City of New Bern

Pedestrian Plan

Adopted September 8, 2009 ● **FINAL** ● New Bern, North Carolina

NCDOT Division of Bicycle & Pedestrian Transportation ● The Louis Berger Group, Inc.

Division of Bicycle & Pedestrian Transportation

Stakeholder Committee Members

Michael Avery	City of New Bern Planning Department
Holly Blake	Craven County Health Department
Ben Bunn	Craven Regional Medical Center Foundation
Helen Chaney	NCDOT Bike/Ped Division
Leigh Anne Friesen	City of New Bern Planning Department
Thurman C. Hardison	City of New Bern Parks & Recreation Department
Tom McGraw	300th Anniversary Connectivity Committee
Danny Meadows	City of New Bern Public Works Department
Rike Scheele	City of New Bern Planning Department
John Smith	City of New Bern Police Department
Annette Stone	City of New Bern Planning Department
Alice Wilson	City of New Bern Planning Department

Project Management Team

Staff Project Managers:	Annette Stone, AICP; *New Bern City Planner* Mike Avery, AICP; *New Bern Planning Director*
Consultant Project Team:	Alison Carpenter; *The Louis Berger Group, Inc.* Scott Lane, AICP; *The Louis Berger Group, Inc.*
NCDOT Liaison:	Helen Chaney, AICP; *NCDOT Division of Bicycle and Pedestrian Transportation*

Acknowledgements

The participants of the New Bern Pedestrian Plan wish to thank the Town's Board of Alders and the citizens of New Bern for making this Plan a reality. Thanks is also owed to the North Carolina Department of Transportation for the NCDOT Pedestrian Planning Grant through the Division of Pedestrian and Bicycle Transportation, which partially funded this planning process.

Table of Contents

Appendices

Section 1

Section 2

Section 3

Section 4

Section 5

Section 6

Section 7

The City of New Bern's Comprehensive Pedestrian Plan makes recommendations for policies, programs and projects that - when implemented - will improve walkability and help make New Bern a more pedestrian-friendly community.

Executive Summary

The intent of the New Bern Comprehensive Pedestrian Plan is to provide guidance for making the City of New Bern a more pedestrian-friendly community. Partially funded by a grant from NCDOT and matching funds from the City of New Bern, the Pedestrian Plan serves several purposes, including:

- To promote a better understanding of the measures that can be taken to create a safer and more pleasant walking environment in New Bern;
- To identify in the Plan a clear schedule of projects, programs, and policies that New Bern and partnering agencies can provide to improve the walking environment; and
- During the planning process and afterwards, to create a better awareness of walking as a viable mode of transportation that can serve as a reliable substitute for some trips being made by private auto now; contribute to a healthier lifestyle; and reduce carbon and other emissions associated with motorized travel.

The Pedestrian Plan recommends future pedestrian-related projects and facility improvements in the City, as well as programs and policies that will support a pedestrian-friendly culture and help to further improve local walking conditions. The results of the Plan will be a safe, accessible pedestrian system that includes sidewalks, greenways and safe intersections, in addition to programs and policies that encourage residents and visitors alike to walk for health, recreation, fitness, cost-savings and basic transportation. The vision statement for the Plan is:

"New Bern is a walkable city with a well-connected pedestrian network that provides safe, convenient, attractive and viable walking routes for all of its residents and visitors to access key local destinations."

Using this plan as a guide, the City of New Bern should be able to create a better, safer network of sidewalks, greenway trails and crossings for

pedestrians. The City's next steps should begin to immediately address the short-term priority program, policy, and project recommendations. At the same time, the City should also start to lay the groundwork for the longer term recommendations by developing relationships with potential partners such as the New Bern Chamber of Commerce, the Craven County Health Department, the North Carolina Department of Transportation and the Craven Regional Medical Center, among others, and by starting to budget for future projects. Most importantly, the City should continue its efforts to raise awareness about the importance of making a community more walkable in order to continue to cultivate support for more pedestrian improvements and programs. Residents, visitors, and local leaders should be familiar with the economic, health, and environmental benefits of a community in which there is less dependence on automobiles and more reliance on foot travel as not only a form of recreation, but also as a form of transportation.

As a small city anticipating significant growth and development, New Bern is in an ideal situation to develop a more walkable community. The City should capitalize on its location and its attractions, such as the RiverWalk Trail and historic downtown, to reinforce its existing pedestrian infrastructure with new projects and improvements. With careful planning, deliberate steps and persistence, New Bern can become an even more vibrant, livable community.

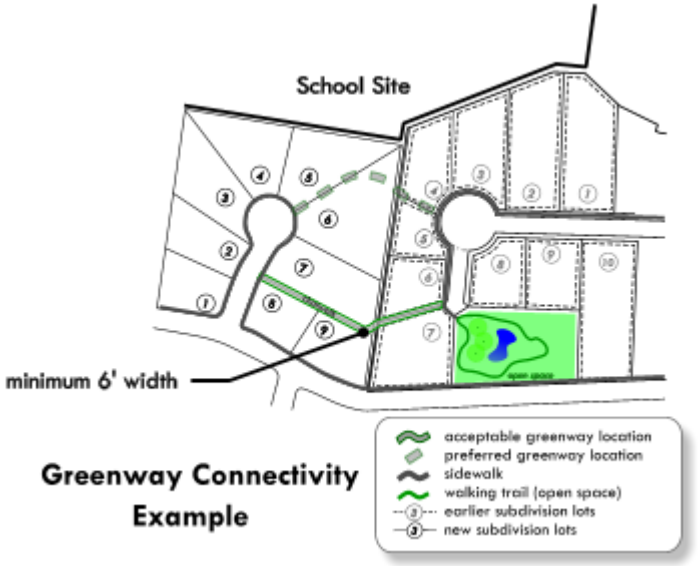
Action Steps for Implementation

Completing the following action steps will help guide the development of the proposed pedestrian network, and create a supportive program and policy environment for a more walkable New Bern.

1) Adopt this Plan. Adoption of this Plan will be the first step to implementation for New Bern. Once adopted, the Plan should be forwarded to regional and state decision-makers, such as the RPO and NCDOT Division office, for inclusion in a regional planning and development processes.

BENEFITS OF A WALKABLE COMMUNITY

- More people walking means **fewer cars on the road** and **less pollution**
- Walkable communities offer more **mobility independence for youth and elderly residents**, as well as those who are physically-disabled
- Not of all New Bern's residents drive – walkability means more **transportation choices** for everyone
- More active communities are healthier communities; walking for recreation or transportation **improves health and well-being** for all residents who choose to do so
- Improved health results in **decreased health care costs**
- Less pollution, multiple transportation choices and more recreational facilities lead to a **higher quality of life** for residents
- More "liveable" communities with greenway trails and other pedestrian amenities **attract residents, businesses and tourists**, according to national research, which leads to citywide economic benefits.



Greenway Connectivity Example

The Pedestrian Plan includes many project, policy and program recommendations to improve walking conditions around schools, parks and neighborhoods. A policy change that requires short greenway connections between new cul-de-sac developments and adjacent parks, schools or residential uses is recommended. Often, these "cut-throughs" or "chatwalks" are an informal network that can be formalized to greatly shorten walking distances and enhance the local pedestrian network by providing short, safe links for pedestrians of all ages and abilities.

2) Form a Bicycle and Pedestrian Advisory Committee. The pedestrian planning process has engaged many citizens in visioning and goal-setting for New Bern. Building on this momentum to keep citizens engaged in a permanent committee structure will allow continued citizen involvement.

3) Secure funding for the top priority projects. In order for New Bern to become a more pedestrian-friendly city, it must have the priorities and the funding available to proceed with implementation. The City should work to secure funding for implementation of several high-priority projects (see Section 7.3) and develop a long-term funding strategy. This will help reinforce the commitment to the Pedestrian Plan and reaffirm to residents that the Plan is moving forward.

4) Begin work on top priority projects listed in Section 7.3. In addition to committing local funds to high-priority projects in the Pedestrian Plan, the City is in a unique position to work with NCDOT on a local Safe Routes to School (SRTS) project and/or seek other state, national or private funding sources for continued, long-term success in implementing the Plan.

5) Adopt policy changes that support the goals of the Pedestrian Plan. Proposed ordinance changes that will be crucial to balancing the public/private burden of implementing this Pedestrian Plan are detailed in Sections 3 and 6, and highlighted in Section 7.3. These include requiring sidewalks in all new development projects, changing minimum sidewalk widths to 5ft instead of 4ft, and requiring the dedication of greenway easements to "bank" land for future trail construction.

6) Embark on complementary planning efforts. The City should incorporate the recommendations of the Pedestrian Plan into future and existing Plans developed and updated at the local, regional and statewide level. For instance, the recommendations of the New Bern Pedestrian Plan should be incorporated into the statewide Comprehensive Transportation Plan with the help of NCDOT Division 2.

7) Develop supportive education, encouragement and enforcement programs. Pedestrian facilities alone do not make a town pedestrian-friendly. A variety of programs should also be implemented to create and support a pedestrian-friendly culture. Programs and policy priorities should be implemented alongside infrastructure improvements.

Table S-1. *Short-term Recommendations (1 – 5 years)*

SIDEWALK CORRIDOR PROJECTS				
Proposed Sidewalk Location	**From**	**To**	**Length (Miles)**	**Est. Project Cost (one-side)**
Trent 2	US70	First St	1.42	$ 375,957
MLK Jr Blvd 3	US70	Neuse Blvd	1.30	$ 342,983
MLK Jr Blvd 1	Trent Creek Rd	Trent Rd	1.22	$ 321,540
Neuse 1	Glenburnie	First St	2.11	$ 557,287
Glenburnie 1 (South)	US70	Neuse Blvd	1.06	$ 278,997
MLK Jr Blvd 2	Trent Rd	US70	1.45	$ 383,616
First 2	Walt Bellamy	Chestnut Ave	0.55	$ 143,941
First 1	Broad	Walt Bellamy	0.34	$ 90,185
Second St/Rhem St	Trent Rd	Lawson Creek	0.26	$ 69,652
Walt Bellamy Dr	First St	Liberty St	0.37	$ 97,205
Washington St	Hazel Ave	Garden St	0.61	$ 161,737
Third Ave	Broad St	Cedar St	0.21	$ 55,523
Clark Ave	Beaufort St	Dead End (DE	0.32	$ 85,307
Hazel Ave	Simmons St	Dead End (JT	0.37	$ 98,023
Hotel Dr	MLK	Trent	0.39	$ 104,247
Beaufort St	Clark Ave	Garden St	0.19	$ 49,474

POLICIES	
Description	**Type**
Revise Minimum Sidewalk Requirements	Ordinance
Adopt Sidewalk and Greenway Connection Requirement	Ordinance
Implement School Zone Designation & Improvements	Ordinance/Internal Policy
Enact Curb Ramp Retrofit Program	Internal Policy
Establish Sidewalk/Crosswalk Maintenance Program	Internal Policy
Install Signage, Pedestrian Signals and Signal Timing	Internal Policy
Adopt Payment In-Lieu Policy	Ordinance/Internal Policy
Develop Project Coordination System	Planning Effort

PROGRAMS		
Description	**Type**	**Potential Partners**
Form Bicycle & Pedestrian Advisory Committee	Encouragement	Craven County; New Bern Parks & Recreation Committee
Safe Routes to School Program	Education	Craven County Schools, Craven Regional Medical Center, SAFEKids Coalition
City Hall Pedestrian Education Day	Education	Hooked on Walking, Craven Co. Health Dept
Bicycle & Pedestrian Program Website	Education	Craven Co. Health Dept

Table S-2. *Mid-term Recommendations (6 - 10 years)*

SIDEWALK CORRIDOR PROJECTS				
Proposed Sidewalk Location	**From**	**To**	**Length (Miles)**	**Est. Project Cost (one-side)**
Glenburnie 3 (North)	Neuse Blvd	Glenburnie Park	1.65	$ 434,920
Oaks Rd	Glenburnie	National Ave	1.50	$ 396,274
Glenburnie 2 (South)	Trent Rd	US70	1.36	$ 360,032
Simmons 2	Neuse Blvd	Trent Rd	0.97	$ 256,421
Neuse 2	Washington Post	Glenburnie Rd	1.54	$ 406,552
Amhurst/PineTree Dr	Glenburnie	MLK	1.27	$ 336,399
Simmons 1	Oaks	Neuse Blvd	1.05	$ 276,473
Park Avenue	7th Street	Spencer Street	0.74	$ 194,557
Main St	Garden St	George St	0.63	$ 167,199
Chattawka Ln	Trent Blvd	Colonial Way	0.51	$ 134,669
McCarthy	S Glenburnie	Trent Rd	1.27	$ 334,597
Newman Rd	McCarthy	Dead End (Mall)	0.51	$ 135,061
Garden St	Beaufort St	Main St	0.39	$ 102,631
Lowes Blvd	MLK	Trent Rd	0.56	$ 148,147

POLICIES	
Description	**Type**
Develop "Green Streets" & Pedestrian Design Guidelines	Ordinance/Internal Policy
Conduct a Local/Regional Transit Plan	Planning Effort
Conduct Parks & Open Space Planning	Planning Effort
Develop Traffic Calming Toolbox	Planning Effort
Establish Sidewalk Petition Process	Internal Policy
Adopt Greenway Crossing Standard	Internal Policy

PROGRAMS		
Description	**Type**	**Potential Partners**
Safe Routes for Seniors Program	Education	Senior Center; Craven Co. Health Dept; Area Agency on Aging
Pedestrian Safety Education Campaign	Education	SAFEKids Coalition; Hooked on Walking
Pace Car Program	Enforcement	New Bern Police Department
School Zone Monitors/Crossing Guard Program	Enforcement	New Bern Police Department; Craven Co. Schools

Table S-3. *Long-term Recommendations (11+ years)*

SIDEWALK CORRIDOR PROJECTS				
Proposed Sidewalk Location	**From**	**To**	**Length (Miles)**	**Est. Project Cost (one-side)**
Glenburnie 3 (North)	Neuse Blvd	Glenburnie Park	1.65	$ 434,920
Oaks Rd	Glenburnie	National Ave	1.50	$ 396,274
Glenburnie 2 (South)	Trent Rd	US70	1.36	$ 360,032
Simmons 2	Neuse Blvd	Trent Rd	0.97	$ 256,421
Neuse 2	Washington Post	Glenburnie Rd	1.54	$ 406,552
Amhurst/PineTree Dr	Glenburnie	MLK	1.27	$ 336,399
Simmons 1	Oaks	Neuse Blvd	1.05	$ 276,473
Park Avenue	7th Street	Spencer Street	0.74	$ 194,557
Main St	Garden St	George St	0.63	$ 167,199
Chattawka Ln	Trent Blvd	Colonial Way	0.51	$ 134,669
McCarthy	S Glenburnie	Trent Rd	1.27	$ 334,597
Newman Rd	McCarthy	Dead End (Mall)	0.51	$ 135,061
Garden St	Beaufort St	Main St	0.39	$ 102,631
Lowes Blvd	MLK	Trent Rd	0.56	$ 148,147

POLICIES	
Description	**Type**
Conduct Bicycle/Pedestrian Traffic Assessments with TIAs	Ordinance/Internal Policy
Adopt Amended School Siting Policy	Internal Policy

PROGRAMS		
Description	**Type**	**Potential Partners**
Commuter Challenge Event	Encouragement	Chamber of Commerce; Swiss Bear Downtown Development Corporation
Pedestrian Wayfinding System & Route Maps	Encouragement	Chamber of Commerce; Craven Arts Council; Swiss Bear Downtown Development Corporation
Motorist/Pedestrian Traffic Enforcement	Enforcement	New Bern Police Department; Craven Co. Sheriff Department

Table S-4. *Proposed Spot Improvement Projects*

Priority	Score	Proposed Spot Improvement	From	To	Length (Feet)	Estimated Cost*
1	58	**Pollock St**	First St	Sutton St	796	$39,794
2	55	**National Ave**	Dunn St	Oaks Rd	1227	$61,335
3	52	**S Front St**	Walt Bellamy Dr	Eden St	418	$20,889
4	51	**Broad St**	Neuse Ave	Downtown	425	$21,239
5	51	**Union Point Park (S Front St)**	E Front St	Dead End	385	$19,238
6	49	**Lawson Creek Park**	First St	Dead End	5068	$253,398
7	49	**N Craven St**	Crescent St	Dead End	3711	$185,545
8	47	**Queen St**	Pasteur St	Dead End	1032	$51,621
9	45	**Cedar St**	Third Ave	Miller St	614	$30,705
10	43	**Amhurst Blvd Cul-de-Sac**	Pinetree Dr	Laura Ln	3914	$195,709
11	39	**Hospital Dr**	Neuse Blvd	Dead End	928	$46,419
12	39	**Trent Creek Rd**	MLK Jr Blvd	Dead End	2619	$130,972
13	38	**George St**	Cypress St	Guion St	494	$24,711
14	35	**Academic Dr (loop drive)**	MLK Jr Blvd	MLK Jr Blvd	3939	$196,970
15	35	**Fox Chase Village**	Elizabeth Ave	Dead End	1850	$92,495
16	35	**Landscape Way**	Old Airport Rd	Waterscape	4108	$205,384
17	33	**Brunswick Dr**	S. Glenburnie Rd	Dead End	2240	$112,016
18	29	**Waterscape Way**	US70	City Limits	7807	$390,342
19	20	**Tram Rd**	Batts Hill Rd	Dead End	3023	$151,157
20	16	**Batts Hill Rd**	Country Club Rd	Dead End	3900	$194,986
21	9	**Waterscape Way/W Camp Kiro**	Creekscape Crossing	City Limits	2365	$118,264
22	6	**Creekscape Crossing**	Waterscape Way	Dead End	2213	$110,649
		TOTALS			***53,077***	***$2,653,838***

** Cost estimates are not final and may change upon engineering assessment. Cost for curb & gutter (approximately $25/LF) not included.*

Other Physical Improvements

A number of additional recommendations have been made throughout the Plan to produce beneficial changes in the pedestrian environment. These include construction of several new greenway trails, which will produce a valuable recreational and transportation asset to New Bern. The final greenway trail recommendations are shown in Table S-5. Cost estimates are given for paved and unpaved 10ft trail surfaces and do not include signage, pavement markings, crossing treatments or other features. Additionally, costs of permeable pavement are not included. The recommended surface treatment is highlighted in the table's cost estimates with bold text.

Table S-5. *Greenway Trail Recommendations (proposed phasing)*

Phase	Proposed Greenway Trail	Total Trail Length	Estimated Cost (Paved Trail)	Estimated Cost (Unpaved Trail)
Short-term	**RiverWalk Trail (Lawson Creek to Jack Smith Creek)**	16,561 ft (3.14 miles)	**$2,195,630**	$313,661
Short-term	**Lowes Blvd Connector Trail**	1,734 ft (0.33 miles)	$229,860	**$32,837**
Short-term	**Lawson Creek Footbridge***	665 ft (0.13 miles)	**$400,000**	N/A
Mid-term	**Washington Ave Hospital Connector Trail**	3,575 ft (0.68 miles)	$473,987	**$67,712**
Mid-term	**Fox Village Connector Trail**	705 ft (0.13 miles)	$93,498	**$13,357**
Mid-term	**Hotel Drive Connector Trail**	1,131 ft (0.21 miles)	$149,941	**$21,420**
Mid-term	**Creekside Elementary Connector Trail**	5,153 ft (0.98 miles)	$685,454	**$128,845**
Mid-term	**Reclamation Lake Loop Trail**	24,055 ft (4.56 miles)	$3,192,000	**$456,000**
Long-term	**Elizabeth Avenue Connector Trail**	12,446 ft (2.36 miles)	**$1,650,082**	$235,726
Long-term	**RiverWalk Trail Extension (Jack Smith Creek to Glenburnie Park)**	10,384 ft (1.97 miles)	**$1,376,689**	$196,670
Long-term	**Cross City Rail-with-Trail**	36,647 ft (6.94 miles)	**$4,858,431**	$694,062
	TOTALS	***113,057 ft (16.86 miles)***	$ 15,303,385	$ 2,129,055

** Note: the Lawson Creek Footbridge is partially funded through a $64,900 grant from the Gate Foundation and $155,000 from US Fish and Wildlife Service.*

Crossing improvements have been recommended to enhance pedestrian safety at local intersections and key pedestrian crossings. The proposed crossing improvements, categorized into implementation phases (based on priority) are included in Table S-6 below.

Table S-6. *Final Crossing Improvement Recommendations*

Phase	Priority	Crossing Location	Recommended Treatments	Estimated Cost
Short	*1*	**Rhem St & First St**	Install a ped signal and crosswalks	$100,000
Short	*2*	**Middle Street Mid-Block Crossing**	Install curb cuts	$3,000
Short	*3*	**First Street & Spencer/Queen**	Install neckdowns/medians and crosswalks	$50,000
Short	*4*	**MLK Jr Blvd & Pinetree Dr**	Install crosswalks and ped signals	$5,000
Short	*5*	**MLK Jr Blvd & Simmons St**	Install crosswalks and ped signals. Add school crossing signage.	$5,700 (+ median)
Short	*6*	**Simmons St & Educational Dr**	Add "Yield to Pedestrians" signage and school crossing signage.	$5,000
Short	*7*	**MLK Jr Blvd & Trent Creek Rd**	Add crosswalks and ped signals. Add school crossing signage.	$5,300
Short	*8*	**National Ave & Dunn St**	Install sidewalk approach and flangeway filler at railroad tracks.	$6,400
Mid	*9*	**Neuse Blvd & MLK Jr Blvd**	Add crosswalks and ped signals.	$5,000
Mid	*10*	**Glenburnie & Elizabeth**	Add crosswalks and ped signals.	$5,000
Mid	*11*	**Queen & Pollock**	Add high-visibility crosswalks and ped signals .	$5,000
Mid	*12*	**MLK Jr Blvd & Hotel Dr**	Add crosswalks and ped signals. Consider median refuge.	$5,000 (+ median)
Mid	*13*	**Broad & First/Third St**	Re-alignment scheduled; install ped signals and curb extensions.	$25,000
Mid	*14*	**Neuse Blvd & Hospital Dr**	Add high-visibility crosswalks and ped signals.	$5,000
Mid	*15*	**Broad & Queen/Roundtree St**	Add ped signals and overhead "Yield to Pedestrians" signage.	$5,500
Mid	*16*	**Glenburnie & McCarthy Blvd**	Add crosswalks and ped signals. Consider a road diet.	$5,000 (+ median)
Mid	*17*	**MLK Jr Blvd & Twin Rivers Drive**	Add crosswalks and ped signals. Consider medians.	$5,000 (+ median)
Long	*18*	**Glenburnie & Brunswick**	Add crosswalks, ped signals and “Yield to Pedestrians” signage.	$5,500
Long	*19*	**Glenburnie & Neuse**	Add crosswalks and ped signals. Consider curb extensions.	$5,000 - $25,000
Long	*20*	**MLK Jr Blvd & Lowes Dr**	Install curb ramps and pedestrian approaches to connect to retail centers. Add crosswalks and ped signals at intersection.	$11,000 (+ road diet)
Long	*21*	**Glenburnie & Yarmouth**	Add crosswalks and ped signals.	$4,000
Long	*22*	**MLK Jr Blvd & Trent Rd**	Add crosswalks and ped signals. Add school crossing signage.	$5,150
Long	*23*	**Trent Rd & Lowes Blvd**	Add crosswalks and overhead “Yield to Pedestrians” signage.	$400 - $2,700
Long	*NR*	**US 70 & Airport Rd**	Further study needed. Add crosswalks and ped signals. Extend median refuge into crosswalk. Alternate location is Williams Rd.	$13,400 (+ median)
Long	*NR*	**US 70 & Thurman Rd**	Further study needed. Add crosswalks and ped signals. Extend median refuge into crosswalk. Alternate location is Taberna Way	$13,400 (+ median)

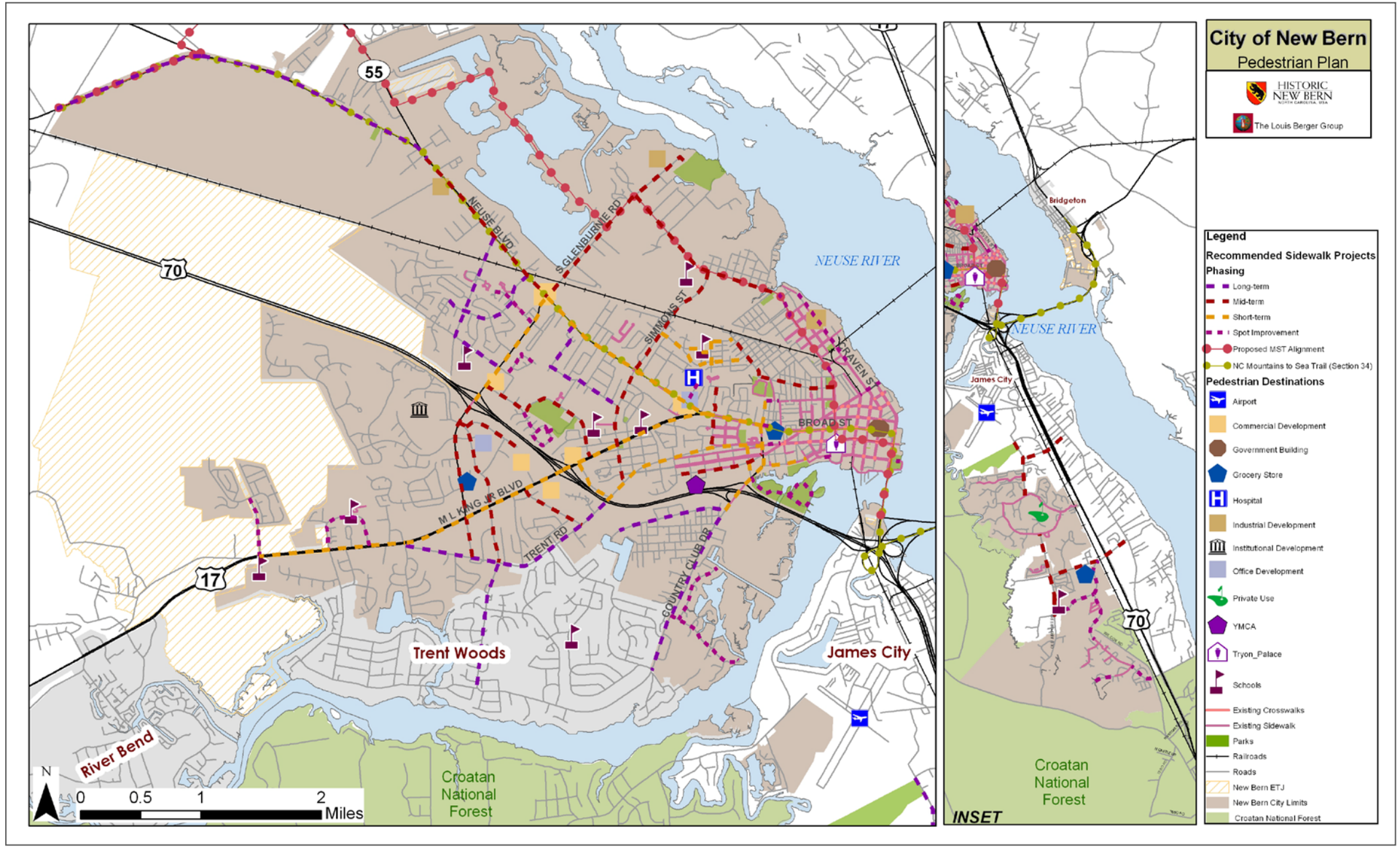
Bridge/Crossing	Description	Recommended Treatment
Alfred A. Cunningham Bridge	Important connection between downtown New Bern (S Front Street) and James City	Sidewalks will be built on west side of bridge during current bridge construction project; project should be monitored and appropriate signage, intersection improvements and traffic calming should be installed to improve pedestrian safety as needed
Neuse River Bridge	Mountains-to-Sea Trail Alignment; Provides pedestrian connectivity over Neuse River via Hwy 17 from downtown New Bern to Bridgeton	Install parallel bike/ped bridge and/or safe sidewalk for pedestrian access over bridge. Note that this bridge is controlled access, so State exception will be needed for any on-road pedestrian accommodations.
Freedom Bridge	Alternate connection between Pembroke area and downtown, as well as to James City (via US 70)	Install parallel bike/ped bridge and/or safe sidewalk for pedestrian access over bridge

Improvements Outside of New Bern

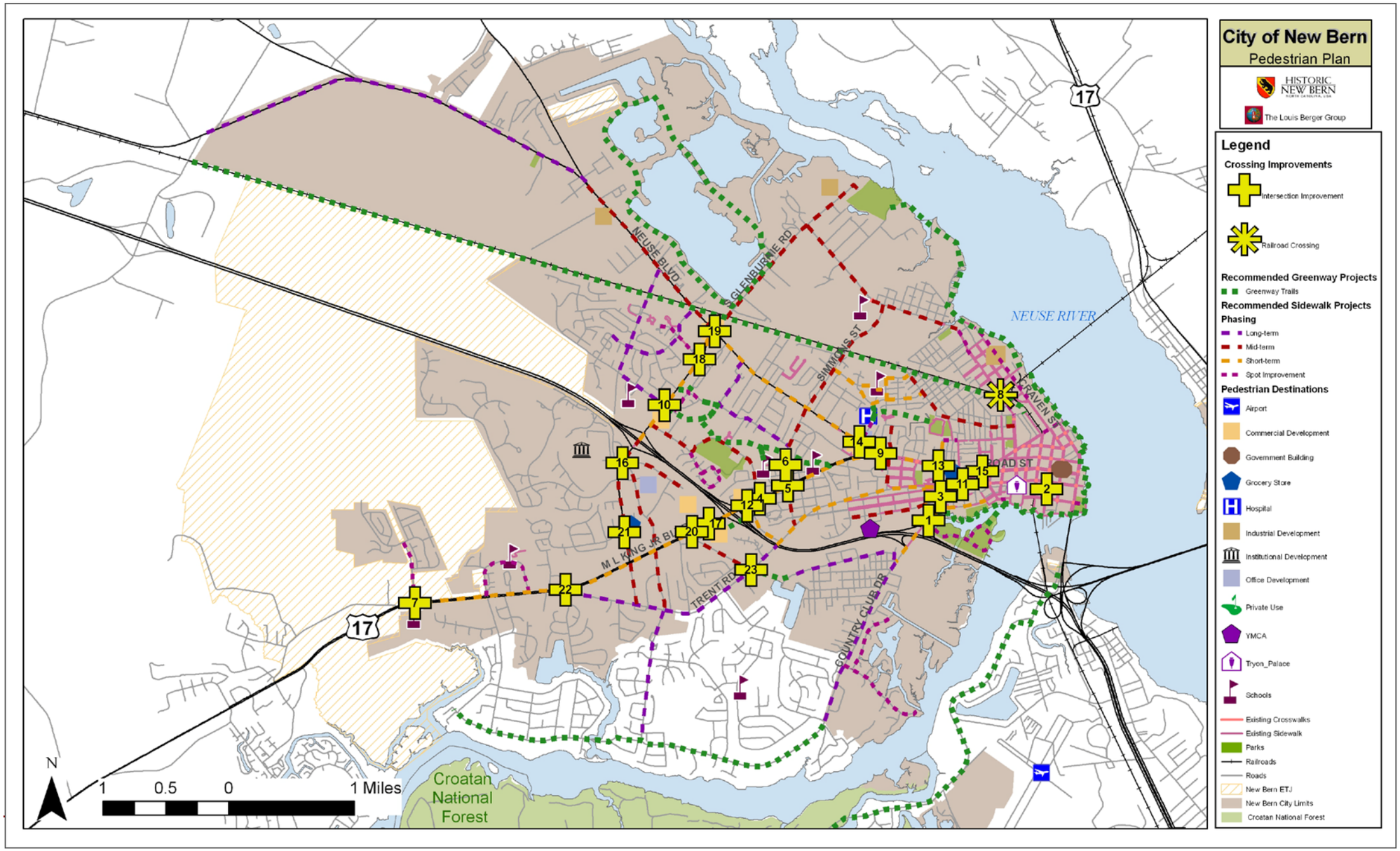
Proposed Greenway Trail	From	To	Recommended Treatment
Croatan Forest Connector Trail	Front St Bridge	Croatan Forest	Mostly outside of city limits; if/as right-of-way permits, construct sidepath adjacent to Madame Moore Ln and Brice Creek Rd to provide bicycle/pedestrian access between New Bern and the Croatan National Forest.
TrentWoods Drive/Country Club Road Sidepath (adjacent to street)	Haywood Creek Dr	Town Limits	Construct wide asphalt running path along south side of TrentWoods Dr/Country Club Rd to connect with proposed sidewalks on New Bern end. Ensure safe pedestrian crossings at all intersections with north-south roadways.

Proposed Sidewalk Corridor Project Location	From	To	Municipality (outside New Bern city limits)
Canterbury Rd	Wedgewood Dr	Highland Ave	**TrentWood**
Chelsea Rd	Country Club Rd	McCarthy	**TrentWood**
Airport Rd/US 70 Service Rd	Old Airport Rd	Old Cherry Point Rd	**Craven County**
Highland Ave	Canterbury Rd	Trent Blvd	**TrentWood**
Howell Rd	Old Airport Rd	US 70	**James City/Craven County**
River Rd/Greenleaf Cemetery Rd	TrentWoods Dr	MLK Jr Blvd	**TrentWood**
Wedgewood Dr	Country Club Rd	Canterbury Rd	**TrentWood**
Williams Rd	Old Airport Rd	US 70	**James City/Craven County**

This map illustrates the proposed sidewalk network for New Bern in relationship to major destinations.



This map highlights the overall proposed pedestrian projects in northern New Bern, including priority crossing improvements.



Section 1. Goals & Objectives

This section introduces the key concepts behind the New Bern Comprehensive Pedestrian Plan, as well as the goals and objectives set by the Steering Committee.

1.1 Introduction

The intent of the New Bern Comprehensive Pedestrian Plan is to provide guidance for making the City of New Bern a more pedestrian-friendly community. Partially funded by a grant from NCDOT and matching funds from the City of New Bern, the Pedestrian Plan serves several purposes, including:

- To promote a better understanding of the measures that can be taken to create a safer and more pleasant walking environment in New Bern;
- To identify in the Plan a clear schedule of projects, programs, and policies that New Bern and partnering agencies can provide to improve the walking environment; and
- During the planning process and afterwards, to create a better awareness of walking as a viable mode of transportation that can serve as a reliable substitute for some trips being made by private auto now; contribute to a healthier lifestyle; and reduce carbon and other emissions associated with motorized travel.

The Pedestrian Plan recommends future pedestrian-related projects and facility improvements in the City, as well as programs and policies that will support a pedestrian-friendly culture and help to further improve local walking conditions. The results of the Plan will be a safe, accessible pedestrian system that includes sidewalks, greenways and safe intersections, in addition to programs and policies that encourage residents and visitors alike to walk for health, recreation, fitness, cost-savings and basic transportation.

The Plan attempts to capture and address the needs of New Bern's varied population, including those of current and future residents, visitors, and tourists. The benefits of the Plan are as varied as the population it serves, including improved air quality, a healthier and

more physically active population, reduced traffic congestion, and improved pedestrian safety for children and the elderly. All of these benefits amount to an overall improvement in quality of life which can make a city very attractive to newcomers and visitors, thus boosting the city's economy and vitality.

The following chapters of the Plan provide recommendations for projects, programs, and policies to make New Bern more pedestrian-friendly. The Plan also provides design guidelines that are tailored to the specific needs of New Bern. Finally, the Plan presents a list of priorities and a phased construction schedule, as well as cost estimates and potential funding sources, to assist with implementation of the Plan's recommendations.

1.2 Plan Process

The New Bern Pedestrian Plan was begun in March 2008 and completed in the summer of 2009. New Bern contracted with a professional consulting firm, The Louis Berger Group, Inc., to help the City prepare the Plan, conduct public engagement exercises, and assist in facilitating a Steering Committee comprised of citizens, business representatives, City and County staff, and local pedestrian advocates. Two public "Open House" workshops and a city-wide survey were conducted as part of the planning process to gather feedback from residents on the vision for the future of New Bern's pedestrian environment. In addition, the Consultant conducted a field inventory of existing pedestrian facilities in New Bern, which combined with public feedback, led to the identification of project and program needs in the community. Existing conditions analyses and recommended pedestrian improvements were refined through the development of two "working papers" reviewed in full by the Steering Committee. A draft of the Plan was presented for public comment at the April 14, 2009 Open House and the final Plan was approved by the Board of Alders on September 8, 2009.

1.3 Vision & Goals

On April 21, 2008 the first meeting of the New Bern Comprehensive Pedestrian Plan was conducted, in part to capture the opinions of the Steering Committee about important guiding principles for the Plan. These principles are captured as a vision statement and a series of goals.

The following are the direct comments from the Steering Committee when asked what their goals were for the Pedestrian Plan:

- Create an inviting place to walk.
- Create a policy-shift locally to a less autocentric mentality, whereby multi-modalism is promoted and valued as much as or more than vehicular mobility.
- Enhance connectivity of pedestrian facilities.
- Develop pedestrian design guidelines for private development.
- Create greenway connections for pedestrians.
- Identify unsafe pedestrian areas and consider safety improvements at these locations and throughout New Bern.
- Create a pleasant walking environment in New Bern.
- Consider environmental impacts of all transportation choices and projects.
- Enhance safety for pedestrians at railroad crossings.
- Promote walking as a viable and cost-effective transportation mode.
- Create better recreational walking opportunities, in addition to transportation options.
- Create better connections to community parks and recreation facilities, historic sites and other key local destinations.
- Increase educational efforts and promote walking through route maps, local history tours, and other means.

Name	Affiliation / Representation
Michael Avery	City of New Bern Planning Department
Holly Blake	Craven County Health Department
Ben Bunn	Craven Regional Medical Center Foundation
Helen Chaney	NCDOT Bike/Ped Division
Leigh Anne Friesen	City of New Bern Planning Department
Thurman C. Hardison	City of New Bern Parks & Recreation Department
Tom McGraw	300th Anniversary Connectivity Committee
Danny Meadows	City of New Bern Public Works Department
Rike Scheele	City of New Bern Planning Department
John Smith	City of New Bern Police Department
Annette Stone	City of New Bern Planning Department
Alice Wilson	City of New Bern Planning Department

Table 1-1. Pedestrian Plan Steering Committee

Steering Committee Statement	Goal				
	1. Connectivity	2. Viability	3. Access	4. Encouragement	5. Progress
Create an inviting place to walk.		●		●	
Create a policy-shift locally to a less autocentric mentality, whereby multi-modalism is promoted and valued as much as or more than vehicular mobility.					●
Enhance connectivity of pedestrian facilities.	●		●		
Develop pedestrian design guidelines for private development.			●		●
Create greenway connections for pedestrians.	●		●		●
Identify unsafe pedestrian areas and consider safety improvements at these locations and throughout New Bern.		●	●	●	
Create a pleasant walking environment in New Bern.		●		●	
Consider environmental impacts of all transportation choices and projects.					●
Enhance safety for pedestrians at railroad crossings.		●	●	●	
Promote walking as a viable and cost-effective transportation mode.		●	●	●	
Create better recreational walking opportunities, in addition to transportation options.	●	●	●		●
Create better connections to community parks and recreation facilities, historic sites and other key local destinations.	●		●		
Increase educational efforts and promote walking through route maps, local history tours, and other means.				●	
Enhance pedestrian access for everyone in the community, including those who cannot afford a car and *need* to walk for transportation, as well as disabled members of the community.	●	●	●	●	
Promote the benefits of walking.				●	

Table 1-2. Pedestrian Plan Steering Committee Comments and How They Relate to the Goal Statements

- Enhance pedestrian access for everyone in the community, including those who cannot afford a car and *need* to walk for transportation, as well as disabled members of the community.
- Promote the benefits of walking.

From these basic statements, the following Goals were created. These statements will be further modified as the Plan progresses, and additional refinements are created by the Steering Committee and planning project staff. Each Goal is accompanied by an issue statement that further describes the impetus behind the Goal, and provides a connection to the implementation strategies.

Goal One: New Bern's pedestrian facilities are a well-connected network of sidewalks and greenways.

Issue Statement – This goal reflects many of the desires of the Steering Committee to connect developed parts of the City, and create better access to local parks, schools and other destinations, as well as access within and between existing and future residential areas. Creating a well-connected and accessible network of pedestrian facilities can also mean creating beautiful aesthetics to compliment not only walking and biking, but enhance everyday living for citizens and promote a vibrant, attractive atmosphere for businesses and tourists. To accomplish this Goal, funding and regulatory practices must pay attention to new facilities, constant improvement in design standards for new developments, safety-education and promoting walking in the City.

Goal Two: Walking is a viable mode of transportation in New Bern.

Issue Statement – With rising gas prices, the desire for improved health and wellness, and the need to provide multi-modal transportation options for all residents and visitors of New Bern, pedestrian improvements should be made to ensure that walking is a viable option for citizens who must walk for transportation, as well as those who choose to walk for transportation. Creating a well-

connected and accessible pedestrian system will ensure that citizens and visitors can reach destinations by foot or wheelchair safely and conveniently.

Goal Three: All residents can walk to popular destinations in New Bern.

Issue Statement – New Bern has a significant number of elderly residents, as well as residents living below the poverty threshold, who *need* to walk for transportation. Further, many New Bern residents may *choose* to walk to work, school, local parks, shopping centers, and other primary destinations, either for recreation or transportation. However, there are some streets and intersections in the City that are not conducive to walking, and the behaviors of motorists and pedestrians alike can be improved through additional awareness of each other to make walking a safer and more viable option for everyone.

Goal Four: Walking is promoted and encouraged for transportation and recreation in New Bern.

Issue Statement – As a popular tourist destination and a small city with a diverse population of active residents, one can see a number of pedestrians out walking in New Bern's downtown and other major commercial areas on a daily basis. Encouraging pedestrian safety, while also promoting walking for transportation and recreation, will help to cultivate a more pedestrian-friendly culture in New Bern and inspire more citizens and visitors to put on their walking shoes. The City will be able to build upon existing historical walking tours and community events to make this goal a reality.

Goal Five: The City of New Bern makes steady progress to implement its pedestrian recommendations.

Issue Statement – New Bern will not immediately have all the resources it needs to construct new facilities or create and

maintain programs, but will have to rely on partnerships with the private sector, developers, education officials, health agencies, the North Carolina Department of Transportation, and others to make better pedestrian transportation a reality. To do so may require modifying the ordinances that guide growth, increasing the amount of limited capital dedicated to pedestrian improvements, and identifying creative ways of enriching the partnerships that already exist or creating new ones.

From these five broad Goals, a succinct vision of the New Bern pedestrian environment can be then be created:

"New Bern is a walkable city with a well-connected pedestrian network that provides safe, convenient, attractive and viable walking routes for all of its residents and visitors to access key local destinations."

This is the Vision for how the City will be viewed, perhaps in 20 years or longer. As the Plan proceeds, implementation strategies will be added to define exactly how this important Vision will be carried out in the months and years ahead. For now, we will begin to look at the existing conditions that face New Bern's pedestrians, and identify some of the obstacles that can be overcome or lessened through a consistent effort by New Bern and its partners to promote walkability.

Section 2. Existing Conditions

As part of the recommendation process, an existing conditions analysis was conducted to assess the current pedestrian network and community needs in New Bern. The existing conditions analysis is an important element of the planning process, as it builds the foundation and guides the development of any project, program, and policy recommendations.

This section describes factors that contribute to current pedestrian transportation mode shares in New Bern, as well as the physical landscape that affects how today's average pedestrian experiences the City.

To address the needs of pedestrians, the existing conditions analysis considers not only physical conditions, such as roads, parks, and schools, but also less concrete items, such as demographic information, public perceptions, and travel behaviors. This section contains the following items:

- History of Development in New Bern
- Demographic Analysis
- Existing Facilities Analysis
- Pedestrian Crash Analysis
- Community Concerns and Needs

2.1 History of Development in New Bern

The City of New Bern is one of the state's oldest cities and the first capitol of North Carolina. Founded in 1710 by Swiss settlers from Bern, Switzerland, its namesake, New Bern became the Craven County seat in 1722 and a major river port for North Carolina. In the late 1760's, construction began on Tryon Palace, the first capitol building for Royal Governor William Tryon. At the beginning of the American Revolution in 1775, the colonial government fled and Tryon Palace briefly acted as the state capitol and hosted the first General Assembly sessions of the free and independent state.[1] New Bern continued to flourish in the 19th Century, as a trading center, and the development of the railroad through the City aided its economic growth and prosperity.[2]

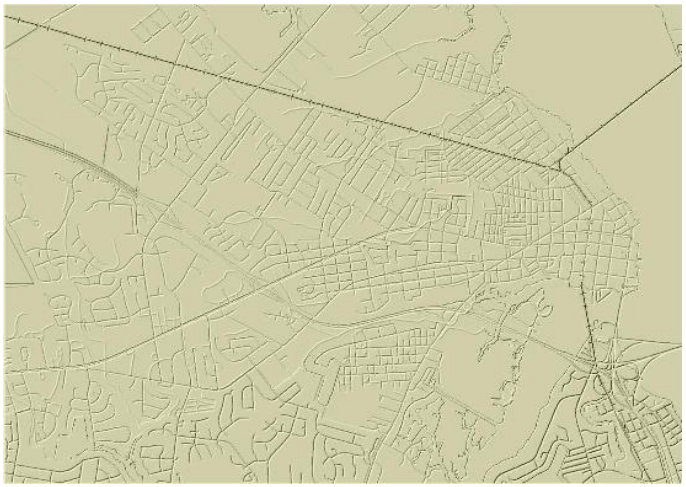


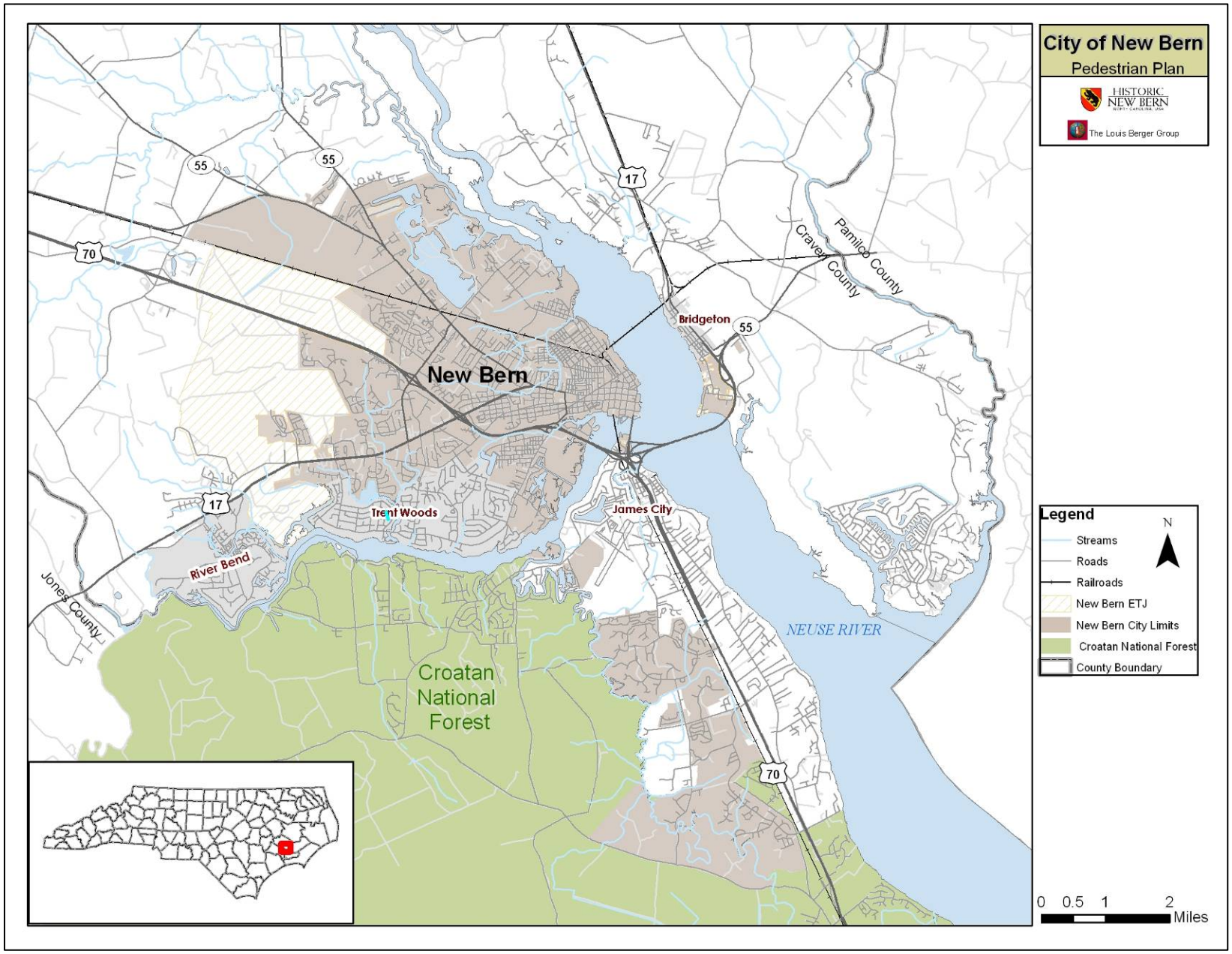
Figure 2-1. The Grid Pattern of Streets in New Bern. The obvious grid pattern of the central parts of the City, combined with the natural constraints of wetland areas and favorable climate, make the City a good long-term candidate for making walking a viable form of transportation.

Figure 2-2. **Pedestrian Destinations.** People without access to automobiles – the elderly, handicapped, lower-income populations and youth – are immediate market segments that benefit from pedestrian improvements to connect playgrounds, school (above), shopping, and social destinations with homes.

In 2010, New Bern will be celebrating its 300th anniversary. The City boasts many historic sites including two registered historic districts and 150 registered historic landmarks. Situated at the confluence of the Neuse and Trent Rivers, New Bern also offers a number of recreational and tourism opportunities, with a plethora of parks and open space including the riverfront walkway downtown commonly called the RiverWalk. The Central Business District is vibrant and eclectic, with a number retail, restaurant and service destinations; the downtown area also features the New Bern Riverfront Convention Center, which helps draw tourism and business income to the area.

Figure 2-3 illustrates the position of the City relative to the surrounding region, including nearby River Bend and Trent Woods, important local/regional rail lines, and major roadways. US 70, US 17, NC 43 and NC 55 provide highway accessibility from other areas of eastern North Carolina west to I-95 and US 264, while the Atlantic and East Carolina rail line continues to connect the area with national access to freight shipping as it has done since the early days of the New Bern's history.

Figure 2-3. Location of New Bern. NC.



2.2 Demographic Analysis

It is important to examine a city's demographics before developing a pedestrian plan because demographic information provides valuable clues about citizen travel behavior and preferences. Characteristics such as age, income, vehicle ownership, and commute time can suggest a population's potential for accepting walking as a mode of transportation. The following paragraphs provide a summary of the demographic analysis for the City of New Bern and explain the implications of the analysis for the recommendations made in the New Bern Pedestrian Plan. The complete demographic analysis can be found in Appendix C.

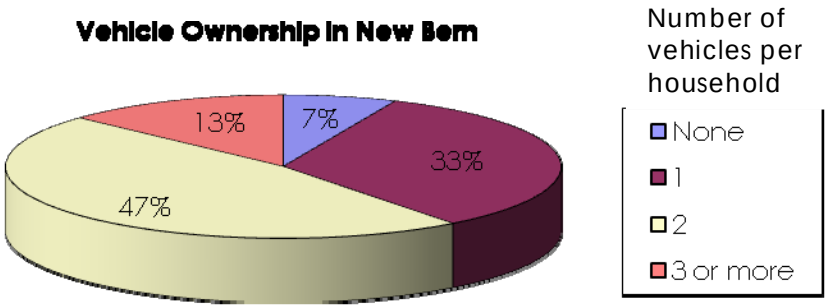


Figure 2-4. Vehicle Ownership in New Bern.

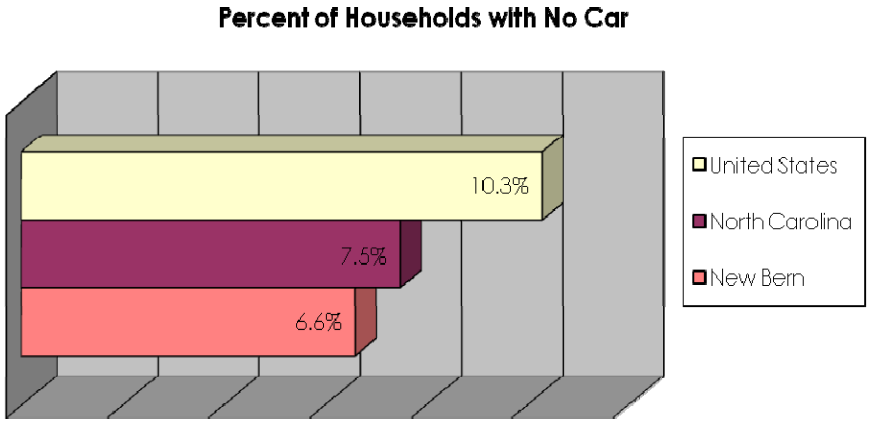


Figure 2-5. Percent of Households with No Car in New Bern.

According to 2000 U.S. Census data, New Bern's population is growing quickly with a 33% increase in total population growth between 1990 and 2000 - more than double the Craven County increase nationwide during the same time period. Much of the City's growth in the 1990's can be attributed to significant annexation during that time period, while more recent growth may be attributed to New Bern's appeal to newcomers and retirees.

New Bern's demographics reveal that the City's population is fairly racially balanced between Caucasians and African-Americans, and three percent (3%) of New Bern's population self-identifies as Latino. New Bern has a relatively large "low income" population, with nearly one-fifth of the population living below poverty-level. Among those living in poverty, children are most affected; nearly 34% of children 5 years of age and under in New Bern are living in poverty. Overall age-distribution patterns in the City reflect an interesting pattern compared to state and national averages. Though there is a similar percentage of youth and middle-aged residents, the population of age group 65+ is significantly higher than state and national averages. This figure could indicate that New Bern is a popular retirement community, which is somewhat reinforced by the fact that only 57.5% of the population over age 16 participates in the local labor force. Another interesting observation is that there are fewer residents age 65+ living in

poverty than the general poverty rate for all age groups, indicating that wealthy and upper-income retirees are likely moving to New Bern and thereby decreasing the overall poverty status of this age group.

The City's household vehicle availability statistics (displayed visually in Figure 2-7 and 2-7) are somewhat congruent with statewide and national numbers, and reflect that most residents have access to a vehicle. Generally, vehicle-ownership mirrors poverty levels, but only 6.6% of New Bern residents do not have access to a vehicle (compared to a 19.1% poverty rate). New Bern also has a higher percentage of households with two cars available than both the state and nation. It is also interesting to note that the City has relatively high bicycle and pedestrian commute rates compared with the state and nation; 2.9% of New Bern residents walk to work. Additionally, despite the lack of a fixed, citywide transit system, more New Bern residents rely on public transportation than statewide residents. Most of those using public transport are riding in taxi cabs to work. The demographic analysis also reveals that New Bern has a significantly higher percentage of work commuters who travel less than 14 minutes to work, than both the state and national percentages. This figure indicates that many New Bern residents (over 55%) live within 14 minutes from work, suggesting that people who work in the city also live within the city, and increasing pedestrian commutes can be a realistic goal.

Overall, the results of the demographic analysis suggest that the City's population would be amenable to walking for transportation purposes. Based on the income levels, poverty rate, and household vehicle availability, commuting on foot seems to be a potentially practical option for many workers. Also, given the percentage of senior residents, working to encourage and increase in non-work walking trips could be a useful focus. The New Bern Pedestrian Plan should make recommendations that focus on improving pedestrian facilities to connect residential areas to employment centers so to increase access for people travelling to work by foot, as well as

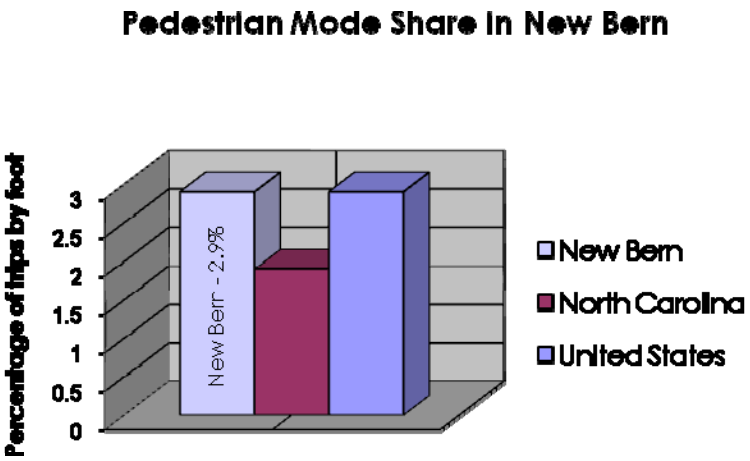
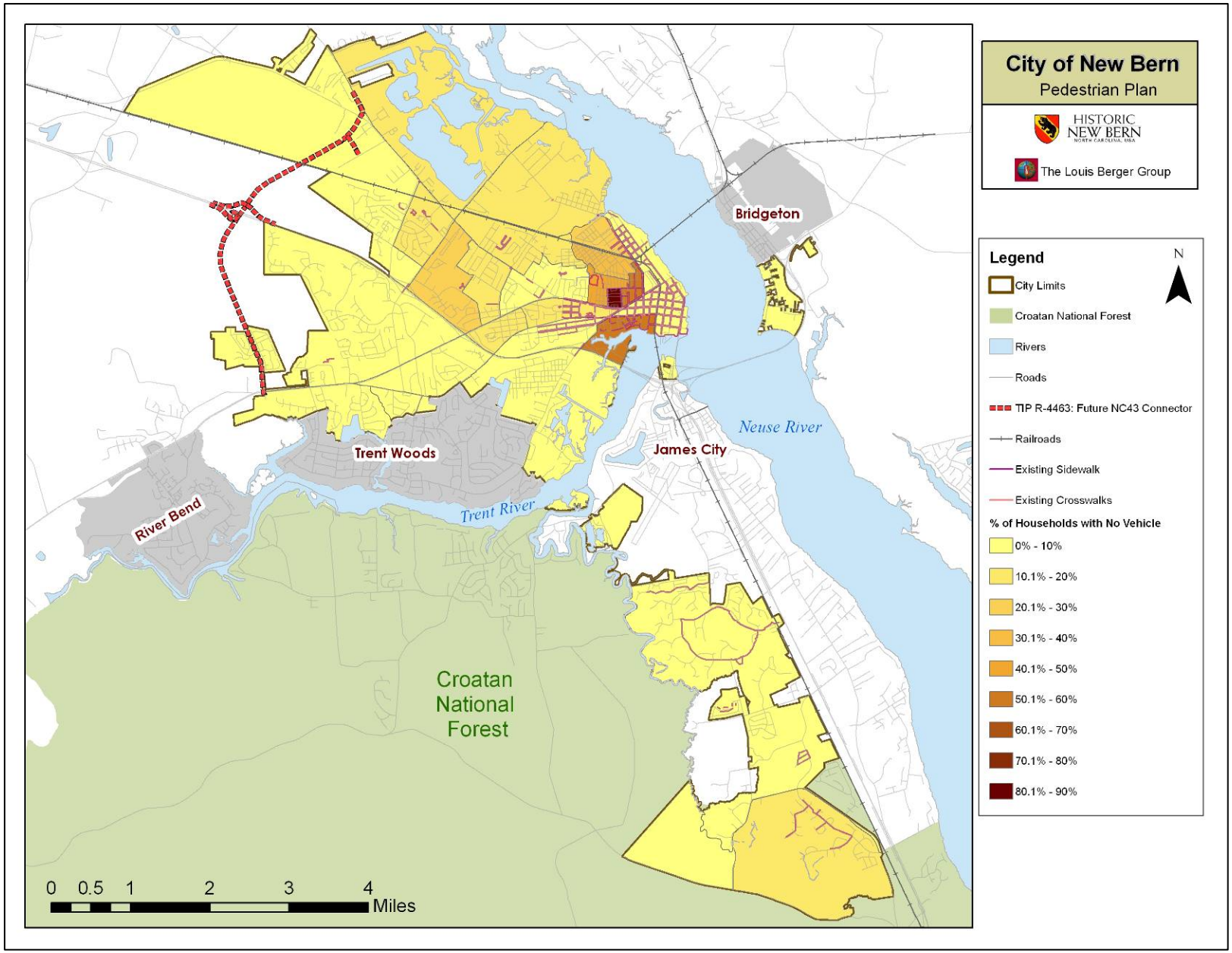


Figure 2-6. Pedestrian Mode Share in New Bern.

make recommendations to promote walking for recreational or non-work trip purposes. In addition to the environmental and air quality benefits of increased walking and decreased automobile use, the effects of adopting these pedestrian improvements will also ease vehicle traffic congestion while potentially improving the overall health, wellness and quality of life of all New Bern residents.

Figure 2-7. Vehicle Availability in New Bern.



While downtown New Bern offers many inviting places to walk, other outskirt areas of town are not as pedestrian-friendly, in many cases.

Many roadways lack sidewalk facilities, even when the public right-of-way might exist, but roadway shoulders are flat and will not need extensive grading for sidewalk installation.

Sidewalk, signage and other pedestrian accommodations at intersections, bridges and railroad crossings will be important features in New Bern to create a safer pedestrian environment.

Figure 2-8. Existing Pedestrian Conditions in New Bern.

2.3 Existing Facilities Analysis

Part of the answer as to why many people walk in New Bern – and why more people don't walk – can be found in the level of accommodation for pedestrians. While downtown New Bern is very walkable with its dense historic development, extensive sidewalk network and streetscaped roadways, many outlying areas of the City have far fewer pedestrian amenities. It is tempting to limit the observations of pedestrian accommodations to sidewalks or pathways alone, but intersection design, the location of shops, businesses and homes, and the policy environment in the City, County, and State are all important considerations as well.

A visual inventory of New Bern's pedestrian accommodations reveals the history of the City and the impact of local development ordinances (discussed in Section 3.3) on walkability. As in most North Carolina cities, sidewalks were constructed in many of New Bern's historic neighborhoods when automobiles were less prominent in the transportation network, but outside of the downtown area sidewalks are less frequent, reflecting the post 1950's era jump in automobile ownership across America. According to the City of New Bern's website, the community has 130 miles of streets and only 12 miles of sidewalks. Many of New Bern's major arterial roadways, connecting residents with important commercial, recreational and institutional sites, lack sidewalks and make walking for transportation unappealing, unpleasant or possibly unsafe in some areas. Additionally, many key areas such as major intersections, railroad crossings and roadway bridges will need pedestrian improvements for safer and more comfortable traverse. It is worth noting that a number of New Bern's bridges are outfitted with pedestrian facilities which will make sidewalk connectivity throughout the City more feasible as the roadway approaches to these bridges are retrofitted with pedestrian facilities. Figures 2-9 and 2-10 include an inventory of New Bern's existing sidewalks and illustrate important pedestrian destinations such as schools, parks, shopping and major employers.

Figure 2-9. Map of Existing Conditions and Local Destinations in New Bern (Northern Section).

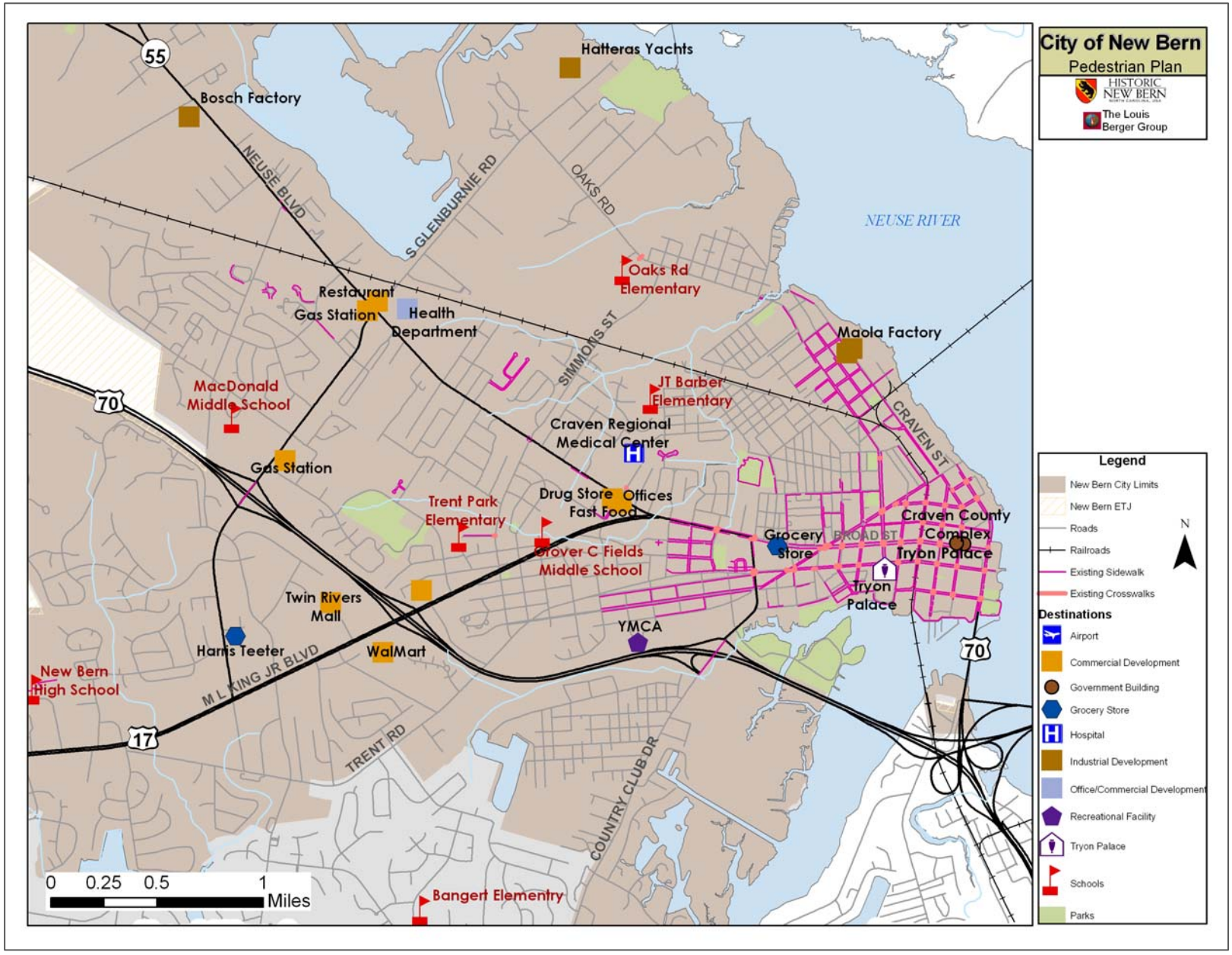
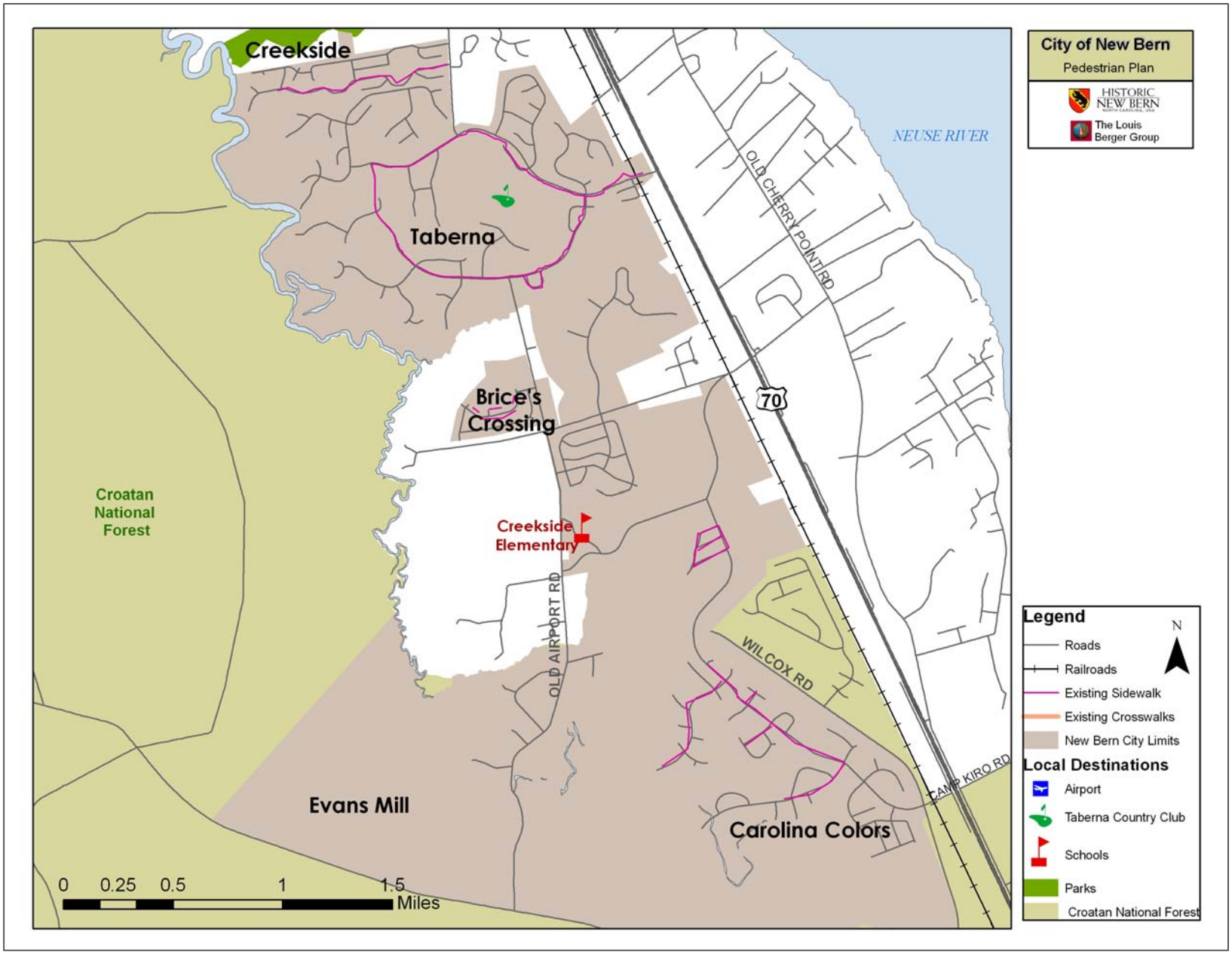


Figure 2-10. Map of Existing Conditions and Local Destinations in New Bern's southern-most neighborhoods.



Parks/Recreation Facilities and Cultural Attractions

The city has over twenty parks and recreation centers for residents and visitors, each of which should be considered a pedestrian generator and given special attention when prioritizing local pedestrian projects. Additionally, the City has many historical and cultural sites, which residents and visitors may like to access by foot. Union Point Park on Front Street in downtown, and Lawson Creek Park off of First Street near downtown, are two of the most popular parks in the city and generate considerable pedestrian traffic. Union Point Park incorporates the RiverWalk pedestrian facility planned for all of New Bern's downtown riverfront and provides a scenic destination for travelers staying in any of the downtown hotels or visiting the New Bern Convention Center. Though Union Point is in the walkable central business district, it is surrounded by several major roads, including the Hwy 17/70 bridge. Nearby intersections lack pedestrian signals and in some cases marked crosswalks, and the park entrance does not incorporate sidewalks approaching the park facilities. Pedestrian improvements could be added to increase safety and access. Lawson Creek Park is one of New Bern's largest parks, and is located within walking distance of surrounding neighborhoods. However, the intersection of First Street and Rhem Street, at the park's entrance is not signalized and creates a barrier for pedestrians, especially with its proximity to the adjacent Hwy 70 interchange. Safety improvements should be considered for better pedestrian access to Lawson Creek Park, including sidewalk approaches into the park itself. In addition to these popular parks, each of the three local recreation centers - Stanley White Recreation Center in Henderson Park, West New Bern Recreation Center in Parrot Park, and the Community Resource Center northwest of downtown New Bern – are all very popular destinations. Each of these facilities is in a fairly residential area, and all house after-school programs, youth and family activities and other community events. Safety improvements to nearby intersections, sidewalk improvements and potential trail access

Figure 2-11. Union Point Park. These photographs illustrate the lack of sidewalks at the park entrance.

Figure 2-12. RiverWalk Trail. Some segments of the trail are already constructed, while others are yet to be built.

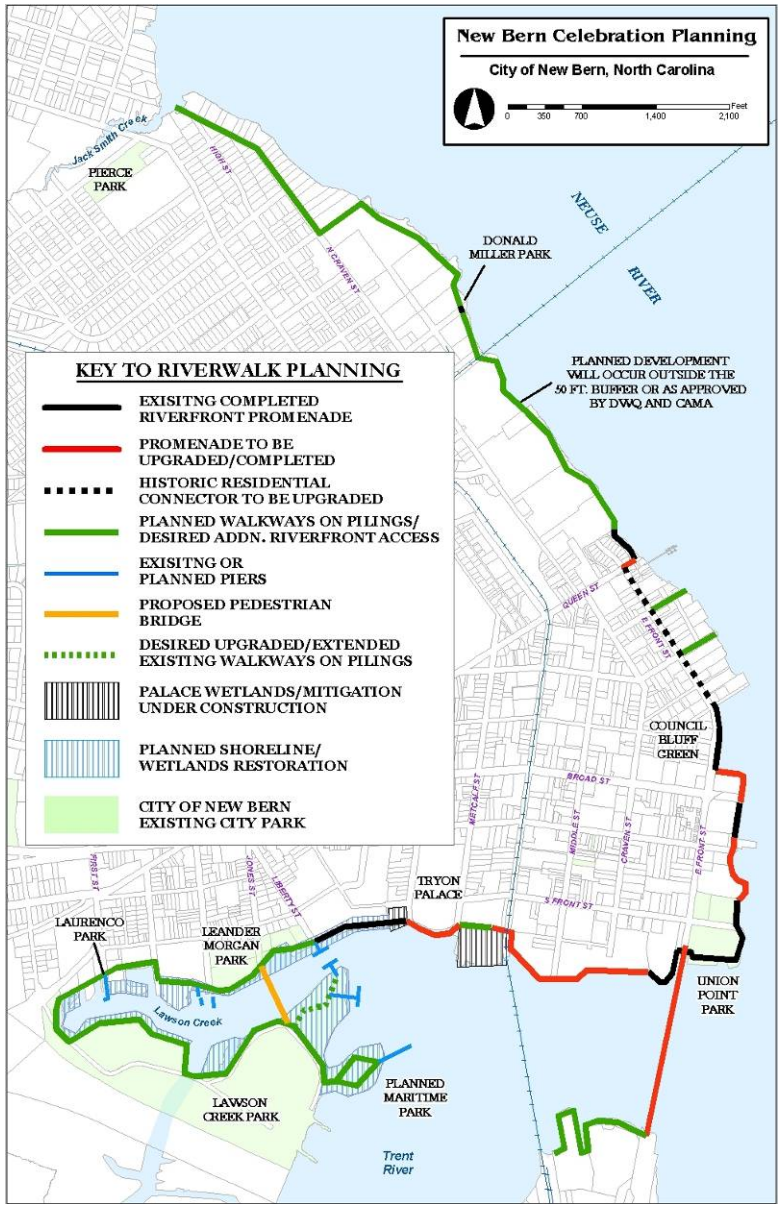


Figure 2-13. RiverWalk Trail plan for New Bern.

should be considered top priorities for connectivity to these facilities from nearby residences.

In addition to these City parks, Tryon Palace (in the Central Business District) is an important destination as a local and state cultural attraction. The former state capitol attracts numerous visitors each year, many of whom stay in nearby Bed & Breakfast Inns along Pollock Street. Sidewalk access from these inns to the Tryon Palace and nearby attractions may increase pedestrian safety. Tryon Palace is situated next to a small public housing community and the Lawson Creek/Trent River waterfront to the south. The planned RiverWalk trail will traverse the southern-most edge of the Tryon Palace property for public access along the entire riverfront from Lawson Creek to Jack Smith Creek. The RiverWalk trail will be a valuable asset to the New Bern community and should be considered a pedestrian attractor and a high priority project. The trail will provide a key pedestrian connection to the Central Business District from several downtown area neighborhoods, and will also connect downtown destinations with Lawson Creek Park via a planned footbridge from Front Street (at the intersection of Eden Street) to Jack's Island, which will help pedestrians avoid the less pedestrian-friendly Rhem Street entrance to the park. Intersection improvements and wayfinding should be considered where the trail will cross or transition to city streets (especially at the trailheads). Enhancements such as lighting, kiosk maps and park furniture (e.g. benches, water fountains and trash cans) could also be considered. Planned and potential connections to this trail from local parks and neighborhoods will be considered in the Comprehensive Pedestrian Plan. More information on local plans for the RiverWalk trail, Lawson Creek footbridge, wayfinding signage and other downtown area projects is available through the Swiss Bear Downtown Development Corporation website at http://www.downtownnewbern.com.

Figure 2-14 identifies New Bern's major parks and recreational facilities.

Figure 2-14. Map of New Bern Area Parks (select parks labeled).

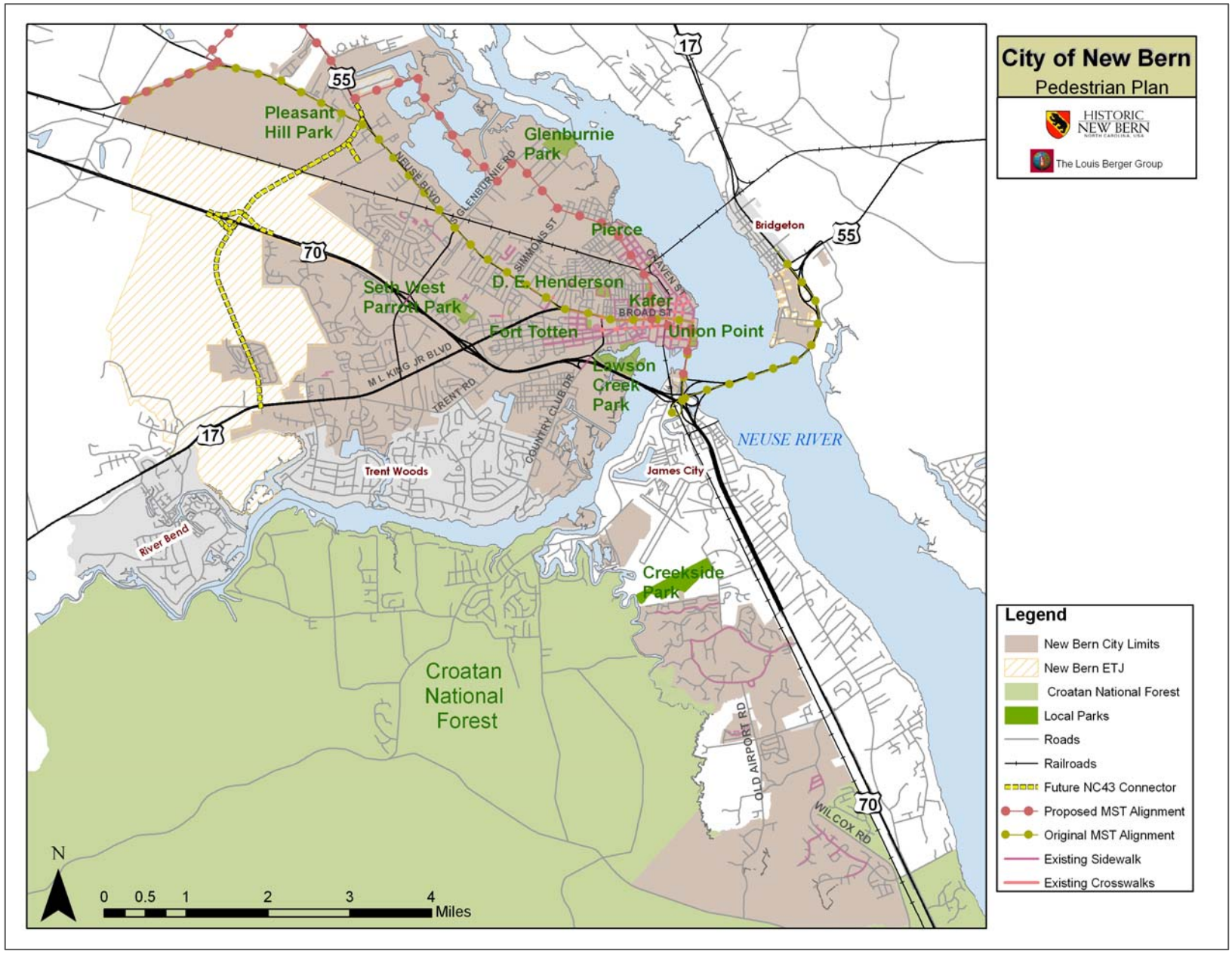


Figure 2-15. School approaches in New Bern.
Top. *Roadway approach to New Bern High School lacks sidewalks.*
Bottom. *Old Airport Rd at Creekside Elementary.*

Schools

In addition to parks and trails, local schools are major pedestrian generators, and top priority should be given to creating connections between New Bern's residential areas and schools. The City is home to seven public schools, all part of the Craven County School System. Of these local schools, six have ¼ mile walk zones set by Craven County, where students are not typically bused from home to school. These include:

- J.T. Barber Elementary School
- Trent Park Elementary School
- Grover Fields Elementary School
- MacDonald Middle School
- New Bern High School
- Ben Quinn Elementary School

While several of New Bern's elementary schools are traditional neighborhood schools, an equal number or greater are located off of major arterial roadways with few pedestrian accommodations. Oaks Road Elementary, J.T. Barber Elementary, Trent Park Elementary and MacDonald Middle School are all located in walking distance of a large number of residential units in surrounding neighborhoods. Given appropriate pedestrian facilities, these schools could be very walkable for students within a 1-2 mile vicinity. While Grover C. Fields Middle School is also within walking distance of many neighborhoods, MLK Parkway creates a major barrier for students living southeast of the campus. New Bern High School is within walking distance of several nearby townhomes, and would be well-served by sidewalk and/or greenway connections to adjacent neighborhoods. The two newest elementary schools – Ben D Quinn and Creekside Elementary – offer the most difficult pedestrian challenge. Both of these schools are located at the outskirts of town, Ben D Quinn at the westernmost boundary of the City, and Creekside serving Carolina Colors, Brice's Crossing and Taberna in New Bern's southernmost neighborhoods. These schools will need major improvements in order to serve the surrounding residential neighborhoods, which will grow as development continues in these areas.

Figure 2-16. Map of Craven County Schools in New Bern and Mandatory Walk Zones

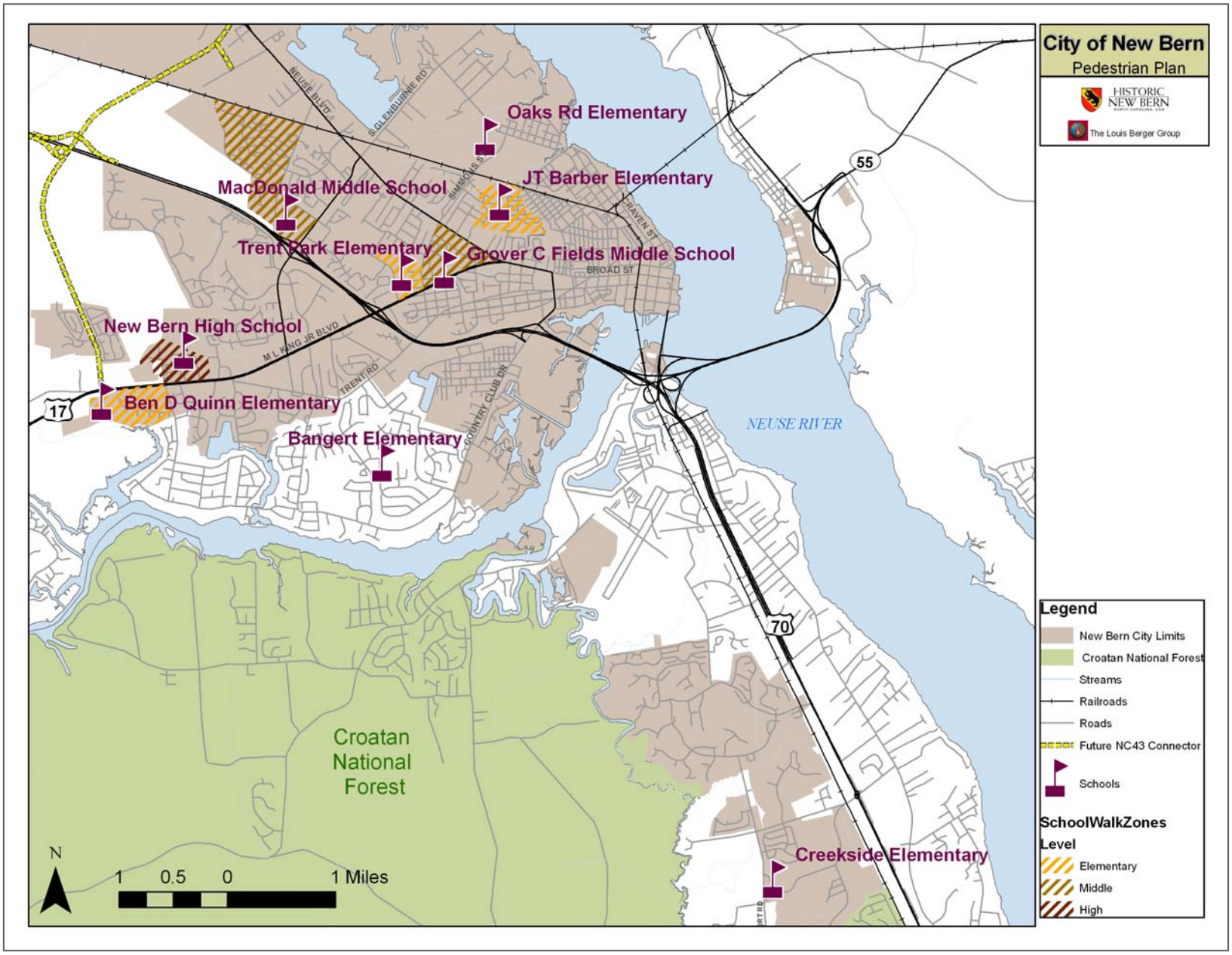


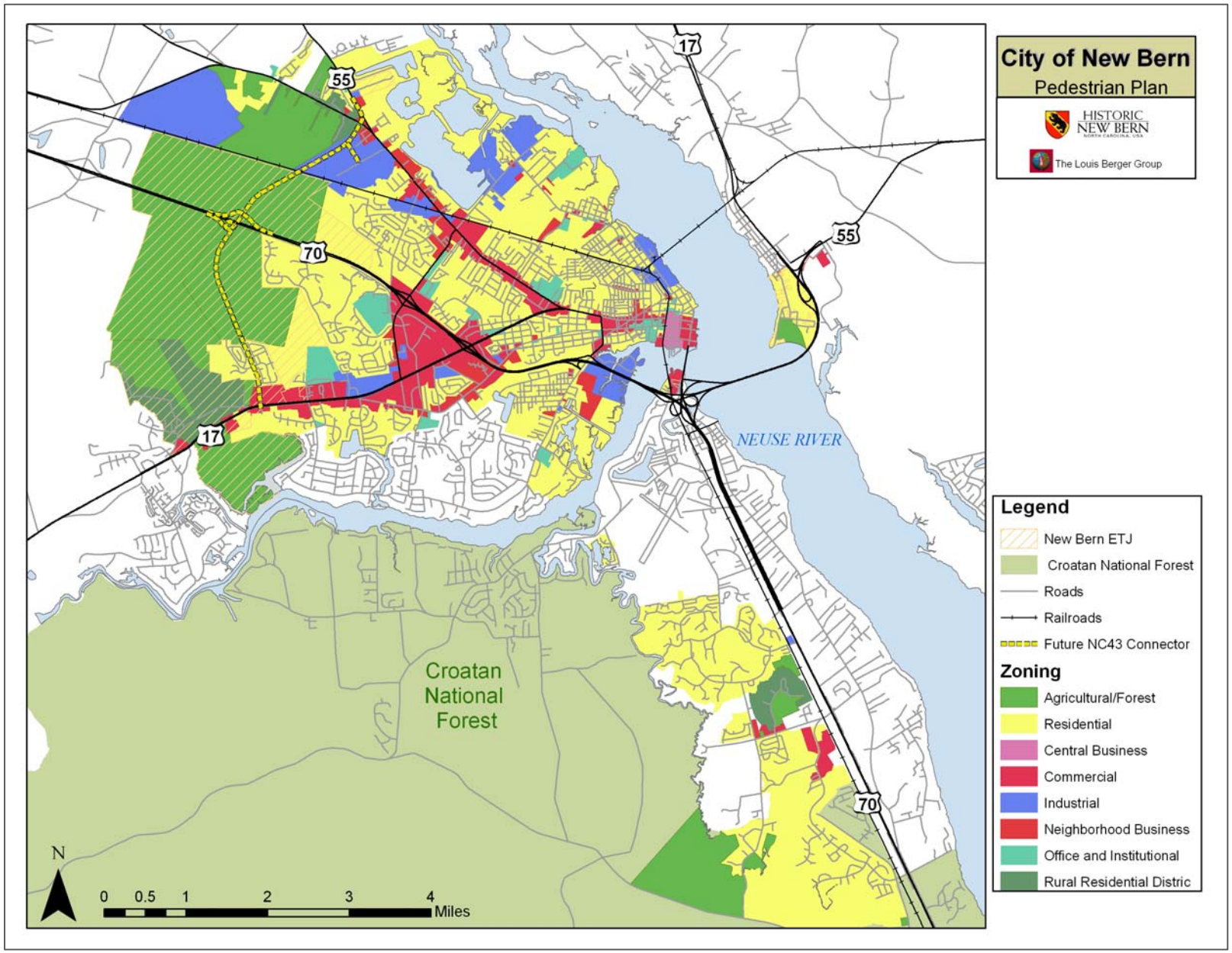
Figure 2-17. The Craven Regional Medical Center is a major employer and key pedestrian generator in New Bern.

Shopping Areas and Major Employment Centers

Major employment centers and shopping districts are key pedestrian generators in New Bern. Major employers include the Craven Regional Medical Center (hospital) and Bosch Factory on Neuse Boulevard, the Maola Factory on River Drive, Hatteras Yachts on North Glenburnie Road, and the City and County offices downtown. Local shopping centers (especially those along Martin Luther King Jr. Boulevard near Twin Rivers Mall) also employ and attract significant numbers of New Bern residents. Downtown New Bern is receiving significant investment through an NCDOT streetscape project on Broad Street, which will help to improve the walking environment to/from the downtown shopping area, connecting neighborhoods to downtown businesses.

Figure 2-18 is a map of New Bern's current zoning districts, which illustrates various land uses and proximity between the City's residential neighborhoods, commercial (shopping) areas, office locations and industrial uses (such as Maola).

Figure 2-18. Map of New Bern's Land Uses by Zone.



Transit

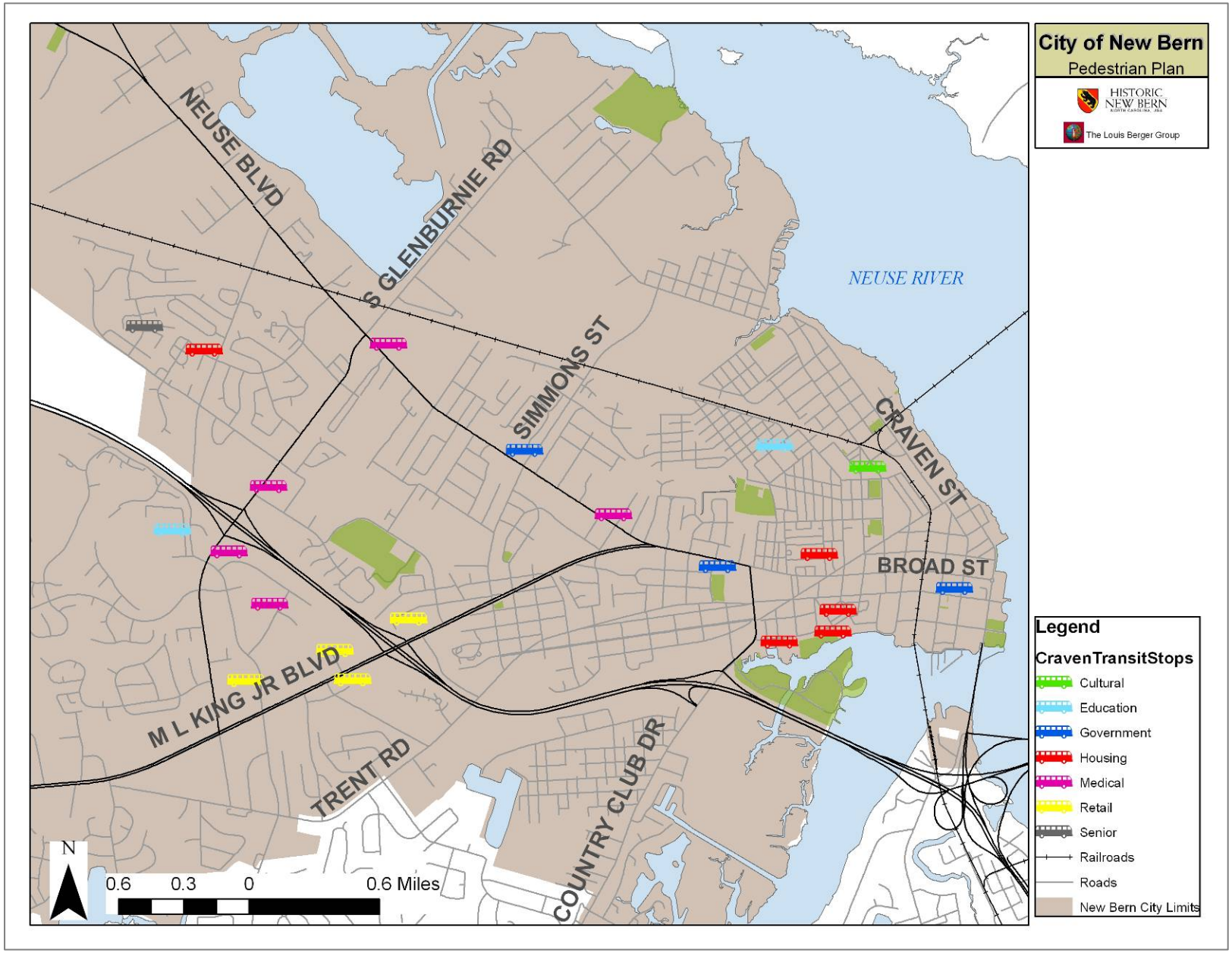
New Bern's transit system, Craven Area Regional Transit System (CARTS), is operated by Craven County to provide transportation services to the general public with an emphasis on providing services to seniors and/or disabled residents of Craven, Jones and Pamlico Counties.[3] CARTS service is based a deviated fixed route system with a yellow route and red route that operate Monday – Friday each week.

According to the Craven County website, CARTS service is "available to the general public on a space available basis for fares ranging from $1.00 to $6.75 according to zoned distances. Demand/Response service is also available to the public on a limited basis, again with emphasis on the elderly and/or handicapped." Two-day advance notice is required to schedule demand/response service.

The CARTS service in New Bern is well-used by children and adults of all ages and abilities. Access to transit stops for the yellow and red route should be considered in the development of recommendations for the Pedestrian Plan in order to ensure that New Bern's transit stops are well-served by sidewalks and greenways, as well as safe pedestrian crossing treatments and pedestrian amenities such as pedestrian-scale lighting, benches, trash cans and schedule/route information.

Figure 2-19 is a map of all CARTS transit stops in New Bern, identified by the business and agency purposes they serve.

Figure 2-19. Map of CARTS transit stops in New Bern



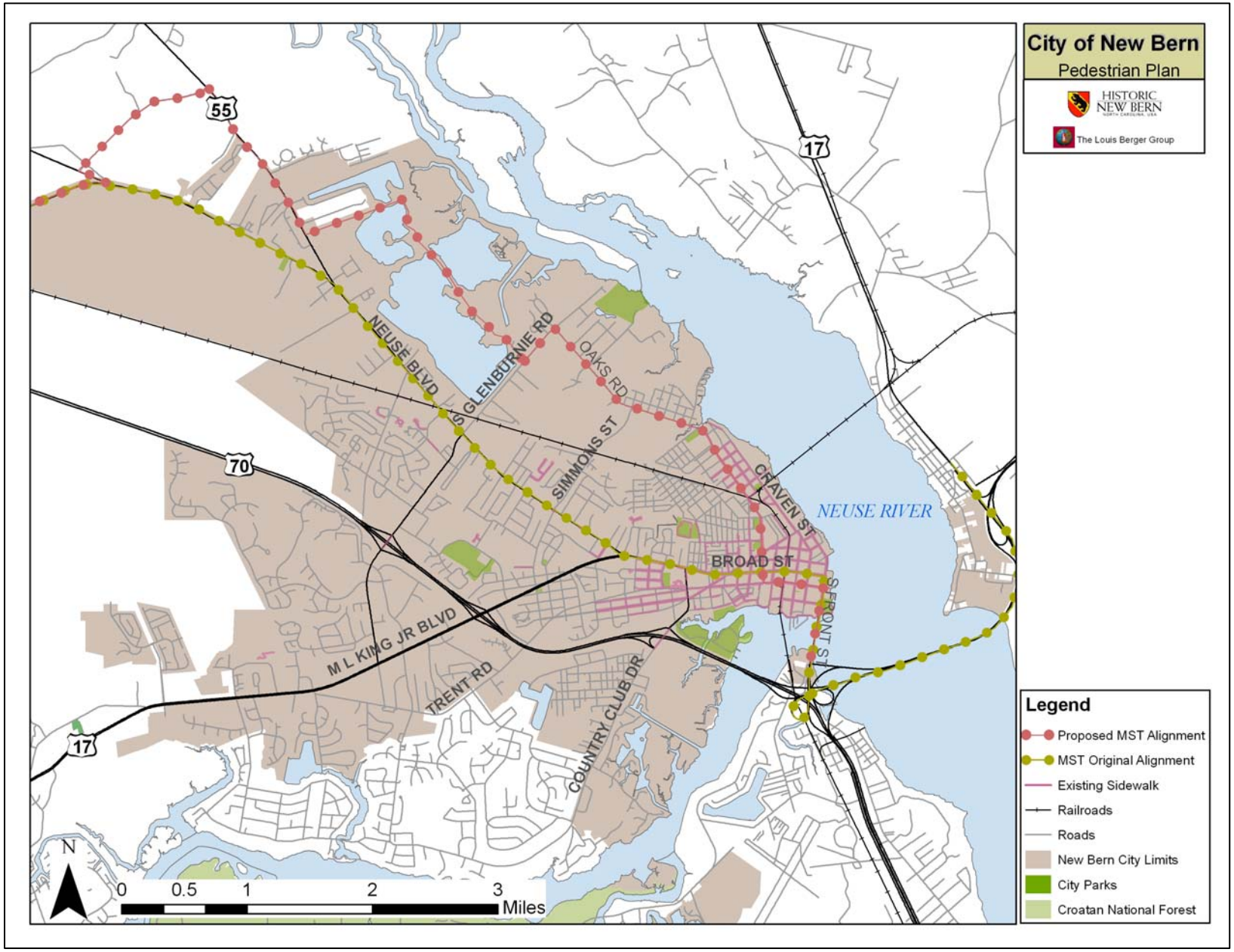
Mountains-to-Sea Trail

The Mountains-to-Sea Trail (MST) is North Carolina's flagship trail, stretching from Clingman's Dome in the Great Smokey Mountains National Park to Jockey's Ridge State Park by the Atlantic Ocean.[4] The MST is approximately 935 miles from start to finish and passes through 37 counties, including Craven County. According to the Friends of the Mountains to Sea Trail group, New Bern is the only city through which the trail completely passes.

At the time this Plan was written, there were two proposed alternatives for the Mountains-to-Sea Trail route through New Bern. The original proposal was to direct trail users down NC55 and Neuse Boulevard, east on Broad Street and over the NC17 bridge to Bridgeton via South Front Street. The City of New Bern and local MST advocates have proposed a more scenic, alternative route and are working with the Friends of the Mountains to Sea Trail group to make the proposed new route official. The alternative route proposal is to direct trail users down Washington Post Road (NC43) and along the Neuse River via Oaks Road, National Avenue, George Street and Pollock Street to South Front Street and over the NC17 bridge to Bridgeton.

Figure 2-20 illustrates the proposed MST alignments through New Bern.

Figure 2-20. Map of Proposed Mountains-to-Sea Trail Route



2.4 Pedestrian Crash Analysis

A pedestrian crash analysis is useful because it can be an indicator of the pedestrian-friendliness of a community, and can also provide information on key locations or educational outreach areas where improvements could be made to enhance safety. A crash analysis can often indicate popular walking routes, and sometimes illustrate conflict areas between pedestrians and cyclists. Crash data for New Bern was available from the North Carolina Department of Transportation (NCDOT) for the periods of time between 1990-1999 and 2003-2007. Overall, this data reinforces the comments of the Steering Committee members and City staff regarding pedestrian "hot spots" throughout New Bern. The Five Points neighborhood has quite a high concentration of incidents over the total time period between 1990 and 2007, as do some of the major thoroughfares including Glenburnie Road, Martin Luther King, Jr. Boulevard and Neuse Boulevard. Many of these crashes were severe with evident and/or disabling injury incurred by the pedestrian. Interestingly, many of the pedestrian crashes throughout the city did not occur at a particular intersection, but along the street (as when/if the pedestrian were walking in the road at the time of the crash). This factor could indicate that New Bern's strongest need is to develop sidewalk facilities in areas with the highest crash rates, and that a high priority for sidewalk projects should be major thoroughfares. These crash types also reinforce the notion that educational outreach could be used to encourage pedestrians to use a sidewalk when one is available.

Figure 2-21 provides a summary of crashes in New Bern between 1990 and 1999. Figure 2-22 provides a summary of pedestrian crashes in New Bern between 2003 and 2007.

Figure 2-21. Pedestrian Crash Data for New Bern from 1990-1999

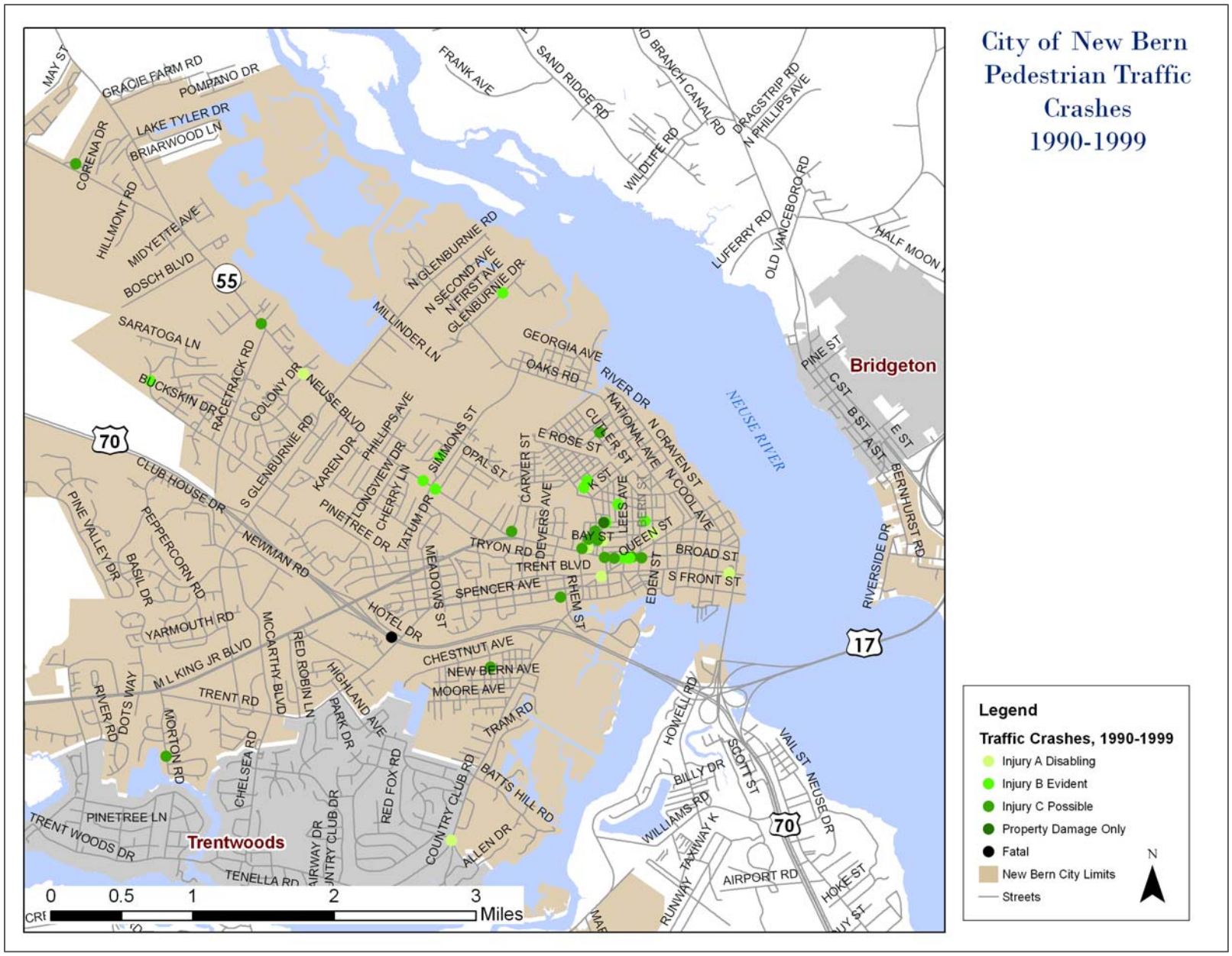
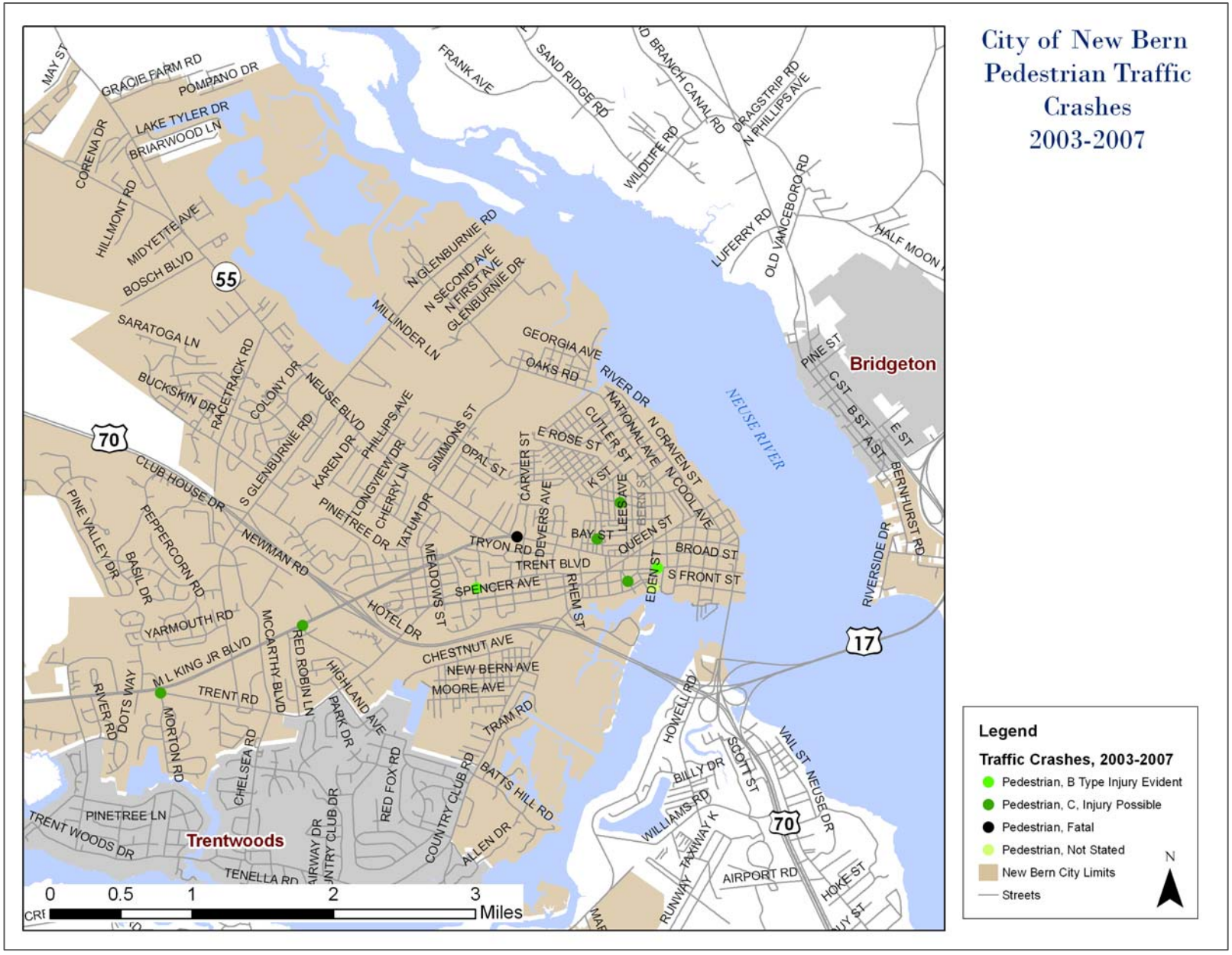


Figure 2-22. Pedestrian crash data for New Bern from 2003-2007



2.5 Community Concerns and Needs

Public input has played a critical role in the City of New Bern Pedestrian Plan, helping to guide the development of the project list, identify program and policy recommendations, and assist with prioritization. The process to gather public input has included multiple elements, incorporated into the Pedestrian Plan throughout the planning process. At the project onset, a Steering Committee was created to serve a guiding role for the Plan. Members of the Steering Committee included City staff, citizens and local business representatives. A public outreach effort was developed in parallel with the regular Steering Committee meetings, which included a regularly-updated project website, a "warm line", a city-wide survey and an Open House on September 18, 2008. At the Open House, participants were provided an opportunity to speak directly with City staff and their consultants about the vision for the Plan and potential project recommendations. Maps were available for participants to indicate the locations of pedestrian-related issues and desired improvements, and flyers and surveys were distributed. In total, there were approximately 35 participants at the Open House. Copies of the sign-in sheets, flyers, and survey are available in Appendix A.

The public input process will continue throughout the Plan preparation until the Final Plan has been adopted by the Board of Alders.

2.5.1 Steering Committee Feedback

At the first two Steering Committee meetings on April 21 and June 23, 2008, stakeholders were given the opportunity to provide input on walking conditions in New Bern. Specifically, Steering Committee members specified areas where they would like to see sidewalk improvements, greenway connections and crossing

Name	Affiliation / Representation
Michael Avery	City of New Bern Planning Department
Holly Blake	Craven County Health Department
Ben Bunn	Craven Regional Medical Center Foundation
Helen Chaney	NCDOT Bike/Ped Division
Leigh Anne Friesen	City of New Bern Planning Department
Thurman C. Hardison	City of New Bern Parks & Recreation Department
Tom McGraw	300th Anniversary Connectivity Committee
Danny Meadows	City of New Bern Public Works Department
Rike Scheele	City of New Bern Planning Department
John Smith	City of New Bern Police Department
Annette Stone	City of New Bern Planning Department
Alice Wilson	City of New Bern Planning Department

Table 2- 1. Pedestrian Plan Steering Committee Members

upgrades. Committee members highlighted major "hot spots" or problem areas for pedestrians, with four specific "zones" selected as pedestrian focus areas. These designated pedestrian focus areas will be evaluated in detail throughout the planning process using corridor mapping as well as opportunities and constraints analysis. The four focus areas are the Five Points neighborhood, the Twin River Mall/Wal-Mart area, the Hospital area and the Health Department area (near the intersection of Neuse and Glenburnie Roads). Committee members also strongly supported completion of the RiverWalk trail from Jack Smith Creek to Lawson Creek, which has been targeted for completion by 2010. In addition to specific project ideas, Steering Committee members identified some general "priority" criteria for ranking pedestrian connectivity projects, including access to schools, parks, major employment centers, shopping venues and the RiverWalk trail. Other needs identified by the Steering Committee include:

- Wheelchair access and curb ramp installations;
- Sidewalk improvements to local bridges through retrofits and bridge renovation projects;
- Wide roadways and intersections outside of downtown in need of road diets or traffic calming to reduce traffic speed and improve the pedestrian environment;
- Enhanced safety for pedestrians at railroad crossings;
- Improved park access and connectivity through sidewalk and trail facilities;
- Increased educational efforts to promote walking as well as pedestrian safety;
- Policies that value multi-modalism and walkability;
- General lack of sidewalks in areas with heavy foot traffic, especially in low-income areas where many residents are walking for transportation even without adequate pedestrian facilities; and
- General lack of pedestrian accommodations such as "walk," signals at intersections throughout New Bern.

Figure 2-24 illustrates sidewalk needs, greenway connections and crossing improvements identified by the Steering Committee and other stakeholders (e.g. survey respondents and participants of the Open House).

2.5.2 Survey Results

The Pedestrian Plan survey was distributed in digital format through the City of New Bern website and the project website at http://newbernwalking.pbwiki.com. Steering Committee members and City staff distributed hardcopies of the survey to local neighborhood groups, participants of the September 18th Open House, and at City Hall. The survey period was open from May 9, 2008 to October 31, 2008. Two-hundred (200) residents responded to the survey.

The majority of survey participants indicated that they walk most frequently for recreation (71%) or along the RiverWalk (49%) and less often for transportation (30%). However, survey responses strongly indicate that a fear of traffic contributes to the decision not to walk more (71%), combined with a lack of continuous sidewalks to their destination (67%). Based on survey responses, a large number of New Bern residents are currently walking to visit family and friends living nearby (72%), with walking trips to local parks and recreation centers ranking second in favorite pedestrian destinations (56%). Many survey respondents indicated that they would like to walk more for utilitarian purposes, such as to dine at a local restaurant, go shopping or visit the post office.

When asked about the level of comfort or security residents feel when walking in New Bern, a large majority indicated that they felt most comfortable in downtown New Bern (85%) and along the RiverWalk trail (85%). Many respondents also felt comfortable in their own neighborhoods (83%), but far fewer felt comfortable in the area around their workplace (49%). Fifty-three (53%) of

Figure 2-23. **Public Meetings Held for the Plan**
***Top*.** September 18, 2008 Open House.
Bottom. December 2008 Focus Groups.

respondents feel comfortable at street crossings, indicating that some local intersections may need to be enhanced for better pedestrian access or safety. In addition to information on these valuable indicators, survey respondents also recommended specific sidewalk and greenway projects, as well as intersection improvements, which have been incorporated into the project recommendation section of the Plan. Overall, the majority of respondents (42%) indicated that greenway trails should be a priority for the City, while a close second preferred sidewalks on major thoroughfares (39%).

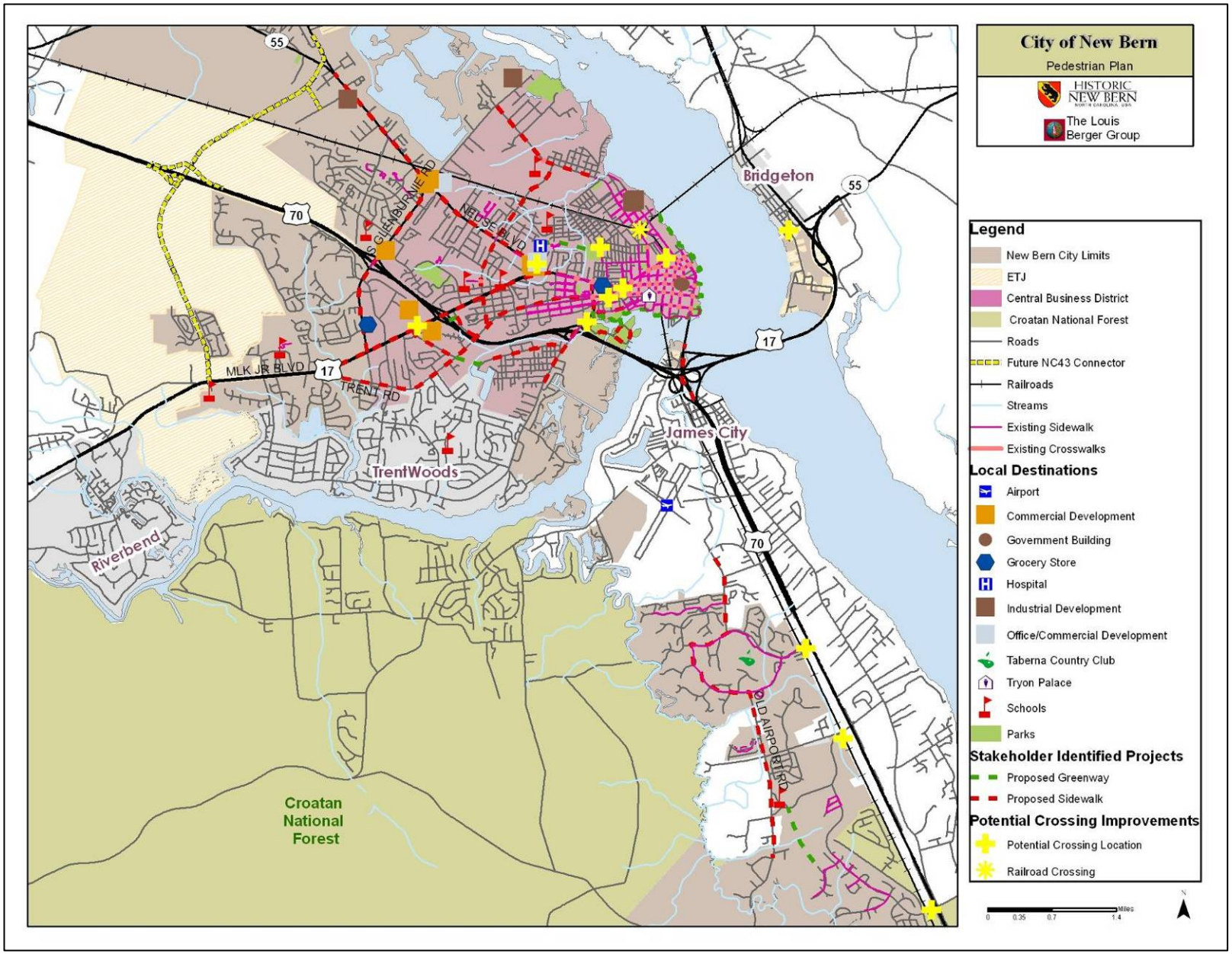
2.5.3 Open House and Focus Group Feedback

In addition to regular Steering Committee meetings and public outreach through the website and survey mechanism, an Open House was held on September 18, 2008. The Open House was a casual, drop-in style forum held at the New Bern Farmers Market with approximately 35 residents participating. Participants were able to complete the New Bern pedestrian survey, speak with City staff and planning consultants, and participate in a mapping exercise to identify projects for the Pedestrian Plan. Suggestions that arose during the Open House were based on the unique perspectives, interests and needs of New Bern's citizens, public sector staff, business leaders, advocates and elected officials. Feedback from the Open House participants has been included in the project, program and policy recommendations of the Plan.

Additionally, two focus groups were held in December to gather feedback from New Bern's senior population and residents of the Greater Duffyfield area. The December 10, 2008 focus group was held at the Dunn Community Building in downtown New Bern and focused on senior pedestrians' needs. Approximately eight residents attended and discussed opportunities for improving walking conditions for residents over 60 years of age; suggestions included the addition of benches and rest areas in local parks, more curb ramps at intersections, and other amenities such as

public restrooms downtown. The December 11, 2008 focus group was held at the Stanley White Recreation Center and focused on the needs of the Greater Duffyfield area (including the Five Points business district). Approximately fifteen residents attended and discussed opportunities for improving pedestrian access and safety in the Greater Duffyfield area. Suggestions included traffic calming on several local collector streets, improved lighting and drainage in the area, intersection improvements and greater sidewalk connectivity to/from local grocery stores, J.T. Barber Elementary school, the Hospital area and Neuse Blvd. Feedback from the two focus groups was used to enhance and add sidewalk, greenway and intersection improvement recommendations made in the Pedestrian Plan.

Figure 2-24. Preliminary Project Recommendations and Pedestrian Needs Identified by Stakeholders



Resources and Citations

[1] Tryon Palace website, "History" section.
http://www.tryonpalace.org/history.html

[2] Craven County History.
http://www.cravencounty.com/admin/history.cfm

[3] Craven County website, accessed March 27, 2009.
http://www.cravencounty.com/departments/trn.cfm

[4] Friends of Mountains-to-Sea Trail website, accessed June 12, 2009.
http://www.ncmst.org/

This page left intentionally blank.

Section 3. Plan & Policy Review

This section reviews current planning documents and policies in New Bern that shape the day-to-day experiences of those who walk for recreation and transportation.

The decisions that shape the quality of pedestrians' experience are made every day, every time a new shopping center is built, an intersection is widened, a street paved. In turn, the City of New Bern makes decisions about how streets are designed, the way that new private developments are constructed, the priorities given to various kinds of improvements. The following is an assessment of the various policies, plans and regulations that directly or indirectly affect walking in New Bern:

- 2006 Parks & Recreation Comprehensive Plan
- 2007 Comprehensive Bicycle Plan
- 2000 Urban Design Plan
- New Bern (CAMA) Regional Land Use Plan
- New Bern Code of Ordinances

It is important to recognize here that the North Carolina Department of Transportation (NCDOT) plays a preeminent role in the financing, operation, and design of the streets and other transportation elements in our state. However, NCDOT has become more amenable in recent years to looking at non-traditional street design standards; integrating context sensitive design and land use objectives into their practices; managing roadway access; planning for and funding pedestrian improvements; and actively seeking out new partnerships to help improve secondary road systems across the state.

"The decisions that shape the quality of pedestrians' experience are made every day, every time a new shopping center is built, an intersection is widened, a street paved."

3.1 Existing Plans

2006 Parks & Recreation Comprehensive Plan

Based on survey information from the 2006 master planning process, walking and biking trails ranked first and third, respectively, as the most desired recreational facilities/activities for New Bern residents. In addition to surveying citizen priorities, the Parks & Recreation Comprehensive Plan outlines strategies for expanding

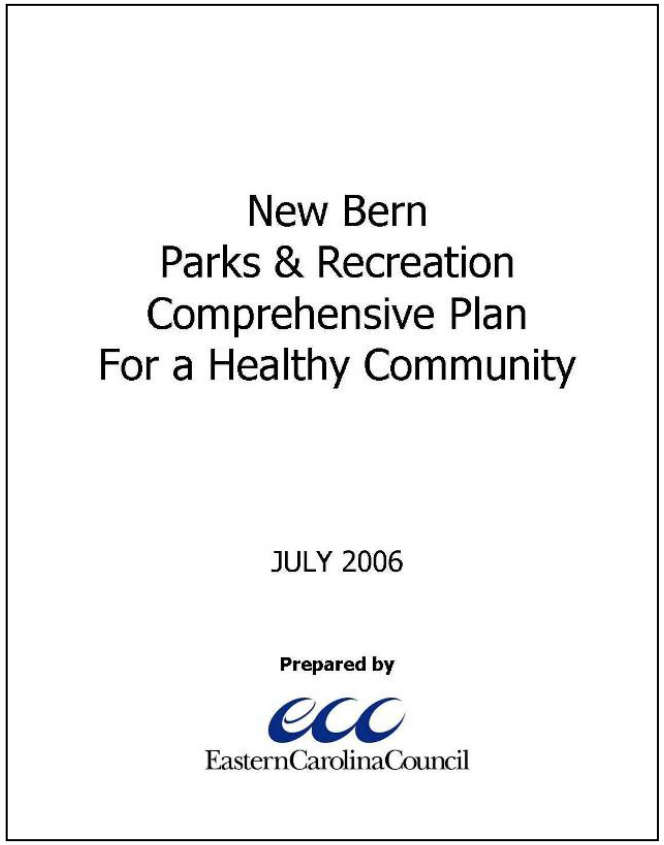


Figure 3-1. The Parks & Recreation Comprehensive Plan is a master plan for New Bern's parks and recreational facilities.

the City's current recreational opportunities and identifies potential funding sources and partnerships to move expansion plans forward to reality. Many of these funding sources and partnerships will benefit pedestrians in search of exercise or transportation options in the future, and it is recommended that future updates to the Parks & Recreation Comprehensive Plan reference the Comprehensive Pedestrian Plan and highlight opportunities for joint project funding and/or implementation of complementary pedestrian facilities and activities.

The Comprehensive Plan notes that in 2006, there were twenty parks, two recreation centers and one community center. The Plan prioritizes land purchases for parks in annexed areas of the City, as well as renovation of the two community centers and construction of a third. The Comprehensive Plan briefly addresses the opportunity to pursue conservation easements for open space and greenways. These options should be further explored for any greenway recommendations of the Comprehensive Pedestrian Plan.

The Parks and Recreation Comprehensive Plan summarizes the social benefits of additional recreational activities for New Bern, which include:

- Health and wellness
- Quality of life for residents
- Longevity for an aging population
- Keeping kids off the streets
- Keeping kids occupied
- Community awareness
- Giving kids a place to go
- Feeling good because of being there
- Exercise, fitness & conditioning
- Good for kids
- Kids' enjoyment

Between 2010 and 2020, the number of citizens 65 and older is projected to increase by 35%, and the Plan states that many of the City's recreational facilities will be geared to serving this fast growing population.[1] Also, the Plan highlights the need to serve the disabled population in New Bern through ADA accessibility, which will tremendously benefit disabled pedestrians. Finally, in addition to filling these social needs, the Plan describes the economic and environmental impacts of creating further parks and recreational facilities, including increased tourism and business investment, as well as open space conservation.

In addition to outlining citizen needs, the Comprehensive Plan defines the responsibilities of the City's Parks & Recreation department, which include not only leisure services and oversight of local park facilities, but also citywide landscaping efforts, local after school care programs, citywide health and wellness programs to help citizens stay well, and various downtown events. It is recommended that these programs and events promote walking for wellness, and to the extent possible incorporate program recommendations of the Comprehensive Pedestrian Plan. The Comprehensive Plan also proposes that a standing Recreational Advisory Committee be formed to guide future decisions. It is recommended that pedestrian interests be represented on such a committee, either through staff or citizen liaison. Such representation might help address policy issues related to pedestrian connectivity, such as the stated policy goal for equitable distribution of services throughout the City, with a focus on providing recreational facilities in and near low-income communities with less access to private transportation.

Individual recommendations are made in the Comprehensive Plan for improvements to each park and recreational facility in New Bern. Though walking trails were highlighted in the citizen survey as the top priority, no new walking trails are identified in the set of recommendations. Bike racks and pedestrian furniture (benches, security lighting, etc) are called for at several locations, as are ADA

improvements; modifications to existing trails, such as at Lawson Park, are proposed. A "Special Use" section refers to the need to encourage citizen use of the downtown area for walking and recommends the need for a walking route map. The Comprehensive Plan also takes note of the lack of shade trees near existing walking trails/sidewalks at local park facilities, and the "wild" vegetation that is not as visually appealing as the downtown area. The Plan further cites the Tryon Palace and hiking trails at Croatan National Forest as opportune areas for walking.

The pedestrian route map proposed in the Parks & Recreation Comprehensive Plan is a wonderful idea and would be inexpensive to implement. In addition to such a map which highlights existing pedestrian facilities, it is recommended that the next update to the Parks & Recreation Comprehensive Plan incorporate ideas for future greenway facilities and linear parks to enhance the existing community parks, and offer an added amenity for residents. Many of New Bern's stream buffers and waterfronts could be well-complemented by walking trails, such as the RiverWalk planned for downtown (which should also be referenced in the Parks & Recreation Comprehensive Plan).

Finally, it is recommended in the Comprehensive Plan that the City's Parks and Recreation Department oversee the City's tree program, as the department houses New Bern's only arborist. It is recommended that the City promote a street tree program to enhance the pedestrian environment by way of plantings adjacent to open sidewalks, greenways and other pedestrian facilities, in order to create attractive, comfortable, shaded walking routes in New Bern.

2007 Comprehensive Bicycle Plan

New Bern's Comprehensive Bicycle Plan was created in order to improve bicycle conditions in the community through an interconnected bicycle network linking New Bern to the three adjacent communities of Trent Woods, James City and Bridgeton.

Additionally, the Plan's goals include the development of bicycle-friendly policies and design standards, increased focus on bicycle awareness and safety-education outreach, and creating partnerships to successfully implement the recommendations of the Plan.

The existing conditions analysis of the Bicycle Plan (Chapter 2) outlines the three existing bicycle routes in New Bern, as well as the Code of Ordinance rules regarding bicycling on sidewalks (which is only illegal on Pollock Street from Craven Street to Hancock Street, as well as Middle Street from Broad Street to Tryon Palace Drive). This section also highlights local bicycle events, such as the MS150 bike ride and local bicycle rodeos conducted by the New Bern Police Department. Finally, Chapter 2 of the Bicycle Plan recommends key safety improvements for 16 specific areas to remove existing barriers to cycling. Recommendations of the New Bern Pedestrian Plan will consider and incorporate these safety improvements recommended in the Bicycle Plan, as many of these locations are also barriers to pedestrian travel. The additional recommendations of the Pedestrian Plan (such as additional signage, crosswalks, sidewalks or other pedestrian amenities) at these locations should be incorporated into spot improvement projects resulting from the recommendations of the Bicycle Plan, and include:

1. **Glenburnie Road at the Atlantic and Carolina Railroad Crossing** – in addition to bicycle improvements, sidewalks and pedestrian-friendly rail casings should be included on both sides of the street to accommodate pedestrians, as well as cyclists.
2. **Glenburnie Road Interchange with US 70** – recommendation includes improved bicycle crossing at railroad tracks and striped shoulder for cyclists. It is recommended that this project also include high-visibility pedestrian crossing signs, along with bicycle crossing signs.

Figure 3-2. The Comprehensive Bicycle Plan is New Bern's first of its kind and outlines bicycle transportation improvements citywide.

3. **Crossings of Martin Luther King, Jr. Boulevard at Academic Drive and Greenleaf Cemetery Road** – recommendation includes installation of crosswalks, curb ramps, pedestrian signals and lighting, all of which will benefit pedestrians as well as cyclists.
4. **Intersection of Martin Luther King, Jr. Boulevard and Trent Road** – recommendation includes installation of crosswalks, pedestrian signals and pedestrian refuge islands at intersection, all of which will benefit pedestrians as well as cyclists.
5. **Trent Woods Drive Bridge over West Wilson Creek (Trent River Inlet)** – recommendation includes signage improvements and speed limit reduction approaching this bridge, all of which will benefit pedestrians as well as cyclists. It is further recommended that any future bridge replacement project incorporate sidewalk facilities.
6. **Trent Boulevard, Rhem Avenue and Spencer Avenue** – not applicable to pedestrians.
7. **Country Club Road Interchange with US 70** – recommendation calls for better lighting and bike lanes on bridge, which will help slow traffic and improve safety for pedestrians.
8. **Intersection of Broad Street, Martin Luther King, Jr. Boulevard, and Neuse Boulevard***
9. **Downtown Neighborhood Loop** - consider pedestrian accommodations concurrent with bicycle improvements on roadways in the Riverside neighborhood. These walking routes could be signed with special wayfinding signage and/or incorporated into a permanent downtown/historic walking tour.
10. **Bicycle Route Alternatives North of Downtown New Bern** - this recommendation calls for a bicycle version of the RiverWalk

trail along the downtown riverfront. Wayfinding signage should be considered.

11. **National Avenue at the Atlantic and Carolina Railroad Crossing** – in addition to bicycle improvements, sidewalks and pedestrian-friendly rail casings should be included on both sides of the street to accommodate pedestrians, as well as cyclists.
12. **Intersection of Howell Road and Madam Moores Lane** – recommendation includes additional of paved shoulders and tighter curb radii to slow traffic.*
13. **Intersection of Kelso Road and Madam Moores Lane** – recommendation includes the addition of advanced stop bars at intersection, as well as paved shoulders and tighter curb radii at intersection, all of which will benefit pedestrians as well as cyclists.*
14. **Airport Road at the Atlantic and Carolina Railroad Crossing –** recommendation includes installation of bicycle-friendly rail crossing and paved shoulders. In addition to bicycle improvements, sidewalks and pedestrian-friendly rail casings should be included on both sides of the street to accommodate pedestrians, as well as cyclists.
15. **Intersection of Airport Road and US 70** – recommendation calls for pedestrian refuge island on US 70, striped crosswalks, restricted right turns and pedestrian signals at all legs of the intersection, in addition to better bicycle/pedestrian lighting. All of these features will improve pedestrian safety, as well as bicycle safety.
16. **Intersection of Old Airport Road and Wilcox Road –** recommendation includes installation of paved shoulders, advanced stop bars at intersection and high-visibility bicycle crossing signs. Sidewalks are recommended for Old Airport Rd for safe access to/from Taberna, Brice's Crossing and Carolina Colors and surrounding destinations.

* Further analysis necessary

Chapter 3 of the Bicycle Plan addresses facility design standards. Items in the Plan related to pedestrians include the recommendation for limiting the use of wide sidewalks or "sidepaths" for cycling, and encouraging increased use of restricted right turns at key intersections in New Bern, along with use of "Yield to Pedestrians in Crosswalk" signage as appropriate. This section also recommends changes to the New Bern Street and Sidewalk Standards; the recommendation to remove statements encouraging cul-de-sac development will also improve pedestrian conditions as New Bern continues to grow. All sample cross-sections in the Bicycle Plan call for sidewalks on both sides of the street. Finally, the Bicycle Plan calls for improved transit interface and amenities such as bus shelters, benches, water fountains, public restrooms and other services that are valuable to pedestrians as well as cyclists.

Chapter 4 of the Bicycle Plan recommends a number of bicycle loops or signed bike routes, all of which will require roadway improvements on certain streets within the route network to be considered bicycle-friendly. It is recommended that future construction projects resulting from implementation of the Bicycle Plan also incorporate planned elements of the Pedestrian Plan in order to maximize cost-effectiveness. Additionally, this Chapter covers program recommendations to educate adult and child cyclists, promote cycling and enforce bicycle laws in New Bern. It is recommended that many of these activities incorporate pedestrian safety and encouragement elements, especially all Safe Routes to School programming, health based initiatives like the "Be Active" program, and targeted enforcement for bicycle and pedestrian related laws.

Finally, Chapter 5 of the Bicycle Plan covers implementation of the Plan's recommendations. Again, it is strongly recommended that the City consider joint construction projects where feasible for bicycle/pedestrian improvements resulting from these two Plans.

2000 Urban Design Plan

The purpose of this Plan, completed in 2001, is to conceptualize and plan for future redevelopment and transportation improvements in the downtown New Bern area, with special emphasis on the River Station and Five Points neighborhoods. The 2000 Urban Design Plan is an update to the previous, and somewhat outdated, 1990 Urban Design Plan. Areas covered include the Five Points and River Station neighborhoods, as well as the downtown and Broad Street commercial districts. A redevelopment component highlights priorities for reinvestment in the downtown area, as well as "transitional" areas and "stable" areas, listing levels of support or future investment necessary for each. This concept plan also categorizes thoroughfares in the study area as major neighborhood connectors, proposed streetscaping/enhancement areas and service streets. The transportation component of the Plan proposes a downtown shuttle route, tour bus and truck routes, pedestrian "promenade" (which includes the "RiverWalk Trail") and walking routes, as well as bike routes for the study area.

The Five Points Residential Plan component highlights the area between Third Ave and Miller Street (west to east) and Broad to Cedar Streets (south to north) for housing redevelopment, and includes new streets and sidewalks with curb and gutter, as well as a centralized new neighborhood park. This priority reflects an overall need in the community for pedestrian improvements in this area, which is highlighted in the Pedestrian Plan crash analysis (see Section 2: Existing Conditions) as a problem area for pedestrians in New Bern. This area was also cited by Steering Committee members and other stakeholders for the Comprehensive Pedestrian Plan as a key pedestrian zone with high walking rates.

The Riverstation Plan component recommends a mixed-use "neotraditional" style development, with a public riverfront park (incorporating the proposed RiverWalk Trail), and a linear park

Figure 3-3. The 2000 New Bern Urban Design Plan is an update to the 1990 Plan, with revised goals and focal points.

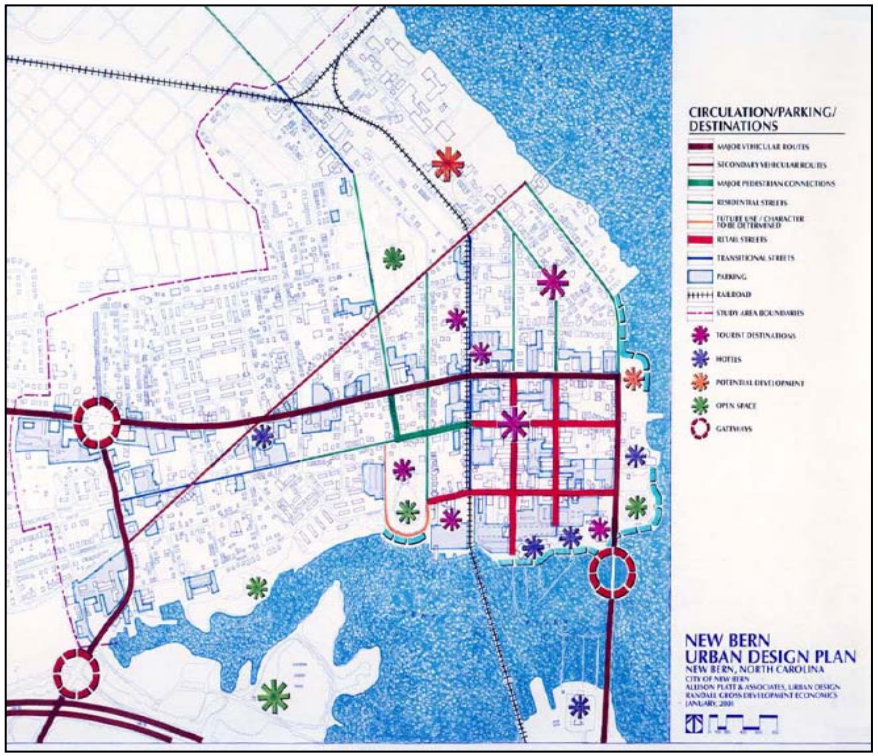


Figure 3-4. A "Destinations Map" from the 2000 Urban Design Plan highlights the study area for the Plan, as well as major points of interest and gateways to the City.

stretching from the riverfront west to Howard Street. A "village center" with retail and restaurants on the first level and apartments above will create new pedestrian generators in this neighborhood. The concept also calls for garages off of alleys behind new homes of varying sizes throughout the development, with reuse of the historic train depot on Craven Street. This neighborhood design, if implemented, will be very walkable and pleasant for pedestrians. It is recommended that all sidewalks be a minimum of 5ft wide, with the exception of the RiverWalk trail, which should be a minimum of 10ft.

Finally, the 2000 Urban Design Plan calls for revitalization of the Broad Street commercial strip, including streetscaping improvements, gateway treatments, landscaping, new development and re-use of existing structures, better management of retail services by Five Points CDC, and a consolidated transportation hub for bus, taxi and van service. Streetscaping elements for Broad Street, as recommended in the UDP and funded by NCDOT for implementation by 2009, includes a road diet making this two-way, 4-lane road into a two-way, median-divided 2-4 lane roadway with continuous, improved sidewalks and street trees on both sides of the street. The Plan also calls for screening of off-street parking and a new/improved grocery store, where Armstrong Grocery currently stands (on the south side of Broad Street, between Miller Street and First Avenue). It is recommended that all sidewalks be a minimum of 5ft wide with a 5ft minimum buffer and street trees for shading. Pedestrian improvements should be made to the intersections of Broad Street and First Avenue, as well as Broad Street and Miller Street, in order to create a safe pedestrian crossing at these key access points between the Five Points neighborhood and its only local grocery store within walking distance. Pedestrian "walk" signals and crosswalks should be incorporated at signalized intersections as part of the streetscaping project, and all median islands at major intersections should extend into the crosswalk to provide a pedestrian refuge between travel lanes. Finally, planters and decorative bricking should be

incorporated into this streetscaping project, as appropriate, in order to create a pleasant walking environment and indicate to motorists that this area is a pedestrian zone. The roundabout at the intersection of Broad and Front Streets should have high-visibility crosswalks installed at all legs of the intersection.

1998 New Bern Regional Land Use Plan

The study area for this regional land use plan covers the City of New Bern, Town of Trent Woods and the Town of Riverbend, and an estimated regional population of approximately 30,000 at the time of the study. The Plan is a regional update to the locally adopted plans of each community, dated 1992, 1991 and 1994, respectively, and was approached as a regional update in order to create a better coordinated planning effort amongst these adjacent communities. The purpose of the Plan is to review land development processes in the region and comply with the North Carolina Coastal Area Management Act (CAMA) requirements for up-to-date land use planning. Specific land use and development issues addressed in the plan include:

- Resource Protection – mainly addresses water quality issues, such as stormwater management and wetland conservation, as well as historic/cultural preservation. These issues will be considered in the Pedestrian Plan, as recommendations are made for pervious/impervious surfaces on trails or sidewalks, greenway and linear park alignments, sidewalk and curb and gutter projects, and related items.
- Resource Production and Management – addresses best management practices for agricultural and forest land, but also addresses issues related to the Pedestrian Plan, such as the promotion of pedestrian and public access to the waterfront, determining transportation impacts on local

resources, promotion of greenway and promotion of buffers between resource production areas and other land uses.

- Economic and Community Development – includes a section for each community; In New Bern, specifically, issues include promoting the City Center, promoting development that maximizes public access along the waterfront, promoting tourism, encouraging safe and liveable neighborhoods with pedestrian access, sidewalks, trails and greenways, and other redevelopment needs. The Pedestrian Plan will complete all of these goals.

The Plan outlines anticipated population and industry growth, and sets joint policies for Conformance with CAMA Minimum Use Standards, Floating Home Development, Maintaining Existing Community Character and Storm water Management. Differences in policy guidelines are also stated, as for marina development. Land classification is categorized into five types in a land classification map to help implement policy statements:(i) Developed; (ii) Urban Transition; (iii) Limited Transition; (iv) Rural; and (v) Conservation.

3.2 City of New Bern Policies & Ordinances

Code of Ordinances

The City of New Bern maintains its ordinances on the Municode website (www.municode.com). A city adopts and modifies its ordinances under the regulatory powers granted by the State of North Carolina to guide development, identify the appropriate uses for land in the municipal boundary and extra-territorial jurisdiction (ETJ), and provide guidance on appropriate actions for its citizens to protect their health and well-being. New Bern's ordinances, overall, pay great attention to pedestrian safety and

address a number of factors that influence the walkability of a place. Important considerations for pedestrians in the New Bern Code of Ordinances, include the following:

- Access to local parks (and walking trails within parks) is limited to daytime hours. Loitering or assembling in New Bern's parks between 11pm – 7am is unlawful; park hours for Fort Totten Park are 10pm – 7am (Sec 46-7).
- No motor vehicle shall be operated at a speed greater than 15 miles per hour on any street or drive in Glenburnie Park (Sec. 50-46). **This ordinance could be expanded to set a city-wide speed limit for local public parks, in order to calm traffic and improve pedestrian safety at these popular local attractions.**

Street Ordinances

The Street Ordinance section of the New Bern Code of Ordinances (Section 66) addresses local laws pertaining to design issues for all public streets, sidewalks and other public places. The street ordinances reference state highway division design standards, indicating that New Bern does not have local street design guidelines, excepting Appendix C shown in Figure 3-6. Better design could be achieved with the development of such local design standards to supplement the state requirements. It is worth noting that traffic-related ordinances and landscaping (street tree) ordinances are addressed separately in Sections 70 and 78 of New Bern's ordinances. Some additional and supplementary language to the local street ordinances could help improve local pedestrian conditions. Subsections within the Street Ordinances pertaining to pedestrians include those listed below.

- It is unlawful to construct a sidewalk of any type or place any paving material within the right-of-way of any public street in New Bern without written permission from the city manager and approval by the city engineer. (Sec 66-6).

Though it is not clearly outlined in the code of ordinances, current City policy states that citizens must petition the City for sidewalks and are assessed a 50% construction fee for the cost of the sidewalk fronting their property (City policy based on State statute, not included in local ordinance).

- It is unlawful to erect over any sidewalk or street a wooden shed or awning, however cloth awnings supported by a metal frame firmly suspended from a building are allowed, but must be hung at least seven feet above the level of the sidewalk (Sec 66-11). All canopies or other sidewalk coverings shall be constructed of concrete or metal and substantially permanent in nature, as well as capable of supporting a 30 pound load; underside clearance of such structures must be nine feet, six inches above the sidewalk (Sec 66-11). This rule and the following requirement specific to Broad Street ensure that signs and structures do not impede pedestrian flow or safety on City sidewalks.
- All signage, marquees, awnings or other structures on Broad Street shall be a minimum of ten feet above the sidewalk and give a horizontal clearance of 1.5 feet from the line of the curb (Sec 66-11). This 10-foot vertical clearance allows pedestrians to safely traverse the sidewalk by passing under signage.
- All canopies must be equipped with underside lighting, provided and maintained by the abutting properties at a level of ten foot-candles at the sidewalk (Sec 66-11). This lighting requirement allows for pedestrian safety and lends a sense of security to pedestrians traversing tight or enclosed spaces.
- Obstruction of the sidewalks with crates, boxes, barrels, stone, wood, construction materials or any other matter is not permitted, though businesses in the Central Business District downtown are permitted to place street furniture (e.g. benches, tables and chairs) in front of their businesses,

provided these items do not protrude more than 30 inches into the street right-of-way (Sec 66-61). Obstruction of the sidewalks by tree trimmings or other landscaping waste is also prohibited (Sec 66-66).

- Assembling, collecting or standing in a sidewalk as to obstruct pedestrian traffic is not permitted (Sec 66-61). Street events, including demonstrations and pickets, require permits (Sec 66-83).
- Sidewalk sale of merchandise and retail items is forbidden excepting newspaper boxes (Sec 66-61). Vehicles are not permitted to stop, stand or park on a sidewalk for loading or other purposes (Sec 66-65).
- Construction or remodeling projects taking place in close proximity to a public sidewalk are required to install scaffolding overhead for protection of pedestrians, prior to beginning construction (Sec 66-61).
- Snow and ice removal from sidewalks is the responsibility of the adjacent property owner (Sec 66-67).
- Driveway construction is also addressed in Section 66 of New Bern's ordinances, which refers to state highway standards for design of curb radii, grade and related items. **Further guidance on driveway design and curb cuts is recommended, in order to improve compliance with national ADA design standards.**

Traffic Ordinances

Chapter 70 of the New Bern Code of Ordinances deals with all local laws related to the operation of vehicles, traffic control devices and pedestrian traffic, among other topics.

- Two ordinances specifically address driving with care around children. Section 70-49 requires motorists to avoid "play streets" if possible, and to use the utmost care around

Figure 3-5. Pedestrians Welcome
A busy street with parked cars and ample sidewalk width, as well as visual interest at eye-level contribute to the pleasant walking environment of this downtown sidewalk – as does the simple addition of a decorative planter.

children when driving on such a street is necessary for business purposes or to access a residence. School zones are called out specifically in Section 70-50, requiring motorists to use care for the protection of children. **Additional language setting a city-wide speed limit for such streets might be considered for additional reinforcement of these requirements.**

- Section 70-76 prohibits drivers from entering an intersection or marked crosswalk when stopping at a traffic control device, as not to block pedestrian traffic.
- Section 70-82 prohibits driving on sidewalks.
- Section 70-83 prohibits bicyclists, roller skaters and others from clinging to a moving vehicle on the roadway.
- Section 70-116 through 70-118 address turning movements, and specifically prohibit right and/or left turning movements at intersections where signage prohibits such movements.
- One benefit to pedestrians is New Bern's citywide speed limit of 35 miles per hour on through highways and 25 miles per hour on City streets, as addressed in Section 70-131 and 70-132, respectively. Exceptions include certain sections of Neuse Blvd, S Glenburnie Rd, US 70 Business, and Washington Post Rd, all posted at 45mph (Sec 70-133), and US 17 between SR1388 and US 70, which is posted at 50mph (Sec 70-134).
- Section 70 Article IV specifically addresses pedestrian-related traffic ordinances. Vehicles are required to yield the right-of-way to pedestrians in marked crosswalks (Sec 70-156) and all marked crosswalks are listed out in Section 70-158. Section 70-157 requires all pedestrian crosswalks to be marked with "Yield Right of Way to Pedestrians" signs, legible from 250 feet, or other MUTCD approved signage. **North Carolina state statute requires motorists to also yield to pedestrians in unmarked crosswalks, which could and**

should be reinforced in the local ordinances to clarify a motorist's legal requirements in New Bern.

- Pedestrian traffic is prohibited on Johnson Street from the Neuse River to 250 feet northeast of East Front Street (Sec 70-159), but it is not clear as to why; **this section could be clarified for better understanding.**
- Section 70 Article V addresses truck traffic in New Bern, and limits trucks to the shortest possible route through the City. Sec 70-188 limits truck speed to 10mph when traversing the Pollock Street crosswalk between Hancock and Middle Streets; **this requirement should be expanded as appropriate to other major pedestrian crossings.**
- Sec 70-223 prohibits stopping, standing or parking a car on a sidewalk, between the sidewalk and curb, within an intersection or on a crosswalk.
- Sec 70-226 limits parking during certain hours at designated places, including High School Drive between 8:00am-3:00pm, which helps to maintain pedestrian and bicycle safety in this area. Sec 70-230 restricts parking in loading zones, including school bus loading zones, which also helps to maintain child pedestrian safety in the City.

Vegetation Ordinance

The presence or lack of street trees and landscaping greatly affects the pedestrian conditions of any public place. Generally, the presence of street trees provide shade, a perceived and/or real safety buffer, visual and aesthetic appeal, and other benefits to pedestrians. Chapter 78 of the New Bern Code of Ordinances addresses park and street trees and other landscaping.

- Sec 78-28 addresses allowable street tree species, and Sec 78-30 limits street tree plantings near overhead utility lines (to

not within 10ft) and underground water/sewer or other utility lines (to not within 5ft).

- No street trees can be planted closer than 35 feet from any street corner or closer than 10 feet from a fireplug (Sec 78-29).
- This Section also assigns final decisions in street tree selection and/or plantings to the New Bern Appearance Committee.

Land Use Ordinance

A special section of the Code of Ordinances is the Land Use Ordinance (Appendix A), which covers zoning, subdivision and flood control issues for the City of New Bern. The Land Use Ordinance divides New Bern into nine separate zoning categories for residential uses, four categories for commercial use, three office and institutional districts, two industrial districts, and a flexible use "Planned Unit Development" (PUD) category. The PUD category allows for adaptable zoning for mixed-use and other creative development, which can functionally affect the local pedestrian environment in a positive manner through more dense, clustered development and combined uses (i.e. office/residential) on a single plat.

The New Bern Land Use Ordinance also establishes several overlay districts for special consideration:

- *New Bern Historic District* – This overlay promotes the conservation of historic infrastructure and is intended to "foster civic beauty" in the downtown area. The downtown overlay promotes pedestrian-friendly conditions through elements such as maximum setback requirements, allowances for reduced off-street parking, and a concentration on aesthetic qualities that promote vibrant, visually-appealing, place making. This overlay also specifically calls for review that focuses on "maintenance of

pedestrian scale and orientation, as well as provision for safe pedestrian movement."

- *Commercial Entranceway Corridor Overlay District* – The purpose of this overlay district is to visually enhance the City's connector and arterial streets which serve as "gateways" into the city, and covers portions of Broad Street, Queen Street, Trent Road, Glenburnie Road, Neuse Boulevard and US 17 (Clarendon Boulevard). Ordinance language states that the creation of a "unified image streetscape" and "balance between vehicular and pedestrian environments" is important in this overlay district, which covers the historic "Five Points" neighborhood and various other local commercial areas.

  For the Broad/Queen Street corridor, the overlay requires a maximum setback of commercial buildings in this area to be 10 feet, and streetscape improvements include a 2-3ft utility strip at the curb, with an 8-10ft planting strip, and an 8ft sidewalk along the frontage of the property. An allowance of a 15 percent reduction in required parking is provided as an incentive for property-owners to share driveways, which will help reduce safety conflicts for pedestrians travelling along these thoroughfares. Finally, the overlay further benefits pedestrians by encouraging architectural features consistent with historic infrastructure, with windowed storefronts and primary building entrances facing the street.

- *New Bern Waterfront Overlay District* – This overlay limits building height along New Bern's waterfront to less than 45ft, and also requires a 35ft setback from the water line. **In order to preserve the RiverWalk corridor, the City should consider adding a requirement for a public easement along the riverfront in the downtown area for construction of the City's riverfront trail.**

- *Recreational/Sport Hunting District* – The purpose of this overlay is to limit the use of firearms, pellet guns, paint guns

and similar devices to designated recreational areas, and restrict their use within 300ft of adjacent residences or streets. **The planning or construction of recreational trails through any of these areas may call for a re-evaluation of the coverage for this ordinance, as necessary.**

- *Riverstation Mixed Use Overlay District* – The newest addition to the City's overlay districts, this ordinance specifically addresses the requirements for the Riverstation redevelopment area north of downtown New Bern. The overlay requires a number of pedestrian-friendly elements including adherence to "traditional" development patterns inherent to the surrounding historic neighborhood, interconnection between new development and existing neighborhoods and greenways, provision of multi-modal transportation opportunities and recreational spaces. The ordinance also requires pedestrian access to the Neuse River, including the extension of the RiverWalk trail along the waterfront. Further, the overlay district requires that 5% of proposed development should include parks, plazas, walkways, trails and bike paths. These requirements will help ensure that this development provides a well-connected network of pedestrian facilities and promotes a "liveable community."
- *Neighborhood Conservation Overlay Districts* – The purpose of this overlay is to preserve the character and function of neighborhoods within the City established prior to 1968, and/or those neighborhoods with active citizen/neighborhood associations, a unifying "sense of place," and/or an established neighborhood plan. Specific neighborhoods covered include the Lawson Creek Neighborhood, Dryborough-Riverstation Neighborhood and Ghent Neighborhood.

In addition to these special overlay districts, the New Bern Land Use Ordinance covers a number of basic requirements for all development throughout the City. The zoning of a parcel of land controls its range of allowed "by right" uses, permitted variances under certain conditions, and design specifics. The purpose of this review is to indicate areas where improvements could be realized that would affect the ongoing quality of the pedestrian environment for a long time to come.

Article XIII requires that any development with over 31 single-family or duplex homes, or multi-family development with ten or more dwelling units, dedicate a minimum of 5% of the total area of the development as usable open space. Further, this section requires that any tract proposed for residential development that lies within an area designated for a proposed greenway or bikeway system, shall dedicate up to 5% of the total tract area for public use.

Article XIV addresses streets and sidewalks, including required street widths outlined in Table 3-1 for subdivided developments. Sidewalks are required on one side of the street along all arterial, collector, subcollector, local, and other through traffic streets in residential developments with an average lot width of up to 80ft (excluding corner lots). Street rights-of-way that do not include sidewalk are to be 10 feet on either side of the street pavement; those streets including sidewalks require a 15ft right-of-way on either side of the street pavement. Sidewalks, when installed, are to be a minimum of 4ft wide, with a minimum 2ft buffer (separation) from the back of curb. Appendix C of the code provides illustrations of typical street sections, also captured in Figure 3-6.

In order to improve pedestrian conditions in New Bern's new residential and commercial developments, **it is recommended that the minimum sidewalk widths be increased to 5ft – a nationally accepted standard necessary to meet wheelchair access requirements set by the Americans with Disabilities Act (ADA). Additionally, it is recommended that sidewalk buffers be expanded to a minimum of 3ft, and that 5ft sidewalks be required on both**

Street Type	Minimum Pavement Width B/C to B/C (feet)*	Minimum ROW Width w/Sidewalk (feet)*	Minimum ROW Width w/out Sidewalk (feet)*
Minor	25	55	45
Local	31/27	61/57	51/47
Subcollector	31	61	51
Collector	35	65	55
Arterial	44	74	64
Marginal Access	25	55	50
Limited Access	20	50	50

Table 3-1. Minimum pavement width and right-of-way (ROW) requirements for residential development in New Bern.

* Planned Unit Developments may receive variances on typical street sections with permission from the Director of Public Works and City Engineer.

sides of the street for arterial and collector streets. It is further recommended that the City re-evaluate the minimum requirement for sidewalk installation to apply to the additional four residential zones R15, R20, A5-F and A5, as appropriate. Finally, it is recommended that the City consider additional requirements for sidewalks in subdivided developments with lot widths greater than 80ft wide, in order to provide the most pedestrian accessible developments possible.

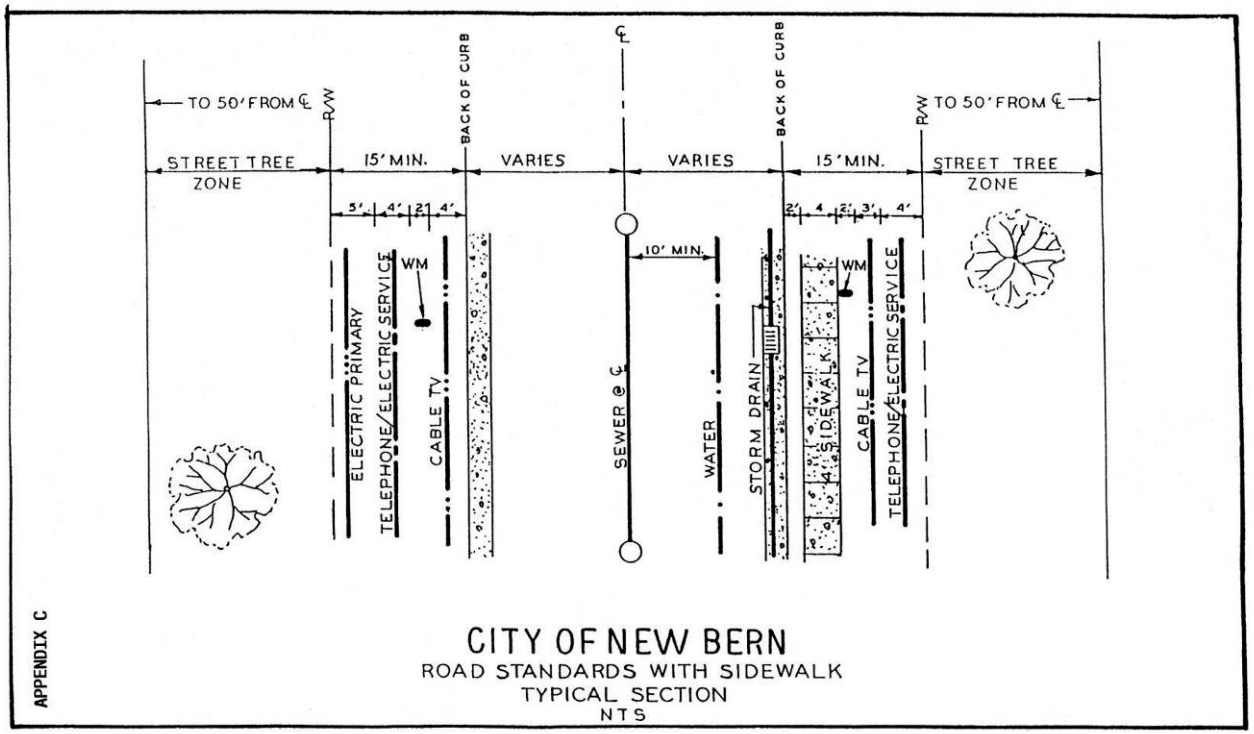


Figure 3-6. Appendix C of New Bern's Land Use Code shows typical street section.

Section 15-217 addresses general layout of streets in residential development and encourages the use of cul-de-sacs. While cul-

de-sacs may cut down on through traffic and thereby reduce traffic speeds, developments with excessive cul-de-sacs are not considered pedestrian-friendly, as they create long, circuitous walking distances that do not provide easy pedestrian access to destinations outside or within the neighborhood**. It is recommended that the City consider disincentivizing cul-de-sac development and/or incorporate a requirement for direct pedestrian connections between cul-de-sacs to provide more walkable developments outside of the center city where overlays apply.** Though Sec 15-216 addresses the ability of the Board of Aldermen to require a developer to reserve a 10ft easement for additional pedestrian access from a subdivision to a school, parks, playgrounds or other roads/facilities, **it is recommended that firm language be included in the ordinance for off-site sidewalk requirements and/or payment in-lieu, as well as to allow water/sewer easements to give access for pedestrian use**. Section 15-220 requires that curb and gutter and other street improvements on private streets being dedicated as public streets are assessed 100% to the adjacent landowners.

Section 15-221 covers streets and sidewalk requirements in non-subdivided development, and encourages design that provides for the safe and convenient movement of motor vehicles and pedestrians. The ordinance requires 4ft wide sidewalks, in the case of multi-family residential developments, to link dwelling units to other dwelling units, the public street and on-site activity centers, including parking areas, excepting developments with a road linking nine or less dwelling units. The ordinance also includes language allowing for the Board of Aldermen to require a 10ft easement for pedestrian access to parks, playgrounds, schools and other facilities as deemed necessary. Additionally, the ordinance allows for sidewalks made of material other than concrete if the Director of Public Works deems such materials as suitable and/or environmentally desirable. **It is recommended that the minimum sidewalk width in this section be changed to a 5ft minimum, and that sidewalks be required along the frontage of all non-subdivided**

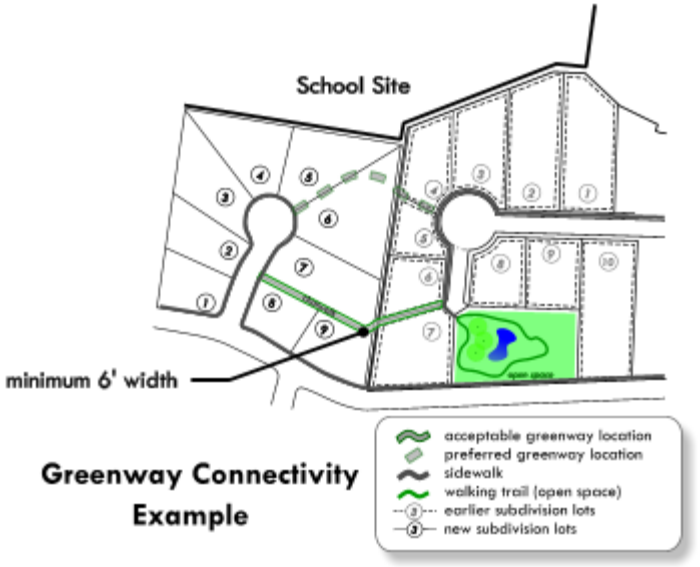


Figure 3-7. The Pedestrian Plan's recommendations will include many projects, policies and programs to improve walking conditions around schools, parks and neighborhoods. A policy change that requires short greenway connections between new cul-de-sac developments and adjacent parks, schools or residential uses is recommended. Often, these "cut-throughs" or "chatwalks" are an informal network that can be formalized to greatly shorten walking distances and enhance the local pedestrian network by providing short, safe links for pedestrians of all ages and abilities.

development as to provide sidewalk linkages along major and minor thoroughfares to/from said developments.

Finally, Section 15-222 addresses wheelchair access and requires that wheelchair ramps be provided at intersections and other points of pedestrian flow on streets with curb and gutter, and refers to NCDOT design standards for construction specifications. In unsubdivided developments, wheelchair access is to be guided by the requirements of the NC building code.

Article XVIII covers parking requirements, and generally allows for variances on parking if a development is within the Central Business District, expressly serves an elderly population, serves a walk-in trade function, or is in one of the City's nationally-registered historic districts. All developments in the central retail core (defined in the ordinance) are exempt from off-street parking requirements. This flexibility in the ordinance allows for more pedestrian-friendly design opportunities. Section 15-346 of this Article addresses the separation of parking from walkways, and requires a 2.5 inch separation of the vehicle accommodation area and adjacent pedestrian access, which can be achieved through a planting strip or the extension of a sidewalk. Sidewalks in nonresidential developments are required to have unobstructed 4ft clearance. **It appears that there is a typo in the current ordinance on MuniCode; it is recommended that the separation in the former requirement be expanded to at least 2.5ft, and that the latter requirement be expanded to a 5ft unobstructed sidewalk. This section also states that circulation should be designed to safety accommodate pedestrians, but could be further expanded to require walkways through the parking lot to a business for nonresidential development, in order to provide better access from a public street, through the development to the business entrance in the case of "big box" developments. As stated above, it is recommended that 5ft sidewalks be required along the frontage of all developments, in order to provide appropriate pedestrian connections to/from developments along the public street.**

WHY REQUIRE SIDEWALKS?

Sidewalks are an amenity to some, but a necessity for many. Approximately 7% of New Bern residents have no access to a private automobile, while 32% of local households share only 1 vehicle. These and other 2000 Census figures indicate that many New Bern residents are walking for transportation purposes because they have no other choice. With rising gas prices, a slow economy and increasing numbers of retirees in the area, lack of access to private vehicles is likely to rise. Providing alternative transportation options to driving alone is in the best interest of many New Bern residents, as new sidewalks within a recent development most often serve those living within that neighborhood and have been shown to raise the property value of homes in some subdivisions, as well.

Article XIX addresses screenings and street trees, and provides for conservation and replacement of trees in nonresidential developments. The City has special requirements for "regulated" trees, some of which are in the historic districts of New Bern, and states that removal of any such trees requires a special permit. This article also requires shade trees in parking lots of at least 9x18ft in area, and along dedicated residential streets at a frequency of one large canopy tree per 30ft.

Conclusion & Policy Recommendations

Overall, New Bern's ordinances are well-structured to provide for substantial pedestrian accommodations and design elements essential to a pedestrian-friendly community. Allowing for proximity of compatible land uses through PUD's will encourage more compact "liveable" developments, while the inclusion of appropriate design standards regarding visual, material, and mass elements of the built landscape will help to ensure a pleasant walking environment. It is strongly recommended that the City change the minimum sidewalk requirement in all ordinances to 5ft, that sidewalks be required on both sides of the street for all arterial and collector streets, and that sidewalks be required along the frontage of all residential and commercial developments to create pedestrian linkages along major/minor thoroughfares in the City. In addition to considering these and other recommendations highlighted in bold in the paragraphs above, several additions to the Code of Ordinances could enhance the pedestrian environment and include:

- Development of local Street Design Guidelines with graphic elements to enhance the quality of local design and supplement the Land Use and other ordinances. Additional design guidance on driveway design and wheelchair ramps (curb cuts) could be included in a set of local Street Design Guidelines. These design guidelines could also include further language on retrofitted sidewalks.

WHAT IS *PAYMENT IN-LIEU*?

Many communities in North Carolina require sidewalks to be installed within new development and along the public street frontages of all subdivided developments. In some cases, developers are given the choice to opt out of the sidewalk construction and pay in-lieu of constructing pedestrian facilities. This is usually a rare occurrence at the behest of development review staff, the Planning Board and/or Board of Alders, but can be applicable in cases where the cost of the sidewalk installation is disproportionate to the cost of the development. In these cases, a payment in-lieu fee can be assessed to the developer. These funds are paid into a pool used for spot improvements and sidewalk repair in other areas of the City.

- Further language on Traffic Impact Assessments could be useful in the Land Use Ordinances, and could be tailored to specifically address bicycle and pedestrian traffic flow and intersection design that safely accommodates pedestrians.
- The addition of a new ordinance restricting bicycle riding on sidewalks in the Central Business District could help reduce bicycle/pedestrian conflicts and help create a safer pedestrian environment.
- Clear guidelines on the cost of sidewalks, payment in-lieu or impact fees for pedestrian improvements could be helpful.
- Clear statement in the ordinances on the City's sidewalk petition process would be useful, and should be structured so as not to overburden the adjacent property owners.
- Creating a Transit Plan to address public transportation needs beyond the current CART system.
- Work with Craven County to consider pedestrian needs during all new school placement decisions.

3.3 NCDOT Policies and Program

2009-2015 Transportation Improvement Program (TIP)

The NC Transportation Improvement Program (TIP) is a seven-year plan for funding and constructing major transportation projects on State roadways. The TIP covers projects in each of the 14 Division offices across the State. New Bern falls within Division 2, and works with the region's Down East Rural Planning Organization (RPO), housed within the Eastern Carolina Council of Governments, to submit projects for inclusion in the TIP based on local and regional priorities.[2]

The 2009-2015 TIP for the City of New Bern includes the projects listed in Table 3-2 below.[3]

TIP #	Project Name	Project Description	Project Status
R-2310A	NC43	New Bern Bypass, US17 south of New Bern to US70. Four-lane divided freeway on new location (5.9 miles)	Under Construction
R-2514	US17	Widen to multi-lanes north of Jacksonville to New Bern Bypass	Planned; some segments under construction. New Bern portion remains unfunded.
E-4737	Pollock Street, Metcalf Street Enhancements	Improve roadway and landscaping at/near Tryon Palace Historic Site.	Under Construction
E-4508	George Street Streetscaping	Improve roadway and landscaping at/near Tryon Palace Historic Site.	Under Construction

Table 3-2. 2009-2015 TIP Projects within the City of New Bern

North Carolina Department of Transportation Policies

The North Carolina Department of Transportation (NCDOT) has adopted a number of policies addressing routine accommodation for bicycles and pedestrians on state maintained roadways. These policies and guidelines should be applied when new construction or resurfacing projects impact the bicycling environment in Wilson and include the following:

- **Board of Transportation Resolution on Mainstreaming Non-motorized Transportation** – This policy reaffirms the importance of bicycle and pedestrian facilities as an integral part of the overall statewide transportation system, and states that "bicycling and walking accommodations shall be a routine part of the North Carolina Department of Transportation's planning, design, construction, and operations activities." (http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html)

- **NCDOT Pedestrian Policy** – This policy offers guidance providing pedestrian accommodations on state maintained roadways,

and details standards for planning, design, construction, maintenance, and operations pertaining to pedestrian facilities and accommodations. (http://ncdot.org/transit/bicycle/laws/laws_pedpolicy.html)

- **NCDOT Guidelines for Accommodating Greenways with Road Improvement Projects** – This policy addresses the intent of NCDOT to accommodate planned greenways, existing greenways, and greenway crossings in all highway planning and construction projects. The policy states that it "was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction." (http://www.ncdot.org/transit/bicycle/laws/laws_greenway_admin.html)

- **Environmental Stewardship Policy of NCDOT and Division Two** – This policy outlines the Department and Division mission "to provide an integrated transportation system that enhances the state's well being." Goals of the policy include the provision of "a safe and well-maintained transportation system that meets the needs of our customers and supports the development of sustainable, vibrant communities. " Within the policy, environmental stewardship is defined as:
  - Safeguarding the public's health by conducting our business in an environmentally responsible manner
  - Demonstrating our care for and commitment to the environment
  - Recognizing that our customers expect us to provide mobility and a quality of life that includes the protection of the natural resources and the cultural and social values of their community.

  (http://www.ncdot.org/doh/operations/division2/departments/environmental/)

3.4 Federal Highway Administration (FHWA) Policy

Since the 1990's, significant changes have been made to Federal transportation policy and programs to improve bicycle and pedestrian safety and access. The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and the 1998 Transportation Equity Act for the 21st Century (TEA-21) were the basis for these changes. Each of these federal transportation bills extended the consideration of non-motorized users in all roadway projects, and TEA-21 mandated an FHWA policy for mainstreaming non-motorized transportation (http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm).

The most recent version of the federal transportation bill, SAFETEA-LU, "confirms and continues the principle that the safe accommodation of non-motorized users shall be considered during the planning, development, and construction of all Federal-aid transportation projects and programs. To varying extents, bicyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of SAFETEA-LU that all new and improved transportation facilities be planned, designed, and constructed with this fact in mind."

"While these sections stop short of requiring specific bicycle and pedestrian accommodation in every transportation project, Congress clearly intends for bicyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes. 'Due consideration' of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and pedestrians will be accommodated in the design of new and improved transportation facilities. In the planning, design, and operation of transportation facilities, bicyclists and pedestrians should be included as a matter of routine, and the decision to not accommodate them should be

the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling."

Resources and Citations

[1] City of New Bern Comprehensive Plan for a Healthy Community, pg. 10.

[2] Eastern Carolina Council website, accessed March 24, 2009. http://www.eccog.org/document.asp?document_name=rpo/derpo

[3] NCDOT 2009-2015 State Transportation Improvement Program (STIP) for Division 2, accessed online March 24, 2009: http://www.ncdot.org/planning/development/TIP/TIP/Trans/pdf/div2.pdf

This page left intentionally blank.

Section 4. Design Guidelines

This section provides a set of standards for the design of pedestrian facilities recommended as part of the City's Comprehensive Pedestrian Plan.

4.1 Introduction

This section provides guidance for the City of New Bern as they, private developers, and the State Department of Transportation (NCDOT) construct new pedestrian facilities and reconstruct existing pedestrian facilities to meet better standards. This section is divided into the following topics:

- legal rights of pedestrians
- pedestrian facilities and their design
  - sidewalks
  - crossings: signalized or unsignalized
  - greenways
- ADA requirements
- downtown area standards
- school standards
- sidewalk construction policy and maintenance
- parking lots

Currently, the City has few standards for pedestrian facilities – sidewalks, crosswalks, and other pedestrian-related amenities are constructed on an ad-hoc, as-needed basis. This section of the Plan is important because it provides a consistent set of guidelines within the City to help create a uniform appearance to New Bern's sidewalks and a more connected system.

4.2 Legal Rights of Pedestrians

It is important to understand the legal rights of pedestrians because these guide and define how pedestrian facilities are constructed and provided. Some of the legal rights of pedestrians are defined in Sections 20-172 through 20-175.2 of the North Carolina General Statutes.

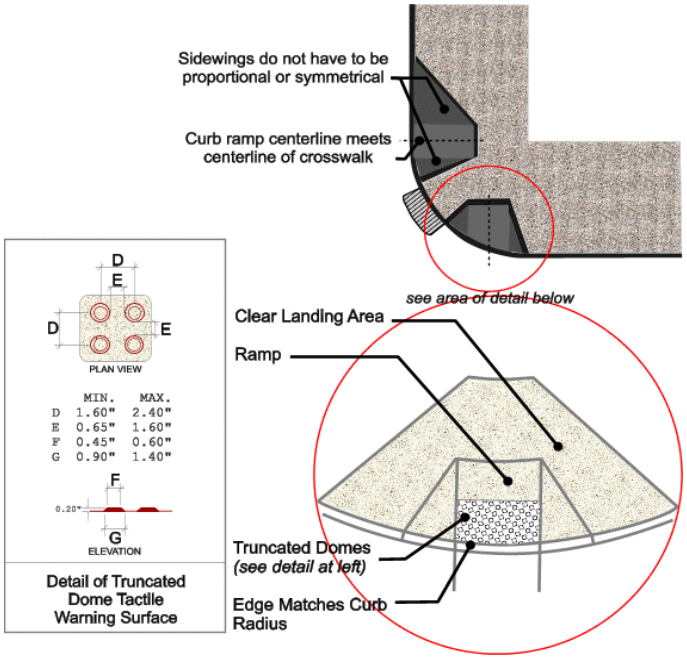


Figure 4-1. Detail of an ADA-compliant curb ramp design with truncated dome measurements.

More information can also be found in the NC Bike/Pedestrian Laws Guidebook, available at the NCDOT's Division of Bicycle and Pedestrian Transportation webpage: http://www.ncdot.org/transit/bicycle/laws/resources/BikePedLawsGuidebook-Part-1.pdf.

Some of the items which should be considered are the following:

- Drivers must yield to pedestrians (or cyclists) crossing a driveway, alley exit, or parking garage exit on a sidewalk. (§20-173)
- Pedestrians crossing any roadway other than at a marked crosswalk must yield to vehicles.
- Pedestrians should cross at street intersections or in marked crosswalks.
- If there are sidewalks, pedestrians are not to walk in the roadway. Where sidewalks are not provided, any pedestrian walking along the roadway will walk at the edge of the roadway, facing in the direction of approaching traffic.
- Every driver must consider pedestrians at all times, especially exercising care in the presence of children or incapacitated persons on the roadway. (§20-174)
- Special emphasis on leaving adequate crossing room at intersections is noted for visually handicapped persons. (§20-175.2)

In addition, pedestrian access is also governed by the requirements of the Americans with Disabilities Act (ADA) of 1990, a civil rights law which prohibits discrimination against people with disabilities in all aspects of life. As done throughout the US, the City of New Bern must provide transportation facilities, including sidewalks and other pedestrian facilities, which comply with the guidelines set forth in the ADA Accessibility Guidelines (ADAAG) in order to meet the standards of the Americans with Disabilities Act. Some of the major items related to pedestrian facilities that are addressed by ADAAG include curb ramps and cross-slopes. The following bullets describe ADAAG-compliant design for these items.

■ **Curb ramps: design and placement.**
DESIGN: Curb ramps are a significant and required feature of accessible pedestrian transportation systems, and must be designed carefully to fulfill their function and the requirements of the Americans with Disabilities Act. Curb ramps should not have a slope greater than 1:12, meaning that for every foot of travel, the slope should not rise more than one inch. To provide a tactile warning to the visually impaired, raised truncated domes with a color contrast to the background material (typically concrete or rubber) should be used, with measurements shown in Figure 4-1. The *ADA Accessibility Guidelines for Buildings and Facilities* (http://www.access-board.gov/adaag/html/adaag.htm#A4.29.2) has an easy-to-use format for locating specific design criteria related to curb ramps, rise/run restrictions on ramps, and figures illustrating basic concepts.[1]

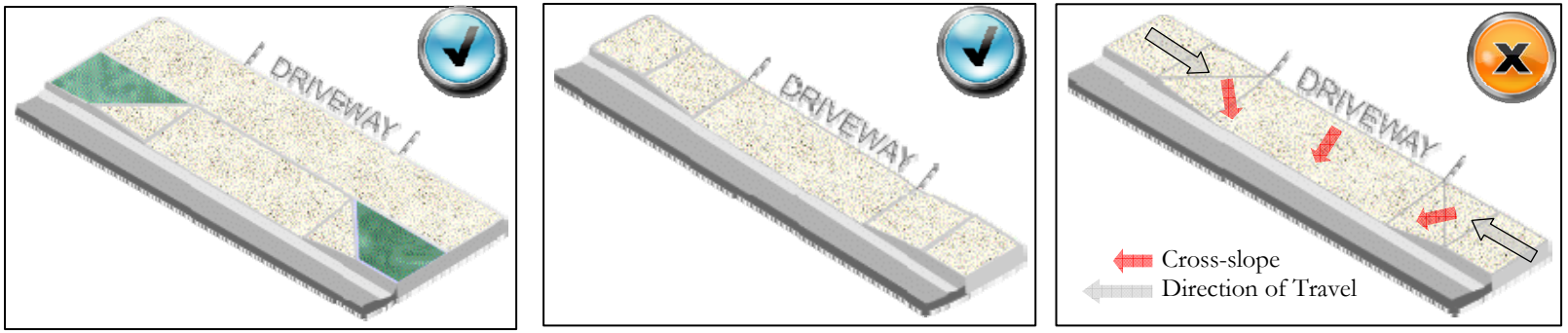
PLACEMENT: Curb ramps should be placed entirely within the area of a marked crosswalk, so that a pedestrian can enter the ramp space at an angle perpendicular to the direction of travel. Generally, the standard is to have separate curb ramps on each corner; if a shared (sometimes called corner or diagonal) curb ramp is constructed, then the width and radius should accommodate the user so that entry onto the ramp is parallel to the direction of travel. Figure 4-2 provides examples of the acceptable relationship between crosswalk and curb ramp location/widths.

■ **Cross-Slopes.** Cross-slopes, or a slope along the travelway surface which is perpendicular to the direction of travel, make it wheelchair travel very difficult. In addition, it can also make for treacherous walking conditions for individuals with problems with their balance and coordination. Cross-sloping most frequently occurs in conditions in which a driveway meets a sidewalk, but can also occur in other situations. In order to minimize the risk of a dangerous and difficult travel condition for some, cross-slope is regulated by ADAAG such that cross-slopes should not exceed two

Figure 4-2. Appropriate curb ramp placement *(above) directs pedestrians into the crosswalks. Detectable warning strips with truncated domes (left) should be used in all curb ramps for compliance with ADA standards for the visually-impaired.*

percent, and preferably not exceed 1.5 percent where possible. Figure 4-3 indicates the preferred (left), conditionally acceptable (middle), and unacceptable (right) design solutions for new driveways as they interface with sidewalks.

For a complete guide to ADA requirements, please see the National Access Board's website: www.access-board.gov.



Preferred – *The sidewalk is set behind the driveway apron and planting strip.*

Conditionally Acceptable – *The "dip" at the driveway apron allows for safer passage with no cross-slope.*

Not Acceptable – *The cross-slope at the driveway apron provides a difficult challenge for a person using a wheelchair or cane.*

Figure 4-3. Examples of acceptable and unacceptable design solutions for minimizing cross-sloping at a driveway and sidewalk interface.

4.3 Pedestrian Facilities and their Design

There are a variety of sources for design guidance for pedestrian facilities, including the following:

- NCDOT Highway Design Manual (2002)
- NCDOT Traditional Neighborhood Street Design Guidelines (2002)
- The American Association of State Highway and Transportation Officials' *Guide for the Planning, Design, and Operation of Pedestrian Facilities* (AASHTO, 2004)

- Manual on Uniform Traffic Control Devices (MUTCD), frequently updated
- Federal Highway Administration (FHWA)

The North Carolina Department of Transportation adheres to the design guidelines provided in the AASHTO and MUTCD guidebooks. In general, pedestrian facilities can be described in the following categories:

- sidewalks
- crossings
- greenways

The City currently does not have its own standards for pedestrian facilities. The following paragraphs provide national standards and best practices for pedestrian facilities by category.

4.3.1 Sidewalks

Standard sidewalk is usually is five feet minimum in width, concrete, and placed along roadways with curb and gutter. In general, the width of sidewalks should accommodate two persons walking past one another, a width generally perceived to be five feet, at a minimum. Other circumstances that may require additional sidewalk width are: (1) to accommodate the overhang of parked vehicles from off-street or angled on-street parking areas; and (2) additional buffer from traffic when a planting strip cannot be installed.

Additional design considerations for on-street sidewalk facilities include the following:

- Eliminating both high and low contact points with tree branches, mast-arm signs, overhanging edges of amenities or furniture; and
- Providing clear space between walls on one side of the walkway and amenities, parking overhang, or plantings on the curb side of the walkway (see Figure 4-4 which diagrams the

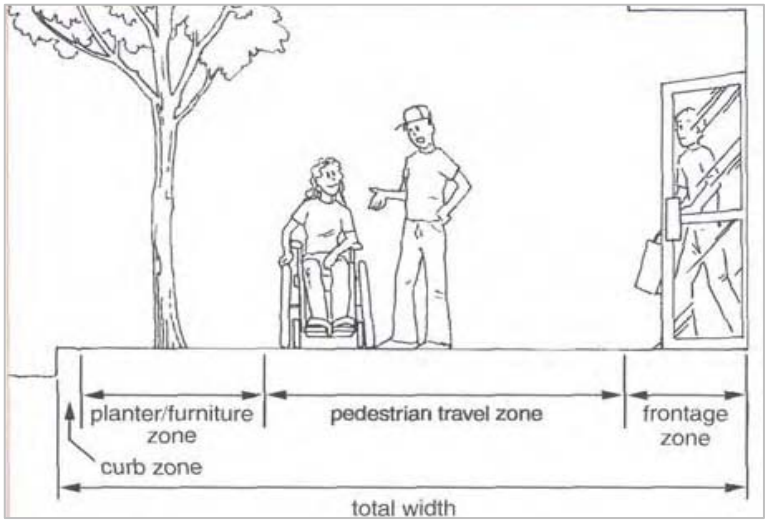


Figure 4-4. Horizontal clearance "zones" for a sidewalk, most typically found in a central business district.
Source: FHWA/USDOT "Accessible Sidewalks and Street Crossings" Informational Guide.

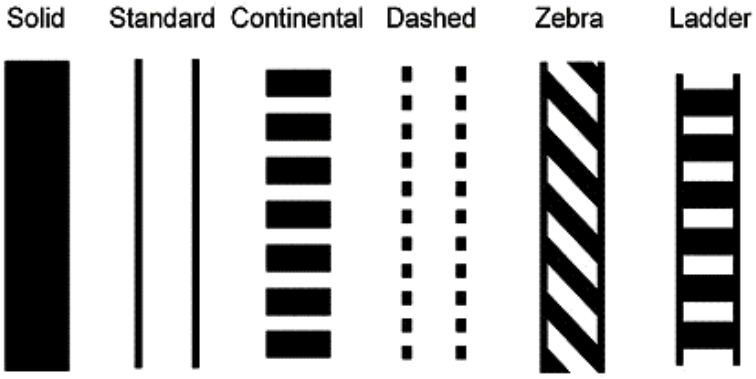


Figure 4-5. Typical styles for marked crosswalks.
Source: FHWA.

relationships between pedestrian features, building facades, and roadway).

In general, standard sidewalks should be concrete, which is more durable than asphalt. A more flexible material, such as rubberized paving, can be considered in situations in which there is the potential for tree roots to crack and lift the concrete. Using these types of materials can reduce the risk of a tripping hazard, and also lower maintenance costs. More permeable materials, such as porous pavers, can also be considered for all pedestrian-ways, and in particular for greenways near streams, in order to reduce run-off from storm events.

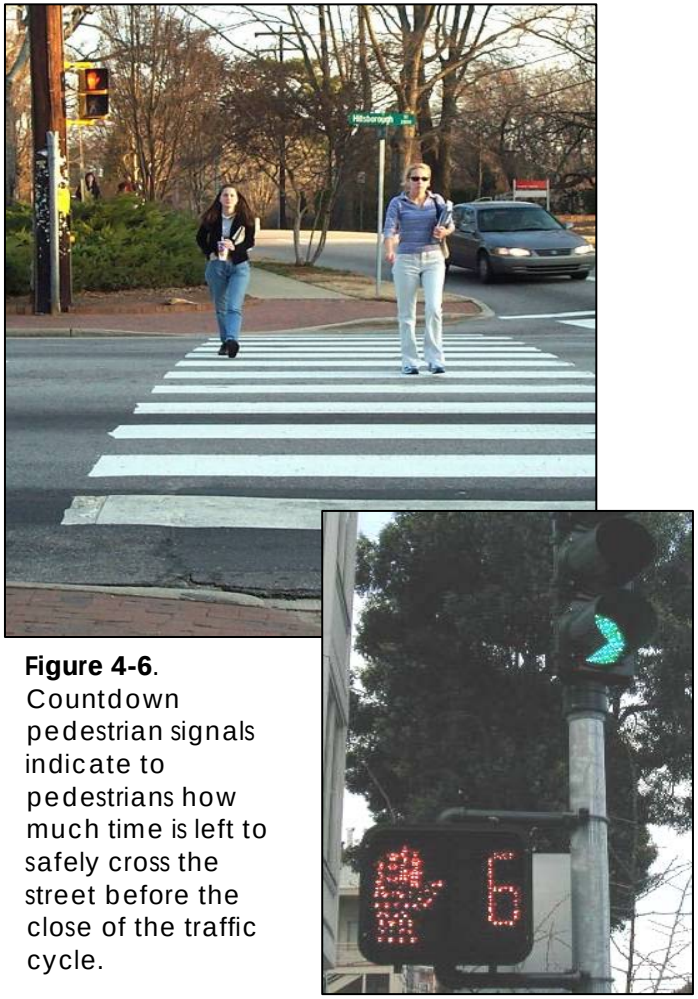


Figure 4-6. Countdown pedestrian signals indicate to pedestrians how much time is left to safely cross the street before the close of the traffic cycle.

4.3.2 Crossings

Pedestrian-friendly crossings are a critical feature in a well-connected pedestrian system because they provide the linkages between one segment of sidewalk to another as a pedestrian may cross a street, connect to another existing piece of sidewalk, or pass to a new development. A well-placed crossing can dramatically reduce pedestrian travel time and improve pedestrian safety – greatly increasing the convenience of walking as a mode of travel. Crossings can be signalized and unsignalized, as well as located at intersections or at mid-block locations. The City of New Bern has several signalized and unsignalized crossings at various intersections throughout the City.

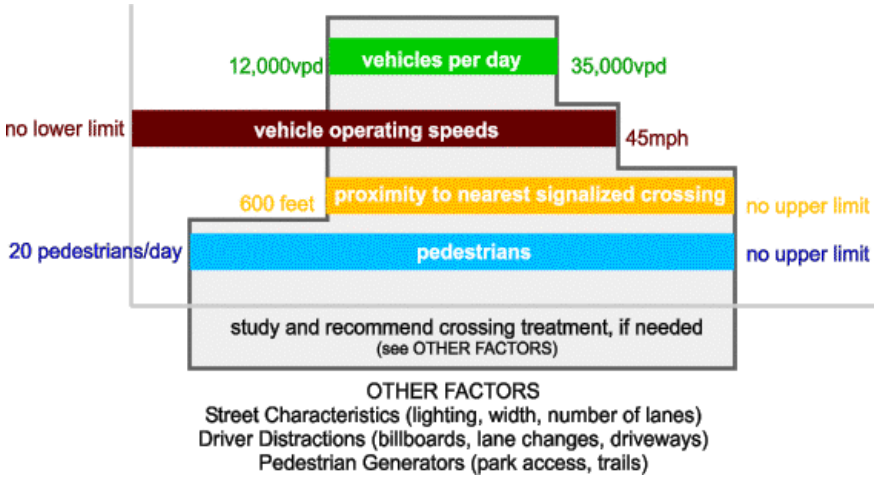
The most basic crossing is an unsignalized intersection with standard, continental or zebra crosswalk markings (Figure 4-5). Other potential treatments for unsignalized crossings include raised crosswalks and/or signage. In-street or overhead "yield to pedestrian" signs are an effective treatment for unsignalized intersections, encouraging motorists to stop for pedestrians as they cross the street. These signs offer a visual cue and instill some friction in the roadway, as they are typically placed in the middle of a bi-directional, two-lane road. Additional treatments can be

added for crosswalk visibility at unsignalized and signalized locations, including decorative brick, textured crosswalks or experimental paint colors.

All signalized intersections should be outfitted with countdown pedestrian signals and crosswalks, per NCDOT and MUTCD standards. MUTCD recommends that signals are operated on a 4ft/second pedestrian travel speed. In some cases, the built environment or user context may require audible pedestrian signals or special treatments like a High Intensity Activated Crosswalk (HAWK) Signal. Marked crosswalks (at signalized and unsignalized locations) should not be less than 6 ft in width, with 10 ft or greater for downtown areas and locations of high pedestrian traffic. Advance stop bars should be placed 4 - 10 ft from the pedestrian crosswalk (with 6 - 15 ft recommended in uncontrolled locations or multilane roads). Pedestrian push buttons should accompany pedestrian signals that are not phased into the regular traffic signal cycle; push buttons should be placed in a convenient and wheelchair accessible location. Pedestrian-activated signals should be used for roadways with long traffic signal cycles where pedestrians are to be given preference when present, and/or for signals where the pedestrian cue is not phased into the traffic cycle unless a button is activated. Pedestrian-activated signalization can also be used to provide lead pedestrian intervals in high-conflict areas, in order to give pedestrians a few seconds of full use of the intersection or crosswalk prior to allowing right or left turning movements for motorists. These options reinforce pedestrian safety at high-conflict intersection locations with significant crash history.

Mid-block crossings are typically unsignalized crossings, but can also utilize pedestrian-activated signalization. There is still no national consensus for when a crossing should be created mid-block, and when the mid-block crossing should be signalized. The City of Charlotte Department of Transportation has created a set of guidelines for assessing mid-block crossings, based in part on the

Figure 4-7. The City of Charlotte's solution space for considering when to apply signalized mid-block pedestrian



work of FHWA and Charles Zegeer of the Pedestrian and Bicycle Information Center. In addition to numbers of pedestrians, vehicle speed, and vehicle volume on the roadway, there are a variety of other considerations which must be accounted for when determining whether to construct a mid-block crossing. These considerations include: lighting conditions, sight distance, numbers of lanes, and roadway width. Figure 4-7 shows the "solution space" identified by the City of Charlotte for considering a mid-block crossing. Table 4-1 shows the decision matrix created by the City of Charlotte for determining when to construct a mid-block crossing and identifying appropriate treatments.

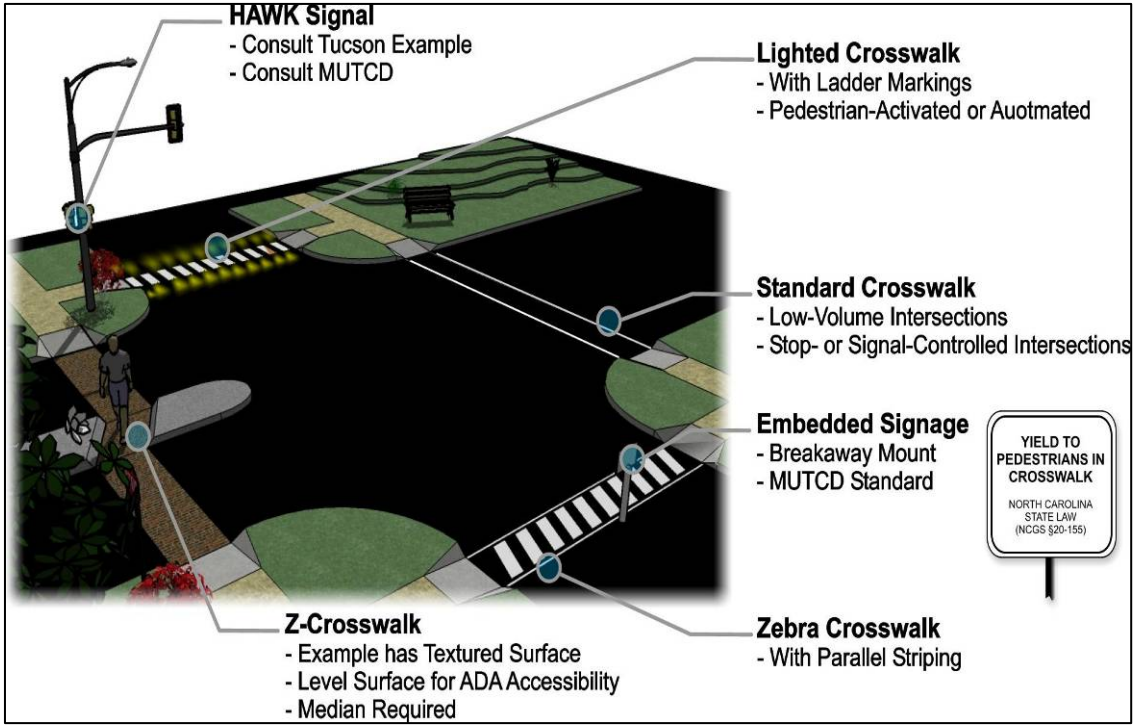


Figure 4-8. A diagram of various crossing treatments New Bern might consider in order to improve pedestrian accessibility and safety at intersections.

Given the sensitive nature of mid-block crossings, every new mid-block crossing treatment will require a specific investigation by the City and NCDOT (on State-maintained streets) prior to initiating design and construction. Nevertheless, mid-block treatments can be useful in improving safety in areas with fairly high pedestrian crossings and low numbers of vehicles and vehicle speeds, if located and designed properly. All mid-block crossings will require advance warning signage and good visibility for both pedestrians and vehicles. On State-maintained roadways, mid-block crossings are not permitted within 300 ft of another signalized crossing point. Though NCDOT does not have established guidelines for the placement of pedestrian signals, they generally use MUTCD and AASHTO warrants for the installation of traffic signals.

Table 4-1. Mid-Block Crossing Treatment Design Criteria (*Charlotte DOT, 2005*).

Pedestrian Mid-block Crossing Treatment	AADT	Operating Speed	Approx. Cost
Signs	5,000 – 35,000	Less than 45 mph	$250 - 350
High-Visibility Markings	5,000 – 12,000	Less than 35 mph	$500 – 1,500
Colored and Textured Markings	5,000 – 12,000	Less than 35 mph	$5,000+
Curb Extensions	5,000 – 12,000	Less than 35 mph	$5,000 – 25,000
Raised Crosswalks	5,000 – 15,000	Less than 30 mph	$2,000 – 15,000
Refuge Island	12,000 – 30,000	Less than 40 mph	$10,000 – 40,000
Median	15,000 – 35,000	35 - 45 mph	Varies greatly
In-Pavement Illumination	5,000 – 15,000	Less than 35 mph	$40,000
Pedestrian-Only Signal*	15,000 – 35,000	35 – 45 mph	$40,000 – 75,000
HAWK Signal**	15,000 – 35,000	35 – 45 mph	$35,000 – 60,000

**Note: MUTCD recommends pedestrian volumes of at least 400 for a four-hour period. **A HAWK (High-Intensity Activated Crosswalk) signal is a pedestrian-activated system used for high-volume crossings found to be useful in increasing the rate of driver responses to pedestrian crossings, especially in Tucson, AZ where they have been utilized extensively.*[2]

Figure 4-9. Examples of pedestrian- activated, signalized, mid-block crossings.

Top: *An example of a pedestrian-activated signalized mid-block crossing.*

Bottom-right: *Guide for pedestrians to assist them in understanding the meaning of the push-button signals.*

4.3.3 Signage

In addition to sidewalks and crossings, pedestrian facilities also include signage along major pedestrian routes. Regulatory and warning signs serve primarily to reinforce traffic laws and rules of the

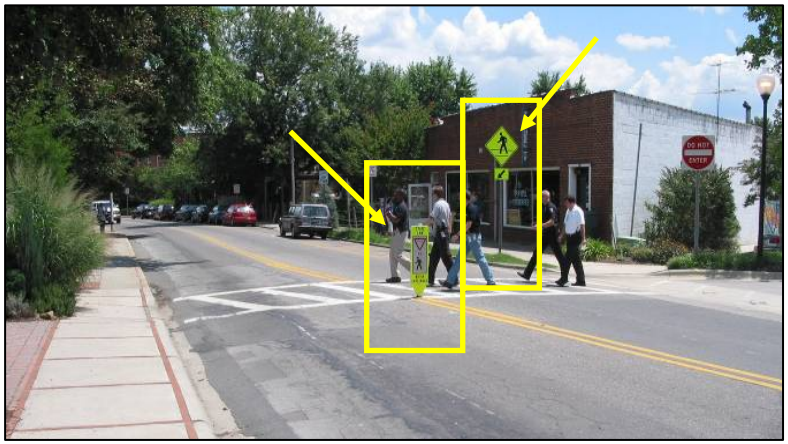


Figure 4-10. An example of two types of signs used to notify motorists of a pedestrian crossing.

road, and notify motorists and others of the presence of pedestrians. Often, the intended effect is to instruct motorists to drive more cautiously and reduce their speeds, thereby improving the safety for pedestrians in the given area.

Regulatory and warning signs can be used in a variety of places, including at crosswalks, at intersections, in-street, and near schools. National standards for sign placement and use can be found in the Manual for Uniform Traffic Control Devices (MUTCD). The MUTCD provides guidance for warning signs which can be used at both crosswalks, or along the roadway:

"Non-vehicular signs may be used to alert road users in advance of locations where unexpected entries into the roadway or shared use of the roadway by ***pedestrians*****,** animals, and other crossing activities might occur." (Page 2C – 21, 2003 Edition)

The following are some recommended regulatory and warning signs which New Bern should consider installing. For more signs and more detailed guidelines for sign installation and use, New Bern should consult the MUTCD.

Figure 4-11. Example standard pedestrian warning signs. The first sign (far left) is usually installed within the street to warn motorists to yield to pedestrians in a crosswalk - it does not have to be near a school. The second and third signs are common general pedestrian warning signs, while the fourth and fifth signs notify motorists of specific instances to watch for pedestrians. The fourth sign, "Turning Traffic", is usually placed at intersections to warn motorists that are turning right or left to yield to pedestrians in crosswalks. For the fifth sign, the top sign can either be combined with the smaller "ahead" sign or the arrow symbol to indicate the presence of a crosswalk to motorists in a school zone.

In addition to regulatory and warning signs, many communities are adding non-traditional wayfinding signage to their public streets as an added amenity to pedestrians, cyclists and motorists. Pedestrian wayfinding signs typically give directional cues to pedestrians navigating a dense central business district or downtown area by foot. These signs include general directional information to major cultural, civic, institutional or historic landmarks, and sometimes include distances to those destinations (by mile or by block). Wayfinding signs can also indicate local "districts" or neighborhoods via specialized color-schemes or other symbolic gateway décor. Pedestrian wayfinding signs can be in the form of gateway banners, kiosks or maps, placed in the "furniture zone" of the walkway, out of the way of pedestrian traffic and at a height of 7ft or more for appropriate clearance but within legible distance of the reader. Associate hardcopy maps are often used to complement these signs. Figure 4-12 is an example of pedestrian wayfinding signage in Charlotte, NC's central business district.

4.3.4 Greenways

Greenway trails, sometimes called multi-use trails or simply "greenways," are one of the most popular pedestrian facilities, especially for recreation. Greenway trails can be paved or unpaved paths, often unassociated with a roadway. They can be used by pedestrians, cyclists, and other non-motorized users. Greenways are typically no less than 10 feet wide with minimum two feet wide, graded shoulders on each side of the trail. Surface options include paving with standard or permeable asphalt or concrete, or using pea gravel or granite screenings. Trail design and maintenance should provide for an 8 ft minimum vertical clearance from obstructions, including tree canopy. Proper pedestrian-scale lighting is essential if the trail will be open to commuters or recreational users in the early morning or late evenings. Bushes, trees and undergrowth should be well-maintained to ensure user safety. Often, additional amenities are added to greenways for user convenience, such as benches,

Figure 4-12. Example of a wayfinding sign in Charlotte, North Carolina's central business district.

Figure 4-13. Typical greenway cross-section with bollard treatments at roadway crossing.
Source: www.pedbikeimages.com

water fountains, interpretative trail signs, map kiosks with distance and landmark information, and even emergency telephones if crime is considered a problem. Additional guidance on greenway design and standards can be found at: www.ncdot.org/transit/bicycle/projects/project_types/Multi_Use_Pathways2.pdf.

An example greenway cross-section is provided in Figure 4-14 below.

Figure 4-14. Example cross-section for a typical greenway.

4.3.5 Porous Pavement and Stormwater Management Practices

As a coastal community, New Bern faces many constraints related to stormwater drainage and treatment. Development in Craven County must comply with regulations established by the Coastal Area Management Act (CAMA), passed in 1975 to protect environmentally sensitive areas. CAMA broadly covers the twenty eastern-most (coastal) counties of the state and contains strict rules on point and non-point source water pollution in the Neuse River watershed. CAMA restrictions apply to most shoreline developments, including transportation projects and, thereby, pedestrian facilities. In order for New Bern to comply with CAMA regulations, it will be highly important for future public and private development to practice environmentally-friendly design and construction techniques.

Appropriate stormwater management practices during sidewalk and greenway construction projects will have a huge impact on water pollution from stormwater runoff. The North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) has published a "Best Management Practices (BMP) Manual" for stormwater systems[3], which provides guidance on design elements, stormwater calculations, plantings and soils for various systems. The BMP Manual includes a discussion of permeable pavement options, as well as stormwater treatment systems increasingly used along sidewalks, greenways and private/public streets, such as vegetated swales, filter strips and stormwater wetlands or "raingardens." New Bern should consider all such options and/or combinations thereof for future sidewalk, greenway and street construction projects.

According to the BMP manual, permeable pavements are only allowable under the conditions listed in Table 4-2. DWQ Policy on Permeable Pavement Uses.

Major Design Elements Required by DWQ Policy. These are based on available research, and represent what DWQ considers necessary to achieve the stated removal efficiencies.	
1	Completed permeable pavement installation must have a slope less than 0.5%.
2	Soils must have infiltration capacity of at least 0.52 in/hr permeability.
3	Only 2 acre-feet of soil per acre disturbed can be graded for the permeable pavement footprint.
4	The top 3-ft of soil must have no finer texture than Loamy Very Fine Sand as determined by a soil analysis.

Table 4-2. DWQ Policy on Permeable Pavement Uses.

Figure 4-15. Examples of Porous Pavement Uses.
Top: Vegetated swale and porous concrete sidewalk help to make a "green street" in the New Urbanist development of High Point in West Seattle.
Right: Porous asphalt allows the passage of water through small openings, or pores, that are atypical of standard asphalt.
Source: Rhode Island Cooperative Extension

Figure 4-16. **Permeable pavement treatments.**

Source: NCSU Permeable Pavement Research Site. http://www.bae.ncsu.edu/info/permeable-pavement/index.html

In addition to design standards, the BMP manual requires a maintenance agreement with the local government to ensure regular maintenance of permeable pavement surfaces. NCDENR suggests that permeable pavements be inspected "once a quarter and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County)." Regular maintenance is necessary to avoid clogging of porous media by sedimentation and/or debris. The City of Olympia, WA, has a well-documented history of porous concrete use for sidewalks and recommends regular maintenance with a leaf/litter vacuum machine (1-2 vacuum cleanings per year), as well as periodic pressure-washing (every 5-10 years) to restore porosity below the surface level at which the vacuum can reach. Additional information and resources on Olympia's porous pavement use is available on the City's website at *http://www.ci.olympia.wa.us/cityutilities/stormwater/scienceandinnovations/porouspavement.htm*.

Figure illustrates a combination use of porous concrete sidewalks with vegetated swales along a neighborhood street in the New Urbanist High Point development in west Seattle, WA. Communities across the country (especially those in the Northwest with high annual rainfall) are turning to porous concrete and asphalt, as well as block pavers and other permeable pavement options, to reduce impervious surfaces and stormwater runoff issues associated with parking lots, sidewalks and greenway trails. These trials are proving permeable pavement treatments to be quite successful and cost-effective. Olympia, Washington, for instance, has a long and well-documented history of success using porous concrete installations. The city has found that the initial installation of porous concrete is less expensive than traditional concrete installations, though more frequent maintenance is necessary to ensure continued porosity of the paving material.[4] Even so, a 2005 memorandum to Olympia's Stormwater Management Supervisor from a local project engineer noted that the overall sidewalk

construction and maintenance costs were less than traditional concrete installations over time, as the initial savings on installation costs balanced out any long-term maintenance costs. Initial cost savings include decreased material costs since porous concrete mixtures use less concrete mix and more water. Though many standard sidewalk installations trigger stormwater mitigation requirements, the use of permeable pavement materials can often countermand that need, resulting in significant cost savings. Given these overall successes and cost benefits of using permeable pavement materials and other stormwater management best practices, it is recommended that New Bern utilize these options for public projects and incentivize their use in private developments.

4.4 Downtown Area Standards

Many municipalities consider the Downtown their starting point and standard for creating a pedestrian-friendly City. Downtowns were typically constructed, as is the case with New Bern, in a time period where walking was a much more functional mode of transportation, not an amenity or form of optional exercise. In order to maintain its pedestrian-oriented nature, and also to enhance the area's attractiveness and visual appeal, the Downtown area should have certain standards which may or may not be required beyond the downtown area. Some of these recommendations are as follows:

- **Build on the Downtown.** Already, the Downtown Area has good height-to-width (of street) ratios, architectural detailing, and wide sidewalks that are the foundation of a good walking environment. Figure 4-17 illustrates these features and describes how both expensive and more costly treatments could improve the streetscape.
- **Provide wide sidewalk.** Currently, the sidewalk in the Downtown area is approximately 8 to 10 feet wide. New or reconstructed sidewalk should be kept at a minimum of 10

Figure 4-17. New Bern's downtown streetscaping already includes wide sidewalks, human-scaled street lamps, street-level windows and textured pavements to enhance the visual aesthetic of the area. Wayfinding signage could be included as a standard treatment, in addition to curb cuts, pedestrian countdown signals and marked crosswalks at all intersections. Other potential treatments include potted or hanging planters, additional public restrooms and additional street furniture (e.g. public benches and trash cans) sponsored in part by downtown merchants.

feet, if not wider, in the Downtown. Pedestrians need space to window shop, stroll, walk side-by-side with their families, and even stop for a rest in the sidewalk space. The City should also consider accommodating restaurants or cafes interested in creating outdoor, on-street seating, which is often a major booster to making a street look more popular and pedestrian-friendly. It also attracts even more visitors and potential shoppers and diners.

- **Provide many pedestrian amenities.** In addition to sidewalk width, the City should also provide pedestrian amenities such as benches, trash cans, and water fountains to make walking in downtown more comfortable for the visitors that come to the Downtown. The City should consider adding street trees and allowing a few street vendors (through a permitting process) to add life to the street. Finally, public restrooms should be available for visitors to use while touring downtown or using any of the recreational amenities near downtown, such as the RiverWalk trail. The more pedestrian amenities available in a particular area, the more inviting the area for pedestrians and visitors.
- **Provide accessible, safe pedestrian crossings.** The Downtown area already has many marked crosswalks at intersections and mid-block crossings. In order to improve upon these features and maintain the accessibility of the downtown area, crosswalks should be accompanied by countdown pedestrian signals at signalized intersections, as well as curb cuts or curb ramps where necessary for wheelchair access.
- **Provide wayfinding signage to guide visitors.** Downtown New Bern offers many attractions for out-of-town tourists and visitors who live outside of the central business district. Pedestrian wayfinding signage provides directional cues and helps visitors navigate the area effectively. Such signage can take the form of kiosks with maps and

information, historical markers, theme-based pedestrian signage or other forms.

4.5 Schools

In addition to Downtown, schools are public spaces that merit special treatment for child safety and well-being. Schools require special treatment because of the presence of both children and very high levels of traffic during drop-off and pick-up. Especially during drop-off and pick-up, traffic near schools can be incredibly varied, with small and large personal vehicles, school and other activity buses, pedestrians, and cyclists. Specific design features should be required around schools to improve safety within a ½-mile radius of the school, emphasizing higher-density residential areas first. Some of these design features include:

- Requiring sidewalks on both sides of the street;
- Placing marked high-visibility (zebra) crosswalks and countdown pedestrian signals at all intersections near the school;
- Reducing speed limits along adjacent streets; and,
- Providing signage to warn drivers of the school's presence and the potential for children in the street.

4.6 Construction Zones

It is important that during construction of any kind, convenient and safe pedestrian facilities to destinations remain open and accessible. During the construction or expansion of private development, roadways, or utilities, the entity responsible for the construction is also responsible for providing adequate pedestrian access through or around the site as well as signage that provides advance warning to pedestrians and motorists of the closure. Both the MUTCD (Manual on Uniform Traffic Control Devices)[5], NCDOT's Planning and Designing Local Pedestrian Facilities[6], and the ADA (Americans with Disabilities Act)[7] stipulate that safe passage should be maintained throughout a temporary closure unless it occurs during an extreme situation such as a natural or man-made emergency. During private construction within City limits, it is the

Figure 7B-3. Examples of Signing for School Area Traffic Control with School Speed Limits

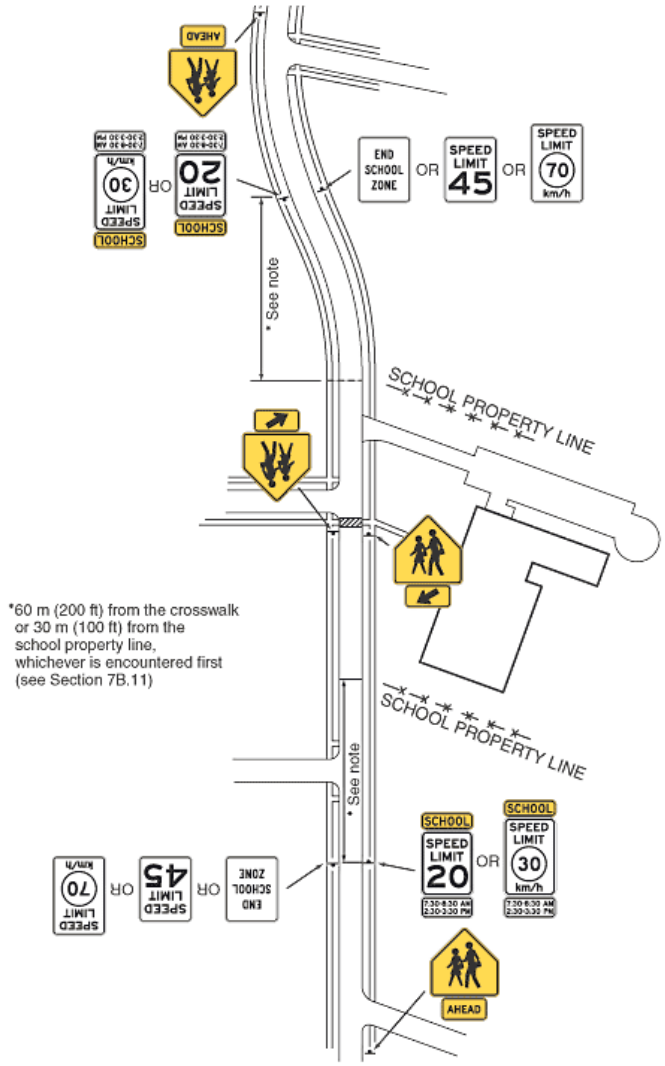
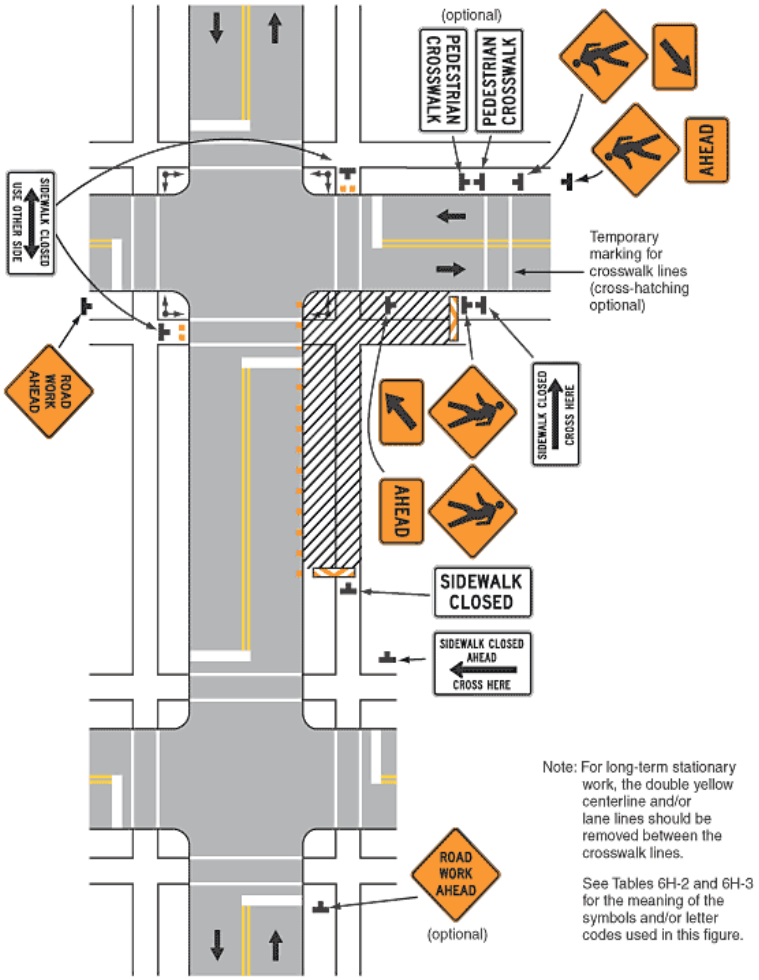


Figure 4-18. Sample School Area Signage.
Source: MUTCD.

Figure 4-19. Sample Signage Plan for Temporary Sidewalk Closure and Re-routed Pedestrian Crossing.
Source: MUTCD, Figure 6H-29.



Typical Application 29

responsibility of the City of New Bern to ensure compliance with these rules by regular monitoring.

The following should be considered whenever a sidewalk or trail will be closed temporarily:

- *Accessibility for Mobility Impaired Citizens.* At least one accessible route should be provided to transportation or transit facilities; accessible parking areas/spaces; public streets/sidewalks; and public parking areas to an accessible entrance of the building. This route(s) will comply with all other accessibility provisions contained in the ADA regardless of whether they are temporary or permanent. A barrier shall be placed across the full width of the sidewalk or trail to be detectable by a visually impaired person using a cane. An audible information device may be needed in cases where there are especially high traffic volumes challenging a visually impaired person making a street crossing.
- *Temporary Obstructions.* Parked construction equipment, erosion control fencing, storage of materials/construction debris, and other potential obstructions should be kept away from roadside pedestrian access and pedestrian or multi-use trails so as to keep a permanent passageway open for pedestrians crossing the site. Signs and other devices should not protrude more than 4" into the pedestrian passageway and 7' or less above a sidewalk (8' min. preferred).
- *Advance Warning and Signage.* Advance warning may consist of a single sign to a flashing strobe, depending on the nature of the construction or context (such as vehicular volumes) of the work area. Advance signage should be placed so that pedestrians have an opportunity to read the sign and make a safe crossing at a street intersection to the opposite side of the roadway. Smaller, mid-block closures will require fewer treatments, but will still retain the "Sidewalk Closed Ahead Cross Street" advance warning at an appropriate and safe crossing point in advance of the closure, at a minimum.

- *Route Design.* Temporary traffic barriers like jersey barriers (although not intermittent short sections of jersey barriers) and breakaway bollards should be considered as tools to help delineate a buffer from moving vehicles in areas with high pedestrian traffic volumes and/or to help ensure worker safety.

4.7 Parking Lot Design

Everyone becomes a pedestrian once they park their car, but there are many examples of poor parking lot design. Poor parking lot design at best will deter customers that may be walking or riding transit to a store, and at worst can create a dangerous safety hazard by increasing pedestrian-vehicle interaction. The most common design issue is that the primary carriageway for vehicles in the parking lot happens to coincide with where the greatest number of pedestrians cross: directly in front of the main entrance. Other issues include poor sight lines to spot pedestrians; bad transition areas from the public domain (e.g., streets) to the private parking area; and inconvenient pedestrian access between parking areas, shops, and adjacent communities. Figure 4-20 illustrates a preferred set of suggestions to overcome these common problems. The larger the parking lot, the more vehicles and pedestrians, and therefore the more important it is to carefully design treatments to minimize vehicle-pedestrian interaction. Some suggested treatments:

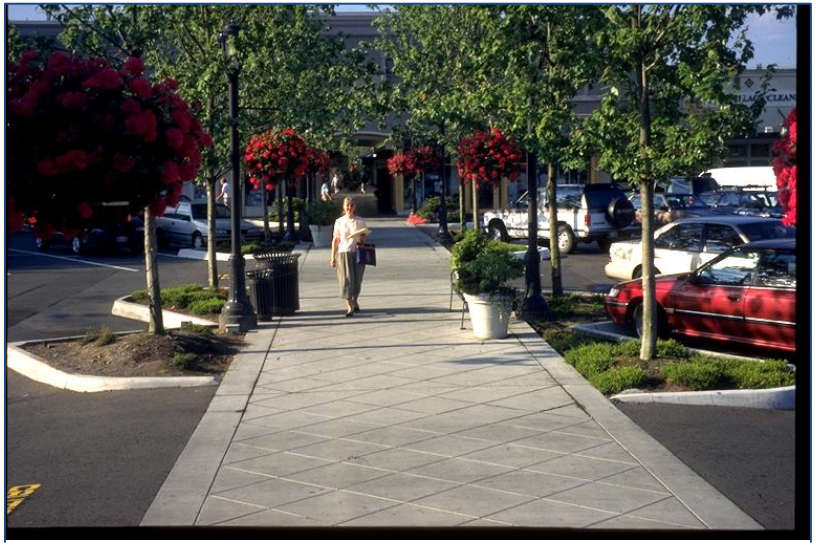


Figure 4-20. Exemplary parking lot design considers pedestrian egress to the building entrances/exits, as well as comfort and aesthetics such as landscaping and shade trees.

1. **Parking in the rear and sides.** One way to attract pedestrians to a store and to reduce pedestrian-vehicle interaction is to minimize the amount of parking lot that a pedestrian must walk through to get to the store entrance. This can be done by placing parking in the rear or sideyards of a building, which will reduce travel time for pedestrians approaching the store from the street-front and sidewalk. It will also minimize pedestrian-vehicle interaction by keeping pedestrian customers separate from vehicles by allowing the pedestrian customers to access the store directly from the sidewalk rather than through a

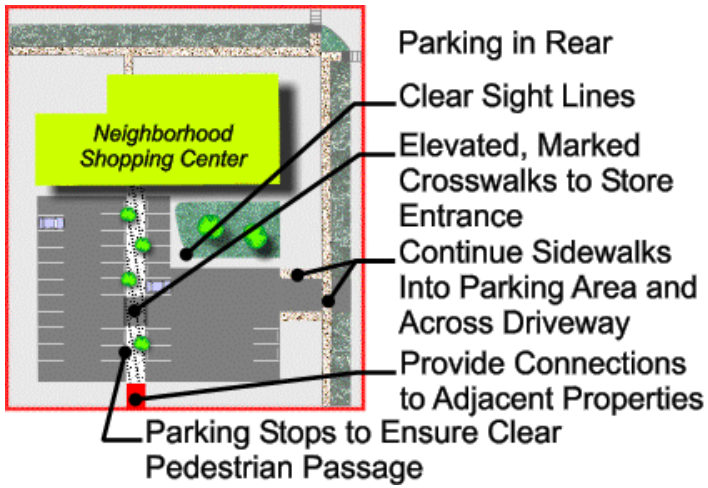


Figure 4-21. Elements of pedestrian-friendly parking lot design.

parking lot. Parking lots in the rear also create a more attractive streetscape – something that encourages pedestrian use.

2. **Create safe "landing areas".** Provide continuous transitions from the street into a safe "landing" area in the parking lot; don't just "dump" pedestrians into the throat of a driveway.
3. **Maintain good sight lines** at major turning points inside the parking area.
4. **Provide well-marked pedestrian access perpendicular to store fronts.** Whenever possible, provide perpendicular pedestrian access into the front of a high volume land use such as major retail uses. The final crossing to the store entrance(s) should be well-marked, preferably with a raised crosswalk and/or colored demarcations to provide good visual cues to the driver. Moving the main parking aisle away from the principal entrance is another option.
5. **Supply adequate, pedestrian-scale lighting.** Adequate lighting is often perceived as a personal security issue in many large parking areas, and should be provided while avoiding disabling glare (looking into a direct light source and being partially blinded) or causing light pollution to adjoining properties. In order to make customers and pedestrians feel more comfortable, lighting should also be provided at a pedestrian scale. This means lowering the height of some light poles and providing lighting at key locations, such as the entrances and exits to stores, and not just in the parking lots.
6. **Provide awnings.** Especially for some "big box" stores, it is important that the transition for customers from inside the store to the outside be gradual and protected as much as possible from conflicts with vehicles. By providing awnings, a store protects its customers from the rain while allowing for a more comfortable pedestrian environment for customers to window shop and wait for rides or a bus to arrive. This can make a store seem much more comfortable while encouraging customers to remain within the protected awning area and out of conflict with vehicles in the travelway.

New Bern has several shopping centers and areas with large parking lots, and others may be on the way. It is important that the City keep the pedestrian's access and safety in mind when reviewing development proposals. Through better design and better design review, the City will be able to create parking lots that are both convenient for a car and comfortable for a pedestrian.

4.8 Traffic Calming Considerations

Traffic calming is the term used to describe a toolbox of improvements that can be used to "calm", or slow, traffic along a street, usually in a neighborhood or similar area with low traffic speeds and relatively lower traffic volumes. Although not directly pedestrian-related, traffic calming efforts can help to create a safer, more comfortable pedestrian environment by reducing vehicle speeding. Traffic calming comes in a variety of forms. Some of the most common techniques are described in the paragraphs below.

4.8.1 Curb Extensions (Bulb-Outs) and Curb Radii

The primary purpose of bulb-outs is to shorten the distance that pedestrians must travel to cross a street. In addition, they may encourage motorists to drive slower by narrowing the travel lane and reducing vehicular speeds during turning movements at intersections. Motorists will travel more slowly around corners with smaller curb radii even without the use of curb extensions. Landscaping and other aesthetic treatments such as special paving textures should be carefully designed to avoid hazards to drivers and visually-impaired citizens while minimizing maintenance costs. Figure 4-22 shows an example bulb-out placement to reduce curb radii and make an intersection more pedestrian-friendly.

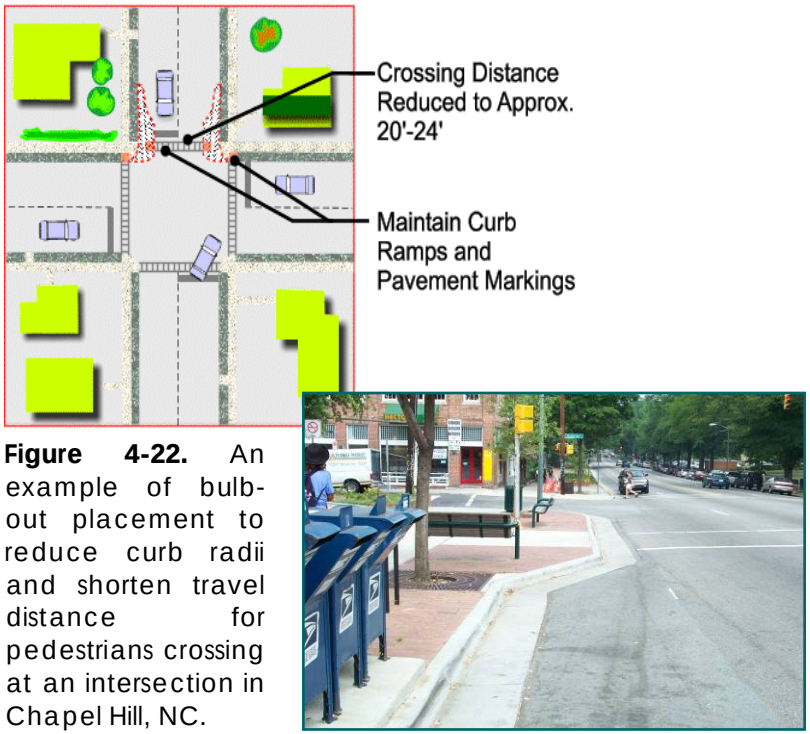


Figure 4-22. An example of bulb-out placement to reduce curb radii and shorten travel distance for pedestrians crossing at an intersection in Chapel Hill, NC.

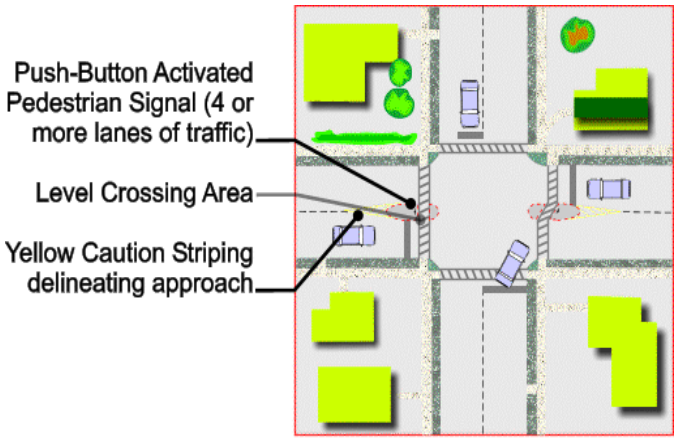


Figure 4-23. An example of well-designed median and refuge islands

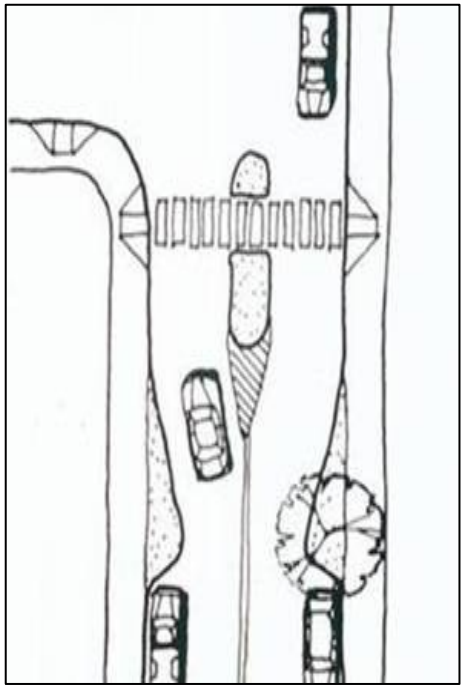


Figure 4-24. Example of a travel lane diet for the retrofit installation of a pedestrian refuge island and neckdowns.

Source: www.pedbikeimages.com

4.8.2 Medians and Refuge Islands

Figure 4-23 illustrates the design and markings associated with refuge islands. Note that pavement markings delineate the approach to the islands; that the islands are "split" to allow for a level platform for wheelchair use; and that in cases where there are wide roads and high traffic volumes, a push-button pedestrian signal may be mounted in the refuge area to allow a pedestrian to split their trip into two halves as they cross the street. Note that the crosswalk on the right side of the diagram is configured at a skewed angle as it crosses the median. This allows pedestrians to have a better angle of sight as they approach and cross each side of the street. In all cases, a minimum 10-foot travel lane is maintained. Sensitivity to large vehicles (buses, trucks and fire equipment) dictates some elements of the median design, curb style, and placement. Median-controlled roadways reduce the number of turning conflicts and are generally preferred for both pedestrians and cyclists over a two-way, left-turn lane (TWLTL) roadway.

4.8.3 Roundabouts

Roundabouts are an innovative intersection design treatment commonly used in European cities, and are becoming increasingly popular in the United States. Roundabouts can improve motorist safety by encouraging traffic to slow down in both approaches to and within an intersection, while also allowing for continual traffic flow. Poorly-designed roundabouts can be unfriendly to pedestrians, but a number of features included in the design can ensure pedestrian safety.

While no NC-specific guidelines exist for roundabout design, the Federal Highway Administration (FHWA) has published a Roundabout Informational Guide that addresses design as well as safety issues: http://www.tfhrc.gov/safety/00068.pdf. Generally, single-lane roundabouts have fewer points of conflict and higher safety ratings for pedestrians. Design "best practices" for

pedestrian safety call for the inclusion of splitter islands (see Figure 4-25) on each "leg" or approach to a roundabout, regardless of the number of approach lanes. Splitter islands provide a space for pedestrians in the middle of each crossing and offer pedestrians a refuge between lanes, so that a pedestrian only crosses one direction of traffic at a time. The recommended width for a splitter island, at the point of pedestrian crossing, is 6 ft minimum. Each splitter island should provide a clear, well-aligned pathway leading to/from a high-visibility crosswalk on each leg of the intersection. Crosswalks should be set at least one full car length back from the yield line.[8] This provision ensures that pedestrians do not have to cross in front of drivers that are looking for a gap in traffic.

In addition to these basic provisions, roundabouts should be equipped with appropriate curb cuts and detectable warning strips to allow for access and safe use by physically-disabled pedestrians. Figure 4-25 illustrates appropriate placement of these features. The American Access Board also recommends a number of features to ensure safety for visually-impaired pedestrians; these include[9]:

- Well-defined walkway edges
- Tactile markings across sidewalks to identify crossing locations
- Bollards or architectural features to indicate crossing locations
- Detectable warnings at street edge
- Perpendicular crossings, using curbing for alignment cues
- High-contrast markings (including high-visibility crosswalks)
- Pedestrian lighting
- Raised Crosswalks (especially at exit)
- "Yield to Ped" markings and other warnings for motorists
- Sounds surfaces on entrance/exit legs

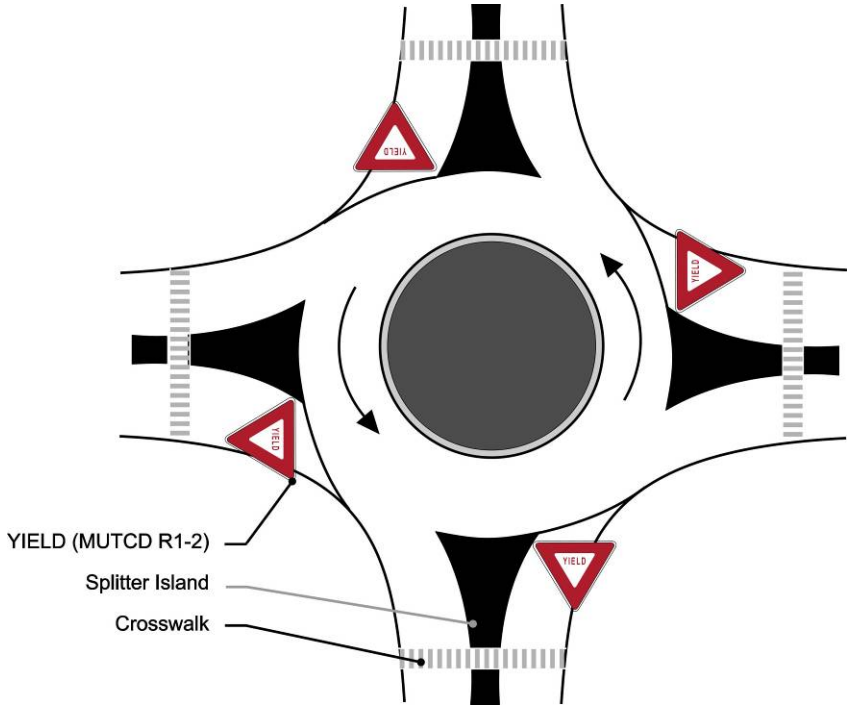


Figure 4-25. Simple roundabout design graphic.

4.9 Road Diets

Many roadways across the United States have been built over the years with future [car] traffic capacity in mind to the detriment of

Figure 4-26. Sample Illustration of a Road Diet.
Top. North Capitol Blvd in Washington DC is a 6-lane road with wide crossing distances for pedestrians.
Bottom. To make the road more pedestrian-friendly, a road diet could add landscaped medians for pedestrian refuge at intersections and curb extensions that shorten pedestrian crossings and add sidewalk width.

other roadway users. This has led to a number of unnecessarily wide roadways that encourage speeding and create unsafe circumstances for pedestrians. As more and more people are turning to bicycles, transit and walking for increasing cost-effective and healthy travel modes, many cities are re-thinking the old paradigm and looking for new opportunities to add bicycle lanes, sidewalks, traffic calming treatments and transit access. A growing trend nationwide is to shrink travel lane or effective street widths through "road diets." Road diets trim down unnecessary width of existing roadways to create safer, more multi-modal access along those streets. Often, road diets are used on four and five-lane roads with a traffic capacity that could be served more safely and effectively with fewer lanes. By taking a four-lane roadway to a three-lane facility, there is an "extra" 10-12 feet of space in which to fit sidewalks, bike lanes or other multi-modal accommodations. Similarly, a four-lane roadway with 12ft travel lanes may be dieted and remain a four-lane roadway but with 10ft travel lanes; the additional 4ft in each direction could then be used for bicycle or pedestrian facilities. Finally, some road diets are more appropriately termed travel "lane diets" because they essentially shrink wide travel lanes in order to install traffic calming and other pedestrian facilities.

4.10 Railroad Crossing Treatments

The City of New Bern has a special interest in ensuring that pedestrian crossings of the local railroads are handled safely, since the North Carolina Railroad Company's rail line crisscrosses the City's downtown neighborhoods and separates potential origins and destinations. As a result of its unique history, New Bern has a situation unlike many North Carolina communities, where at least one City street hosts an active rail line (Hancock Street). The resulting "barrier effect" is strong, implying a need to provide safe pedestrian connectivity over active railroad tracks. Working with railroad companies, which typically have ownership of their rights-

of-way in fee simple arrangements and closely guard the frequency and width of crossings of any sort ("encroachments"), has proved to be time consuming in many cases. However, ideas that improve safety, stem from published FRA (Federal Railroad Administration) sources, and can reduce liability are more likely to receive a favorable reception from the railroad. Treatments can be thought of in three broad categories:

- Crossings adjacent to an existing or planned roadway;
- Crossings independent of an existing or planned roadway (e.g., greenways); and
- Education and Enforcement techniques discussed in Section 6.

Additionally, railroad crossing safety devices can be thought of as either active and change their appearance and/or position in the event of an oncoming train (e.g. gates and flashing signals), or passive, such as the familiar "crossbuck" sign.

It is interesting to note that the Federal Railroad Administration, a traditionally conservative agency, in recent guidance has stated that "a guiding principle in the design and development of pedestrian crossing facilities should be to cause as little deviation as is practical from a direct pathway."[10] It is also important to note that several of these devices or treatments are not in widespread use at this time, and are not incorporated into the Manual on Uniform Traffic Control Devices (MUTCD) at this point in time. Hence, the application of any such device cannot be required, and would need to be coordinated with appropriate state and federal transportation agencies.

Innovation is warranted in preventing train-pedestrian collisions, however, since the potential for serious injuries in any collision with a moving train is very high. The amount of dynamic energy that even a slow-moving train possesses is enormous, with the result that collisions are frequently fatal. Additionally, the rail line in New Bern is still active, with trains operated by Norfolk-Southern Rail Company.

Figure 4-27. Hancock Street in New Bern.

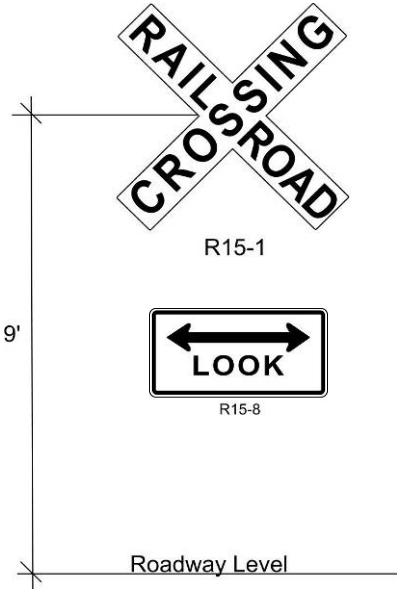


Figure 4-28. Crossbuck and "Look" Signs
Source: MUTCD

Figure 4-29. "Low-Rise" Pedestrian signal in use in Portland, Oregon.
Source: FRA Compilation of Pedestrian Safety Devices in Use at Grade Crossings.

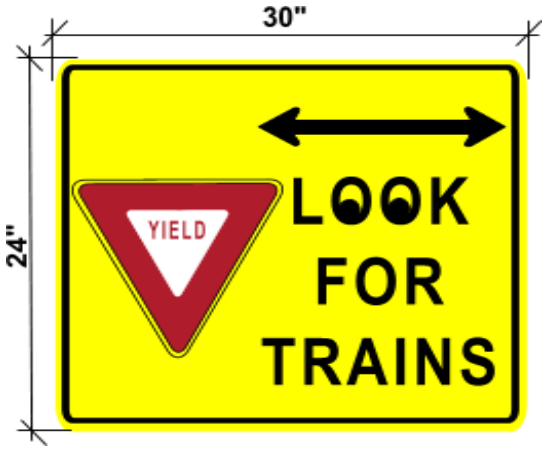


Figure 4-30. "Look for Trains" Warning Sign
Source: FRA Compilation of Pedestrian Safety Devices in Use at Grade Crossings.

The Hancock Street track segment currently experiences 2 trains daily, "with opportunity for more, depending on demand at the Morehead City port and the Camp Lejeune marine base," according to Drew Thomas with the NCDOT Rail Division.[11] "From the rail junction north (north of the historic depot), there are an additional 4 daily trains." Within the Hancock Street corridor, train speed is typically 10 mph or less; outside of that, train speed will vary with some reaching 25 mph.

The standard crossbuck warning sign (passive) is indicated in Figure 4-28). The "Look" sign can be used below the crossbuck sign to reinforce this message to the eye-height of most pedestrians. The Number of Tracks signage (MUTCD R15-2) supplements the crossbuck when there is more than one set of tracks to cross.

There has also been a recommendation by FHWA to allow the standard crossbuck sign to be supplemented with a Yield or Stop sign for motorists immediately below the crossbuck on the same post[12]. However, this has not yet been adopted in the MUTCD. Further, the Yield option may send an inaccurate message to the driver, who is used to different operating characteristics associated with cars at a Yield control on cross-streets, and is therefore not recommended here.[13]

An active, low-rise pedestrian signal design has been put into place in Portland, Oregon (Figure 4-29). The flashing signal is accompanied by a warning sign cautioning pedestrians to look in both directions. Again, this device is not mentioned in the MUTCD, and would need special attention in terms of its design, placement, and allowance at any location.

A second active signalization type (not shown) for combination roadway – pedestrian crossings is when the crossing gate arm is mounted behind the sidewalk, so that when horizontal the arm crosses both the sidewalk (and, potentially, the bike lane, if present) and the roadway. A more eye-catching – although non-regulatory – sign is shown in Figure 4-30.

A combination of passive (pavement markings) and active (sign mounted to counterweight of crossing arm) is shown in Figure 4-31. This installation is near the light rail line in Salt Lake City, Utah.

It is worthwhile to note here that the American Railroad Engineering and Maintenance-of-Way Association (AREMA) is considering crossing treatments for pedestrian and cycling paths (e.g., greenways) that are not adjacent to a roadway. At the time of this writing, new standards or design recommendations have not been promulgated. Another useful reference is (www.fhwa.dot.gov/environment/sidewalk2), especially Chapter 8.11 on railroad-pedestrian crossings. Figure 4-32 illustrates an important safety consideration for both cyclists and wheelchair or cane users: the flangeway filler to close the gaps that often exist in older crossings between the rail and adjacent asphalt or concrete surfaces.[14] Such a filler helps to create a smoother ride for wheelchair users particularly, although there are similar benefits for road bikes (skinny tires) as well.

Figure 4-33 shows an amalgam of typical railroad crossing treatments. Minimum standards, such as the 18' minimum distance between railroad centerline and gate crossing or the 38' maximum gate length, will also influence the placement of warning devices. Note how landscaping allows for current and future sight distances to the warning devices; the fencing style ensures adequate sight through it; and painted stop bars and advance warning signals in addition to stop controls (not shown) reinforce safe stopping distances. The standard crossbuck sign/flasher/audible warning (with or without gate) may also be supplemented with a YIELD or STOP control; however, NCDOT is reviewing the appropriate design situations where these controls may be used, based in part on a 2006 Federal Highway Administration (FHWA) memorandum describing their usage.[15]

Figure 4-31. Pavement Marking and Counterweight-Mounted Warning Sign

Source: FRA Compilation of Pedestrian Safety Devices in Use at Grade Crossings.

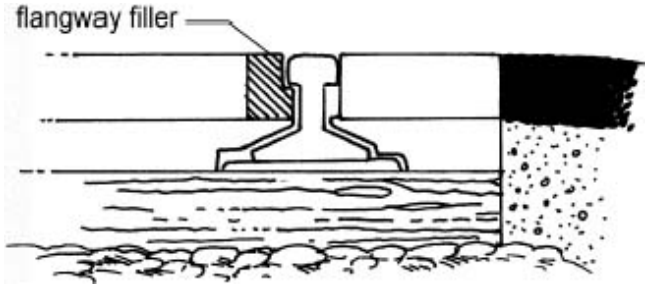


Figure 4-32. Diagram of Flangeway Filler

Source: Designing Sidewalks and Trails for Access Part II of II: Best Practices Design Guide, Chapter 8.11.

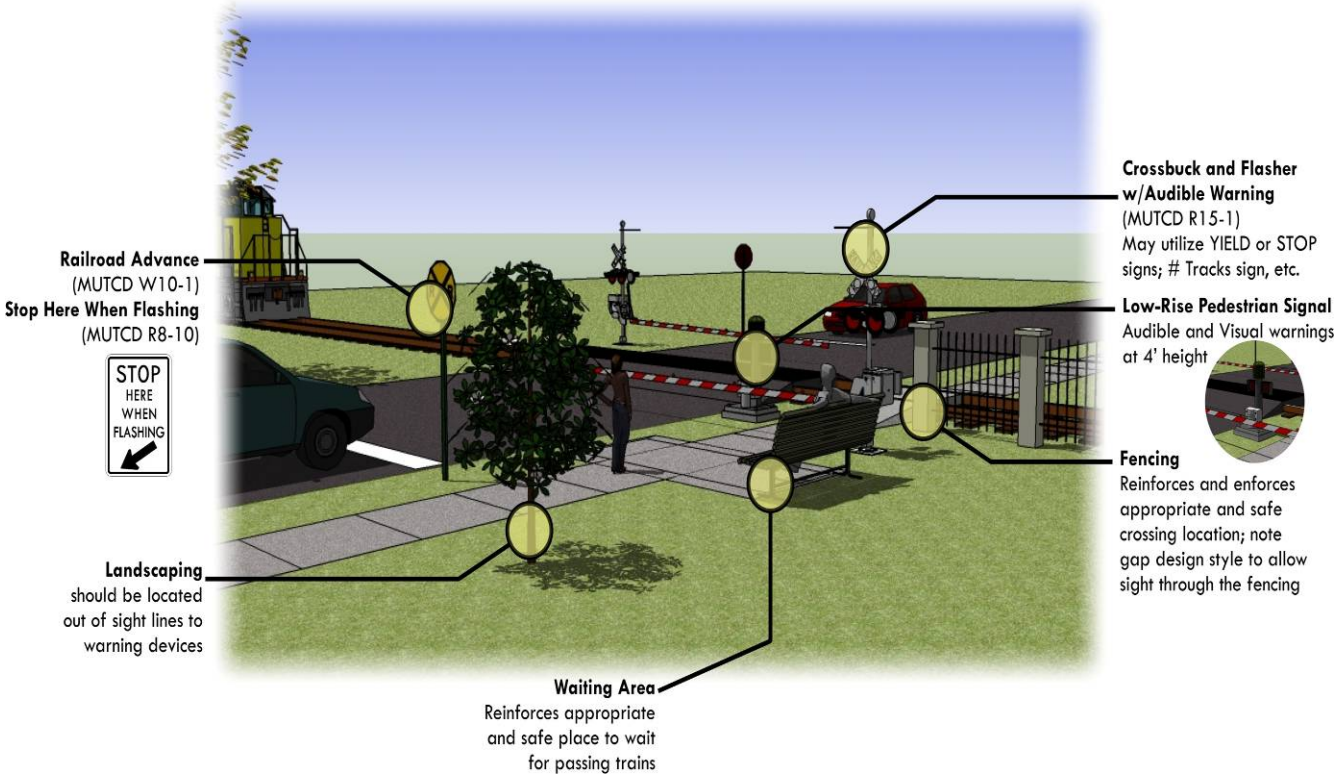


Figure 4-33. Typical Railroad Crossing Treatments

Source: FRA Compilation of Pedestrian Safety Devices in Use at Grade Crossings; Manual on Uniform Traffic Control Devices; The Louis Berger Group, Inc.

The audible signal on these devices ties to the signalization of the train, and is typically a minimum of 85 decibels. Continuous bell warnings are warranted in select cases, but the level of noise intrusion, especially in sensitive areas such as churches, cemeteries, schools, health facilities, and residential areas often produce conflicts with audible warning devices.

More expensive devices, such as fencing, waiting areas, and low-rise pedestrian signals, would be used only in situations where there is a high exposure of trains and pedestrians (for example, at rail stations, event areas, and so forth). The choice of each device is dependent on the number of pedestrians, speed/frequency of trains, sight distances, and so forth. Generally, the following questions should be considered when considering the type, design, and placement of devices.

- What is the accident history involving pedestrians?
- What is the sight distance and crossing distance for pedestrians? Are the pedestrians crossing at a "skewed" angle?
- How many pedestrians are crossing the tracks?
- What are the numbers of trains and speeds at a crossing?

The last two bullets (number of pedestrians and number of trains crossing in a day), when combined, can produce an exposure index that indicates a relative prioritization method for pedestrian crossings. Even when exact pedestrian counts are not available, a Likert-scale rating system can be employed to produce priority locations for improvements. The second bullet impacts the design and treatment placing characteristics. Putting these factors together results in a typical priority index that is easily represented by the formula:

Px = Tx * Px

Where:

Px = Priority of Crossing X
Tx = Number of Trains / Day at Crossing X
Px = Number of Pedestrians / Day at Crossing X

NCDOT uses a similar index, the Investigative Index (I.I.), to prioritize every rail crossing in the State. As funds have become available, safety improvements are installed. Figure 4-34 illustrates how this index is calculated.[16] Even if a particular crossing ranks highly on the index, availability of funds and the costs associated with

I.I. = [(PF)*(ADT)*(TV)*(TSF)*(TF)]/160 + (70*A/Y)² + SDF

Where: **PF** = **P**rotection **F**actor
No Warning Devices =1.0
Crossbuck Signs = 1.0
Traffic Signal Preemption Only = 0.5
Flashing Light Signals = 0.2
Flashing Light Signals with Gates = 0.1

ADT = **A**verage **D**aily **T**raffic
When school buses use crossing:
Add (No. of School Bus Passengers/1.2) to ADT
*When passenger trains use crossing: Multiply ADT*1.2*

TV = **T**rain **V**olume

TSF = **T**rain **S**peed **F**actor (Max. Allowable Train Speed, MPH)/50+0.8)

TF = **T**rack **F**actor

No. of Tracks	• No. of Through Tracks				
	0	1	2	3	4
1	1.00	1.00	--	--	--
2	1.50	1.75	2.00	--	--
3	1.60	1.85	2.25	2.50	--
4	1.75	2.00	2.50	2.75	3.00

A/Y = Train-Vehicle **A**ccidents per **Y**ear
Note: Model uses a 10-year history of crashes; therefore, input is normally in tenths. This input can calculate a value for any given number of crashes within a given period of time in years.

SDF = **S**ight **D**istance **F**actor
*SDF = [sum(SDF_n)/4]*16*
Where SDF_n = Sight Distance Factor for Quadrant n
SDF = 0 when Sight Distance is Open/Clear

Figure 4-34. NCDOT Investigative Index (I.I.) Formula. ***The NCDOT I.I. uses train frequencies and speeds, as well as sight distance, existing crossing treatments and accident histories, to determine an objective measure of the hazard potential for every rail – roadway crossing in North Carolina.***

ADA

Are there curb cuts at nearby intersections and a clear path present to curb cuts at nearby intersections?	☐ Yes	☐ No
Are detectable warnings advised?	☐ Yes	☐ No
Is the path width adequate (36" is minimum)?	☐ Yes	☐ No
Are there vertical obstructions (standard: none between 27" to 80" above ground or within path)?	☐ Yes	☐ No
Slope of path transition (standard is 12:1 or less).	☐ Yes	☐ No
Landing platform (standard is level and 5' x 5' or more).	☐ Yes	☐ No
Is surface smooth (standard: passable by a wheelchair, no broken or buckled asphalt, edges < ¼")?	☐ Yes	☐ No
Panel length (crossing surface panel needs to extend 1' behind back of path to be standard).	☐ Yes	☐ No
Are there flange gaps 2½", or less, or flange fillers?	☐ Yes	☐ No
Can full flange fillers be used in low speed applications?	☐ Yes	☐ No
Is grade 5% or less? If grade is over 5%, how long is grade? '	☐ Yes	☐ No
If grade is 8% and 200', 10% and 30' or 12.5% and 10', are there rest areas?	☐ Yes	☐ No
Are there 43" handrails for grades over 5%?	☐ Yes	☐ No
Is widening proposed? How wide? '. When? Consider in project?	☐ Yes	☐ No
Mitigation:		

AWARENESS OF XING

Overall awareness of railroad crossing, including visibility and effectiveness of possible signs, signals and markings.	☐ Acceptable	
Horizontal and vertical alignment considerations.	☐ Acceptable	
Pedestrian Sight Distance: Clearing sight distance of _____' from 17' from rail needed. North/East Side of Xing _____' South/West Side of Xing _____'	☐ Acceptable	
Bicycle Sight Distance 1: *Distance where crossing can be identified.* North/East Side of Xing _____feet South/West Side of Xing _____feet	☐ Acceptable	
Bicycle Sight Distance 2: *Need _____' down tracks from _____' down path.* North/East Side Looking East/North _____' West/South _____' South/West Side Looking East/North _____' West/South _____'	☐ Acceptable ☐ Recommend Improvement	
Bicycle Sight Distance 3: *Distance down path to see _____' down tracks if #2 not acceptable.* North/East Side Looking East/North _____' West/South _____' South/West Side Looking East/North _____' West/South _____'	☐ Acceptable ☐ Recommend Improvement	
Bicycle Sight Distance 4: Stopped 17' *from rail, need _____' down tracks.* North/East Side Looking East/North _____' West/South _____' South/West Side Looking East/North _____' West/South _____'	☐ Acceptable ☐ Recommend Improvement	
Nighttime visibility, including ambient lighting.	☐ Acceptable	
Skew of Xing: ____° Does skew limit perception?	☐ Yes	☐ No
Are there simultaneous train movements on multiple tracks? Can standing boxcars block the view?	☐ Yes	☐ No ☐
Do Pedestrians and bicycles violate warning devices?	☐ Yes	☐ No
Mitigation of inadequate perception: ☐ Additional Signage ☐ Luminaires & Where ☐ Multiple Track Removal		

Figure 4-35. ADA Evaluation (bottom) and Pedestrian/Cyclist Evaluation (top)

Source: Nevada DOT Railroad Safety Diagnostic Review Form

modifying the safety treatments at a particular location will influence how quickly these improvements can be implemented. The use of this index is primarily oriented towards vehicular crossing traffic.

In terms of policy, the Nevada DOT has adopted an exemplary policy for pedestrian crossings at railroad tracks, which is worthy of reprinting here nearly verbatim.[17]

- Grade crossing design features follow all national standards including the FHWA *Designing Sidewalks and Trails for Access Part II*.
- All signals are to be set behind the sidewalk, to provide the same level of warning for pedestrians as motor vehicles. If this cannot be done, add pedestrian gates. With signals set in back of the sidewalks, Nevada has found that they do not run into conflicts with the ADA prohibition of protrusions over the walkway.
- Crossing surface panels must be at least one foot wider than the sidewalk or edge or roadway, if there is no sidewalk.
- There must be a level turn-around area (for wheelchair users) next to the rail that is five feet by five feet wide, on both sides of the track. The sidewalk slope cannot increase more than 1 in 12 after that.
- The walkways can be no less than 36" wide but Nevada encourages the use of walkways that are six feet wide.
- "RxR" pavement markings are applied in bicycle lanes and W10-1 Advance Warning signs are placed next to the pavement markings. This is in addition to the W10-1 signs placed further back for motorists.

The diagnostic tool that Nevada DOT uses is also useful for considering alternative treatments for cyclists, pedestrians, and persons falling under the Americans with Disabilities Act (ADA). The full spreadsheet used by NVDOT is included as Appendix E of the Plan. A portion of the diagnostic in Figure 4-35 deals with pedestrian/cyclist and mobility impaired crossing considerations. In

contrast to the NCDOT Investigative Index, the Nevada diagnostic relates to pedestrians, cyclists, and ADA public segments more directly.

4.11 Pedestrian-Friendly Street Design

In addition to all the treatments noted above, it is often important to consider pedestrians as part of the built environment from roadway design to architectural standards. Including pedestrian-friendly elements throughout a roadway or development project - from the creation of conceptual alternatives to construction and maintenance phases – can greatly impact the long-term walkability of an area. In recognition of this fact, NCDOT has developed a set of Traditional Neighborhood Development Street Design Guidelines available online at http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf. These guidelines are available for proposed TND developments and permit 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.

4.12 Summary

Pedestrian facility use is a function of a variety of factors, including the connectivity of the facilities, their safety, their convenience, and their comfort. For this reason, pedestrian facility design should be thoughtful and sensitive to the needs of its users. By following the guidelines provided in this section for sidewalk, crossing, and trail design, as well as other items associated with pedestrian facilities, New Bern should be able to create a built environment that will promote walking and increase the number of pedestrians in the City.

Resources and Citations

[1] United States Access Board, ADA Accessibility Guidelines Homepage, accessed November, 2005 (http://www.access-board.gov/adaag/html/adaag.htm#A4.29.2).

[2] James W. Glock, Letter Correspondence to Regina McElroy, Director, FHWA Office of Transportation Operations, January 11, 2006.

[3] Stormwater "Best Management Practices Manual," July 2007 Edition. NC Department of Environment and Natural Resources, Division of Water Quality (http://h2o.enr.state.nc.us/su/documents/BMPManual_WholeDocument_CoverRevisedDec2007.pdf).

[4] Analysis Summary Memorandum: "Traditional Versus Pervious Concrete Sidewalks - Construction and Maintenance Cost." February 11, 2005. Melissa McFadden, P.E., City of Olympia. http://www.ci.olympia.wa.us/NR/rdonlyres/B32AC0F1-A7A7-4C70-88B1-167E329C6687/0/TraditionalvsPerviousConcreteSidewalksMemo.pdf

[5] *Manual on Uniform Traffic Control Devices for Streets and Highways*, 2003 Edition. Federal Highway Administration, 2003. Especially Sections 6B-1, 6D, 7, and Figures 6H-28, 6H-29, 7A-1, and 7B-4.

[6] *Planning and Designing Local Pedestrian Facilities*, North Carolina Department of Transportation Office of Bicycle and Pedestrian Transportation. February, 1997, Chapter 10.

[7] Americans with Disabilities Act, US Code 28 CFR Part 36: ADA Standards for Accessible Design. Page 496 (www.usdoj.gov/crt/ada/adastd94.pdf).

[8] Iowa Department of Transportation Online Roundabout Resource Guide. http://www.iowadot.gov/roundabouts/roundabouts.htm

[9] "Pedestrian Access to Modern Roundabouts: Design and Operational Issues for Pedestrians Who Are Blind." United States Access Board. http://www.access-board.gov/research/roundabouts/bulletin.htm

[10] Office of Safety, Federal Railroad Administration, "A Compilation of Pedestrian Safety Devices in Use at Grade Crossings." January, 2008.

[11] Thomas, Drew, PE. NCDOT Rail Division Engineering and Safety Branch, Crossing Safety Engineering Manager, email conversation, February 10, 2008.

[12] Jeffrey Pamatti, "MUTCD - Guidance for Use of YIELD or STOP Signs with the Crossbuck Sign at Passive Highway-Rail Grade Crossings." Federal Highway Administration Memorandum dated March 17, 2006.

[13] Saylor, Scott M., President, North Carolina Railroad Company, discussion on rail crossing treatments, April 25, 2008.

[14] Federal Highway Administration. "Designing Sidewalks and Trails for Access Part II of II: Best Practices Design Guide." Barbara McMillan, Program Manager. Chapter 8.11. 2001. (www.fhwa.dot.gov/environment/sidewalk2/ accessed on 4.11.2008).

[15] Thomas, Drew, PE. NCDOT Rail Division Engineering and Safety Branch, Crossing Safety Engineering Manager, discussion on rail crossing treatments, April 1, 2008.

[16] Thomas, Drew, PE. NCDOT Rail Division Engineering and Safety Branch, Crossing Safety Engineering Manager. "Draft Railroad Crossing Guidance." E-mail to Scott Lane. April 8, 2008.

[17] Office of Safety, Federal Railroad Administration, "A Compilation of Pedestrian Safety Devices in Use at Grade Crossings." Appendix A. January, 2008.

Section 5. Project Recommendations

This section provides a set of project recommendations to improve the physical conditions for pedestrians in New Bern, as well as suggestions for phased implementation of these projects.

5.1 Introduction

This section identifies potential future projects that will improve pedestrian conditions in New Bern, and outlines a prioritization methodology for these projects. The projects in this section were developed based upon input from City staff, the Steering Committee, and public input through surveys, a project hotline, focus groups and the September 18, 2008 Open House.

5.2 Project Recommendations

Pedestrian facilities can include sidewalks, greenways, and intersection improvements, as well as streetscaping projects and traffic calming efforts. Such facilities can be built "incidentally" as part of a roadway construction project, or independently. The New Bern Comprehensive Pedestrian Plan identifies a number of proposed pedestrian facilities that can help make New Bern a more walkable community. Project recommendations for the Pedestrian Plan are broken out into three distinct categories: Sidewalks, Greenway Connections and Crossing Improvements. These projects were identified through the public involvement process, survey results, discussions with staff and Steering Committee members, as well as field and data reviews by the consultants.

Recommended locations and treatments for each project type are summarized, respectively, in the tables below. Each table shows the project and proposed action. The 22 sidewalk projects recommended in Table 5-1 include a variety of short "spot improvements" that will fill gaps in the existing sidewalk network and/or connect to future sidewalk corridor projects (listed in Table 5-2) to create continuous sidewalk connections to nearby pedestrian destinations. These projects are typically no more than three blocks in length. Forty-one more significant sidewalk corridor

projects are listed in Table 5-2. These are the longer, more extensive projects that will help create connectivity along major thoroughfares. Though the corridor projects are typically more costly and/or difficult to construct, they will have a significant impact on the walkability of New Bern as a whole. All sidewalk projects have been prioritized based on criteria set by the Steering Committee at their June 23, 2008 meeting, which included proximity to local schools, parks, shopping venues and the RiverWalk trail, as well as factors such as average daily traffic (ADT) on adjacent streets and the presence of existence sidewalk connections. Sidewalk project prioritization and phasing recommendations are discussed in Section 5.3 and summarized in Table 5-8. Projects are listed according to their priority ranking, from highest to lowest (with the highest ranking or score indicating a higher priority).

The proposed greenway connections in Table 5-5 are intended to seek safe, scenic connections between key pedestrian destinations, such as schools and parks, as well as to enhance tourism and economic development opportunities for New Bern. Finally, the crossing improvements recommended in Table 5-4 recognize the need for important safety improvements at key intersections and crossings, including the installation of crosswalks, signage, and/or pedestrian signals.

Priority	Score	Proposed Spot Improvement Project Location	From	To
1	58	**Pollock St**	First St	Sutton St
2	55	**National Ave**	Dunn St	Oaks Rd
3	52	**S Front St**	Walt Bellamy Dr	Eden St
4	51	**Broad St**	Neuse Ave	Downtown
5	51	**Union Point Park (S Front St)**	E Front St	Dead End
6	49	**Lawson Creek Park**	First St	Dead End
7	49	**N Craven St**	Crescent St	Dead End (Jack Smith Creek)
8	47	**Queen St**	Pasteur St	Dead End (RiverWalk)
9	45	**Cedar St**	Third	Miller
10	43	**Amhurst Blvd Cul-de-Sac**	Pinetree Dr	Laura Ln
11	39	**Hospital Dr**	Neuse Blvd	Dead End
12	39	**Trent Creek Rd**	MLK Jr Blvd	Dead End
13	38	**George St**	Cypress	Guion
14	35	**Academic Dr**	MLK Jr Blvd	MLK Jr Blvd
15	35	**Fox Chase Village**	Elizabeth Ave	Dead End (proposed trail)
16	35	**Landscape Way**	Old Airport Rd	Waterscape Way
17	33	**Brunswick**	S. Glenburnie Rd	Dead End
18	29	**Waterscape Way**	US70	City Limits
19	20	**Tram Rd**	Batts Hill Rd	Dead End
20	16	**Batts Hill Rd**	Country Club Rd	Dead End
21	9	**Waterscape Way/W Camp Kiro**	Creekscape Crossing	City Limits
22	6	**Creekscape Crossing**	Waterscape Way	Dead End

Table 5-1. Proposed Spot Improvement Projects in Priority Order

Prioritization Score	Proposed Sidewalk Corridor Project Location	From	To
87	**Trent 2**	US70	First St
84	**MLK Jr Blvd 3**	US70	Neuse Blvd
78	**MLK Jr Blvd 1**	Trent Creek Rd (NC 43)	Trent Rd
77	**Neuse 1**	Glenburnie	First St
73	**Glenburnie 1 (South)**	US70	Neuse Blvd
72	**Glenburnie 3 (North)**	Neuse Blvd	Glenburnie Park
72	**MLK Jr Blvd 2**	Trent Rd	US70
72	**Oaks Rd**	Glenburnie	National Ave (existing sidewalk)
69	**Glenburnie 2 (South)**	Trent Rd	US70
68	**Trent 1**	MLK	US70
63	**First 2**	Walt Bellamy	Chestnut Ave
62	**First 1**	Broad	Walt Bellamy
62	**Simmons 2**	Neuse Blvd	Trent Rd
60	**Neuse 3 (NC Hwy 55)**	Washington Post Rd	Old Hwy 70
60	**Second St/Rhem St**	Trent Rd	Lawson Creek Park
56	**Neuse 2**	Washington Post Rd	Glenburnie Rd
55	**Amhurst/PineTree Dr**	Glenburnie	MLK
54	**Walt Bellamy Dr**	First St	Liberty St
52	**Simmons 1**	Oaks	Neuse Blvd
48	**Washington St**	Hazel Ave	Garden St
47	**Park Avenue**	7th Street	Spencer Street
47	**Third Ave**	Broad St	Cedar St
44	**Clark Ave**	Beaufort St	Dead End (D.E. Henderson Park)
44	**Racetrack Dr / N Elizabeth**	Glenburnie	Neuse Blvd
42	**Main St**	Garden St	George St
40	**Chattawka Ln**	Trent Blvd	Colonial Way
40	**Old Airport 2**	Taberna Circle Dr	Big Cypress Rd (City Limits)
39	**Hazel Ave**	Simmons St	Dead End (J.T. Barber)
39	**Hotel Dr**	MLK	Trent
38	**McCarthy Blvd/Commerce Way**	S Glenburnie	Trent Rd
38	**Newman Rd**	McCarthy	Dead End (Mall)

Table 5-2. Proposed Sidewalk Corridor Projects in Priority Order

Prioritization Score	Proposed Sidewalk Corridor Project Location (cont.)	From	To
36	**Garden St**	Beaufort St	Main St
35	**Beaufort St**	Clark Ave	Garden St
33	**Colony Dr**	Forest Park Dr	Neuse Blvd
32	**Old Airport 1**	Kale Rd	Taberna Way
31	**Chestnut/Oscar**	Country Club Rd	Dead End (Lowes Connector Trail)
31	**Karen/Elizabeth**	Neuse Blvd	Simmons St
28	**Lowes Blvd**	MLK	Trent Rd
26	**Country Club Rd**	Chestnut Ave	Wedgewood Dr
24	**Thurman Rd**	Old Airport Rd	Old Cherry Point Rd
12	**Old Hwy 70**	Neuse/Hwy 55	City Limits

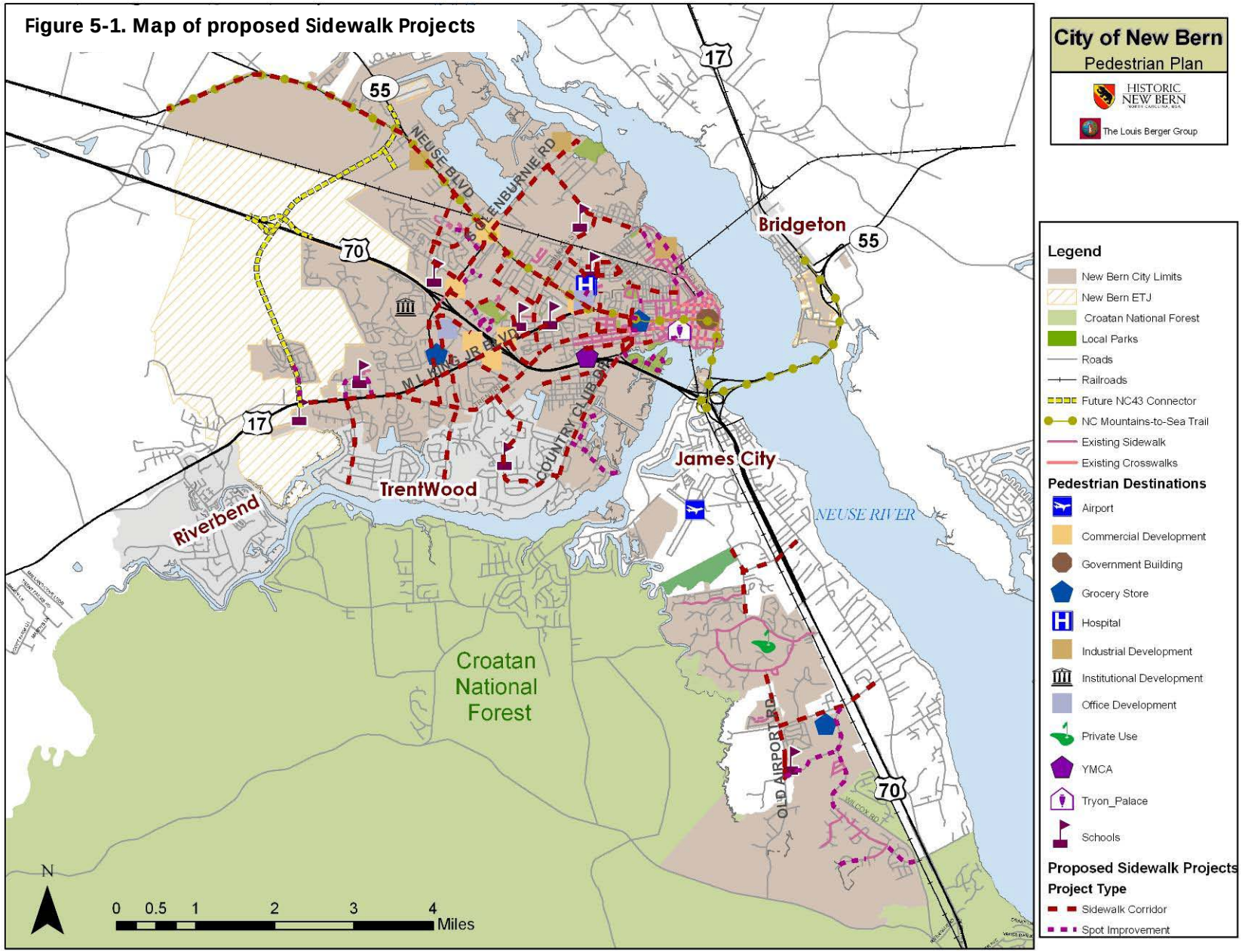
Table 5-2. (continued) Proposed Sidewalk Corridor Projects in Priority Order

In addition to sidewalk needs identified within the New Bern city limits, several potential projects were identified in TrentWoods or other locations outside of New Bern. Table 5-3 below summarizes these recommendations, identified through stakeholder input and connectivity analysis.

Prioritization Score	Proposed Sidewalk Corridor Project Location	From	To	Municipality (outside New Bern city limits)
NR	**Canterbury Rd**	Wedgewood Dr	Highland Ave	**TrentWood**
NR	**Chelsea Rd**	Country Club Rd	McCarthy	**TrentWood**
NR	**Airport Rd/US 70 Service Rd**	Old Airport Rd	Old Cherry Point Rd	**Craven County**
NR	**Highland Ave**	Canterbury Rd	Trent Blvd	**TrentWood**
NR	**Howell Rd**	Old Airport Rd	US 70	**James City/Craven County**
NR	**River Rd/Greenleaf Cemetery Rd**	TrentWoods Dr	MLK Jr Blvd	**TrentWood**
NR	**Wedgewood Dr**	Country Club Rd	Canterbury Rd	**TrentWood**
NR	**Williams Rd**	Old Airport Rd	US 70	**James City/Craven County**

Table 5-3. Proposed Sidewalk Corridor Projects Outside of New Bern City Limits (in Alphabetical Order)

Figure 5-1. Map of proposed Sidewalk Projects



Phasing	Intersection Location	Recommended Treatments	Priority
1	**Rhem St & First St** (Lawson Creek Park)	Install a pedestrian-activated traffic signal for the Lawson Creek Park entrance that cycles with the Hwy 70/Pembroke traffic light when activated.	53
2	**Middle Street Mid-Block Crossing** (Bear Park entrance)	Install curb cuts for wheelchair access	41
3	**First Street & Spencer/Queen**	Consider closing Church Street entrance at intersection with a traffic diverter (except for pedestrians) and close existing turning radius by extending the Queen Street median south to the current Church Street alignment. This will create a safer, more traditional 4-leg intersection.	40
4	**MLK Jr Blvd & Pinetree Dr**	Install marked crosswalks and pedestrian countdown signals on all legs of existing signalized intersection (high-visibility crosswalks for north-south crossings of MLK).	40
5	**MLK Jr Blvd & Simmons St**	Install marked crosswalks and pedestrian countdown signals on all legs of existing signalized intersection (high-visibility crosswalks for north-south crossings of MLK).	40
6	**Simmons St & Educational Dr** (Trent Park Elementary entrance)	Add overhead "Yield to Pedestrians" signage at existing marked crosswalk on Simmons St with supplementary "School" signage. Consider advanced "School" or "Ped Xing" pavement markings as well as push-button activated flashing beacon sign. Crossing guard(s) should be present during arrival/dismissal periods.	40
7	**MLK Jr Blvd & Trent Creek Rd** (Future NC43 interchange)	Provide signalized crossing with marked crosswalks and pedestrian countdown signals at all legs of intersection. Add complementary school crossing signs for north-south crossing (visible to east-west bound motorists on MLK).	36
8	**National Ave & Dunn St**	Install sidewalk approach and flangeway filler (pre-cast pads) at railroad tracks to improve crossing and create a smooth transition over tracks.	34
9	**Neuse Blvd & MLK Jr Blvd**	Consider reconfiguration of intersection to allow for north-south pedestrian crossing at the western-most leg of the intersection. For instance, the stop bar on MLK (for east-bound traffic) could be moved west and a crosswalk installed. Right-turning movement onto MLK from Neuse would need to be restricted for a phase of the traffic signal to allow for safe passage by pedestrians. The median on MLK should act as a pedestrian refuge. Any configuration would require marked crosswalks and pedestrian countdown signals.	34
10	**Glenburnie & Elizabeth**	Install marked crosswalks and countdown pedestrian signals at all legs of intersection. Ensure appropriate signal timing for child pedestrians.	33
11	**Queen & Pollock** (Little Five Points)	Further Study Needed. Consider installing high-visibility crosswalks at all legs of intersection, as well countdown pedestrian signals at signalized legs. Ensure signal timing allows for safe pedestrian crossing for all age groups.	33

Table 5-4. Proposed Intersection Improvements in Priority Order

Phasing	Intersection Location	Recommended Treatments	Priority
12	**MLK Jr Blvd & Hotel Dr**	Install marked crosswalks and countdown pedestrian signals. Consider median refuge.	32
13	**Broad & First/Third St**	Re-alignment scheduled; install pedestrian signals and curb extensions with project	30
14	**Neuse Blvd & Hospital Dr**	Install high-visibility crosswalks and countdown pedestrian signals. Ensure appropriate signal timing for elderly and disabled pedestrians.	30
15	**Broad & Queen/Roundtree St** (Five Points Intersection)	Install countdown pedestrian signals at all legs of intersection, as well as "Yield to Pedestrians" overhead signage. Consider "No Right on Red" restrictions for turning vehicles.	29
16	**Glenburnie & McCarthy Blvd/College Ct**	Install marked crosswalks and countdown pedestrian signals on all four legs of the existing signalized intersection. Consider a road diet on Glenburnie at this location to remove one lane and install a median refuge island for pedestrians crossing Glenburnie.	29
17	**MLK Jr Blvd & Twin Rivers Mall entrance**	Add pedestrian crosswalks and countdown pedestrian signals to existing signalized intersection. Consider medians for pedestrian refuge.	29
18	**Glenburnie & Brunswick**	Install pedestrian countdown signals at all legs of intersection, as well as "Yield to Pedestrians" overhead signage. Consider "No Right on Red" restrictions for turning vehicles.	26
19	**Glenburnie & Neuse**	Install marked crosswalks and countdown pedestrian signals at all legs of intersection. Consider curb extensions to tighten curb radii and "No Right on Red" restrictions for turning vehicles.	26
20	**MLK Jr Blvd & Lowes Dr**	Install curb ramps and pedestrian approaches along both ends of Lowes Blvd to connect to retail centers. Install high-visibility crosswalks and pedestrian ("walk") signals at existing signalized intersection. Adjust signal timing for 3.5 ft/sec ped crossing to ensure safe passage. Consider road diet for MLK Jr Blvd west of US70 including installation of wider median, curb extensions and/or bike lanes to reduce pedestrian crossing width.	26
21	**Glenburnie & Yarmouth**	Install marked crosswalk and countdown pedestrian signals at the three legs of this existing signalized intersection.	24
22	**MLK Jr Blvd & Trent Rd**	Provide signalized crossing with marked crosswalks and pedestrian countdown signals at all legs of intersection. Add complementary school crossing signs for north-south crossing (visible to east-west bound motorists on MLK).	24
23	**Trent Rd & Lowes Blvd**	Add marked crosswalks to all legs of unsignalized intersection. Consider pedestrian crossing signage and overhead "Yield to Pedestrians" signage for east-west bound lanes on Trent Rd. May consider advanced "Ped Xing" pavement markings.	24
NR	**US 70 & Airport Rd**	Further study needed. Consider adding crosswalks on service roads and US 70, as well as countdown pedestrian signals at US 70. Ensure signal timing allows for safe pedestrian crossing for all age groups. Extend median refuge into crosswalk.	NR
NR	**US 70 & Thurman Rd**	Further study needed. See above recommendation. Alternate crossing locations include Williams Road and/or Taberna Road.	NR

Table 5-4. (continued) Proposed Intersection Improvements in Priority Order

Greenway trails, shared-use paths and multi-use trails are among the terms used to describe off-road facilities for pedestrians, bicyclists, skaters and other non-motorized users. Such facilities are often along linear parks, stream buffers or green space corridors, and are favored by users for their scenic qualities. Greenway trails can provide important links to sidewalk facilities and complete a network that is more convenient and accessible for pedestrian transportation.

Several greenway trails are recommended in the New Bern Pedestrian Plan. Though it may take years for the City to acquire contiguous easements for trail construction through future development and right-of-way purchase, these facilities can be a worthwhile investment and valuable asset for any community. In addition to providing transportation and recreational options for residents, greenway trails can be an economic development tool to attract tourists and newcomers, and have also been known to raise property values for adjacent landowners. The City of New Bern should consider policy changes and new ordinance language that requires dedication of trail easements for future construction and/or construction of connector trails to proposed and existing greenways during all new development. The Mountains-to-Sea Trail should also be a focus for the City, though it is not included below as the route would be connected via linked sidewalk.

PROPOSED GREENWAY TRAIL	FROM	TO	RECOMMENDED TREATMENT
Creekside Elementary Connector Trail	Creekside Elementary	Sienna Trail (existing sidewalk)	Provide 10-14ft multi-use path between Carolina Colours residential development and nearby elementary school
Cross City Rail-with-Trail	City Limit	Downtown New Bern (Pasteur St sidewalk)	Negotiate with Railroad to provide 10-14ft multi-use trail adjacent to railroad tracks from western-most city limits to downtown New Bern. Provides access to/from Bosch, Downtown area and major residential/commercial developments in between.

Table 5-5. Proposed Greenway Trails in Alphabetical Order

PROPOSED GREENWAY	FROM	TO	RECOMMENDED TREATMENT
Elizabeth Avenue Connector Trail	Glenburnie Rd	MLK Jr Blvd	Provide 10-14ft multi-use path to allow for bicycle and pedestrian access to nearby schools and parks from local residential development. Also provides access to commercial development along Glenburnie and proposed future sidewalks on both ends (MLK and Glenburnie).
Fox Village Connector Trail	Glenburnie Rd	Fox Chase Vlg	Provide 8-10ft walking trail for access to/from neighborhood.
Hotel Drive Connector Trail	Hotel Dr	Shopping Center	Install bollards, pedestrian-scale lighting and trail "gateways" along existing connector road to create official multi-use trail facility
Lawson Creek Footbridge	Front Street (at Eden Street)	Lawson Creek Park	Install pedestrian bridge over Trent River to connect RiverWalk Trail, Lawson Creek Park, and the proposed River History Park and Marina. (partially funded)
Lowes Blvd Connector Trail	Lowes Blvd	Chestnut Ave	Provide 10-14ft multi-use path with pedestrian-scale lighting between proposed sidewalk on Lowes Blvd and Chestnut Ave to offer pedestrian access between commercial and residential developments.
Reclamation Lake Trail	N/A	N/A	Construct loop trail around lake on City property to provide additional recreational options for residents in NW New Bern.
RiverWalk Trail (Lawson Creek to Jack Smith Creek)	Lawson Creek Park	Jack Smith Creek	Provide 10ft trail of permeable pavement material along waterfront for pedestrian-only access
RiverWalk Trail Extension (Jack Smith Creek to Glenburnie Park)	Jack Smith Creek	Glenburnie Park	Construct bridge over Jack Smith Creek and extend 10ft riverfront trail facility to Glenburnie Park. May require some boardwalk segments; consider continuous pea gravel or porous concrete surface to mitigate environmental impacts.
Washington Ave Hospital Connector Trail	D.E. Henderson Park	Hospital property	Open up fence at the rear of Hospital property to allow for bicycle/pedestrian access between Washington Ave & Neuse Blvd

Table 5-5 (cont). Proposed Greenway Trails in Alphabetical Order

In addition to greenway and pedestrian crossing needs identified within the New Bern city limits, several potential projects were identified in TrentWoods or other locations. Tables 5-6 and 5-7 below summarize these recommendations, identified through stakeholder input and connectivity analysis.

PROPOSED GREENWAY TRAIL	FROM	TO	RECOMMENDED TREATMENT
Croatan Forest Connector Trail	Front St Bridge	Croatan Forest	Mostly outside of city limits; if/as right-of-way permits, construct sidepath adjacent to Madame Moore Ln and Brice Creek Rd to provide bicycle/pedestrian access between New Bern and the Croatan National Forest.
TrentWoods Drive/Country Club Road Sidepath (adjacent to street)	Haywood Creek Dr	Town Limits	Construct wide asphalt running path along south side of TrentWoods Dr/Country Club Rd to connect with proposed sidewalks on New Bern end. Ensure safe pedestrian crossings at all intersections with north-south roadways.

Table 5-6. Proposed Greenway Trails Outside of New Bern City Limits (in Alphabetical Order)

Bridge/Crossing Location	Description	Recommended Treatment
Alfred A. Cunningham Bridge	Important connection between downtown New Bern (S Front Street) and James City	Sidewalks will be built on west side of bridge during current bridge construction project; project should be monitored and appropriate signage, intersection improvements and traffic calming should be installed to improve pedestrian safety as needed
Neuse River Bridge	Mountains-to-Sea Trail Alignment; Provides pedestrian connectivity over Neuse River via Hwy 17 from downtown New Bern to Bridgeton	Install parallel bike/ped bridge and/or safe sidewalk for pedestrian access over bridge. Note that this bridge is controlled access, so State exception will be needed for any on-road pedestrian accommodations.
Freedom Bridge	Alternate connection between Pembroke area and downtown, as well as to James City (via US 70)	Install parallel bike/ped bridge and/or safe sidewalk for pedestrian access over bridge

Table 5-7. Proposed Bridge Crossing Improvements (in Alphabetical Order)

5.3 Sidewalk Project Prioritization

Following project development, projects were then prioritized. As can be seen in Table 5-2, the proposed sidewalk corridor projects are extensive – they cover over 40 miles of roadway in New Bern on 31 named roads. In addition, 10 miles of "spot improvements" have been identified on 22 roadways in New Bern to fill gaps in the existing sidewalk network. Even if New Bern plans to expand its budget for pedestrian facilities, it will still take a long time for all of these projects to be constructed. To help the City determine which projects to construct first, an analysis was performed to prioritize projects and create a recommended phasing schedule of short-term, mid-term, and long-term projects for construction.

Factors

Prioritization and scheduling were based on the following factors:

- **Public input:** Comments from the Steering Committee and participants in the Open Houses, survey, and other public forums
- **Project characteristics:** In the second Steering Committee meeting, committee members were asked to identify their priority projects regardless of cost. Members then discussed the priority criteria that contributed to the identification of those projects, including access to schools, parks and existing greenways (e.g. RiverWalk). Other priority criteria included access to commercial areas and major employment centers, as well as safety factors such as whether the project was along a major thoroughfare. From this discussion, the following items were identified as important project characteristics to making a project a priority:
  - o Accessibility: Proximity to schools, parks, commercial areas and the RiverWalk trail
  - o Safety: Measured by the average daily traffic (ADT) on the roadway where the sidewalk is proposed, as well as crash data in the case of intersection improvements.

- Connectivity: Project's potential to complete a critical connection from one location to another, measured by the project's connection to existing sidewalks

- **Constructability and Cost:** Ease of constructing the project, including preliminary design analysis and engineering preparation, right-of-way purchase as well as actual construction

Process

Project prioritization and scheduling was a layered process which incorporated all of the above factors in the following steps:

1. **Rate projects on key characteristics.** Projects were rated on accessibility, safety and connectivity. A project received points for any of the following characteristics:

   - **Accessibility**: *Schools*. Is a school located within the project limits?
     Yes, between 0 -.125 miles = 4 points
     Yes, between .125 - .25 miles = 3 points
     Yes, between .25 - .5 miles = 2 points
     Yes, between .5 – 1 mile = 1 point
     No = 0 points
   - **Accessibility**: *Parks*. Is a park located within the project limits?
     Yes, between 0 -.125 miles = 4 points
     Yes, between .125 - .25 miles = 3 points
     Yes, between .25 - .5 miles = 2 points
     Yes, between .5 – 1 mile = 1 point
     No = 0 points
   - **Accessibility**: *Commercial Areas.* Is a major shopping venue or employment center located within the project limits?
     Yes, between 0 -.125 miles = 4 points
     Yes, between .125 - .25 miles = 3 points
     Yes, between .25 - .5 miles = 2 points
     Yes, between .5 – 1 mile = 1 point

No = 0 points

- **Accessibility**: *RiverWalk Trail*. Does the sidewalk project provide connections with the local trail system, i.e. is the RiverWalk Trail within the project limits?
  Yes, between 0 -.125 miles = 4 points
  Yes, between .125 - .25 miles = 3 points
  Yes, between .25 - .5 miles = 2 points
  Yes, between .5 – 1 mile = 1 point
  No = 0 points
- **Accessibility**. *Mountains-to-Sea Trail (MST).* Does the sidewalk project provide connections with the statewide MST?
  Yes = 1 point; No = 0 points
- **Accessibility**. *Transit*. Does the sidewalk project provide connectivity to/from the Craven Area Rural Transit System fixed route through New Bern?
  Yes = 1 point; No = 0 points
- **Safety**. What is the average daily traffic (ADT) count of the roadway?
  Residential Street or Cul-de-Sac = 1
  Collector Street = 2
  Marginal Access Street = 3
- **Connectivity**. Does the project link one destination to another by way of existing sidewalk?
  (Yes = 1 point, No = 0 points)
- **Public Feedback**. Was the project a major source of public concern? Is so, the number of comments received via the public survey and meetings were each counted into the prioritized score, in order to influence the final rank.

Table 5-2 lists projects in order of priority ranking based on the above formula.

2. **Assess cost estimates and constructability.** Next, projects were assessed a cost estimate based on proposed treatments and existing conditions. Cost estimates for treatments were as follows:

- *High Cost: > $300,000 (one-side only)*
  - Generally, high cost projects entail construction of significant sections of sidewalk or installation of sidewalk on roadways without existing shoulder width to accommodate sidewalks as is. The latter would prove costly due to the need to pipe existing drainage ditches and install curb and gutter on roadways with shoulder sections.
- *Moderate Cost: $150,000 - $300,000 (one-side only)*
  - Projects in this range generally have some curb and gutter and are less lengthy sidewalk installations on roadways that may have some existing sidewalk in place.
- *Low Cost: < $150,000 (one-side only)*
  - Projects in this category are generally short sidewalk segments ("spot improvements") on roadways with adequate width to install new sidewalks without significant roadway engineering.

3. **Place projects into schedule.** The project cost analysis was then compared to the list of projects organized by rating to determine the appropriate phased implementation schedule. Projects which were estimated to be low cost and also received high ratings were placed in the short-term project category, whereas projects with high cost and low ratings were placed in the long-term project category. Mid-term projects included those projects with low costs and low ratings, and those with high cost but high ratings. By organizing projects in a short-term, mid-term, and long-term fashion, the City has a list of projects that it can implement quickly in order to take immediate steps towards making New Bern more pedestrian-friendly in the interim before more intensive, long-term projects are undertaken. Table 5-6 and Figure 5-2 shows projects organized by short-, mid-, and long-term priority, or phases.

Phase	Proposed Sidewalk Location	From	To	Length (Miles)	Est. Project Cost	Est. Project Cost
Short	**Trent 2**	US70	First St	1.42	$ 375,957	$ 751,914
Short	**MLK Jr Blvd 3**	US70	Neuse Blvd	1.30	$ 342,983	$ 685,966
Short	**MLK Jr Blvd 1**	Trent Creek Rd (NC43)	Trent Rd	1.22	$ 321,540	$ 643,080
Short	**Neuse 1**	Glenburnie	First St	2.11	$ 557,287	$ 1,114,575
Short	**Glenburnie 1 (South)**	US70	Neuse Blvd	1.06	$ 278,997	$ 557,995
Short	**MLK Jr Blvd 2**	Trent Rd	US70	1.45	$ 383,616	$ 767,233
Short	**First 2**	Walt Bellamy	Chestnut Ave	0.55	$ 143,941	$ 287,882
Short	**First 1**	Broad	Walt Bellamy	0.34	$ 90,185	$ 180,371
Short	**Second St/Rhem St**	Trent Rd	Lawson Creek Park	0.26	$ 69,652	$ 139,303
Short	**Walt Bellamy Dr**	First St	Liberty St	0.37	$ 97,205	$194,411
Short	**Washington St**	Hazel Ave	Garden St	0.61	$ 161,737	$ 323,475
Short	**Third Ave**	Broad St	Cedar St	0.21	$ 55,523	$ 111,047
Short	**Clark Ave**	Beaufort St	Dead End (DE	0.32	$ 85,307	$ 170,614
Short	**Hazel Ave**	Simmons St	Dead End (JT Barber)	0.37	$ 98,023	$ 196,046
Short	**Hotel Dr**	MLK	Trent	0.39	$ 104,247	$ 208,495
Short	**Beaufort St**	Clark Ave	Garden St	0.19	$ 49,474	$ 98,949
Mid	**Glenburnie 3 (North)**	Neuse Blvd	Glenburnie Park	1.65	$ 434,920	$ 869,840
Mid	**Oaks Rd**	Glenburnie	National Ave	1.50	$ 396,274	$ 792,549
Mid	**Glenburnie 2 (South)**	Trent Rd	US70	1.36	$ 360,032	$ 720,064
Mid	**Simmons 2**	Neuse Blvd	Trent Rd	0.97	$ 256,421	$ 512,842
Mid	**Neuse 2**	Washington Post Rd	Glenburnie Rd	1.54	$ 406,552	$ 813,104
Mid	**Amhurst/PineTree Dr**	Glenburnie	MLK	1.27	$ 336,399	$ 672,798
Mid	**Simmons 1**	Oaks	Neuse Blvd	1.05	$ 276,473	$ 552,946
Mid	**Park Avenue**	7th Street	Spencer Street	0.74	$ 194,557	$ 389,115
Mid	**Main St**	Garden St	George St	0.63	$ 167,199	$ 334,398
Mid	**Chattawka Ln**	Trent Blvd	Colonial Way	0.51	$ 134,669	$ 269,337
Mid	**McCarthy**	S Glenburnie	Trent Rd	1.27	$ 334,597	$ 669,194
Mid	**Newman Rd**	McCarthy	Dead End (Mall)	0.51	$ 135,061	$ 270,122
Mid	**Garden St**	Beaufort St	Main St	0.39	$ 102,631	$ 205,261
Mid	**Lowes Blvd**	MLK	Trent Rd	0.56	$ 148,147	$ 296,294

Table 5-8. Proposed phasing for sidewalk corridor projects.

Phase	Proposed Sidewalk Location (cont.)	From	To	Length (Miles)	Est. Project Cost (one-side only)	Est. Project Cost (both sides)
Long	**Trent 1**	MLK	US70	1.88	$ 495,591	$ 991,182
Long	**Neuse 3 (NC Hwy 55)**	Washington Post	Old Hwy 70	2.08	$ 549,783	$ 1,099,565
Long	**Racetrack Dr / N Elizabeth**	Glenburnie	Neuse Blvd	1.32	$ 349,450	$ 698,901
Long	**Old Airport 2**	Taberna Circle	Big Cypress Rd (City	1.76	$ 464,789	$ 929,578
Long	**Colony Dr**	Forest Park Dr	Neuse Blvd	0.89	$ 235,256	$ 470,513
Long	**Old Airport 1**	Kale Rd	Taberna Way	0.94	$ 247,169	$ 494,338
Long	**Chestnut/Oscar**	Country Club Rd	Dead End	0.93	$ 245,431	$ 490,862
Long	**Karen/Elizabeth**	Neuse Blvd	Simmons St	1.08	$ 285,586	$ 571,171
Long	**Country Club Rd**	Chestnut Ave	Wedgewood Dr	1.40	$ 369,078	$ 738,157
Long	**Thurman Rd**	Old Airport Rd	Old Cherry Point Rd	1.45	$ 382,735	$ 765,470
Long	**Old Hwy 70**	Neuse/Hwy 55	City Limits	1.28	$ 339,110	$ 678,219
		TOTALS		**40.78**	**$ 10,766,382**	**$ 21,532,764**

Table 5-8. (continued) Proposed phasing for sidewalk corridor projects.

This page intentionally left blank.

Figure 5-2. Map of proposed sidewalk phasing

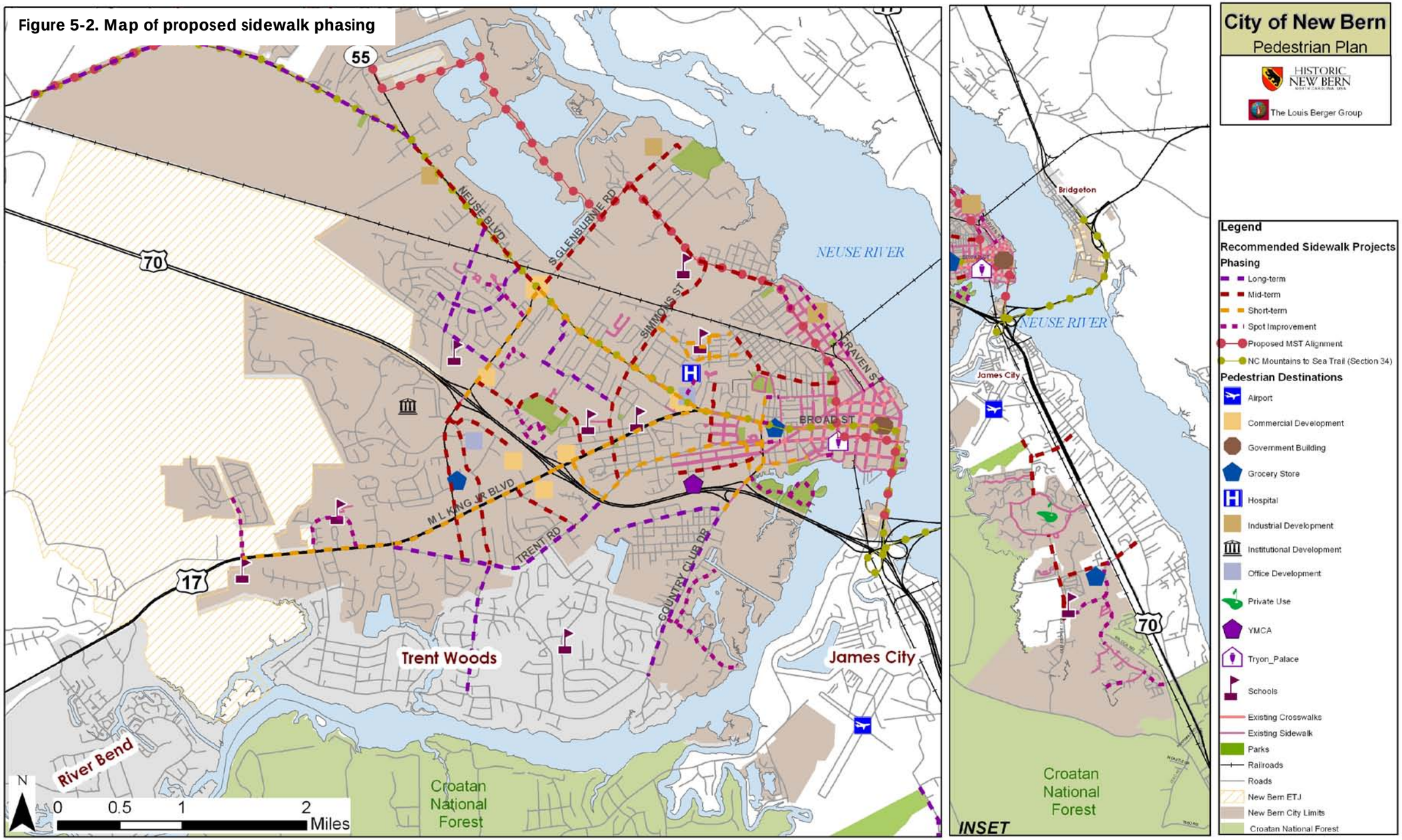


Figure 5-3. Map of recommended greenway projects

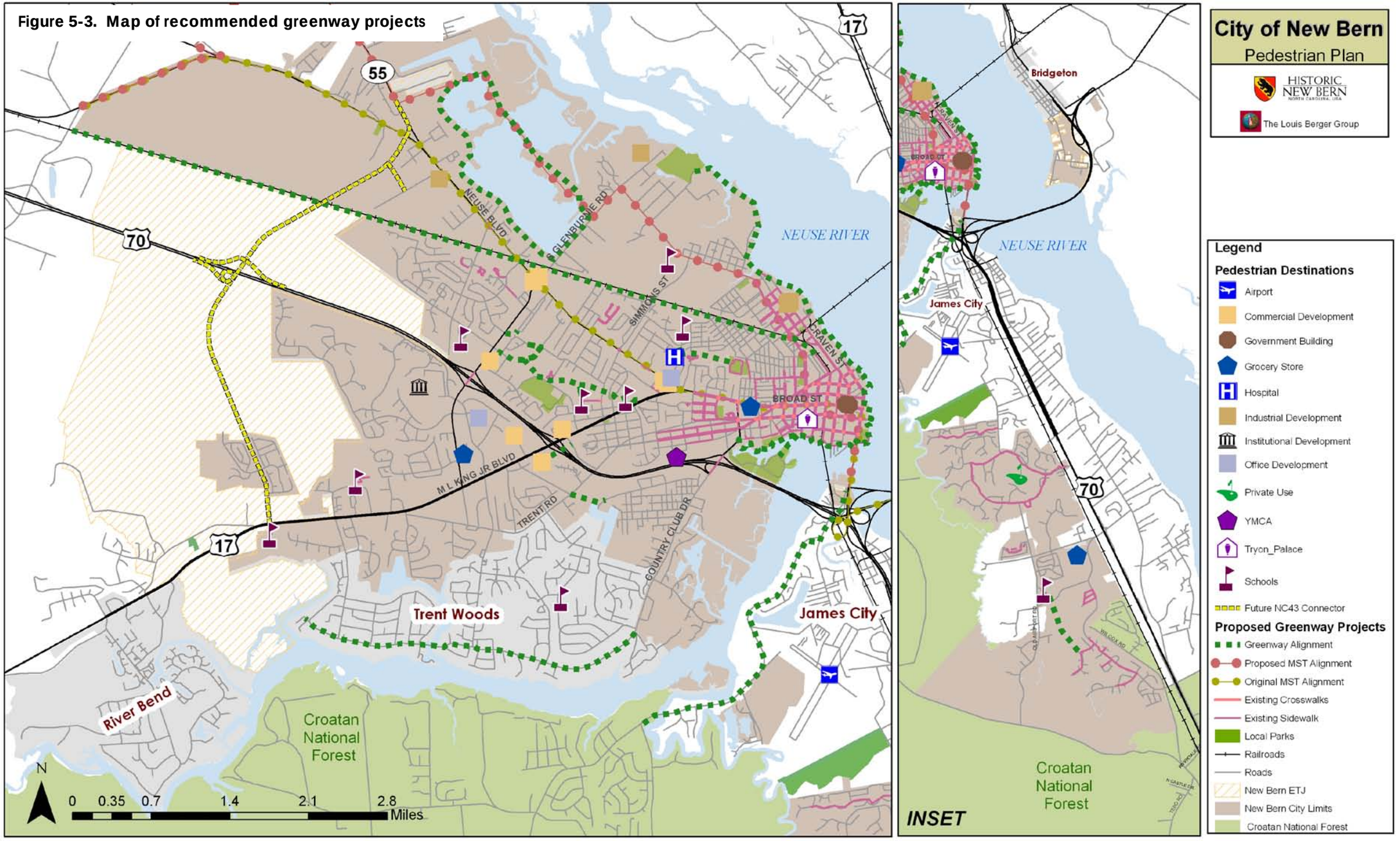


Figure 5-4. Map of recommended crossing improvements

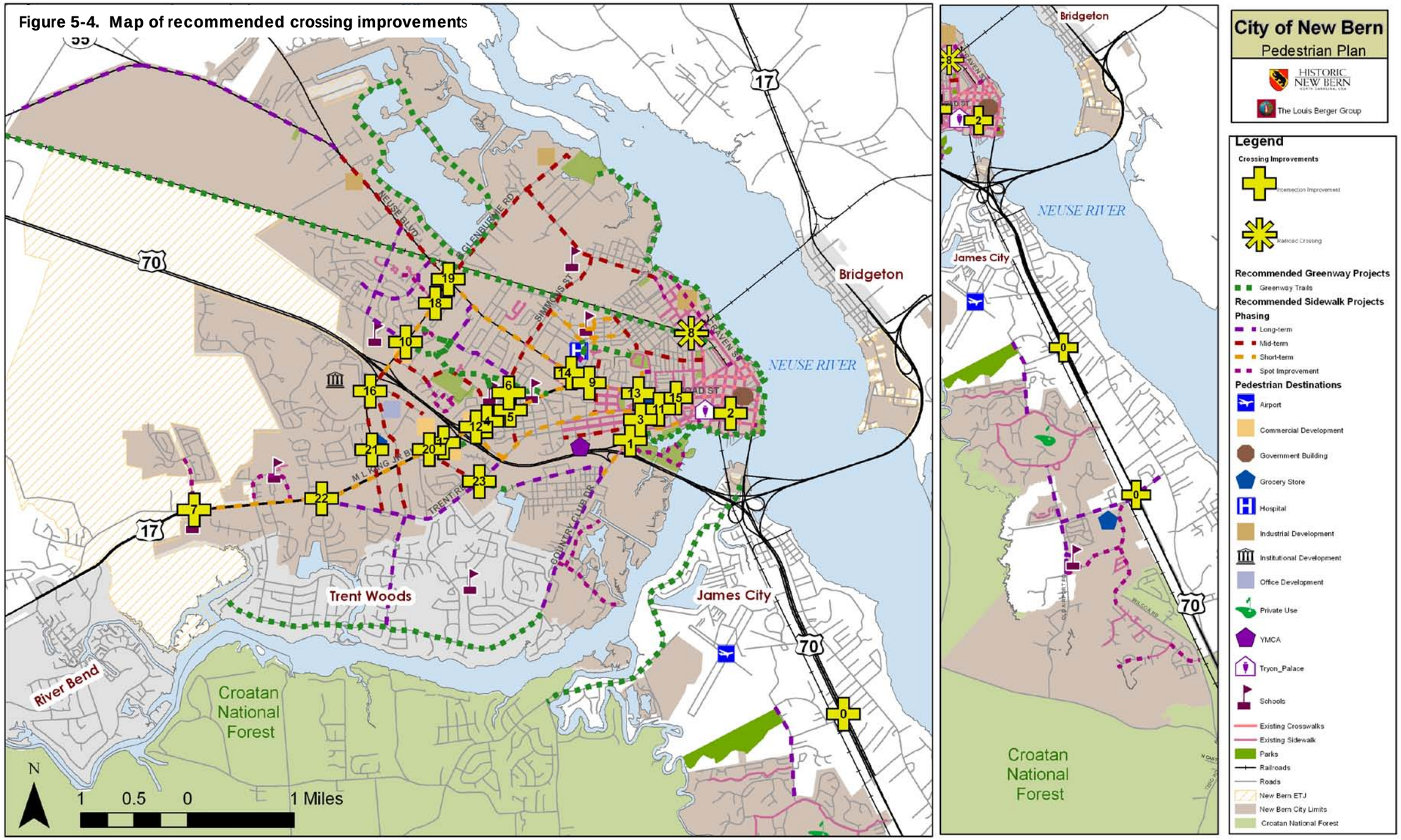
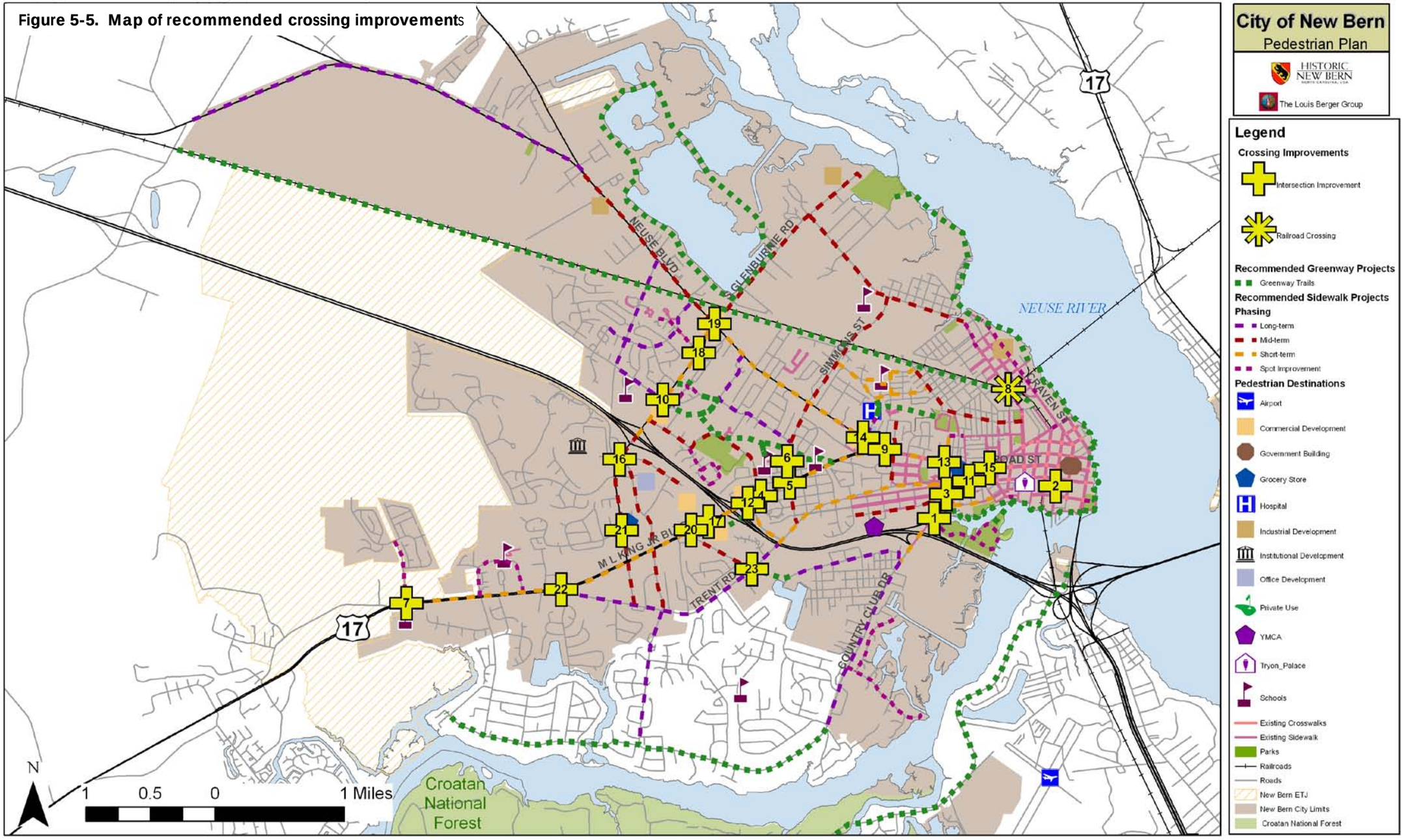


Figure 5-5. Map of recommended crossing improvements



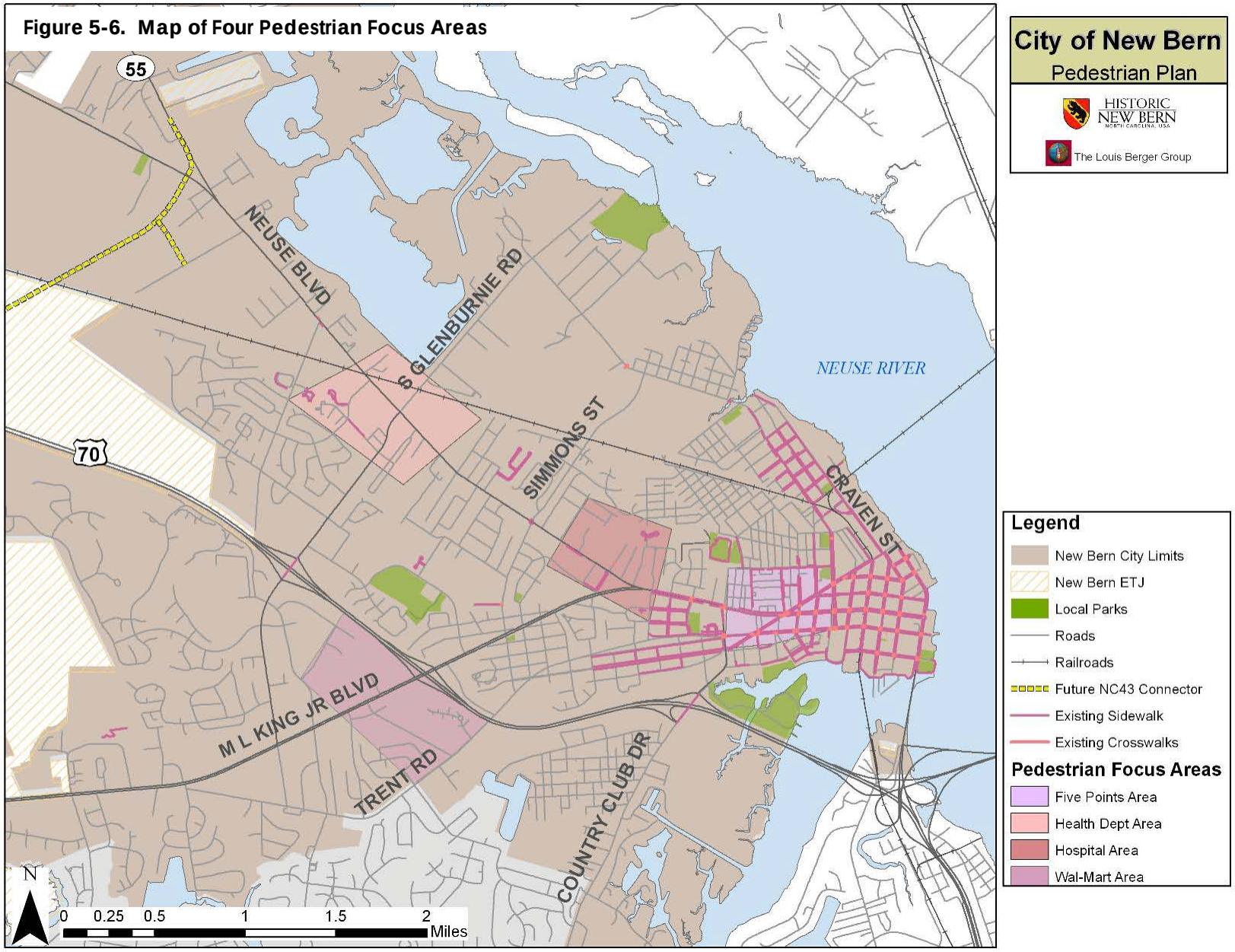
5.4 Pedestrian Focus Areas

Pedestrian focus areas were selected through stakeholder input in order to help identify pedestrian needs and highlight detailed recommendations in locations with high pedestrian traffic volumes, safety issues and/or high-need populations. Four geographic areas were identified as focus areas:

- Five Points Area
- Hospital Area
- Walmart/Twin River Mall Area
- Health Department Area

Maps of each area, along with detailed diagrams illustrating important crossing improvements and sidewalk/greenway connections are included in Appendix D. Figure 5-6 illustrates the coverage for each of the four focus areas.

Figure 5-6. Map of Four Pedestrian Focus Areas



5.5 Other Physical Improvements

Beyond the construction of new sidewalks and greenways, there are a number of actions and improvements to the physical environment that can greatly improve pedestrian conditions at a fairly low cost. Sidewalk maintenance, for instance, can increase accessibility along existing walkways, especially for wheelchair users, as well as decrease liability for the City. Installing curb ramps at street corners greatly enhances accessibility for wheelchair users, visually-impaired residents and New Bern's growing senior community. The provision of landscaping, pedestrian scale lighting and street furniture can complement other pedestrian amenities and offer visual and practical respite for pedestrians. Benches, in particular, are a welcome addition to any well-trafficked pedestrian corridor and provide "rest stops" for walkers and runners. Finally, the improvement of local intersections with crosswalk and pedestrian signal installations can drastically help improve safety on many walking routes, and crosswalks can be maintained annually to correct fading. Below are some additional ideas for "non-construction" projects:

- Create a regular maintenance schedule for existing sidewalks and crosswalks.
- Consider the use of in-street and overhead "Yield to Pedestrians" signage at problem intersections (such as the mid-block Middle Street intersection), as well as countdown pedestrian signals at all new and existing signalized intersections.
- Work with the NCDOT Rail Division and Norfolk & Southern Railway Company to improve the conditions of pedestrian crossings of the railroad, especially those identified in this Plan, making smoother transitions over the railroad tracks and providing aesthetic enhancements.
- Connect existing parks and cultural landmarks with gateway treatments with wayfinding signage and/or pavement markings to provide better pedestrian access and recognition.

Figure 5-7. **Sidewalk Maintenance.** While many of downtown New Bern's sidewalks are new and therefore in good repair, many older sidewalks experience overgrowth (above sidewalk on Broad Street) and cracking (see Pollock Street sidewalk below). These problems can be fixed relatively inexpensively through minor repair work.

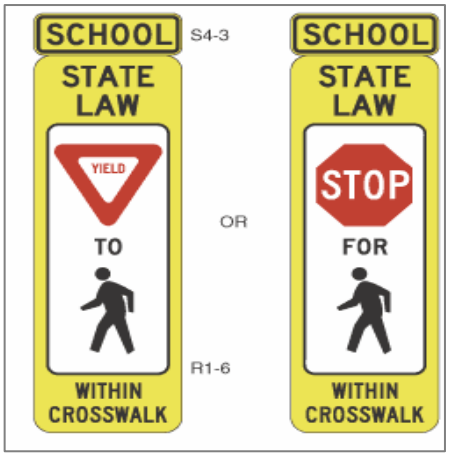


Figure 5-8. In-street "Yield to Pedestrians" sign.

- Provide pedestrian-scale lighting, street trees and landscaping, alleyway improvements and other enhancements to the four identified pedestrian focus areas and other areas as budgets allow.
- Formalize a citywide 35mph speed limit (unless otherwise signed) and post related regulatory signs at major gateway entrances into the City.
- Build upon the work of New Bern's artist community the Craven County Arts Council by developing a public arts fund, whereby 1% of all City construction program funds derived from bond revenue are dedicated to public arts projects. These projects could be spread into the pedestrian focus areas and other locations outside of downtown to create aesthetic appeal through murals, sculpture, and functional art (benches, bike racks, manhole covers, etc) for pedestrians throughout the City.

Section 6. Policy & Program Recommendations

Local policies and plans can heavily influence the walkability of a community, and often shape the pedestrian environment, sometimes even without the intent of doing so. Creating strong policies and plans that help to actively create good walking conditions will mean a more balanced future transportation network and a shared private/public burden for providing that benefit. Policy amendments and planning activities can often be achieved at a low-cost to a municipality while resulting in substantial outcomes, and could help New Bern make notable progress in developing a more walkable environment.

This section provides a set of policy and program recommendations to help create a well-balanced approach to improving walkability in New Bern.

6.1 Improvements to Existing Policies and Plans

Local policies and plans can heavily influence the walkability of a community, and significantly shape the pedestrian environment over time. Creating strong policies and plans that help to actively create good walking conditions will mean a more balanced future transportation network and a shared private/public burden for providing that benefit. Policy amendments and planning activities can often be achieved at a low-cost to a municipality while resulting in substantial outcomes, and could help New Bern make notable progress in developing a more walkable environment.

Along with the rest of the state, New Bern and Craven County will experience growth and development in the years to come. The shape and quality of future development will greatly impact the pedestrian-friendliness of the City. If the City can work with the development community to create a more multi-modal transportation network that includes sidewalk connections and greenways, New Bern will continue to stand out as a City with a high quality of life that attracts new residents, businesses and further economic development. For this reason, it is strongly recommended that New Bern work to update and/or create local ordinances to include more pedestrian-oriented language and guidance for walkable future development.

While private/public partnerships are important, it is also recommended that the City create new policies to help guide City staff in serving the local pedestrians' needs. Such policies will help "institutionalize" good pedestrian design and programming throughout all City departments, and create a truly balanced and comprehensive approach to implementing the Pedestrian Plan. Policy changes might include the creation of a formal sidewalk petition process for "spot improvements" in the pedestrian network and the development of a "green streets" design guidelines to encourage an environmentally-sound approach to future streetscaping, roadway and sidewalk projects. This and other policy recommendations are summarized in Table 6-1.

Finally, several planning efforts could be completed that will complement the City's Comprehensive Pedestrian Plan and help reinforce its recommendations and proposed outcomes. During the Plan's development, several pedestrian-friendly policy and program recommendations specific to New Bern were identified and discussed. Recommendations for all such policy and plan development are included in Tables 6-1 through 6-3.

Table 6-1. Local Ordinance Recommendations	
"Green Streets" Design Criteria	■ Create specific local Street Design Criteria, including maximum curb radii in downtown areas and pedestrian activity centers; street cross-sections that include mandatory five-foot-wide sidewalk or public greenway access on the full perimeter of each adjacent public street; and suggest driveway spacing criteria on all streets to be adhered to in the subdivision and design of new developments. Design criteria should also address curb ramps and driveway design to ensure accessibility for the physically disabled, as outlined in the Americans with Disabilities Act (ADA). Design criteria should also address best practices for stormwater control, such as allowable uses of permeable pavement.
Minimum Sidewalk Requirement	■ All sidewalk requirements in the Land Use Ordinance should be changed from 4ft to 5ft minimum widths to meet national and state standards, including ADA requirements. Additionally, it is recommended that sidewalk buffers be expanded from a 2ft to 3ft minimum width, and that 5ft sidewalks be required on both sides of the street for all arterial and collector streets.
Minimum Sidewalk Requirement	■ Require sidewalks along the public frontage of all subdivided and un-subdivided properties to help create sidewalk connectivity along public streets in New Bern (i.e. remove 80ft minimum width requirement for subdivided lots). This standard should be applied to residential and commercial development.
Minimum Sidewalk Requirement	■ It is further recommended that the City re-evaluate the minimum requirement for sidewalk installation to apply to the additional four residential zones R15, R20, A5-F and A5, as appropriate.
Pedestrian Access, Easements and Sidewalk Requirements	■ Though Sec 15-216 addresses the ability of the Board of Aldermen to require a developer to reserve a 10ft easement for additional pedestrian access from a subdivision to a school, parks, playgrounds or other roads/facilities, it is recommended that firm language be included in the ordinance for off-site sidewalk requirements and/or payment in-lieu, as well as to allow water/sewer easements to give access for pedestrian use.
School Zone Improvements	■ Consider developing an ordinance that requires sidewalk along all roads within a quarter-mile of a school (a typical "no transport zone" or walk zone for New Bern) and that all signalized intersections within a quarter-mile of a school should have high-visibility crosswalks and countdown pedestrian signals. If the school is accessed from a mid-block location, then a signalized mid-block crossing should be provided for safe pedestrian access.
Greenway Connections	■ Require the construction of minimum 10 feet (typical: 14 ft) asphalt greenways during new development to connect to existing greenways (e.g. RiverWalk) and create the proposed network of greenway trails throughout the City.
Parking Lot Design	■ Sec 15-346 of the Land Use Ordinance should be amended to address pedestrian access and safety in parking lot design. Walkways should be required through a parking lot to a business for nonresidential development, in order to provide better access from a public street, through the development to the business entrance in the case of "big box" developments.
Greenway Connections	■ Consider additional language to the City's Land Use Ordinance requiring a public waterfront easement of 14'-18' in any new development or redevelopment between Lawson Creek Park and Glenburnie Park, to ensure access for the RiverWalk trail.
Greenway Connections	■ It is recommended that the City consider disincentivizing cul-de-sac development and/or incorporate a requirement for direct pedestrian connections between cul-de-sacs to provide more walkable developments outside of the center city where overlays do not apply. Language should be added to allow Board of Aldermen to require greenway connections between adjacent cul-de-sacs and/or from cul-de-sacs to nearby schools or greenways, or other public destinations.
Reducing Pedestrian-Bicycle Conflicts	■ Consider adding a new ordinance restricting bicycle riding on sidewalks in the Central Business District to help reduce potential bicycle/pedestrian conflicts and help create a safer pedestrian environment where building setbacks are minimized.
Traffic Assessments	■ Add further language on Traffic Impact Assessments for new development, tailored specifically to address bike/ped needs.

Table 6-2. Internal Policy Recommendations	
Countdown Pedestrian Signals	■ Formalize a citywide policy of installing "countdown" pedestrian signal heads and crosswalks with the installation of all new signalized intersections. Provide pedestrian signals even in locations without sidewalk on one or both sides of an intersection.
School Zone Improvements	■ Create a policy that requires "safe zones" around schools (i.e. school zones) in which speeds are reduced by 10 mph within a quarter mile of the school and signs are posted warning of school and student presence.
Signage	■ Restrict use of free-flowing turn lanes, utilizing "No Right Turn on Red" signage at signalized intersections with high pedestrian volumes. Provide appropriate treatments to warn both motorists and pedestrians of potential conflicts when free-flow turn lanes are used (e.g. "Turning Traffic Must Yield to Pedestrians" signage).
Signal Timing	■ At intersections with protected right-on-red for automobiles, provide signal phases which specifically create protected crossing intervals for pedestrians.
Greenway Crossings	■ Create a policy for standard greenway crossing treatments, and develop with NCDOT a mutually acceptable mid-block crossing policy for greenways.
Sidewalk Petition Process	■ Develop a sidewalk petition process and budget allocation to handle "spot improvements," allowing citizens to make requests for short sidewalk connections that will quickly and easily fill gaps in the pedestrian network.
Curb Ramps	■ Allocate an annual budget for curb ramp retrofits at intersections throughout the City, and ensure new curb ramps are constructed during all new street/intersection construction, as mandated by federal ADA requirements.
School Siting	■ Work with Craven County to consider pedestrian needs during all new school placement decisions.
Payment In-lieu Options	■ Consider instituting payment in-lieu standards for new certain new development, if sidewalks are not necessary. In-lieu funds could be pooled and utilized for spot improvement projects identified in this Plan and its future updates.
Sidewalk/Crosswalk Maintenance	■ Develop a sidewalk and crosswalk maintenance budget and schedule to keep up with regular repair needs.

Table 6-3. Planning Effort Recommendations	
Pedestrian Design Standards	■ Develop Engineering & Design Standards for pedestrian accommodations, including permeable pavement options. Ensure that such guidelines explicitly state that all facilities must comply with the requirements outlined in the American Disabilities Act Accessibility Guidelines for Buildings and Facilities.
Parks & Recreation Plan Update	■ Incorporate proposed greenway trails and related facilities into the next update of New Bern's Parks and Recreation Comprehensive Plan, in order to ensure that these Plans complement each other in implementation.
Project Coordination (Incidental Improvements)	■ For implementation phases, integrate project recommendations from the Pedestrian Plan and the existing Bicycle Plan, as well as the Parks and Recreation Master Plan and Urban Design Plan, in order to ensure that complementary projects (e.g. sidewalks and bike lanes) are built simultaneously in the most cost-effective manner possible.
Transit Plan	■ Create a Transit Plan that addresses New Bern's transit needs beyond the CART system.
Traffic Calming Toolbox	■ Develop a "traffic calming toolbox" of treatments to slow traffic and improve pedestrian safety on streets with speeding problems. Treatments could include neckdowns, median islands, curb extensions and speed humps.[1]

6.2 Program Recommendations

Pedestrian facilities alone do not make a town pedestrian-friendly. A variety of programs should also be implemented to cultivate and support a pedestrian-friendly culture. A pedestrian-friendly culture has several different characteristics, including the behavior of people when they are walking, the attitude of motorists in the community towards pedestrians, and the role of police and other law officials in enforcing pedestrian safety. To address all of these elements, programs are often created to fit within the "three E's" of pedestrian programming: education, encouragement, and enforcement.

Education programs teach others about safe pedestrian behaviors, the benefits of walking, and can assist people in feeling more comfortable with their "new" mode of travel. Education programs can also be used to teach motorists how to interact safely with pedestrians. Encouragement programs, like education programs, can also teach about the benefits of walking, and serve to promote walking and pedestrian-friendly behavior through various activities and incentives. Finally, enforcement programs provide the "teeth" of a safe and legal pedestrian environment. When law enforcement officers and other officials protect pedestrians and encourage walking, this sends a clear message that the presence of pedestrians is a legitimate and permanent condition in the city's transportation network.

The sections below include recommendations for a well-rounded pedestrian program in the City of New Bern.

Did you know?

In 1969, about half of all students walked or bicycled to school. Today, however, only 15 percent of all school trips are made by walking or bicycling[1].

6.2.1 Education Program Recommendations

Safe Routes to School Program

According to the Federal Highway Administration's website for Safe Routes to School, in 1969, about half of all students walked or bicycled to school. Today, however, over half of all children arrive at school in private automobiles and only 15 percent of all school trips are made by walking or bicycling[2]. Designed to address these dramatic statistics, the Safe Routes to School Program is intended to create and promote safe walking and cycling to school in order to improve safety near schools, promote active lifestyles, and reduce pollution and congestion caused by school traffic. The first Safe Routes to School program was begun in Europe in the late 1970's, but the first program in the United States began in the Bronx, NY, in 1997. Now, less than 10 years later, the Safe Routes to School Program has become both a federally-funded and grassroots national movement.

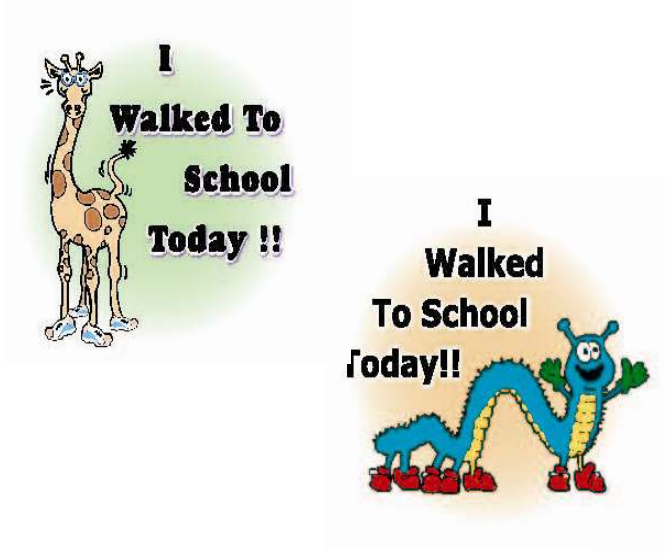


Figure 6-1. **Sample SRTS Materials.** Using inexpensive materials, such as these simple stickers – available for free online and printed on Avery labels – can help create a fun, effective Safe Routes to School outreach program.

A Safe Routes to School (SRTS) program is a school-based effort that involves young students, teachers, law enforcement officers and parents in the development of school safety and encouragement initiatives such as Walk to School Day, Walking Wednesdays, pedestrian safety assemblies and bicycle rodeos. These programs can help engage children in safe walking behaviors and encourage more walking and healthier lifestyles. Common steps to creating a successful program are to kick-off with an event on International Walk-to-School Day, then subsequently work with PTA members, teachers and students to identify needs and program ideas while incorporating encouragement measures and education into the school curriculum for students to learn safe walking and bicycling skills and the benefits of an active lifestyle.

Funds are available through the North Carolina Department of Transportation for planning and infrastructure work intended to

encourage safe walking and bicycling to elementary and middle schools. Development of a SRTS Action Plan could help with program development and in making key physical improvements within the vicinity of local schools. SRTS workshops are also available through NCDOT to aid in the development of local SRTS Action Plans and are an opportunity to bring together school administrators, faculty, staff, and representatives from related agencies such as health departments, law enforcement, engineering, and city planning to discuss local issues and solutions. Resources and information are available at www.saferoutesinfo.org. NCDOT funding applications and information on local resources are available at http://www.ncdot.org/transit/bicycle/saferoutes/SafeRoutes.html.

Recommendation: A Safe Routes to School program is a recurring activity and will require support from City Staff, school administration, and parents and faculty; however, the benefits will continue with children into adulthood. City of New Bern staff should coordinate with the Craven County Public School administration at either a system-wide or individual school level, to encourage and support the establishment of Safe Routes to School programs at all local elementary and middle schools in New Bern. In addition, when new schools are planned and constructed, Craven County Public School System representatives should work with City staff to plan for and design safe walking and cycling routes to new schools.

Safe Routes for Seniors Initiative

With New Bern's large population of retirees and 60+ residents, a program to promote active living and safety for seniors could be very successful. Safe Routes for Seniors programs are popping up around the country to promote safety and fitness for senior citizens through collaborative efforts with Senior Centers, Assisted Living Communities, Hospital staff, Social Workers and other organizations. Program ideas include pedestrian safety workshops, walking

Figure 6-2. With 31% of their residents over the age of 65, the City of Hendersonville, NC started the Walk Wise program to educate the community at-large about senior pedestrian safety.

Photos courtesy of www.walkwise.org.

challenges for seniors and walking route maps that establish popular, safe 1/2 – 1 mile pedestrian loops around local senior and community centers.

The UNC-Chapel Hill Pedestrian and Bicycle Information Center is currently working to develop a workshop template to kick off a national Safe Routes for Seniors initiative that will soon be available on their website at www.walkinginfo.org. Additional resources are available through AARP, such as their "Get Fit on Route 66" initiative to promote senior fitness: http://www.aarp.org/health/fitness/walking/what_is_get_fit_on_route_66.html. Similar program models exist in Raleigh and Washington, NC, as well as numerous cities throughout the country.

Recommendation: City staff, County Health Department representatives, Hospital representatives, Senior Centers and other interested parties should work together to host local workshops and route planning activities for seniors. The final product of these workshops could include a series of route maps with complementary educational text, and a regularly scheduled walking program to build community and encourage physical activity amongst local senior citizens.

Pedestrian Safety Education Campaign

A pedestrian safety campaign can be a branded citywide effort involving multiple City departments (e.g. Public Works, Planning, Police Department), civic organizations and neighborhood groups in an awareness building effort to address local pedestrian issues. Pedestrian safety initiatives might focus on speeding, reckless driving, unsafe pedestrian behavior, child safety or failure to yield issues. For instance, speeding motorists might be targeted with a "Keep Kids Alive, Drive 25" campaign, while common but unsafe pedestrian behavior is addressed through educational materials and handouts distributed at local events and public venues like the library and schools. TV and radio PSAs on pedestrian safety might

be utilized to create local awareness of issues such as school zone safety. Finally, the City might also consider posting bicycle and pedestrian related laws and safety information permanently on the New Bern City website for reference. For a list of relevant state statutes, visit www.ncdot.org/transit/bicycle.

The simplest way to spread information about safe pedestrian behavior is to create promotional and educational materials for distribution at various venues throughout the City, and to City staff, major employers, and future residents. The purpose of these materials would be to educate New Bern's citizens about safe walking behaviors, safe driving behaviors around pedestrians, the proper use of pedestrian facilities like pedestrian signals, and the benefits of walking on health and the environment. Such educational materials can be distributed to outdoor groups and outdoor supply vendors, as well as distributed at city events, kiosks, or Parks and Recreation Department activities. In addition, materials could be created for distribution to developers to educate them about pedestrian-friendly design and construction techniques.

Recommendation: City staff should design and distribute educational and promotional materials to City staff, major employers, and future residents, as well as for display at City Hall and other public locations (for example: parks, bus stops, recreational facilities).

Board and Administration/City Hall Employees Education Day

One of the major characteristics of a pedestrian-friendly city is to have public officials and leaders who support and encourage pedestrian-friendliness. Usually this requires that city officials and staff are educated about the economic, health, and general quality of life benefits of a pedestrian-friendly city. In order to facilitate this, it is recommended that City staff establish a Pedestrian-friendliness Education Day, perhaps in conjunction with a Bicycle-friendliness Education Day. During this day, the Board of

Figure 6-3. Free pedestrian safety poster available from FHWA. Other available items include brochures, PSAs, media materials and a campaign planning guide.

Source:
http://safety.fhwa.dot.gov/local_program/pedcampaign/index.htm

Alders and staff representatives will attend presentations on pedestrian- and bicycle-friendliness to learn about the projects, programs, and policies that can encourage a more bicycle- and pedestrian-friendly city. Several organizations, such as the National Center for Bicycling and Walking (www.bikewalk.org), Walkable Communities, Inc., and the Complete the Streets initiative (www.completestreets.org), provide resources such as speakers, handouts, guides, and publications which can be used for the Education Day. The purpose of this day would be to educate about pedestrian-friendliness and to help create a greater acceptance of pedestrian-related projects and initiatives in the future. Should this education effort prove successful, the City could consider using it as a model for employers and businesses to educate their employees and staff.

Recommendation: City staff should create a pedestrian-friendliness Education Day, in which City staff, Board of Alders, and other officials are educated about the benefits of a pedestrian-friendly city and some of the projects, programs, and policies that can be used to create a better walking environment supportive of adult pedestrians, economic goals, and students.

6.2.2 Encouragement Program Recommendations

Bicycle and Pedestrian Advisory Committee

One approach to formalizing the City's commitment to pedestrian-friendliness is to establish a standing Pedestrian and Bicycle Advisory Committee. The Committee should be a standing committee comprised of City residents committed to making New Bern a more bicycle- and pedestrian-friendly community. Members of the advisory committee would provide input on town decisions, actions, plans, and policies from a bicycle and pedestrian perspective. They would also lead volunteer efforts at city-sponsored events and generally advocate for a more bicycle- and pedestrian-friendly community. A City staff member should be appointed to liaison with the Committee and work part-time or full-

time to help coordinate bicycle and pedestrian planning and programming activities and implement recommendations of the Pedestrian Plan.

Recommendation: The Board of Alders should establish a Bicycle and Pedestrian Advisory Committee and appoint citizen members to support encouragement efforts and help to monitor progress on implementation of the Pedestrian Plan recommendations.

Pedestrian Wayfinding System and Route Maps

More and more communities are using pedestrian and bicycle wayfinding systems to provide visitors and residents with directional and distance information to major landmarks, parks and other local attractions. Given New Bern's rich history, numerous historical destinations and well-used parks, a similar system would be very useful here. Pedestrian wayfinding signs should be at an appropriate height of 7-8ft, with a font and orientation appropriate for pedestrian viewing. Distance information should be provided in blocks or miles; a map is also quite useful for visitors. Such a system could incorporate local themes, allowing New Bern or Craven County artists a hand in designing the sign templates. Opportunities for private-public partnerships exist, such as working with area retailers or B&B's along the route to sponsor signage and/or complementary brochures in exchange for a mention in the guide.

Recommendations: Develop a system of wayfinding signs or pavement markings to direct pedestrians to major landmarks, parks and other public attractions and connect the historic destinations in the City with textured pavement treatments (e.g. red brick inlays), wayfinding signage, and a complementary map and brochure for distribution by the City, tourism agencies, and Chamber of Commerce.

Figure 6-4. Pedestrian wayfinding signage along the waterfront in Seattle, WA. This signage especially helps visitors and tourists with directional information, but also visually reinforces a local aesthetic in a cost-effective manner and highlights the shorefront as an attraction.

Figure 6-5. The SmartCommute Challenge event in the Triangle area of North Carolina is a regional effort that occurs each fall. The Challenge receives a great deal of media attention through its professionally-coordinated marketing effort. Over 12,000 individuals and 119 employers participated in the program in 2008. *Source: www.smartcommutechallenge.org*

Bicycle and Pedestrian Program Website

The City of New Bern and Craven County have so many public events that collectively work to create a walkable community through recognition of local heritage, cultural sites and the arts. The Craven County Convention and Visitors Bureau has developed four Historic Heritage Tour routes for New Bern, and the New Bern Historical Society also conducts an annual Historic Homes and Garden Tour. The Craven Arts Council hosts a monthly ArtWalk event and free summer concert series encourage evening strolls to/from the downtown area. New Bern's park system offers a number of recreational walking and hiking opportunities, as does the nearby Croatan National Forest and Mountains-to-Sea Trail route through the heart of New Bern. A bicycle and pedestrian program website could provide links to local event calendars, hiking and fitness walking program information, host a pedestrian safety webpage and/or interactive child safety site, and provide PDF links to walking route maps and other information. Such a website would be a clearinghouse for all pedestrian-related information and would offer a great resource to citizens and visitors interested in active living opportunities and foot tours of the City.

Recommendations: It is recommended that the City develop a bicycle and pedestrian program website to act as a clearinghouse for all pedestrian-related information for residents and visitors. Such a website could use its own catchy domain name, like "BikeWalkNewBern.org" and be linked to the City's website from the homepage. The bicycle and pedestrian program website would be educational in nature, and further promote the existing tours and outings in New Bern for residents and tourists.

Commuter Challenge Event

In order to engage local businesses and employees, New Bern should consider hosting a citywide workplace challenge event or Walk-to-Work week activity to promote and reward residents for walking, biking or taking transit to work. Many commuter challenge events use a computerized survey and registration, or

"pledge" system, to encourage individuals to take one alternative mode of travel to work during the event timeline. Often, local businesses will offer free prize donations for a raffle event where all registered participants are entered to win. These events reward those who currently walk or use other green transportation options for their work commutes, but also encourage drivers to try an alternative in an effort to encourage a longer-lasting change in commute behaviors. Additionally, local businesses who promote alternative transportation and/or offer raffle prizes receive media attention and positive PR for their sustainability efforts.

Recommendations: The City of New Bern should work with the County, local businesses and nonprofit organizations to create an annual or bi-annual "Commuter Challenge" event to promote walking and biking to work. This event could be held on International Car-free Day each September or during Bike to Work Week each May. The New Bern Chamber of Commerce or a local civic group could help coordinate activities, including raffle prizes and discounts to participants who "pledge" to walk, as well as work with local businesses to encourage employer participation.

6.2.3 Enforcement Program Recommendations

Traffic Enforcement

Many communities rely on a traffic enforcement unit of the local police or Sheriff's department to conduct periodic ticketing and speed enforcement efforts on problem streets. Speeding, failure to yield to pedestrians in a crosswalk, and rolling stops are often targets of traffic enforcement for pedestrian safety. Because of the expenses involved and staffing resources needed to conduct traffic enforcement, it is often used as a follow-up activity to educational and encouragement efforts, and/or as a last result for addressing a problem location or issue. However, in many cases it can be a worthwhile expense and helps to reinforce new behaviors

when traffic calming, speed limit changes, educational campaigns or other pedestrian improvements have been implemented.

Figure 6-6. **Active Speed Monitor.** Passive enforcement tools can help reinforce education and encouragement efforts, as well as active traffic enforcement by police officers.

Other, effective passive enforcement options include active speed monitor signs and speed trailers. Like a standard speed limit sign, active speed monitors indicate the permanent speed limit for a given street but also use radar to detect the speeds of passing cars. Below the permanent speed limit text, a digital display shows the speed of passing cars and flashes to indicate to speeding drivers when to slow down. These signs are very appropriate for high pedestrian areas where drivers need to constantly aware of pedestrians, such as in a school zone. Similar to active speed monitors, a speed trailer is a speed detection device that monitors the speeds of passing vehicles and displays to drivers their travel speeds on a digital screen. Speed trailers also often flash when drivers are speeding, but unlike active speed monitors, they are typically used on a temporary basis for problem streets to reinforce local speed limits and make drivers aware that the Police and Public Works department are monitoring the area.

Recommendation: Work with the local police department to enforce speeding, failure to yield to pedestrians in crosswalks, and other violations in targeted areas such as school zones, pedestrian focus areas or downtown. Other passive enforcement options could include the purchase and rotating display of a speed trailer at problem spots where speeding and traffic issues are reported as a problem. Active speed monitors should be considered in areas where speeding is a continual problem.

Pace Car Program

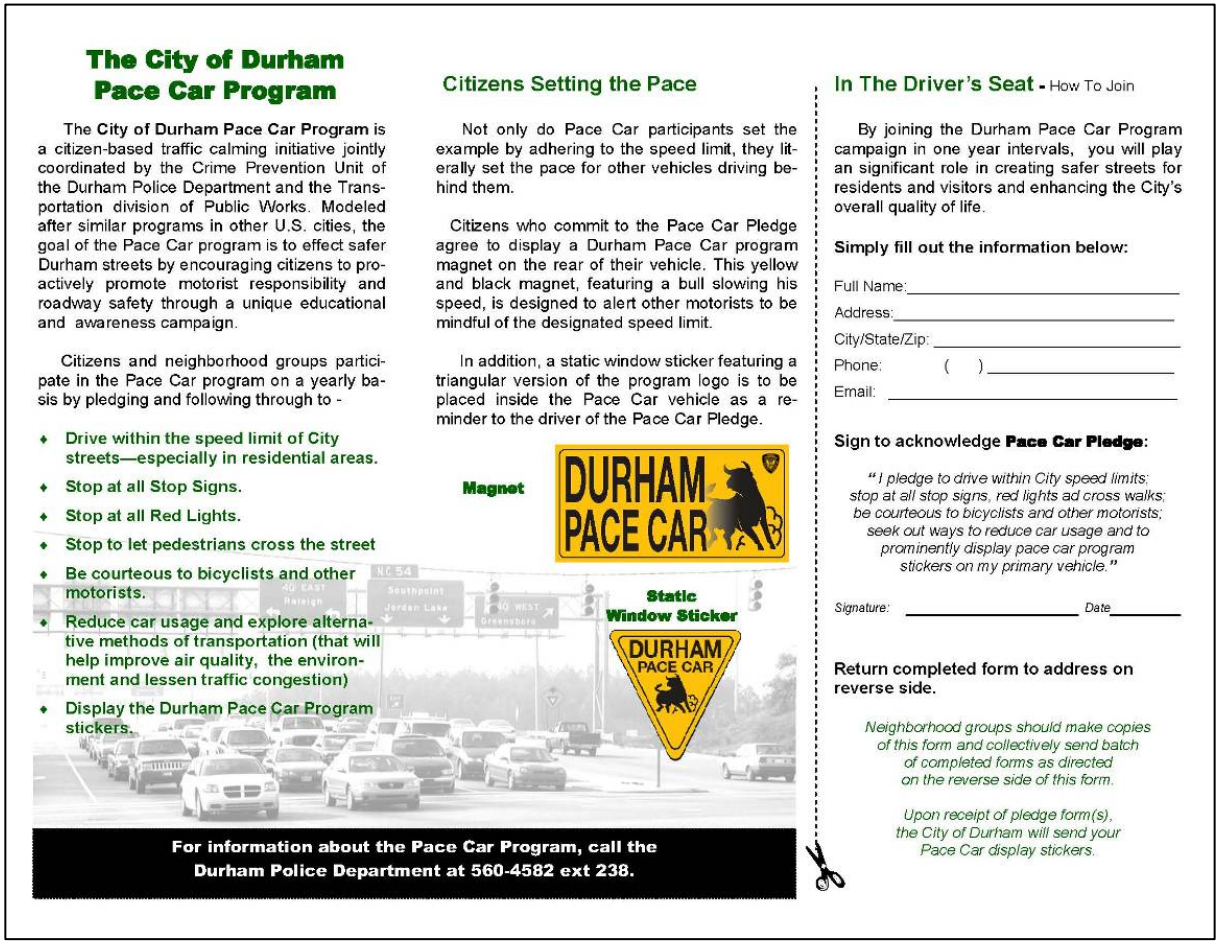
A pace car program is a participatory program for citizens to pledge to act as "pace cars" that obey signed speed limits at all times on New Bern streets. Pace car participants self-enforce the local speed limit by committing to always driving at or below local speed limits, and typically display their participation in the program with a bumper sticker and/or window stickers. In addition to self-

enforcement, pace car participants help to set a normative speed in their community and set examples for courteous, law-abiding traffic behavior in their neighborhoods.

Typically, pace car programs are voluntary efforts run by the local police department. Costs are generally low for implementing such a program; supply needs include digital/hardcopy pledge forms, bumper stickers and/or window stickers and postage/printing costs for membership notifications. Typically, a police department will promote the program through local neighborhood associations and other civic organizations.

Recommendation: The City's Public Works, Planning and Police departments should work together to implement and promote a local pace car program. Promotional efforts should focus on the benefits of lower traffic speeds, most importantly child and adult pedestrian safety, a more comfortable and appealing pedestrian environment, and benefits for individual participants including "good Samaritan" status and gas savings from reduced travel speeds.

Figure 6-7. Durham is one example of several NC cities piloting a Pace Car program.



School zone monitors/crossing guards

As part of New Bern's school zone policy and new Safe Routes to School Program, local schools should establish school zone monitors and/or crossing guards to assist students as they walk or bike to school. Crossing guards are trained individuals hired for school drop-off and

Figure 6-8. Crossing guard in action at Cary Elementary School in Cary, North Carolina.

pick-up hours to control traffic flow and direct children when and where to safely cross the street. They are usually placed at intersections or mid-block crossings near a school which are used by a high number of students. School crossing guards should be formally trained in traffic control, first aid, and CPR, but do not have to be a police officer. Also, crossing guards should wear reflective vests and similar uniforms to be distinguishable as an official and to create consistency throughout the City. School zone monitors are usually police or other law enforcement officials who are stationed at the school during drop-off and pick-up to monitor the school zone and make sure all policies, such as reduced speeds and yielding to pedestrians in crosswalks, are enforced. Unlike crossing guards, school zone monitors are the "teeth" of the enforcement in school zones because they are empowered to write tickets and arrest others.

Currently, none of New Bern's schools have a school zone monitor or crossing guard. It should be a goal to place crossing guards and/or monitors at ALL of the City's schools, especially those with existing "no transport zones" or "walk zones". The following schools have walk zones of ¼ mile radii, set by Craven County Schools; children within walk zones typically do not receive bus service though the County is flexible in its provision of bus services:

- Grover Fields Elementary School
- J.T. Barber Elementary School
- Trent Park Elementary School
- Ben Quinn Elementary School
- MacDonald Middle School
- New Bern High School

The presence of school crossing guards and school zone monitors can have several benefits, including increasing children safety when walking or bicycling to and from school, raising parents' level of comfort about allowing their children to walk or bike to and from school, and also improving traffic flow during school drop-offs and

pick-ups. The presence of a crossing guard or school zone monitor also indicates to others that the City has a commitment to making it safer for children to walk and bike to all schools.

Recommendation: Establish school crossing guards and/or school zone monitors at all schools during drop-off and pick-up periods. For guidelines and useful tips, visit http://www.saferoutesinfo.org/guide/crossing_guard/index.cfm.

6.3 Partnership Opportunities

Many of the education, encouragement and enforcement programs will be carried out by partnerships between City departments, local nonprofit and civic organizations, business owners, developers and others. Creating strong partners in the citywide effort to improve pedestrian safety and increase walkability will help spread the word and awareness of the importance of walking in the community, as well as lead to programs that can withstand the test of time. Potential partners for implementation of the New Bern Pedestrian Plan include:

- 300th Anniversary Connectivity Committee
- City of New Bern Police Department
- City of New Bern Parks and Recreation Commission
- City of New Bern Parks & Recreation Department
- City of New Bern's Outdoor Adventure Club
- Craven County Convention and Visitors Bureau
- Craven County Health Department
- Craven County School System
- Craven County Sheriff's Department
- Craven Regional Medical Center (Hospital)
- Eastern Carolina Council Area Agency on Aging
- "Hooked on Walking" Club
- Local Kiwanis, Lions and Rotary Clubs
- Local Neighborhoods Associations

- Local Parent Teacher Associations (PTAs)
- New Bern Chamber of Commerce
- New Bern Historical Society
- SAFEKids Coalition
- Swiss Bear Downtown Development Corporation

6.4 Program Evaluation

Evaluation is a useful tool for measuring local progress after the adoption of a Plan. Following up on program activities to verify successes and make changes as needed, and tracking key indicators such as crash statistics, can help provide a focus for future implementation and re-evaluate new needs. It is recommended that the City of New Bern consider working with a citizen committee, such as the Recreation Committee or a new Bicycle/Pedestrian/SRTS Committee to help implement the Plan, track successes, re-evaluate needs and help to conduct future Plan updates. Key indicators that City staff, citizens and committee members might track include:

- Number of students walking/biking to school
- Records of pedestrian crashes in New Bern
- Participation in programs, such as the Pace Car Program or Safe Routes for Seniors Program
- Database of sidewalk, greenway & intersection improvements
- Ratio of sidewalks to roadways within City limits
- Proportion of transportation funds spent on pedestrian projects

Resources and Citations

[1] Further guidance available at www.walkinginfo.org.

[2] FHWA Safety: Safe Routes to School Program (http://safety.fhwa.dot.gov/saferoutes/).

This page left intentionally blank.

Section 7. Implementation Plan

This section summarizes project, program and policy recommendations into a set of short-term, mid-term and long-term implementation strategies for New Bern.

7.1 Introduction

Completion of the New Bern Pedestrian Plan is only the first step in creating a walkable community. The implementation of the Pedestrian Plan will require a coordinated effort amongst City officials, leaders, and citizen volunteers. This section provides a series of actions steps for moving forward with the recommendations of the Plan, as well as potential funding sources and partners for proposed projects. Additionally, this section identifies a phased implementation schedule that considers priority and cost with the goal of creating a pedestrian-friendly community over the next 20 year horizon.

7.2 Action Steps

Completing the following action steps will help guide the development of the proposed pedestrian network, and create a supportive program and policy environment for a more walkable New Bern. These steps will be crucial in moving forward with the overall recommendations of the Pedestrian Plan.

1) Adopt this Plan. Adoption of this Plan will be the first step to implementation for New Bern. Once adopted, the Plan should be forwarded to regional and state decision-makers, such as the RPO and NCDOT Division office, for inclusion in a regional planning and development processes.

2) Form a Bicycle and Pedestrian Advisory Committee. The pedestrian planning process has engaged many citizens in visioning and goal-setting for New Bern. Building on this momentum to keep citizens engaged in a permanent committee structure will allow continued citizen involvement in the Plan's implementation.

3) Secure funding for the top priority projects. In order for New Bern to become a more pedestrian-friendly city, it must have the priorities and the funding available to proceed with

implementation. The City should work to secure funding for implementation of several high-priority projects (see Section 7.3) and develop a long-term funding strategy. This will help reinforce the commitment to the Pedestrian Plan and reaffirm to residents that the Plan is moving forward.

4) Begin work on top priority projects listed in Section 7.3. In addition to committing local funds to high-priority projects in the Pedestrian Plan, the City is in a unique position to work with NCDOT on a local Safe Routes to School (SRTS) project and/or seek other state, national or private funding sources for continued, long-term success in implementing the Plan.

5) Adopt policy changes that support the goals of the Pedestrian Plan. Proposed ordinance changes that will be crucial to balancing the public/private burden of implementing this Pedestrian Plan are detailed in Sections 3 and 6, and highlighted in Section 7.3. These include requiring sidewalks in all new development projects, changing minimum sidewalk widths to 5ft instead of 4ft, and requiring the dedication of greenway easements to "bank" land for future trail construction.

6) Embark on complementary planning efforts. The City should incorporate the recommendations of the Pedestrian Plan into future and existing Plans developed and updated at the local, regional and statewide level. For instance, the recommendations of the New Bern Pedestrian Plan should be incorporated into the statewide Comprehensive Transportation Plan with the help of NCDOT Division 2.

7) Develop supportive education, encouragement and enforcement programs. Pedestrian facilities alone do not make a town pedestrian-friendly. A variety of programs should also be implemented to create and support a pedestrian-friendly culture. Programs and policy priorities should be implemented alongside infrastructure improvements.

7.3 Project, Program and Policy Priorities

The following tables summarize specific project, policy, and program recommendations that have been made in order of short-term, mid-term, and long-term time frames. Each table should be used by the City as a flexible framework for implementing the recommendations in the Plan – recognizing that it is important to capitalize on unexpected opportunities while also pursuing long term goals. In general, the City should consider working with a wide range of partners, such as those listed in Section 7.3, to implement various elements of the Plan and conduct periodic evaluations of projects, policies and programs after implementation.

It should be noted that sidewalk projects listed in Table 7-1 through 7-3 are sidewalk corridor projects of significant length (see Section 5) and are thereby phased into short-term, mid-term and long-term implementation schedules while those projects listed in Table 7-4 are spot improvement projects, or short projects of two to three blocks in length that will fill gaps in the sidewalk network. These spot improvement projects should be considered opportunity projects, as they will be less expensive to implement than the longer sidewalk corridor projects. The spot improvements will allow for greater connectivity and continuity of the existing sidewalk network and, in some cases, connect future sidewalk corridor projects or greenways upon their completion.

Planning cost estimates are included for each recommendation. Estimates are based on itemized construction costs provided in Appendix F. Figures may change upon further evaluation and/or with future cost inflation or other fluctuations.

Table 7-1. *Short-term Recommendations (1 – 5 years)*

SIDEWALK CORRIDOR PROJECTS				
Proposed Sidewalk Location	**From**	**To**	**Length (Miles)**	**Est. Project Cost (one-side)**
Trent 2	US70	First St	1.42	$ 375,957
MLK Jr Blvd 3	US70	Neuse Blvd	1.30	$ 342,983
MLK Jr Blvd 1	Trent Creek Rd	Trent Rd	1.22	$ 321,540
Neuse 1	Glenburnie	First St	2.11	$ 557,287
Glenburnie 1 (South)	US70	Neuse Blvd	1.06	$ 278,997
MLK Jr Blvd 2	Trent Rd	US70	1.45	$ 383,616
First 2	Walt Bellamy	Chestnut Ave	0.55	$ 143,941
First 1	Broad	Walt Bellamy	0.34	$ 90,185
Second St/Rhem St	Trent Rd	Lawson Creek	0.26	$ 69,652
Walt Bellamy Dr	First St	Liberty St	0.37	$ 97,205
Washington St	Hazel Ave	Garden St	0.61	$ 161,737
Third Ave	Broad St	Cedar St	0.21	$ 55,523
Clark Ave	Beaufort St	Dead End (DE	0.32	$ 85,307
Hazel Ave	Simmons St	Dead End (JT	0.37	$ 98,023
Hotel Dr	MLK	Trent	0.39	$ 104,247
Beaufort St	Clark Ave	Garden St	0.19	$ 49,474

POLICIES	
Description	**Type**
Revise Minimum Sidewalk Requirements	Ordinance
Adopt Sidewalk and Greenway Connection Requirement	Ordinance
School Zone Designation & Improvements	Ordinance/Internal Policy
Enact Curb Ramp Retrofit Program	Internal Policy
Establish Sidewalk/Crosswalk Maintenance Program	Internal Policy
Signage, Pedestrian Signals and Signal Timing	Internal Policy
Adopt Payment In-Lieu Policy	Ordinance/Internal Policy
Develop Project Coordination System	Planning Effort

PROGRAMS		
Description	**Type**	**Potential Partners**
Safe Routes to School Program	Education	Craven County Schools, Craven Regional Medical Center, SAFEKids Coalition
City Hall Pedestrian Education Day	Education	Hooked on Walking, Craven Co. Health Dept
Bicycle & Pedestrian Program Website	Education	Craven Co. Health Dept

Table 7-2. *Mid-term Recommendations (6 - 10 years)*

SIDEWALK CORRIDOR PROJECTS				
Proposed Sidewalk Location	**From**	**To**	**Length (Miles)**	**Est. Project Cost (one-side)**
Glenburnie 3 (North)	Neuse Blvd	Glenburnie Park	1.65	$ 434,920
Oaks Rd	Glenburnie	National Ave	1.50	$ 396,274
Glenburnie 2 (South)	Trent Rd	US70	1.36	$ 360,032
Simmons 2	Neuse Blvd	Trent Rd	0.97	$ 256,421
Neuse 2	Washington Post	Glenburnie Rd	1.54	$ 406,552
Amhurst/PineTree Dr	Glenburnie	MLK	1.27	$ 336,399
Simmons 1	Oaks	Neuse Blvd	1.05	$ 276,473
Park Avenue	7th Street	Spencer Street	0.74	$ 194,557
Main St	Garden St	George St	0.63	$ 167,199
Chattawka Ln	Trent Blvd	Colonial Way	0.51	$ 134,669
McCarthy	S Glenburnie	Trent Rd	1.27	$ 334,597
Newman Rd	McCarthy	Dead End (Mall)	0.51	$ 135,061
Garden St	Beaufort St	Main St	0.39	$ 102,631
Lowes Blvd	MLK	Trent Rd	0.56	$ 148,147

POLICIES	
Description	**Type**
Develop "Green Streets" & Pedestrian Design Guidelines	Ordinance/Internal Policy
Conduct a Local/Regional Transit Plan	Planning Effort
Parks & Open Space Planning	Planning Effort
Traffic Calming Toolbox	Planning Effort
Establish Sidewalk Petition Process	Internal Policy
Adopt Greenway Crossing Standard	Internal Policy

PROGRAMS		
Description	**Type**	**Potential Partners**
Safe Routes for Seniors	Education	Senior Center; Craven Co. Health Dept; Area Agency on Aging
Pedestrian Safety Education Campaign	Education	SAFEKids Coalition; Hooked on Walking
Form Bicycle & Pedestrian Advisory Committee	Encouragement	Craven County; New Bern Parks & Recreation Committee
Pace Car Program	Enforcement	New Bern Police Department
School Zone Monitors/Crossing Guard Program	Enforcement	New Bern Police Department; Craven Co. Schools

Table 7-3. *Long-term Recommendations (11+ years)*

SIDEWALK CORRIDOR PROJECTS				
Proposed Sidewalk Location	**From**	**To**	**Length (Miles)**	**Est. Project Cost (one-side)**
Glenburnie 3 (North)	Neuse Blvd	Glenburnie Park	1.65	$ 434,920
Oaks Rd	Glenburnie	National Ave	1.50	$ 396,274
Glenburnie 2 (South)	Trent Rd	US70	1.36	$ 360,032
Simmons 2	Neuse Blvd	Trent Rd	0.97	$ 256,421
Neuse 2	Washington Post	Glenburnie Rd	1.54	$ 406,552
Amhurst/PineTree Dr	Glenburnie	MLK	1.27	$ 336,399
Simmons 1	Oaks	Neuse Blvd	1.05	$ 276,473
Park Avenue	7th Street	Spencer Street	0.74	$ 194,557
Main St	Garden St	George St	0.63	$ 167,199
Chattawka Ln	Trent Blvd	Colonial Way	0.51	$ 134,669
McCarthy	S Glenburnie	Trent Rd	1.27	$ 334,597
Newman Rd	McCarthy	Dead End (Mall)	0.51	$ 135,061
Garden St	Beaufort St	Main St	0.39	$ 102,631
Lowes Blvd	MLK	Trent Rd	0.56	$ 148,147

POLICIES	
Description	**Type**
Conduct Bicycle/Pedestrian Traffic Assessments with TIAs	Ordinance/Internal Policy
Adopt Amended School Siting Policy	Internal Policy

PROGRAMS		
Description	**Type**	**Potential Partners**
Commuter Challenge Event	Encouragement	Chamber of Commerce; Swiss Bear Downtown Development Corporation
Pedestrian Wayfinding System & Route Maps	Encouragement	Chamber of Commerce; Craven Arts Council; Swiss Bear Downtown Development Corporation
Motorist/Pedestrian Traffic Enforcement	Enforcement	New Bern Police Department; Craven Co. Sheriff Department

Table 7-4. *Spot Improvement Priorities for New Bern's sidewalk network*

Priority	Score	Proposed Spot Improvement	From	To	Length (Feet)	Estimated Cost*
1	58	**Pollock St**	First St	Sutton St	796	$39,794
2	55	**National Ave**	New Bern St	Oaks Rd	1227	$61,335
3	52	**S Front St**	Walt Bellamy Dr	Eden St	418	$20,889
4	51	**Broad St**	Neuse Ave	Downtown	425	$21,239
5	51	**Union Point Park (S Front St)**	E Front St	Dead End	385	$19,238
6	49	**Lawson Creek Park**	First St	Dead End	5068	$253,398
7	49	**N Craven St**	Crescent St	Dead End (Jack	3711	$185,545
8	47	**Queen St**	Pasteur St	Dead End	1032	$51,621
9	45	**Cedar St**	Third	Miller	614	$30,705
10	43	**Amhurst Blvd Cul-de-Sac**	Pinetree Dr	Laura Ln	3914	$195,709
11	39	**Hospital Dr**	Neuse Blvd	Dead End	928	$46,419
12	39	**Trent Creek Rd**	MLK Jr Blvd	Dead End	2619	$130,972
13	38	**George St**	Cypress	Guion	494	$24,711
14	35	**Academic Dr**	MLK Jr Blvd	MLK Jr Blvd	3939	$196,970
15	35	**Fox Chase Village**	Elizabeth Ave	Dead End	1850	$92,495
16	35	**Landscape Way**	Old Airport Rd	Waterscape Way	4108	$205,384
17	33	**Brunswick**	S. Glenburnie Rd	Dead End	2240	$112,016
18	29	**Waterscape Way**	US70	City Limits	7807	$390,342
19	20	**Tram Rd**	Batts Hill Rd	Dead End	3023	$151,157
20	16	**Batts Hill Rd**	Country Club Rd	Dead End	3900	$194,986
21	9	**Waterscape Way/ W Camp Kiro Rd**	Creekscape Crossing	City Limits	2365	$118,264
22	6	**Creekscape Crossing**	Waterscape	Dead End	2213	$110,649
			TOTALS		**53,077**	**$2,653,838**

** Cost estimates are not final and may change upon engineering assessment. Cost for curb & gutter (approximately $25/LF) not included.*

7.3.1 Other Physical Improvements

In addition to the proposed sidewalk improvements listed in the implementation schedules above, a number of other recommendations have been made throughout the Plan to produce beneficial changes in the pedestrian environment. These include construction of several new greenway trails, which will produce a valuable recreational and transportation asset to New Bern. The final greenway trail recommendations are shown in Table 7-5. Cost estimates are given for paved and unpaved 10ft trail surfaces and do not include signage, pavement markings, crossing treatments or other features. Additionally, costs of permeable pavement are not included. The recommended surface treatment is highlighted in the table's cost estimates with bold text.

Table 7-5. *Greenway Trail Recommendations (proposed phasing)*

Phase	Proposed Greenway Trail	Total Trail Length	Estimated Cost (Paved Trail)	Estimated Cost (Unpaved Trail)
Short-term	**RiverWalk Trail (Lawson Creek to Jack Smith Creek)**	16,561 ft (3.14 miles)	**$2,195,630**	$313,661
Short-term	**Lowes Blvd Connector Trail**	1,734 ft (0.33 miles)	$229,860	**$32,837**
Short-term	**Lawson Creek Footbridge***	665 ft (0.13 miles)	**$400,000**	N/A
Mid-term	**Washington Ave Hospital Connector Trail**	3,575 ft (0.68 miles)	$473,987	**$67,712**
Mid-term	**Fox Village Connector Trail**	705 ft (0.13 miles)	$93,498	**$13,357**
Mid-term	**Hotel Drive Connector Trail**	1,131 ft (0.21 miles)	$149,941	**$21,420**
Mid-term	**Creekside Elementary Connector Trail**	5,153 ft (0.98 miles)	$685,454	**$128,845**
Mid-term	**Reclamation Lake Loop Trail**	24,055 ft (4.56 miles)	$3,192,000	**$456,000**
Long-term	**Elizabeth Avenue Connector Trail**	12,446 ft (2.36 miles)	**$1,650,082**	$235,726
Long-term	**RiverWalk Trail Extension (Jack Smith Creek to Glenburnie Park)**	10,384 ft (1.97 miles)	**$1,376,689**	$196,670
Long-term	**Cross City Rail-with-Trail**	36,647 ft (6.94 miles)	**$4,858,431**	$694,062
	TOTALS	***113,057 ft (16.86 miles)***	$ 15,303,385	$ 2,129,055

**Note: the Lawson Creek Footbridge is partially funded by a Gate Foundation grant of $64,900 and $155,000 from U.S. Fish and Wildlife.*

Crossing improvements have been recommended in Section 5 of the Pedestrian Plan to enhance pedestrian safety at local intersections and key pedestrian crossings. The proposed crossing improvements, categorized into implementation phases (based on priority) are included in Table 7-6 below.

Table 7-6. *Final Crossing Improvement Recommendations*

Phase	Priority	Crossing Location	Recommended Treatments	Estimated Cost
Short	*1*	**Rhem St & First St**	Install a ped signal and crosswalks	$100,000
Short	*2*	**Middle Street Mid-Block Crossing**	Install curb cuts	$3,000
Short	*3*	**First Street & Spencer/Queen**	Install neckdowns/medians and crosswalks	$50,000
Short	*4*	**MLK Jr Blvd & Pinetree Dr**	Install crosswalks and ped signals	$5,000
Short	*5*	**MLK Jr Blvd & Simmons St**	Install crosswalks and ped signals. Add school crossing signage.	$5,700 (+ median)
Short	*6*	**Simmons St & Educational Dr**	Add "Yield to Pedestrians" signage and school crossing signage.	$5,000
Short	*7*	**MLK Jr Blvd & Trent Creek Rd**	Add crosswalks and ped signals. Add school crossing signage.	$5,300
Short	*8*	**National Ave & Dunn St**	Install sidewalk approach and flangeway filler at railroad tracks.	$6,400
Mid	*9*	**Neuse Blvd & MLK Jr Blvd**	Add crosswalks and ped signals.	$5,000
Mid	*10*	**Glenburnie & Elizabeth**	Add crosswalks and ped signals.	$5,000
Mid	*11*	**Queen & Pollock**	Add high-visibility crosswalks and ped signals .	$5,000
Mid	*12*	**MLK Jr Blvd & Hotel Dr**	Add crosswalks and ped signals. Consider median refuge.	$5,000 (+ median)
Mid	*13*	**Broad & First/Third St**	Re-alignment scheduled; install ped signals and curb extensions.	$25,000
Mid	*14*	**Neuse Blvd & Hospital Dr**	Add high-visibility crosswalks and ped signals.	$5,000
Mid	*15*	**Broad & Queen/Roundtree St**	Add ped signals and overhead "Yield to Pedestrians" signage.	$5,500
Mid	*16*	**Glenburnie & McCarthy Blvd**	Add crosswalks and ped signals. Consider a road diet.	$5,000 (+ median)
Mid	*17*	**MLK Jr Blvd & Twin Rivers Drive**	Add crosswalks and ped signals. Consider medians.	$5,000 (+ median)
Long	*18*	**Glenburnie & Brunswick**	Add crosswalks, ped signals and “Yield to Pedestrians” signage.	$5,500
Long	*19*	**Glenburnie & Neuse**	Add crosswalks and ped signals. Consider curb extensions.	$5,000 - $25,000
Long	*20*	**MLK Jr Blvd & Lowes Dr**	Install curb ramps and pedestrian approaches to connect to retail centers. Add crosswalks and ped signals at intersection.	$11,000 (+ road diet)
Long	*21*	**Glenburnie & Yarmouth**	Add crosswalks and ped signals.	$4,000
Long	*22*	**MLK Jr Blvd & Trent Rd**	Add crosswalks and ped signals. Add school crossing signage.	$5,150
Long	*23*	**Trent Rd & Lowes Blvd**	Add crosswalks and overhead “Yield to Pedestrians” signage.	$400 - $2,700
Long	*NR*	**US 70 & Airport Rd**	Further study needed. Add crosswalks and ped signals. Extend median refuge into crosswalk.	$13,400 (+ median)
Long	*NR*	**US 70 & Thurman Rd**	Further study needed. Add crosswalks and ped signals. Extend median refuge into crosswalk.	$13,400 (+ median)

Figure 7-1. Street Art in Minneapolis, MN.
Public arts can contribute greatly to the pedestrian environment by offering visual appeal and a sense of place.

Beyond the construction of new sidewalks and greenways, there are a number of actions and improvements to the physical environment that can greatly improve pedestrian conditions at a fairly low cost. Sidewalk maintenance, for instance, can increase accessibility along existing walkways, especially for wheelchair users, as well as decrease liability for the City. Installing curb ramps at street corners greatly enhances accessibility for wheelchair users, visually-impaired residents and New Bern's growing senior community. The provision of landscaping, pedestrian scale lighting and street furniture can complement other pedestrian amenities and offer visual and practical respite for pedestrians. Benches, in particular, are a welcome addition to any well-trafficked pedestrian corridor and provide "rest stops" for walkers and runners. Finally, the improvement of local intersections with crosswalk and pedestrian signal installations can drastically help improve safety on many walking routes, and crosswalks can be maintained annually to correct fading. Below are some additional ideas for "non-construction" projects:

- Create a regular maintenance schedule for existing sidewalks and crosswalks.
- Consider the use of in-street and overhead "Yield to Pedestrians" signage at problem intersections (such as the mid-block Middle Street intersection), as well as countdown pedestrian signals at all new and existing signalized intersections.
- Work with the NCDOT Rail Division and Norfolk & Southern Railway Company to improve the conditions of pedestrian crossings of the railroad, especially those identified in this Plan, making smoother transitions over the railroad tracks and providing aesthetic enhancements.
- Connect existing parks and cultural landmarks with gateway treatments with wayfinding signage and/or pavement markings to provide better pedestrian access and recognition.
- Provide pedestrian-scale lighting, street trees and landscaping, alleyway improvements and other enhancements to the four

identified pedestrian focus areas and other areas as budgets allow.

- Formalize a citywide 35mph speed limit (unless otherwise signed) and post related regulatory signs at major gateway entrances into the City.
- Build upon the work of New Bern's artist community the Craven County Arts Council by developing a public arts fund, whereby 1% of all City construction program funds derived from bond revenue are dedicated to public arts projects. These projects could be spread into the pedestrian focus areas and other locations outside of downtown to create aesthetic appeal through murals, sculpture, and functional art (benches, bike racks, manhole covers, etc) for pedestrians throughout the City.

7.4 Partnership Opportunities

Many of the education, encouragement and enforcement programs will be carried out by partnerships between City departments, local nonprofit and civic organizations, business owners, developers and others. Creating strong partners in the citywide effort to improve pedestrian safety and increase walkability will help spread the word and awareness of the importance of walking in the community, as well as lead to programs that can withstand the test of time. Potential partners for implementation of the New Bern Pedestrian Plan include:

- 300th Anniversary Connectivity Committee
- City of New Bern Police Department
- City of New Bern Parks and Recreation Commission
- City of New Bern Parks & Recreation Department
- City of New Bern's Outdoor Adventure Club
- Craven Arts Council & Gallery, Inc.
- Craven County Convention and Visitors Bureau
- Craven County Health Department
- Craven County School System

Figure 7-2. Citywide Speed Limit Signage. Now approved in the MUTCD, this signage can be a useful reminder to motorists that city speed limits are in place and enforced.

- Craven County Sheriff's Department
- Craven Regional Medical Center (Hospital)
- Eastern Carolina Council Area Agency on Aging
- "Hooked on Walking" Club
- Local Kiwanis, Lions and Rotary Clubs
- Local Neighborhoods Associations
- Local Parent Teacher Associations (PTAs)
- New Bern Chamber of Commerce
- New Bern Historical Society
- SAFEKids Coalition
- Swiss Bear Downtown Development Corporation

7.5 Program Evaluation

Evaluation is a useful tool for measuring local progress after the adoption of a Plan. Following up on program activities to verify successes and make changes as needed, and tracking key indicators such as crash statistics, can help provide a focus for future implementation and re-evaluate new needs. It is recommended that the City of New Bern consider working with a citizen committee, such as the Recreation Committee or a new Bicycle/Pedestrian/SRTS Committee to help implement the Plan, track successes, re-evaluate needs and help to conduct future Plan updates. Key indicators that City staff, citizens and committee members might track include:

- Number of students walking/biking to school
- Records of pedestrian crashes in New Bern
- Participation in programs, such as the Pace Car Program or Safe Routes for Seniors Program
- Database of sidewalk, greenway & intersection improvements
- Ratio of sidewalks to roadways within City limits
- Proportion of transportation funds spent on pedestrian projects

7.6 Funding

Pedestrian facilities are constructed – and therefore funded – through a number of avenues. Funding can be divided into four categories: local, state, federal, and private funding. The following paragraphs describe some of the more prominent sources in each category. New Bern should tap into all of these sources, and search for others as well, in order to take advantage of the funds available.

7.6.1 Local Funding

Currently, New Bern does not have an annual budget line item specifically for pedestrian improvements. In the future, New Bern may wish to consider creating a specific annual budget item to set aside funds for improving pedestrian facilities, especially "spot improvements" to the local sidewalk network. A specific budget item is the most direct way to ensure that funding for pedestrian facilities is available, but sometimes a city's budget may be too limited to finance this work. Pedestrian facilities can also be built through "incidental" projects, by ensuring that such features are constructed with any new projects or improvements, such as parks and recreation facilities, libraries, schools, and new roads. In addition, future private development should be reviewed for adequate pedestrian access and connections. As discussed in the policy recommendations of *Section 6: Programs and Policy Recommendations*, this may mean the City should require developers to install sidewalk with new construction. The City should also consider teaming with other organizations that may have their own projects in New Bern, such as the Eastern Carolina Council of Government (RPO) and the North Carolina Department of Transportation.

Municipalities also often plan for the funding of pedestrian facilities or improvements through development of Capital Improvement Programs (CIP). 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 below.

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

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

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

- **Tax Increment Financing.** Tax increment financing is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project, such as the construction of a greenway, is carried out, there is an increase in the value of surrounding real estate. Oftentimes, new investment in the area follows such a project. This increase sit value and investment creates more taxable property, which increases tax revenues. These increased revenues can be referred to as the "tax increment." Tax Increment Financing dedicates that increased revenue to finance debt issued to pay for the project. TIF is designed to channel funding toward improvements in distressed or underdeveloped areas where

development would not otherwise occur. TIF creates funding for public projects that may otherwise be unaffordable to localities. The large majority of states have enabling legislation for tax increment financing.

- **Installment Purchase Financing.** As an alternative to debt financing of capital improvements, communities can execute installment/ lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up-front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.
- **Taxes.** Many communities have raised money through self-imposed increases in taxes and bonds. For example, Pinellas County residents in Florida voted to adopt a one-cent sales tax increase, which provided an additional $5 million for the development of the overwhelmingly popular Pinellas Trail. Sales taxes have also been used in Allegheny County, Pennsylvania, and in Boulder, Colorado to fund open space projects. A gas tax is another method used by some municipalities to fund public improvements. A number of taxes provide direct or indirect funding for the operations of local governments. Some of them are:
  - *Sales Tax.* In North Carolina, the State has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of projects and activities. Any increase in the

sales tax, even if applying to a single county, must gain approval of the state legislature.

- *Property Tax.* Property taxes generally support a significant portion of a municipality's activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance greenway system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund greenways could limit the municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.
- *Excise Taxes.* Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for promotion of tourism, and the gas tax that generates revenues for transportation related activities.
- *Occupancy Tax.* The NC General Assembly may grant towns the authority to levy occupancy tax on hotel and motel rooms. The act granting the taxing authority limits the use of the proceeds, usually for tourism-promotion purposes.

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

  - *Stormwater Utility Fees.* Greenway sections may be purchased with stormwater fees, if the property in question is used to mitigate floodwater or filter pollutants. Stormwater charges are typically based on an estimate of the amount

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

- *Streetscape Utility Fees.* Streetscape Utility Fees could help support streetscape maintenance of the area between the curb and the property line through a flat monthly fee per residential dwelling unit. Discounts would be available for senior and disabled citizens. Non-residential customers would be charged a per foot fee based on the length of frontage on streetscape improvements. This amount could be capped for non-residential customers with extremely large amounts of street frontage. The revenues raised from Streetscape Utility fees would be limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.
- *Impact Fees.* Developers can be required to provide greenway impact fees through local enabling legislation. Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the

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

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

- **Payment In-Lieu Fees.** As an alternative to requiring developers to dedicate on-site sidewalk or 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 payment in-lieu 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 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).

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

the proposed apportionment and allocation methodology and will explore implementation strategies. The municipality can manage maintenance responsibilities either through its own staff or through private contractors.

7.6.2 State Transportation Funding

New Bern should also consider reaching out to state and national funding sources for assistance in constructing pedestrian facilities. State and national funding are a combined category because many of the state entities administer national funds.

The North Carolina Department of Transportation (NCDOT) is the single largest source of funding available to New Bern for pedestrian facilities, with the following potential funding sources:

- **State Transportation Improvement Program (STIP)** – This program is the overall funding source for study, design, and construction of major transportation projects, including pedestrian facilities, in the state. Frequently, projects funded by the STIP are also partly funded by other sources, including matching funds from local municipalities. Pedestrian facilities are eligible for funding from this program as independent projects separate from a roadway construction, widening, or some other sort of roadway work, but one of the most cost-effective and efficient ways to gain funding for pedestrian facility construction is to incorporate them as incidental to a larger project. Overall, most pedestrian accommodations within the state are made as incidental improvements.

In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT, or "Division") manages the Transportation Improvement Program (TIP) selection process for independent bicycle and pedestrian projects. Projects programmed into the TIP as "independent projects" are those which are not related to a scheduled

highway project. "Incidental projects" – those related to a scheduled highway project – are bicycle and pedestrian accommodations, such as sidewalks, included as incidental features of highway projects. In addition, pedestrian-safe railings are a standard feature of all highway construction. Most bicycle and pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of National Highway System funds and State Highway Trust Funds.

The Division has an annual budget of $6 million. Eighty percent of these funds are from STP-Enhancement funds[i], while the State Highway Trust Fund provides the remaining 20 percent of the funding. Each year, the DBPT regularly sets aside a total of $200,000 of TIP funding for NCDOT to fund projects such as training workshops, pedestrian safety and research projects, and other pedestrian needs statewide. Those interested in learning about training workshops, research and other opportunities should contact the DBPT for information.

A total of $5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use trails, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit: http://www.ncdot.org/transit/bicycle/funding/funding_TIP.html.

- **Transportation Enhancement Program** - The Enhancement Unit administers a portion of the enhancement funding set-aside through the Call for Projects process. In North Carolina the Enhancement Program is a federally funded cost reimbursement program with a focus upon improving the transportation experience in and through local North Carolina

communities either culturally, aesthetically or environmentally. The program seeks to encourage diverse modes of travel, increase benefits to communities and to encourage citizen involvement. This is accomplished through the following twelve qualifying activities:

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

Funds are allocated based on an equity formula approved by the Board of Transportation. The formula is applied at the county level and aggregated to the regional level. Available fund amount varies. In previous Calls, the funds available ranged from $10 million to $22 million. The Call process takes place on even numbered years or as specified by the Secretary of Transportation. The Next Call is anticipated to take place in 2009. For more information, visit: www.ncdot.org/financial/fiscal/Enhancement.

- **Spot Improvement Program** - The NCDOT Bicycle and Pedestrian Transportation Division budgets $500,000/year for "spot" safety improvements throughout the State. These improvements include items such as signing, grate replacement, bike rack installations, hazard remediation at skewed railroad crossings, and other small-scale improvements.

The Spot Improvement Program is used only for bicycle and pedestrian projects; however, it should not be viewed as a priority source for funding identified projects. It is typically used for small-scale and special-situation projects that are not of a significantly large enough scale to merit being a TIP project. Taking these requirements into consideration, proposals for projects should be submitted directly to the Bicycle & Pedestrian Transportation Division.

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

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

- **Powell Bill Funds** – Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Funding for this program is collected from fuel taxes. Amount of funds are

based on population and mileage of town-maintained streets. For more information, visit www.ncdot.org/financial/fiscal/ExtAuditBranch/Powell_Bill/powellbill.html.

- **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/.

- **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 Program** –The NCDOT Safe Routes to School Program is a federally funded program that was initiated by the passing of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, which establishes a national SRTS program to distribute funding and institutional support to implement SRTS programs in states and communities across the country. SRTS programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce

traffic, fuel consumption, and air pollution in the vicinity of schools. The Division of Bicycle and Pedestrian Transportation at NCDOT is charged with disseminating SRTS funding. The State of North Carolina has been allocated $15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, visit www.ncdot.org/programs/safeRoutes or contact the DBPT / NCDOT at (919) 807-0774.

- **Community Development Block Grants (CDBG)** – CDBG funding is intended to help communities provide housing, create suitable living environments, and expand economic opportunities primarily in low- and medium-income areas. New Bern could use these grant funds for recreation facilities and planning. It should be noted that CDBG Funds are highly competitive and the requirements are extensive. For more information, please see: www.hud.gov/offices/cpd/communitydevelopment/programs.

7.6.3 Other State Funding Sources

Several other North Carolina-sponsored opportunities for acquiring planning, design, and / or construction monies are available through state-level institutions that are not associated with the Department of Transportation. These opportunities are described briefly below.

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

- **Land and Water Conservation Fund (LWCF).** The Land and Water Conservation Fund (LWCF) program is a reimbursable, 50/50 matching grants program to states for conservation and recreation purposes, and through the states to local governments to address "close to home" outdoor recreation needs. LWCF grants can be used by communities to build a trail within one park site, if the local government has fee-simple title to the park site. Grants for a maximum of $250,000 in LWCF assistance are awarded yearly to county governments, incorporated municipalities, public authorities and federally recognized Indian tribes. The local match may be provided with in-kind services or cash. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of $900 million each year. However, Congress generally appropriates only a small fraction of this amount. The allotted money for the year 2007 is $632,846. The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources. Since 1965, the LWCF program has built a permanent park legacy for present and future generations. In

North Carolina alone, the LWCF program has provided more than $63 million in matching grants to protect land and support more than 800 state and local park projects. More than 37,000 acres have been acquired with LWCF assistance to establish a park legacy in our state. For more information, visit: http://ils.unc.edu/parkproject/lwcf/home1.html.

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

- **Recreational Trails Program.** The Recreational Trails Program (RTP) is a grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan. Grant applicants must be able contribute 20% of the project cost with cash or in-kind contributions. The program is managed by the State Trails Program, which is a section of the N.C. Division of Parks and Recreation. The grant application is available and instruction handbook is available through the State Trails Program website at http://ils.unc.edu/parkproject/trails/home.html. Applications are due during the month of February. For more information, call (919) 715-8699.

- **North Carolina Parks and Recreation Trust Fund (PARTF).** The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year

are available to local governments to fund the acquisition, development and renovation of recreational areas. PARTF funds are allocated through the North Carolina Trails Program to help fund beach accesses, state trail systems, and local trail construction efforts. Applicable projects require a 50/50 match from the local government. Grants for a maximum of $500,000 are awarded yearly to county governments or incorporated municipalities. The fund is fueled by money from the state's portion of the real estate deed transfer tax for property sold in North Carolina. For this last, the City of Wilson would need to apply for the grant (although joint applications – for example, with the Wilson County Public School System – are permissible, one agency must serve as the lead sponsor), which is a one-to-one match on local funds. Only about 30% of the PARTF program goes to fund local trail programs, and the selection process is therefore highly competitive. Selection is based on numerous factors including geographic equity, population size, and scoring criteria that notably incorporate the following: presence of planning documents that support the project; public outreach that shows support; site suitability; size/impact of project; and commitment to operating and maintaining the project upon completion. As with most grant programs, the sponsor should be prepared to adhere closely to the rules governing the grant program, including the preparation of detailed expenditure reports and requests for reimbursement (www.ncparks.gov/About/grants/partf_main.php). For information on how to apply, visit: www.partf.net/learn.html.

- **Clean Water Management Trust Fund.** This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection. At the end of each fiscal year, 6.5 percent of the unreserved credit balance in North Carolina's General Fund, or a minimum of $30 million, is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address

water pollution problems. CWMTF funds may be used to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits. The fund has provided funding for land acquisition of numerous greenway projects featuring trails, both paved and unpaved. For a history of awarded grants in North Carolina and more information about this fund and applications, visit www.cwmtf.net/.

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

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

- **Urban and Community Forestry Assistance Program.** This program offers small grants that can be used to plant urban trees, establish a community arboretum, or other programs that promote tree canopy in urban areas. The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. To qualify for this program, a community must pledge to develop a street-tree inventory, a municipal tree ordinance, a tree commission, and an urban forestry-management plan. All of these can be funded through the program. For more information, contact the NC Division of Forest Resources. For more information and a grant application, contact the NC Division of Forest Resources and/or visit http://www.dfr.state.nc.us/urban/urban_grantprogram.htm.

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

- **Conservation Reserve Enhancement Program (CREP).** This program is a joint effort of the North Carolina Division of Soil and Water Conservation, the NC Clean Water Management Trust Fund, the Ecosystem Enhancement Program (EEP), and the Farm Service Agency - United States Department of Agriculture (USDA) to address water quality problems of the Neuse, Tar-Pamlico and Chowan river basins as well as the Jordan Lake watershed area. CREP is a voluntary program that seeks to protect land along watercourses that is currently in agricultural production. The objectives of the program include: installing 100,000 acres of forested riparian buffers, grassed filter strips and

wetlands; reducing the impacts of sediment and nutrients within the targeted area; and providing substantial ecological benefits for many wildlife species that are declining in part as a result of habitat loss. Program funding will combine the Federal Conservation Reserve Program (CRP) funding with State funding from the Clean Water Management Trust Fund, Agriculture Cost Share Program, and North Carolina Wetlands Restoration Program. The program is managed by the NC Division of Soil and Water Conservation. For more information, visit www.enr.state.nc.us/dswc/pages/crep.html.

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

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

- **The North Carolina Division of Forest Resources.** Urban and Community Forestry Grant can provide funding for a variety of

projects that will help toward planning and establishing street trees as well as trees for urban open space. For more information, refer to the following website: http://www.dfr.state.nc.us/urban/urban_ideas.htm.

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

- **North Carolina Health and Wellness Trust Fund.** The NC Health and Wellness Trust Fund was created by the General Assembly as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period. Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) established the Fit Community designation and grant program to recognize 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 physical activity, healthy eating and tobacco use prevention in communities, schools, and workplaces.

Designations are valid for two years, and designated communities may have the opportunity to reapply for subsequent two-year extensions. The benefits of being a Fit Community include heightened statewide attention that can help bolster local community development and/or economic investment initiatives (highway signage and a plaque for the Mayor's or County Commission Chair's office will be provided), as well as the use of the Fit Community designation logo for promotional and communication purposes.

The application for Fit Community designation is available on the Fit Together Web site: www.FitTogetherNC.org/FitCommunity.aspx. Fit Community grants are designed to support innovative strategies that help a community meet its goal to becoming a Fit Community. Eight to nine, two-year grants of up to $30,000 annually will be awarded to applicants that have a demonstrated need, proven capacity, and opportunity for positive change in addressing physical activity and/or healthy eating. For more information, visit: www.healthwellnc.com.

7.6.4 Federal Funding Sources

Federal transportation dollars are used for a number of the funding programs listed in Section 7.6.3, however other non-transportation programs are available through the federal government to fund pedestrian facilities, many of which are geared toward parks and recreation, natural resource conservation and environmental stewardship. These funding options are as follows:

- **Wetlands Reserve Program.** This federal funding source is a voluntary program offering technical and financial assistance to

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

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

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

- **Rivers, Trails and Conservation Assistance Program (RTCA).** The Rivers, Trails, and Conservation Assistance Program, also known as the Rivers and Trails Program or RTCA, is the community assistance arm of the National Park Service. RTCA staff provides

technical assistance to community groups and local, State, and federal government agencies so they can conserve rivers, preserve open space, and develop trails and greenways. The RTCA program implements the natural resource conservation and outdoor recreation mission of the National Park Service in communities across America. Although the program does not provide funding for projects, it does provide valuable on-the-ground technical assistance, from strategic consultation and partnership development to serving as liaison with other government agencies. Communities must apply for assistance. For more information, visit: www.nps.gov/ncrc/programs/rtca or call Chris Abbett, Program Leader, at 404-562-3175 ext. 522.

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

7.6.5 Private Funding and Partnerships

Another method of funding pedestrian systems and greenway trails is to partner with public agencies, private companies and/or not-for-profit organizations. Contrary to NCDOT and federal funding, most private funding sources offer limited grants. In addition, public-private 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" handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private

partners' monetary support following a successful master planning effort. Potential partners include major employers which are located along or accessible to pedestrian facilities such as multi-use paths or greenways. Name recognition for corporate partnerships could be accomplished through trailhead signage or interpretive signage along greenway systems. Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. It is important to have a lawyer review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

The following paragraph provides a description of some private funding sources that New Bern might consider.

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

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

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

  - *Land for Tomorrow Campaign.* Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the public and General Assembly for protecting land, water and historic places. The campaign is asking the North Carolina General Assembly to support issuance of a bond for $200 million a year for five years to preserve and protect its special land and water resources. Land for Tomorrow will enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. For more information, visit http://www.landfortomorrow.org/.

  - *The Trust for Public Land.* Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. 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. TPL's legal and real estate specialists work with landowners, government agencies, and community groups for the creation of urban parks and greenways, open space dedication, and land conservation. For more information, visit http://www.tpl.org/.

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

- *North Carolina Community Foundation.* The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for nonprofit organizations and institutions throughout the state. Based in Raleigh, North Carolina, the foundation also manages a number of community affiliates throughout North Carolina that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. In addition, the foundation manages various scholarship programs statewide. Web site: http://nccommunityfoundation.org.

- *National Trails Fund.* In 1998, the American Hiking Society created the National Trails Fund, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Each year, 73 million people enjoy foot trails, yet many of our favorite trails need major repairs due to a $200 million in badly

needed maintenance. National Trails Fund grants give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. For 2005, American Hiking distributed over $40,000 in grants thanks to the generous support of Cascade Designs and L.L. Bean, the program's Charter Sponsors. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project. The American Hiking Society will consider project types such as acquisition of trails and trail corridors, building and maintaining and constituency building around specific trail projects including volunteer recruitment and support. For more information on the National Trails fund, consult: www.americanhiking.org/alliance/fund.html.

7.6.6 Recognition Programs

Similar to funding sources, recognition programs can be administered through both public and private entities. Although recognition programs may not include funding, through highlighting recipient achievements, they provide free marketing to make a city more attractive to visitors, businesses, and future residents.

- **Robert Wood Johnson Foundation Active Living By Design Awards** - Active Living by Design is a national program of the Robert Wood Johnson Foundation and is administered by the UNC School of Public Health. The program establishes innovative approaches to increase physical activity through community design, public policies and communications strategies. Active Living by Design is funding 25 community partnerships across the country to demonstrate how changing

community design will impact physical activity. Although funding is currently not available for additional communities, the City of New Bern should continue to monitor Active Living by Design as a potential funding source should the City chose to make a commitment to healthy living. For more information, please see: http://www.activelivingbydesign.org/.

7.7 Conclusion

Using this plan as a guide, the City of New Bern should be able to create a better, safer network of sidewalks, greenway trails, paths, and crossings for pedestrians. The City's next steps should begin to immediately address the short-term priority program, policy, and project recommendations. At the same time, the City should also start to lay the groundwork for the longer term recommendations by developing relationships with potential partners such as the New Bern Chamber of Commerce, the Harnett County Health Department and the Betsy Johnson Hospital, and by starting to budget for future projects. Most importantly, the City should continue its efforts to raise awareness about the importance of making a community more walkable in order to continue to cultivate support for more pedestrian improvements and programs. Residents, visitors, and local leaders should be familiar with the economic, health, and environmental benefits of a community in which there is less dependence on automobiles and more reliance on foot travel as not only a form of recreation, but also as a form of transportation.

As a small city anticipating significant growth and development, New Bern is in an ideal situation to develop a more walkable community. The City should capitalize on its location and its attractions, such as the New Bern-Erwin Trail, to reinforce its existing pedestrian infrastructure with new projects and improvements. With careful planning, deliberate steps and persistence, New Bern can become a more pedestrian-friendly community.

Resources and Citations

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

Appendix A. Public Involvement Materials

The following materials were used for public outreach during the Pedestrian Plan process.

HISTORIC NEW BERN
NORTH CAROLINA, USA

City of New Bern Pedestrian Survey

Thank you for participating in the City of New Bern Pedestrian Survey! New Bern is currently preparing a Comprehensive Pedestrian Plan, and these survey results will be used by City Staff to help understand the needs of New Bern's residents. Your responses will also be used to identify important locations for new sidewalk or intersection improvements.

For more information about the Pedestrian Plan, contact Annette Stone at (252) 639-7583 or by email at stonea@newbern-nc.org, or contact Alison Carpenter at (919)866-4422 or via email at acarpenter@louisberger.com.

Please note that your participation in this survey is completely voluntary. Please feel free to leave blank any questions you feel uncomfortable answering. When you are finished, you may mail this survey to the address on the back, or deliver it to City Hall when you pay your utility bills. Thank you for your time!

General Information

ZIP Code: _____

Sex: M F

Age:

☐ Under 20 ☐ 40-49 ☐ 70-79

☐ 20-29 ☐ 50-59 ☐ 80 and over

☐ 30-39 ☐ 60-69

On a scale of 1 to 9, where 1 is never and 9 is very frequently, how often do you walk *to*:

Work	1 2 3 4 5 6 7 8 9
A school	1 2 3 4 5 6 7 8 9
Church	1 2 3 4 5 6 7 8 9
The grocery store	1 2 3 4 5 6 7 8 9
The library	1 2 3 4 5 6 7 8 9
A park or recreation center	1 2 3 4 5 6 7 8 9
A restaurant	1 2 3 4 5 6 7 8 9
Shopping	1 2 3 4 5 6 7 8 9
The post office	1 2 3 4 5 6 7 8 9
A movie or similar entertainment	1 2 3 4 5 6 7 8 9
A friend's house or to visit family	1 2 3 4 5 6 7 8 9
Other:_____	1 2 3 4 5 6 7 8 9

On a scale of 1 to 9, where 1 is never and 9 is multiple times, seven days a week, how often do you walk...

For exercise or recreation	1 2 3 4 5 6 7 8 9
To go somewhere (work, school, shopping, visiting, etc.)	1 2 3 4 5 6 7 8 9
To walk the dog	1 2 3 4 5 6 7 8 9
Other:_____	1 2 3 4 5 6 7 8 9

On a scale of 1 to 9, where 1 is very uncomfortable and 9 is very comfortable, how comfortable do you feel walking...

In your neighborhood?	1 2 3 4 5 6 7 8 9
In downtown New Bern?	1 2 3 4 5 6 7 8 9
In the area near your work?	1 2 3 4 5 6 7 8 9
On the riverfront?	1 2 3 4 5 6 7 8 9
Crossing the street at intersections?	1 2 3 4 5 6 7 8 9

On a scale of 1 to 9, where 1 is not at all and 9 is very much, how much would you *like* to walk to...

Work	1 2 3 4 5 6 7 8 9
School	1 2 3 4 5 6 7 8 9
Church	1 2 3 4 5 6 7 8 9
The grocery store	1 2 3 4 5 6 7 8 9
The library	1 2 3 4 5 6 7 8 9
A park or recreation center	1 2 3 4 5 6 7 8 9
Shopping	1 2 3 4 5 6 7 8 9
The post office	1 2 3 4 5 6 7 8 9
A movie or similar entertainment	1 2 3 4 5 6 7 8 9
A friend's house or to visit family	1 2 3 4 5 6 7 8 9
Other:_____	1 2 3 4 5 6 7 8 9

On a scale of 1 to 9, where 1 is never and 9 very likely, how likely are you to choose not to walk somewhere because...

There isn't continuous sidewalk to that destination.	1 2 3 4 5 6 7 8 9
Traffic makes it unsafe and unpleasant (speeding cars, cars don't yield when you need to cross the street, it is smelly and noisy, etc.).	1 2 3 4 5 6 7 8 9
It is too far.	1 2 3 4 5 6 7 8 9
I have a health condition.	1 2 3 4 5 6 7 8 9
The neighborhood is dangerous.	1 2 3 4 5 6 7 8 9
I have a lot to carry (ie: kids, equipment, groceries) and need my car to haul all of the stuff.	1 2 3 4 5 6 7 8 9
I have to run many errands in many different locations and it would take too long to walk.	1 2 3 4 5 6 7 8 9
The weather is bad (too hot, too cold, too wet, etc.)	1 2 3 4 5 6 7 8 9
I don't like walking.	1 2 3 4 5 6 7 8 9
Other: _____	1 2 3 4 5 6 7 8 9

Given that funds are limited, would you prefer that New Bern invest in sidewalks along existing roads or greenways along natural areas (i.e. the riverfront)?

- ☐ Sidewalks along existing roads
- ☐ Greenways along natural areas

Please tell us the roads where you would like to see sidewalks:

Road Name	Starting Point	Ending Point
(example) Academy St.	Covent Garden Rd.	Church St.

Please tell us the roads or greenways where there is sidewalk that needs repair or is obstructed:

Road Name, Start, End	
(example) Church St. between Dobbs and Market St.	Cracked pavement from tree roots. Dangerous for wheelchairs & strollers.

Please tell us about any intersections where you would like to see improvements for pedestrians. *Improvements could include adding a crosswalk, new pedestrian signals, pedestrian warning signs, curb ramps, or audible pedestrian signals.*

Intersecting Roads	Problem	Improvement
(example) Church St. and Market St.	Have to wait a long time to cross the street.	Please provide a pedestrian signal.

Please provide us with any additional comments you may have:

Additional Optional Information:

Name: _____

Address: _____

_____

For more information about the Pedestrian Plan, please attend the upcoming Open House #1: *Issues & Vision*, September 18, 2008 @ New Bern Farmers' Market

Thank you for taking the City of New Bern Pedestrian Survey! You can return this survey to City Hall when you pay your utility bill, or mail it to the following address:

New Bern Pedestrian Plan Survey
C/O Alison Carpenter
The Louis Berger Group, Inc.
1001 Wade Ave, Ste 400
Raleigh, NC 27605
acarpenter@louisberger.com

City of New Bern Pedestrian Plan Open House

What: The City of New Bern is working on a Pedestrian Plan and needs your input! The Plan is a guide to help New Bern become a more walkable community. **Please drop-in to the September 18th Open House any time between 4:00 - 6:30pm to fill out the Pedestrian Plan Survey and speak with consultants and City representatives about the project.**

Where:
New Bern Farmer's Market
Downtown on South Front Street

When: **Thursday, September 18**
Drop in from 4:00 - 6:30pm

Why: **To make sure your voice is heard!**

For more information, visit:
http://newbernwalking.pbwiki.com

Contact: Annette Stone
252-639-7583
stonea@newbern-nc.org

Thank you for your time and participation!

City of New Bern Pedestrian Plan Open House

What: The City of New Bern is working on a Pedestrian Plan and needs your input! The Plan is a guide to help New Bern become a more walkable community. **Please drop-in to the September 18th Open House any time between 4:00 - 6:30pm to fill out the Pedestrian Plan Survey and speak with consultants and City representatives about the project.**

Where:
New Bern Farmer's Market
Downtown on South Front Street

When: **Thursday, September 18**
Drop in from 4:00 - 6:30pm

Why: **To make sure your voice is heard!**

For more information, visit:
http://newbernwalking.pbwiki.com

Contact: Annette Stone
252-639-7583
stonea@newbern-nc.org

Thank you for your time and participation!

Why a Pedestrian Plan?

The City of New Bern, like many communities across the state, recognizes the importance of a bicycle- and pedestrian-friendly community in attracting residents, visitors and businesses. Beyond better and safer pedestrian access to destinations, a more walkable community can have economic, environmental, and health benefits for all residents.

Preliminary Project Recommendations

- Identify key, short-run sidewalk/greenway linkages to target for "spot improvement" construction.
- Prioritize longer, more significant sidewalk projects for major thoroughfares, such as Neuse Blvd, and incorporate these priorities into other plans (e.g. Thoroughfare Plan).
- Create an annual budget in the Capital Improvement Program for sidewalk construction.
- Improve the maintenance level for any existing sidewalks that have deteriorated due to lack of care.
- Improve the conditions of pedestrian crossings along the rail line.
- Ensure sidewalk facilities are included on all future construction and renovation projects for major and minor bridges in New Bern.
- Identify intersections for pedestrian safety improvements, such as countdown pedestrian signals and marked crosswalks at a minimum.
- Create walking trails in and between New Bern's public parks, neighborhoods and schools to help serve residents' recreational and transportation needs.
- Formalize design specifications and requirements for driveways and curb ramps to ensure better accommodation of disabled pedestrians. Include pervious pavement design standard for sidewalks and greenways, to allow for low-impact pedestrian facilities.
- Consider improvements for pedestrian focus areas in New Bern, such as at/around the Five Points, the Twin Rivers Mall area, Craven Regional Medical Center and the Glenburnie/Health Dept area.
- Provide pedestrian-scale lighting, street trees and landscaping, alleyway improvements and other enhancements during the upcoming streetscaping project on Broad Street.
- Create school zone standards for marked school zones around local schools, identified by flashing "school zone" signs and accompanying speed limit signage, "SCHOOL" pavement markings and high

What is in the Pedestrian Plan?

The Pedestrian Plan will contain recommendations for projects, programs, and policies which will help make New Bern a more pedestrian-friendly community. Some preliminary project ideas have been recommended by the Steering Committee and are shown on the map (see back). The Plan will need your input and that of your neighbors to make additional recommendations that serve everyone.

When will the Plan be finished?

The Pedestrian Plan is estimated to be complete by June 2009. Public participation is critical to a successful Pedestrian Plan; therefore, the City will provide several opportunities for citizen comment during the process, including a series of public meetings and an online survey.

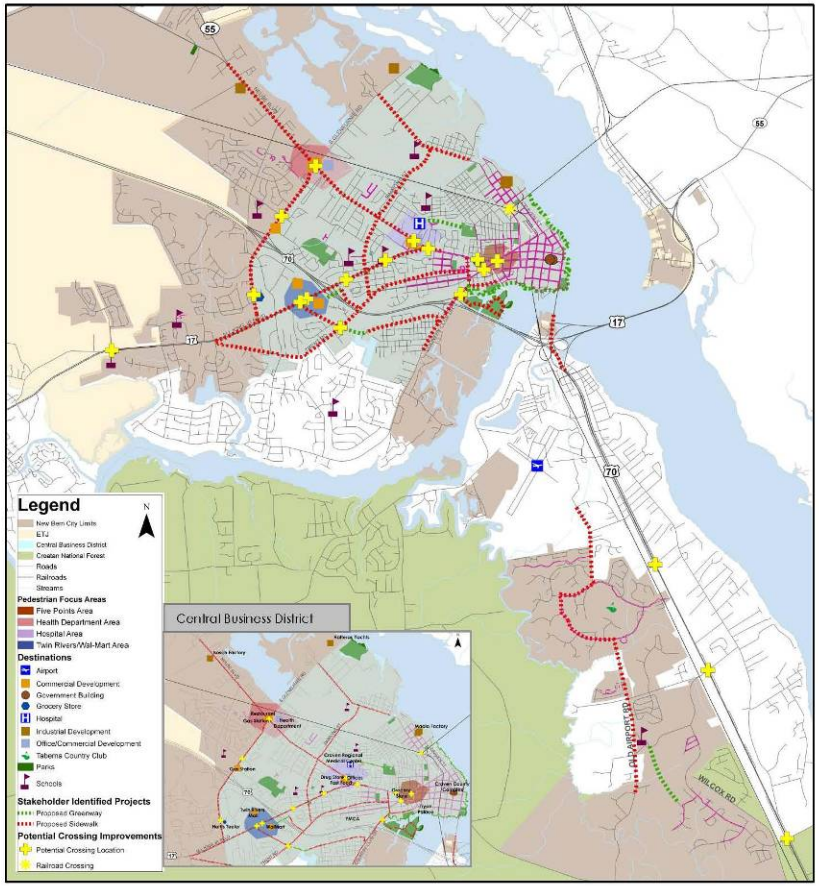
How do I provide input?

There are several avenues – a survey is available in both paper copy and online. Paper copies can be picked up at the Open House or at New Bern City Hall. The online version can be accessed by visiting the City webpage: www.newbern-nc.org.

For More Information:
http://newbernwalking.pbwiki.com

Contact:
Annette Stone
New Bern Planning Department
(252) 639-7583
stonea@newbern-nc.org

Preliminary Project Recommendations Identified by Steering Committee



Thank you for your time and participation!

City of New Bern Pedestrian Plan Open House #2

What: The City of New Bern has developed a draft Pedestrian Plan and needs your input on recommended sidewalk, greenway and intersection improvements. The draft Plan will be available for review at the City's upcoming Open House. Please drop-in on April 14th any time between 6:00 - 8:00 pm to speak with consultants and City representatives about the project.

Where:
West New Bern Recreation Center
Seth West Parrott Park
1225 Pine Tree Drive

When: **Tuesday, April 14th**
Drop in from 6:00 - 8:00pm

Why: **To make sure your voice is heard!**

For more information, visit:
http://newbernwalking.pbwiki.com

Contact: Annette Stone
252-639-7583
stonea@newbern-nc.org

Thank you for your time and participation!

City of New Bern Pedestrian Plan Open House #2

What: The City of New Bern has developed a draft Pedestrian Plan and needs your input on recommended sidewalk, greenway and intersection improvements. The draft Plan will be available for review at the City's upcoming Open House. Please drop-in on April 14th any time between 6:00 - 8:00 pm to speak with consultants and City representatives about the project.

Where:
West New Bern Recreation Center
Seth West Parrott Park
1225 Pine Tree Drive

When: **Tuesday, April 14th**
Drop in from 6:00 - 8:00pm

Why: **To make sure your voice is heard!**

For more information, visit:
http://newbernwalking.pbwiki.com

Contact: Annette Stone
252-639-7583
stonea@newbern-nc.org

Thank you for your time and participation!

OPEN HOUSE

The City of New Bern has developed a draft Pedestrian Plan and needs your input on recommended sidewalks, greenway trails and other improvements. The draft Plan will be available for review at the City's upcoming Open House. Please drop-in on April 14th any time between 6:00 - 8:00 pm to speak with consultants and New Bern City staff about the project.

For more information, visit **http://newbernwalking.pbwiki.com** or call 910-230-3503.

Where:
West New Bern Rec Center
Seth West Parrott Park
1225 Pine Tree Drive

When:
Tuesday, April 14th
Drop in between 6:00 – 8:00pm
(Presentations will be made at 6:30 and 7:30pm)

Why: **To view the draft Pedestrian Plan and make sure your voice is heard!**

Appendix B. Survey Results

The survey for the New Bern Comprehensive Pedestrian Plan was used as a tool for collecting input on pedestrian needs throughout the City. Results of the survey were used to create project recommendations, and also influenced program and policy ideas. The results are tabulated below.

Gender:	**Response percent**	**Response total**
Male	**43.7%**	**87**
Female	**56.3%**	**112**

Total # of respondents **200**. Statistics based on **199** respondents **0** filtered; **1** skipped.

Age:	**Response percent**	**Response total**
Under 20	**0%**	**0**
20 - 29	**6.1%**	**12**
30 - 39	**13.6%**	**27**
40 - 49	**16.7%**	**33**
50 - 59	**25.8%**	**51**
60 - 69	**30.3%**	**60**
70 - 79	**7.1%**	**14**
80 and over	**0.5%**	**1**

Total # of respondents **200**. Statistics based on **198** respondents

Total # of respondents **200**. Statistics based on **198** respondents

How often do you walk to:

View	Never	Rarely	Sometimes	Often	Very Frequently	Response total
work	80.6% (145)	5% (9)	5.6% (10)	2.8% (5)	6.1% (11)	180
a school	89.1% (156)	7.4% (13)	2.3% (4)	1.1% (2)	0% (0)	175
church	72.9% (132)	8.3% (15)	7.2% (13)	8.8% (16)	2.8% (5)	181
the grocery store	62.3% (114)	13.1% (24)	17.5% (32)	5.5% (10)	1.6% (3)	183
the library	62.8% (118)	5.3% (10)	15.4% (29)	7.4% (14)	9% (17)	188
a park or recreation center	38.6% (73)	5.8% (11)	24.3% (46)	18% (34)	13.2% (25)	189
a restaurant	48.4% (92)	10% (19)	16.8% (32)	14.2% (27)	10.5% (20)	190
shopping	48.4% (92)	10% (19)	18.4% (35)	16.3% (31)	6.8% (13)	190
the post office	61.6% (114)	5.4% (10)	12.4% (23)	11.4% (21)	9.2% (17)	185
a movie or similar entertainment	74.6% (135)	6.6% (12)	9.9% (18)	6.1% (11)	2.8% (5)	181
a friend's house or to visit family	24.6% (47)	3.7% (7)	27.7% (53)	25.7% (49)	18.3% (35)	191

Total # of respondents **200**. Statistics based on **198** respondents **2** skipped.

On a scale of 1 to 9, where 1 is never and 9 is seven days a week, how often do you walk ...

View	1 Never	2	3	4	5 (Neutral)	6	7	8	9 (Very Frequently)	Response total
For exercise or recreation	2.1% (4)	4.1% (8)	7.7% (15)	2.6% (5)	12.8% (25)	11.8% (23)	18.5% (36)	12.8% (25)	27.7% (54)	195
For transportation (to go to work, school, shopping, visiting, etc.)	37.6% (73)	15.5% (30)	5.2% (10)	6.2% (12)	5.7% (11)	9.3% (18)	7.7% (15)	5.2% (10)	7.7% (15)	194
To walk the dog	47.3% (86)	3.3% (6)	3.3% (6)	1.1% (2)	7.1% (13)	3.8% (7)	7.7% (14)	6% (11)	20.3% (37)	182
Along the riverfront walk	9.3% (17)	12.1% (22)	6% (11)	12.1% (22)	11.5% (21)	13.7% (25)	13.2% (24)	7.1% (13)	14.8% (27)	182

Total # of respondents **200**. Statistics based on **197** respondents **0** filtered; **3** skipped.

On a scale of 1 to 9, where 1 is very uncomfortable and 9 is very comfortable, how comfortable do you feel walking...

View	1 (very uncomfortable)	2	3	4	5 (neutral)	6	7	8	9 (very comfortable)	Response total
in your neighborhood?	6.6% (13)	1% (2)	2.5% (5)	1.5% (3)	5.6% (11)	5.1% (10)	7.1% (14)	8.6% (17)	61.9% (122)	197
in downtown New Bern?	3.5% (7)	1% (2)	2% (4)	2% (4)	6.5% (13)	8% (16)	11.1% (22)	17.1% (34)	48.7% (97)	199
in the area near your work?	10.9% (19)	4% (7)	1.1% (2)	5.7% (10)	29.3% (51)	6.3% (11)	8% (14)	9.8% (17)	24.7% (43)	174
across the street (at intersections) in New Bern?	16% (31)	5.2% (10)	9.8% (19)	4.6% (9)	11.3% (22)	10.3% (20)	9.8% (19)	13.4% (26)	19.6% (38)	194
along the riverfront or at a local park?	4.5% (9)	2% (4)	0.5% (1)	2.5% (5)	5.6% (11)	10.6% (21)	10.6% (21)	18.7% (37)	44.9% (89)	198

Total # of respondents **200**. Statistics based on **199** respondents

Which locations would you like to walk to more if conditions were different.	Response percent	Response total
work	31.1%	52
school	16.2%	27
church	27.5%	46
grocery store	52.7%	88
library	35.9%	60
a park or recreation center	63.5%	106
shopping	49.7%	83
post office	41.3%	69
movie or similar entertainment	41.9%	70
friend's house or family	41.9%	70
other	22.8%	38

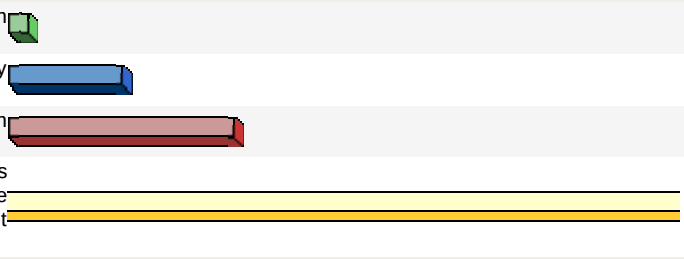
Total # of respondents **200**. Statistics based on **167** respondents

How likely are you to choose NOT to walk somewhere because...

View	Highly Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Highly Likely	Response total
there isn't continuous sidewalk to that destination	13.4% (25)	9.1% (17)	10.7% (20)	24.1% (45)	42.8% (80)	187
traffic makes it unsafe and unpleasant (speeding cars, cars don't yield when you need to cross the street, it is smelly and noisy, etc.)	10.3% (19)	10.3% (19)	8.1% (15)	16.8% (31)	54.6% (101)	185
it is too far	16.2% (27)	9% (15)	20.4% (34)	16.2% (27)	38.3% (64)	167
I have a health condition	61.8% (105)	7.1% (12)	17.6% (30)	5.3% (9)	8.2% (14)	170
the neighborhood is dangerous	19.3% (35)	11.6% (21)	14.9% (27)	17.7% (32)	36.5% (66)	181
I have a lot to carry and need my car to haul all of my stuff	11.6% (21)	14.4% (26)	20.4% (37)	22.7% (41)	30.9% (56)	181
I have to run many errands in many different locations and it would take too long to walk	8.9% (16)	16.1% (29)	15% (27)	27.2% (49)	32.8% (59)	180
the weather is bad	9.5% (17)	12.3% (22)	25.7% (46)	27.9% (50)	24.6% (44)	179
I don't like walking	70% (119)	11.2% (19)	13.5% (23)	0.6% (1)	4.7% (8)	170
I don't know the best walking route	44.5% (73)	13.4% (22)	28% (46)	9.1% (15)	4.9% (8)	164

Total # of respondents **200**. Statistics based on **195** respondents **0** filtered; **5** skipped.

Given that funds are limited, would you prefer that New Bern invest in sidewalks along existing roads, intersection improvements or greenways along natural areas (i.e. the shoreline)?	**Response percent**	**Response total**
Sidewalks on major roads	**38.5%**	**74**
Sidewalks in my neighborhood	**6.2%**	**12**
Intersection Improvements	**13%**	**25**
Greenways (especially the riverfront walkway)	**42.2%**	**81**



Total # of respondents **200**. Statistics based on **192** respondents

Please tell us the roads you would like to see sidewalks on:

Neuse Blvd, Glenbernie, Simmons, McCarthy
How about bike paths
MLK, Glenburnie
Neuse Blvd Glenburnie Martin Luther King Henderson Ave Trent Road
Neuse Blvd, Glenburnie, MLK
Neuse
Old Airport Road to Creekside Park; Neuse blvd
I think it would be most appropriate on Neuse Blvd from JCT 43 to continue onto MLK toward downtown. There are none on Neuse -- no matter the speed limit, the traffic is always fast and heavy -- and MLK doesn't have one to run the entire lenght.
S Front to the new museum, improved rail crossing
Neuse Blvd MLK Blvd
sidewalks along route 43 and racetrack would be good. elizabeth ave by the middle school would benefit from sidewalks as well. there is a way to get to bosch blvd. from derby park but you have to walk across the tracks and through the woods. i like walking through there, but it'd be even better if there was a connecting walkway or roadway between derby park and bosch blvd. i like all the sidwalks that are downtown in new bern.
Trent Road, Neuse Blvd
ML King Blvd
Neuse
Countryclub Road, Pembroke Avenue
All
Neuse Blvd. - not because I would walk there that much, but because I drive there and many people do walk there.
Neuse Blvd from Racetrack to MLK Broad from MLK to downtown Simmons from Neuse to Trent Pollock/Trent from downtown to MLK

NONE, cost to much
Neuse Blvd anf ML King
M L King Jr Blvd Neuse Blvd S Glenburnie Rd
Too many to be specific --- any improvements would be great. Along Trent Rd.
All
Greater Duffyfield area Woodrow area Neuse Blvd. near the hospital
Hwy 17, oaks road
Martin Luther King Blvd
I live in River Bend.
Pollock St/Trent Road downtown to Hotel Dr to back entrance of Walmart, with pedestrian connector accross 17 to Newman road behind mall to Mccarthy which ends at community college connector from Trent to 2nd to Lawson Park connector from Hotel Dr to Berne Square connectors between all chain stores in US 17 buisness district including mall/walmart/lowes/target, etc.
I walk every day from work going from Broad Street down First Street to Pollock and there is no sidewalk to even walk on. There is also no sidewalks on Chattawka Lane from Neuse Blvd to Trent Road.
The main throughfares leading in and out of New Bern (i.e. Nuese Blvd.)
The main throughfares leading in and out of New Bern (i.e. Nuese Blvd.)
On 1st st between Broad St & Trent Rd
OVERHEAD BETWEEN MALL AND WAL-MART OVERHEAD IN FRONT OF HOSPITAL TO DRUGSTORES AND EATING AREAS OVERHEAD BETWEEN BERN SQUARE AND THE EATING AND HOTELS ACROSS THE STREET
Neuse Blvd
No Comment
Neuse Blvd. Glenburnie Road MLK Blvd.
Neuse, Glen Burnie, Trent, MLK, Simmons
Glenburnie and McCarthy
17
Glenburnie Road and Neuse Blvd
I'd like to be able to walk or bike anywhere in the town. But this is impossible or you take your life in your hands trying to bike or walk anywhere in this town.
Along the Trent River proximal to Lawson Creek Trail / Park and beyond to the SW. I would also like to see a walk north along the Neuse all the way to Glenburnie Park.
Glenburnie
Along the shoreline - from the Bluffs to Lawson Creek
Trent Road
All major thouroghfares
Neuse Blvd.
neuse blvd glenburnie rd simmons street
MLK, Blvd - along with traffic lights that allow walkers to cross! Trent Road Simmons and/or Oaks Rd.
Improvement in Historic District sidewalks and proposed River Walk
Glenburnie Rd., Trent Rd. River Bend
Brices Creek Rd.
first, I would like to see repairs done to existing sidewalks that are in disrepair and dangerous given they are broken and a hazard. 2nd, I would like to see a sidewalk that connects Pollock St extended to Ghent.

Glenburnie Road, wherever possible
the enterance coridores
All major roads in the shopping areas outside of downtown. ex. Glenburnie, Martin Luther King, Neuse Blvd. , Trent Road, etc.
MLK & NEUSE BLVD
All of Trent Road to Tryon Palace and downtown, would be great place for a designated BIKE ROUTE!
neuse and glenburnie
Bike path along outer boundries of Hwy 70 Bypass would be nice. Rail Crossing in downtown New Bern is terrible. Who ever is in charge should be fired. The road is also terrible - Main Street by old phone company.
Pollock to Rt 17, roads leading to Lawson Creek Park, MLK from the split to Harris Teeter
Frankly, any road built should have a sidewalk
none
All major roads, Trent, Glenburnie, MLK etc.
any where
On one side of Trent Road/Pollock St, Neuse Blvd, MLK/Broad, Pine Tree, Glenburnie I fear for the safety especially of our growing refugee population who must walk
Yarmouth
Glenburnie Road Martin Luther King Blvd.
Simmons between Oaks Road and Neuse Blvd at least Neuse Blvd between Health Dept and Simmons
Trent Rd Trent Blvd Lowes Blvd
Front Street Broad St. George St.
All Downtown Historic Area
Trent - Pollock sidewalks all the way to the river front (there are sections with very no sidewalks/no sidewalks.) Broad's sidewalks, of course, need improvement.
Trent Road, MLK, Glenburnie, Neuse Blvd
neuse blvd, south glenburnie rd, colony dr, brunswick ave
I'd like to see some running and riding easements along roadways. I think we need to take a look at the city to see where we can initiate major trails and then build off of them.
GLENBURNIE ATTMORE TUSCAN
Neuse, simmons, MJK, Trent,
First Street from (Broad to Trent Road) also Chattawka from (Neuse to Trent Road) no side walks on either of these two.
Glenburnie Broad Street Front Street Craven National Ave.
MLK blvd/us17, Trent rd
Neuse Blvd. Oaks Rd. MLK Blvd.
"All" of Park Avenue "All" of Spencer Avenue From Park Avenue to Rhem Street gas Station
country club/first st trent blvd neuse blvd
Williams Road & Howell Road (top priorities) Madame Moores Lane, Kelso Road, NC-1167 (wish list)
N. Craven St. from Queen St. through Riverside Queen St. from 5 points to E. Front S. (both sides) Throughout 5 Points and Dryborough areas
Queen Street between Craven and East Front, Martin Luther King Rd, Trent Road
Queen Street
Rhem Street

MLK Blvd
I am not sure it is sidewalks that are needed, but there is bicycle traffic on Trent Rd that would benefit from a wide shoulder or designated bike lane. Sidewalks on Old Cherry Point Rd in the vicinity of Brinson Elementary would really improve the safety of the walking kids, and maybe eliminate the need for kids to be bused directly to their own front doors, less than 3 houses away from the school.
East Front going to Riverside along the river
Queen St. near Salvation Army
Trent Road going west from downtown,George ST. and N Craven St. leading from downtown into Riverside.
Glenburnie Rd. MLK Ave. Trent Road all major streets in town.
Queen and Howard Street
HANCOCK STREET REPAVED WITH SIDEWALKS
Trent Road,
Trent Road
Trent Road, Martin Luther King Jr Blvd,
OAKS ROAD, GLENBURNIE, HWY17
Trent Road, MLK Jr. Blvd, Neuse Blvd, Oaks Rd, Glenburnie Rd
R I V E R F R O N T WIDENED 10 TO 20 FT
TRYON ROAD
Chelsea and Country Club Rd
Trent road area MLK from downtown to Glenburnie Glenburnie road area Neuse blvd to downtown
All of them downtown and in the city of New Bern
Major Streets
main goal should be to link existing greenway and river walks with as many connecting roads as possible; the most important point I would make is that designing pedestrian access needs to be done in conjunciton with BIKE ACESS!
Simmons St. (Neuse to Trent Rd)
Trent Road Actually sidewalks in neighborhoods and bike paths on roads like Trent and on greenways.
Simmons Street, Trent Road, and some other busy streets.
Trent Rd: First St to Hwy 17 Country Club Rd: entire length First St: Broad to bridge
Trent Road - entire length
MLK Blvd Neuse Blvd
Trent Rd: New Bern to US 17 Country Club Rd: New Bern
Oaks Rd at Jack Smith Creek (the most dangerous, narrow, speeding area)
Link between Books-a-Million and Hampton Inn
Old Airport Rd: Airport Rd to Thurman Rd Grantham Rd: Rt 70 to Old Airport Rd
Old Airport Rd: Airport to Taberna Old Airport Rd: Creekside Park to Taberna
Pollock/Trent: Downtown to MLK/Hwy 17
Trent Road to Glenburnie
MLK Jr Blvd: Neuse to Glenburnie Hotel Dr: Trent Rd to MLK Jr Blvd
Woodland Ave., Pinetree Dr.
Neuse MLK BLVD Glenburnie 1st street near 70 crossing

Please tell us the roads or greenways where there is sidewalk that needs repair or is obstructed:

The neighborhoods around downtown need to be improved, along with the railroad crossings downtown. The poor conditions of the RR crossings and the lack of curb ramps make walking with small children in strollers or handicapped persons difficult.
?
Unsure
dont know
Do not know of sidewalks other then downtown
Neuse Blvd could also use some road improvements and I think a few more traffic lights could be put out. Especially now that MCAS Cherry Point's Hpt is farming out the active duty personnel to the surrounding hospitals. There's more traffic than ever there.
N/A
n/a
the only greenway that i know of in new bern with a sidewalk is at the park by the sheraton. the walkway is not that long though and doesn't consist of enough distance to provide a decent workout. plus at the moment, with the bridge construction, part of it is blocked off.
Lots of places in the downtown historic district (too many to list)...the worst is probably the stretch of New Street between George and Bern Sts.
400 block East Front ST.
Too many to mention
Trent from Ft. Totten to Queen Anne
All over New Bern
Broad St. and National Ave
natural ave
lawson creek park, union point park under the flag pole
Pollock St.
Pollock street west of Tryon Palace - many places, sidewalk swithces from one side of road to other
FOR ME MOST OF THE PROBLEM AREAS ARE THE AREAS OF THE LARGER HIGHWAYS WHERE YOU NOW ALMOST HAVE TO DRIVE AND WOULD REQUIRE OVERHEAD WALKWAYS TO SETTLE , BUT WOULD STOP A LOT OF TRAFFIC THAT IS THERE JUST TO CROSS THE STREET
All around New Bern
No Comment
If it's not downtown, it's in pretty bad shape.
not sure
Anywhere there might be a trip hazard due to tree roots, etc.
I wouldn't know because it is impossible to walk anywhere in this town without risking life and limb.
NA
along the Neuse and the Trent
The area between the Farmer's Market and the Tryon Palace parking lot - perhaps better lighting.
River walk near palace
Most older neighborhoods

spencer ave (ghent area)
As you head up river from the Comfort Suites it is hard to stay near the water. There is a road that runs down to the River and ends; it is pretty trashy in the river there. Also the Park further north, dedicated to the policeman (next to the business that has large trucks/cranes and old equipment stored there)... park is nice, very peaceful... but the river is full of junk. Would be glad to help as a volunteer to clean that up. Would not be a big job.
Can't get under the bridge due to construction; can't get past the RR tracks going towards Tryon Palace.
Many, but am not sure of location, mostly downtown
too many to site!!!!
Front Street at the former Barbour Boat Works. Pollock between Fleet St and First Street
the enterance coridores
How about some biking and walking paths around town. All the riverfront should be available for the public. Do we have police officers on bikes to patrol our parks and waling areas. Some parks are deserted and feel very unsafe.
I just like to walk so any greenways, or safer and better walkways would be appreciated. If true, it would be great to walk from historic New Bern to Lawson Creek.
Trent Rd., Oaks Road and National Ave and all of MLK Blvd
Road and Rail Crossing on Broad Street by old phone company is terrible.
I can't think of any that are so bad.
There are no sidewalks
none
Pollock. What greenways???
Would like to see walking and bike paths throughout downtown.
Definitely Broad, then Trent-Pollock.
Riverfront walk by Skysail is still asphalt and lights still need repair. Broken sidewalks by Sheraton
National Ave.
Spencer Ave Park Ave Rhem Ave
first st
The intersection by the police station is very dangerous.
Sidewalks are in disrepair throughout the historic districts (compare to downtown sidewalks!) and we have so many tourists use them. Not only is it a liability, it detracts from having tourists walk!
all of Broad Street; especially needs better handicap access at intersections and onto sidewalks
Queen Street
East Front Street, trip hazards
Walk ways on Metcalf and south front st. Need repair.
Walkway adjacent to the Skysail development
The sidewalks in the residential area of downtown New Bern are in such bad shape that people are walking in the street.
Sidewalks in the historic district need replacing... especially East Front Street
King St and Craven St near jail
The entire historic residential area downtown.
I've only seen sidewalks downtown or in Riverside or Ghent
Queen Street between Hancock and Metcalf
East Front Street, Queen to Johnson

many side streets downtown - like Hancock and Metcalf
Broad Street
South Front by the waterfront - you can fall in a hole if you don't focus only on walking
East Front Street
River walk near the Sheraton and Sky Sail Condo
Walk in front of skysail & 2 sheratons TOO NARROW one couple cannot pass another going in opposite direction.Need 10 to 20 ft wide walks like that in front of CONVENTION CENTER.And 10 ft along Hancock from river to S Front.Will bring people downtown at no further cost .
Expand riverfront greenway to Lawson creek
Change St.
too many to mention
Trent Rd: cracks, pot holes, dangerous for walking and biking
National Ave
Downtown to Lawson Creek Park - no/none access without a car
Middle St - crosswalk needs curb ramps for wheelchair access
Pollock/Trent: Downtown to MLK/Hwy 17
Pollock St just before Queen St intersection
Hancock Street (between Broad and Pollock)

Please tell us about any intersections where you would like to see improvements for pedestrians:

Neuse and Glenbernie, Simmons and Neuse, Simmons and MLK, MLK and Wal-mart area, Glenbernie and McCarthy.
?
Neuse/Martin Luther King Glenburnie/Martin luther king Neuse/Glenburnie Simmons/Neuse every one
Neuse and Glenbernie Neuse and Simmons
along Hwy 70 in James City; along Neuse Blvd; Glenburnie Rd; MLK Blvd
1. Neuse and Simmons St. crosswalks 2. Neuse and where the outdoor store is.
Middle and Broad crossing
Simmons and MLK Simmons and Neuse
none in particular.
Broad and Middle; Broad and Queen (Five Points); Broad and (forthcoming) First Street extension
All intersections along MLKing Blvd
Countryclub Road getting arcross the bypass and around the corner where the City of New Bern Warehouse is located. This is a very dangerous corner to walk, but the only way for citizens that live in the Pembroke, and surrounding communities to get into town where stores are located. Be it downtown New Bern, Fort totten/Lawson Creek Park or Family Dollar by the Fire Station. This is a dangerous highway to cross.
all
Downtown - walk/don't walk signs should be installed. Too many pedestrians walk in front of cars. All Hwy 17 pedestrian crossings. Glenburnie crossings @ Elizabeth, Neuse & over Hwy

70
All over New Bern
First St and Broad St First St and Trent Blvd
Wal-mart - Mall intersection S Glenburnie and M L King McCarthy and M L King Hotel Dr and M L King
Too many to be specific at this time. Any additions would be great.
Simmons and M. L. King Jr. Blvd.
Glenburnie/Neuse Blvd by McDonalds Walmart/Mall intersection
hwy 17 and mccarthy, broad st and middle,
5 Points
Neuse & Simmons Street and out by the Mall.
The intersections on Broad Street especially where traffic lights were removed. (i.e. Middle and Broad Street as well as Broad and Craven) It shoud be a button you can push for pedestrains to cross.
The intersections on Broad Street especially where traffic lights were removed. (i.e. Middle and Broad Street as well as Broad and Craven) It shoud be a button you can push for pedestrains to cross.
AT THE COURTHOUSE AREA BECAUSE MOST OF PARKING IS ON THE STREET. MALL TO WAL-MART FOR WALKING (OVERHEAD) IN FRONT OF HOSPITAL (OVERHEAD) IN FRONT OF BERN SQUARE (OVERHEAD)
all
Broad and Hancock, Pollock and Queen
Everything on Neuse is dangerous, but the worst area is where Neuse, Broad and MLK come together. Walking or bicycling down Neuse through that intersection is risky business at best.
Glenburnie and McCarthy
At wal-mart and all along 17
not sure
All along Glenburnie Rd and MLK blvd. and Trent Road.
Any crossing at Broad Street
Rt 70 and Mc Donalds,Waffle House, Hams, Shell Gas and Wendys and Burger King and shopping area Food Lion
Riverwalk around the town & Lawson Creek Park
S. Glenburnie & M.L.King Blvd, S. Glenburnie and College Ct. S. Glenburnie & Elizabeth Ave. S. Glenburnie & neuse Blvd Neuse Blvd & Simmons St. Neuse Blvd & all hospital acsses roads Neuse Blvd & M.L. King Blvd M.L. King Blvd & Jefferson M.L. King Blvd & 7th street M.L. King & Simmons M.L. King & Hotel Dr. M.L. King & Wal-Mart (Mall) M.L. King & Lowes Blvd M.L. King & Red Robin M.L. King & McCarthy M.L. King & Trent Rd. Trent & S. Glenburnie Trent & McCarthy Trent & Red Robin Trent & Lowes Trent & Highland Trent & Hotel Trent & Simmons Trent & First
17/simmons simmons/neuse glenburnie/neuse
As listed above - any on MLK, Blvd; around the hospital
broad and middle sts.
Glenburnie Rd. and McCarthy Blvd.
James City- Williams Rd. All intersections on Broard St., Glenburnie, MaCarthy & Martin Luther King
cross from Pollock to Ghent!!!
Broad Street at Queen. Painted crossing paths and pedestrian walk signals.

hwy 17 & hwy 55 split by Taco Bell / Sonic alot of ped. traffic.
Between Loew's and Wal Mart
All intersections on Martin Luther King, Glenburnie, Trent Rd. You feel like you are risking life and limb by trying to navigate any of these streets on foot.
SEVERAL
Trent/Pollock and 1st street.
Not an issue for me.
all the intersections!!
all over
Simmons and Neuse Glenburnie is very scary to cross anywhere Martin Luther King Blvd is also.
There is a real need for a traffic light at the intersection of Board and Middle.
glenburnie road, speed limit lowered on glenburnie!!!!!!
We need more traffic signals downtown and more parking and more shops, Grocery stores,. evening entertainment etc.
none
All intersections of major roads are virtually impossible for pedestrians.
ALL
Middle Steet and Broad Street
2nd Avenue and Fort Totten Drive so the walk to the park isn't so dangerous
all the major ones and across us 70
M L King Jr. Blvd intersection; many people from the mall walk over to the Wal-Mart shopping center. Jefferson and M L King Jr. Blvd intersection; to get across from the residential area to the grocery store or WalGreens is nearly impossible.
Improvement or safety? I feel fine walking during the day in most areas although I would never walk near the projects day or night. I would not walk alone in my neighborhood at night at all. (North Craven St)
Howell Road & Madame Moores Lane (would like to see at least a painted crosswalk at the stop sign)
Queen St. & George St. (in front of NBPD) Every intersection on Broad St. from the circle to 1st St. I LIKE the rough brick x-walk in front of the Tryon Palace - it slows traffic without a stop light!
Broad and Middle, and Broad and Craven
Hancock and Pollock. Have the times the cars there don't know what they are supposed to do.....stop or go!!!
five points
It would be great if we had more shopping and restaurants along the warefront. We would all do more walking!!!!!
Middle and broad streets
Drivers are unaccustomed to looking or stopping for pedestrians in the process of crossing the street. Awareness needs to be raised as to the pedestrians' right to cross. This is primarily a problem at Broad and Middle, as there is no stoplight anymore, and around the traffic circle.
Corner of Middle & Broad (Chelsea Rest.) Five Points (Queen St. direction)
corner of Middle & Broad also the circle
Middle street and Broad
Every intersection on Broad St. where there is not a light. Around roundabout on Broad ST.

all intersections on Glenburnie Road, and Mlk blvd.
Middle and Board St.
Add trees between Broad and Johnson
End of Spencer going into town (1st street?)
Front and Hancock - needs signage to warn of train. signs are faded and stop sign is badly needed.
Middle and Broad
traffic light at Hancock & Broad very short for Hancock pedestrian crossing.
Hancock and Broad Middle and Broad Craven and Broad
middle street and broad
Pollock & George: come watch the cars buzz through those stop signs! But oh on, we can't ticket people who might be tourists! So those of us who work there just scream obscenities at them. That makes a good impression too I'm sure!
Corner of Middle and Broad Street
Hwy 17 at Williams St
Queen and Broad
All intersections along Glenburnie Rd, All intersections along MLK Jr Blvd from Pine Tree Dr to Glenburnie Rd.
S Front at Hancock. Dangerous to cross. Stop sign needed for both people and trains.
ALL
Glenburnie and hwy 17
Mall / Walmart area
Please make stoplight at Broad and Flynt a blinking red/yellow. I never see traffic there.
Across First Street and across Martin Luther King Blvd.
First St - all intersections Trent Rd Simmons St
The mall - have to run/dodge cars; need signs (respect walkers/bikers) and anything else
Glenburnie @ Brunswick - 500 people cut off from Food Lion; "jaywalkers", baby buggies in extreme danger.
anywhere crossing Rt 70: traffic-length of lights is a problem; please provide pedestrian signal or raised overpasses
Rt 70 - no safe pedestrian walkways
I would also like to see dedicated biking/walking trails along the railroad bed near Simmons St
Road connecting Hotel Dr with Walmart shopping center
The traffic light on Metcalf is useless and obstructs traffic.

Please provide us any additional comments you may have:

mostly I am interested in bike trails, however the town is not user friendly for biking or walking
Need walkways to Glenburnie Park from downtown New Bern or a bike path. We need greenways to Creekside Park. We need development on the Mountains-to-Sea trail that runs through New Bern (Mountains to Sea Trail State Park).
Greenway to Lawson Creek from Riverside. Slow speeding cars, enforce bicycle laws.
New Bern needs to be user-friendly for various forms of non-motorized methods (bike,

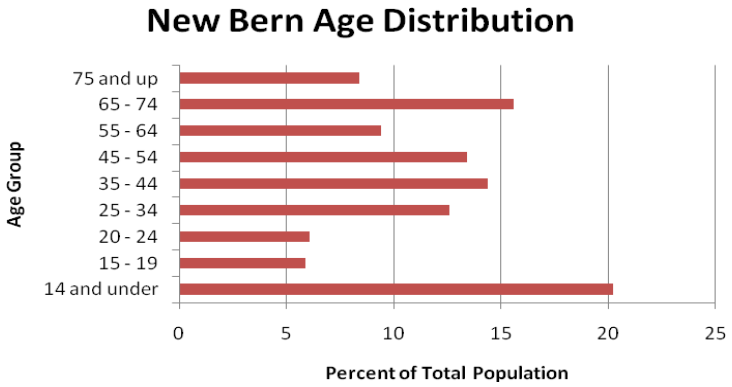
kayak, walk)
Link Country Club Rd to TrentWoods
Bike lane from RiverBend to Trent Rd
Pedestrian walkways to and through public parks
I'd like to see walkways everywhere. Guests from the Hampton Inn are told Walmart shopping center is within walking distance but there's no walkway and it's very dark b/c of the highway bridge. Marriott is coming. Please prepare for this.
How likely are you to choose NOT to walk somewhere because... This section is almost impossible to understand how to respond. Please re-work this portion. We deperately need sidewalks.

Appendix C. Demographic Analysis

The following tables display U.S. Census demographic data for the year 2000 that is pertinent to the City of New Bern's Pedestrian Plan. All data was collected from the U.S. Census website (http://www.census.gov/), except where otherwise noted.

Population

	City of New Bern	Craven County	North Carolina	United States
1990 Census Population	17,363	81,613	6,628,637	248,709,873
2000 Census Population	23,128	91,436	8,049,313	281,421,906
Percent Change	33%	12%	21%	13%
2006 Census Population Estimate	**27,650**			



Age

	City of New Bern	North Carolina	United States
Total Population	**23,128**	**8,049,313**	**281,421,906**
Percent of Population:			
14 and under	20.2	20.54	21.41
15 - 19	5.9	6.71	7.18
20 - 24	6.1	7.17	6.74
25 - 34	12.6	15.07	14.18
35 - 44	14.4	15.99	16.04
45 - 54	13.4	13.48	13.39
55 - 64	9.4	8.99	8.63
65 - 74	15.6	6.63	6.54
75 and up	8.4	5.41	5.9

Race

	City of New Bern	North Carolina	United States
Total Population	**23,128**	**8,049,313**	**281,421,906**
Percent of Population			
White Alone	56.0	72.1	75.1
Black Alone	40.3	21.6	12.3
American Indian	0.3	1.2	0.9
Asian	0.6	1.4	3.6
Two or More Races	1.3	1.3	2.4
Other	1.5	2.4	5.6

Highest Educational Attainment

	City of New Bern	North Carolina	United States
Population 25 years and over	**15,576**	**5,282,994**	**182,211,639**
Percent of Population			
Less than 9th grade	7.0	7.83	7.55
9th to 12th grade, no diploma	13.5	14.03	12.05
High school graduate (includes equivalency)	26.7	28.45	28.63
Some college, no degree	22.4	20.45	21.05
Associate degree	7.4	6.78	6.32
Bachelor's degree	15.7	15.3	15.54

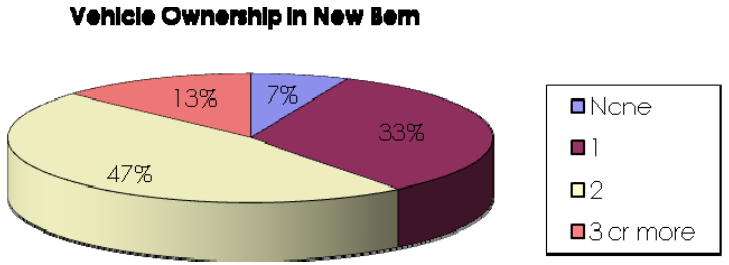
Income and Poverty (in 1999)

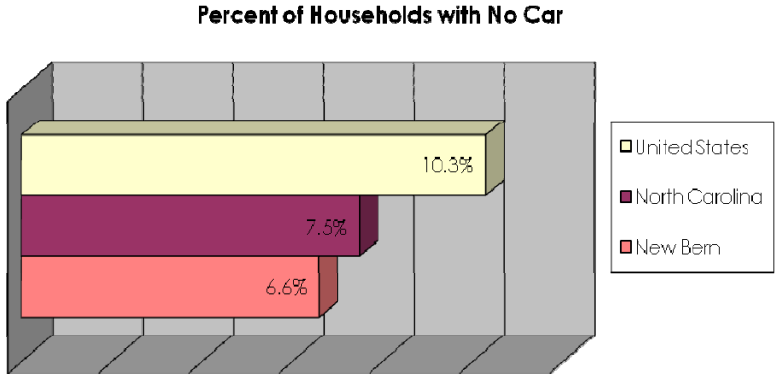
	City of New Bern	North Carolina	United States
Median Household Income	$29,139	$39,184	$41,994
Median Family Income	$38,990	$46,335	$50,046

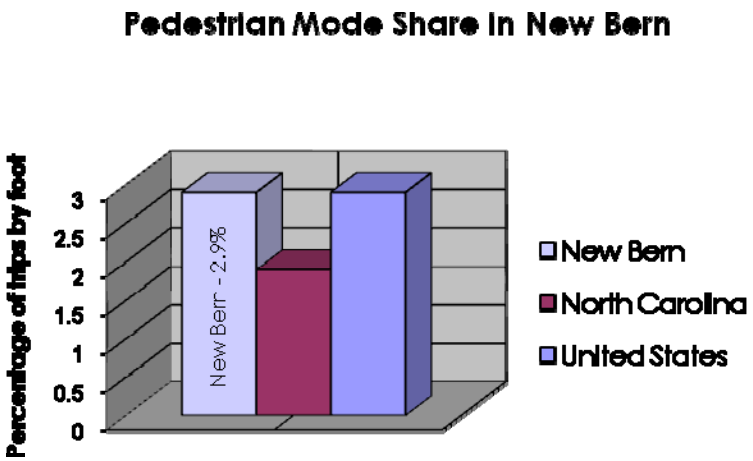
Total Population	**23,128**	**8,049,313**	**281,421,906**
Percent of Population			
Below Poverty Line	19.4	11.9	12
Percent of Children Under Age (5/6) Below Poverty Line	34.0	12.8	9.7
Percent of People Over Age 65 Below Poverty Line	14.1	31.5	33.6

Household Vehicle Availability

	City of New Bern	North Carolina	United States
Percent of Housing Units			
None	6.6	7.5	10.3
1	32.9	32.3	34.2
2	47.2	39.9	38.4
3 or more	13.1	20.3	17.1







Work Commute Mode

	City of New Bern	North Carolina	United States
Total Workers 16 years and over	**9,565**	**3,837,773**	**128,279,228**
Percent of Workers 16 years and over			
Car, truck, or van	91.8	93.4	87.9
Drove alone	75.3	79.4	75.7
Carpooled	16.5	14	12.2
- In 2-person carpool	12.2	10.4	9.4
- In 3-person carpool	2.4	2.1	1.7
- In 4-person carpool	0.8	0.8	0.6
- In 5- or 6-person carpool	0.8	0.4	0.3
- In 7-or-more-person carpool	0.3	0.2	0.2
Public transportation	1.2	0.9	4.7
Bus or trolley bus	0.3	0.7	2.5
Taxicab	0.8	0.1	0.2
Motorcycle	0.1	0.1	0.1
Bicycle	0.8	0.2	0.4
Walked	2.9	1.9	2.9
Other means	0.6	0.8	0.7

Work Commute Travel Time

	City of New Bern	North Carolina	United States
Workers who did not work at home	**9,309**	**3,734,822**	**124,095,005**
Percentage of workers travel time			
Less than 10 minutes	26.8	13.5	14.4
10 to 14 minutes	28.5	16.2	15
15 to 19 minutes	16.4	18	15.8
20 to 24 minutes	7.1	15.9	14.5
25 to 29 minutes	2.4	6	5.8
30 to 34 minutes	7.5	13.3	13.2
35 to 44 minutes	1.7	5.2	5.9
45 to 59 minutes	4.0	6.3	7.4
60 to 89 minutes	2.7	3.5	5.2
90 or more minutes	3.0	2.3	2.8
Mean travel time to work (minutes)	**19.1**	**24**	**25.5**

Occupation Type

	City of New Bern	North Carolina	United States
Employed civilian population 16 years and over	**9,538**	**3,824,741**	**129,721,512**
Percentage of workers			
Management, professional, and related occupations	30.0	31.2	33.6
Service occupations	20.2	13.5	14.9
Sales and office occupations	21.7	24.8	26.7
Farming, fishing and forestry occupations	0.2	0.8	0.7
Construction, extraction, and maintenance occupations	11.3	11	9.4
Production, transportation, and moving occupations	16.5	18.7	14.6

Appendix D: Pedestrian Focus Areas

Pedestrian focus areas were selected through stakeholder input in order to help identify pedestrian needs and highlight detailed recommendations in locations with high pedestrian traffic volumes, safety issues and/or high-need populations. Four geographic areas were identified as focus areas:

- Five Points Area
- Hospital Area
- Walmart/Twin River Mall Area
- Health Department Area

Maps of each area, along with detailed diagrams illustrating important crossing improvements and sidewalk/greenway connections, follow.

This page left intentionally blank.

Five Points Area Map

Five Points Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

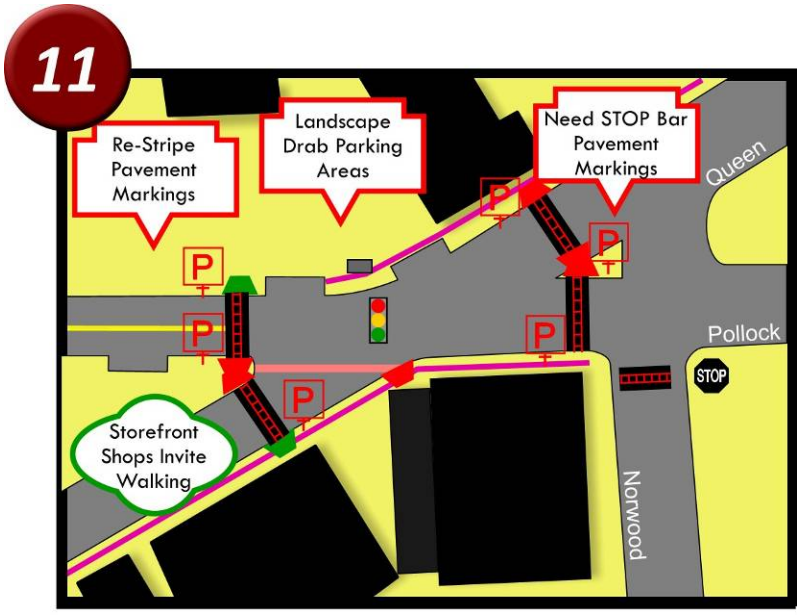
RECOMMENDATIONS

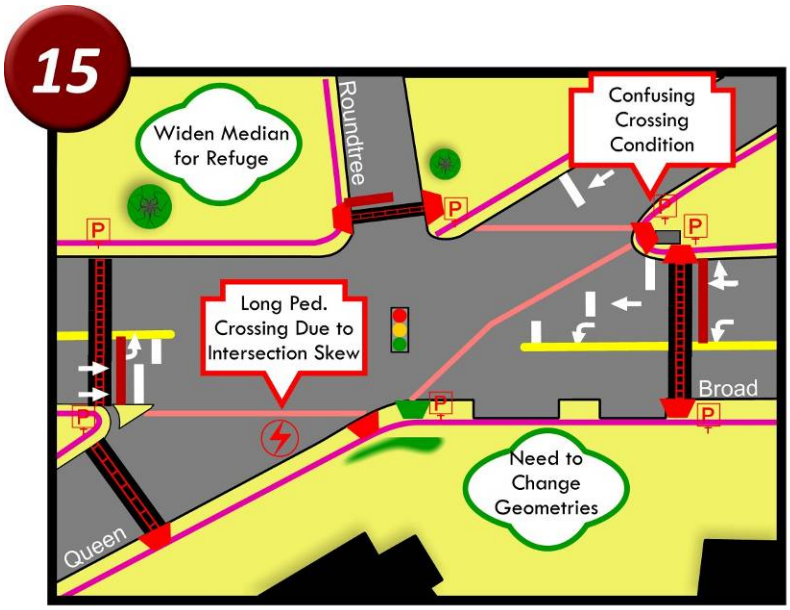
- Sidewalk
- Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

150'

Five Points Area Critical Intersection Diagrams





Five Points Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

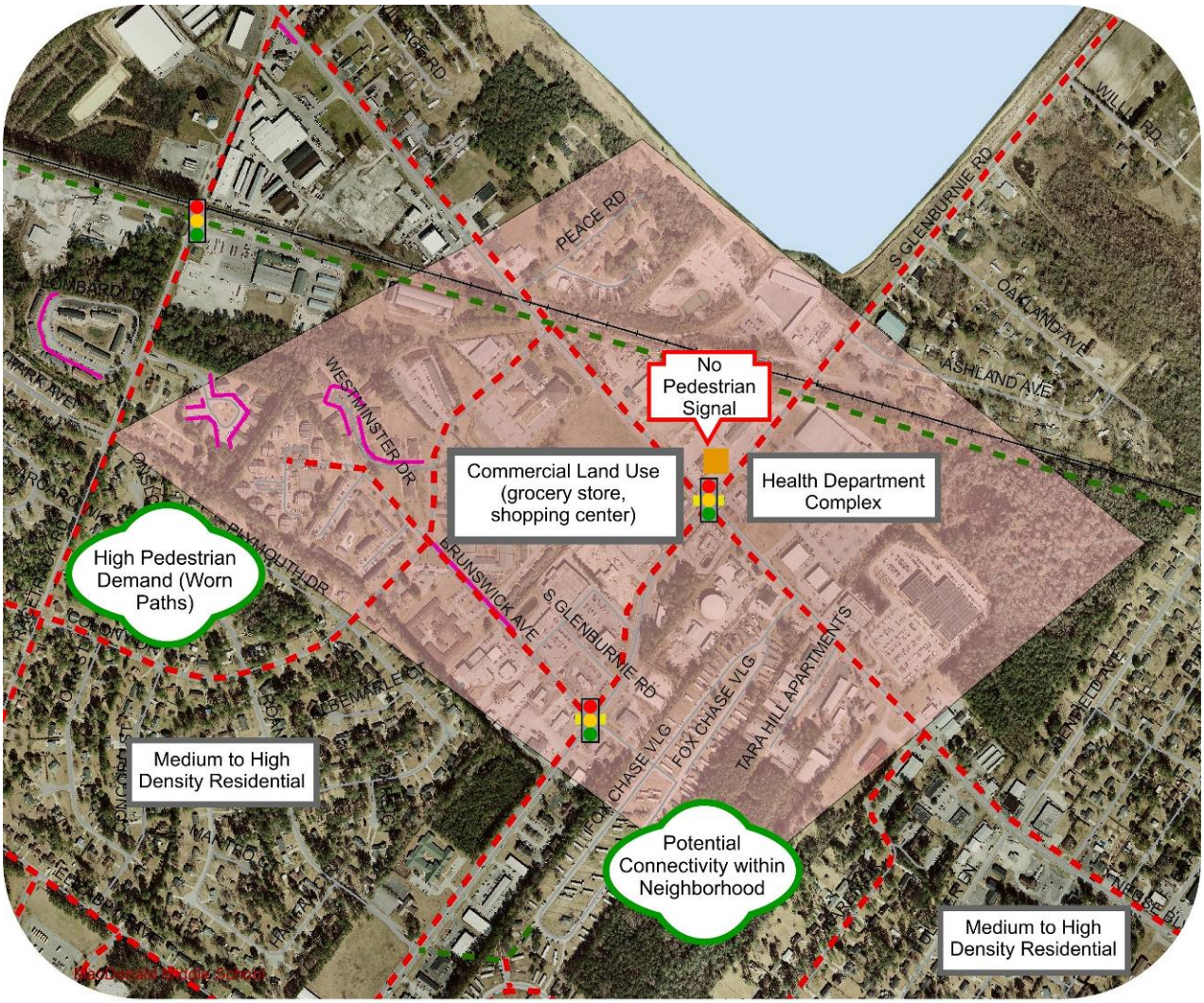
RECOMMENDATIONS

- Sidewalk
- Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

150'

Health Department Area Map



Health Department Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

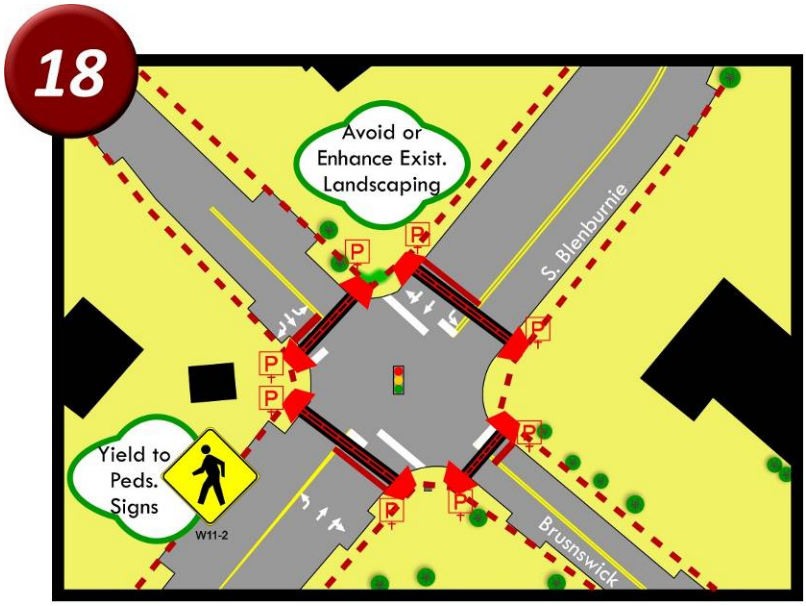
RECOMMENDATIONS

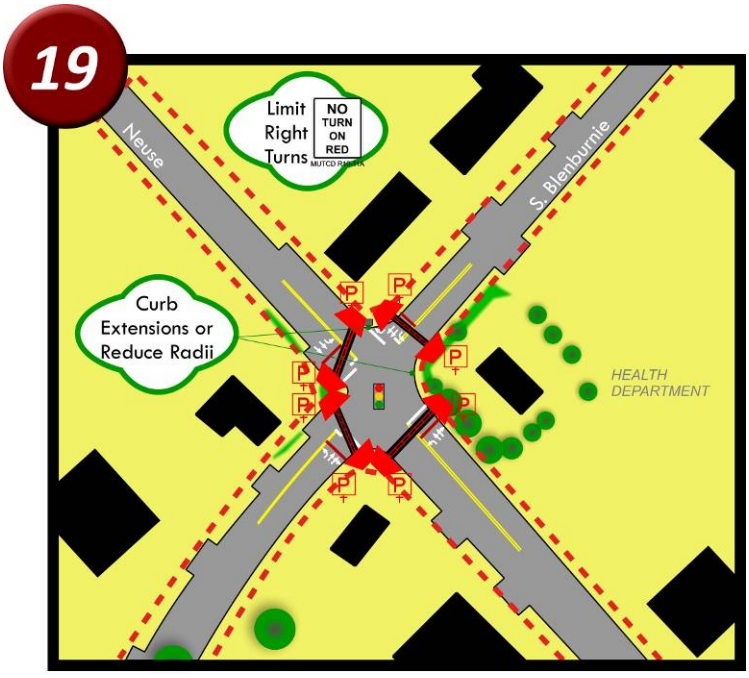
- Sidewalk Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

150'

Health Department Area Critical Intersection Diagrams





Health Department Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

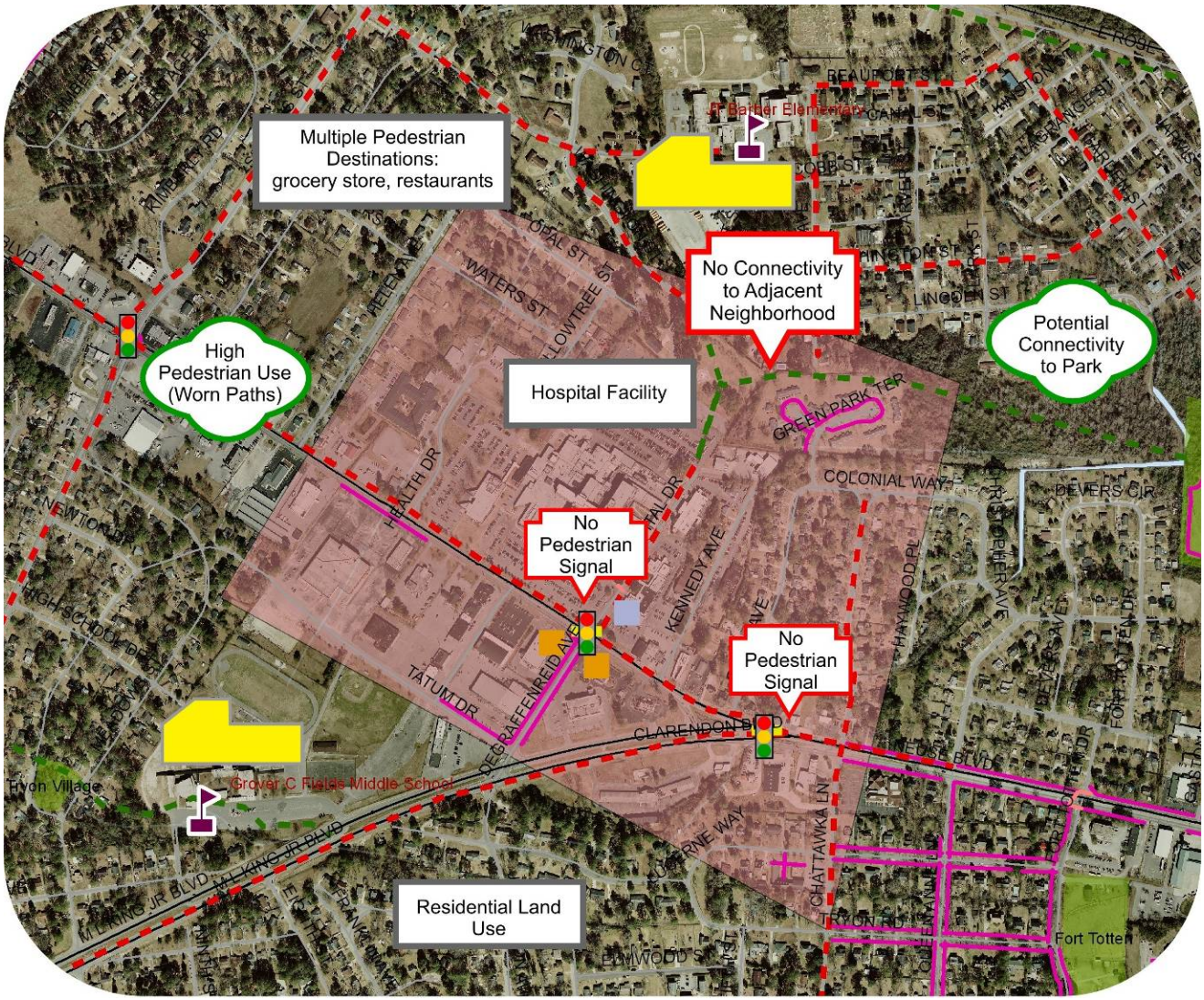
RECOMMENDATIONS

- Sidewalk
- Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

150'

Hospital Area Map



Hospital Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

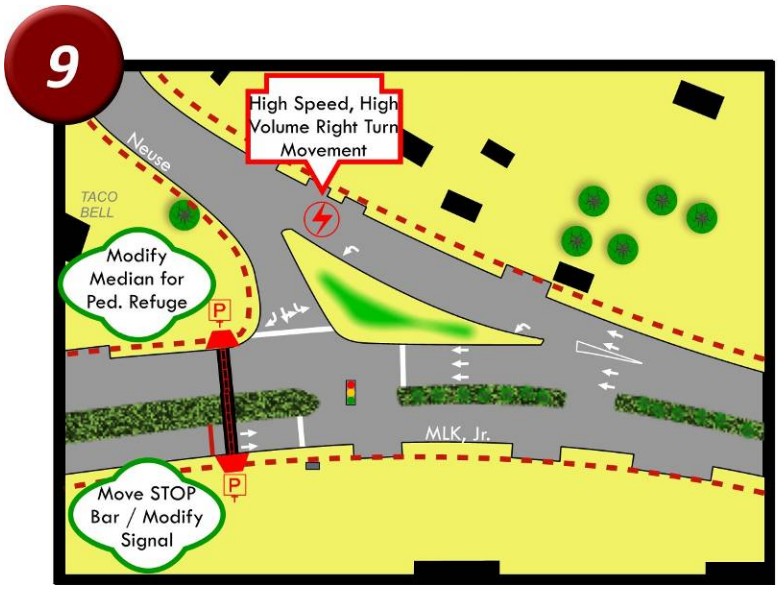
RECOMMENDATIONS

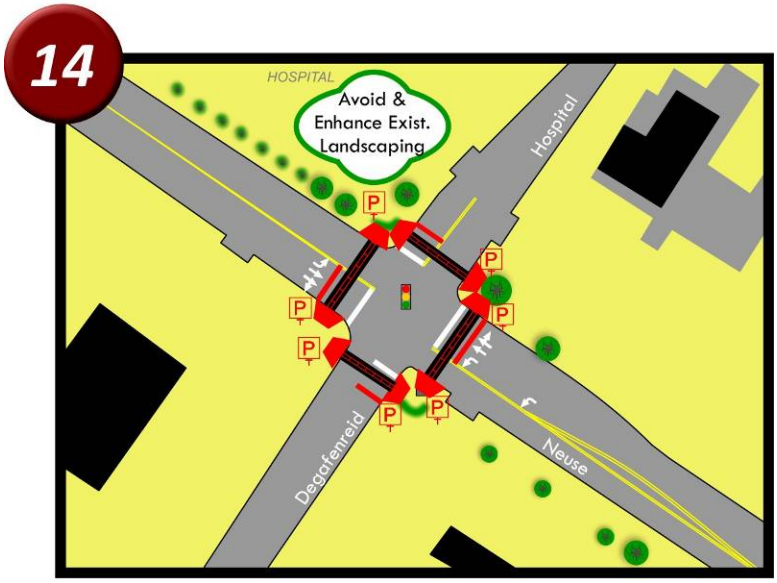
- Sidewalk Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

150'

Hospital Area Critical Intersection Diagrams





Hospital Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

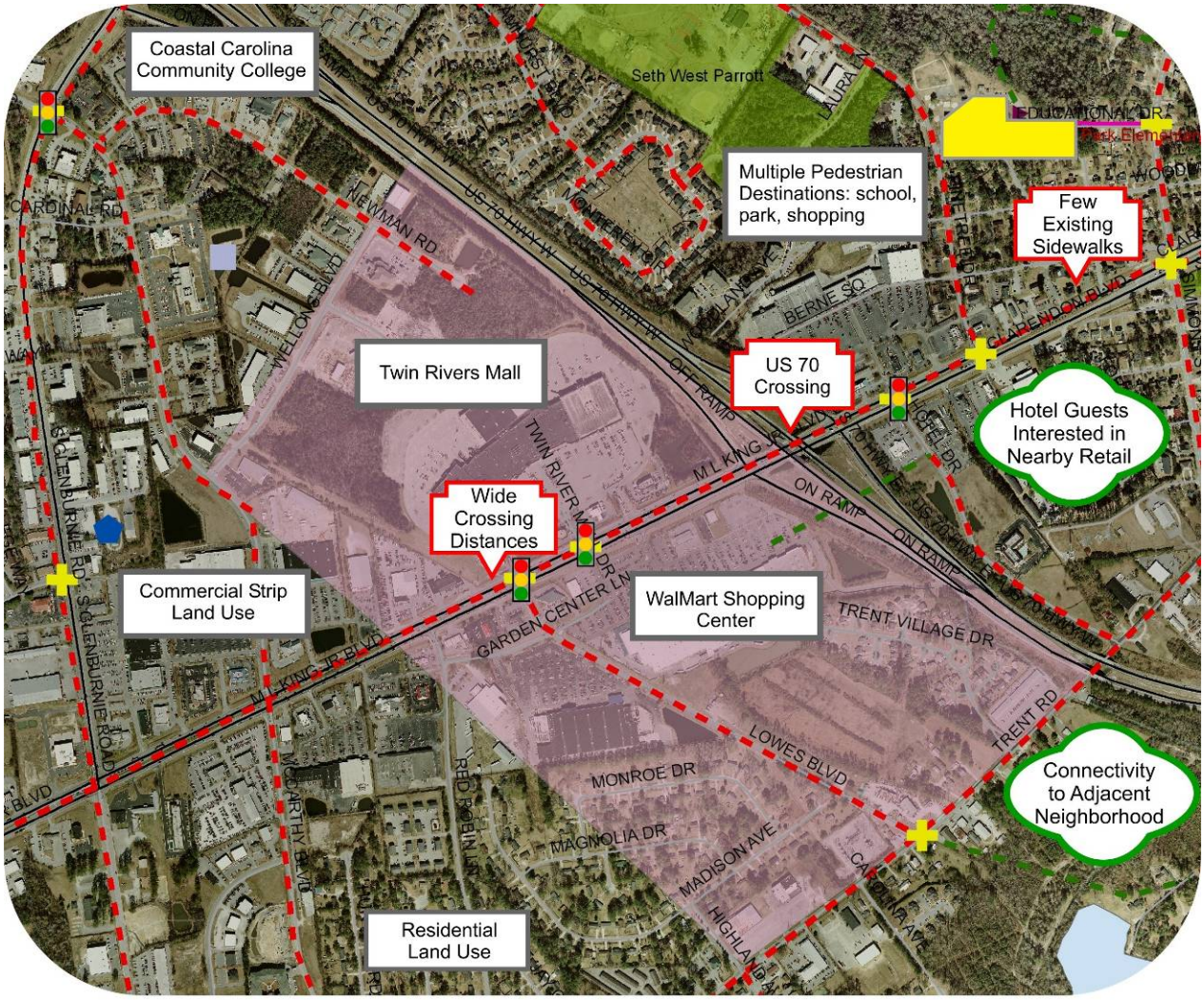
RECOMMENDATIONS

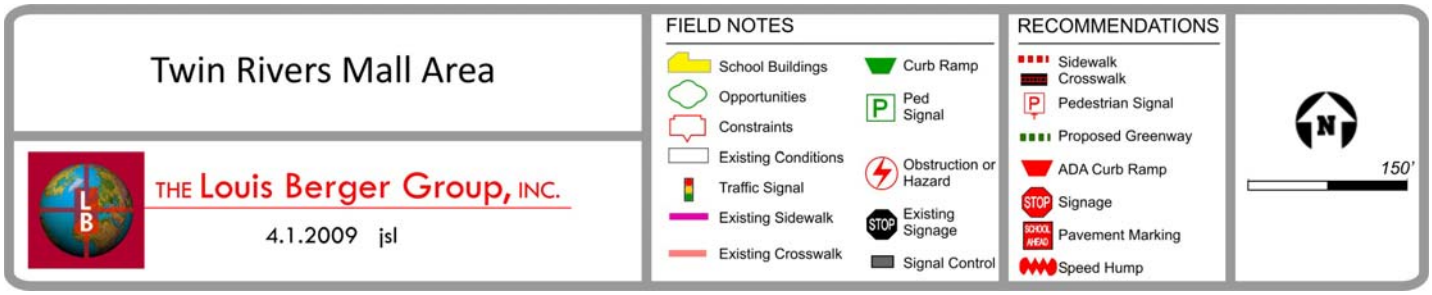
- Sidewalk Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

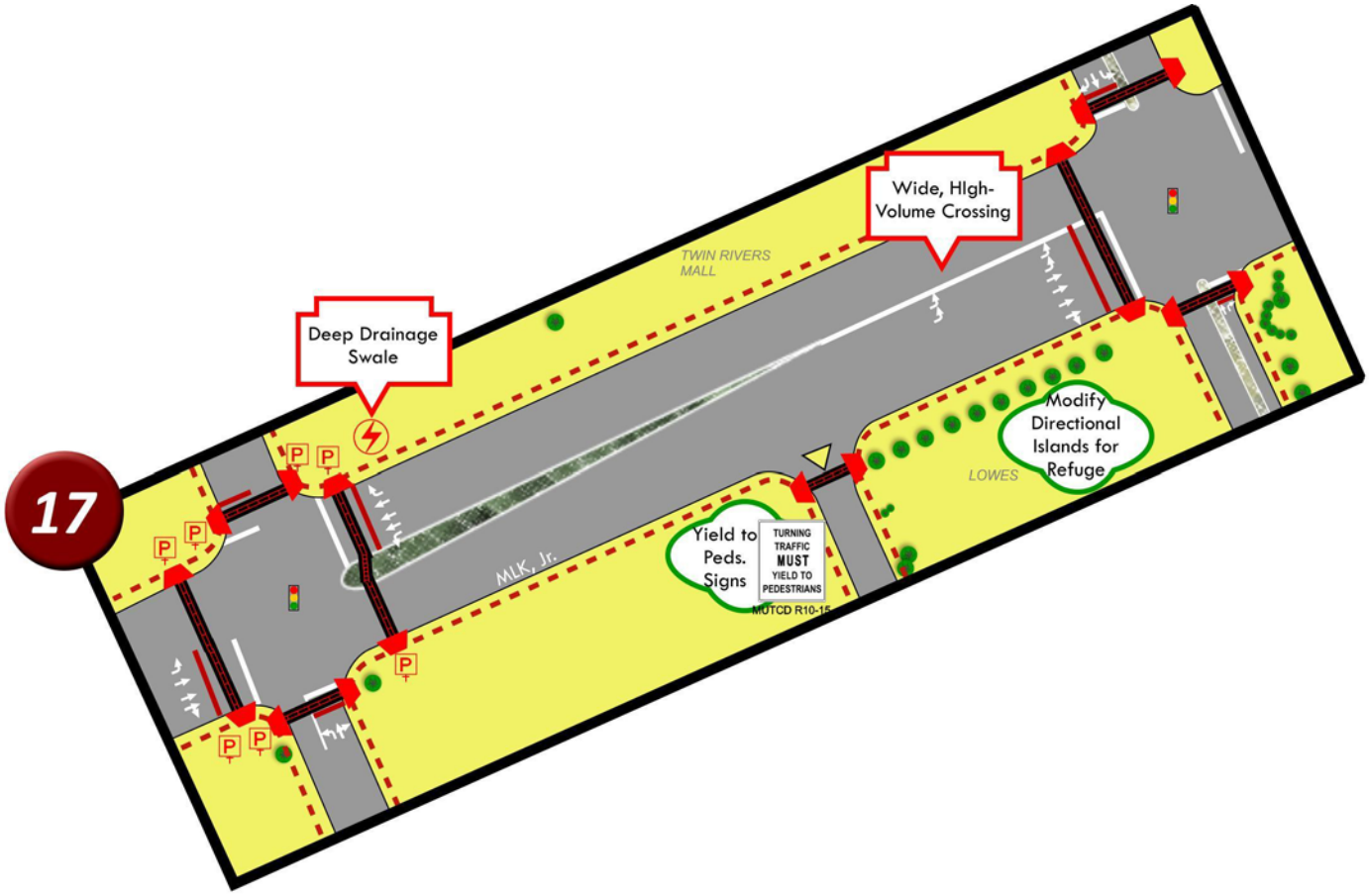
150'

Walmart/Twin Rivers Mall Area





Twin Rivers Mall Area Critical Intersection Diagrams



Twin Rivers Mall Area

THE Louis Berger Group, INC.

4.1.2009 jsl

FIELD NOTES

- School Buildings
- Opportunities
- Constraints
- Existing Conditions
- Traffic Signal
- Existing Sidewalk
- Existing Crosswalk
- Curb Ramp
- Ped Signal
- Obstruction or Hazard
- Existing Signage
- Signal Control

RECOMMENDATIONS

- Sidewalk
- Crosswalk
- Pedestrian Signal
- Proposed Greenway
- ADA Curb Ramp
- Signage
- Pavement Marking
- Speed Hump

N

150'

Appendix E: Sample Railroad Safety Evaluation

The Nevada DOT has developed an extensive checklist for analyzing bicycle and pedestrian impacts of rail crossings, including accessibility to disabled pedestrians (i.e. ADA compliance) and safety. The following pages include the full checklist developed by NVDOT.

This page intentionally left blank.

APPENDIX A

STATE OF NEVADA DEPARTMENT OF TRANSPORTATION
RAILROAD SAFETY DIAGNOSTIC REVIEW FORM
PATHS WITHOUT MOTOR VEHICLES

TEAM MEMBER:	AGENCY:	REVIEW DATE:

CROSSING DATA	PATH DATA
DOT Number:	Location:
	Type of Path Use: ☐ Shared ☐ Bike ☐ Pedestrian
Railroad Milepost:	Bike/Trail Route/System ☐ Yes ☐ No
	Pedestrian AADT:
Track Class:	Bicycle AADT:
	Bicycle Speed:
Number of Trains: Passenger _____ Freight _____	Other Crossing Users:
	User Destinations:
Injury	Path Owner:
	Level of Service: (A – F)
Principal Rail Line: ☐Yes ☐ No	

TYPE OF EXISTING OR PROPOSED WARNING DEVICES

Automatic Gates:	2-Quad ☐	4-Quad ☐	Median ☐	LOOK Signs: ☐ Yes	☐ No
				STOP Signs: ☐ Yes	☐ No
Bells:	Gong ☐		Electronic ☐	Emergency Notification ☐ Yes	☐ No
				Access Control Devices - List ☐ Yes	☐ No
Multi Track Sign: 2-Track ☐	3-Track ☐	4-Track ☐	6-Track ☐	Lighting: ☐ Yes	☐ No
				Swing Gates ☐ Yes	☐ No
Pavement Markings: Stop Bars ☐	RxR ☐	Lane Lines ☐	Dynamic Envelope ☐	Other ☐	
List Other Devices & Condition of Devices:					

PATH SECTION

Development Type: Residential ☐ Industrial ☐ Commercial ☐ Open Space ☐ Institutional ☐		
Are the advance warning signs in good condition?	☐ yes	☐ No
Path width _____' Number of Travel Lanes __ Is Path Wide Enough (shared = 10' + 2' edges)?	☐ Yes	☐ No
Is there adequate capacity?	☐ Yes	☐ No
Does the path have a 2% cross slope?	☐ Yes	☐ No
Is the person's attention being diverted?	☐ Yes	☐ No
Is there an adequate landing platform (10' clear+ decision/reaction on table+ tracks+ 15' between track)?	☐ Yes	☐ No
If the approach is inadequate, can it be adjusted?	☐ Yes	☐ No
Is there an adequate edge	☐ Yes	☐ No
Is there adequate drainage? List drainage present: Size: Location:	☐ Yes	☐ No
Do culverts, drop inlets, etc. need to be adjusted?		
Utilities adjustment needed? Overhead Lines ☐ Buried Lines ☐ Gas Vent Riser ☐	☐ Yes	☐ No
Are there adequate maintenance procedures, funds & RR agreements for path & crossing, including	☐ Yes	☐ No
Are there informational signs for non-standard path conditions, such as grades?	☐ Yes	☐ No

RAILROAD SECTION

Is the track on a curve? Degree of curve: ___° Super elevation: ___ " Cross level: ___%	☐ Yes	☐ No
Are active warning devices needed? Type of circuitry: AC-DC ☐ CWT ☐ MS ☐	☐ Yes	☐ No
Is there adequate warning time from the railroad signals? Need 2.8 seconds per foot to cross + warning.	☐ Yes	☐ No
Can multiple tracks be removed?	☐ Yes	☐ No
Are gates warranted? Standard ☐ Barrier ☐ Swing ☐	☐ Yes	☐ No
Does the track height need to be adjusted?	☐ Yes	☐ No
Is the surface smooth?	☐ Yes	☐ No
Is surface rehabilitation required to facilitate signal installation?	☐ Yes	☐ No

ADA

Are there curb cuts at nearby intersections and a clear path present to curb cuts at nearby intersections?	☐ Yes	☐ No
Are detectable warnings advised?	☐ Yes	☐ No
Is the path width adequate (36" is minimum)?	☐ Yes	☐ No
Are there vertical obstructions (standard: none between 27" to 80" above ground or within path)?	☐ Yes	☐ No
Slope of path transition (standard is 12:1 or less).	☐ Yes	☐ No
Landing platform (standard is level and 5' x 5' or more).	☐ Yes	☐ No
Is surface smooth (standard: passable by a wheelchair, no broken or buckled asphalt, edges < ¼")?	☐ Yes	☐ No
Panel length (crossing surface panel needs to extend 1' behind back of path to be standard).	☐ Yes	☐ No
Are there flange gaps 2½", or less, or flange fillers?	☐ Yes	☐ No
Can full flange fillers be used in low speed applications?	☐ Yes	☐ No
Is grade 5% or less? If grade is over 5%, how long is grade? '	☐ Yes	☐ No
If grade is 8% and 200', 10% and 30' or 12.5% and 10', are there rest areas?	☐ Yes	☐ No
Are there 43" handrails for grades over 5%?	☐ Yes	☐ No
Is widening proposed? How wide? _____'. When? _____ Consider in project? _____	☐ Yes	☐ No
Mitigation:		

AWARENESS OF XING

Overall awareness of railroad crossing, including visibility and effectiveness of possible signs, signals and markings.	☐ Acceptable	
Horizontal and vertical alignment considerations.	☐ Acceptable	
Pedestrian Sight Distance: Clearing sight distance of_____' from 17' from rail needed. North/East Side of Xing _____' South/West Side of Xing _____'	☐ Acceptable	
Bicycle Sight Distance 1: *Distance where crossing can be identified.* North/East Side of Xing _____ feet South/West Side of Xing _____ feet	☐ Acceptable	
Bicycle Sight Distance 2: *Need _____' down tracks from _____' down path.* North/East Side Looking East/North _____' West/South _____' South/West Side Looking East/North _____' West/South _____'	☐ Acceptable ☐ Recommend Improvement	
Bicycle Sight Distance 3: *Distance down path to see _____' down tracks if #2 not acceptable.* North/East Side Looking East/North _____' West/South _____' South/West Side Looking East/North _____' West/South _____'	☐ Acceptable ☐ Recommend Improvement	
Bicycle Sight Distance 4: Stopped *17' from rail, need _____' down tracks.* North/East Side Looking East/North _____' West/South _____' South/West Side Looking East/North _____' West/South _____'	☐ Acceptable ☐ Recommend Improvement	
Nighttime visibility, including ambient lighting.	☐ Acceptable	
Skew of Xing: ____° Does skew limit perception?	☐ Yes	☐ No
Are there simultaneous train movements on multiple tracks? Can standing boxcars block the view?	☐ Yes	☐ No ☐
Do Pedestrians and bicycles violate warning devices?	☐ Yes	☐ No
Mitigation of inadequate perception: ☐ Additional Signage ☐ Luminaires & Where ☐ Multiple Track Removal		

STOP AND YIELD SIGNS

THE FOLLOWING CONSIDERATIONS MUST BE MET IN EVERY CASE WHERE A STOP SIGN IS INSTALLED		
STOP or YIELD signs may be used by path authority if there are two or more TADT and xing is **passive**.	☐ Yes	☐ No
Are law enforcement & judiciary committed to enforcement equal to road intersections with STOP signs?	☐ Yes	☐ No
Would installation of STOP sign create a more dangerous situation than would exist with YIELD sign?	☐ Yes	☐ No

ANY OF THE FOLLOWING CONDITIONS INDICATE THAT A STOP SIGN MIGHT REDUCE RISK AT A CROSSING		
Maximum train speeds equal, or exceed, 30 mph.	☐ Yes	☐ No
Train movements are 10 or more per day, five or more days per week.	☐ Yes	☐ No
The rail line is regularly used to transport a significant quantity of hazardous materials.	☐ Yes	☐ No
The path crosses two or more tracks, particularly where both tracks are main tracks or one track is a passing siding that is frequently used.	☐ Yes	☐ No
The angle of approach to the crossing is skewed.	☐ Yes	☐ No

The line of sight from an approaching path user to an approaching train is restricted such that approaching path traffic is required to substantially reduce speed.	☐ Yes	☐ No

THE FOLLOWING CONSIDERATIONS SHOULD BE WEIGHED AGAINST PLACING STOP SIGNS		
There are active warning devices.	☐ Yes	☐ No
STOP sign would cause queuing onto nearby road.	☐ Yes	☐ No
The path is other than secondary in character.	☐ Yes	☐ No
The path is a steep ascending grade to or through the crossing, sight distance in both directions is unrestricted in relation to maximum closing speed, and bicycles or wheelchairs use the crossing.	☐ Yes	☐ No

REVIEW FOR AUTOMATIC GATES

ACTIVE DEVICES WITH AUTOMATIC GATES SHOULD BE CONSIDERED AT CROSSINGS WHENEVER AN ENGINEERING STUDY BY A DIAGNOSTIC TEAM DETERMINES ONE OR MORE OF THE FOLLOWING CONDITIONS EXISTS		
If inadequate sight distance exists in one or more quadrants and ALL of the following are 'Yes':	☐ Yes	☐ No
a. Is it physically or economically unfeasible to correct the sight distance deficiency?	☐ Yes	☐ No
b. Is no acceptable alternate access available? If access exists, then close the crossing.	☐ Yes	☐ No
c. On a life cycle cost basis, would the cost of providing acceptable alternate access or grade separation exceed the cost of installing active devices with gates?	☐ Yes	☐ No
Is the crossing in near schools, industries or commercial areas where there is higher than normal usage.	☐ Yes	☐ No
Are there multiple main or running tracks through the crossing?	☐ Yes	☐ No
Does the expected accident frequency (EAF) for active devices without gates exceed 0.1?	☐ Yes	☐ No
Is there queuing across the tracks from a nearby intersection?	☐ Yes	☐ No
Does the diagnostic team have other reasons?	☐ Yes	☐ No

OPTIONAL USE OF AUTOMATIC GATES

ACTIVE DEVICES WITH AUTOMATIC GATES SHOULD BE CONSIDERED *AS AN OPTION* WHEN THEY CAN BE JUSTIFIED ECONOMICALLY AND WHEN ONE OR MORE OF THE FOLLOWING CONDITIONS EXISTS		
Do multiple tracks exist?	☐ Yes	☐ No
Are there 20 or more trains per day?	☐ Yes	☐ No
Does the posted path speed exceed 40 mph in urban areas, or exceed 55 mph in rural areas?	☐ Yes	☐ No
Does the AADT exceed 2,000 in urban areas, or exceed 500 in rural areas?	☐ Yes	☐ No
Are there multiple lanes of traffic in the same direction of travel?	☐ Yes	☐ No
Does the product of the number of trains per day & AADT exceed 5000 urban, or 4000 rural?	☐ Yes	☐ No
Has an engineering study indicated the absence of active devices would result in the path facility performing at a level of service below Level C?	☐ Yes	☐ No
Does the expected accident frequency (EAF) exceed 0.075?	☐ Yes	☐ No
Is this a new project or are the current active devices being replaced?	☐ Yes	☐ No
Does the diagnostic team have other reasons?	☐ Yes	☐ No

CANTILEVER FLASHING LIGHTS

Two or more lanes the same direction.	☐ Yes	☐ No
High speed paths regardless of number of lanes.	☐ Yes	☐ No
Objects on the side of the path can obstruct the visibility of mast mounted flashing lights.	☐ Yes	☐ No
Horizontal or vertical curves or other topographical features obstruct the mast mounted flashing lights.	☐ Yes	☐ No

WARNING/BARRIER GATE SYSTEM

Crossing with high-speed trains.	☐ Yes	☐ No
Crossing in quiet zones.	☐ Yes	☐ No
As otherwise deemed necessary by the diagnostic review team.	☐ Yes	☐ No

PEDESTRIAN TREATMENTS

Can devices be designed to avoid stranding pedestrians between sets of tracks?	☐ Yes	☐ No
Can audible devices be added if determined necessary?	☐ Yes	☐ No
Would swing gates operate safely for disabled individuals?	☐ Yes	☐ No
Are skirted gates or other warning devices needed?	☐ Yes	☐ No
Can crossing controls/delays be used near stations?	☐ Yes	☐ No
Are added pedestrian signs needed?	☐ Yes	☐ No
List pedestrian signs needed:		
Notes:		

CLOSURE

CROSSING SHOULD BE CONSIDERED FOR CLOSURE WHEN ONE OR MORE OF THE FOLLOWING APPLY		
Does the crossing have nearby acceptable alternate bicycle and pedestrian access?	☐ Yes	☐ No
On a life cycle cost basis, would improvement exceed cost of providing acceptable alternate access?	☐ Yes	☐ No
If an engineering study determined any of the following.		
a. FRA Class 1,2, or 3 track with daily train movements		
1. AADT less than 500 in urban areas, acceptable alternate access within ¼ mile, and the median trip length would not increase by more than ½ mile.	☐ Yes	☐ No
2. AADT less than 50 in rural areas, acceptable alternate access within ½ mile, and the median trip length would not increase by more than 1½ miles.	☐ Yes	☐ No
b. FRA Class 4 or 5 track with active rail traffic.		
1. AADT less than 1,000 in urban areas, acceptable alternate access within ¼ mile and the	☐ Yes	☐ No
2. AADT less than 100 in rural areas, acceptable alternate access within 1 mile, and the trip	☐ Yes	☐ No
c. FRA Class 6 or higher track with active rail traffic.		
AADT less than 250 in rural areas, acceptable alternate access within 1½ miles, and the median trip length would not increase by more than 4 miles.	☐ Yes	☐ No
Does an engineering study determines the crossing should be closed because railroad operations will occupy or block the crossing for extended periods of time on a routine basis and it is not physically or economically feasible to grade separate or shift train operations to another location. Such locations would typically include the following areas:		☐ Yes ☐ No

☐	a. Rail yards
☐	b. Passing tracks primarily used for holding trains while waiting to meet or be passed by other trains
☐	c. Locations where train crews are routinely required to stop trains because of cross traffic on intersecting lines, or switch cars
☐	d. Switching leads at the ends of classification yards
☐	e. Where trains are required to "double" in or out of yards and terminals
☐	f. In the proximity of stations where long distance passenger trains are required to make extended stops to transfer baggage
☐	g. Locations where trains must stop or wait for crew changes

GRADE SEPARATION

CROSSING SHOULD BE CONSIDERED FOR GRADE SEPARATION WHEN ONE OR MORE OF THE FOLLOWING APPLY		
Is the path designed to have full control access?	☐ Yes	☐ No
Does the AADT exceed 100,000 in urban areas or 50,000 in rural areas?	☐ Yes	☐ No
Is the maximum authorized train speed over 110 mph?	☐ Yes	☐ No
Is there an average of 150 or more trains per day or 300 million gross tons per year?	☐ Yes	☐ No
Is there an average of 75 or more passenger trains per day in urban areas or 30 or more in rural?	☐ Yes	☐ No
Crossing exposure (product of trains per day & AADT) exceeds 1,000,000 in urban, 250,000 rural.	☐ Yes	☐ No
The expected accident frequency (EAF) for active devices exceeds 0.5?	☐ Yes	☐ No
Path user delays exceed 40 vehicle hours per day?	☐ Yes	☐ No

CROSSING SHOULD BE CONSIDERED FOR GRADE SEPARATION WHEN ONE OR MORE OF THE FOLLOWING APPLY AND THE LIFE CYCLE COSTS CAN BE FULLY ALLOCATED		
Is the path designed to have partial control access?	☐ Yes	☐ No
Does the path posted speed exceed 55 mph?	☐ Yes	☐ No
Does the AADT exceed 50,000 in urban areas or 25,000 in rural areas?	☐ Yes	☐ No
Is the maximum authorized train speed over 100 mph?	☐ Yes	☐ No
Is there an average of 75 or more trains per day or 150 million gross tons per year?	☐ Yes	☐ No

Is there an average of 50 or more passenger trains per day in urban areas or 12 or more in rural?	☐ Yes	☐ No
Crossing exposure (product of trains per day & AADT) exceeds 500,000 in urban, 125,000 rural?	☐ Yes	☐ No
The expected accident frequency (EAF) for active devices exceeds 0.2?	☐ Yes	☐ No
Path user delays exceed 30 vehicle hours per day?	☐ Yes	☐ No
Does the engineering study indicate that the absence of a grade separation will result in the path facility	☐ Yes	☐ No

NEW CROSSINGS

PERMITTED AT EXISTING RAILROAD TRACKS AT-GRADE WHEN IT CAN BE DEMONSTRATED ALL FOLLOWING APPLY & NOT ON MAINLINES		
On public paths where there is a clear and compelling need (other than enhancing the value or development potential of the adjoining property).	☐ Yes	☐ No
Grade separation cannot be economically justified (benefit to cost ratio on a fully allocated cost basis is less than 1.0 & the crossing exposure exceeds 50,000 in urban areas & 25,000 in rural areas)	☐ Yes	☐ No
There are no other viable alternatives.	☐ Yes	☐ No

IF A CROSSING IS PERMITTED, THE FOLLOWING CONDITIONS SHOULD APPLY		
The crossing will be equipped with active devices with gates.	☐ Yes	☐ No
The plans and specifications should be subject to the approval of the highway agency having jurisdiction over the path (if other than a State agency), the State DOT or other State agency vested with the authority to approve new crossings, and the operating railroad.	☐ Yes	☐ No
All costs associated with the construction of the new crossing should be borne by the party or parties requesting the new crossing, including providing financially for the ongoing maintenance of the crossing surface and traffic control devices where no crossing closures are included in the project.	☐ Yes	☐ No
Whenever new public path-rail crossings are permitted, they should fully comply with all applicable provisions of the TWG proposed recommended practice, MUTCD, AASHTO, ITE and other standards.	☐ Yes	☐ No
Whenever a new path-rail crossing is constructed, consideration should be given to closing one or more adjacent crossings.	☐ Yes	☐ No

RECOMMENDATION SUMMARY

☐ Closure	☐ Do Not Stop on Tracks Signs (for queuing) R8-8
	☐ LOOK Sign R15-8
☐ Crossing Relocation	☐ Bicycle Signs
	☐ Additional Signage
☐ Automatic Gates	☐ Pavement Markings (No thermoplastic)
	☐ Luminaires
☐ Cantilever Flashing Lights	☐ Crossing Surface Smoothness ¼ “, Width or Rehabilitation
	☐ Additional ADA
☐ Bells	☐ Zigzag Approaches
	☐ Storage Improvement for Queuing
☐ Active Second Train Coming Sign	☐ Approach & Landing Platform Modification
	☐ Detour Signage for Grades
☐ Barrier Gates or Skirted Gates	☐ Parking & Pedestrian Channelization
	☐ Railings
☐ Texturing – Detectable	☐ Utility & Culvert Adjustments
	☐ Path Surface or Edge
☐ Multi-Track Signs # Tracks	☐ Rest Areas on Grades
	☐ Fixed Object Removal
☐ STOP Sign R1-1	☐ Maintenance
	☐ Other –

RECOMMENDATION DESCRIPTION

PRECONSTRUCTION MITIGATION

What interim measures are needed?
If improvements are needed but will not be done, document reasons.
If no improvement needed, document adequacy of current devices.

TYPE OF PROTECTION DURING CONSTRUCTION

	☐ Combination daylight flagging and stop signs.
☐ 24 hour Flagger protection.	☐ Construction of half the crossing at a time with work zone detour.
	☐ Temporary signal protection (only under stringent conditions).
☐ Work zone traffic control with lane closures and detours with railroad flagging during working hours.	
☐ Other	

NEVADA PUBLIC UTILITY COMMISSION AUTHORITY REQUIRED

APPLICATION REQUIRED	APPLICATION NOT REQUIRED
☐ New Crossing	☐ Signal Installation, Circuitry improvements, etc.
	☐ Surface Improvement, Install Prefab Crossing, etc.
☐ Relocation	☐ Passive Improvement, Signs, Markings, etc.

Appendix F. Itemized Construction Cost Estimates

The following materials were used for public outreach during the Pedestrian Plan process.

Crossing Improvements	
Standard marked crosswalk (with two transverse lines)	$100 per leg
High-visibility crosswalk (continental style)	$300 per leg
Patterned concrete crosswalk	$20,000 per leg
Curb Extension to tighten curb radii at intersections	$5,000 to $25,000 per corner
New traffic signal with countdown pedestrian signals	$ 100,000 per intersection
Countdown pedestrian signal and crosswalk additions to existing signalized intersection	$4,000 to $6,400 per intersection
Audible pedestrian crossing cues added to existing pedestrian signal	$2,400 per intersection ($500 - $800 per countdown signal)
“No Right on Red” signage	$30 to $150 per sign plus installation at $150 per sign
Regulatory and Warning signage (e.g. Stop, Yield, or Pedestrian Crossing signs)	$ 50 to $150 per sign plus installation at $150 per sign
In-Street Yield to Pedestrians Sign	$250 per sign plus installation
Advanced “Ped Xing” warning and related pavement markings (e.g. advanced stop bar or yield marking)	$600 each
Curb ramps with detectable warning strips	$1,200 per ramp; $300 per truncated dome panel
Median refuge island (low cost is monolithic concrete island without landscaping)	$4,000 to $30,000
Pre-cast concrete or rubber flangeway filler for railroad crossings	$1,600 per pad (8ft x 8ft)
Pedestrian underpass or overpass (cost depends on site characteristics)	$750,000 to $4 million
Flashing beacon signal	$3,300 each

Sidewalk Installation	
Sidewalk only (existing curb & gutter or shoulder section)	$ 50 per linear foot
Concrete curb & gutter only	$ 25 per linear foot
Pedestrian-level street lights (10 to 15 ft in height)	$2,200 each
Tree Grates (4ft by 4ft)	$1,200 each

Greenway Trail Construction	
10ft paved shared-use trail (construction only)	$133 per foot $700,000 per mile
10ft unpaved crushed stone shared-use trail (construction only)	$25 per foot $100,000 per mile
Trail markers (not including installation)	$50 each
Information kiosks (not including installation)	$1,200 each
Water fountain (assumes water is already available)	$2,000 each
Bollards (not including installation)	$600 each
Bench (not including installation)	$800 to $1,000 each
Trash Cans (not including installation)	$800 to $1,500 each

Sources: Pedestrian and Bicycle Information Center (www.walkinginfo.org)
NCDOT Division of Pedestrian and Bicycle Transportation
NCDOT Project Services Division, 2007 Bid Averages
(http://ncdot.gov/doh/preconstruct/ps/contracts/estimating2.html)