Morehead City

Pedestrian Plan

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PREPARED BY THE LOUIS BERGER GROUP AND HENDERSON CONSULTING

FOR THE TOWN OF MOREHEAD CITY AND NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION

Division of Bicycle & Pedestrian Transportation

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- *The Louis Berger Group, Inc. and Henderson Consulting*

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Executive Summary

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Executive Summary

This report contains goals, objectives, and Vision for the Pedestrian Plan of Morehead City, as well as data from survey respondents, the Steering Committee, and third-party data sources such as accident databases, and expands it to include additional recommendations. Design guidelines are expressly stated, as are policy and program recommendations. Projects are described in map and table form, prioritized, and presented as short-, medium-, and longer-term implementation items.

In Section 1, a discussion of the important strategies and goals is developed, building upon work performed by an ad hoc Steering Committee, the members of which are also identified. Connectivity, Safety, and Multi-Functionality are cited as primary goals with separate sub-goals identified as explanatory components of each major goal. From a keyword exploration of the Steering Committee, the following Vision Statement was developed that serves as a guide for the Plan:

Morehead City is a community where everyone should be able to walk safely and in beauty from their homes to workplaces, shopping, parks, schools, and back again, enhancing and celebrating the businesses, environments, and history of our Town.

In Section 2, a better understanding of the history and key issues is developed from surveys and research into third-party demographic data sources. From this section we learn that Morehead City is aging, much like the rest of the U.S.; Hispanic populations are small, but increasing; 2.2% of the population walked to work in 2000, about half of what it was just 10 years earlier; and that the population of Morehead City is quite diverse in terms of economic position, racial composition, and lifecycle stage. There are two miles of road for every mile of sidewalk in Town; and many people believe that more sidewalks should be constructed to facilitate walking to schools, friends, and parks.

Section 3 is focused on connections between past planning efforts, policy constitutions, and this Plan. Preliminary recommendations are cited concerning policies on parking lot design, better activity-oriented programs, and clarifying the current sidewalk petitioning process. By improving the policy environment in these documents, and making sure that pedestrian considerations are in turn considered in updates of other, existing plans, the long-term future of walking in Morehead City is stronger. The final report will include refinements based on input from the Steering Committee, general public, staff, and Town Council.

Section 4 provides guidance for the Town of Morehead City as the Town, private developers, and the State Department of Transportation (NCDOT) construct new pedestrian facilities and reconstruct existing pedestrian facilities to meet better standards. This is guidance only; it does not supersede other, adopted design standards at the State or local levels, but rather encourages flexible and appropriate design considerations of pedestrians. Currently, the Town has a need for some additional design standards, and to extend the philosophy of excellent walking environments beyond the downtown core.

Section 5 describes how the recommendations for the future were created. This section includes a description of each factor that was used to assess sidewalk development and that factor's weight. The factors were derived with input from the Steering Committee.

Section 6 describes local policies, plans and programs that can heavily influence the walkability of Morehead City. Policy amendments can often be achieved at low-cost to a municipality while resulting in substantial outcomes that could help Morehead City make notable progress in becoming a more walkable environment. It is strongly recommended that the Town work to update and/or create local ordinances to include more pedestrian-oriented language and guidance for walkable future development. A key recommendation is to appoint a Bicycle, Pedestrian and Trails Committee to help engage the public in the implementation of the Pedestrian Plan, as well as to help complete future planning efforts. Several program recommendations are made. Partnership opportunities are also identified.

Section 7 has a number of specific action steps to implement this Plan, requiring a coordinated effort among Town officials, leaders, and citizen volunteers. A phased implementation schedule that considers priority and cost organizes action steps into short-, mid-, and long-term recommendations. Three planning efforts, two internal policies, nine ordinances, and five programs are described. Fifty unique funding sources are described in Section 7, ranging from private sources to all levels of public funding including local, state, and federal sources.

Short-term project recommendations: within five years of Plan adoption

Twenty-three sidewalk, greenway and maintenance projects totaling 7.4 miles and $3.07 million

Mid-term project recommendations: five to 10 years after Plan adoption

Twenty-six sidewalk & greenway totaling 6.1 miles and $2.44 million

Long-term project recommendations: more than 10 years after Plan adoption

Twenty-four sidewalk and greenway projects totaling 19.5 miles and $6.84 million

Goals and Objectives

Section 1. Goals & Objectives

This section introduces the key concepts behind the Morehead City Pedestrian Plan, as well as the goals and objectives established by the Steering Committee.

1.1 Introduction

The intent of the Morehead City Comprehensive Pedestrian Plan (the "Plan") is to provide guidance for making Morehead City a more pedestrian-friendly community. Partially funded by a grant from NCDOT and matching funds from the Town of Morehead City, 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;
- To identify in the Plan a clear schedule of projects, programs, and policies that Morehead City 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 Town, 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 Morehead City's varied population, including those of current and future residents, businesses, 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 Morehead City more pedestrian-friendly. The Plan also provides design guidelines that are tailored to the specific conditions found in Morehead City. 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 Planning Process

The Morehead City Pedestrian Plan was begun in January, 2010, and completed by December, 2010. Morehead City contracted with a professional consulting firm, The Louis Berger Group, Inc., to help the Town prepare the Plan, conduct public engagement exercises, and assist in facilitating a Steering Committee comprised of citizens, business representatives, school representatives, health care professionals, Town staff, and local pedestrian advocates. A public workshop, four focus groups, and a city-wide survey were conducted as part of the planning process to gather feedback from residents on the vision and recommendations for the future of Morehead City's pedestrian environment. In addition, the Consultant conducted a field inventory of existing pedestrian facilities in Morehead City, which combined with public feedback, led to a list of prioritized project needs. 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 March 29, 2010 Open House and the final Plan was approved by the Town Council on February 8, 2011.

1.3 Vision & Goals

On January 13, 2010, the Pedestrian Plan Steering Committee discussed the question, "Where should the Town be with regards to walking transportation in 20 years?" In order to develop a draft Vision Statement and Goals for the Pedestrian Plan, the Steering Committee provided short keyword phrases, which were then attached to small, transparent jars. Each Committee Member was given six white poker chips and one red poker chip to place into the jars with the white chips indicating support for the goal keyword, and the red chips indicating no support for the goal.

Name	Affiliation	Representing/Status
Steering Committee		
Demus Thompson	Commissioner	Morehead City Council
David Horton	Commissioner	Morehead City Council
Sheila Martin	Nurse	Carteret General Hospital
Bob Coles	Doctor	Carteret Surgical Associates
Michael Lupton	Real Estate Broker	Putnam Real Estate Co.
Matt Graham	AP Env. Science Teacher	West Carteret High School
Cass Flowers	Contractor/Developer	Flowers Construction
Dick Gambill	BOA Member	MC Board of Adjustment
Bill Hettler	Avid Cyclist/Walker	Retired
David Robertson	BOA Member	MC Board of Adjustment
Terri Robertson	Psychotherapist	Terri C. Robertson ACSW Inc
Gina Williams	Real Estate/Avid Walker	Al Williams Properties
Ken Wood	Avid Walker	Retired
Craig Hassler	Avid Cyclist/Walker	Self-Employed
Bill Taylor	PB Chairman	MC Planning Board
Curtis Fleshman	PB Member	MC Planning Board
Gordon Thayer	PB Member	MC Planning Board
Staffing		
Linda Staab	Planning Director	Planning/Inspections Dept.
Sandi Watkins	Planner	Planning/Inspections Dept.
Bob Mosher	Project Administrator	NCDOT Div. of Bicycle & Pedestrian
Scott Lane	Project Manager	The Louis Berger Group, Inc.
Michelle Peele	Planner/GIS Specialist	The Louis Berger Group, Inc.
Roger Henderson	Asst. Project Manager	Henderson Consulting

Table 1.1. Pedestrian Plan Steering Committee and Staffing

Based on these rankings and choice of keywords, the following goal statements and objectives were formulated.

Goal Strategy A: Connectivity. Connecting our homes, shops, parks, and schools to each other is critical to the success of any pedestrian-oriented community.

A.1. The arrangement, proximity, and design of land uses are the most important aspects of creating a transportation-oriented pedestrian environment. The development policies of Morehead City and even the State of North Carolina greatly influence the pedestrian-friendliness of our towns, cities, suburbs, and rural spaces. Therefore, the policies of our governments should support the mixing of different land uses, sponsor high-quality design features, and allow for convenient access for more people to more destinations. This means, for example, that our schools are built within our community where our children can conveniently get to schools and parks, and our parents can feel safe about them doing so.

A.2 The decision to connect neighborhoods, retail centers, offices, and natural areas (both parks and open spaces) should be an assumption, with exceptions allowed only in special circumstances. While the promotion of more vehicular traffic is not favored by most residents, creating accessible pedestrian ways is less objectionable and supported by many more people. The street standards of Morehead City should support both pedestrian connections between development as well as requiring the full participation of the private sector in building connections on and adjacent to new development sites. This means that private or public development actions incorporate elements of the pedestrian transportation system like pedestrian signals, greenways, and sidewalks to the same degree as traffic signals, turning lanes, and driveway improvements.

Goal Strategy B: Safety on Every Facility. Bridges, highways, and other places need to have safe, accessible pedestrian facilities.

B.1 Bridges provide unique access for pedestrians. While bridge structures are long-term and capital–intensive infrastructure, replacing bridges with better, more pedestrian-friendly designs are commensurately important and rare opportunities. Therefore, sidewalks and pedestrian/bicycle safe railings need to be provided, as well as safe approaches to the bridge. Two bridges carry the lifeblood of Morehead City to the east and south (Atlantic Beach); neither of these two bridges

currently accommodates pedestrians well and must be reengineered when they are replaced.

B.2 Safety is First. Major highways also end up being major pathways for people walking. A disproportionate share of accidents has occurred on or near US 70. The design of this facility is therefore critical: as new properties are developed or old ones redeveloped, sidewalks with a minimum five-foot separation are critical elements of the design. Driveways, large corner radii, and the provision of high-speed right turns should be used seldom, if ever, unless there is a demonstrable risk that cannot be overcome through longer turning bays, changes in signal timing, or other measures.

B.3 Crossing Improvements. Sidewalks provide a false sense of security if there are not safe provisions for crossing streets or railroads. Pedestrian count-down signals are now a standard. Americans with Disabilities Act compliance is not optional. Pedestrian push-button signal operations have to be accessible to anyone in a wheelchair, and properly-designed curb ramps must be provided. A variety of pavement markings and median options are available, and traffic volumes, pedestrian volumes, and geometric particulars of each intersection should be considered. This means that if pedestrians are crossing frequently in a particular place, then appropriate provisions need to be made at that location, including sidewalks on worn paths and mid-block crossing treatments.

Goal Strategy C: Supporting Many Functions. The pedestrian system needs to enhance economic opportunities; other modes of transportation including motor vehicle travel, public transportation and cycling; and celebrate the unique characteristics and history of Morehead City.

C.1 Economic Development. Many people come to Morehead City to enjoy the sidewalk shops, favorable climate, and seaside locale. A great pedestrian environment supports tourism and retail industries by adding more appeal to a community. Allowing and encouraging more activity on the sidewalks and making shops more accessible by foot will help support businesses even in the face of high fuel prices. This means that parking lots are safe and access multiple developments, for example.

C.2 Better Walking Means Better Transportation – For Everyone. More separation (at least five feet) between cars and pedestrians makes for a safer roadway for everybody. Slowing down turning vehicular traffic – when they are out of the way of high-speed traffic – makes for fewer accidents and less severe accidents at intersections and driveways.

Goal Keyword / Phrase	A.1 Land Use	A.2 Connectivity	B.1 Bridges	B.2 Safety	B.3 Pedestrian Crossings	C.1 Economic Development	C.2 Support All Modes	C.3 Experiencing the Town
Connect Residential with Retail	●	●		●	●	●		●
Pedestrian Facilities on Bridge			●	●				
Improve Safety				●	●		●	●
Improve Access to Parks	●	●						●
Pedestrian Facilities Need to be Multi-Functional						●	●	
Improve Access to Schools		●		●	●			
Include Improved Aesthetics						●		●
Support History Trails						●		●
Pave (put sidewalks) On Worn Paths		●		●				
Improve Rail Crossings		●		●			●	

Table 1.2. Relationship of Steering Committee Priorities to Objectives

Beautiful, scenic walkways are enjoyed by everyone, regardless of how they move through the Town. Better landscaping, pedestrian-scale lighting, and clean, well-maintained sidewalks, crosswalks, and other facilities enhance the appearance of Morehead City.

C.3 Walking is the Best Way to Experience Morehead City's Attractions and History. Programs, facilities, and education in school need to support a truly "hands-on" approach to learning about the great places of Morehead City, including parks, schools, waterfront areas, marshes, and historic properties. This means that the creation of active lifestyle programs for kids, seniors, and office workers; as well as usable maps that highlight the important destinations relevant to both the past history and present activities are important objectives.

Each of these goals and objectives should clearly support and connect with one or more of the Steering Committee's keywords. Table 1.2 illustrates how these connections are made for each keyword and each of the objectives. Based on the preceding language, a comprehensive ***Vision Statement*** – literally, the way that pedestrians should view Morehead City in the future – was developed from the Steering Committee's Goals and Objectives:

"Morehead City is a community where everyone should be able to walk safely and in beauty from their homes to workplaces, shopping, parks, schools, and back again, enhancing and celebrating the businesses, environments, and history of our Town."

2 Conditions and Issues

Section 2. Conditions and Issues

This section highlights the history of Morehead City as it is relevant to pedestrians, and explores the issues that the Town currently faces as it strives to improve on its pedestrian conditions. Accident, demographic, and survey statistics are used to describe the people of Morehead City and their issues and concerns as they relate to walking in their community.

In order to create a better understanding of the community of Morehead City and the needs of its pedestrians, a two-pronged research project was conducted. The first phase of research was oriented towards ascertaining the composition of Morehead City's pedestrians through statistical data. The second phase of work was oriented towards gathering issues through (1) the Pedestrian Plan Steering Committee; and (2) a general survey used to gather specific information from residents about their walking habits. However, Morehead City has developed into the place it is today for good reasons, and therefore we initially explore the history of the Town and the development that has influenced how people travel in and through it.

2.1 A Pedestrian History of Morehead City

The early history of Morehead City is an exciting aspect to the Town, one that has driven its physical form to the present day. The Town was originally a product of intense speculation centered not on the port facility alone, but on the imminent completion of the Atlantic and North Carolina Railroad in 1858. Governor John Motley Morehead envisioned a commercial center at Shepard's Point, a confluence of rail and sea ports, the former of which he himself played a deciding role in having extended to the port. Conceptions of a port city rivaling that of New York itself were spoken of often. On November 11th, 1857, the first lots were sold at auction; it is this date that Morehead citizens recognize as the founding of their Town, not the actual incorporation year of 1861. Early development centered on 15th Street east to the port and rail terminals, with development of many of the remaining lots extending to 24th street being unimproved until after the Civil War. Citizens and then federal troops in these early days strolled on dirt streets, or streets fortified by crushed shells. Although the Town was growing at the turn of the last century - a wire fence strung across 14th street to keep cattle from intruding into what is now downtown had to be re-strung along 22nd Street in 1907 - the Town would have to wait until 1925 before Arendell Street and others were paved.

The Town has always pulled in its share of visitors to enjoy waterfront and fishing opportunities. The gracious Atlantic Hotel, formerly located on "The Point" east of 4th Street, accommodated many visitors who would arrive at the front door by rail and later take a swim or a sail in Bogue Sound. The life and death of the great Atlantic Hotel, from

its construction in 1880 until it was destroyed by fire in 1933, circumscribes a colorful period in the Town's history.

Morehead City has had famous walks installed as landmarks in the historical memory of the City, even if they are physically gone. The rail and sea ports weren't the only attractions to Morehead City. A Tennessean named Larry West played a large role in the development of the Town when, in the 1920's, he executed a contract to pave the Town's streets and sidewalks. After completing his assignment, he also developed the land south of Arendell to the Sound between 20th and 22nd Streets. One of his creations was the famous White Dock, which extended far out into the Sound from 21st Street. Although tourism has played a large role throughout the Town's history, it is unlike other towns along the Atlantic Intracoastal Waterway (AIWW, or ICW, or ICWW), in that Morehead City retains the feel of a small working city thanks to its sea port and rail line. The rail line still runs squarely down the middle of the street named for the family so instrumental in its growth (Arendell), and crosses streets named after families now firmly ensconced in history: Shackleford, Fisher, Shepard, Bridges, Evans, and others. Walking down these streets today is reminiscent of the fine old port towns in New England, invoking a sense that fishing, and the movement of product from sea to land and back again, is still an important function of the place.

Current Morehead City

Land. The Town has settled into its history, and is seeking to adapt itself to tourists, new business opportunities, and an expanding population and developed area. The Town remains closely constrained by water and marsh which, along with a lack of a boom-and-bust cycle in favor of slower growth, has largely prevented the widespread suburbanization of so many other towns in North Carolina and around the country. The Town has a large diversity of housing types and residents, from "trailer" homes in the rural-suburban fringe areas to the stately old homes from an earlier era. Blocks measured at 370 feet in their east-west dimension and approximately 250 feet north-south provide short distances between land uses. These development patterns have helped to ensure a tightly-gridded street pattern throughout much of the Town, and create a most efficient way to travel and access land, particularly on foot. However, new shopping centers located well away from the historic center of town along US 70 and NC 24 have started to have some of the segregation effect seen in so many other places, with everyday sundry goods being purchased in one location and the best walking and most diverse retail, living and working environments located elsewhere. The challenge is

South 8th Street (top) indicates how even in the 1940s the ubiquitous parking meter had made its presence felt; Businesses and streets alike take a beating during Hurricane Ione in 1955: managing impervious surface and stormwater are especially important here.

Sources: Dudley; Alford

evident: how to keep walking distances short and safe between new residential enclaves, retail opportunities, and other destinations like schools and parks. [1, 2, 3, 4, 5, 6, 7, 8]

The seaport (top), airport (middle), and rail line connect Morehead City with distant places, as do a few major roadways.

Transportation by Road, Air, Sea and Rail. The dominating port-and-rail-centered metropolis envisioned by Governor Morehead and his colleagues never materialized (at least thus far), but there is still a seaport, one of two North Carolina seaport terminals. Bulk cargo comprised 90% of the tonnage entering the port in 2009, with sulfur and rubber products comprising the majority of tons imported. Phosphates, as well as military shipments, are important exports, with the port serving the Marine Bases at Camp Lejeune in Jacksonville and Cherry Point in Havelock, NC. Morehead City's port is a major import entry point for natural rubber. The first decade of the 21st century continued a trend for the port, as tonnage decreased from 2.6 million tons to 1.9 million, with the decrease stemming from more favored deep-water ports in Savannah and elsewhere. The number of ships and barges operating out of the port has also declined. Morehead City is still served by a rail line today, although it only carries freight to and from the port facility and not passengers seeking respite at the Atlantic Hotel. Morehead City is the easternmost point on the North Carolina Railroad (NCRR) line to Charlotte, and is maintained through a leasing agreement by Norfolk Southern Railroad. Today, few freight trains make the trip through town to reach the seaport. The Beaufort-Morehead City (Michael J. Smith) Airport located further east on US 70 just north of Beaufort, is a small commercial airport housing 53 planes and offering three runways, none longer than 4,300 feet. For the one-year period ending June, 2009, 77% of the operations was local general aviation, another 10% was non-local, and 6% was military flights. The roadway system is dominated by US Highway 70 / Arendell Street, which makes sudden changes from rural highway to strip commercial artery to main street, the transitions often seeming to happen within the space of a single block. Pebblestone aggregate surfaces the wide sidewalks east of 11th Street on Arendell, while streets running parallel on an east-west axis are frequently favored by wide planting strips and sidewalks set well back from vehicular traffic. Even places like busy west Arendell Street are paralleled by narrower, quieter streets. Bridges Street, named after one of the Arendell sons, crosses Arendell to become NC 24; the confluence of these two streets is busy and marked by high-speed turns and relatively high volumes of through traffic. This congestion triggered the construction of a short distance of bicycle path along Executive Drive to help cyclists and walkers avoid this intersection.

Walking and Walking Destinations. Only a thousand yards east from the busy Bridges/Arendell intersection sits West Carteret High School, which in turn is flanked by Swinson Park. Other schools and parks lie to the east of these locations, and all of these

are located in very "walkable" neighborhood areas. Of course, the waterfront itself is a major destination and walking venue, providing glimpses of the water, fishing boats, shops and restaurants. These are generally very well connected by sidewalks that are often wider than the five-foot standard. Notable downtown too is the Promenade, a five-block section of 10' - 30' waterfront walkway with concrete pavers. This is a popular tourist venue, and provides evidence of how the Town has focused on making walking convenient, safe and enjoyable - as well as enhancing business opportunities. Outside of a perimeter described by 35th Street to the west, Calico Creek along the north side of downtown, and Bogue Sound to the south, the walking environment is generally not as accommodating. Sidewalks are missing altogether along many streets, and the streets themselves are sometimes faster, wider, or have more lanes to negotiate as vehicular needs have taken precedence in part to meet the desires of suburban travel patterns. The Town has taken on these challenges by constructing pedestrian ways off-road (that is, not immediately adjacent to a roadway or in the road right-of-way). Examples include concrete and boardwalk trails that traverse marshy lands sensitive to any additional impervious surfaces; adjacent "sidepaths" that separate the motor vehicles from cyclists and pedestrians; and occasional meandering paths that connect sidewalks to important destinations (e.g., the high school). The greenway along Bridges Street and long, continuous east-west sidewalk on the south side of US 70 / Arendell Street are notable and important exceptions. Extent and composition of paths are shown in Appendix C.

2.2 The Pedestrians of Morehead City

The viewpoint of visitors to Morehead City is an orientation toward the tourism industry, but the economy is diversified by one of two existing seaports in North Carolina and Carteret Community College. The former contributed directly or indirectly to over 24,000 jobs in the mid-east section of North Carolina,[9] and the latter has approximately 270 employees serving 1,900 full-time and over 4,500 continuing education students.[10] The Carteret General Hospital is also an employment center, with over 1,000 employees. Morehead City government employed 129 people full-time and another 17 part-time during 2009, making it another major employer. These employment centers are attractive destinations for utilitarian walking, and the needs of people during the economic downturn include affordable, flexible transportation systems like walking.

The figure on the following page illustrates one way of treating potential pedestrians as "consumers" of transportation services, and helps to provide a broad-brush overview of the kinds of people and communities that are located within Morehead City.

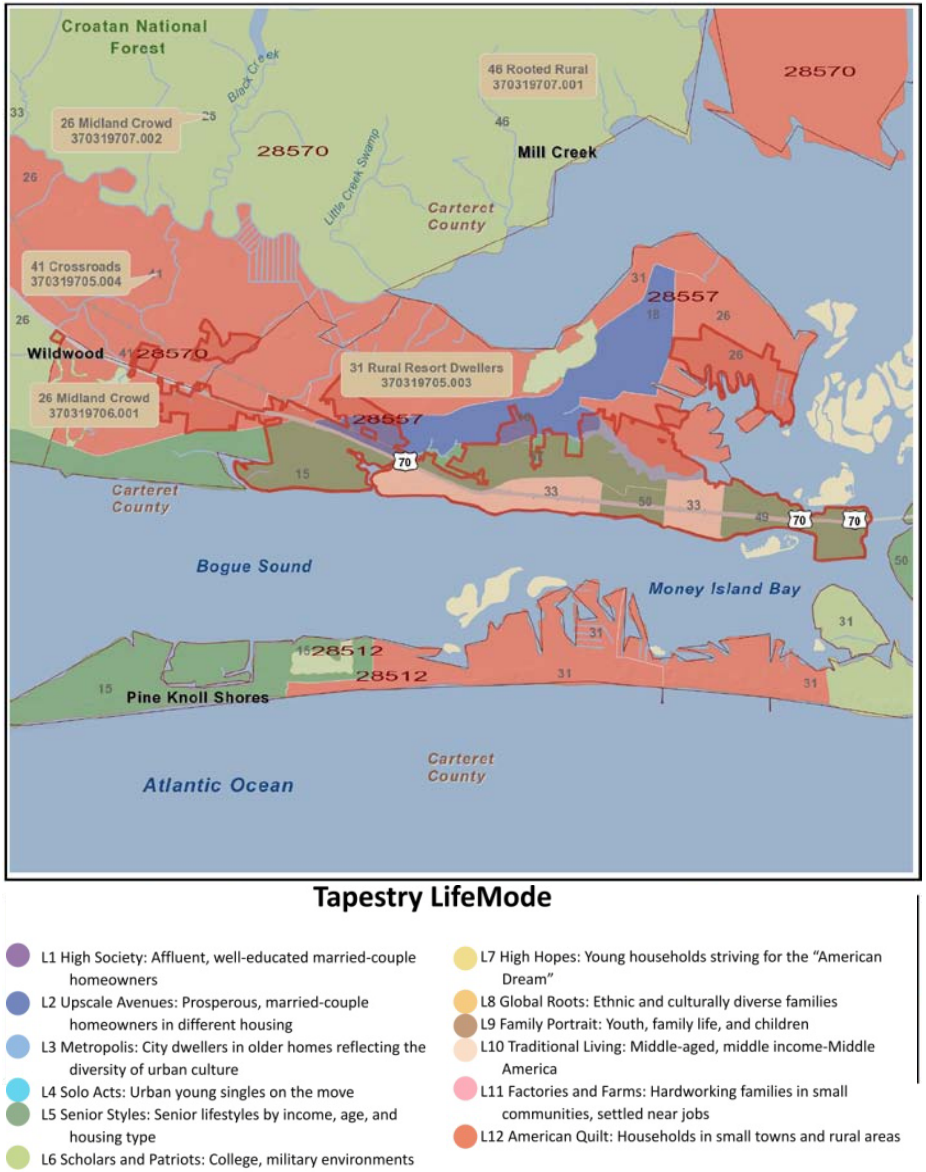


Figure 2.1. Market Customer Overview of Morehead City

Market segmentation analysis provides a different view of a population than traditional population statistics. Also known as "tapestry segmentation," the approach divides the U.S. into 65 consumer and 12 summary groups based on lifestyle ("LifeMode") and 11 urbanization groups based on geographic, physical, and income characteristics of the population and area.

While there are several distinct "LifeMode" groupings, the two most common in Morehead City are the following:

L12: American Quilt: Location in America's small towns and rural areas links the four segments in American Quilt. This group represents a more diverse microcosm of small-town life, with manufacturing and agriculture a part of the local economy, but also includes workers in local government, service, construction, communication, and utilities. American Quilt includes the Rural Resort Dwellers segment, an older population that is retiring to seasonal vacation spots, and Crossroads, young families who live in mobile homes. Households in American Quilt are also more affluent, with a median household income of $45,729, and more are homeowners.

L5: Senior Styles: As the U.S. population ages, two of the fastest-growing American markets are found among The Elders and the Silver and Gold segments. Senior Styles segments illustrate the diversity among today's senior markets. Although incomes within this group cover a wide range, the median is $45,396, attributable mostly to retirement income or Social Security payments. Younger, more affluent seniors, freed of their child-rearing responsibilities, are traveling and relocating to warmer climates. Settled seniors are looking forward to retirement and remaining in their homes. Residents in some of the older, less privileged segments live alone and collect Social Security and other benefits.

A complete guide to tapestry segmentation and definitions of all LifeMode groupings can be reviewed at:

www.esri.com/library/brochures/pdfs/tapestry-segmentation.pdf

Source: ESRI Business Analyst Online (accessed 3-2010).

A more traditional way of viewing the people of Morehead City is represented by Table 2.1, which details the demographic characteristics of residents. The demographic information displayed in the plan includes only the corporate limits of Morehead City and does not include the ETJ (Extraterritorial Jurisdiction). Unfortunately, much of the fine-grained US Census data is a decade out-of-date, so a surrogate estimate of more current values is provided in the table using a private, third-party source.[11]

The population of Morehead City is increasing, but only slowly, as are the total number of households. According to the US Census, the Town has increased in population by 2.6 percent from 1990 to 2000. However, change is occurring much more dramatically in the age structure of the community. Between 1990 and 2014 the median age (the middle-most age of people living in Morehead City) is expected to increase by nearly 10 years.[12] While the age demographic of the United States is generally getting older, this pace is considerably more accelerated in Morehead City. Even more dramatic is the upward change in Hispanic populations. The term "Hispanic" is an indicator of ethnicity, not race, but still connotes some general characteristics such as the potential for increased language barriers that should be recognized during outreach efforts. However, the total number of Hispanic persons is still only a tiny fraction (about 3%) of the total estimated population in 2009.[13]

Figure 2.2 on the following page depicts both travel and educational enrollment trends between the two most recent decennial Census periods (1990 to 2000). Single-car households have shown a resiliency in Morehead City, perhaps due to the increasing age of residents and proportionately fewer drivers. Thirteen percent (13%) of all households in Morehead City did not own a car in 2000, indicating a reliance on other modes of transportation. While the number of people walking (from home to work) sharply decreased between 1990 and 2000, the 2.2% of walk commuters is still relatively high compared to other locales.

Table 2.1 Key Demographic Trends

Demographic	1990	2000	2009	2014	Trend
Population	7,496	7,691	7,699	7,677	
Households	3,329	3,597	3,684	3,703	

They Said It…

"Of the competitive southern U.S. beach tourism market, Carteret County ranks 10th and represents 2.4 percent of the tourism market, in terms of visitor expenditures in 2003. Because of its geographic placement, Carteret County must work harder to entice visitors to make the trip to the Crystal Coast. This is achieved by providing facilities and services visitors desire…" including "**Connect tourism activities by developing transportation alternatives**."

Source: Tourism Opportunities: Carteret County, Tourism Development Specialists, Inc. March, 2005.

Figure 2.2. Travel and Educational Enrollment Statistics

Statistic	1990	*1990%*	2000	*2000%*	*Annual Change*
Car Ownership					
None	445	*13.4%*	470	*13.0%*	*0.6%*
1	1,403	*42.1%*	1,567	*43.3%*	*1.1%*
2	1,186	*35.6%*	1,267	*35.0%*	*0.7%*
3	226	*6.8%*	254	*7.0%*	*1.2%*
4	69	*2.1%*	45	*1.2%*	*-4.3%*
5+	4	*0.1%*	13	*0.4%*	*12.5%*
Travel Mode to Work					
Drove Alone - Car, Truck, or Van	2,513	*73.6%*	2,677	*78.0%*	*0.6%*
Carpooled - Car, Truck, or Van	666	*19.5%*	458	*13.3%*	*-3.7%*
Public Transportation	7	*0.2%*	7	*0.2%*	*0.0%*
Walked	**153**	***4.5%***	**76**	***2.2%***	***-6.8%***
Other Means	19	*0.6%*	87	*2.5%*	*16.4%*
Worked at Home	58	*1.7%*	128	*3.7%*	*8.2%*
Travel Time to Work					
Less than 5 minutes	300	*8.8%*	194	*5.7%*	*-4.3%*
5 to 9 minutes	768	*22.5%*	686	*20.0%*	*-1.1%*
10 to 19 minutes	1,467	*42.9%*	1,450	*42.2%*	*-0.1%*
20 to 24 minutes	267	*7.8%*	255	*7.4%*	*-0.5%*
25 to 34 minutes	340	*10.0%*	422	*12.3%*	*2.3%*
35 to 44 minutes	43	*1.3%*	81	*2.4%*	*6.5%*
45 to 59 minutes	76	*2.2%*	115	*3.3%*	*4.2%*
60 to 89 minutes	62	*1.8%*	50	*1.5%*	*-2.1%*
90 or more minutes	36	*1.1%*	52	*1.5%*	*3.8%*
Average Travel Time to Work (mins.)	15.1		17.3		*1.4%*
Education					
Preschool/Kindergarten	109	*1.5%*	256	*3.5%*	*8.9%*
Elementary/High School	1,016	*15.4%*	897	*10.3%*	*-1.2%*
Public College	308	*4.3%*	315	*4.3%*	*0.2%*
Private College	56	*0.8%*	50	*0.7%*	*-1.1%*
Not Enrolled in School	5,638	*78.0%*	5,831	*79.3%*	*0.3%*

Source: ESRI Business Analyst Online Demographic Data Set

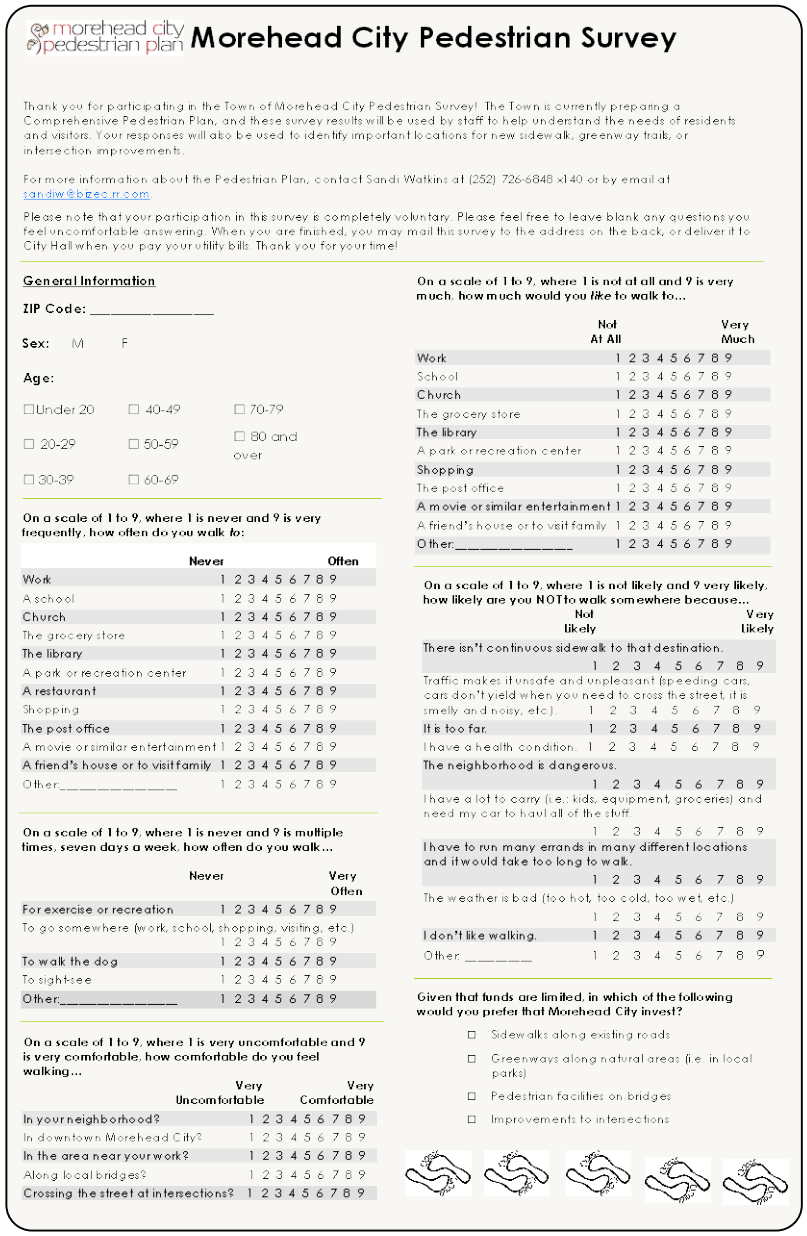
2.3 Concerns of the Community

An on-line survey instrument and accompanying paper version was distributed during November, 2009 through April, 2010 to assess the sentiments and motivations on walking in Morehead City. Page one of the two-page survey is shown at right; the complete survey and results are found in Appendix A of this report.

Figure 2.3 on the next page illustrates a "dashboard"-style summary of the survey responses. Seventy-three (73) people responded to the survey over the course of the pedestrian plan study. Of those 73 people, many (nearly 40%) were under the age of 20 years, and a higher percentage (59%) were female. Only about 15% were over the age of 60 years. This response group is generally reflective of the Town's gender (54% were female in 2000) but not as closely aligned with the age structure of the Town (only about 22% of residents were less than 20 years old at the time of the last decennial Census). However, the responses do not seem to indicate an age bias that might be expected, e.g., more people walking in comparison to similar, past surveys in other towns.

Friends and family was a popular category of walking destinations (25%), as was a park or recreation center (12%). However, working (8%) was surprisingly low as a walking destination. People generally cited parks/recreation centers and friend/family as destinations that they would like to walk to even more, although shopping and movies/entertainment were other places that people wanted to walk to more frequently, if conditions were to be improved.

In terms of personal comfort while walking, local bridge structures were cited as very uncomfortable more frequently than any other type of location along with work. Neighborhoods were cited as being the most comfortable places in which to walk. In order to make these places more comfortable to walk, sixty-two percent (62%) of respondents cited the need for more sidewalks, and another 22% the need for more greenways (hard surface paths not adjacent to roadways). Surprisingly, only 10% of respondents cited the need to spend more money on bridge accommodations, in spite of the response that these locations were particularly unfriendly towards pedestrians. Intersection crossings garnered only 8% of the response. However, these results may simply indicate a preference for popular locations where it is generally safe and acceptable to walk now, not where people would be walking if the accommodations were improved.



morehead city pedestrian plan **Morehead City Pedestrian Survey**

Thank you for participating in the Town of Morehead City Pedestrian Survey! The Town is currently preparing a Comprehensive Pedestrian Plan, and these survey results will be used by staff to help understand the needs of residents and visitors. Your responses will also be used to identify important locations for new sidewalk, greenway trails, or intersection improvements.

For more information about the Pedestrian Plan, contact Sandi Watkins at (252) 726-6848 x140 or by email at sandiw@bizec.rr.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*:

	Never								Often
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...

	Never								Very Often
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
To sight-see	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...

	Very Uncomfortable								Very Comfortable
In your neighborhood?	1	2	3	4	5	6	7	8	9
In downtown Morehead City?	1	2	3	4	5	6	7	8	9
In the area near your work?	1	2	3	4	5	6	7	8	9
Along local bridges?	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...

	Not At All								Very Much
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 not likely and 9 very likely, how likely are you NOT to walk somewhere because...

	Not likely								Very Likely
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 (i.e.: 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, in which of the following would you prefer that Morehead City invest?

- ☐ Sidewalks along existing roads
- ☐ Greenways along natural areas (i.e. in local parks)
- ☐ Pedestrian facilities on bridges
- ☐ Improvements to intersections

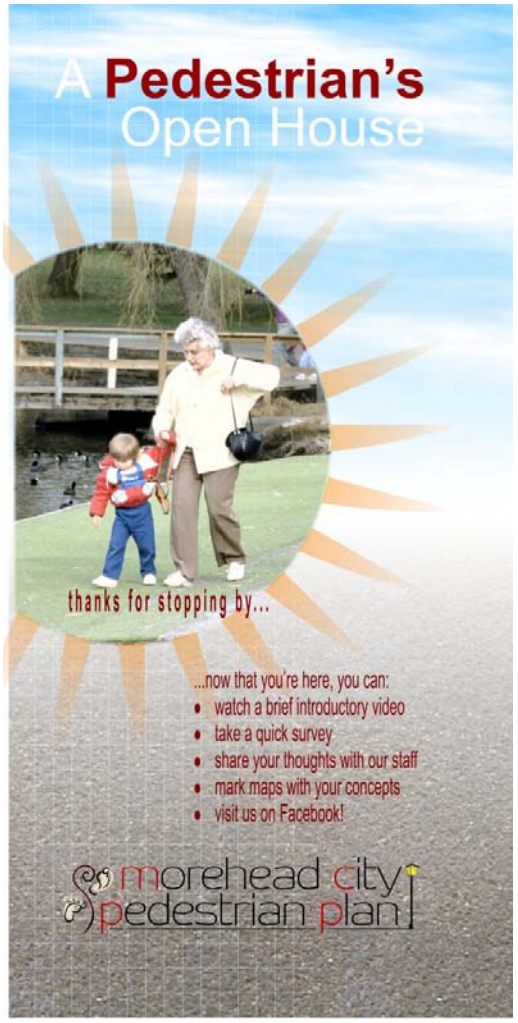


Figure 2.3. Survey Summary Dashboard

The graphic at right illustrates how 73 survey respondents answered questions about their walking preferences and concerns. A number of surveys were completed at the Open House event held at the Crystal Coast Civic Center.

Age of Respondents	
Under 20	39%
20 - 29	8%
30 - 39	7%
40 - 49	14%
50 - 59	17%
60 - 69	10%
70 - 79	4%
80 and Over	1%

Sex of Respondents	
Male	41%
Female	59%

Most / Least Popular Places to Walk

Place	Never	Some	Frequently	Graph	Want to Walk!
Work	81%	11%	8%		17%
School	72%	22%	6%		22%
Church	85%	12%	3%		23%
Grocery Store	53%	43%	4%		23%
Library	68%	31%	1%		25%
Park	41%	47%	12%		45%
Restaurant	55%	38%	7%		
Post Office	70%	26%	4%		27%
Shopping	61%	33%	6%		34%
Movie	66%	31%	3%		37%
Friend / Family	33%	42%	25%		57%

Most / Least Comfortable Places to Walk

Place	Uncomfortable	In-Between	Comfortable	Graph
Neighborhood	8%	43%	49%	
Downtown	8%	58%	34%	
Near Work	27%	49%	24%	
Local Bridges	27%	63%	10%	
Intersections	18%	78%	4%	

Not Likely to Walk More Because...	
Lack of Sidewalk	19%
Too Much Traffic	17%
Too Far	13%
Poor Health	76%
Dangerous	48%
Too Much to Carry	29%
Takes Too Long	26%
Bad Weather	27%
Don't Like Walking	66%
Other	71%

Spend Money On...	
Sidewalks	62%
Greenways	21%
Bridges	10%
Intersections	8%

2.4 Accidents and Locations

An accident history from 2000 to 2008 was constructed using reported accidents from the North Carolina Department of Transportation records. Any unreported accidents – and these are fairly commonplace – are not represented in the tables and charts on these pages.

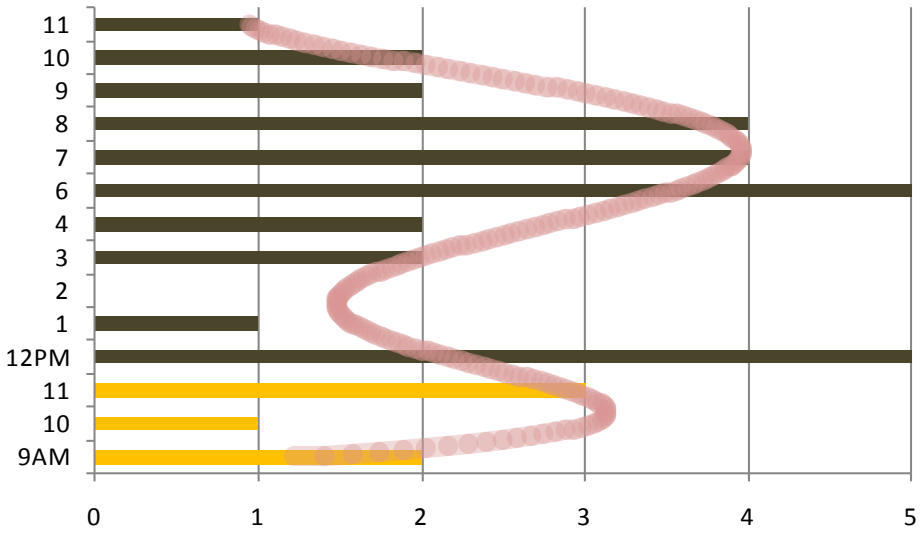


Figure 2.4. Time-of-Day of Pedestrian Accidents, 2000-2008

Time-of-Day (Figure 2.4.). While many accident patterns in coastal communities exhibit a "spike" in late-night hours due to people releasing from restaurants and drinking establishments, Morehead City has peak accident periods at mid-day and early evening. This type of pattern may be realized from recreational trip-making during lunch periods and immediately after work, probably impacting local residents rather than tourists.

Location (Table 2.2.; Figure 2.5.). This table and the following map both clearly indicate that US 70/Arendell and Bridges Street are the two main centers of accident activity, with a secondary node of activity at Bridges Street/35th Street.

Table 2.2. Location of Pedestrian Accidents, 2000-2008

Street On	A-Injury Total	B-Injury Total	C-Injury	Fatal	Unknown or PDO	Summary
106 OAKS					1	
20TH ST					1	
21ST ST						
35TH ST		1				
BALD DR						
BAY ST					1	
BRIDGES ST		4	1		1	
COLLEGE CT					1	
COMMERCE					1	
COUNTRY CLUB			1			
EMELINE						
EXECUTIVE		1				
FISHER ST						
N 20TH ST						
NC 24					1	
PROFESSIONAL						
ROCHELLE			1			
US 70	3	5	4	3	3	

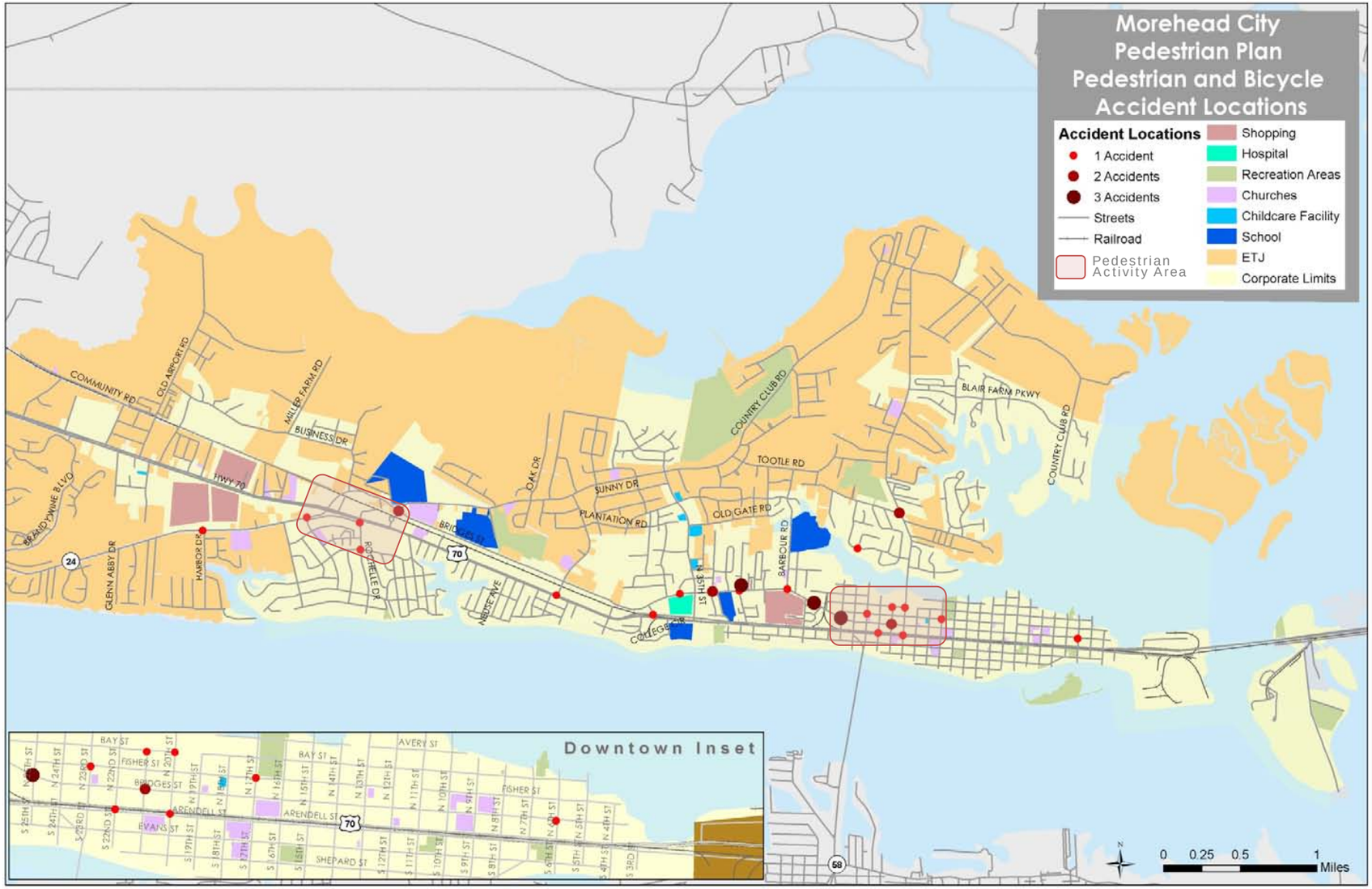


Figure 2.5. Map: Pedestrian Accidents, 2000 - 2008

In particular, two clusters of activity stand out (see red rectangles in the main map area of Figure 2.5.): a stretch of US 70/Arendell Street near the intersection of NC 24, and a second area of US 70 and Bridges Street centered around the intersection with 35th Street. While accidents do occur downtown, the number of people walking also dramatically increases, while the familiarity of tourists with their surroundings probably decreases. All three recorded fatalities from 2000 to 2008 involving pedestrians occurred on US 70 / Arendell Street.

Trends. With the exception of a spike in 2002, pedestrian accidents have been generally rising, with jumps in 2006 and 2007. Some of the decline seen in 2008 may correlate with a reduced number of tourists due to an economic recession that severely limited discretionary spending and travel for many people. Tourism accounts for $250 million in revenue annually in Carteret County gathered through 1,100 tourism-related businesses.[14] As seen in Table 2.3., tourists translate into both dollars and pedestrian accident statistics in different ways for different communities along the Crystal Coast. Morehead City ranked second-to-last in pedestrian accident "rates" (number of accidents divided by the US Census Bureau population count in 2000) of the five peer cities in this area. Nearby municipalities included in the comparison are New Bern, Calabash, North Topsail Beach, Emerald Isle and Kill Devil Hills.

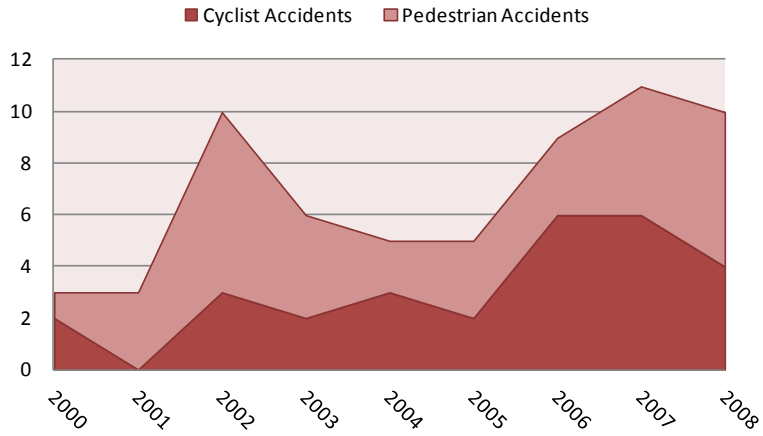


Figure 2.6. Cycling and Pedestrian Accidents, 2000-2008

Table 2.3. Crash Statistics in Nearby Towns

Town	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Totals	2000 Pop	Rate	Trend
New Bern	2	2	1	1	0	3	6	3	2	2	22	23,128	0.10%	
Calabash	0	0	0	0	0	0	1	0	0	1	2	711	0.28%	
North Topsail Beach	0	0	1	0	0	0	0	0	1	1	3	843	0.36%	
Emerald Isle	0	1	1	2	1	3	1	3	1	2	15	3,488	0.43%	
Kill Devil Hills	3	0	5	5	1	3	2	3	4	3	29	5,897	0.49%	
Morehead City	**2**	**4**	**4**	**4**	**7**	**8**	**4**	**5**	**9**	**8**	**55**	**7,691**	**0.72%**	

2.5 Facilities and Conditions

Most of the sidewalks, boardwalks, and greenways in Morehead City are in fair to good condition with few exceptions. The sidewalk (and street) pattern downtown is very strong and contiguous; some sidewalks in particularly favorable tourist areas exceed the five-foot standard sidewalk width. There are some short stretches of sub-five-foot sidewalk. While crossing provisions are typically good, some improvements at high-traffic locations around schools and shopping centers could be made.

Discontinuous sidewalks along US 70 and NC 24 extending northward to Country Club Road are clear omissions. Generally, newer subdivisions have fewer provisions for walking along or across the street, and the land uses are more homogenous with greater distances to traverse. These conditions add up to concentrations of areas that have high pedestrian activity and others that are not conducive to walking at all.

The small chart on this page illustrates a clear measure of walking capacity in the Town as a whole compared to the downtown area. For every two miles of street centerline (not counting individual lanes), there is only one mile of sidewalk throughout Morehead City. In the downtown area, this ratio is much higher at 1:1.3, indicating that there are nearly as many miles of sidewalk as centerline miles of roadway. (Note that the maximum feasible ratio of sidewalk to roads is 2:1, since sidewalks can occur on both sides of a roadway.) The materials and widths vary only slightly from five-foot-wide concrete, typically on greenway or waterfront facilities.

Figure 2.7 on the next page illustrates the results of a survey of our Steering Committee about the places where they live, work, play and shop superimposed over the current sidewalk system. This figure clearly shows clusters of downtown opportunity as well as a second walking "center of power" around the busy intersection of US 70/Arendell Street and NC Highway 24/ Bridges Street.

Facility Type	Miles
Sidewalk	33
Town Streets	67
Town Ratio	*1:2*
Downtown Sidewalk	22
Downtown Streets	28
Downtown Ratio	*1:1.3*

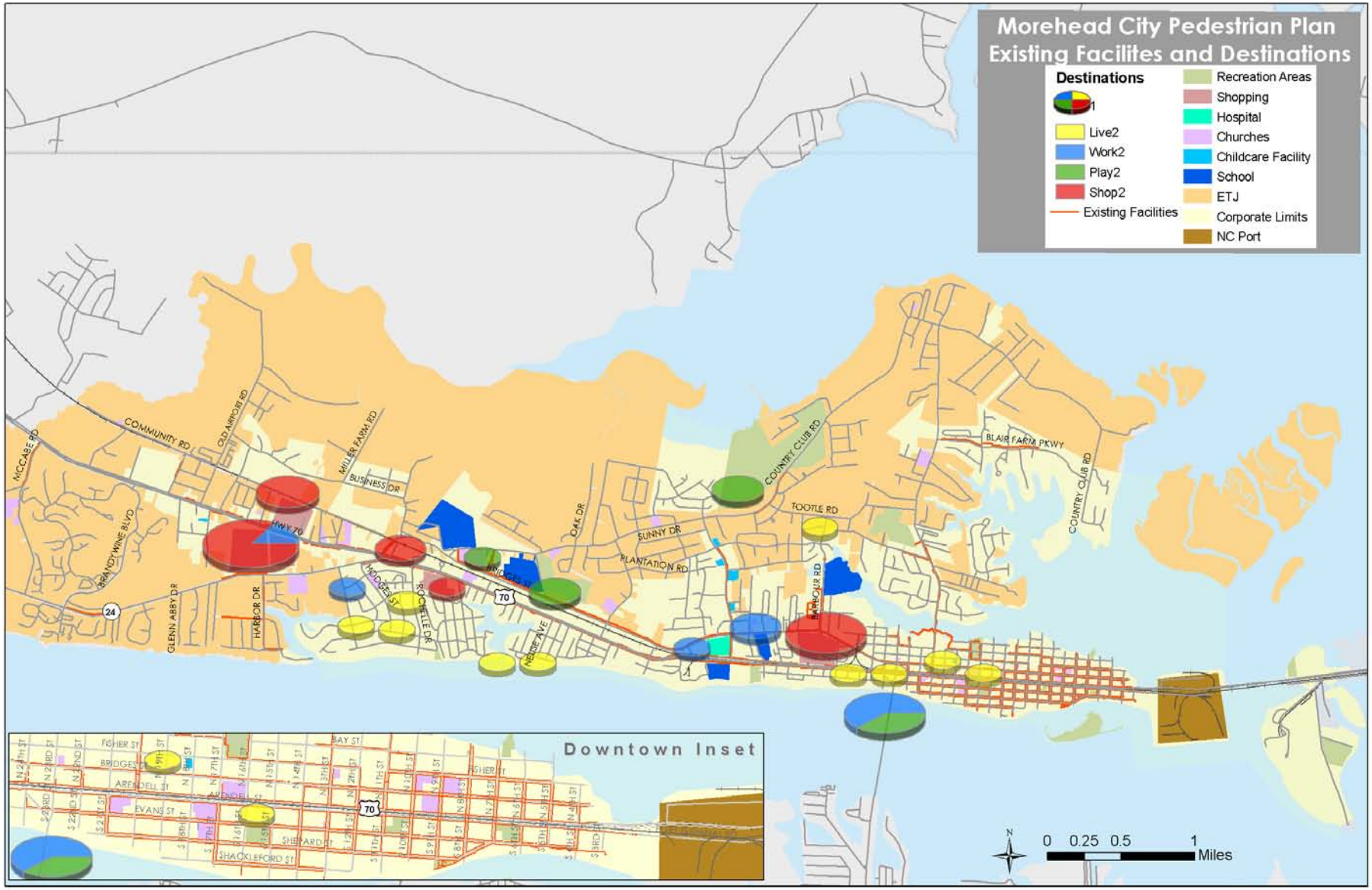


Figure 2.7. Pedestrian Facilities and Destinations

Policy and Plan Review

Section 3. Policy and Plan Review

The decisions that shape the quality of the pedestrian experience are made every day, every time a new shopping center is built, an intersection is widened, a street paved. In turn, the Town of Morehead City makes decisions about how streets are designed, the amenities created as 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 Morehead City.

This section reviews current planning documents and policies in Morehead City that shape the day-to-day experiences of those who walk for recreation and transportation. Preliminary recommendations are offered as well for improving the current ordinances that are used by Morehead City to guide development patterns and the built environments in the Town.

3.1 Existing Programs

- 2009 Comprehensive Annual Financial Report
- 2008 NC Transportation Improvement Program (2009-2015)
- 1999 Morehead Alternative Transportation System (MATS)

3.2 Existing Ordinances and Policies

- Morehead City Code of Ordinances including the Unified Development Ordinance (UDO)
- North Carolina DOT Policies
- Federal Highway Administration Policies

3.3 Existing Plans and Studies

- 2007 Morehead City Core Land Use Plan
- 2009 Morehead City Harbor Channel Realignment Study
- 2007 Comprehensive Bicycle Plan
- 2001 Historic Architecture of Morehead City, North Carolina's First Coastal Railroad Resort
- 2001 Downtown Urban Design Plan, Vision 2001
- 1999 Parks and Recreation Comprehensive Master Plan
- 1998 Waterfront Access Plan
- 1992 Parking Study

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. In fact, NCDOT is a major financial contributor to this planning effort. NCDOT has become more amenable in recent years to looking at non-traditional street design standards; adopting a Complete Streets policy in 2009, 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 Programs

2009 Comprehensive Financial Report

The Town of Morehead City Comprehensive Financial Report for the fiscal year that ended June 30, 2009, includes a fund balance of $121,068 earmarked for sidewalk construction. There is also a fund balance in the Morehead City Alternative Transportation System (MATS) program fund of $44,853 after a capital outlay in 2009 of $146,192. Total expenditures to date on the MATS program are $871,965.

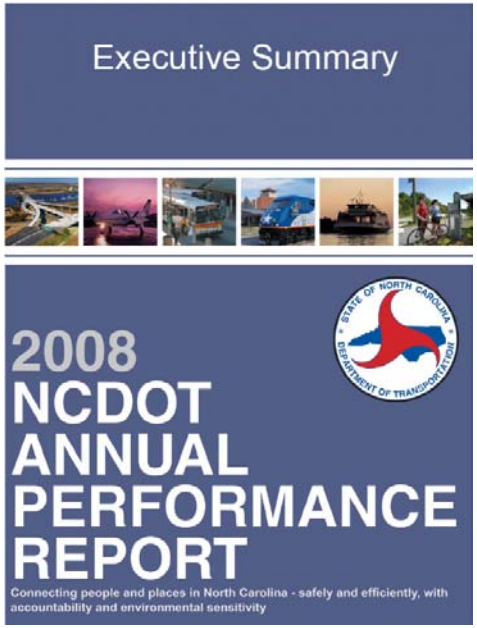
North Carolina Transportation Improvement Program (2009-2015)[15]

The biennial listing of projects expected to be funded with state and federal transportation funds was last published in June, 2008 by NCDOT. Morehead City and Carteret County participate in the programming process through the "Down East Rural Planning Organization" (RPO) together with Craven, Jones, Onslow, and Pamlico counties and cities and towns within those counties. A list of 2007 and 2008 accomplishments in Carteret County by NCDOT (including the DOT number) includes the following: bridge over branch of the Newport River (B-4055), Guardrail rehabilitation (R-4401), paved shoulder added to SR 1124 (SF-49027), and an intersection improvement on Hibbs Road / SR 1141 (SF-4902G).

Future Carteret County projects to receive state or federal funding in the 2009 to 2015 timeframe were listed as follows by NCDOT: Multi-lane 2.2 miles of US 70 at Radio Island to north of Beaufort (R-3307) estimated to cost $105 million to be started in 2015. Several roadway upgrades outside of Morehead City are listed without funding in the 2009-2015 timeframe.

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. Morehead City falls within Division 2. The TIP contains both independent and incidental projects, with the latter associated with roadway construction. The 2009-2015 TIP includes no independent projects in the Town of Morehead City.

The North Carolina Department of Transportation has undergone a number of important transformations, including developing a performance dashboard of 30 performance measures (none of which pertain directly to pedestrian activities), creating a project prioritization system that is much more transparent than in years past, and a five-year work program. This last includes funding for all NCDOT categories, not just capital construction, and is tied back to the priorities and goals of the Department.



Morehead Alternative Transportation Systems (MATS), 1999

MATS is a map of Morehead City that uses colored linework to distinguish two phases of a bicycle/pedestrian path, two phases of Calico Creek Boardwalk, and three phases of future sidewalk construction. The map also shows where sidewalks existed in 1999. Parts of MATS have been implemented and when complete will provide a 19-mile network of pathways throughout the Town's planning area.

3.2 Existing Policies & Ordinances

Morehead City Code of Ordinances[16]

The Town of Morehead City maintains its ordinances on the Municode website (www.municode.com) with a link provided on the City's website (www.townofmorehead.com). A Town 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. Morehead City's ordinances generally pay attention to pedestrian safety and address a number of factors that influence the walkability of a place. Important considerations for pedestrians in the Morehead City Code of Ordinances include the following:

> *The MATS section of the Morehead City Code of Ordinances (Part 2, Chapter 9, Article VIII, Sections 9-190 through 9-204) addresses multipurpose trails "in such a manner and means as will maximize its use and enjoyment by the public,*

in a safe and orderly manner and to protect the property of adjoining landowners."

Sidewalk Ordinance

Local laws pertaining to sidewalks can be found in the Morehead City Code of Ordinances.

Definition – sidewalks are defined in code to "include bikeways, greenways, ramps, multipurpose trails and related routes." (Morehead City Code: Unified Development Ordinance, Section 16-13.1).

Minimum Width – sidewalks shall be constructed in accordance with town standards with a minimum width of five feet. (Morehead City Code: Unified Development Ordinance, Section 16-13.5B).

Major Thoroughfares - defined as shown on the NCDOT Thoroughfare Plan map. Sidewalks are required on both sides of the street unless otherwise prohibited. (Morehead City Code: Unified Development Ordinance, Section 16-13.3).

Minor Thoroughfares – defined as shown on the NCDOT Thoroughfare Plan map. Sidewalks are required along one side of the street. (Morehead City Code: Unified Development Ordinance, Section 16-13.3).

Subdivision streets – streets in proposed residential subdivisions are required to include sidewalks, pedestrian crosswalks, and wheelchair ramps on one side of all proposed streets including the entrance street to the subdivision. An exception is made for extensions of minor or major thoroughfares in which case developers may pay a fee in lieu of building sidewalks. (Section 16-13.2).

Sidewalk fees – the Town collects sidewalk fees from property owners/developers when new construction or improvements exceeding 50 percent of the ad valorem tax value of existing development occurs. (Morehead City Code: Unified Development Ordinance, Section 16-13.4A). Lots fronting on major thoroughfares are billed based upon the front footage of the lot. Lots fronting on minor thoroughfares are assessed based upon one-half the total front footage of the lot. Unusual or extreme expenses for sidewalk construction are not included in determining the fee. (Morehead City Code: Unified Development Ordinance Section 16-13.3)."

Assessments –The City has the ability to assess abutting property owners for sidewalk improvements or repairs as provided by Article 9, Chapter 160 of the General Statutes. (Morehead City Code: Part 1, Section 10.1).

Sidewalk Fund – Fees are set aside in a sidewalk fund and are only used by the Town to construct sidewalks along thoroughfares and other streets as identified by the Town as it determines to be in the public's best interest. (Morehead City Code: Unified Development Ordinance, Section 16-13.4H)).

Wheelchair Ramps – All street curbs being constructed or reconstructed for maintenance procedures, traffic operations, repairs, correction of utilities, or altered for any reason are provided with wheelchair ramps for the physically handicapped at all intersections where both curb and gutter and sidewalks are provided and at other major points of pedestrian flow. (Morehead City Code: Unified Development Ordinance, Section 16-13.6 and NC General Statutes 136-44-14).

Street Ordinance

The Street Ordinance section of the Morehead City Code of Ordinances (Appendix C, Section 16-2) addresses local laws pertaining to design issues for all public streets, sidewalks and other public places. The street ordinances also reference NCDOT design standards, indicating that streets are to be built to whichever standards are stricter. It is worth noting that traffic-related ordinances and landscaping (street tree) ordinances are addressed separately in Article III Section 9-50 and Article III Section 15-51, respectively. 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.

- Sec. 9-82. Stopping traffic lanes generally. No vehicle shall stop in any street except for the purpose of parking as prescribed in this chapter, unless such stop is made necessary by the approach of fire apparatus, by the approach of a funeral or other procession which is given the right-of-way, by the stopping of a public conveyance, by the lowering of railway gates, by the giving of traffic signals, the passing of some other vehicle or a pedestrian or by some emergency; and in any case covered by these exceptions such vehicles shall not stop so as to obstruct any footway, pedestrian aisle, safety zone, crossing or street intersection if it can be avoided.
- All awnings and canopies shall be a minimum of 7 feet above the sidewalk. This 7-foot vertical clearance allows pedestrians to safely traverse the sidewalk by

Wheelchair accessibility translates into improvements in the pedestrian environment for many people, including those that may be depending on a walking aid, the elderly, or people with strollers.

passing under signage. All canopies and awnings must be reviewed and a permit issued prior to installation.

- Obstruction of the sidewalks with crates, boxes, barrels, stone, wood, construction materials or any other matter is not permitted, though businesses downtown are permitted to place street furniture (e.g. benches, tables and chairs) in front of their businesses, provided 4 feet of unobstructed space is maintained for pedestrians. (Morehead City Code: Unified Development Ordinance, Section 12-2.5). Obstruction of the sidewalks by tree trimmings or other landscaping waste is also prohibited.
- Assembling, collecting or standing in a sidewalk as to obstruct pedestrian traffic is not permitted. Street events, including demonstrations and pickets, require permits (Morehead City Code: Part 2, Chapter 15, Article IV, Section 15-76).
- Street performances must comply with a set of regulations and may only be considered for a permit in the downtown area (Morehead City Code: Part 2, Chapter 15, Article VI, Section 15-110 and 15-111).
- Sidewalk sale of merchandise and retail items is forbidden excepting newspaper vending machines with a Town permit (Morehead City Code: Unified Development Ordinance, Sec 12-2.5). Vehicles are not permitted to stop, stand or park on a sidewalk for loading or other purposes.
- Sidewalk cafes following rules promulgated in Unified Development Ordinance Section 12-2.5 may be permitted. Clear space that is at least 4 feet of unobstructed width for pedestrians is required.
- Construction or remodeling projects taking place in close proximity to a public sidewalk are not mentioned. The ordinance could be amended to require the installation of scaffolding overhead for protection of pedestrians, prior to beginning construction.
- Driveway construction is not specifically addressed in Morehead City's ordinances; which would refer 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 ensure compliance with federal ADA design standards.** Morehead City Public Works has a design standard for this that is not included in the ordinances.
- "Play Streets" are permitted whenever authorized signs are placed indicating any street or part thereof as a play street such that no person shall drive a vehicle upon that street except those having businesses or whose residences are within such closed area and then any driver shall exercise the greatest care

in driving on that portion of the street. (Morehead City Code: Part 2, Chapter 9, Article 1, Section 9-7). Currently, there are no examples of play streets in the town limits.

The Street Ordinance in Article II Section 15-22 (Street Widths) governs the degree of sidewalk placed along new roadways. The following illustrates the current requirements pertaining to walk-friendliness.

Street Typology	Lane Width (ft)	Sidewalks	Other Comments
Cul-de-Sac	80-100 Diameter	None	Maximum Length: 2,700'
Local Residential	11	One Side	No planting strip noted
Residential Collector	11	One Side	No planting strip noted
Minor Thoroughfare	14	One Side	No planting strip noted
Major Thoroughfare	12	Two Sides	No planting strip noted
Commercial/Industrial	11	One Side	No definition included

Cul-de-sac lengths currently require a variance to be more than 900' long with an absolute maximum length of 2,700'. This produces very long block lengths and makes walking highly impractical when traversing even one side of a block requires walking half of a mile. Such a lack of connectivity also hampers emergency response time in the event of a street closure particularly, and promotes more travel on fewer overcrowded streets for even the shortest trips.

Reducing maximum cul-de-sac lengths (recommended: 500') to improve connectivity; adding a planting strip to separate vehicular from pedestrian traffic (recommended: 5' – 10' minimum), and requiring sidewalk on both sides of residential collector, minor thoroughfares, and commercial / industrial street types will improve the pedestrian environments of future streets and along redeveloped properties.

Traffic Ordinances

Part 2, Chapter 9 of the Morehead City Code of Ordinances deals with all local laws related to the operation of vehicles, traffic control devices and pedestrian traffic, among other topics.

- Section 9-7 specifically addresses driving with care around children and requires motorists to avoid "play streets" if possible, and to use the utmost care around children when driving on such a street is necessary for business

purposes or to access a residence. School zones are not called out specifically; if so, it would require motorists to use care for the protection of children. **Additional language setting a Town-wide speed limit for such streets might be considered for additional reinforcement of these requirements.**

- Section 9-101 prohibits parking on sidewalks except when necessary to avoid conflict with other traffic or in compliance with the directions of a police officer or traffic-control device.
- Section 9-10 prohibits bicyclists, roller skaters and others from clinging to a moving vehicle on the roadway.
- Section 9-51 addresses turning movements, and specifically prohibits right and/or left turning movements at intersections where signage prohibits such movements.
- A benefit to pedestrians is Morehead City's speed limit of 30 miles per hour or less on many streets, except for 35 miles per hour (Sec. 9-188. Schedule XXII--Speed limits) on the following:
  . Arendell Street (except in downtown area where speed limit is 30mph)
  . Barbour Road from Mayberry Loop Road to Bridges Street
  . Bridges Street from Arendell to 20th Street
  . Bryan Street
  . Executive Drive
  . Mansfield Parkway
  . Rochelle Drive
  . 20th Street north of Bridges Street
- Section 9-82 addresses pedestrian-related traffic ordinances so that vehicles are required to yield the right-of-way to pedestrians in the street. **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 Morehead City.** An approach is to require all pedestrian crosswalks to be marked with "Yield Right of Way to Pedestrians" signs, legible to motorists from 250 feet.
- Sec 9-166 and 9-167 limits parking during certain hours at designated places, including Glenn Drive between 7:30am-3:30pm, which helps to maintain pedestrian and bicycle safety in this school area.

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. The Unified Development Ordinance of the Morehead City Code of Ordinances addresses street trees, landscaping, screening and buffers for new and redeveloped properties.

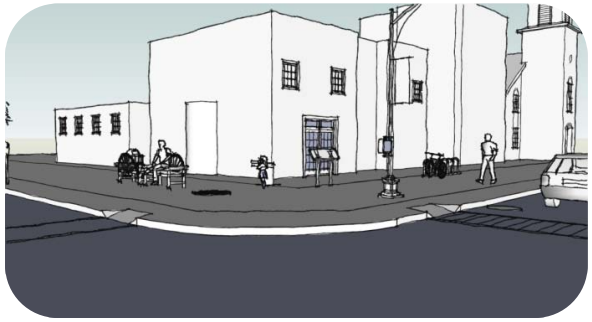
Secion 15-1.7 of the Unified Development Ordinance addresses recommended tree species, and Sec 15-55 addresses public tree care including plantings near overhead utility lines and underground water/sewer or other utility lines. Morehead City also maintains an official street listing and conducts surveys of the urban forest.

Land Use Ordinance

A special section of the Code of Ordinances is the Unified Development Ordinance (UDO), which covers zoning, subdivision and flood control issues for the Town of Morehead City. The Morehead City Unified Development Ordinance divides Morehead City into nine separate zoning categories for residential uses, five categories for commercial uses, three office and institutional districts, two industrial districts, and a flexible use "Planned Development" (PD) category. The PD 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 Morehead City Land Use Ordinance does not preclude the application of overlay zoning that would impose additional requirements but would not affect the allowable type or intensity of use.

Section 16-8 addresses general layout of streets in residential development and discourages the use of cul-de-sacs as a means to avoid connections to other streets. 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**.** Morehead City also permits cluster developments (See Sec. 14-23 UDO) in all R districts except R5S. **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. It is recommended that firm language be included in the**



Landscaping (streetscaping) has a tremendous impact on the pedestrian environment – not to mention helping to mitigate stormwater runoff and urban heat island effects

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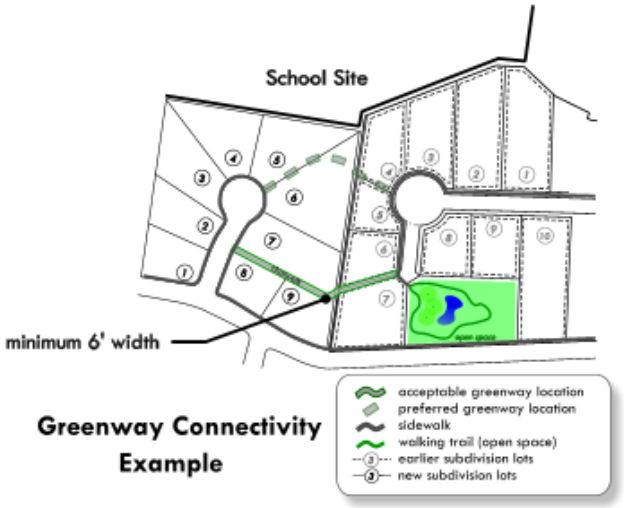


Figure 3.1. Chatwalk Figure
The Pedestrian Plan's recommendations will include many projects, policies and programs to improve walking conditions around schools, parks and neighborhoods. A policy change that requires short greenway connections between new cul-de-sac developments and adjacent parks, schools or residential uses is recommended. Often, these "cut-through" 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.

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.

It is recommended that the ordinance be amended to add an encouragement for street design that provides for the safe and convenient movement of motor vehicles and pedestrians in development that is not subdivided.

Sections 20-1 through 20-4 cover parking requirements but do not address variances on parking if adjacent developments can share parking, expressly serves an elderly population, or serves a walk-in trade function. Development of lots in specific blocks is cited in the Ordinance as exempt from off-street parking requirements; these are mostly in the downtown area. There could be more flexibility in the ordinance allowing for more pedestrian-friendly design opportunities. Section 15-1.6.4 addresses the separation of parking from walkways, and requires a 2.5-foot 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 four-foot clearance. **As stated above, it is recommended that five-foot sidewalks be required along the frontage of all developments, in order to provide appropriate pedestrian connections to/from developments along the public street.**

Section 15-1.6.4A requires a "minimum 10-foot-wide landscape strip along all rights-of-way with planting of one canopy tree or two understory trees and 12 shrubs every 100 linear feet."

Section 15-1.6.4 addresses screenings and street trees, and provides for conservation and replacement of trees in nonresidential developments. The Town has special requirements for "recommended" trees. This article also requires canopy trees or understory trees in parking lots of at least 7x18ft in area.

Conclusion & Policy Recommendations

Overall, Morehead City'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 PD's will encourage more compact "livable" 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 Town change the minimum sidewalk requirement at sidewalk cafes to 5 feet, the sidewalks

are required on both sides of the street for all major and minor thoroughfares, and that sidewalks be required along the frontage of all residential and commercial developments to create pedestrian linkages along major/minor thoroughfares in the Town. 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.
- Modify existing street design standards to include sidewalks on both sides of residential collector, minor thoroughfare, and commercial/industrial streets as well as to specify a minimum planting strip width of 5 feet to 10 feet.
- Shorten the maximum cul-de-sac length from 2,700 feet to 800 feet unless deemed infeasible by the Town Engineer or their designee.
- 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.
- Clarifying statements in the ordinances on the City's sidewalk petition process regarding the process for implementation and cost-sharing would be useful, and should clearly delineate maintenance and construction responsibilities between the Town and adjacent property owners.
- Creating a Transit Plan to address public transportation needs beyond the current CCATS (Carteret County Area Transportation System).
- Work with Carteret County to consider pedestrian needs during all new school placement decisions.
- Create a best practice parking lot design guide tied to certificates to be awarded to developers during the site design review process.

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 pedestrian environment in Morehead City and include the following:

- **Board of Transportation Policy on Complete Streets** – This policy was adopted in July 2009 to state North Carolina's approach to interdependent, multi-modal transportation networks that safely accommodate access and travel for all users. Additional work is being done as of this writing to prepare the actual guidelines and standards.
- **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

Attention to detail, such as sidewalk width, maintenance, streetscaping, building facades and lighting, can cumulatively create an important impact in an otherwise plain street scene. (Arendell Street)

- 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.

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

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 a FHWA policy for mainstreaming non-motorized transportation.

(http://www.fhwa.dot.gov/environment/bikeped/guidance.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."*

3.3 Existing Plans and Studies

The following is a description of the existing plans and policies that highlight the relevance of these existing documents to the Morehead City Pedestrian Plan. The Town is typically updating these plans or crafting new ones, such as the Comprehensive Transportation Plan being undertaken jointly with Carteret County as of this writing. The contents of this Pedestrian Plan will be folded into that Comprehensive Transportation Plan, further ensuring compatibility in the planning processes of both documents.

2007 Morehead City Land Use Plan[17]

The study area for this land use plan covers the Town of Morehead City and its ETJ with a population of 7,726 in the incorporated area (14,000 including the ETJ) and an estimated future population of approximately 22,480 in 2010 and 24,510 in 2020. The purpose of the Plan is to review land development processes in the town 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:

- Public access to public trust waters
- Land use compatibility
- Infrastructure carrying capacity
- Natural hazard areas
- Water quality
- Areas of environmental concern
- Areas of local concern (which also includes neighborhood-specific policies)

Community Vision Statement - The Morehead City Land Use Plan Advisory Committee adopted the following Community Vision Statement at the beginning of the planning process. The purpose of the Community Vision Statement is to provide the foundation for setting priorities, defining goals and developing land use policies to achieve local government goals:

> *"Morehead City favors growth provided it is environmentally sound, appropriately designed, appropriately located, retains Morehead City's identity, and preserves the quality of life. Improvements to infrastructure, including City services and facilities, are expected to meet current and projected demands. The provision of such improvements shall be based upon its compatibility with*

the City's development plan, the City's financial capacity and the economic feasibility of providing the municipal service."

Description of downtown land use - Retail, commercial service and office establishments comprise the central business district. The waterfront commercial district on Bogue Sound includes marinas, fish markets, restaurants, charter fishing boat docks, and general retail. The Morehead City Yacht Basin is located on Calico Creek just northeast of the business district. A major industrial use in Neighborhood 1 is the state port facility that occupies approximately 150 acres at the extreme eastern end of the peninsula. A smaller industrial area is located northeast of the business district. Public and institutional uses located in this neighborhood include the municipal building and administrative offices, Cape Lookout High School, two parks, the US Army Reserve Center, the Webb Library, a post office and numerous churches.

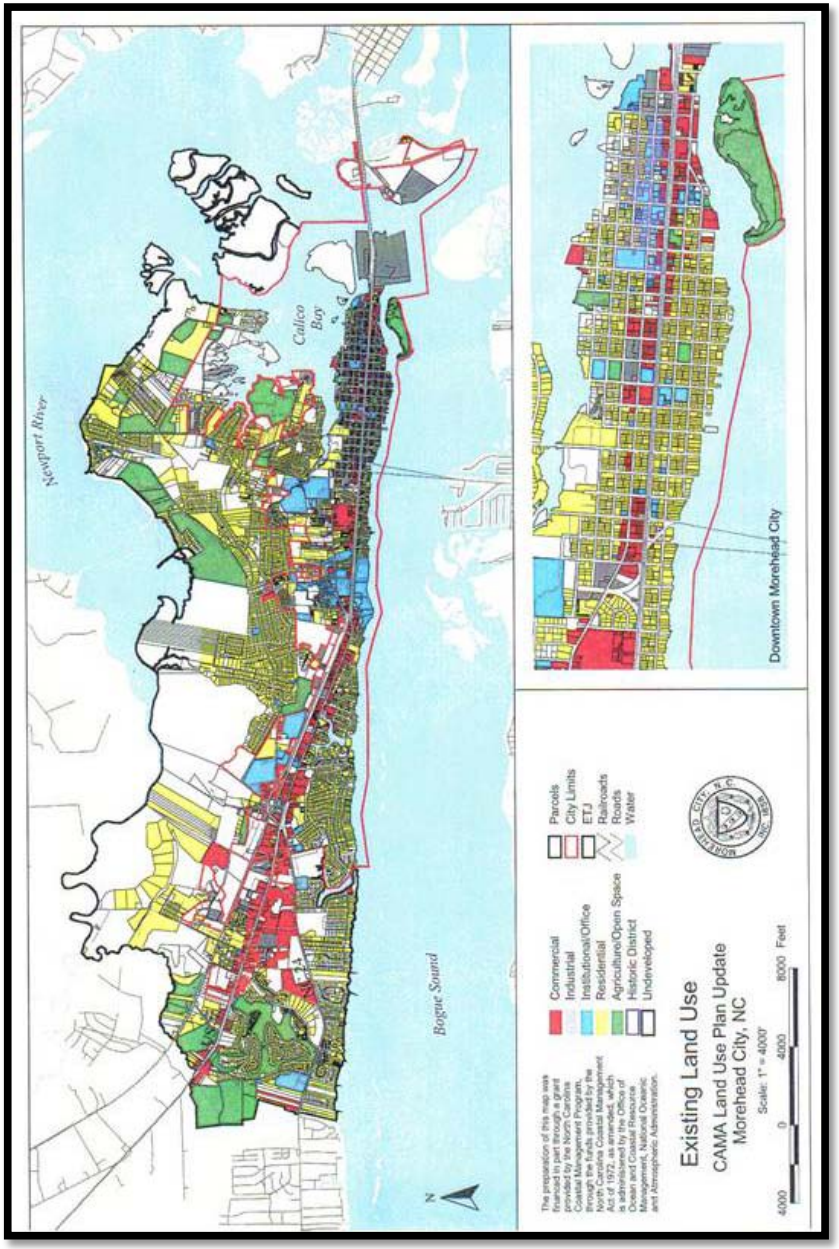
Neighborhood Policies (Section 3.6.3) - some contain recommendations, per the MATS report, to build sidewalks. For example, Policy 1: It is the policy of the Town of Morehead City to ensure a variety of opportunities for access to public trust waters to all segments of the community, including persons with disabilities.

The Plan outlines anticipated population and industry growth, and sets joint policies for conformance with CAMA Minimum Use Standards, Maintaining Existing Community Character and Stormwater Management. Land classification is categorized into nine types in a land classification map dated 12-4-06 to help implement policy statements:

- Low-density Residential
- Medium-density Residential
- High-density Residential
- Conservation / Open Space
- General Commercial
- Downtown Mixed Use
- Public / Institutional
- General Industrial

The Downtown Mixed Use area is generally located in the westernmost portion of Neighborhood 1. The Downtown Mixed Use classification is intended to delineate properties that can accommodate a variety of retail, office, business services, and personal services. Areas classified as Downtown Mixed Use may also include medium and high density residences and public and institutional land uses, particularly government buildings and facilities. The Downtown Mixed Use classification also specifically includes waterfront tourist-oriented land uses.

Neighborhood 4 is generally bounded on the east by Barbour Road, 28th Street between Bridges Street and Arendell Street, the North Carolina Railroad, and 34th Street; on the south by Bogue Sound; on the west by properties abutting the western ends of South



Street, Guardian Avenue, and Galantis Drive; and on the north by the Carolina Power and Light Company transmission line right-of-way. Policy statements contained in the 1999 Land Use Plan Update relating to Neighborhood 4 include allowing mixed land uses, sidewalk/street improvements to Barbour Road and North 35th Street and reviewing all development plans with the Army Corps of Engineers to assure identification of wetlands. Since the adoption of the 1999 plan, Morehead City has adopted MATS (Morehead Alternative Transportation System) which includes recommendations for sidewalk and street improvements in the general area. Funding was received through a DOT Enhancement Grant to construct a sidewalk/bicycle path (a phase of MATS).

Transportation section of Land Use Plan (Section 3.4.3) - The 1996 NC Department of Transportation (NCDOT) Transportation Improvement Program (TIP) listed two major highway projects that impact Morehead City. Both of these projects have been completed. The Bridges Street Extension from its previous terminus at Arendell Street westward to the US Highway 70 / NC Highway 24 intersection was completed in 1998. The second highway improvements project listed in the TIP involved the multi-lane widening of NC Highway 24 from Swansboro to US Highway 70 in Morehead City and was completed in 2001.

The highest priority recommended by the Carteret County Transportation Committee for the 2006-2012 TIP was the replacement of the Gallants Channel Bridge. The second priority for the County was the completion of bypasses at Clayton, Goldsboro, Kinston, and Havelock as well as projects between these cities so that Highway 70 will be a fully controlled-access freeway from Raleigh to the Port of Morehead City. The third priority involves widening and improvement of US 70 from Beaufort to East Carteret High School.

In 1992 NCDOT, in cooperation with the Towns of Morehead City and Beaufort, Carteret County and the Federal Highway Administration, completed the Morehead City / Beaufort Thoroughfare Plan. The planning period for the study extended through 2010. The 1992 Thoroughfare Plan has as its major objective improving operational efficiency through street system coordination and layout. The Plan considered existing and projected conditions, including population statistics and projections, vehicle usage trends and transportation needs of the area. The study compared traffic volumes to road capacities, considered parking needs and identified problem areas as indicated by traffic accident records.

Major recommendations contained in the 1992 Thoroughfare Plan include the following:

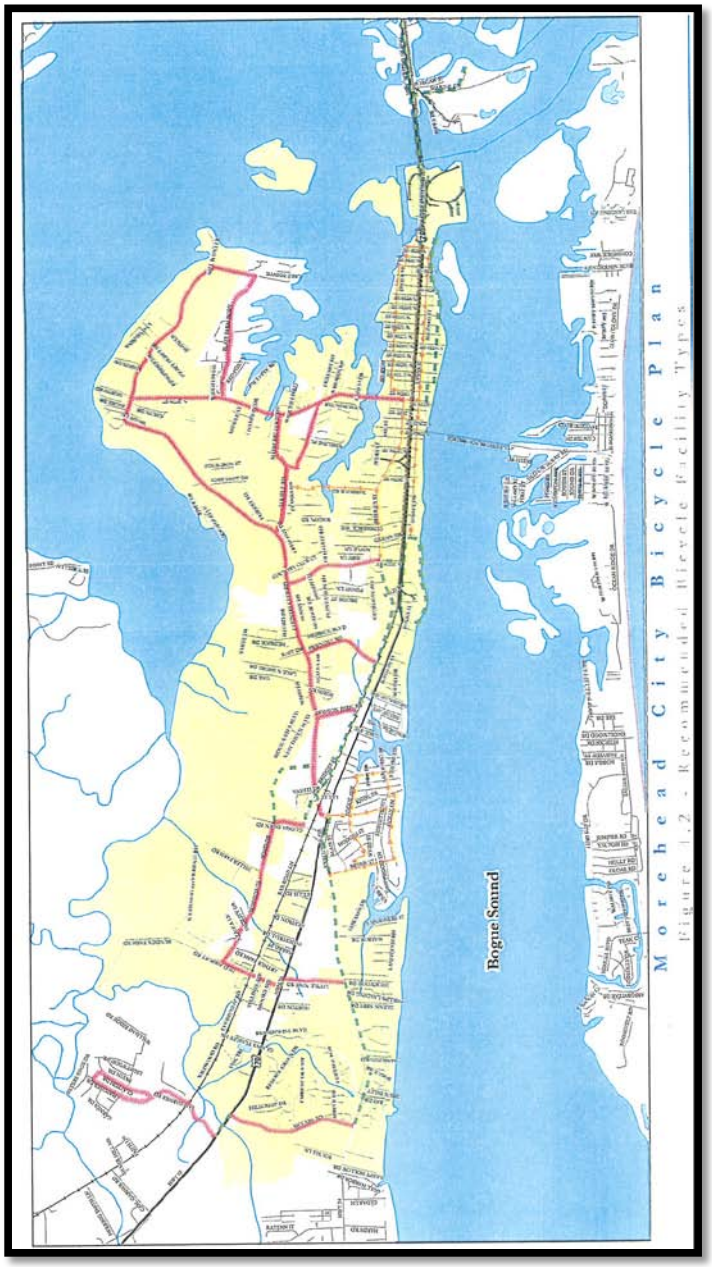
- A new east-west road in the Crab Point area
- An extension of Bridges Street westward past the US 70 / NC 24 intersection
- A new street tying Country Club Road to Arendell Street west of the Swinson Park area
- An interchange at the intersection of US 70 and NC 24

Additional transportation improvement goals and issues identified by Morehead City officials for the planning period include the following:

- Developing a connector road between US 70 and NC 24 in the vicinity of Little Nine Drive to provide a link between the Crystal Coast Business Park and NC 24 (Business Drive Extension has been completed to provide multiple access to industrial sites at the Business Park; convenient access to NC 24 will improve opportunities for further development of the Business Park)
- Straightening of the curve in the Mayberry Loop Road
- Decreasing the number of traffic lights on US 70
- Balancing the functionality of US 70 with rights of property owners to develop and redevelop property
- Promoting of the Morehead City waterfront as a destination of traveling boaters along the Atlantic Intracoastal Waterway
- Installing additional sidewalks along area streets / Morehead Alternative Transportation System (MATS)

2009 Morehead City Harbor Channel Realignment Study

This technical report details the existing shallow waters of Bogue Sound between downtown Morehead City and Sugarloaf Island so that plans can be debated about seeking funding to dredge a channel. In this way, larger boats would be able to access the docks at downtown Morehead City that would have a positive effect on tourism. While not dealt with specifically in this study, the connections between the port area and the downtown are crucial, since any person arriving at the nearby port facilities will not have access to their own automobile, and are thus prime candidates for pedestrian mobility.



2007 Comprehensive Bicycle Plan

Morehead City's Comprehensive Bicycle Plan was created in order to improve bicycle conditions in the community through an interconnected bicycle network in Morehead City linking it to adjacent communities. The Plan's goals include increasing the number of cyclists, implementing a cost-effective pilot project, organizing events that attract new riders, and pursuing funds to construct high priority facilities. The existing conditions analysis of the Bicycle Plan (Chapter 2) outlines the existing bicycle route in Morehead City, which is the multi-use path that runs on the north side of Bridges Street beginning at West Carteret High School and continues east until it terminates at the intersection with 35th Street. Chapter 2 of the Bicycle Plan recommends key safety improvements for 6 specific areas to remove existing barriers to cycling and potentially improve pedestrian safety as well. Recommendations of the Morehead City Pedestrian Plan will consider and incorporate these safety improvements recommended from 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. North Carolina Railroad at Old Airport Road and Bridges Street: In addition to bicycle improvements, add shoulder width and rubber flanges between the asphalt and steel rail to smooth the crossings for cyclists and pedestrians.
2. Atlantic Beach Bridge (Causeway): Perform regular maintenance to keep the shoulder area clear of debris where pedestrians and some cyclists use. Add high visibility signs and lighting.
3. Bridges Street Multi-use Path: Extend the path along the east side of 35th Street to the Crystal Coast Visitors Center. Install crosswalks and countdown signals at Arendell Street/35th Street and Bridges Street/35th Street. Install additional street lights and prohibit right-turns on red.
4. NC 24 Corridor: Build a multi-use path on the north side of the road between McCabe Road to Executive Drive. The path would connect residential communities with commercial development. Lowering the speed limit to 35 mph and installing a raised-curb median were also recommended.

5. Arendell Street: Lower the speed limit to 25 or 30 mph and install crosswalks and countdown signals at the following intersections: 4th, 8th, 10th, 20th, and 35th Streets.

6. Access to Beaufort: Build a 10-foot wide multi-use path cantilevered from the Newport River High Rise Bridge.

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 in corridors with frequent driveway crossings, and encouraging increased use of restricted right turns at key intersections in Morehead City, along with use of "Yield to Pedestrians in Crosswalk" signage as appropriate. This section also recommends changes to the Morehead City Street and Sidewalk Standards; the recommendation to require sidewalks on both sides of roads. All sample cross-sections in the Bicycle Plan call for at least a five-foot wide sidewalk on both sides of streets. 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 Morehead City**. 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.**

The Historic Architecture of Morehead City. North Carolina's First Coastal Railroad Resort, 2001

Written by Dr. Ruth Little of Longleaf Historic Resources, this is an excellent overview of community history. Dr. Little describes and documents the importance of the Morehead

City Historic District, consisting of approximately 100 houses and a few stores and churches in the center of town. The area is walkable and of interest to visitors if organized as a walking tour with interpretive guides or guidebooks. Following are salient excerpts:

> *"Morehead City has been the center of commercial and sports fishing in North Carolina since the early twentieth century. Morehead City has historical significance as the first coastal railroad resort in North Carolina and was the "summer capital of the state" for many years. The potentially eligible Historic District located on the north side of Arendell Street between 5th and 12th Streets is a buried treasure that few visitors have ever seen … the shore area of Bogue Sound known as the Promised Land has a rich maritime tradition and distinctive houses. The back shore along Calico Creek has a similar tradition of fishing family dwellings. Arendell Street retains a vestige of its early twentieth century small-town character."*

> *"The town plan of 1857 was a standard layout for a new railroad town, with a broad main street bisected by the railroad tracks and a grid pattern of streets. The one distinctive aspect of the plan is the system of alleys that bisected each block. Two alleys run north-south through each block, connected by an east-west alley through the center in an "H" shape."*

Urban Design Plan, Vision 2001

Prepared by LandDesign for the Downtown Morehead City Revitalization Association, Inc., this plan had more than 20 sponsoring individuals and organizations. It contains a Master Plan, seven strategic priorities, three urban design strategies and a set of design guidelines. The principle of human scale was framed as a goal for the physical development of the area; this is synonymous with pedestrian perspective. Other concepts embraced were to mix the land uses, mirror the grid street layout, incorporate the character of the waterfront area, and reflect the historic character of downtown facades. Strategic priorities include:

- Extending the amount of time vacationers stay by revitalizing the downtown;
- Expanding the summer tourist season to a year round industry by creating interesting and effective destination points;
- Revitalize the downtown as a catalyst for a stable economy that would attract new and relocating companies;

- Specific strategies include creating: commercial destinations, specialty retail destinations, hotels, specialty and waterfront dining destinations, cultural and entertainment destinations, commercial and sport fishing, excursion boats, regional special events and festivals, and an internationally recognized scuba diving center destination;
- Three downtown districts were defined: Arendell Street, the Waterfront, and the Residential area. The waterfront and beach area were recognized as the largest and most predominant attraction for visitors; and
- Challenges to realizing the vision of a revitalized downtown include a small residential population, relatively little discretionary spending power among downtown residents, public capital budget restraints, and a need for brand strengthening and district identity.

The Waterfront District design vision has a tourist emphasis calling for improved waterfront facilities and amenities including pedestrian alleys. The Arendell Street District design vision has a local emphasis calling for improved streetscape with an intimate pedestrian feel and viable connections to the waterfront. The Residential design vision has a resident emphasis calling for streetscape improvements that carry throughout residential and connector streets.

The governing concept behind the Design Guidelines is that the small-town character of Morehead City be preserved and that new buildings and renovations conform to the context established by buildings constructed between 1900 and 1940. Several general principles are to be applied, as described below.

Commercial:

- Buildings should address the street. On Arendell Street buildings shall conform to the storefront style of flat-roofed structures whose front wall meets the sidewalk (right-of-way line). An exception is permitted if space in front is to be used as an outdoor café and a fence or wall is carried across the right-of-way line
- Buildings should be compatible with the context of the neighborhood
- Buildings shall fall within a height-to-width ratio between 1:1.5 to 1:1. Building heights are limited to 50 feet
- Overall design, use of materials and ornamentation should be kept simple and in harmony with the scale of the building
- Brick is the preferred building material and can either be plain or painted

Considering waterfront districts also involves accommodating the many tourists and families that visit the downtown and waterfront. Here, a well-designed bench and wide, paver-lined walkways encourage walking and mesh with the materials of the surrounding area.

- Attention to detail at the entrance and building level including variations in awning fabric, sign style, and window and door treatment is encouraged to animate the façade
- Window glass shall always be set back from the building face rather than flush with the building face. Show front windows shall not be lower than 2 feet from the ground. Glass may not comprise more than 40 percent of total front of building façade
- Recessed doorways are encouraged with 5 feet as the maximum distance of recess from the front wall
- All new construction will provide on-site stormwater management facilities with preference given to facilities with zero discharge via infiltration

Waterfront District:

- Maximum and minimum setbacks are established per Streetscape Guidelines
- Parking must be to the rear or alongside the structure and, if visible from the street, must be screened by a wall or vegetation 4 to 6 feet high
- Building height no more than 35 feet
- All buildings must meet all applicable state and federal standards for flood zone development
- Roofs may be flat or pitched
- Window glass shall be set back from the facade and may not comprise more than 60 percent of the façade

Single-Family Residential:

- Regional vernacular forms or standard traditional styles are the most appropriate models
- Porches are encouraged as a way of linking private space with public life on the street

Multi-Family Residential:

- Separate “apartment communities” are not acceptable; Multi-Family developments are expected to participate in the neighborhood

- Building designs are encouraged to maintain a stylistic connection to single-family homes in the neighborhood. Buildings should be no more than 35 feet in height.
- Buildings located along the street should relate to the street with access provided to building entrances
- Internal walkways should link to sidewalks
- Each unit must include either a porch, deck or balcony with handrails made of wood
- Pitched roofs are encouraged
- Semi-private yard areas such as the interior spaces of courtyard arrangements can be developed as seating, strolling and play areas

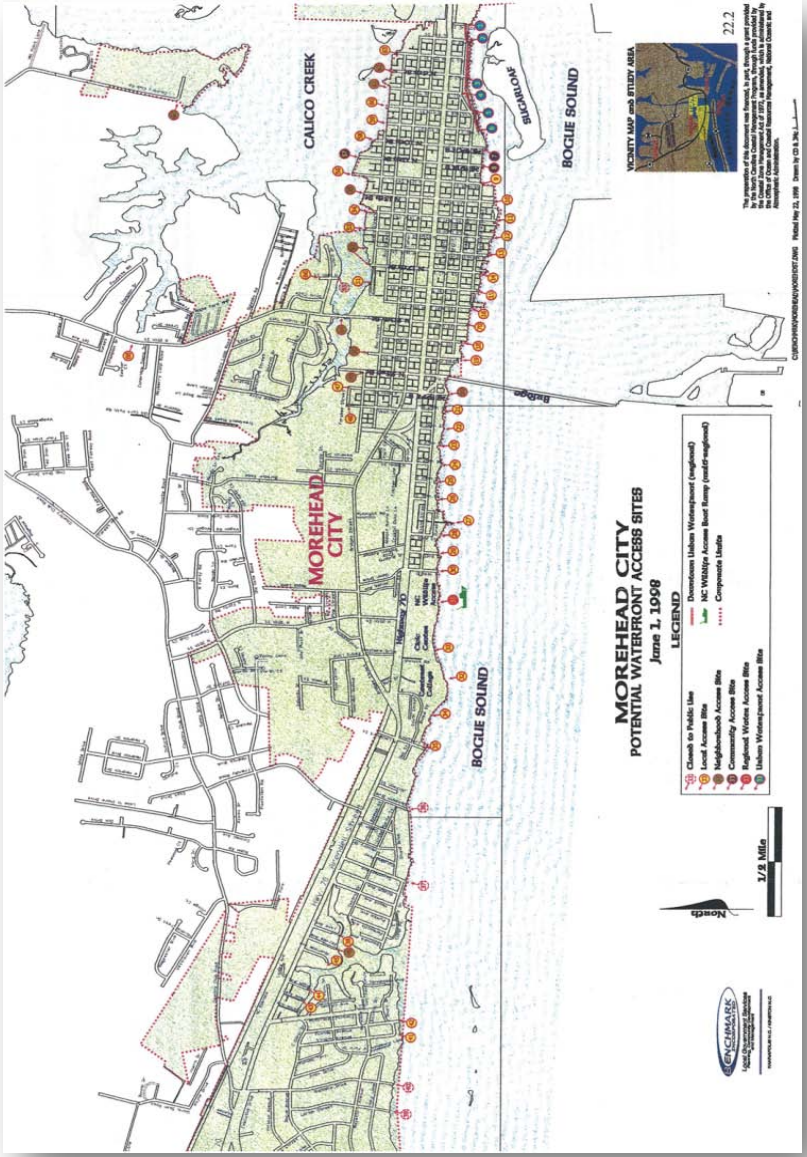
All of these requirements, especially when taken together, provide a greatly improved public space with significant positive effects on appearance, economic viability, and walkability. For example, building setbacks closer to the pedestrian way (e.g., sidewalk) make for a more varied and "enclosed" environment, often viewed as important aspects of luring people out of their cars and into the Town.

1999 Parks & Recreation Comprehensive Plan

Based on survey information from more than 500 citizens who responded to a questionnaire in their water bill, the highest priority for facility improvements in Morehead City was the creation of a trail system throughout the town. There were at the time 3.2 miles of hiking trails and 8 miles of urban bicycle trail. In addition to surveying citizen priorities, the Parks & Recreation Master Plan outlines strategies for expanding the Town'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 of the Master Plan reference the Comprehensive Pedestrian Plan as well as the Comprehensive Bicycle Plan and highlight opportunities for joint funding and implementation of complementary pedestrian facilities.

The Master Plan notes that in 1999, there were seven parks, one community center and five public schools with facilities. The Master Plan briefly addresses the opportunity to pursue conservation easements for open space and greenways. These options should be further explored for any greenway recommendations in the Comprehensive

"All of these requirements…provide a greatly improved public space with significant positive effects on appearance, economic viability, and walkability."



Pedestrian Plan. The preparation of a Greenway Plan was recommended in the Master Plan.

It was forecasted that the most rapidly growing segment of the Carteret County population would be individuals over 50 years of age and the Plan states that many of the City's recreational facilities will be geared to serving this fast growing population.

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Individual recommendations are made in the Master Plan for improvements to each park and recreational facility. Though walking trails were highlighted in the citizen survey as the top priority, no new walking trails are identified in the set of recommendations. Reference is made to the Morehead City Alternative Transportation System (MATS) that calls for pedestrian and bicycle trails throughout the Town. It states that "non-vehicular transportation corridors add significantly to the quality of life, and become a valuable asset to the community. These walks should connect all Town parks." The Master Plan also recommends that "the Town should develop a walking trail in one of its parks which can be used by citizens for walking and jogging. This walking trail should be paved, should be a closed loop, and should be a defined distance."

Waterfront Access Plan, 1998

Prepared by Benchmark, Inc. for the Town of Morehead City and financed partially with CAMA grant funds, this study gathered public comments, evaluated land use policies and regulatory reform, and identified specific sites including cost estimates and potential funding sources. There was no mandate requiring the study, instead, it was the Town Council being driven to consider where water access points should be placed and to clean up the present water access locations. This is particularly relevant to the Pedestrian Plan since currently the waterfront provides an amenity for boaters and enhances the appearance and economic vitality of the shops and business along or near the waterfront. However, accessing beaches for recreational tourism is not as strong an element in Morehead City as it is in some other coastal communities. Providing better access to the waterfront on foot is probably most important to nearby residents in the near-term for many of the access points assessed in this study.

The study area covered the entire Town limits as of 1998 and a larger area where public access points exist or have potential to exist adjacent to surface waters of Bogue Sound, Newport River, Calico Creek and their tributaries. The Town policy prior to the study was to seek funds through state and federal programs to purchase, lease, and develop coastal and estuarine water access areas and access areas along the Bogue Sound and adjoining waterways. Public meetings drew more than 100 participants. The main

suggestion from those present at the public forums was for the town to "clean up" existing street ends, allow only pedestrian access at residential sites, and make no improvements to any local access site that would make one more attractive than any other site of the same type. Many citizens expressed interest in an attractive area somewhere outside of residential neighborhoods but within town where residents and visitors who do not live on the waterfront would have a place to enjoy sailing, fishing, sunbathing, watching birds or other recreational opportunities.

The site inventory revealed that Morehead City has seven miles of waterfront including its Planning Area (as of 1998) and 64 publicly-owned water access points (mostly street stub ends) existed at the time they were evaluated. There were 43 sites identified for improved local access points and a prototype design for improving these locations was approved. There were 13 other sites identified as neighborhood-level potential, three of which were sites considered for community-level access. Collectively, the existing six waterfront sites between S. 3rd Street and S. 9th Street serve as an urban waterfront redevelopment access area. Sites identified as potential neighborhood-level access sites may require lease agreements or the purchase of property in order to provide improved public access to the waterfront. Typical improvements outlined in a prototype cost estimate to improve local-access sites include demolishing existing asphalt (road pavement), installing site furniture such as trash receptacles and bollards, street lights, bike racks, coastal-climate tolerant trees, shrubs and St. Augustine sod. Pier and boardwalk typical costs were also provided, assuming an eight-foot-wide walkway.

Funding for most of the improvements was recommended to come from town sources, without grant assistance. Some local funding sources listed in the report include general fund revenue, general obligation bond revenue, development impact fees, occupancy tax revenue, subdivision regulation dedication requirements, parking fees and volunteer effort. State and federal funding sources were also listed. State and federal sources were recommended for the Community-level water access sites.

Morehead City Parking Study, 1992

The Traffic Engineering Branch of NCDOT conducted a study at the request of the Town of Morehead City. The study focused on supply, demand and parking management strategies in an area bounded by Bogue Sound, Bridges Street, 4th St. and 11th St. The study recommendations range from increasing enforcement, changing time limits and pricing, encouraging owners and employees to park in off-street lots, shifting from angled to parallel parking on Arendell Street as the railroad median is widened, renewing the town lease on the off-street municipal parking lot at 6th and Evans Streets, purchasing another off-street lot in the 700 block of Evans Street, installing guide signs

to municipal lots, designating loading zones, restricting police vehicles to parking in off-street police department lots. The study evaluated several sites for a potential new parking deck; however, the conclusion was that the higher cost of a parking deck was not justified due to the relatively short duration of the tourist season and the expectation that parking management strategies may alleviate some or all of the concerns. **This parking study is considerably out-dated, and a new study should be commissioned to address the importance of parking to the accessibility of automobiles to key destinations, but also to the benefits and costs to pedestrians of parking provisions that could either impair sight distances or provide important traffic calming functions in residential and areas of high pedestrian traffic.**

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Design Standards and Guidelines

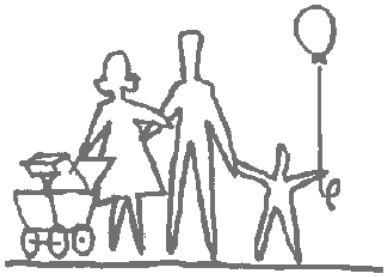
Section 4. Design Standards and Guidelines

This section provides guidance for the Town of Morehead City as they, private developers, and the State Department of Transportation (NCDOT) construct new pedestrian facilities and reconstruct existing pedestrian facilities to meet improved 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
- signage
- porous paving and stormwater management

This section provides a set of standards for the design of pedestrian facilities recommended as part of the Town's Comprehensive Pedestrian Plan, explaining where the standards derive and why they are important. This is guidance only, and does not supersede other, adopted design standards at the State or local levels, but rather encourages flexible and appropriate design considerations of pedestrians.

Currently, the Town has a need for some additional standards, although these could be modifications of or enhancements to existing design policies. This section of the Plan is important because it provides a consistent set of guidelines within the Town to help create a uniform appearance to Morehead City's sidewalks and a more connected system.



4.1 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.

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/bikeped/download/bikePed_Laws_Guidebook-Part-1.pdf.

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

Figure 4.1. 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.

- 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 to the extreme left, 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)

Additionally, pedestrian access is also governed by the requirements of the *American Disabilities Act of 1990*, a civil rights law which prohibits discrimination against people with disabilities in all aspects of life. As done throughout the US, the Town of Morehead City 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 American 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) should be used, with measurements shown in Figure 4.2. 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.[18]

- *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 4.1. on the preceding page provides examples of the acceptable relationship between crosswalk and curb ramp location/widths, while Figure 4.2. provides a design detail for a ramp.
- *CROSS-SLOPES.* Cross-slopes, or a slope along the travelway surface which is perpendicular to the direction of travel, can often make it very difficult for wheelchair travel. 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 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.

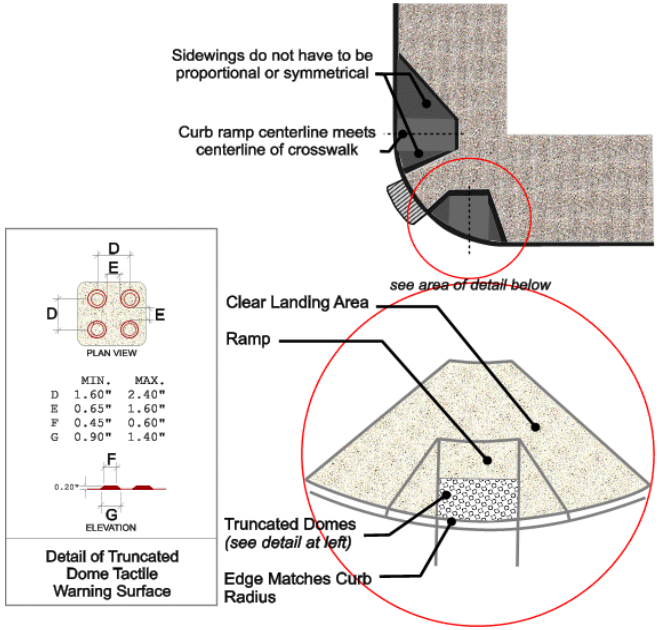
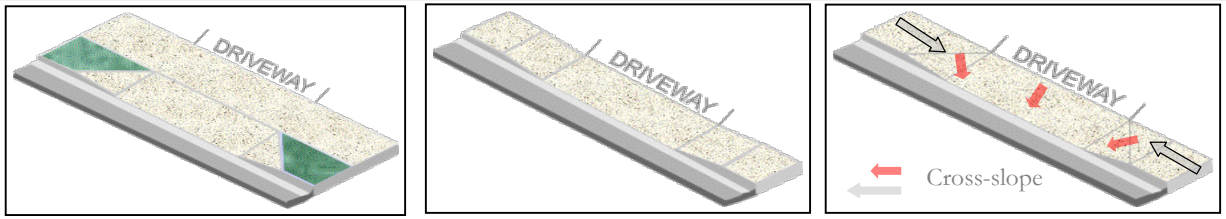


Figure 4.2. Detail of an ADA-compliant Curb Ramp Design



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*

Figure 4.3. Examples of Designs for Minimizing Cross-Slope

Figure 4.4. Horizontal clearance "zones" for a sidewalk
Source: FHWA/USDOT "Accessible Sidewalks and Street Crossings" Informational Guide.

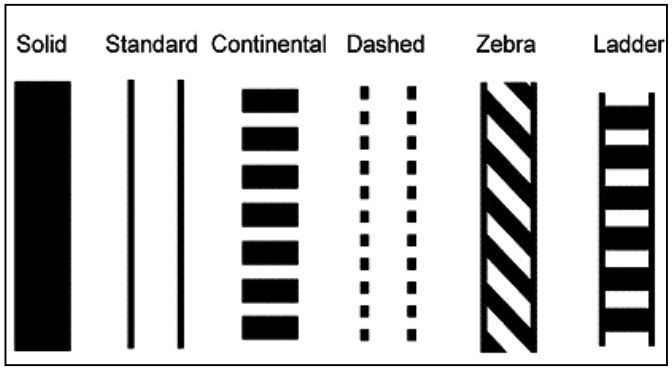


Figure 4.5. Typical styles for marked crosswalks
Source: Federal Highway Administration

4.2 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); and
- 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; and
- greenway trails.

The Town currently does not have its own standards for pedestrian facilities, but relies on the NCDOT standards on streets. The following paragraphs provide national standards and best practices for pedestrian facilities by category.

4.2.1 Sidewalks

Standard sidewalk is usually at least five feet in width, made of concrete, and placed along roadways at least three feet behind the curbline (5' minimum is preferable). 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 to accommodate: (1) high pedestrian volumes, such as in a central business district; (2) the overhang of parked vehicles from off-street or angled on-street parking areas; and (3) 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 relationships between pedestrian features, building facades, and roadway).

In general, standard sidewalks should be concrete, which is more durable than asphalt. However, as in downtown Morehead City, brick and other decorative materials can be used to create a thematic streetscape. A more flexible material, such as rubberized paving, can also 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 be considered for all pedestrian-ways, and in particular for greenways near streams, in order to reduce run-off from storm events.

4.2.2 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 either signalized or unsignalized, and located at intersections or, in special circumstances, at mid-block locations. The Town of Morehead City has several signalized and unsignalized crossings at various intersections throughout the Town, with more being constructed at the time of this writing in downtown locations.

The most basic crossing is an unsignalized intersection with standard, continental or zebra crosswalk markings. 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.

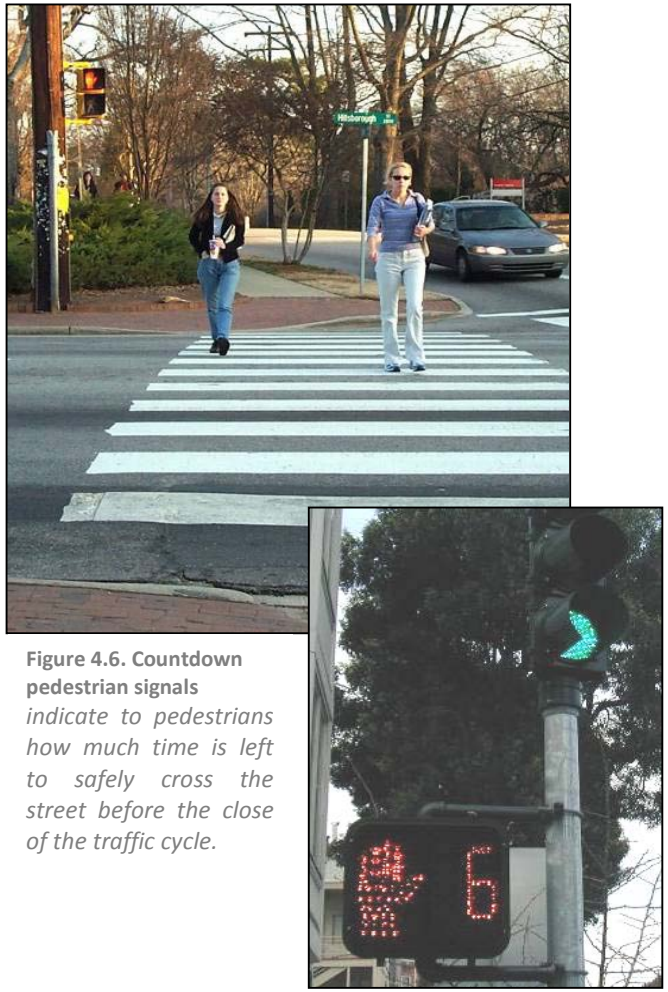


Figure 4.6. Countdown pedestrian signals *indicate to pedestrians how much time is left to safely cross the street before the close of the traffic cycle.*

Figure 4.7. Examples of 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.

All signalized intersections should be outfitted with countdown pedestrian signals and crosswalks, per NCDOT and MUTCD standards. The MUTCD recommends that signals should be operated on a 3.5 foot/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 six feet in width, with 10 feet or greater for downtown areas and locations of high pedestrian traffic. Advance stop bars should be placed 4 - 10 feet from the pedestrian crosswalk (with 6 - 15 feet 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 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 4.8 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.

Given the sensitive nature of mid-block crossings, every new mid-block crossing treatment will require a specific investigation by the Town 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 volumes of 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 feet 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.

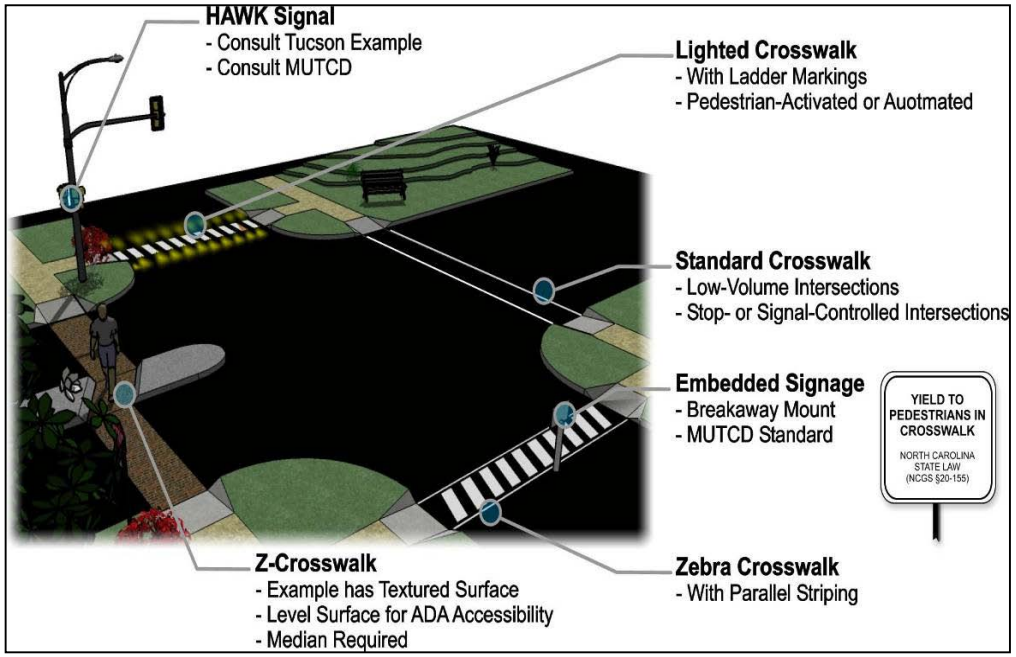


Figure 4.8. Various Pedestrian Crosswalks

A diagram of various crossing treatments Morehead City might consider in order to improve pedestrian accessibility and safety at intersections.

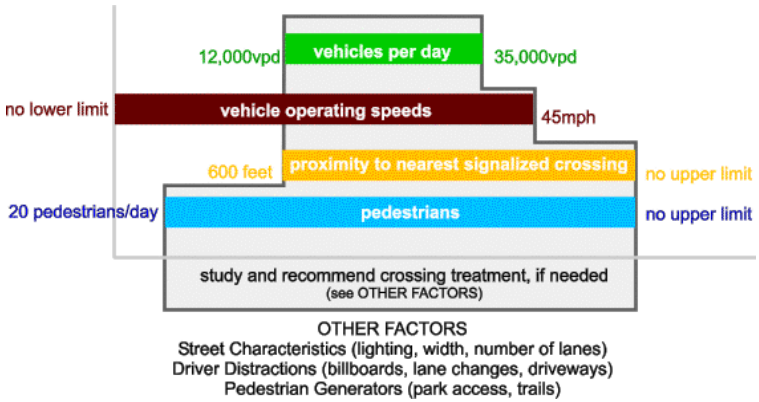


Figure 4.9. Applying Mid-Block Crossing Treatment
The City of Charlotte's solution space for considering when to apply signalized mid-block pedestrian crossings

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

Table 4.1. Mid-Block Crossing Treatment Criteria
(source: Charlotte DOT, 2005)

Notes: ** 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.*[19]

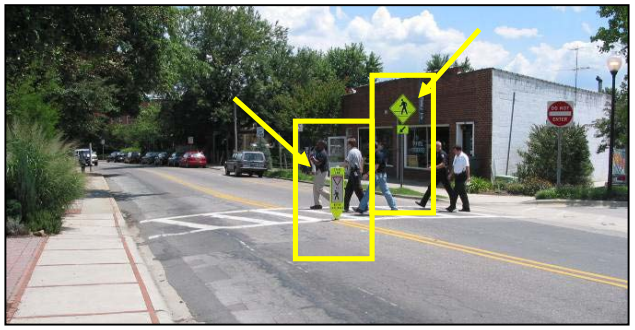


Figure 4.10. Mid-Block Crossing Signage
An example of two types of signs used to notify motorists of a pedestrian crossing.

4.2.3 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 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 Morehead City should consider installing. Schools and intersections with heavy pedestrian movements are typical locations for these signs. Regulatory signage, e.g. R10-15 and common speed limit signs, gives notice to road users of traffic laws or regulations. Warning signs, commonly seen in yellow diamond shapes, provide a notice to road users of a situation that might not be readily apparent. For more signs and more detailed guidelines for sign installation and use, Morehead City 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. These signs would be appropriate in front of schools (1st and 5th signs) as well as on major downtown pedestrian corridors such as Arendell, Bridges, and Evans (2nd, 3rd, and 4th signs).

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 seven feet 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.

Figure 4.12. Sample Wayfinding Sign

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

4.2.4 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-foot 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 eight-foot 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, 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/bikeped/download/bikeped_projdev_type_Shared_Use_Paths.pdf.

An example greenway cross-section is provided in Figure 4.13.

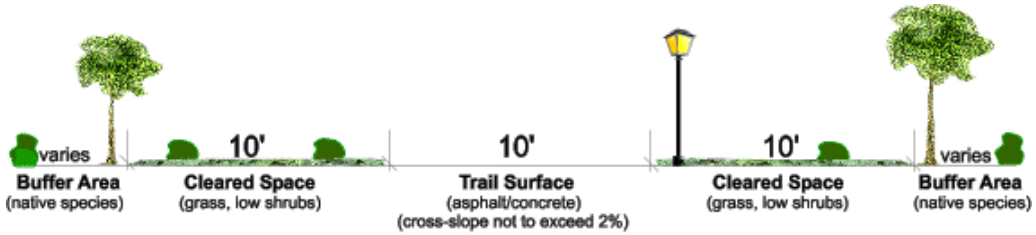


Figure 4.13. Example cross-section for a typical greenway

4.2.5 Porous Paving Materials and Stormwater Management Best Practices

The use of porous, or "permeable," paving materials offers a means by which to conserve resources and practice environmentally-friendly stormwater management. 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[20], 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 "rain gardens." Morehead City should consider all such options as appropriate and/or combinations thereof for future sidewalk, greenway and street construction projects.

North Carolina's Coastal Stormwater Rules can make creating higher-density, pedestrian-friendly transportation options more challenging to design and construct. The calculation for impervious surface on a lot includes the sidewalk. Changes to these rules in 2008 strengthened them, lowering the threshold for high-density developments and disallowing marshlands in the impervious surface calculations. The requirements for lots within a half-mile of shellfishing waters also fall into a stricter category of protection. However, these changes in the long-term may improve the natural elements of the walking environment through more protection of sensitive and scenic lands; better use of permeable pavements; and more frequent use of rain gardens and cisterns that favor many kinds of wildlife. Permeable pavements for sidewalks and greenways are considered in the following paragraphs.

Figure 4.14. Typical Greenway Cross-Section with Bollard Treatments
Source: www.pedbikeimages.com

Figure 4.15. Stormwater Retention
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

According to the BMP manual, permeable pavements are only allowable under the conditions listed in Table 4.2, below.

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-feet 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

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.olympiawa.gov/city-utilities/storm-and-surface-water/science-and-innovations/science-and-innovations-porous-pavement.aspx.

Figure 4.15 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 Town 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.[21] 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 the overall successes and cost benefits of using permeable pavement materials and other stormwater management best practices, it is recommended that Morehead City utilize these options for public projects (such as through the continued use of brick pavers downtown, as noted earlier) and incentivize their use in private developments.

Figure 4.16. Permeable Pavement Treatments
Source: NCSU Permeable Pavement Research Site.
http://www.bae.ncsu.edu/info/permeable-pavement/index.html

4.3 Downtown Area Standards

Many municipalities consider their town center the starting point and standard for creating a pedestrian-friendly town. Downtowns were typically constructed 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, Morehead City's 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 well-connected sidewalks that are the foundation of a good walking environment.
- **Provide wide sidewalk.** Currently, the sidewalk in the downtown area is approximately 8 to 10 feet wide, although in some locations it can span nearly 25 feet. New or reconstructed sidewalk should be kept at a minimum of 10 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 Town should also consider accommodating restaurants or café owners 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 more visitors and potential shoppers and diners. The placement of café furniture must leave five feet of clear passage for pedestrians, in accordance with Article 12-1 of the Unified Development Ordinance.

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- **Provide many pedestrian amenities.** In addition to sidewalk width, the Town 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. Public restrooms are available in the 600 block of Evans Street and 800 block of Shepard Street, although wayfinding signage in the downtown area could direct out-of-town visitors to these facilities. The more pedestrian amenities available in a particular area, the more inviting the area becomes 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 ADA-compliant curb ramps for wheelchair access.
- **Provide wayfinding signage to guide visitors.** Downtown Morehead City 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.

4.4 Schools

In addition to downtowns, 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 - consisting of 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 crosswalks and 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.

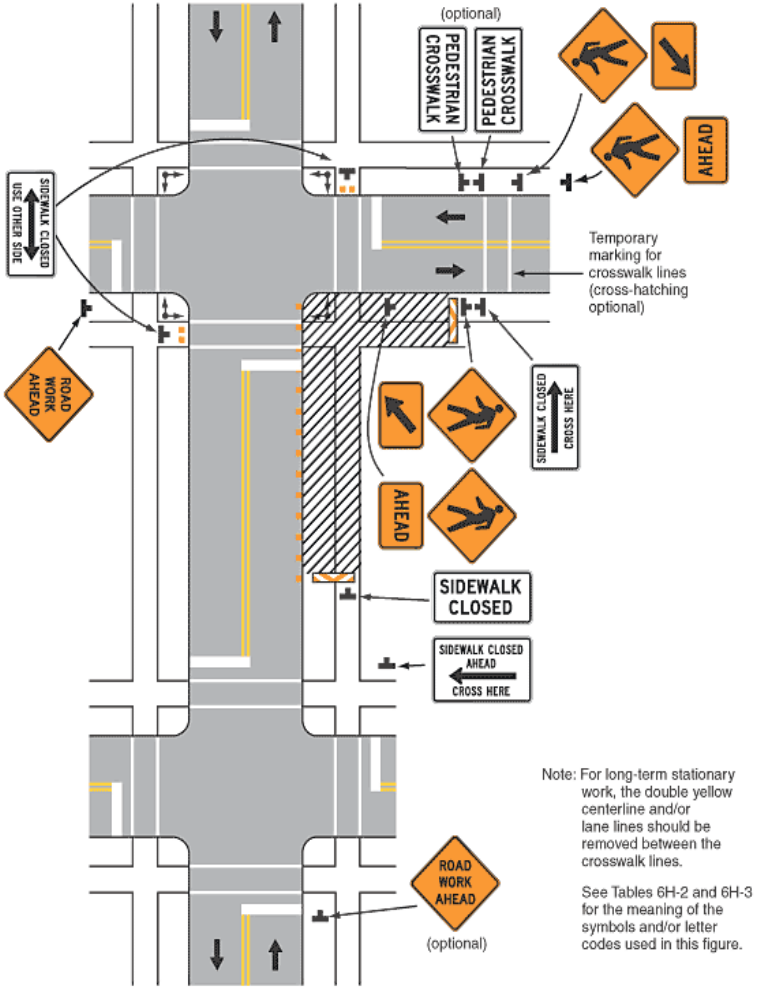
4.5 Construction Zones

It is important that during construction of any kind, convenient and safe pedestrian access to destinations remain open and accessible. During the construction or expansion of private development, roadways and 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)[22], NCDOT's Planning and Designing Local Pedestrian Facilities[23], and the ADA (Americans with Disabilities Act)[24] 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 Town limits, it is the responsibility of the Town of Morehead City 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

Figure 4.17. Sidewalk Closure Plan
Source: MUTCD, Figure 6H-29.



Typical Application 29

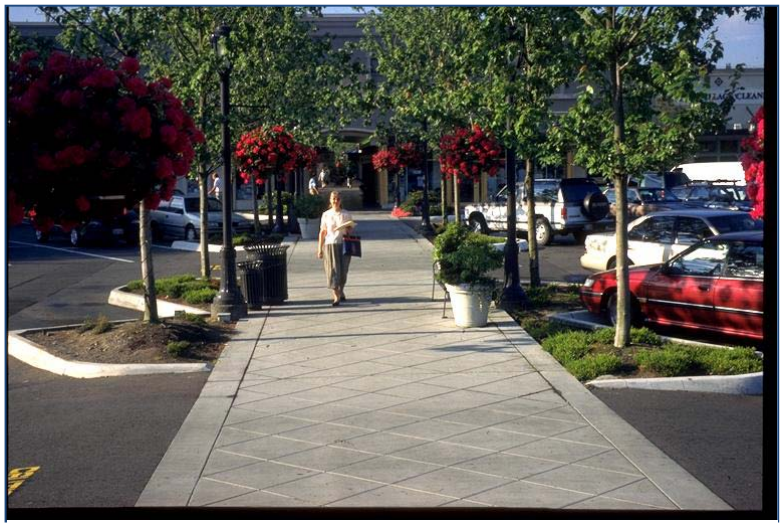


Figure 4.18. Good Parking Lot Design
Exemplary parking lot design considers pedestrian egress to the building entrances/exits, as well as comfort and aesthetics such as landscaping and shade trees.

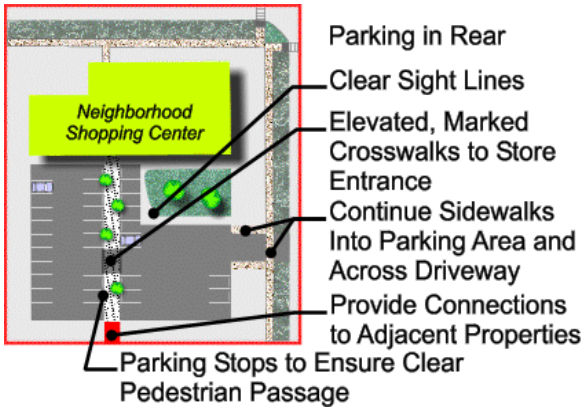


Figure 4.19. Pedestrian-Friendly Parking Lot Design

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.

4.6 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 the least will deter customers that may be walking or riding transit to a store, and at the most 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 numbers 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 4.19 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:

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

- **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.
- **Maintain good sight lines** at major turning points inside the parking area.
- **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.
- **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.
- **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 inviting while encouraging customers to remain within the protected awning area and out of conflict with vehicles in the travelway.

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

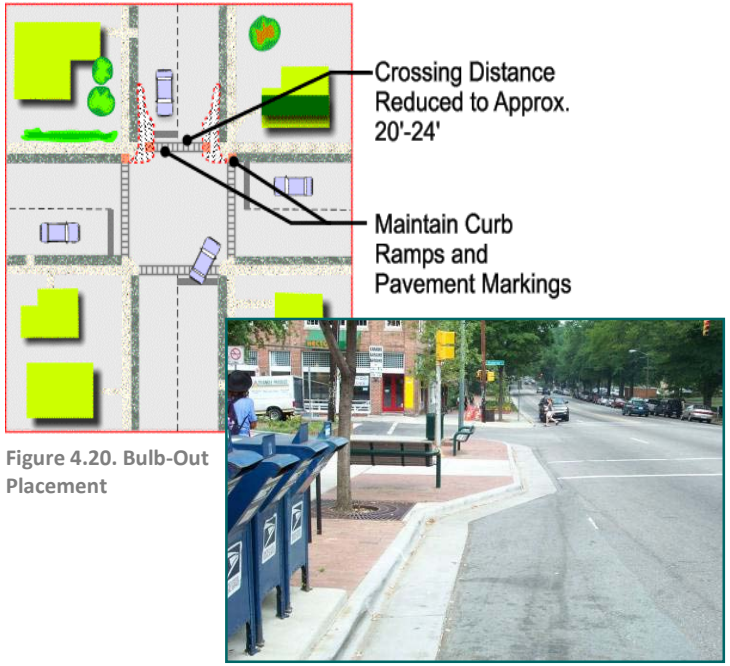


Figure 4.20. Bulb-Out Placement

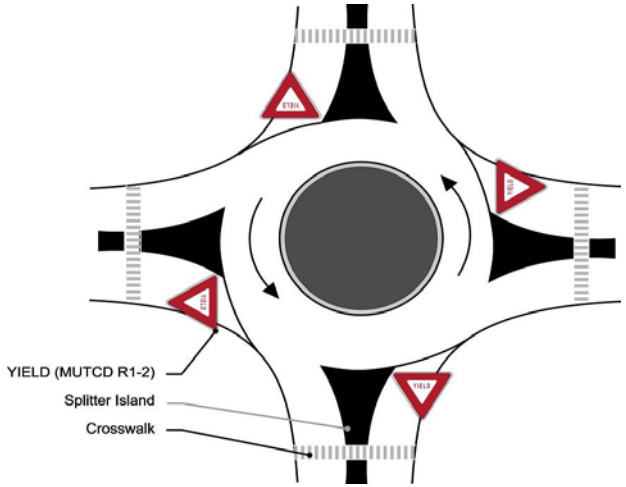


Figure 4.21. Roundabout Design Elements

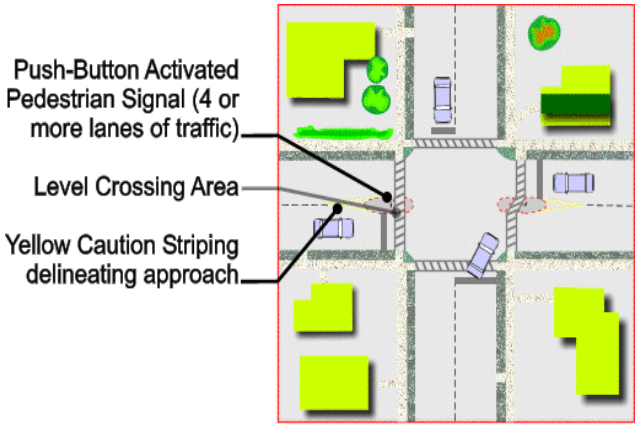


Figure 4.22. Median Refuge Islands

4.7 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.

4.7.1 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.

4.7.2 Roundabouts

Traffic circles and roundabouts are also an increasingly popular traffic calming technique, used instead of a stop control or traffic signal installation at an intersection. No roundabout is expressly recommended in the Pedestrian Plan, but may be considered for future intersection designs in Morehead City. Federal design guidance for roundabouts is available at http://www.tfhrc.gov/safety/00068.htm and should be consulted when necessary to ensure compliance with the Americans with Disabilities Act (ADA). Figure 4.21 illustrates preferred placement of crosswalks and signage at a roundabout.

4.7.3 Medians and Refuge Islands

Figure 4.22 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 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 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 12' travel lanes may be dieted and remain a four-lane roadway but with 10ft travel lanes; the additional four feet 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.

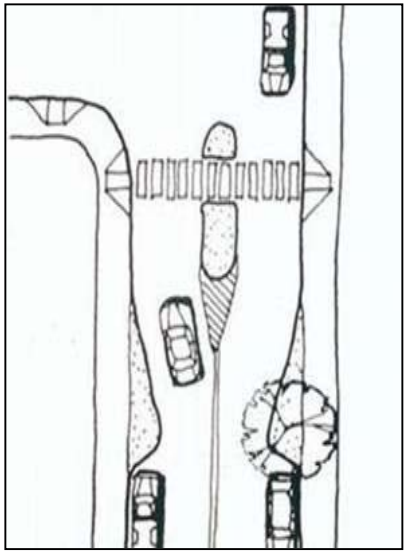


Figure 4.23. Example of Travel Lane Diet and a Refuge Island

Source: www.pedbikeimages.com

4.9 Design at Railroad Crossings

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:

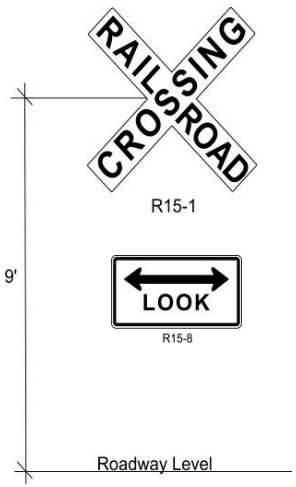


Figure 4.24. Crossbuck and "Look" Signs

Source: MUTCD

Figure 4.25. "Low-Rise" Pedestrian signal

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

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

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 normally conservative agency, has stated in its 2008 guidance on the subject 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."[25] 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). 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.

The standard crossbuck warning sign (passive) is illustrated in Figure 4.24. 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.[26] 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.[27]

An active, low-rise pedestrian signal design has been put into place in Portland, Oregon (Figure 4.25.). 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 combination of passive (pavement markings) and active (sign mounted to counterweight of crossing arm) is shown in Figure 4.26.

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 4.27. 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.[28] Such a filler, sometimes using wood in older rail corridors which deteriorates fairly quickly (see photograph at right), helps to create a smoother ride for wheelchair users particularly, although there are similar benefits for road bikes (skinny tires) as well.

Figure 4.28. 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.[29]

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.

Figure 4.26. Pavement Marking and Counterweight-Mounted Sign

Source: FRA Compilation of Pedestrian Safety Devices in Use at Grade Crossings. (Salt Lake City, UT)

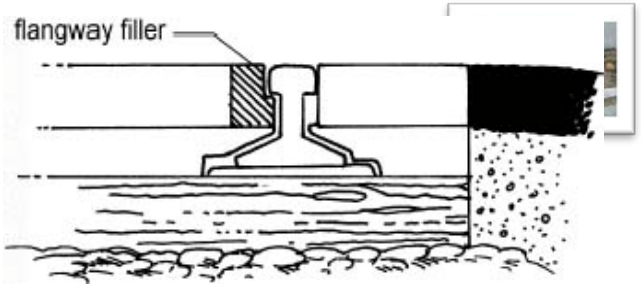


Figure 4.27. Diagram of Flangeway Filler

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

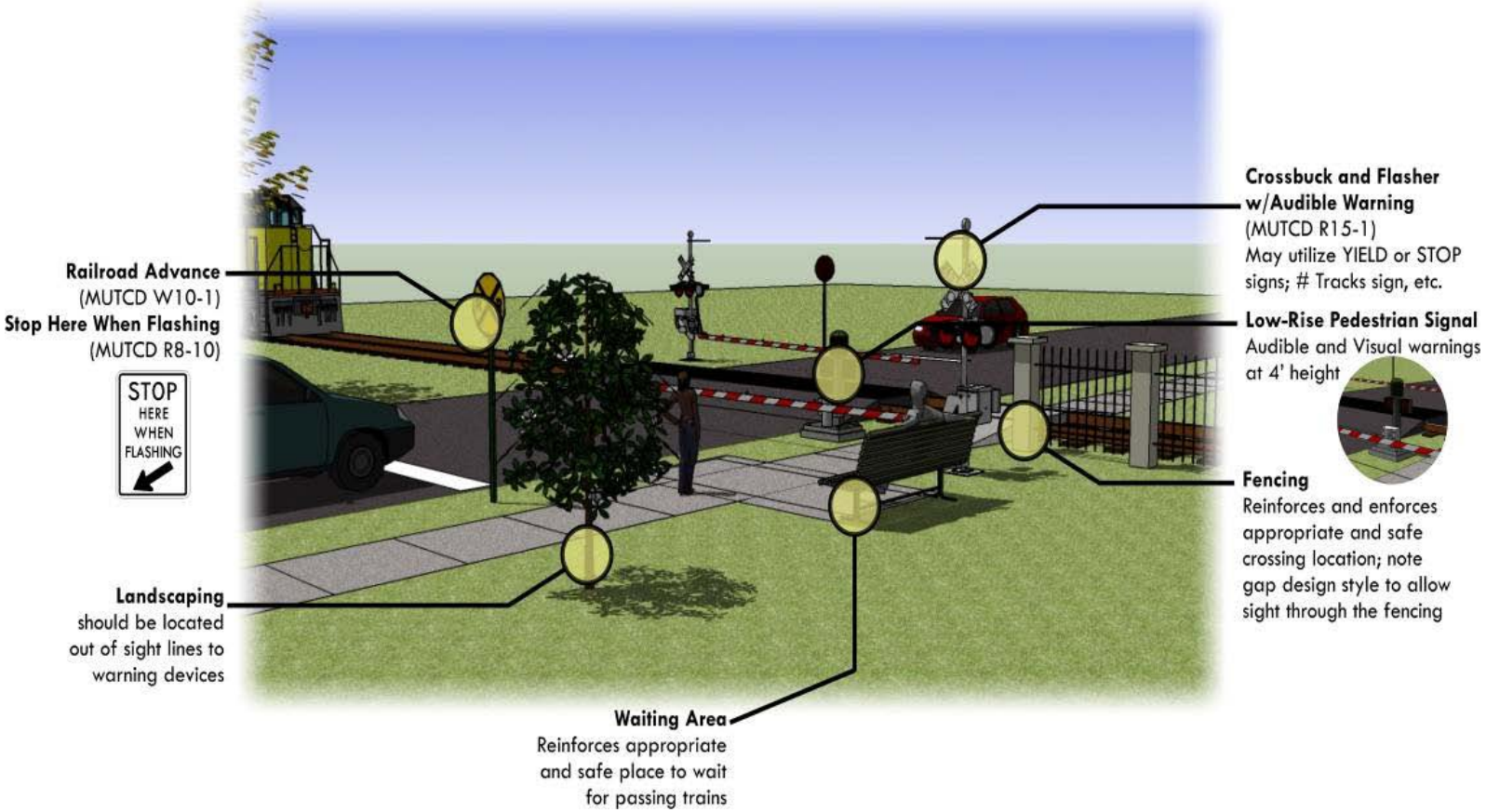


Figure 4.28. Typical Railroad Crossing Treatments
Source: FRA Compilation of Pedestrian Safety Devices in Use at Grade Crossings; Manual on Uniform Traffic Control Devices; The Louis Berger Group, Inc.

4.10 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 (TND) Street Design Guidelines (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. NCDOT is also developing "complete street" standards that may allow additional deviation to recognize varying street design requirements tailored to the specific environments that the street may pass through. However, the basic elements of good design of urban (downtown) intersections are articulated in Figure 4.29 and as follows:

A. Provide positive clearance between parked vehicles and pedestrian points-of-entry;

B. Indicate with consistent and clear signage the location of the pedestrian, nearby attractions, and emergency service information;

C. and D. Amenities such as water fountains and benches should allow clearance for mobility impaired persons, per the ADAAG guidelines discussed earlier; and

E. Curb ramps and bulb-outs help to provide a clear signal to drivers that the pedestrian space is dominant.

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, Morehead City should be able to create a built environment that will promote walking and continue to support and increase pedestrian traffic.

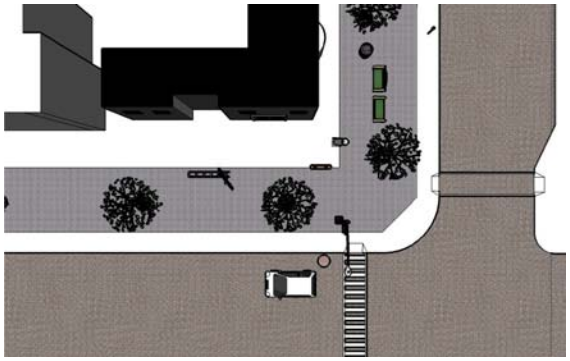
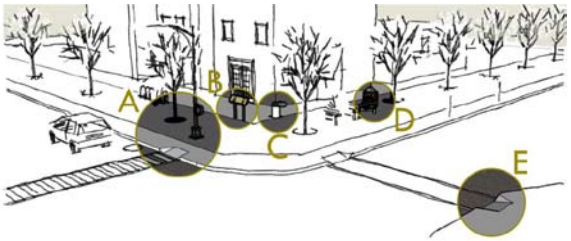


Figure 4.29. Intersection Elements Overhead (top) and Street Views



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Planning for the Future

Section 5. Planning for the Future

This section describes how the existing conditions, public input, and Steering Committee worked with the Project Team to formulate recommendations.

5.1 Summary of Existing Conditions

As stated earlier, the Morehead City Pedestrian Plan serves several purposes.

- Undertake those measures to create a safer and more pleasant walking environment;
- Identify in the Plan a clear schedule of projects, programs, and policies that Morehead City and partnering agencies can provide to improve the walking environment; and
- 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 automobile emissions.

During the planning process, a facility inventory, numerous site visits, and discussions with the staff, public, and Steering Committee were used to enhance the expertise of the project team to create a set of viable recommendations to accomplish these objectives. To begin, there are a number of existing conditions that can be stated in general terms that define the starting position of the Town in terms of creating a more walkable version of itself in the future.

- The historic downtown area of Morehead City is already eminently "walkable." The addition of more street crossing facilities (e.g., crosswalk markings and pedestrian signals) across Arendell Street/US 70 improves the area still more. Furthermore, this pedestrian activity center often has broad (8' or more) planting strips separating traffic from pedestrian walkways, wider sidewalks in popular tourist destinations, and a pleasant landscape/streetscape environment favorable to walking.
- West of 23rd Street, sidewalks become limited to Arendell and Bridges Streets with limited north-south connectivity (35th Street is an exception) via sidewalks. Connectivity to the primary residential areas north of US 70 and Country Club Road is particularly lacking.
- Multi-purpose paths, or greenways, are also very limited in number and lineal extent. The most obvious exception is the Bridges Street Trail, which connects the area high school with destinations and sidewalks east into the downtown.
- West of Friendly Road (which is without sidewalk facilities), the pedestrian environment is extremely spartan with few sidewalks except on US 70, which at

this point is a high-speed, high-volume roadway not particularly conducive to walking due to frequent driveway cuts and narrow planting strips separating pedestrians from fast-moving cars and trucks. One exception is the short NC 24 greenway at the corner of US 70/Arendell Street. Crossing US 70 in this vicinity is problematic due to the loss of throughput of automobile traffic. There is currently no sidewalk or off-street connection to Bridges Street and the high school from the west. Still further west lie additional commercial developments along US 70 and suburban-style detached homes. These homes are newer and larger than some of the homes on the north side of US 70.

- The policies and programs of Morehead City can benefit from some changes and additions as well. Reintegrating land use decisions with transportation needs, especially recognizing that walking requires complimentary uses in close proximity (1/4-mile) is paramount; the biggest difference between the walkability degree of downtown and the rest of town is not the wide sidewalks or benches, but the layout, proximity, and design of buildings in a reinforcing relationship with the street. Adding more programs to calm traffic in newer neighborhoods, and encouraging people – especially students – to do some more walking would be useful to creating a new generation of independent-minded, pedestrian-oriented citizens. Another current example is the walking history tour sponsored by the downtown history museum.

5.2 How Recommendations Were Made

While there is no discrete "formula" for generating sensible pedestrian recommendations, some common practices were valued in the planning process for the Morehead City Pedestrian Plan.

- *Listen to the Experts.* The Steering Committee played a major role in developing project-level success criteria, and offered feedback on every draft report and recommendation.
- *Combine Details with Broad-Based Experiences.* The project team had state and national pedestrian planning and design expertise, but without a careful depiction of local conditions and needs the recommendations would not have been as meaningful.
- *Talk to People.* A public meeting was held and focus groups (Business, Health, Education and Government/Non-Profits) were developed to talk to the general public; a survey was also developed. The following is a brief summary of the

results of the four Focus Groups, the complete and original notes from which are included as Appendix B.

The **Business Focus Group** noted that the Bridges Street multi-purpose path would be a great idea downtown to support more cycling and walking, and also said that the mixing of land uses (businesses and residences) that make downtown dynamic could happen elsewhere. Similarly, parking should be placed in the rear of buildings, not in front behind the sidewalk. Sidewalks should be better connected to each other, and to schools. Greenways would help the appreciation of the natural environment and cultural heritage, and help to avoid dangerous intersections like that of US 70 / NC 24. Drivers should be reminded that pedestrians have the right of way.

The **Health Focus Group** appreciated the 2.5-mile pedestrian loop in the Brandywine subdivision, and noted that many people use this facility, which can be used to spread the idea of a "playcation" (activity-oriented vacation) and improve the health of citizens. Youth should be able to access jobs by walking, and the use of Gloria Dawn Road is a useful bypass of the US 70 / NC 24 intersection. A crosswalk at Friendly Road and Arendell Road would be useful to promoting more walking, as would better landscaping (more trees, specifically) although another person noted that keeping trees and shrubs trimmed is important to promote security. Congestion at the hospital should prompt pedestrian improvements at that location. Paths along waterways and skywalks were also suggested. Safety on the bridges is an important issue, as is safety at crosswalks where a "STOP" pavement marking would be helpful to alert motorists to the presence of pedestrians.

The **Education Focus Group**, which included students at West Carteret High School, suggested that connecting to the Sports Center with a pedestrian path is important, as are connections to Glad Tidings from the High School; connection between the High School and Elementary School; and a better crosswalk and signal in front of the High School. There is a need to form an advisory group consisting of parents, teachers, and students to create a sense of urgency to the needs of the students that walk in the Town.

The **Government/Non-Profit Focus Group** noted the activities of other, nearby areas like Dare County. Citing the success of the MATS trail, they recommended aggressive pursuit of grants, as well as requiring exactions from new development. Attention to the needs of pedestrians on the bridges was mentioned in this group as well, as was the Brandywine loop trail. Having sidewalks on NC 24 on both sides is very desirable, as is a connection between the Brandywine subdivision and the condominiums.

Programmatic and policy recommendations were developed through a collaborative effort with the Town staff. Policy recommendations, in particular, must be carefully crafted to avoid having a feedback reaction that might undermine a broader set of pedestrian policy objectives. It is worthwhile to note that the recommended policies are not "official" with the adoption of this Plan, but must be processed by the Town through their normal program of introspection and external review opportunities afforded by Planning Commission and Town Council meetings. Programs should have a viable sponsor in order to have a chance at near-term implementation. Project recommendations generally fall into just two categories: facility improvements *along* the street and improvements *across* the street (intersections).

Sidewalks, greenways (typically 10' asphalt paths away from a roadway), and sidepaths (wide sidewalks, sometimes of asphalt, that are set back but follow a roadway and accommodate bi-directional pedestrian and bicycle travel) are types of projects that follow along the street – or serve as alternative routes in more rural sections of town or perhaps are constructed to avoid putting pedestrians too close to a busy street. The Steering Committee recognized the following characterizations of a good pedestrian facility. Project prioritization and scheduling was a layered process which incorporated all of the above factors with ratings on accessibility, safety and connectivity. A project received points for any of the characteristics shown in Figure 5.1.

While not strictly assigned a score, intersection crossing treatments must consider the existing condition of the crossing; the need for additional treatments as expressed by (pedestrian-involved) accidents; the proximity to schools, existing or proposed pedestrian facilities along the street; and expense.

For both "along" and "across" types of pedestrian facilities, planning-level (unit) costs were developed based on past experiences in other locales or from NCDOT. The Louis Berger Group, Inc. has developed its own cost estimation tool and maintains up-to-date unit cost figures; however, the costs of labor, land, and materials have and will continue to be subject to fast-paced changes. This fact, combined with the need to conduct more detailed, design-level costing, make these estimates purely preliminary but still useful for the purpose of relative comparisons.

The figures on the following pages illustrate the primary physical recommendations coming from the planning process; Section 7 discusses each project's cost.

Sidewalk Criteria	Points
Proximity to Schools	
Yes, between 0 -.125 miles	4
Yes, between .125 - .25 miles	3
Yes, between .25 - .5 miles	2
Yes, between .5 – 1 mile	1
No	0
Proximity to Parks	
Yes, between 0 -.125 miles	4
Yes, between .125 - .25 miles	3
Yes, between .25 - .5 miles	2
Yes, between .5 – 1 mile	1
No	0
Proximity to Shopping or Employment Centers	
Yes, between 0 -.125 miles	4
Yes, between .125 - .25 miles	3
Yes, between .25 - .5 miles	2
Yes, between .5 – 1 mile	1
No	0
Traffic on Adjacent Road (Average Daily Traffic)	
4,000 - 6,000 OR Arterial	3
2,000 - 4,000 OR Collector Street	2
< 2000 OR Local Street or Cul-de-Sac	1
Connectivity: Linking Destinations and Existing Sidewalk	
Yes	1
No	0

Figure 5.1. Sidewalk Priority Criteria and Point System

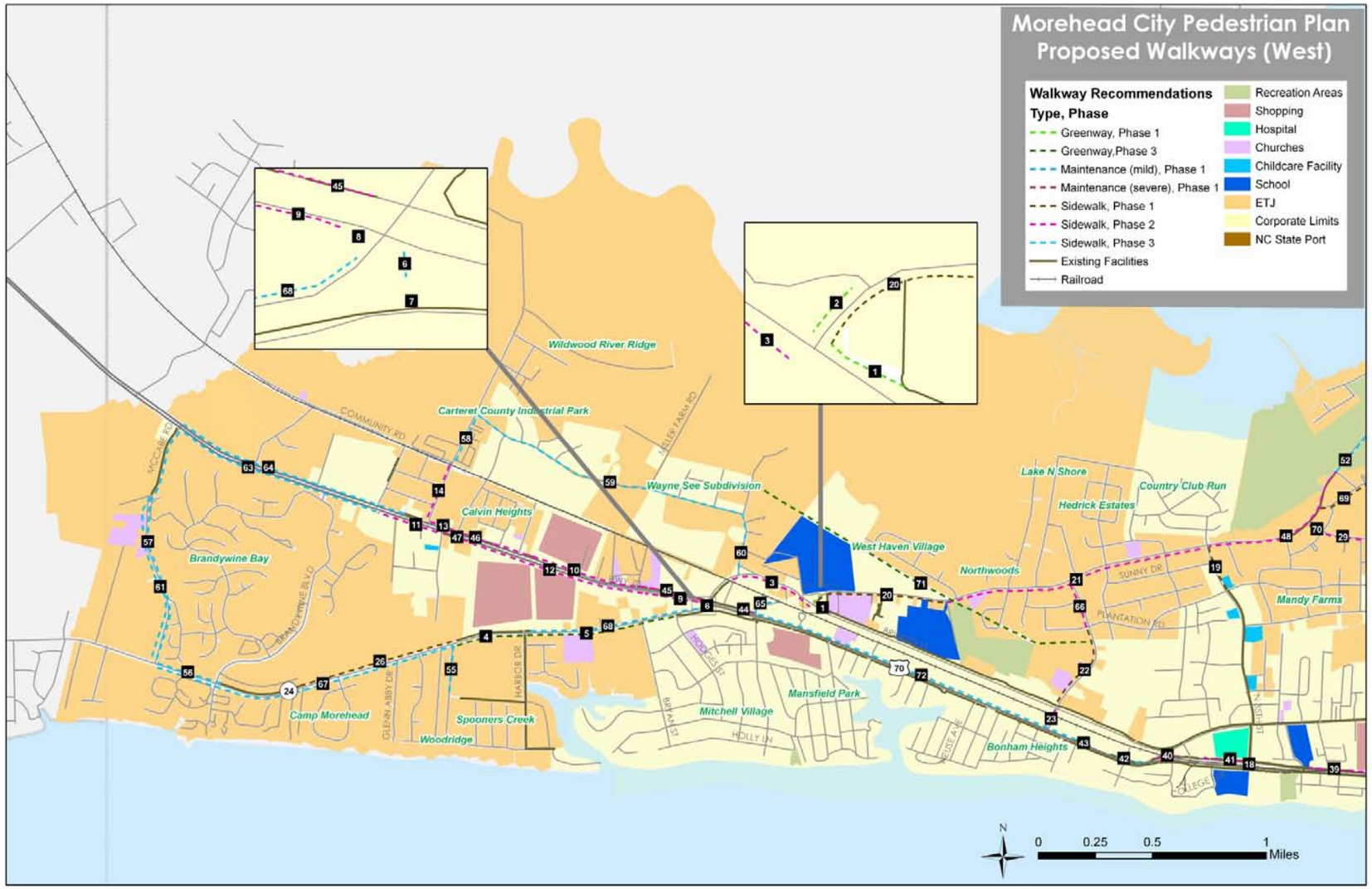

Figure 5.2. Pathway Recommendations (West)

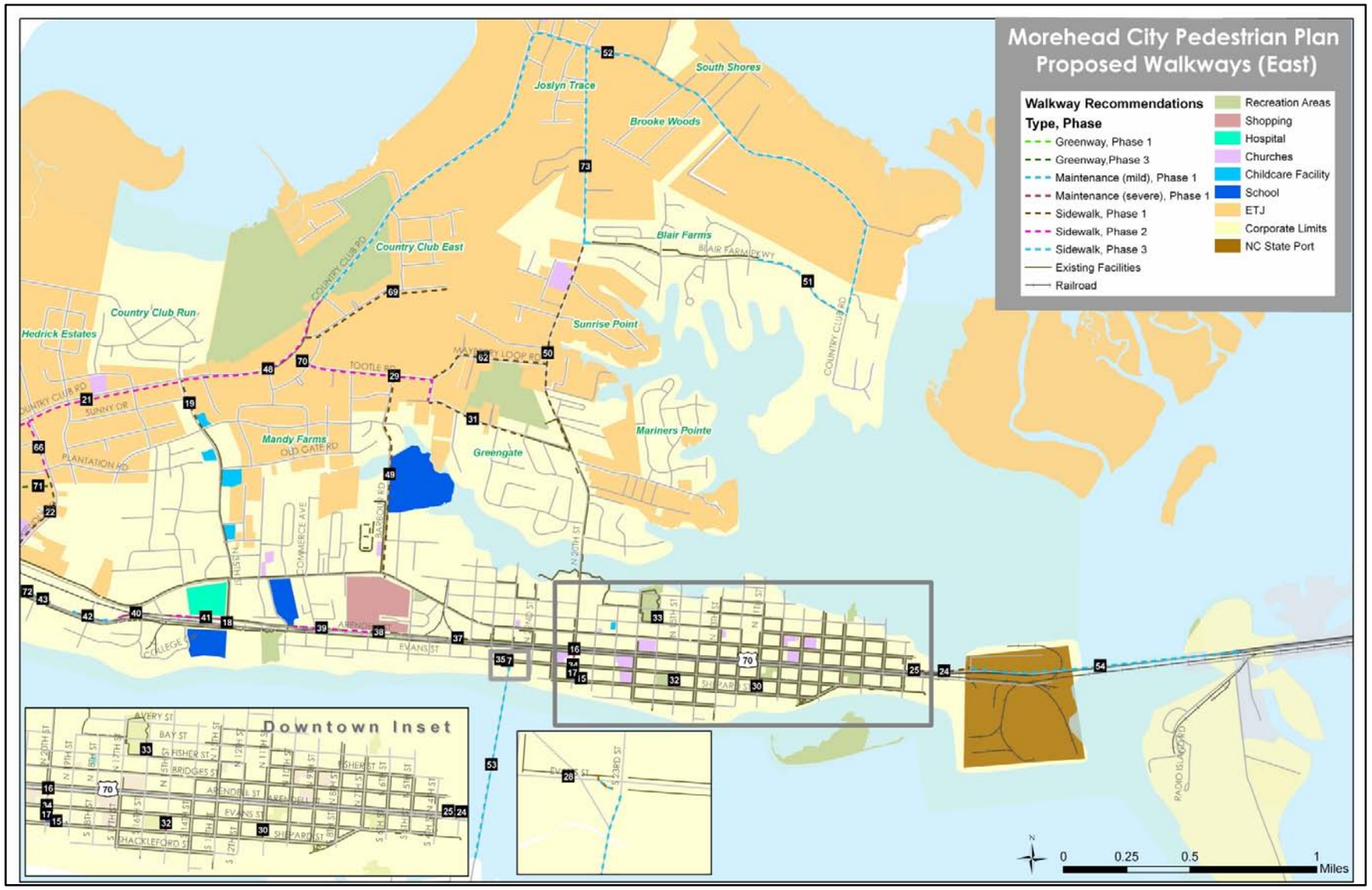

Figure 5.3. Pathway Recommendations (East)

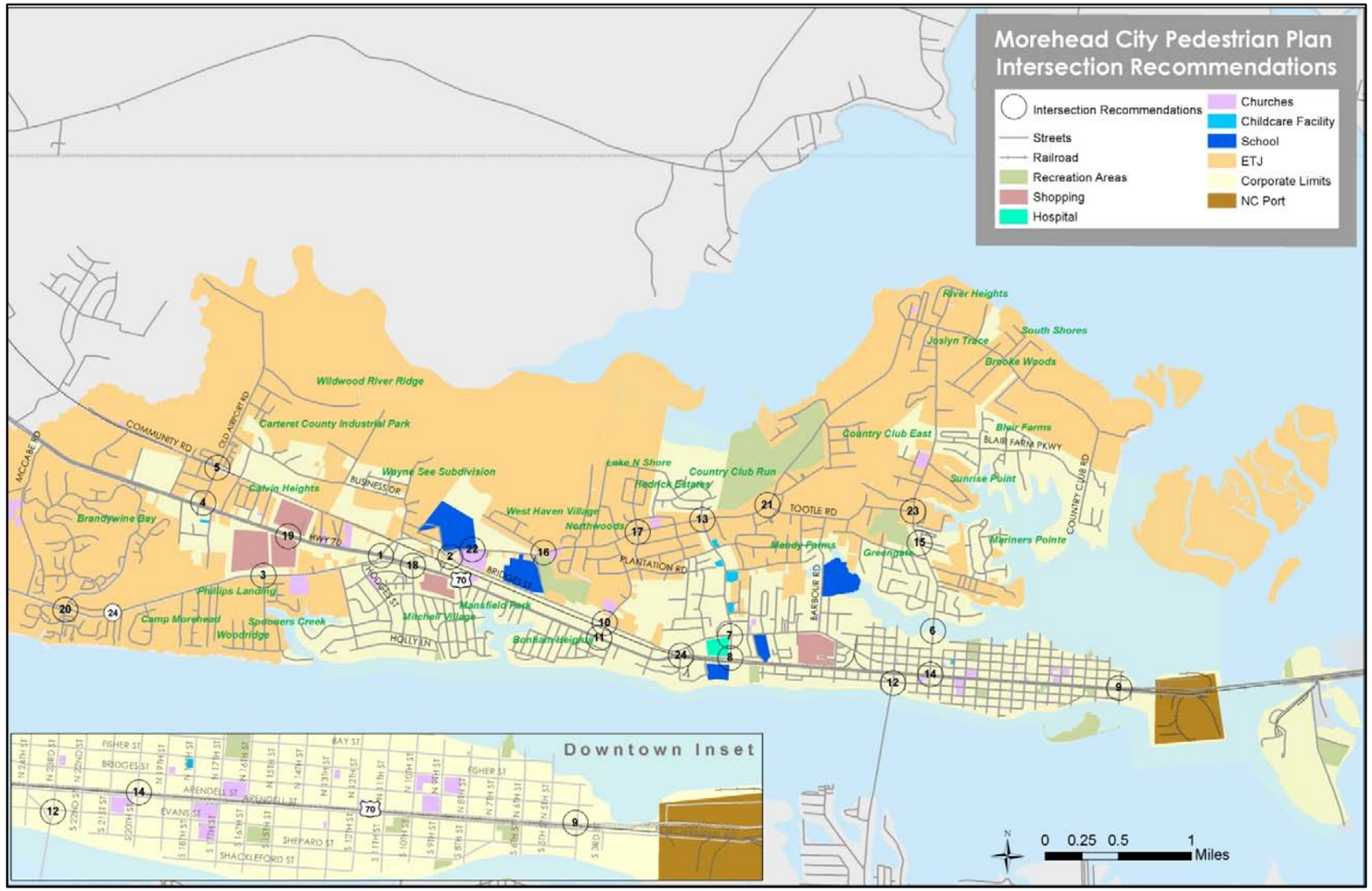

Figure 5.4. Intersection Recommendations

The following tables list the intersection and pathway recommendations; note that the map ID numbers correspond to those used in the figures on the preceding pages.

Table 5.1. Intersection Recommendations

Intersection	ID	Crosswalk	Pedestrian Signal	Redesign
Bridges St and Hwy 24	1	✓	✓	
Country Club Rd and Bridges St	2	✓	✓	
Hwy 24 and Harbor Dr	3	✓	✓	
Hwy 70 and Old Airport Rd	4	✓		
Railroad Crossing Community Rd	5			✓
N. 20th Street and Greenway	6		✓	
35th St and Bridges St	7		✓	
Arendell St and 35th St	8	✓		
N. 4th St and Arendell St	9	✓	✓	
Bridges St and Friendly Rd	10	✓	✓	
Arendell St and Friendly Rd	11	✓	✓	✓
Evans St and S. 23rd	12	✓	✓	
Country Club Rd and N. 35th St	13	✓		
Arendell St and 20th	14	✓	✓	
N. 20th Street and Mobile Home Park	15	✓	✓	
Swinson Park Access on Country Club Rd	16	✓		
Country Club Rd and Hedrick	17	✓		
Rochelle Dr and Arendell St	18	✓		
Crystal Coast Plaza and Cypress Bay Plaza	19	✓	✓	
Brandywine Blvd and Hwy 24	20	✓		
Tootle Rd and County Club Rd	21	✓		
West Carteret High	22	✓		
N. 20th St & Mayberry Loop Road North	23	✓		
Arendell St and Banks St	24	✓		

Map ID	Short-Term Project Location	Project Type
1	W Carteret High School Connector (east)	Greenway
2	W Carteret High School Connector (west)	Greenway
15	Shepard St (20th to 19th) (north)	Maintenance (mild)
16	20th (Evans to Arendell) (east)	Sidewalk
17	20th (Shepard to Evans) (east)	Sidewalk
19	35th St (Mandy to Country Club) (east)	Sidewalk
20	Country Club (Bridges to Swinson Park) (south)	Sidewalk
22	Friendly (Bridges Greenway to Plantation Rd)	Sidewalk
24	Arendell (E. of 4th to Yacht Sales) (north)	Sidewalk
25	Arendell (east of 4th) (north)	Maintenance (severe)
26	NC 24 (Lewis Murdoch to Woodridge) (north)	Sidewalk
30	11th Street Shepard to Evans	Sidewalk
33	16th Street (Bay to Fisher) (west)	Sidewalk
36	23rd Street across from Evans St	Sidewalk
37	Arendell (25th Street to 26th Street)	Sidewalk
38	Arendell (29th to 30th)	Sidewalk
51	Blair Farm Pkwy (East of Ivory Gull Dr to Country Club Rd)	Sidewalk
52	Country Club Rd (Blair Farm to Forest Hills) (south)	Sidewalk
69	Fairway Rd & E Fairway Rd (south)	Sidewalk
70	Tootle Rd (Country Club Rd to Crescent Dr)	Sidewalk

Map ID	Medium-Term Project Location	Project Type
3	West Bridges Street	Sidewalk
7	NC 24 Greenway Stub (south)	Sidewalk
8	NC 24 Island Connector (north)	Sidewalk
9	US 70 (west from NC 24 to existing sidewalk near Jones Rd) (south)	Sidewalk
10	US 70 (Jones to Harris) (north)	Sidewalk
11	US 70 (Little Nine Rd to Old Murdoch) (south)	Sidewalk
12	US 70 (Arthur Farm Rd to existing sidewalk beyond Carteret Street) (south)	Sidewalk
13	US 70 (Arthur Farm to Old Airport) (north)	Sidewalk
14	Old Airport Rd (US 70 to Community Rd) (west)	Sidewalk
18	Arendell (N 35th St across RR)	Sidewalk
21	Country Club (Swinson Park to 35th) (south)	Sidewalk
23	Friendly (Bridges to Arendell) (west)	Sidewalk
28	Ramp crossing connector (Evans Street Bridge Ramp)	Sidewalk
29	Tootle Rd (Crescent Dr to Mayberry Loop End) (south)	Sidewalk
32	15th (Evans to Shepard) (west)	Sidewalk
34	20th Street (Arendell to Shepard) (west)	Sidewalk
35	S. 24th Street to Atlantic Beach Bridge Ramp and Arendell	Sidewalk
39	Arendell (30th Street and Bonner St and Glen Dr) (north)	Sidewalk
40	Arendell and Banks St (north)	Sidewalk
43	Arendell and Jackson (north)	Sidewalk
44	Arendell at Country Club (north)	Sidewalk
45	Hwy 70 (Bridges to Jones) (north)	Sidewalk
46	Hwy 70 (Arthur Farm to Harris) (north)	Sidewalk
47	Hwy 70 (Little Nine to Arthur Farm) (south)	Sidewalk
48	Country Club (Forest Hills to 35th) (south)	Sidewalk
49	Barbour (Bridges to Tootle Rd) (east)	Sidewalk
50	N 20th Street (Country Club to Mayberry Loop) (east)	Sidewalk

Map ID	Long-Term Project Location	Project Type
4	NC 24 (Woodridge to Harbor) (south)	Greenway
5	NC 24 (Harbor to Hodges) (south)	Greenway
6	NC 24 Island Connector (south)	Sidewalk
27	Evans St. Bridge Connector	Sidewalk
31	Mayberry Loop (from Mayberry Loop to N Yaupon Terrace) (south)	Sidewalk
41	Arendell (35th Street to Bald) (north)	Sidewalk
42	Arendell and Lockhart (north)	Sidewalk
53	Bridge to Atlantic Beach	Sidewalk
54	Arendell (east of 3rd to Radio Island Rd) (north)	Sidewalk
55	Woodridge Dr (east)	Sidewalk
56	Hwy 24 (McCabe to Brandywine Blvd) (north)	Sidewalk
57	McCabe Rd (east)	Sidewalk
58	Old Airport Rd (Community Rd to Business Dr) (east)	Sidewalk
59	Business Dr (south)	Sidewalk
60	Gloria Dawn Rd (west)	Sidewalk
61	McCabe Rd (west side)	Sidewalk
62	Mayberry Loop Rd (Tootle Rd to N 20th St) (north)	Sidewalk
63	Hwy 70 (Old Murdoch Rd to McCabe Rd) (south)	Sidewalk
64	Hwy 70 (McCabe Rd to ex s/w near old Airport Rd) (north)	Sidewalk
65	Country Club (Arendell to end) (west)	Sidewalk
66	Friendly (Plantation Rd to Country Club Rd) (west)	Sidewalk
67	Hwy 24 (McCabe to Woodridge) (south)	Sidewalk
68	Hwy 24 (Harbor to Hwy 24/70 intersection) (north)	Sidewalk
71	Progress Energy Corridor	Greenway
72	Arendell St (Rochelle Dr to Jackson St) (north)	Sidewalk
73	N. 20th Street (Blair Farm Pkwy to Country Club Rd) (east)	Sidewalk

Table 5.2. Pathway Recommendations

These project recommendations, as well as program and policy recommendations, are detailed in the following report sections. They are the result of considerable input from stakeholders and the project team and should be considered as both reasonable and practical for initial estimations of cost and system need. Several intersection recommendations are described in more detail in Figure 5.5. on the following page. These locations are highlighted in the Pedestrian Plan due to the exposure and risk to pedestrians currently crossing in the presence of high volumes of traffic. Pedestrians cannot be prevented from crossing at convenient locations; when they do so in numbers, then they should be protected through the use of appropriate signage, pavement markings, and traffic control devices.

Intersection Location (Map ID No.)	Recent Image	Recommendations	
US 70/NC 24 (1)		*Add crosswalks, pedestrian signals, and redesign the geometry to shorten pedestrian travel. Closure of nearby, secondary driveway entrances close to the intersection.*	
US 70/Rochelle Drive (20)		*Add crosswalks, pedestrian signals, modify curb line and STOP bar locations. Rochelle Drive would need to accommodate a pedestrian crossing of the railroad to the north to make this crossing treatment more valuable.*	
Friendly Rd/Bridges & Arendell (12/13)		*Improve railroad crossing, add crosswalks, pedestrian signals, and create two standard driveways instead of a single, continuous driveway on west side.*	
Pedestrian Signal on US 70 (NA)		*Modify median to add pedestrian-activated HAWK crossing signal. Determination of the exact location would be pending further engineering studies in accordance with the Manual on Uniform Traffic Control Devices.*	

Figure 5.5. Intersection Details

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Policies and Programs

Section 6 emphasizes the specific recommendations stemming from the policy review and presents new recommendations for working with key partners to develop better awareness of and behavior towards pedestrians.

Section 6. Policies and Programs

Local policies, plans and programs 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, planning activities and program offerings can often be achieved at low-cost to a municipality while resulting in substantial outcomes that could help Morehead City make notable progress in having a more walkable environment.

6.1 Improvements to Existing Policies and Plans

Morehead City will experience growth and development in the years to come, driven in no small part by its coastal location, temperate climate, and walkable, small-town core. The shape and quality of future development will greatly impact the pedestrian-friendliness of the Town. If the Town can work with the development community to create a more multi-modal transportation network that includes sidewalk connections and greenways, Morehead City will continue to stand out as a community with a high quality of life that attracts new residents, businesses and further economic development. For this reason, it is strongly recommended that the Town work to update and/or create local ordinances to include more pedestrian-oriented language and guidance for walkable future development.

Table 6.1. Local Ordinance Recommendations

"Green Streets" Design Criteria	• Modify the Code of Ordinances to reference specific street design criteria, including maximum curb radii in the downtown area 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 could also address best practices for stormwater control, such as allowable uses of permeable pavement.
Minimum Sidewalk Requirement	• Modify the Land Use Ordinance whereas all sidewalk requirements should clearly state that five (5) feet is the minimum width required to meet local, state and national standards, including ADA requirements.
Greenway Trail Requirements	• Require the construction of minimum 10' (typical: 12') greenways during new development to connect to existing greenways and create the proposed network of greenways throughout the Town. Additionally, language should be added to allow the Town Council to require greenway connections between adjacent cul-de-sacs and/or from cul-de-sacs to nearby schools, greenways, or other public destinations.
Multi-Modal Land Use Incentives	• Modify the Code of Ordinances to consider the expansion of conditional uses to include neighborhood retail opportunities in even low- to medium-density residential districts pursuant to adherence to basic design standards and review. • The addition of a new ordinance restricting bicycle riding on sidewalks in the historic downtown could help reduce bicycle/pedestrian conflicts and help create a safer pedestrian environment.
Trail Design Standards	• Develop improved trail design standards that address consistency of materials, width and accessories for local greenway trail projects.
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) 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, a signalized mid-block crossing should be provided for safe pedestrian access. • Work with Carteret County to consider pedestrian needs during all new school location and design decisions.
Pedestrian-friendly Overlay Districts	• Create a set of place-making design standards (or "overlay districts") for rural, downtown, and other design markets for the Town, respecting the unique character of the rural heritage as well as recognizing a focus on the historic, central business district. Reward and recognize developers that adhere to these design standards by streamlining the project review process and awarding best practice certificates at Planning Board and Town Council meetings. EXAMPLE: Consider developing a pedestrian focus area west of downtown to target connectivity to/from and within the new residential and commercial development taking place at the periphery of this area (e.g., west of 35th Street).
Parking Lot Design	• Amend the Town's zoning ordinances 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.
Traffic Impact Assessment	• Consider inserting language on Traffic Impact Assessments in the Land Use Ordinances, to specifically address bicycle and pedestrian traffic flow and intersection design that safely accommodates pedestrians. Include off-site provisions for sidewalk connections and pedestrian signals/crosswalks within a quarter-mile of proposed major subdivisions, offices, recreational centers, and other important pedestrian generators or attractors.

Internal policy changes and complementary planning efforts could be achieved in order to reinforce the Pedestrian Plan's recommendations and proposed outcomes. During the Plan's development, several pedestrian-friendly policy and program recommendations specific to Morehead City were identified and discussed. Recommendations for all such policy and plan development are included in Tables 6.2 and 6.3, below.

Table 6.2. Internal Policy Recommendations

Countdown Pedestrian Signals	Formalize a town-wide 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.
Greenway Crossings	Create a policy for standard greenway crossing treatments, and develop with NCDOT a mutually acceptable mid-block crossing policy for greenways based on the Charlotte DOT design standards (refer to Section 4.0).
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	Modify curb ramp design standards to conform to ADA requirements and ensure new curb ramps are constructed during all new street/intersection construction, as mandated by federal ADA requirements.
School Siting	Work with Carteret County to consider pedestrian needs during all new school placement and design decisions.
Sidewalk/Crosswalk Maintenance	Develop a sidewalk and crosswalk maintenance budget and schedule to keep up with regular repair needs.
Parks Plan Development	Modify the existing Parks and Recreation Comprehensive Master Plan that incorporates and expands upon the ultimate recommendations of this Plan.

Table 6.3. Complimentary Planning Recommendations

Bicycle/Pedestrian & Trails Committee	Appoint a Bicycle, Pedestrian and Trails Committee to help engage the public in the implementation of the Pedestrian Plan, as well as to help complete future planning efforts.
Greenway Feasibility Study	Develop the design for an adjacent Greenway extending from the intersection of NC 24 / US 70 to connect with the Bridges Street greenway.
Encourage County to Require Sidewalks	The Town should work with Carteret County to adopt a new policy that requires private development to construct sidewalks along the frontage of newly developed properties, especially in the ETJ area.

6.2 Programs and Partnering Opportunities

Pedestrian facilities alone do not make a municipality pedestrian-friendly. A variety of policy changes and 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 "five E's" of pedestrian programming: education, encouragement, engineering, enforcement, and evaluation.

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 town's transportation network.

The sections that follow include recommendations for a well-rounded pedestrian program in the Town of Morehead City.

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.[30] 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

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[30].

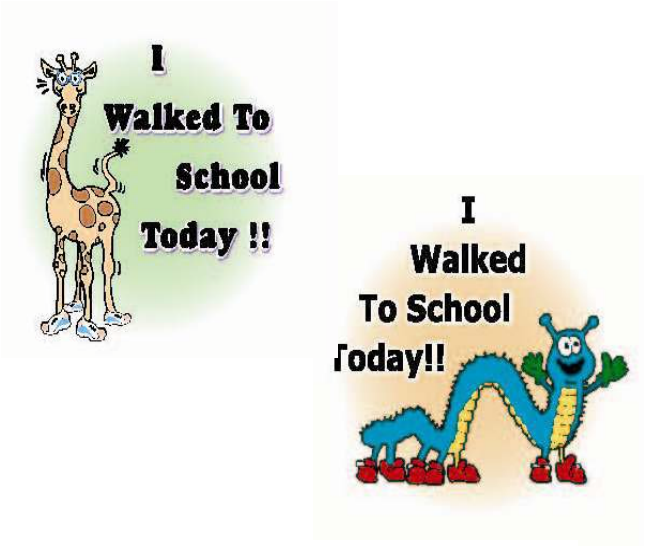

Figure 6.1. Sample SRTS Materials
Using inexpensive materials, such as these simple stickers – available for free online and printed on Avery labels – can help create a fun, effective Safe Routes to School outreach program.

States began in the Bronx, NY, in 1997. Now, 13 years later, the Safe Routes to School Program has become both a federally-funded and grassroots national movement.

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 both planning and infrastructure 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 Town and County staff, school administration, and parents and faculty; however, the benefits will continue with children into adulthood. Town of Morehead City staff should coordinate with the Carteret County public school administration at either a system-wide or individual school level, to encourage and support the establishment of a Safe Routes to School program at Morehead Elementary and St. Egbert Catholic School, as well as other schools serving local children. In addition, when new schools are planned and constructed, Carteret County public school system representatives should work with Town staff to plan for and design safe walking and cycling routes to new schools.

Pedestrian Safety Education Campaign

A pedestrian safety campaign can be a branded town-wide effort involving multiple Town departments (e.g., Public Works, Planning, Police), 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 Town might also consider posting bicycle and pedestrian related laws and safety information permanently on the Morehead City Town website for reference. For a list of relevant state statutes, visit www.ncdot.org/bikeped/lawspolicies/default.htm.

The simplest way to spread information about safe pedestrian behavior is to create promotional and educational materials for distribution at various venues throughout the Town, and to Town staff, major employers, and future residents. The purpose of these materials would be to educate Morehead City'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 such as health and the environment. Such educational materials can be distributed to outdoor groups and outdoor supply vendors, as well as distributed at Town 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: Town staff should design educational and promotional materials for distribution to Town staff, major employers, and future residents, as well as for display at Town Hall and other public locations (e.g. parks, library, recreational facilities).

Bicycle and Pedestrian Program Website

Morehead City and the surrounding communities have many public events that collectively work to create a walkable community through recognition of local heritage, cultural sites and the arts. Events held by Carteret Community College, the History Place and other local entities are typically accessible for pedestrians and bicyclists due to the geography of the town and a culture of walking and biking that has evolved with the college and other nearby recreational influences. A bicycle and pedestrian program

Figure 6.2. Pedestrian Education Materials
Well-designed pedestrian safety and promotional materials are available for free from FHWA and the National Center for SRTS.

Source: www.saferoutesinfo.org

website could provide links to local event calendars, fitness and 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 Town.

Recommendation: It is recommended that the Town 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 "BikeWalkMorehead.org" and be linked to the Town'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 Morehead City for residents and tourists.

6.2.2 Encouragement Program Recommendations

Bicycle/Pedestrian and Trails Advisory Committee

One approach to formalizing the Town's commitment to pedestrian-friendliness is to establish a standing Pedestrian and Bicycle Advisory Committee. The Committee should be a standing committee comprised of residents committed to making Morehead City a more bicycle- and pedestrian-friendly community. Members of the advisory committee would provide input on decisions, actions, plans, and policies from a bicycle and pedestrian perspective. They would also lead volunteer efforts at Town-sponsored events and generally advocate for a more bicycle- and pedestrian-friendly community. A Town 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 Town Council 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 Morehead City's tourism attractions, cultural destinations and well-used parks, a similar system would be very useful.

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 Morehead City or Carteret 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.

Recommendation: Develop a system of wayfinding signs to direct pedestrians to major landmarks, parks, greenway trails, and other public attractions in the Town with wayfinding signage. Develop a complementary map and brochure for visitors and residents to use in navigating the Town by foot. Pedestrian safety information could be included, as well as information on local cultural sites, landmarks and businesses (e.g., historic homes, parks, history museum, and downtown retailers). The map might be available for distribution at Town Hall, local retail venues, restaurants, on the internet and through the Carteret County Chamber of Commerce.

Weekly Walking Tours

With Morehead City's high pedestrian rates and seasonal influx of tourists, it is apparent that many residents and visitors enjoy Morehead City by foot. More communities are capitalizing on existing sidewalks and trails by offering walking tours that highlight cultural and ecological attractions. Providing route maps and working with volunteers to lead the tours can be a cost effective way to add value to visitors, and offer a healthy group activity for residents to enjoy. The Promise Land Walk, a 2.3-mile loop beginning and ending at Morehead City Park, allows visitors to see this historic resource as well as enjoy views of Bogue Sound.

Recommendation: Work with the History Place, Downtown Morehead City Revitalization Association, and Carteret County Health Department to incorporate regular pedestrian outings in Morehead City for residents and/or tourists, which highlight the natural resources of the Town and surrounding area; historical and cultural landmarks; and popular destinations. The Promise Land Trail is an existing, similar tour experience and could be promoted more heavily and supported with mapping that

Figure 6.3. Pedestrian Wayfinding Signage
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. "Dressing Up" signal controller boxes, news boxes, and utility poles creates a very different environment for pedestrians. (Seattle, WA)

emphasizes pedestrian-scale elements and favorable walking routes. A larger tour could be a weekly or monthly endeavor, organized to meet regularly at the same place/time, but using different routes and/or facilitators to spice things up. The walking tours might highlight local historic homes, port attractions, local heritage and cultural facts, gardens or other natural resources. For examples of a successful set of heritage tours in New Bern, NC, visit http://www.visitnewbern.com/heritage_tours.htm.

COUNTDOWN CARTERET! Adopt 5 Healthy Habits for Life!

A	**Aerobic activity** Get at least 30 minutes of continuous exercise each day. Take a dance class, turn your coffee break into an activity break, or go for a bike ride. MOVE MORE!	**N**	**Nuts and whole grains.** Eat them everyday. Nuts and whole grains are good sources of nutrients your body needs. Check labels to see if the foods you eat are made with whole grains! www.mypyramid.gov
B	**Breakfast** gives you energy to make it through the day. Make it healthy. Include a whole-grain cereal with low fat milk, or a piece of fruit and yogurt.	**O**	**Omit high fatty foods.** Check food labels for "grams of fat" and keep your daily intake at a healthy level. Try foods that are labeled as Low Fat or fat free! Learn how to read and understand food labels.
C	**Calcium for strong bones and teeth.** Calcium comes from dairy products, like milk, yogurt, and cheese. Build a strong body today and reduce your risk of osteoporosis later in life. Make sure you get at least 3-A-Day.	**P**	**Portion control.** Don't over do it, eat smaller portions. When eating a meal remember to slow down, take small bites, chew slowly, and enjoy the meal. MODERATION!
D	**Dental health is important.** Brush and floss at least twice a day to keep teeth and gums healthy. Visit the dentist twice a year for good checkups. www.oralhealth.ncdhhs.gov	**Q**	**Quit unhealthy habits!** Make the choice, quit today! www.quitnownc.org
E	**Eight glasses of water each day.** Eight 8 oz glasses of water is recommended daily. Depending on the type of activity you are doing, your body may need more water. Water... Just Drink It!	**R**	**Read up, TV down.** Instead of watching TV, read a book, put together a puzzle, play a board game, or explore your local library. Exercise your mind!
F	**Fiber, get it daily.** Fiber is important nutrient your body needs. Fruits, vegetables, and whole grain foods are good sources of fiber. Aim for 25 grams of fiber each day.	**S**	**Sun Safety.** Protect your skin from the sun. Wear a sunscreen with a high SPF everyday. Check your body regularly so you will be aware of any changes. www.sunsafetyalliance.org
G	**Grill it, bake it, broil it, but don't fry.** Grilling, baking, and broiling are healthier ways to cook. Cave people got it right when they cooked over open fires.	**T**	**Team up with a friend.** Get support from a friend or family member; encourage each other everyday to make healthy choices. Create a walking group, exercise together, share recipes, etc.
H	**Heart healthy eating.** Choose foods which are low in fat, saturated fat, cholesterol, and sodium (salt). Read food labels know what sodium, saturated fat and trans fat levels mean. www.americanheart.org	**U**	**Use seat belts and all safety gear.** Remember to wear your helmets, safety pads, seat belts and all other safety devices. It's the law! Safety gear is there to protect you, so make sure you use it. www.ncsafekids.org
I	**Immunizations.** Talk with your doctor or go to www.cdc.gov/vaccines to view a vaccine schedule. Some vaccines require a booster dose so find out if yours are up-to-date.	**V**	**Veggies and fruits** provide vitamins and nutrients your body needs. Depending on your age, the serving sizes range from 5 to 9 servings a day. To find out how much you need from each food group go to www.mypyramid.gov and print out a plan specifically for you!
J	**Junk food, get rid of it!** Most junk food eating is out of boredom. Trade out unhealthy snacks for healthier ones. Try sliced veggies, fresh fruit, popcorn or pretzels.	**W**	**Walk 10-20 minutes extra each day.** Explore your neighborhood or local walking trail, park the car further from the grocery store, take the stairs, or take your dog for a longer walk. All the extra steps will add up!
K	**Know your numbers.** Do you know what your cholesterol level, blood pressure, blood sugar level, or body mass index numbers are? Find out where you stand.	**X**	**eXercise regularly.** Pick an activity you enjoy doing, and make it a daily routine. Set a goal to exercise at least 3 times a week for 30 minutes of continuous exercise. Keep track of your activities in a journal.
L	**Lose _____ pounds.** Set a realistic healthy weight loss goal. Lose weight the healthy way by making healthy food choices and incorporating exercise into your daily life.	**Y**	**Yearly health exams.** Remember to get your yearly physical exams, such as dental, cholesterol, blood pressure, prostate exam, breast exam, colon, and blood sugar test, to monitor your health.
M	**Manage stress.** Allow some time in the day for to relax and de-stress. Try Yoga or Meditation! Talk with someone you trust about ways to handle stress.	**Z**	**ZZZZZZ's.** Rest is very important because it gets your body ready for the next day! Make sure you get at least 7-8 hours of sleep every night.

Healthy Living Initiative

One of the major characteristics of a pedestrian-friendly town is to have a body of citizens, town staff and elected leaders who support and encourage pedestrian-friendliness. Usually this requires that residents and town officials are educated about the economic, health, and general quality of life benefits of a pedestrian-friendly space. In order to facilitate this, it is recommended that the Town establish a Healthy Living Initiative that consists of several outreach activities. One event could be a Walk to Work Day at Town Hall, perhaps in conjunction with the annual Bike to Work Week in May of each year. During this day, residents of Morehead City, Town Hall employees, community college students, and others could be encouraged to walk to work and school. Other events could include a 5K Walk/Run each year in Morehead City or "Race to the Beach" along NC 24 and Bridges Street. Additionally, educational activities could be held at Town Hall, such as 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 and encouragement component of the event. Local businesses might be asked to encourage employee participation in workplace walking clubs and events, along with the promotion of a local walking route and corresponding map.

Comme
cott is there a map missing ?

This program should be promoted in local schools, health centers and at City/County events (e.g. NC Seafood Festival and Big Rock Blue Marlin Fishing Tournament). A "Fitness Challenge" event and/or regular senior

walking program could be incorporated. Business sponsors could help purchase low-cost pedometers and walking route maps for distribution. Additionally, the Town should consider Healthy Carolinians of Carteret County (HCCC, at http://www.healthycarteret.org/index.php) as a potential partner. HCCC has a stated goal of reducing obesity through more active lifestyles for its citizens. One method of achieving this goal is to "walk 10-20 minutes more each day."

Recommendation: Consider working with the Carteret County Health Department and other local partners to create a healthy living initiative that promotes walking for fitness. The initiative could engage adult and child residents, Carteret Community College students and visitors in fun activities, such as a 5K Walk/Run Event and workplace walking challenges.

Business Walk Incentive Program

As more wellness programs are adopted by major health care providers, businesses are encouraged to start their own physical activity programs to help employees meet their goals. The Kersh Wellness Program, for example, provides its members with a fitness monitor that plugs into their computers and records physical activity daily; the more points earned, the lower the premiums for the employee. The American Heart Association supports employer-based fitness programs from its website (http://www.startwalkingnow.org) and local office. Printed materials, instructions on how to start a program, and recognition and reward opportunities are supplied through this Association.

Recommendation: The Town should encourage the Chamber of Commerce to promulgate the concepts and resources behind a "Fit for Business" program in Morehead City and Carteret County. Locating a champion within the Chamber is important to support and follow-through the action. The Town should annually recognize the top companies that have the greatest participation in the program.

6.2.3 Enforcement Program Recommendations

Traffic Enforcement

Many communities rely on a traffic enforcement unit of the Morehead City Police Department 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.

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 be 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.

Figure 6.4. Speed Monitor
Active speed monitors are often used in school zones to discourage speeding. Source: www.saferoutesinfo.org

Another program that can be very cost-effective is the use of "decoy" pedestrians in the historic downtown and other pedestrian activity areas near schools and the community college. The decoy walks across the crosswalk; enforcement occurs by a secondary officer waiting nearby in a police car for automobile drivers that fail to yield to the pedestrian. A more customer-friendly program might simply hand out warning tickets and a one-page informational brochure showing the location of pedestrian accidents, their seriousness, and the driver's role in preventing them.

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 Morehead City 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 (refer to Figure 6.5).

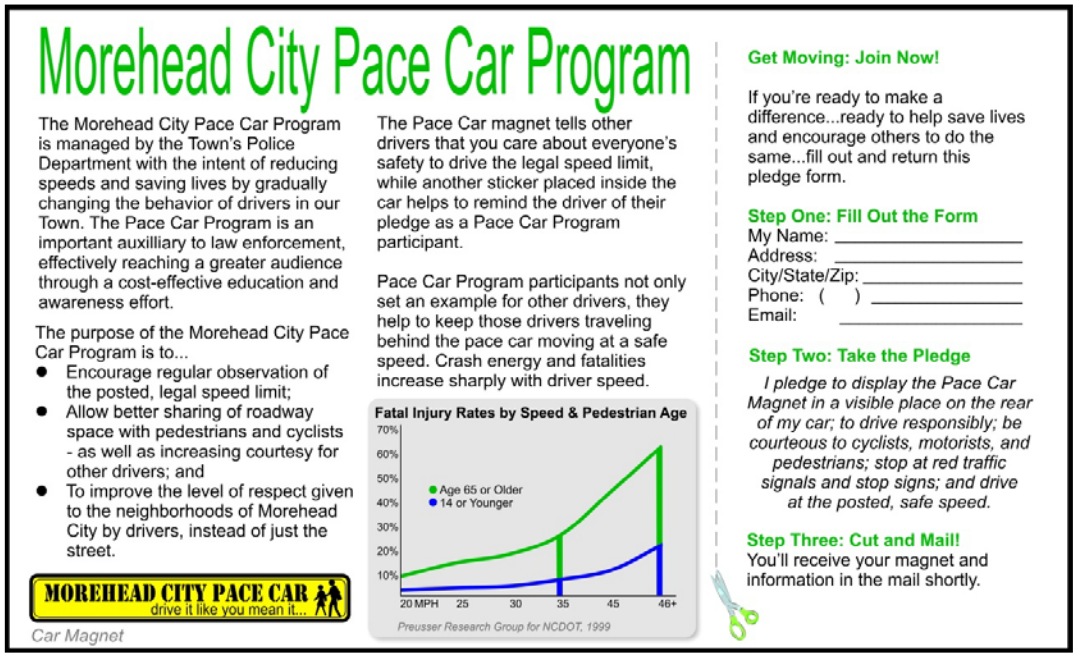

Figure 6.5. Sample Pace Car Information

Recommendation: The Town's Public Works, Planning and Police departments should work together with the Carteret County Sheriff's Department and nearby communities to implement and promote a joint 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.

6.3 Partners

Many of the education, encouragement and enforcement programs will be carried out by partnerships between Town departments, local nonprofit and civic organizations, business owners, developers and others. Creating strong partners in the town-wide 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 Morehead City Pedestrian Plan include:

- Carteret County Chamber of Commerce
- Carteret County Health Department
- Carteret General Hospital
- Downtown Morehead City Revitalization Association
- Local Neighborhood Groups
- Carteret County School System
- Healthy Carolinians of Carteret County
- Local Parent Teacher Associations (PTAs)
- Town of Morehead City Police Department
- Carteret County Sheriff's Department
- Sports Center of Morehead City
- Local Kiwanis, Lions and Rotary Clubs
- Carteret County Community College
- Eastern Carolina Council of Governments
- Local Business Owners

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Implementation Plan

Section 7. Implementation Plan

7.1 Introduction

Completion of the Morehead City Pedestrian Plan is only the first step in creating a walkable community. The implementation of the Pedestrian Plan will require a coordinated effort among officials, leaders, and citizen volunteers. This section provides a series of action 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.

7.2 Action Steps

Completing the following action steps will help guide the development of the pedestrian network, and create a supportive program and policy environment. 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 Morehead City. Once adopted, the Plan should be forwarded to regional and state decision-makers, such as the RPO and NCDOT Division Two office, for inclusion in regional planning and development processes.

2) Form a Bicycle/Pedestrian & Trails Advisory Committee. The pedestrian planning process has engaged many citizens in visioning and goal-setting for Morehead City. 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 Morehead City to become a more pedestrian-friendly town, it must have the priorities and the funding available to proceed with implementation. The Town 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 Town is in a 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.

This section summarizes short-term, mid-term and long-term implementation strategies for the Town of Morehead City and its partners in developing a stronger pedestrian environment. Short-term recommendations are anticipated to be completed in the first five years following Plan adoption. Mid-term recommendations may be completed in ten years, and long-term projects later than ten years.

SHORT TERM:

Twenty-three sidewalk projects combining for 7.4 miles in length are recommended in the first five years following adoption of this Plan. These are listed in Table 7.3.

MID TERM:

Twenty-six sidewalk and greenway projects totaling 6.1 miles in length are recommended in the mid-term (five to ten years after adoption of this Plan). These are listed in Table 7.4

LONG TERM:

Twenty-four sidewalk projects totaling 19.5 miles in length are recommended in the long-term, more than ten years after adoption of this Plan. These are described in Table 7.5.

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 listed in Section 5 and below in Section 7.3. These include requiring sidewalks in all new development projects, establishing a street tree ordinance, and requiring the dedication of greenway easements to "bank" land for future trail construction.

6) Embark on complementary planning efforts. The Town 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 Morehead City Pedestrian Plan should be incorporated into the statewide Comprehensive Transportation Plan, which is currently under development for Carteret County.

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 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, Morehead 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.

Table 7.1. Recommended Policies

Description	Type
Adopt a Complete Streets policy	Policy/Ordinance
Update Minimum Sidewalk & Greenway Trail Requirements	Planning Effort/Ordinance
Develop Trail Design Standards, including Greenway Crossings	Policy/Ordinance
Modify Curb Ramp Design Standards to Meet ADA Requirements	Policy/Ordinance
Establish Internal Policy & Ordinance Language for Local School Zone Improvements	Policy/Ordinance
Modify Land Use Ordinance to facilitate mixed-use as a special use in all parts of Town (downtown area already allows this)	Local Ordinance
Establish Improved Parking Lot Design Standards for Pedestrian Access	Local Ordinance
Update Parks and Recreation Comprehensive Master Plan and MATS Study (where more detail necessary)	Planning Effort
Establish school zone policy to reduce posted speed limit by 10 mph within one-quarter mile of all schools.	Local Ordinance and NCDOT Policy
Work with Carteret Schools to emphasize walkability criteria in their criteria for siting new schools	County School District Policy
Develop and Adopt Street Design Criteria	Planning Effort / Ordinance
Establish Bicycle/Pedestrian & Trails Advisory Committee	Planning Effort
Establish Sidewalk/Crosswalk/Greenway Maintenance Program	Internal Policy
Establish Sidewalk Petition Process	Internal Policy
Incorporate Conditional Uses for Multi-Modal Developments into Local Zoning Ordinances	Local Ordinance
Establish Pedestrian-friendly Overlay Districts	Planning Effort/Ordinance

Description	Type	Potential Partners
Safe Routes to School Program	Education	Carteret County Schools
Establish Sidewalk Petition Program	Maintenance	
Crosswalk/Sidewalk Maintenance Program	Maintenance	NCDOT
Countdown Signal Installation Program	Construction	NCDOT
Bicycle & Pedestrian Program Website	Education	Carteret Community College
Establish Weekly Walking Tours	Encouragement	Carteret County Chamber of Commerce
Pedestrian Safety Education Campaign	Education	Carteret County Schools; Carteret Community College
Establish Pedestrian Wayfinding & Route Maps	Encouragement	Carteret County Chamber of Commerce
Establish PACE Car Program	Enforcement	Morehead City Police & Carteret County Sheriff's Department
Traffic Enforcement	Enforcement	Morehead City Police & Carteret County Sheriff Department
Business Walk Incentives Program	Encouragement	Town of Morehead City, Chamber of Commerce, and Business Community

Table 7.2. Recommended Programs

The following project costs are based on past, actual construction costs for similar project types. Curb-and-gutter, wheelchair (ADA-compliant) ramps, and occasional needs for right-of-way acquisition are accounted for in these estimates. However, more detailed engineering design studies are required to finalize the cost estimates, and materials costs have tended to fluctuate significantly in the recent past, in part due to swings in the overall economy and the price of fuel and asphalt.

Table 7.3. Short-Term Recommendations (1 – 5 years)

Map ID	Project Tier	Project Location	Project Type	Project Length (mi.)	Project Cost (2010 $)
1	Short-Term	W Carteret High School Connector (east)	Greenway	0.06	$30,481
2	Short-Term	W Carteret High School Connector (west)	Greenway	0.04	$21,911
15	Short-Term	Shepard St (20th to 19th) (north)	Maintenance (mild)	0.07	$22,261
16	Short-Term	20th (Evans to Arendell) (east)	Sidewalk	0.05	$22,650
17	Short-Term	20th (Shepard to Evans) (east)	Sidewalk	0.05	$22,581
19	Short-Term	35th St (Mandy to Country Club) (east)	Sidewalk	0.21	$95,526
20	Short-Term	Country Club (Bridges to Swinson Park) (south)	Sidewalk	0.60	$194,286
22	Short-Term	Friendly (Bridges Greenway to Plantation Rd)	Sidewalk	0.40	$320,722
24	Short-Term	Arendell (E. of 4th to Yacht Sales) (north)	Sidewalk	0.21	$97,534
25	Short-Term	Arendell (east of 4th) (north)	Maintenance (severe)	0.03	$11,822
26	Short-Term	NC 24 (Lewis Murdoch to Woodridge) (north)	Sidewalk	0.73	$342,175
30	Short-Term	11th Street Shepard to Evans	Sidewalk	0.05	$22,604
31	Short-Term	Mayberry Loop (Mayberry Loop to N. Yaupon Terrace) (south)	Sidewalk	0.40	$192,453
33	Short-Term	16th Street (Bay to Fisher) (west)	Sidewalk	0.04	$20,092
36	Short-Term	23rd Street across from Evans St	Sidewalk	0.02	$7,761
37	Short-Term	Arendell (25th Street to 26th Street)	Sidewalk	0.09	$27,621
38	Short-Term	Arendell (29th to 30th)	Sidewalk	0.07	$20,594
48	Short-Term	Country Club (Forest Hills to 35th) (south)	Sidewalk	0.72	$338,777
49	Short-Term	Barbour (Bridges to Tootle Rd (east)	Sidewalk	0.78	$367,808
50	Short-Term	N. 20th Street (Country Club to Mayberry Loop) (east)	Sidewalk	1.63	$519,550
62	Short-Term	Mayberry Loop Rd (Tootle Rd to N 20th St) (north)	Sidewalk	0.49	$152,529
69	Short-Term	Fairway Rd & E Fairway Rd (south)	Sidewalk	0.61	$193,170
70	Short-Term	Tootle Rd (Country Club Rd to Crescent Dr)	Sidewalk	0.08	$27,581
	Short-Term	***SUBTOTAL***		***7.41***	***$3,072,490***

Note that there are two maintenance projects (Project ID numbers 15 and 25) totaling $34,000 included in this initial slate of projects, or less than 2% of the total estimated construction cost of $3.07 million.

Table 7.4. Mid-term Recommendations (6 - 10 years)

Comme
Scott was this made in excel? Little 9 needs to be changed to Little Nine and Toddle should be Tottle

Map ID	Project Tier	Project Location	Project Type	Project Length (mi.)	Project Cost (2010 $)
3	Medium-Term	West Bridges Street	Sidewalk	0.38	$116,086
7	Medium-Term	NC 24 Greenway Stub (south)	Sidewalk	0.01	$3,192
8	Medium-Term	NC 24 Island Connector (north)	Sidewalk	0.00	$4,107
9	Medium-Term	US 70 (west from NC 24 to existing sidewalk near Jones Rd) (south)	Sidewalk	0.25	$80,010
10	Medium-Term	US 70 (Jones to Harris) (north)	Sidewalk	0.63	$197,953
11	Medium-Term	US 70 (Little Nine Rd to Old Murdoch) (south)	Sidewalk	0.28	$88,892
12	Medium-Term	US 70 (Arthur Farm Rd to existing sidewalk beyond Carteret Street) (south)	Sidewalk	0.58	$179,893
13	Medium-Term	US 70 (Arthur Farm to Old Airport) (north)	Sidewalk	0.14	$41,744
14	Medium-Term	Old Airport Rd (US 70 to Community Rd) (west)	Sidewalk	0.28	$135,550
18	Medium-Term	Arendell (N 35th St across RR)	Sidewalk	0.02	$7,061
21	Medium-Term	Country Club (Swinson Park to 35th) (south)	Sidewalk	1.17	$546,187
23	Medium-Term	Friendly (Bridges to Arendell) (west)	Sidewalk	0.09	$31,059
28	Medium-Term	Ramp crossing connector (Evans Street Bridge Ramp)	Sidewalk	0.01	$3,621
29	Medium-Term	Tootle Rd (Crescent Dr to Mayberry Loop End) (south)	Sidewalk	0.57	$278,161
32	Medium-Term	15th (Evans to Shepard) (west)	Sidewalk	0.05	$24,039
34	Medium-Term	20th Street (Arendell to Shepard) (west)	Sidewalk	0.11	$52,336
35	Medium-Term	S. 24th Street to Atlantic Beach Bridge Ramp and Arendell	Sidewalk	0.01	$3,452
39	Medium-Term	Arendell (30th Street and Bonner St and Glen Dr) (north)	Sidewalk	0.29	$92,938
40	Medium-Term	Arendell and Banks Rd (north)	Sidewalk	0.12	$37,591
41	Medium-Term	Arendell (35th Street to Bald) (north)	Sidewalk	0.22	$104,362
43	Medium-Term	Arendell and Jackson (north)	Sidewalk	0.06	$17,872
44	Medium-Term	Arendell at Country Club (north)	Sidewalk	0.08	$36,502
45	Medium-Term	Hwy 70 (Bridges to Jones) (north)	Sidewalk	0.34	$162,868
46	Medium-Term	Hwy 70 (Arthur Farm to Harris) (north)	Sidewalk	0.15	$76,889
47	Medium-Term	Hwy 70 (Little Nine to Arthur Farm) (south)	Sidewalk	0.09	$45,126
66	Medium-Term	Friendly (Plantation Rd to Country Club Rd) (west)	Sidewalk	0.21	$72,664
	Medium-Term	***SUBTOTAL***		***6.13***	***$2,440,155***

Table 7.5. Long-term Recommendations (11+ years)

Map ID	Project Tier	Project Location	Project Type	Project Length (mi.)	Project Cost (2010 $)
4	Long-Term	NC 24 (Woodridge to Harbor) (south)	Greenway	0.30	$196,608
5	Long-Term	NC 24 (Harbor to Hodges) (south)	Greenway	0.68	$435,507
6	Long-Term	NC 24 Island Connector (south)	Sidewalk	0.01	$6,056
27	Long-Term	Evans St. Bridge Connector	Sidewalk	0.02	$7,623
42	Long-Term	Arendell and Lockhart (north)	Sidewalk	0.14	$45,372
51	Long-Term	Blair Farm Pkwy (East of Ivory Gull Dr to Country Club Rd)	Sidewalk	0.46	$141,353
52	Long-Term	Country Club Rd (Blair Farm to Forest Hills) (south)	Sidewalk	3.31	$1,041,725
53	Long-Term	Bridge to Atlantic Beach	Sidewalk	0.79	$243,987
54	Long-Term	Arendell (east of 3rd to Radio Island Rd) (north)	Sidewalk	1.08	$395,532
55	Long-Term	Woodridge Dr (east)	Sidewalk	0.23	$74,159
56	Long-Term	Hwy 24 (McCabe to Brandywine Blvd) (north)	Sidewalk	0.66	$206,841
57	Long-Term	McCabe Rd (east)	Sidewalk	1.08	$334,141
58	Long-Term	Old Airport Rd (Community Rd to Business Dr) (east)	Sidewalk	0.23	$82,619
59	Long-Term	Business Dr (south)	Sidewalk	1.27	$395,006
60	Long-Term	Gloria Dawn Rd (west)	Sidewalk	0.26	$91,709
61	Long-Term	McCabe Rd (west)	Sidewalk	0.76	$234,372
63	Long-Term	Hwy 70 (Old Murdoch Rd to McCabe Rd) (south)	Sidewalk	0.94	$294,644
64	Long-Term	Hwy 70 (McCabe Rd to ex s/w near old Airport Rd) (north)	Sidewalk	1.05	$329,855
65	Long-Term	Country Club (Arendell to end) (west)	Sidewalk	0.13	$41,734
67	Long-Term	Hwy 24 (McCabe to Woodridge) (south)	Sidewalk	1.36	$442,236
68	Long-Term	Hwy 24 (Harbor to Hwy 24/70 intersection) (north)	Sidewalk	0.77	$240,143
71	Long-Term	Progress Energy Corridor	Greenway	1.62	$837,832
72	Long-Term	Arendell St (Rochelle Dr to Jackson St) (north)	Sidewalk	1.55	$473,880
73	Long-Term	N. 20th Street (Blair Farm Pkwy to Country Club Rd) (east)	Sidewalk	0.77	$245,080
	Long-Term	***SUBTOTAL***		***19.48***	***$6,838,014***

Many of the long-term sidewalk projects are on rural roads with no shoulder, no curb-and-gutter, and scattered homes. However, these areas will develop over time, and when they do the Pedestrian Plan will help identify these places as future priorities for sidewalks as part of private development actions. (image of N. 20th Street, Google)

Sample Project Cost Items	
Pedestrian Signal (two-way, ea.):	$1,900
Crosswalk (two lines, ea.):	$110
Crosswalk (ladder-style, ea.):	$300
ADA Ramp (ea.):	$1,200

Another very important long-term construction recommendation is to provide minimum five-foot sidewalks with minimum two-foot, striped separation from adjacent travel lanes on the bridge from downtown Morehead City to the Town of Atlantic Beach, as well as the US Highway 70 bridge to Radio Island. Mentioned prominently in discussions with the Steering Committee and public, this improvement would occur simultaneously with the replacement or major renovation of the existing structures.

7.3.1 Other Physical Improvements

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 on the following page.

Intersection Location	Recommended Treatment	Estimated Cost (2010 $)
Bridges St. and Highway 24	Install high-visibility crosswalks and pedestrian crossing signage. Consider closing driveways near the intersection. Consider pedestrian signalization and installation of pedestrian signal heads.	$86,900
Country Club Rd. and Bridges St.	Consider pedestrian signalization of intersection with addition of high-visibility crosswalks and countdown pedestrian signals.	$4,510
Harbor Dr. and Highway 24	Consider pedestrian signalization of intersection with addition of high-visibility crosswalks and countdown pedestrian signals. Conditions may warrant in-pavement flashers and advance warning signage.	$4,510
Highway 70 and Old Airport Rd.	Install crosswalks. May warrant a pedestrian signal at a later date.	$110
Highway 70 and Railroad Crossing Community Rd.	Build sidewalks on the west side. Intersection needs to be redesigned.	$49,500
North 20th St. and Greenway	Install pedestrian signal at this unsignalized crossing	$10,890
35th St. and Bridges St.	Pedestrian Signal	$6,270
Arendell St. and 35th St.	Install crosswalks and pedestrian signals	$11,000
Bridges St. and Friendly Rd.	Install crosswalks and pedestrian signals	$39,710
Arendell St. and Friendly Rd.	Redesign to allow two driveways instead of the continuous opening. Install crosswalks and pedestrian signals.	$4,400
Arendell St. and North 4th St.	Install crosswalks and pedestrian signals. Move stop bar away from intersection. Secure pedestrian crossing over railroad tracks.	$37,290
Evans St. and South 23rd St.	Install high-visibility crosswalks and pedestrian signal heads. Install flashing and advanced warning signs.	$11,000
Country Club Rd. and North 35th St.	Install crosswalks	$110
Country Club Rd. and Tootle Rd.	Install crosswalks	$2,290
Country Club Rd and N. 35th St.	Install Crosswalk	$2,290
Tootle Rd. and County Club Rd.	Install Crosswalk	$300
Arendell St. and 20th Street	Install Crosswalk	$110
N. 20th St. and Mobile Home Park	Install Crosswalk and pedestrian signals	$200
Swinson Park Access on Country Club	Install High Visibility Crosswalk	$2,290
Country Club and Hedrick	Install Crosswalk	$200
Rochelle and Arendell St.	Install Crosswalk and pedestrian signals	$110
Crystal Coast Plaza and Cypress Bay Plaza	Install Crosswalk and pedestrian signals	$300
Brandywine Blvd. and Hwy 24	Install Crosswalk and pedestrian signals, and additional "Pedestrian Crossing Ahead" signage on US 70	$110
West Carteret High School	Install High Visibility Crosswalk	$110
N 20th St & Mayberry Loop Road North	Install Crosswalk	$86,900
Hwy 70 and Arendell St.	Install Crosswalk	$4,510
TOTAL		**$274,920**

Table 7.6. Crossing Improvement Recommendations

Finally, beyond the construction of new sidewalks, greenways and intersection treatments, 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 Town. Installing and replacing curb ramps at street corners greatly enhances accessibility for wheelchair users, visually-impaired residents and Morehead City's senior community. The provision of landscaping, extending 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:

The transit mall in Denver, Colorado exemplifies the use of street furniture, plantings, and an integration of materials to denote pedestrian and transit spaces.

- Create a regular maintenance schedule for existing sidewalks and crosswalks.
- Provide crosswalks and pedestrian countdown signals at all signalized intersections throughout Morehead City, as a routine pedestrian accommodation.
- Consider the use of in-street and overhead "Yield to Pedestrians" signage at problem intersections, as well as countdown pedestrian signals at all new and existing signalized intersections.
- Connect existing parks, trails and cultural landmarks with gateway treatments, information kiosks, and wayfinding signage to provide better pedestrian access and recognition. Such treatments should be thematic in appearance and help with visual recognition of trails and destinations "off the beaten path." For instance, the wayfinding signage could designate a loop trail consisting of downtown sidewalks connecting to proposed trails along Country Club, Tootle, and Mayberry Loop Roads to connect 35th and 20th Streets with the high school and the downtown as well as a number of residential neighborhoods. Unfortunately, much of this area lies in the ETJ area of the town, which will limit local participation in financing and maintaining the sidewalks, at least in the short-term.
- Provide pedestrian-scale lighting, street trees and landscaping along proposed greenway trails and sidewalks. Consider other pedestrian amenities (such as benches, water fountains and trash cans) for long or high-use corridors as funding allows. Ensure all street furniture purchases are coordinated and meet

the town standard for color, texture, material, etc. Extending the downtown streetscaping to Carteret County Community College and in general to 35th Street also expands the perception of the Town's walkability and enhances business potential to the large tourist populations that readily perceive cues about where it is appropriate to walk as opposed to driving.

- Formalize a town-wide 35mph speed limit (unless otherwise signed) and post related regulatory signs at major gateway entrances into the Town. Importantly, the speed limit on US 70 through town should remain 45mph, as there would be almost no gain to vehicular flow by increasing speeds on this accident-prone and heavily signalized corridor.
- Finance a public arts program geared toward pedestrians, whereby 1% of all Town 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, and so forth) for pedestrians throughout the Town.
- Consider the use of in-street "Yield to Pedestrians" signage at downtown locations east of 15th Street and south of Arendell / US 70 where many pedestrians compete for space with cars.

7.4 Partnership Opportunities

Many of the education, encouragement and enforcement programs will be carried out by partnerships between Town departments, local nonprofit and civic organizations, business owners, developers and others. Creating strong partners in the town-wide 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 Morehead City Pedestrian Plan include:

- Chamber of Commerce
- Health Department
- Local Neighborhood Groups
- Carteret County School System
- Local Parent Teacher Associations (PTAs)
- Morehead City Police Department
- County Sheriff's Department

Local businesses – especially if they're like the regionally famous Sanitary Restaurant – can be important partners in promoting more pedestrian tourism.

- Morehead Historic Society
- Local Kiwanis, Lions and Rotary Clubs
- Carteret Community College
- East Carolina Council of Governments
- Local Business Owners

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 Morehead City consider working with a citizen committee, such as the proposed new Bicycle/Pedestrian/Trails Committee to help implement the Plan, track successes, re-evaluate needs and help to conduct future Plan updates. Key indicators that Town staff, citizens and committee members might track include:

- Number of students walking/biking to school;
- Records of pedestrian crashes in Morehead City;
- Participation in programs, such as the Pace Car Program or Safe Routes for Seniors Program; and
- Database of sidewalk, greenway & intersection improvements and conditions.

7.6 Funding

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Some information is outdated. Please check accuracy of information for all funding sources. Information in some cases is outdated. Also, verify that funding sources listed are still available. INFO REQUESTED FROM NCDOT

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. Morehead City 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, Morehead City does not have an annual budget line item specifically for locally funded pedestrian improvements. In the future, Morehead City may wish to consider creating a specific locally funded 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 often a town's budget may be too limited to finance this work. According to the Town's Finance Officer, money is appropriated on a periodic basis with Town (local) funds, generally used as a grant match.

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 Morehead City should require developers to install sidewalk with new construction, and should also consider teaming with other organizations that may have their own projects in Morehead City.

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 town-wide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts.
- *Tax Increment Financing.* Tax increment financing is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project, such as the construction of a greenway, is carried out, there is an increase in the value of surrounding real estate. Oftentimes, new

investment in the area follows such a project. This increase 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. While not carrying the long history of TIF actions as do other states like South Carolina, North Carolina can legally use this mechanism now.

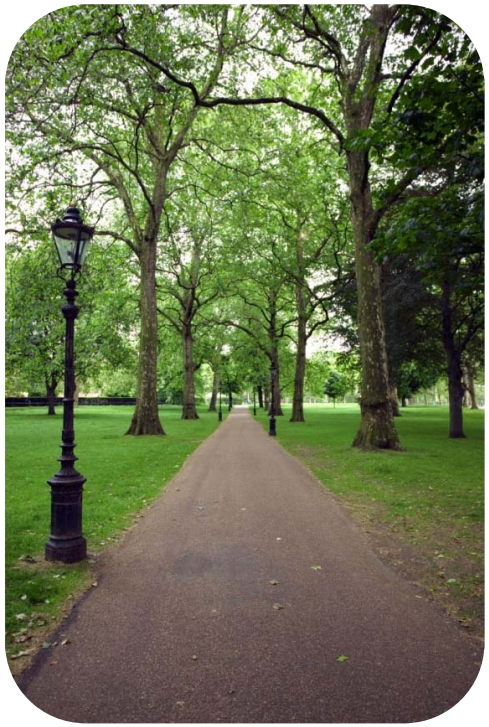
- *Installment Purchase Financing.* As an alternative to debt financing of capital improvements, communities can execute installment/ lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing 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 and Exactions. 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.



Pedestrian amenities, while preferably provided for as a part of a private sector arrangement during site development, can also be implemented later through other programs, including payment-in-lieu fees.

- *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 impact fees through local enabling legislation granted by the NC State Legislature. 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 Morehead City is interested in pursuing 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. Bonds are simply loans made by an investor (in this context, a unit of government) to an entity that pays the initial investment back (called the bond principal) plus some known amount of interest in a fixed period of time. Benefits to people that invest in bonds are their high level of security, and that the earnings realized from bonds are exempt from federal and sometimes state and local taxation. Some of the relevant bond types are described below.

- *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 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, 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

Morehead City 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 Morehead City 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 historically had an annual budget of approximately six million dollars, although the level of this funding is subject to change depending on the deliberations of the NC Board of Transportation. Eighty percent (80%) of these funds are typically from STP-Enhancement funds[31], 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 typically 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: www.ncdot.org/bikeped/funding/default.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:
    - Bicycle and Pedestrian Facilities
    - Bicycle and Pedestrian Safety
    - Acquisition of Scenic Easements, Scenic or Historic Sites
    - Scenic or Historic Highway Programs (including tourist or welcome centers)
    - Landscaping and other Scenic Beautification
    - Historic Preservation
    - Rehabilitation of Historic Transportation Facilities
    - Preservation of Abandoned Rail Corridors
    - Control of Outdoor Advertising
    - Archaeological Planning and Research
    - Environmental Mitigation
    - 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 next call has not been scheduled. For more information, visit: www.ncdot.org/programs/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/programs/Powell_Bill.
- **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 which have predominately been enforcement 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 2012 GHSP grant anytime until March 31, 2011, 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 allocated $15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. The next allocation is pending reauthorization of the federal transportation act. 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/safety/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. Morehead City 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.portal.hud.gov/portal/page/portal//HUD/program_offices/comm_planning.

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.onencnaturally.org/pages/conservationtaxcredit.html.
- **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 2010 is $862,000. 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 or contact John Poole at (919) 715-2662 or by e-mail: John.Poole@ncdenr.gov.

- **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 January. For more information, visit: http://www.ncparks.gov/about/grants/trails_main.php.
- **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 to 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 and instruction handbook are available through the State Trails Program website at http://www.ncparks.gov/about/trails_main.php. Applications are due during the month of January; however the current federal transportation program expires in 2010, and Congress has not reauthorized the six-year program. For more information, call (919) 715-8699. Also see http://www.fhwa.gov/environment/rectrails/.
- **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, Morehead City would need to apply for the grant (although joint applications – for example, with the Carteret 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 (CWMTF).** 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 2010-2011 adopted state budget for North Carolina includes $50 million for the Clean Water Management Trust Fund. 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 (NHTF).** 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. Grants range from $1,000 to $15,000. 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_grant_overview.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 919-715-6101.
- **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. Local matching funds equal to 50 percent are required. For more information, see: www.ncwater.org/Financial_Assistance or e-mail: Jeff.Bruton@ncdenr.org or call 919-715-0387.
- **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_grant_overview.htm.

- **Small 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, contact Gary.A.Dimmick@hud.gov or call him at (336) 547-4000 extension 2047 or visit www.hud.gov/offices/cpd/communitydevelopment/programs/stateadmin.
- **Physical Activity in the Built Environment Policy Initiative Grants Program**. Occasional grants appear on a non-recurring basis, such as this one sponsored by the NC Department of Public Health for a fifteen-month period beginning in Fiscal Year 2010-2011. These grants, based on availability of funds, will be awarded through a competitive application process to municipalities to develop policy initiatives that help shape state policy as it relates to physical activity and health. The Physical Activity and Nutrition (PAN) Branch in the North Carolina Division of Public Health will be responsible for the administration of these grant funds. Awards will be made to chartered municipalities of the State of North Carolina. Projects will be granted up to $24,999. The final number of awards is based on availability of funds. Funding for this Initiative comes from the American Recovery and Reinvestment Act (ARRA) award to North Carolina made by the Center for Disease Control and Prevention. For more information, visit www.eatsmartmovemorenc.com.
- **North Carolina Health and Wellness Trust Fund (HWTF).** The NC Health and Wellness Trust Fund was created by the General Assembly as one of three 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 and Blue Cross and Blue Shield of North Carolina (BCBSNC) established the Fit Community designation and grant program to recognize and reward 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/.

- **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 improve access to and within federal lands. Congress designated $83 million in fiscal year 2010 Public Lands Highways Discretionary funds for specific projects. Funding requests for future projects should be submitted by states as part of reauthorization of the Federal Transportation Act. For information on how to apply, visit: http://www.fhwa.dot.gov/discretionary/plhcurrsola3.cfm or

contact Anna Franzino at (202) 366-9488 or via e-mail: Anna.Franzino@dot.gov.

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 places 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 paragraphs provide descriptions of some private funding sources that Morehead City 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 from 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 fundraising, maintenance, and programming needs. Teenagers have complained about the lack of activities available to them in Morehead City; making these outings fun can serve a dual purpose.

- *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 asked 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. The 2010-2011 budget signed by the Governor includes $50 million for the Clean Water Management Trust Fund and $2 million for the Agricultural Development and Farmland Preservation Trust Fund. 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. The 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. 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. The National Trails Fund 2010 application has closed. For more information on future applications for the National Trails fund grants, contact Heather Sable via e-mail: HSable@americanhiking.org or visit the website: www.americanhiking.org/alliance/fund.html.
- *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, Morehead City should continue to monitor Active Living by Design as a potential funding source should funding become available. For more information, please see: http://www.rwjf.org/grants/

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Using this plan as a guide, Morehead City should be able to create a better, safer network of sidewalks, greenway trails and crossings for pedestrians. The next steps should begin to immediately address the short-term priority program, policy, and project recommendations. At the same time, the Town should also start to lay the groundwork for the longer-term recommendations by developing relationships with potential partners such as the Carteret County Chamber of Commerce, Carteret Community College and the Crystal Coast Tourism Authority, and by starting to budget for future projects. Most importantly, the Town 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.

Anticipating future growth and development, Morehead City is in an ideal situation to develop an even more walkable community. The Town should capitalize on its location and its attractions, such as the downtown retail core and coastal attractions, to reinforce its existing pedestrian infrastructure with new projects and improvements. With careful planning, deliberate steps and persistence, Morehead City can continue to become an even more pedestrian-friendly community.

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Appendix A. Pedestrian Plan Survey

Morehead City Pedestrian Survey

Thank you for participating in the Town of Morehead City Pedestrian Survey! The Town is currently preparing a Comprehensive Pedestrian Plan, and these survey results will be used by staff to help understand the needs of residents and visitors. Your responses will also be used to identify important locations for new sidewalk, greenway trails, or intersection improvements.

For more information about the Pedestrian Plan, contact Sandi Watkins at (252) 726-6848 x140 or by email at sandiw@bizec.rr.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*:

	Never								Often
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…

	Never								Very Often
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
To sight-see	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…

	Very Uncomfortable								Very Comfortable
In your neighborhood?	1	2	3	4	5	6	7	8	9
In downtown Morehead City?	1	2	3	4	5	6	7	8	9
In the area near your work?	1	2	3	4	5	6	7	8	9
Along local bridges?	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…

	Not At All								Very Much
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 not likely and 9 very likely, how likely are you NOT to walk somewhere because…

	Not Likely								Very Likely
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 (i.e.: 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, in which of the following would you prefer that Morehead City invest?

- ☐ Sidewalks along existing roads
- ☐ Greenways along natural areas (i.e. in local parks)
- ☐ Pedestrian facilities on bridges
- ☐ Improvements to intersections

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

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

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: _____

_____

Email: _____

For more information about the Pedestrian Plan, please visit our project website on Facebook or at http://moreheadcity.pbworks.com

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

Morehead City Pedestrian Plan Survey
The Louis Berger Group, Inc.
1001 Wade Ave, Ste 400
Raleigh, NC 27605
slane@louisberger.com

Appendix B. Focus Group Comments on Draft Morehead City Pedestrian Plan

Myles Stempin: Wondered why sidewalks were not put in as development has occurred. It is dangerous to walk from place to place in some areas.

Porter Wilson: Said he was the only retail individual present at meeting. We need to encourage people to come downtown so they can walk/ride bicycles. He has a dream to have a hotel downtown. He enjoys the multiuse path on Bridges Street Extension and would like to see something similar downtown. He would like to see the alleyways tied together and incorporated into the pedestrian system. People perceive a parking problem. Alleyways could create a natural interaction.

Myles Stempin: Should occur as a design process.

John Creech: The City has required sidewalks for everything that board has done in the last few years.

Gordon Thayer: Feels downtown needs more emphasis on walking than there is currently.

Bob Mosher: Didn't see why a discussion of alleyways could not be included in plan.

Bill Taylor: People walk more in east/west direction than north/south. Some planning needs to be directed towards north/south connection to make it more inviting as we go farther west to cross Arendell Street. Connectivity of sidewalk needs to be looked at. Hope plan will tie end pieces together.

Myles Stempin: 1st impression as new resident to town; sometimes built environment does not match the beauty of the natural environment. Should start with taking largest land available when new retail develops. Have sidewalks with parking in rear.

Porter Wilson: Residential and commercial should be blended together. The beautiful downtown area could enhance other areas.

Linda Staab: Mentioned problem with 24/70 intersection and asked for suggestions.

Craig Hassler: One thought he had is to use the electric line right-of-way. Also wants to see downtown connected with west end. ROW could help connect Morehead Middle School area to Hwy 24 area. Area has environment to offer. Need to focus on environment and show how we can live in a way where we're benefiting it. Many places have big businesses, but it comes at a cost to the environment and to poorer people. There could be some way for schools to get involved in the process.

Myles Stempin: Could use "student muscle"

Business Group:
September 23rd @ 8:30 am (13)

Name	Organization
1. Mike Wagoner	CC Chamber of Commerce
2. John Creech	American Media Prod/MC PB
3. Gordon Thayer	MC Planning Board
4. Curtis Fleshman	MC Planning Board
5. Porter Wilson	Arts & Things
6. John Spencer	NC Railroad Co.
7. Jonathan Roberts	Stroud Engineering, P.A.
8. Craig K. Hassler	Cape Lookout HS (teacher)
9. Juanita Salter	Cape Lookout HS (student)
10. Cameron Bell	Cape Lookout HS (student)
11. Clay Wickizer	Cape Lookout HS (student)
12. D.J. Byerly	Cape Lookout HS (student)
13. Dace Darden	Cape Lookout HS (student)
14. Bob Mosher	NCDOT
15. Roger Henderson	Consultant

Bill Taylor: Schools should be one of if not the most important thing the group focuses on.

??: Should make sidewalk petition program more well known and easier to use.

John Spencer: Thinks everyone needs a reminder as to who has the right-of-way and when.

Dace Darden: Father is a commercial fisherman. Development is harming the fish population, regrowth process. Cannot get students into the environment (via crossing road at crosswalk) because it is too dangerous. Cars speed up when approaching crosswalk and seeing students waiting to cross. Greenway would save money and help environment.

Mike Wagoner: Need as many stakeholders as possible to buy in.

Gordon Thayer: Suggested linking pedestrian trails with geocaching.

Myles Stempin: Incorporate cultural resources into greenways.

Craig Hassler: Area is northern range of a lot of southern species and southern end of a lot of northern species.

PACE Car: Curtis Fleshman thought it was a good idea, especially since they raised the speed limit in the downtown area.

Bill Taylor: Need something at 4th Street.

John Spencer: Need something to remind driver in all situations who has r-o-w (e.g. signage).

Porter Wilson: It would help if parking lots in downtown area were enhanced.

John Robertson: A lot of people live on Country Club Road. Some people drive out of Northwoods to go to Swinson Park.

Mike Wagoner: Should tie into health and fitness and get Healthy Carolinians involved.

Myles Stempin: Walk to my store discounts. Private sector will support if they know what to do.

Mike Wagoner: Mile markers on various streets/pavement.

Bill Taylor: Is private sector fully engaged? (No.) Council and Planning Board has made provisions for sidewalks in new development. Awareness should be heightened. Thinks

all of PB would support. Even though there are many sidewalks downtown, people still walk in the street when there is existing sidewalk.

Gordon Thayer: Has Town ever done 1st Friday? Has it worked?

Porter Wilson: They did. It was not successful. Some thought it should be immediately successful so they stopped. Would love to try it again.

Health Group:

September 23rd @ 12:00 pm (10)

Name	Organization
1. Tye Frost	Carteret General Hospital
2. Pat Myers	Onslow-Carteret Behavioral Healthcare
3. Elaine Crittenton	Carteret General Hospital
4. Erica Kocsis	Carteret General Hospital
5. Pat Kellum	Carteret General Hospital
6. Mary Fournier	Carteret County Health Department
7. Ed Myers	Channel Marker Inc/Carteret Co. Health Board
8. Katrina Winters	Carteret County Health Department
9. Bill Rawls	Soundside Healthcare
10. Dotty Tata	Easter Seals UCP
11. Bob Mosher	NCDOT
12. Roger Henderson	Consultant
13. Linda Staab	Staff
14. Sandi Watkins	Staff

Ed Myers lives in Brandywine which has a 2.5 mile loop trail with no traffic. People use it. Need to extend it countywide. MC and Atlantic Beach should work together. The Health Board will support. Used the term "playcation" in response to Dr. Rawls' suggestion of a Healthy Coast. Youth have jobs out at biz on the west side of MC; they need a way to walk there. He's found Gloria Dawn Rd is a good bypass route of 24/70 intersection.

Mary: lives in Pine Knoll Shores. She is the Information Officer/Communications lead for the Health Dept. Need a crosswalk at Friendly and Arendell.

Andrea Boyd: her issue is safety on the MATS trail when crossing big streets.

Katrina: Environmental Health Dept. she walks to the fruit stand. Shade trees are important to shade the sidewalks. County offers benefit to employees if they walk at least 3 times a week for 15 minutes each time, over a period of one month, then they earn a half-hour off.

Elaine: said after the meeting to Roger that the Health Department will support, but not lead an effort to get the community walking. She is the Director of Health/Wellness for the Board of Health. Her issue is congestion at the Hospital. Need to fix Bridges Street. Penny Lane at Bridges (at the old nursing home) needs to be fixed. People are walking slower now and parking is scarce. Trails inside the Hospital have mileage marked on them. Watch out for trees and shrubs along the MATS trail so it doesn't become dangerous; security is important to her. Kids can earn blue points at Blue Cross Blue Shield which insures all county employees.

Dr. Bill Rawls: local physician believes in proactive prevention, lofty goals "Health Coast". The population density is comfortable. Get people outdoors. The lack of crosswalks is a problem. "Powers Queen" . Restaurants offer healthy menus. There is a national park here and 2 State parks. Loop routes are good for recreation. Need paths along the waterways. Need skywalks to bridge over busy streets, provides good cardio workout to go up/down. Put signs up showing how many calories are burned. Need a fence, need ADA treatments.

Ed: shrubs are too tall on the MATS trail

Ross: offer health seminars

Dottie: easter seals, disabilities community, safe routes to schools, build lots of sidewalks, safety on bridges is an issue, need a taller bridge railing on the bridge to Beaufort.

Pat: works at the Family Services Center in health ministry. Education is needed. Forming groups, safety at night. Getting from home to wherever. Crossing 101 in Beaufort is a problem. Safety is a huge issue on Bridges Street in Morehead City. She is a passionate about walking. Kids obesity rate is higher than the state average. Need pavement markings "STOP" painted on the street at crosswalks. Need signs sticking out of the pavement indicating "STOP for Pedestrians" … put one at the Hospital and Health Department as people walk across Bridges Street. EDC, TDP, Chamber, Healthy Carolinians.

Education Group:
September 23rd @ 3:15 pm (19 at West Carteret High School)

Name	Organization
1. Dr. Sue Kreuser	Morehead Middle School
2. Chelsea Stotesbury	HUNS/West Carteret (student)
3. Jasmine Ruddy	HUNS/West Carteret (student)
4. Marae Lindquist	HUNS/West Carteret (student)
5. Cathy Lindquist	Citizen/Parent
6. Matthew Graham	AP Env. Science
7. Michael McGinn	WCHS (Media Advisor)
8. Tiffany Mayo	WCHS (Media Coordinator)
9. Dominick Brugnoloti	Duke Marine Lab
10. Mike Sartain	WCHS
11. Clinton Montford	WCHS
12. Shelton Mayo	WCHS
13. Jennifer Kern	MC Primary (P.E. teacher)
14. Janice Bates-West	MC Primary (P.E. teacher)
15. Sarah Noll	WCHS
16. Dan Novey	CC School Superintendent
17. Holly Briggs	WCHS – School Nurse
18. Sherrill Moraven	WCHS
19. Sheree Stafford	WCHS
20. Roger Henderson	Consultant
21. Linda Staab	Staff
22. Sandi Watkins	Staff

- Connect path to the Sports Center
- Build path from back of high school to Glad Tidings, path between parking lots
- Need path from High School to Primary School
- Crosswalk at Country Club in front of High School is not accessible. Need a crossing signal.
- Need something like the Chesapeake and Oregon canal trail in DC.
- Form an Admin Team with parent advisory and alumni. Create a message "sense of urgency"

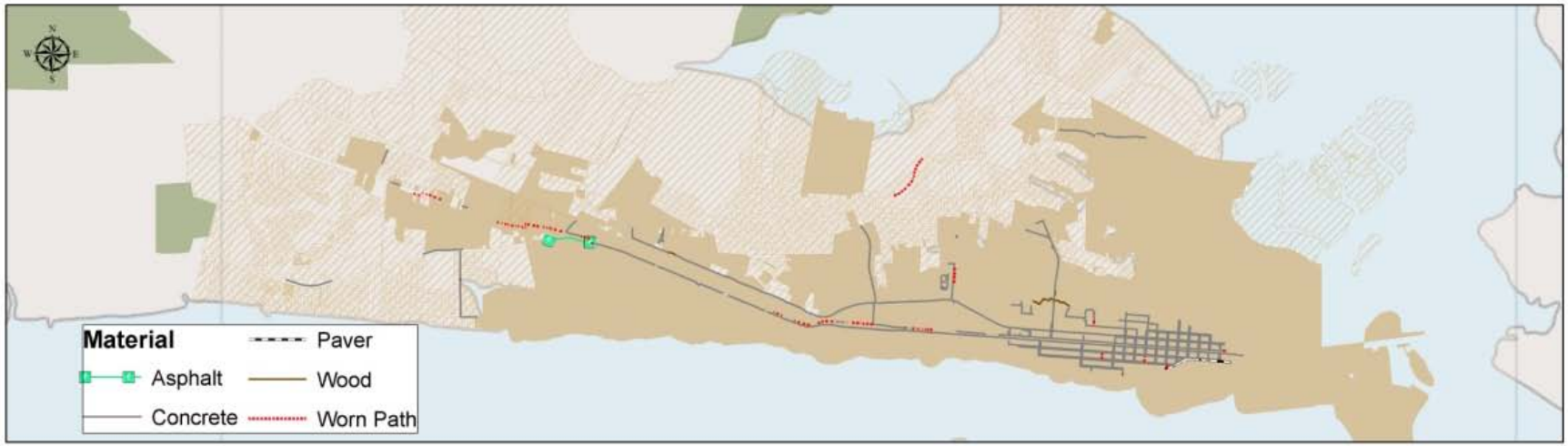
- Carol: is a runner. Folks Walk sign ups. "Healthy Coast" Carol can implement messaging campaign. Reach out to farmers and chefs. TV network is on board. She works on a July 1 fiscal year. "Bicycling in Beaufort" brochure. County trail map. Emerald Isle aggressively pursuing trail with $ already raised. Perhaps a field trip to Dare County is in order to see their trails. How do we walk to Cedar Island Ground Farms?
- Erin: Coastal Community Action for children.
- Jim Jennings: sidewalks are not required in the county
- Regina: Coop. Extension. Family science, wellness programs, Healthy Carolinian member.
- Bill: retired biologist, avid cyclist, member of Ped Plan committee
- Randy: City Council supports. His wife walks, he cycles. Staff aggressively pursues grants. Not disjointed. There are competing interests. MATS trail took local, state, federal grant $. Required public/private partnership. For past 15 years locals have funded sidewalks as Quality of Life type projects. Goal is a multiyear capital program. Goal is partnerships with Newport, Beaufort, Atlantic Beach. Development Fund with accrued developer exaction money. Gallis Channel Bridge is set to be improved in 2012 and may not accommodate pedestrians so action is needed now. 35th Street sidewalk to Mandy Lane Sports Center was a priority. Round white bumps in road needed on Atlantic Beach bridge. City maintains all sidewalks. City crews do most routine maintenance.
- Stephanie: 14th Street to the Bridge, Creek to waterfront are the edges of downtown MC
- Jackie: 2-mile loop at Brandywine is where she walks. It's popular. Need a bigger loop route.
- Jessica: linkages and webinars. County Parks and Recreation Department can share responsibility
- Robert Will – Down East RPO
- Miriam: need walkway to Atlantic Beach. Post office boardwalk is used (MATS trail). Pride in downtown. She does not own a car so she walks where she needs/wants to go.
- Jim: walks in Brandywine and wants a sidewalk from WalMart to condos. Highway 24 needs a sidewalk on both sides.

Government/Non-Profit/Citizen Group:
September 24th @ 8:30 am (12)

Name	Organization
1. Ronetta Gaskill	Citizen
2. Bill Hettler	Citizen
3. Erin Brandt	Coastal Community Action
4. Carol Lohr	Crystal Coast Tourism Authority
5. Jackie Maucher	Morehead City Planning Board
6. Miriam Hager	Citizen
7. Regenia Bell	NC Cooperative Extension
8. Jim Jennings	Carteret County Planning Dir.
9. Jessica Forsberg	Carteret County Parks & Rec.
10. Rob Will	Down East RPO
11. Stephanie Slocum	DMCRA
12. Randy Martin	Morehead City City Manager
13. Roger Henderson	Consultant
14. Linda Staab	Staff
15. Sandi Watkins	Staff

Appendix C. Extent of Pedestrian Paths in Morehead City

Pedestrian Facility Material



Pedestrian Facility Width

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

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31 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.