodology, recommended pedestrian network facilities, and overall pedestrian network map. It also provides detailed recommendations for important network corridors and intersection improvements.

The guiding philosophy in devising this network is the hubs and spokes model. Pedestrian corridors (spokes) should connect to trip attractors (hubs) such as parks, schools, Downtown, shopping centers, and other pedestrian corridors. The network then becomes a practical solution for pedestrian connectivity.

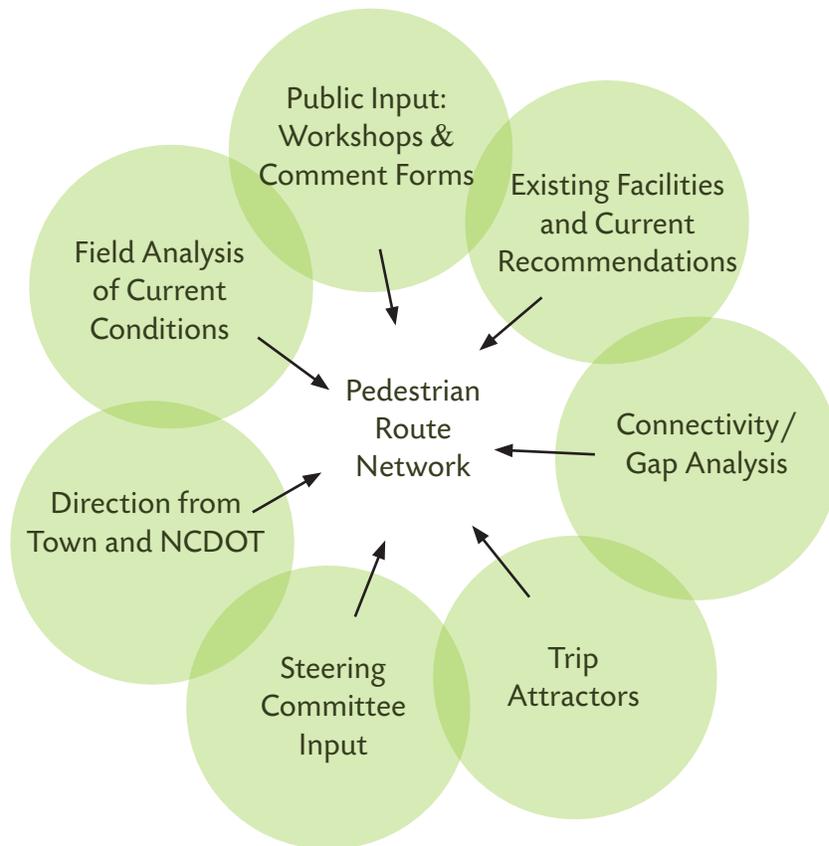
This 'hub and spokes' model for greenways (right) illustrates how key destinations can be linked through trail corridors. The principle of connectivity used in this model is conveyed to the pedestrian network as a whole, including sidewalks, crosswalks, and other pedestrian facilities as part of the networks 'spokes'.



3.1 METHODOLOGY

A variety of sources were consulted during the development of the Pedestrian Network: previous plans and studies, maps of existing pedestrian conditions, the consultant’s fieldwork inventory, public input, and noted pedestrian trip attractors. Fieldwork included an examination of conditions at all major intersections, greenway feasibility along sewer easements, conditions along primary corridors, and a consideration of gap connectivity. Map discussion and analysis was conducted at steering committee meetings and public meetings to pinpoint specific areas in need of pedestrian improvements. Specific consideration was given to the following:

INPUTS FOR PEDESTRIAN NETWORK DEVELOPMENT:



This diagram illustrates the many inputs and levels of analysis used to design the Pedestrian Route Network.

3.2 THE PEDESTRIAN NETWORK

The Proposed Pedestrian Network for Pittsboro consists of sidewalk projects, crossing improvements, and off-road greenways. Together these proposed facilities should be developed or improved to create a safe and connected pedestrian network throughout the Town. On-road and off-road components should be integrated to provide a connected pedestrian transportation and recreation network.

The network should be completed in phases as prioritized in Chapter 5, Implementation. However, network segments should be developed when there is opportunity, regardless of the order. New ordinances should be developed (discussed in Chapter 4) in order to make sidewalks a mandatory part of any commercial or residential development, especially as recommended in the pedestrian network map.

Regional connectivity should be considered during future development of the greenway network

Successful development of the pedestrian network will require a long-term, cooperative effort between the Town, the local North Carolina Department of Transportation Division 8, and other local and state agencies. Cooperative effort is important because the Town cannot implement recommendations for pedestrian facilities on state and federal roads without DOT sanction. Regional connectivity should also be considered during future development of the greenway network, with private, public and non-profit partnerships (also discussed in Chapter 5, Implementation).

All pedestrian corridor projects undertaken by the Town of Pittsboro should aim to meet the highest standards possible when topography and right-of-way allows. At a minimum, each pedestrian corridor should possess curb cuts with ramps at all driveways and intersections and be paved to increase accessibility and decrease maintenance costs. Within each identified corridor, roadway intersections should have marked crosswalks, and major intersections should have pedestrian crossing signals. Wider sidewalks, with curb cuts and improved surface conditions will correct sidewalks that currently do not satisfy the standards set forth by the American Disability Act of 1991.

Traffic calming measures, such as curb extensions, medians, and pedestrian refuge islands should be used to create a more hospitable environment for pedestrians in neighborhoods and commercial districts. See Chapter 6, Design Guidelines for specific descriptions of recommended facility standards. Finally, opportunities should be taken to incorporate pedestrian facilities into all municipal and state roadway improvement and widening projects.

Three main types of pedestrian projects have been identified for the Town of Pittsboro and are outlined on the following pages. They include sidewalks, crossing improvements, and off-road greenway corridors. Ancillary improvements to create a more hospitable pedestrian environment are also detailed. Design guidelines in Chapter 6 provide detailed information regarding proper placement and facility treatments.

SIDEWALK PROJECTS

Sidewalk projects are the major component of the proposed pedestrian network in Pittsboro. Sidewalks are located along road segments. In the long term, sidewalks should be constructed on both sides of arterial and collector roads wherever possible to provide adequate pedestrian connections throughout the Town of Pittsboro. The sidewalk network is focused on significant roadways that provide service to major destinations within Pittsboro and link multiple land uses, such as residential, recreational, institutional, and commercial. The proposed pedestrian facilities along significant roadways craft the spine of the entire pedestrian network. Some sections along these significant roadways have existing sidewalk. However, the existing sidewalk is at times segmented, creating gaps in the connectivity or lacking sidewalk on one side of the street. Sidewalk projects are prioritized in Appendix E: Prioritization, and high priority segments are illustrated on Map E.1.

PEDESTRIAN CROSSINGS

Improving the safety of roadway crossings is essential for making Pittsboro more walkable. Intersections present situations where a pedestrian must traverse the motor vehicle environment. Pedestrians have a much greater risk of being struck by a vehicle when crossing a roadway as opposed to walking on the shoulder or sidewalk beside it. Nationally, nearly 75% of all police-reported pedestrian crashes involve pedestrians crossing roadway travel lanes.

Consultant fieldwork and public input identified numerous intersections in Pittsboro that are in need of minor to significant pedestrian facility improvements. Adequate facilities should be provided specific to the intersection, to provide a safe crossing environment. Improvements may include marked crosswalks, curb extensions, curb ramps, and pedestrian-activated signals. Recommendations for each specific intersection are discussed in section 3.4.

In roadway crossings with a stop sign only, marked crosswalks and curb ramps should always be provided, where sidewalk exists. These would be installed parallel to the more significant roadway. This will provide greater visibility for pedestrian space. Good examples are the roadway crossings along East Street, where there are sidewalks, but no crosswalks.

It should be noted that this is a planning level analysis. Each of these locations will need a more detailed project-level review. The conclusions reached through more detailed review may vary from those presented herein.

GREENWAY TRAIL

A greenway is defined as a linear corridor of land that can be either natural, such as rivers and streams, or manmade, such as abandoned railroad beds and utility corridors. Most greenways contain trails. Greenway trails can be



Above: A sidewalk project in Potterstone Village, Pittsboro



Above: A pedestrian crossing at the County Courthouse, Pittsboro



Above: A natural surface greenway trail at Town Lake Park, Pittsboro



Above: The American Tobacco Trail, a regional example of a paved surface greenway trail

paved or unpaved, and can be designed to accommodate a variety of trail users, including bicyclists, walkers, hikers, joggers, skaters, horseback riders, and those confined to wheelchairs.

Greenway corridors can serve environmental purposes, protecting forests, enhancing water quality, and offering ample opportunities for environmental education. Greenway trails can be constructed of natural materials, gravel, crushed stone, asphalt, or concrete, depending upon the projected usage and surrounding landscape. Greenway trails in Pittsboro should be integrated with and serve as an off-road extension of the on-road pedestrian network. Numerous greenway opportunities were identified throughout Pittsboro, via consultant fieldwork, public input, and other local and regional planning efforts. Proposed greenway corridors are illustrated on Map 3.1.

It should be further emphasized that this is also a planning level analysis for greenway corridors. Even though all sewer corridor easements in the Town of Pittsboro already contain provisions for pedestrian access, each greenway trail project should still have its own public input process, specifically including the property owners adjacent to each corridor. Particular attention should be given to the design of landscape screening and other treatments that help ensure the privacy (if so desired) of adjacent properties. The benefits of greenways (economic, environmental, etc), which are outlined on pages 4 through 7 of this Plan, should also be emphasized during the planning process for specific greenway corridors.

ANCILLARY TREATMENTS

In addition to the above facilities, a number of other important pedestrian treatments can improve safety throughout the pedestrian network. A full listing and description of these facilities and treatments can be found in Chapter 6 - Design Guidelines. Definitions of the most common treatments recommended in Section 3.3 are provided below.

Median Refuge Island: This refers to an island in the roadway median that offers a stopping or halfway point for a pedestrian.

Driveway Access Management: This refers to minimizing the size and amount of access points for motor vehicles crossing sidewalks to adjacent properties.

Traffic Calming: This refers to a range of measures that reduce the impact of vehicular traffic on residents, pedestrians and cyclists - most commonly on residential streets, but also now on commercial streets.

3.3 NETWORK CORRIDORS

The complete recommended network of sidewalks, crossing improvements, and off-road greenways can be found on Maps 3.1 and 3.2 (fold-out pages 29-30). Each segment is listed and prioritized in Appendix E. The corridors in the following table are featured here because they are key thoroughfares that connect multiple destinations and land uses. They also represent segments in need of significant improvements for pedestrian safety and connectivity. The ID number in the table correspond to the labels on Map 3.1.

ID	Corridor	From	To	Recommendations	Notes
1	Courthouse Roundabout	East & West (US 64)	Hillsboro & Sanford (15-501)	Crosswalk & Refuge Island Improvements	Lower speed limits approaching and through roundabout from 20 to 15.
2	West (US 64)	Goldston & Old Graham (NC 87)	Hillsboro & Sanford (15-501)	Crosswalk Improvements	No marked crosswalks are available across US 64/West
3	Hillsboro (15-501)	Springdale	Hanks	New Sidewalk & Crosswalks	Already in State TIP, but could be built ahead of TIP schedule.
4	Hillsboro (15-501)	Powell Place & Lowes	Springdale	New Sidewalk & Crosswalks	Already in State TIP
5	Sanford (15-501)	East & West (US 64)	Horton	New Sidewalk & Crosswalks	Existing sidewalk is mostly on east side only
6	Sanford (15-501)	Horton	Moncure-Pittsboro & Goldston (NC 87)	New Sidewalk & Crosswalks	Existing sidewalk is mostly on east side only
7	West (US 64)	Future Development (west of CCCC)	Goldston & Old Graham (NC 87)	New Sidewalk & Crosswalks and lowered median	Connection to new development with CCCC path and existing sidewalks is critical.
8	East (US 64)	Hillsboro & Sanford (15-501)	Martin Luther King Jr	New Sidewalk & Crosswalks and lowered median	Existing sidewalk is mostly on south side only
9	East (US 64)	Martin Luther King Jr	Industrial Park	New Sidewalk & Crosswalks and lowered median	Existing sidewalk is mostly on south side only
10	Salisbury	Credle	CCCC & West (US 64)	New Sidewalk & Crosswalks	ROW and drainage ditches present constraints
11	Salisbury	Hillsboro (15-501)	J A Farrell	New Sidewalk & Crosswalks	Some existing sidewalk on the north side
12	Fayetteville/Chatham	West (US 64)	Sanford (15-501)	New Sidewalk & Crosswalks	Wide sidewalk one side only (east and north sides)
13	Pittsboro Elem. School Rd	Lockville	Sanford (15-501)	New Sidewalk & Crosswalks	Nearby business parking is using the ROW where sidewalk should be.
14	Pittsboro Elem. School Rd/Goldston (NC 87)	West (US 64)	McClenahan	New Sidewalk & Crosswalks	Connecting Pittsboro Elementary to 64, and across to new library and residents north of 64
15	Goldston (NC 87)	West (US 64)	Ashford	New Sidewalk & Crosswalks	Connect to new library (use CCCC path where it parallels 87)
16	Oakwood/Park	Old Graham	Hillsboro (15-501)	New Sidewalk & Crosswalks	
17	Credle/Hanks	West (US 64)	Hillsboro (15-501)	New Sidewalk & Crosswalks	
18	Credle/Launis	Hanks	Hillsboro (15-501)	New Sidewalk & Crosswalks	
19	Fox Chapel/Springdale	Hillsboro (15-501)	Bellmont	New Sidewalk & Crosswalks	North side only
20	Masonic	Future Gwy at Chatham Marketplace	East (US 64)	New Sidewalk & Crosswalks	West side only from Thompson to Salisbury; East side only from Salisbury to West (US 64); Replace on-street parking with sidewalk where needed.
21	Masonic	East (US 64)	Chatham	New Sidewalk & Crosswalks	East side only.
22	Chatham	Sanford (15-501)	Small	New Sidewalk & Crosswalks	South side only from Sanford (15-501) to Masonic; North side only from Masonic to Small; Significant clearance of vegetation will be required.
23	MLK	County Fairgrounds	East (US 64)	New Sidewalk & Crosswalks	
24	Goldston (NC 87)	Pittsboro Elementary School Rd	Old Goldston	Sidepath	On east side only
25	Goldston (NC 87)	Old Goldston	Farmingdale	Sidepath	On north side only
26	Old Graham	Camp	Oakwood	Sidepath	
27	Cornwallis	Rail-Trail	Future Greenway	Sidepath	North side only
28	Chatham Business Dr	East (US 64)	Future Greenway	Sidepath	One side only
29	Industrial Park Dr	East (US 64)	Future Greenway	Sidepath	One side only
30	Hillsboro (15-501)	Hanks	East & West (US 64)	Sidewalk & Crosswalk Improvements	Already in State TIP, but could be built ahead of TIP schedule.

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***MAP 3.1: Recommended Facilities
(Downtown)***

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***MAP 3.2: Recommended Facilities
(Planning Area/ETJ)***

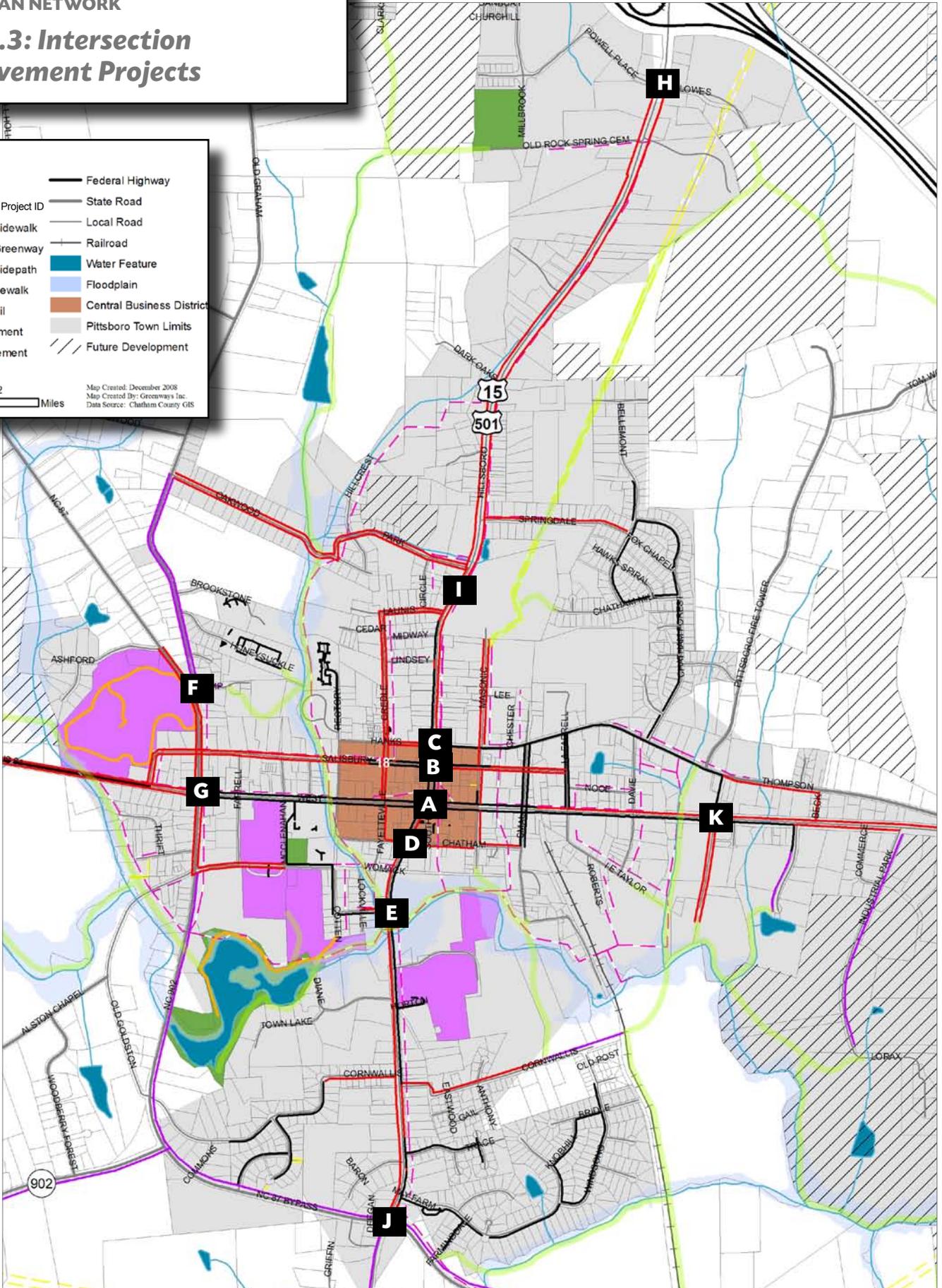
PEDESTRIAN TRANSPORTATION PLAN
PEDESTRIAN NETWORK
MAP 3.3: Intersection Improvement Projects

Legend

	Courthouse		Federal Highway
	Improvement Project ID		State Road
	Proposed Sidewalk		Local Road
	Proposed Greenway		Railroad
	Proposed Sidepath		Water Feature
	Existing Sidewalk		Floodplain
	Existing Trail		Central Business District
	Utility Easement		Pittsboro Town Limits
	Sewer Easement		Future Development

0.2 Miles

Map Created: December 2008
 Map Created By: Greenways Inc.
 Data Source: Chatham County GIS



3.4 INTERSECTIONS

Improving the safety of roadway crossings is essential for making Pittsboro more walkable. Intersections present situations where a pedestrian must traverse the motor vehicle environment. Pedestrians have a much greater risk of being struck by a vehicle when crossing a roadway as opposed to walking on the shoulder or sidewalk beside it. Nationally, nearly 75% of all police-reported pedestrian crashes involve pedestrians crossing roadway travel lanes.

Consultant fieldwork and public input identified numerous existing intersections in Pittsboro that are in need of minor to significant pedestrian facility improvements. Most crossings involved an existing stoplight which controls traffic well enough to consider making pedestrian improvements.

Adequate, complete facilities should be provided specific to the intersection, to provide a safe crossing environment. Improvements may include marked crosswalks, curb extensions, curb ramps, and pedestrian-activated signals. Some of these treatments have been proven to reduce crashes, as shown in the 2007 FHWA Crash Reduction Factors Study (<http://safety.fhwa.dot.gov>). The table below shows some typical countermeasures and associated crash reduction factors.

PEDESTRIAN CRASH REDUCTION FACTORS

Countermeasure	Crash Reduction Factor
<i>Install sidewalk</i>	74%
<i>Install pedestrian countdown signal heads</i>	25%
<i>Install pedestrian refuge islands</i>	56%
<i>Improve/install pedestrian crossings</i>	25%

In roadway crossings with a stop sign only, marked crosswalks and curb ramps should always be provided, where sidewalk exists. These would be installed parallel to the more significant roadway. This will provide greater visibility for pedestrian space. A perfect example is any residential roadway crossing of East Street and its sidewalk.

Finally, all new stoplights installed in the Town of Pittsboro should include comprehensive pedestrian crossing elements.

Recommendations for each specific intersection are discussed on the following pages. A comprehensive approach should be taken for each intersection as the addition of a single or a few treatments will be greatly enhanced with additional treatments. For example, a marked crosswalk will be a safer facility with countdown signals provided.

These recommendations are only a planning level analysis. Each of these locations will need a more detailed project-level review. The conclusions reached through more detailed review may vary from those presented herein.



A COURTHOUSE INTERSECTION

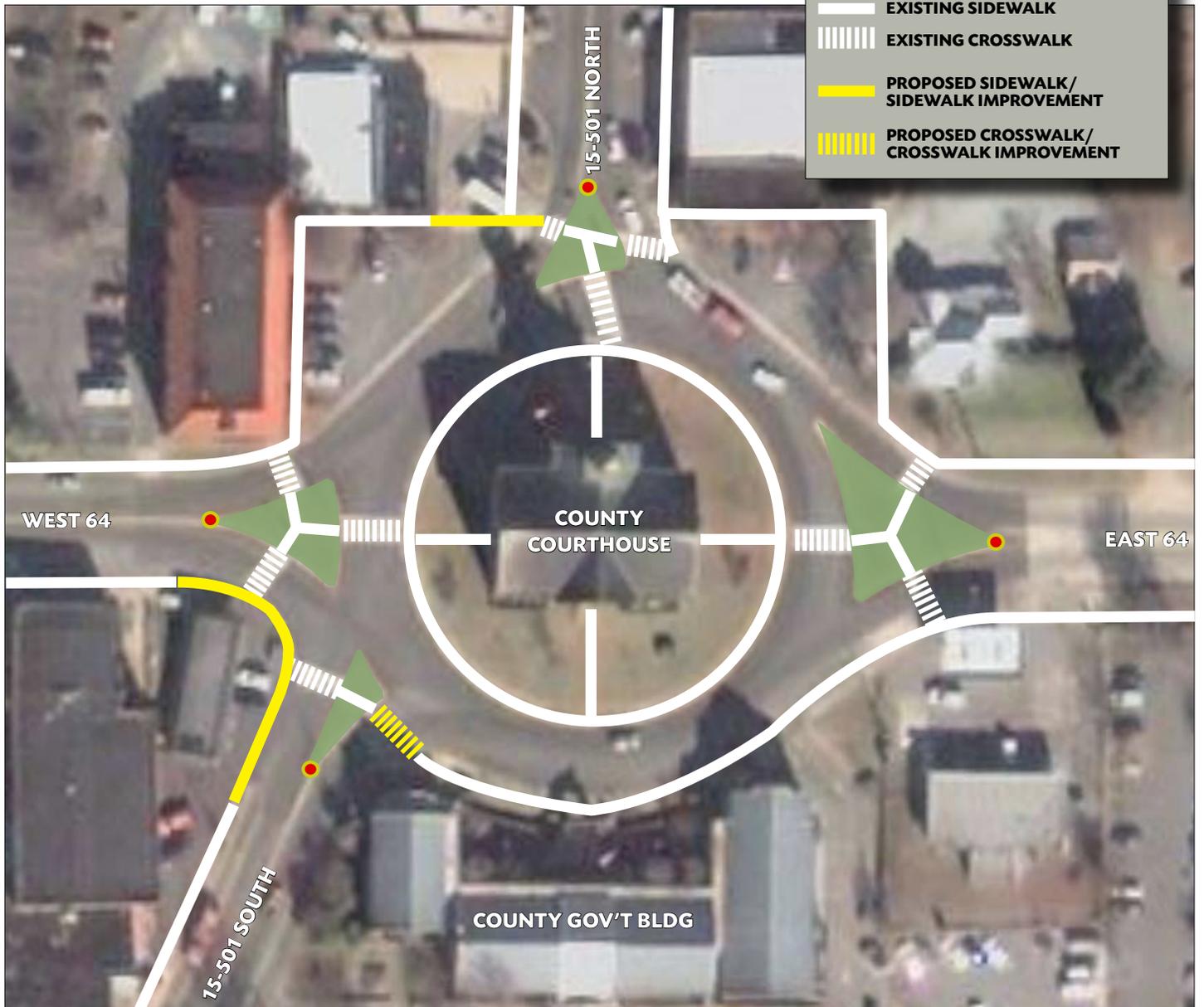
Importance

- Center of Downtown
- Major roadways
- High pedestrian traffic
- Existing pedestrian facilities

Recommendations

- Install “State Law: Stop for Pedestrian in Crosswalk” signs at all four entrances to the roundabout
- Restripe existing marked crosswalks (some faded)
- Consider landscaping additions in refuges

	SIGN: “STATE LAW STOP FOR PEDESTRIAN WITHIN CROSSWALK”
	LANDSCAPING ENHANCEMENT
	EXISTING SIDEWALK
	EXISTING CROSSWALK
	PROPOSED SIDEWALK/SIDEWALK IMPROVEMENT
	PROPOSED CROSSWALK/CROSSWALK IMPROVEMENT



B

US 15-501/SALISBURY STREET

Importance

- Major roadway corridor
- Downtown businesses
- Existing pedestrian facilities
- Denser pedestrian movements
- Residential areas nearby

Recommendations

- Restripe existing marked crosswalks with higher visibility markings (ladder)
- Reconstruct some of the existing curb ramps to standard
- In-roadway pedestrian crossing signs
- Advanced pedestrian warning signs



**The sidewalk and stairs on the southwest corner of this intersection are in need of complete redesign. A possible solution includes a curb extension/bulb-out just north of the current parking. Also, the area within the railings could be raised and combined with the extended curb to create more space for pedestrians waiting to cross. Ideally, this location would also be redesigned for ADA accessibility, with a ramp from the curb extension area to the existing sidewalk south of the intersection. The ramp would require creating more space in the right-of-way, through either a modification of the existing angle parking to parallel parking and/or the elimination of some parking.*

C US 15-501/THOMPSON STREET/HANKS STREET
 Importance

- Major roadway corridor
- Downtown businesses
- Existing pedestrian facilities
- Denser pedestrian movements
- Residential areas nearby

Recommendations**

- Complete sidewalk
- Reconstruct some of the existing curb ramps to standard
- Traffic calming
- Curb extensions
 (south side of intersection)
- Median refuge island
- Advanced pedestrian warning signs
- In-roadway pedestrian crossing signs
- Countdown signals (if light installed)
- Marked crosswalks



**This intersection is currently not controlled with a stoplight. If a stoplight is added, all recommendations (at left) may be considered. Given the current situation, significant traffic calming must be associated with the listed recommendations which would include very low automobile traffic speeds that are enforced, median refuge island, curb extensions, and in-roadway pedestrian crossing signs.



D US 15-501/CHATHAM STREET

Importance

- Center of Downtown
- Major roadways
- High pedestrian traffic
- Existing pedestrian facilities
- Wide crossing of Chatham

Recommendations

- Curb extensions to shorten crossing over Chatham
- Marked crosswalk over Chatham
- No pedestrian facility recommended across US 15-501



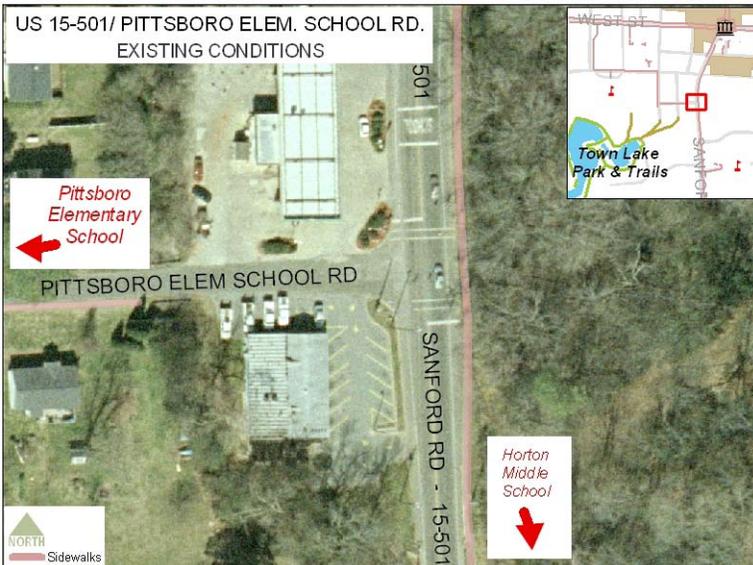
E US 15-501/PITTSBORO ELEMENTARY SCHOOL ROAD

Importance

- Schools
- Major roadway
- Near Downtown
- Some existing pedestrian facilities

Recommendations

- Complete sidewalk
- Restripe existing marked crosswalks with higher visibility markings (ladder).
- Improve overall pedestrian access/safety on north side of intersection
- Construct new curb ramps
- In-roadway pedestrian crossing signs
- Remove sight obstructions
- Improve pedestrian spaces at gas station/laundromat areas
- Make pedestrian push button (northwest side of intersection) more accessible



F NC 87/OLD GRAHAM ROAD-CAMP STREET
Importance

- Community college
- Library
- Nearby trails
- Future development



Recommendations

- Complete sidewalk
- Highly visible marked crosswalks
- Marked crosswalk would be best placed over Old Graham at Camp (south side). Pedestrian can use existing refuge island and then utilize marked crosswalks over NC 87
- Advanced stop lines
- Advanced pedestrian warning signs
- Remove sight obstructions
- Traffic calming and speed limit reduction, especially along NC 87



**This intersection is currently under design for a roundabout. If and when the intersection is reconfigured, it should have sidewalks, curb ramps, crosswalks to the splitter islands, and splitter islands that are designed to be accessible to pedestrians and wheelchairs.*

The stretch of road from US64 to the proposed roundabout is the subject of a CMAQ Funding Request. If approved, the sidewalk will connect US 64 to a new library on the CCCC Campus.





G WEST US 64/NC 87

Importance

- Major roadway corridor
- Major intersection
- Some commercial
- Some existing pedestrian facilities
- Main entrance to CCCC is on West US 64

Recommendations

- Complete sidewalk
- Highly visible marked crosswalks
- Advanced stop lines
- Construct new curb ramps
- Curb radius reduction or curb extensions
- Countdown signals
- Restrict "Right Turn On Red"
- Create better definition of pedestrian space through commercial parking lots and reduce size of parking lot entrances



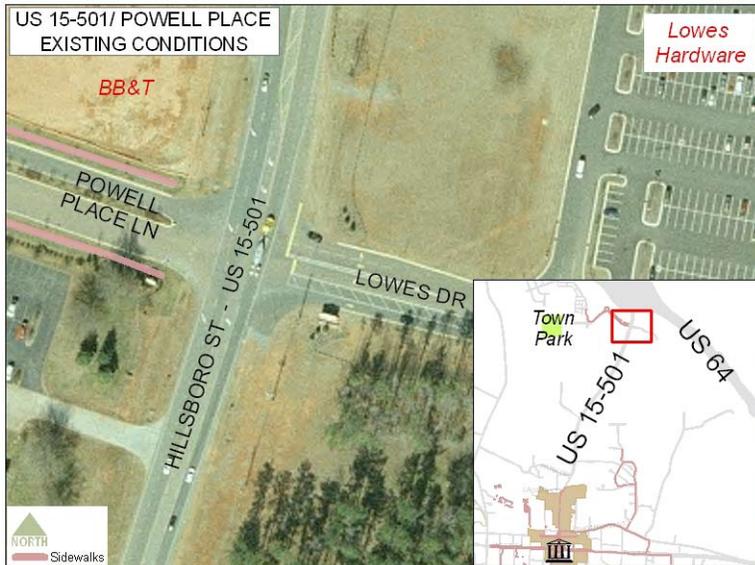
H US 15-501/POWELL PLACE

Importance

- New commercial and residential development
- Major roadway corridor
- Crossing from residential area to commercial development
- Some existing pedestrian facilities

Recommendations

- Complete sidewalk
- Highly visible marked crosswalks
- Advanced stop lines
- Reconstruct existing curb ramps
- Median refuge islands (extend and raise)
- Curb radius reduction or curb extensions
- Countdown signals
- Advanced pedestrian warning signs



I US 15-501/CHATHAM MARKETPLACE

Importance

- Residential connectivity
- Connection to Chatham Marketplace
- Major roadway corridor

Recommendations

When stoplight is installed, provide full suite of pedestrian crossing treatments (marked crosswalks, countdown signals, advanced stop lines, curb ramps, advanced pedestrian warning signs, curb radius reduction)



J US 15-501/ MONCURE-PITTSBORO ROAD (NC 87)*

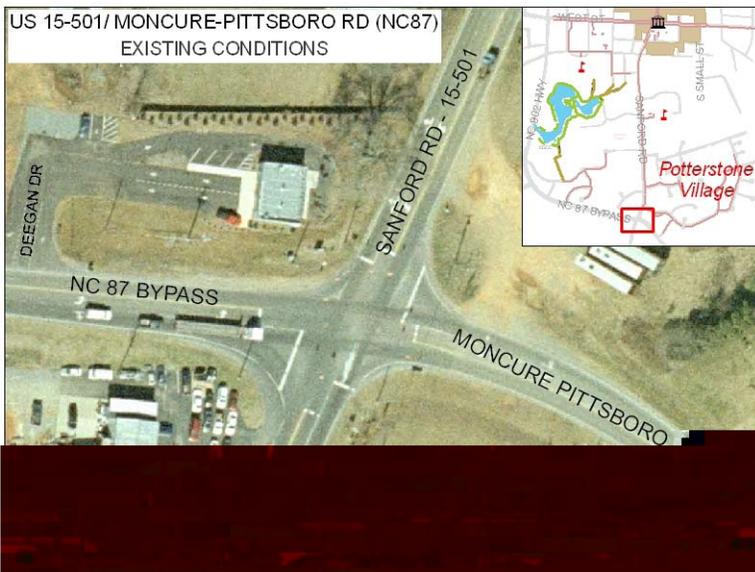
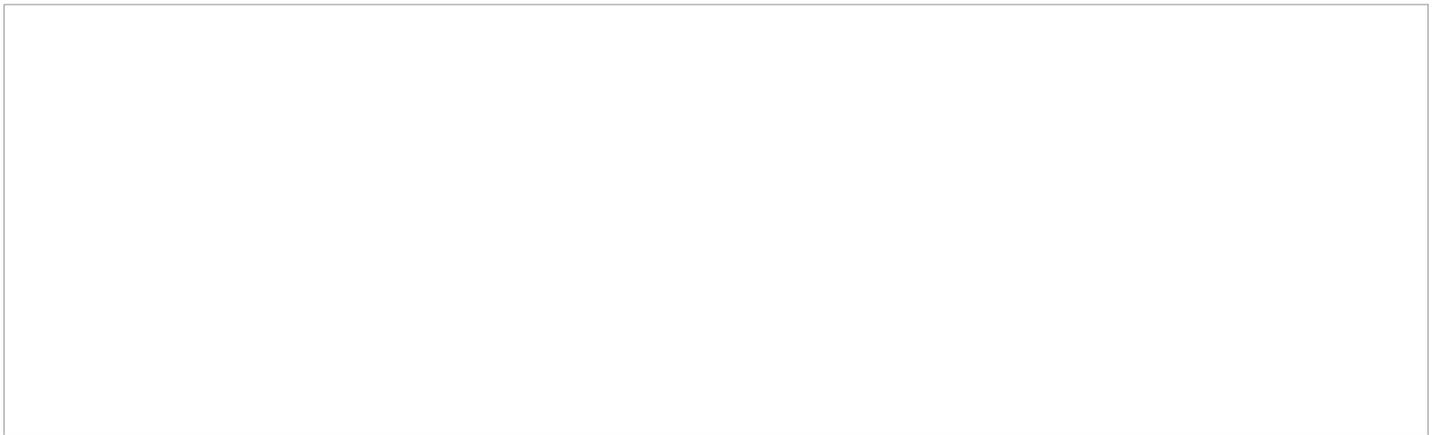
Importance

- Significant roadways
- Nearby residential area

Recommendations

- Complete sidewalk
- Highly visible marked crosswalks
- Advanced stop lines
- Curb radius reduction or curb extensions
- Remove sight obstructions

**Likely a longer-term project as development increases in this area and as curb/gutter is added.*



***NC 87 is also used as a connector to NCDOT Chatham County Bicycle Route 3 and Route 4, and Carolina Connection US Bike Route 1. This road is used extensively for normal bicycle use to these routes, especially on weekends.*

K EAST US 64/MLK, JR. DR.

Importance

- Major roadway corridor
- Shopping center
- Residential area
- Farmers Market
- Some existing pedestrian facilities

Recommendations

- Complete sidewalk
- Highly visible marked crosswalks
- Advanced stop lines
- Construct new curb ramps
- Countdown signals



3.5 REGIONAL CONNECTIVITY

Pittsboro should look beyond its city limits and link pedestrian facilities to neighboring and regional destinations, such as the Haw River, Moncure, Siler City, etc. It is recommended that Pittsboro coordinate efforts with surrounding communities to create long distance connections for alternative transportation and recreation, particularly through greenway corridor development. Regional greenway trail connections will encourage and draw individuals to Pittsboro from surrounding areas. One opportunity is the abandoned rail corridor parallel to US 15-501. Opportunities to partner with the railroad should continue to be sought.

For Pittsboro, the most significant and valuable regional opportunities for pedestrian connections include the 'rails-to-trails' opportunity along the rail line from downtown Pittsboro to Moncure (through potential partnerships between Pittsboro, Moncure, and Chatham County); a greenway heading east from downtown along Robeson Creek (through potential land development dedication); and a greenway along the Haw River (through potential partnerships with local land trusts and the North Carolina Department of Environmental and Natural Resources).

MAP 3.4: Regional Trails

