Forest City: Heart & Sole

A plan for people who walk in Forest City

December 2015

A Comprehensive Pedestrian Plan for the Town of Forest City & NC Department of Transportation

Division of Bicycle & Pedestrian Transportation
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Acknowledgments

Thank you to the following organizations
that contributed to *Forest City: Heart & Sole*.

Steering Committee Members

- **Tammy Arrowood, Citizen**
- **Leeann Camp, Citizen**
- **Stephen Bennett, Citizen**
- **Donna Ohlmstead, Advocate**
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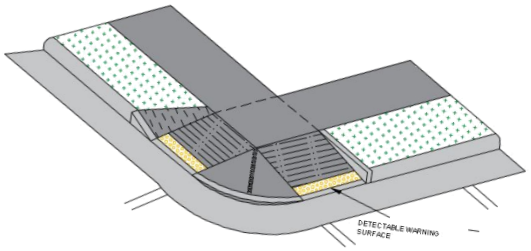
- Forest City Land Use Plan &
Guiding Vision for Forest City: Heart & Sole



Exhibits

1. Introduction

Since ancient times streets have served as a place where people socialized, conducted business and explored their city. During that time the predominant mode of transportation was walking. When Forest City was incorporated in 1877 walking was still the primary mode of transportation for human beings and downtown was built at a pedestrian scale.

By the time Forest City was selected by the US Department of Agriculture as one of the ten most beautiful and well planned towns in the country in 1927, the town had begun a transition. This period would see streets deemphasize pedestrian mobility while land use and transportation priorities focused on accommodating automobiles.

Forest City's core—its downtown—still reflects the many virtues that made the town one of America's most prized small towns in the 1920s. The Town's efforts at historic preservation have also reflected these long-standing community values.

In the book *Fighting Traffic* author Peter Norton chronicles the transition in the United States from streets meant for people to streets that were designed exclusively for automobiles. In detailing this transition, Norton notes that "all (road user) groups agreed that some of the effects of new cars in old streets were disastrous. This early argument fostered hopes that common sense solutions could be found. If all groups did their bit, perhaps street problems would be solved."

A Comprehensive Pedestrian Plan

Those sentiments chronicled by Norton have contemporary meaning: In order to improve walkability and increase pedestrian safety in Forest City and across North Carolina, street problems can be solved by collectively addressing the problem through input from community members, business owners, planners, engineers, architects, law enforcement and many others.

Forest City: Heart & Sole is an effort funded by the Town of Forest City and the North Carolina Department of Transportation to assist the community in making a stronger connection between the features of the community that make it more walkable and the health of its current and future residents.

Small towns face unique challenges today more than ever. Over time Forest City has become more physically and socially disconnected due to highway expansion, auto-centric investment priorities by public and private entities, and changes in overall retail markets. These influences caused more traditional neighborhood businesses to move from walkable neighborhood areas to high volume vehicular corridors.

Forest City's downtown is the model from which the community can build upon to improve walkability across the town. The Pedestrian Plan identifies projects, programs and policies to help accomplish the goals of the Forest City Comprehensive Land Use Plan.

Photo: Don Kostelec

"Forest City is recognized for its livability image of a small town with great climate and quality of life amenities that give it a competitive edge for economic growth."

- Forest City Comprehensive Land Use Plan 2025

The goal of *Forest City: Heart & Sole* is to identify how Forest City can establish and enhance facilities within its boundaries to serve as physical activity and recreation hubs, create places where residents can access healthy food, and reconnect neighborhoods via multi-modal transportation infrastructure and additional programs.

This effort comes at a time when Forest City, Rutherford County and other nearby towns are working to reimagine how the region can continue to grow a healthy environment, increase recreational opportunities and promote economic development.

Forest City Comprehensive Land Use Plan

Forest City: Heart & Sole is one step in the process to help reimagine the community on the heels of the Town's efforts in 2012 to adopt the *Forest City Comprehensive Land Use Plan*. The plan acknowledges the community "desires multi-modal connectivity between locations where citizens live, work and play. Walkability is the fundamental building block of this."

Numerous studies, including a 2012 analysis on job creation by AASHTO, show that investments in walkability-based projects have a greater return on investment than traditional highway widening projects and other major transportation investments .

It will be incumbent upon the community as a whole, with support from the Town of Forest City, NCDOT and its many partners, to continue to make the case for investment in walkability.

The Forest City Comprehensive Land Use Plan establishes the vision :

> *"Forest City is recognized for its livability image of a small town with great climate and quality of life amenities that give it a competitive edge for economic growth. The vibrant downtown reflects a memorable city image of a town that promotes, protects and celebrates its unique and distinctive character. Forest City is highly regarded throughout the region and North Carolina as a progressive and dynamic small town where people want to live, work, shop, play and visit."*

The Plan includes the following goals related to walkability and health:

- Cultivate the identity of the Town as a hub of economic activity in the region.
- Promote a sustainable land development pattern that complements the character of the Town.
- Provide for adequate services and infrastructure to sustain and improve economic development.

- Provide opportunities for residents to connect with Parks and Recreation facilities throughout the community.
- Foster a vibrant and attractive downtown atmosphere that residents and visitors enjoy.

"Establishing a safe and efficient multi-modal transportation network that accommodates the demand from proposed land uses" is the transportation goal in the Plan. These interrelationships led Forest City to establish the overall goals of the Comprehensive Land Use Plan as the goals for the Comprehensive Pedestrian Plan.

Major Influences

The influences on walkability listed below reflect how a community can respond, in part, by creating a more walkable area as emerging demographic, health, and economic trends suggest physical activity and having places to recreate is at the heart of making small towns economically competitive in contemporary society and the modern economy.

1. **Changing Demographics**. Communities like Forest City find young adults continuing to move out of the area. Moreover, older adults tend to be moving in. All of this leads to declining birth rates and rapidly aging populations.
2. **Health Issues.** Obesity rates tend to be higher than the national average among every age group in areas with demographic indicators similar to Forest City. This results from neighborhoods lacking easy access to healthy foods and recreational spaces, as well as an automobile-reliant population.
3. **Housing.** Based upon trends, young professionals, trades people, minorities, and some seniors prefer smaller, multi-family housing versus conventional single-family homes. The plan for the Florence Mill buildings helps address this emerging market trend.
4. **Rental Share.** The share of renter-occupied housing for Forest City (51.7%) is notably higher than the North Carolina average (33.3%). By comparison, Rutherfordton's share of renter-occupied housing is 38.7% and Spindale's is 45.7%.
5. **Transportation Costs.** Despite the high cost of fuel, areas like Forest City remain very auto-dependent. Except when destinations are within close proximity to a person's residence, transportation options combined with travel distance to jobs and other resources causes transportation costs to rise more because individuals must purchase fuel for automobile travel and pay for associated repairs. While commuting to a job may be a trip that residents must make by car due to the reali-

Changes in health conditions, an aging population and increase in individuals with mobility impairments all impact how a community addresses walkability.

Photo: Don Kostelec

ties of a small town market, we can replace automobile-based trips for recreation and shopping by promoting walkability.

Sidewalks as a Smart Investment

In her article, "Sidewalks—A Smart Investment," Dr. Kathleen Beine of Kingsport, Tennessee notes that "there are many approaches and solutions to the [health] crisis… A significant part of the solution is to make it easy to be physically active---where you don't have to load up a car and drive someplace, or join a gym. Just make it easy by walking out your front door and lead your family on a neighborhood adventure outing, possibly to a small community park to play and visit with other neighbors."

"Sidewalks are smart investments. Benefits of properly-designed sidewalks and connectivity include improved:

- Pedestrian safety;
- Safety for motorists (not worrying about hitting a pedestrian, decreased risk of swerving head-on into another motorist when trying to avoid an unexpected pedestrian in the road);
- Sociability and neighborliness;
- Air quality from decreased usage of vehicles;
- Family budgets because of being able to safely walk on short trips rather than driving;
- Health, such as aerobic capacity, cardiovascular fitness, muscle strength and balance; decreased obesity, diabetes, heart disease, high blood pressure, asthma, cancers of various types; and
- Mental and emotional health, such as decreased depression, anxiety, and social isolation -improved work performance, on the job and at school (that's where kids work).

It also leads to decreased medical costs for individuals and companies. The cost of a mile of sidewalk is cheap compared to emergency room visits, operations, hospital stays, rehab, and sometimes, permanent disability."

Places and distances where people are willing to walk are illustrated in Exhibit 1-1.

Exhibit 1-1: How far will people walk?

Research has proven that people are willing to walk longer distances to reach a destination if they are given safe and convenient facilities.

2. Building the Plan

Those who walk the community, manage its businesses and administer the Town's business know the community best. Any good Plan is built from input from these and other key individuals and organizations. The cornerstone of *Forest City: Heart & Sole* is the public/stakeholder input and what is known about the town through analysis of demographic data.

The efforts to build the plan consisted of a multi-pronged approach to spread awareness of the planning process and ensure a variety of local perspectives were incorporated into the plan. Residents, key stakeholders, and town staff were engaged during the planning process through the following channels:

- Steering Committee Meetings;
- Public Meetings and Outreach Events; and a
- Public Input Survey.

Finally, a brief analysis of Census data was compiled to provide a snapshot of prevailing statistically-valid demographic data and conditions across Forest City.

Steering Committee

The process for the Plan was overseen by a Steering Committee comprised of representatives from the Town, the County, the business community, pedestrian and health advocacy organizations, and several interested town residents. The Steering Committee convened on four occasions to provide input on pedestrian issues and opportunities, serve as a sounding board for elements of the planning process, and review plan deliverables.

The first Steering Committee meeting was held in July at the Town's 108 Meeting Building on Main Street in downtown Forest City. The consultant team gathered feedback about important pedestrian destinations and hotspots in the Town to be evaluated by the consultant team.

The second Steering Committee meeting was held concurrently with the Public Workshop for the Plan at the Mooneyham Public Library in September 2015. This meeting was used to gather input from stakeholders on locations for pedestrian facility improvements that would help connect people with popular destinations.

The third and fourth Steering Committee meetings were held in January and March 2015 to review open house materials, determine project ranking criteria, refine project rankings and review the draft plan document.

Steering Committee members learned the basics of walkability during their first meeting by measuring walking speed and human dimensions on Main Street in Forest City.

Photo: Sealy Chipley

The Forest City Owls Game in summer 2014 was a successful venue for public input as 59 surveys were collected and individuals engaged with the consultant team to identify concerns and needs in the community.

Photo: Don Kostelec

Public Meetings and Outreach Events

Owls Game

In August 2014 the consultant team set up an informational booth at McNair Field for a Forest City Owls baseball game to raise awareness about the pedestrian plan and encourage participation in the public input survey. To attract more survey respondents, a raffle was held and those who completed the survey had the opportunity to win an Owls hat and jersey. In total, 59 individuals completed the survey during the game.

Public Workshop

A public workshop was held in September at the Library to collect input from Town residents and stakeholders on popular destinations in Forest City and pedestrian network improvements that would make walking to these locations safer and more convenient. The workshop was advertised through notices in the local newspaper, posts on the Town website and Town Facebook page, email lists for Town boards and community organizations, emails from local residents and organizations collected during Plan outreach efforts, and announcements at other Town meetings.

The meeting was opened with a presentation by the consultant that included an overview of the plan purpose and timeline, a review of basic pedestrian planning concepts, and preliminary findings from field research in the Town. Meeting attendees were then divided into groups for a mapping exercise. Each group identified places that they would like to walk, and then highlighted gaps in the pedestrian network where construction or improvement projects were needed for sidewalks, greenways and intersections. Each group presented their top five pedestrian projects, and common themes that emerged from the exercise were used as the basis for a facilitated discussion that concluded the workshop. Map mark-ups, projects, and discussion topics from the workshop were used to help formulate recommendations in the Plan.

Open House

In February 2015 the joint Open House and Greenways Meeting was held at the Meeting Center in downtown Forest City. Approximately 15 residents dropped by during one of two sessions to learn more about the Plan's findings and to provide feedback on recommendation. This included locations for proposed crosswalks and sidewalks, streetscape improvements, and the proposed greenway network.

Throughout the Open House, a slideshow was running in the background that summarized key themes for meeting attendees. Participants were also encouraged to review and comment on the Town's map that summarizes all of the recommended pedestrian improvements. They had the opportunity to vote on their top five pedestrian

destinations or enhancements that would support walking in Forest CIty. The most popular option from the Open House was to develop an outdoor social space, followed by a installing a public water fountain and a covered picnic shelter. Other popular recommendations included a dog park, workout stations, and a Little Free Library.

Public Input Survey

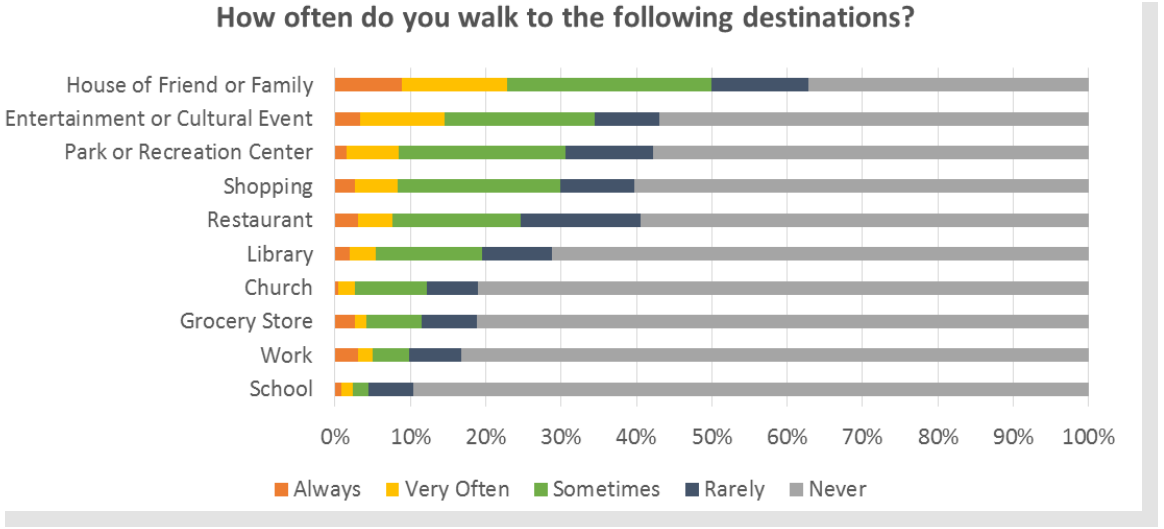
A public input survey was deployed to collect additional input from local residents on their walking habits, popular destinations, barriers to walking, and needed improvements to the pedestrian network. A link to the online survey was posted on the Town of Forest City website, on the Town Facebook page, and in the local newspaper. A link to the survey was also emailed to Town staff, Town boards, community organizations, and local walking clubs for further distribution. Hard copies of the survey were made available at public locations such as Town Hall and Mooneyham Public Library, at public meetings for the Plan, and at events such of the Owls baseball game at McNair Field.

The survey was open for four months from July to October, during which 300 online and printed responses were collected. A summary and analysis of the results from the public input survey are included in several exhibits on this and following pages.

Demographics. Half of respondents reside in the Town limits of Forest City, while the other half reside in adjacent locations in the County or a neighboring Town (43% from Rutherford County outside of Forest City). Survey preferences for respondents living outside Forest City limits differed only marginally from those of Town residents.

Over 60% of survey respondents were female. Women also make up 60% of the Town of Forest City population based on 2012 American Community Survey estimates. Differences in survey results between men and women were marginal. Local residents under the age of 20 are

Exhibit 2-1: Survey Responses Related to Walking Frequency



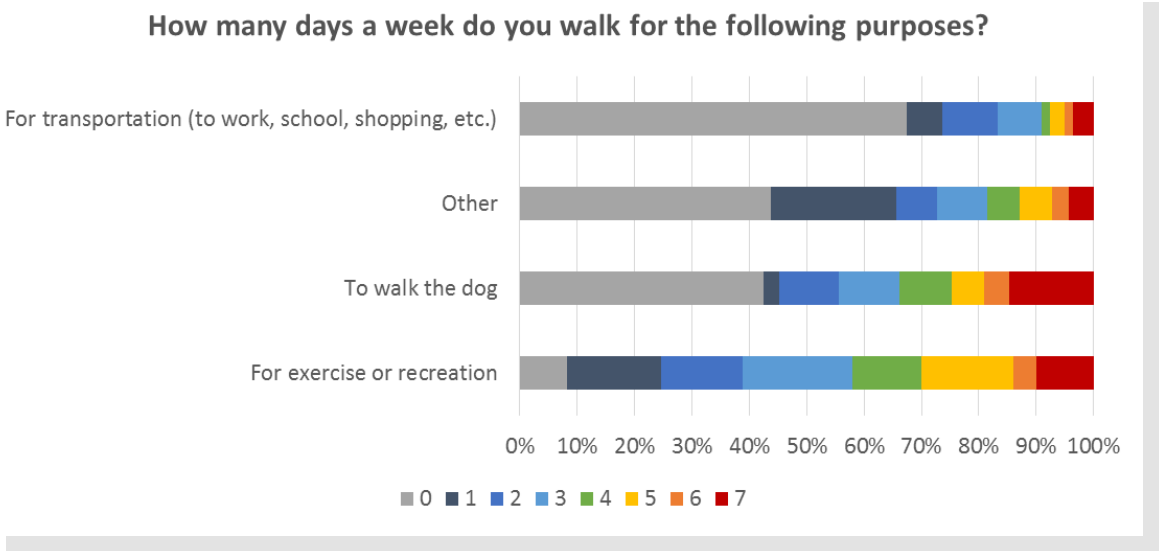
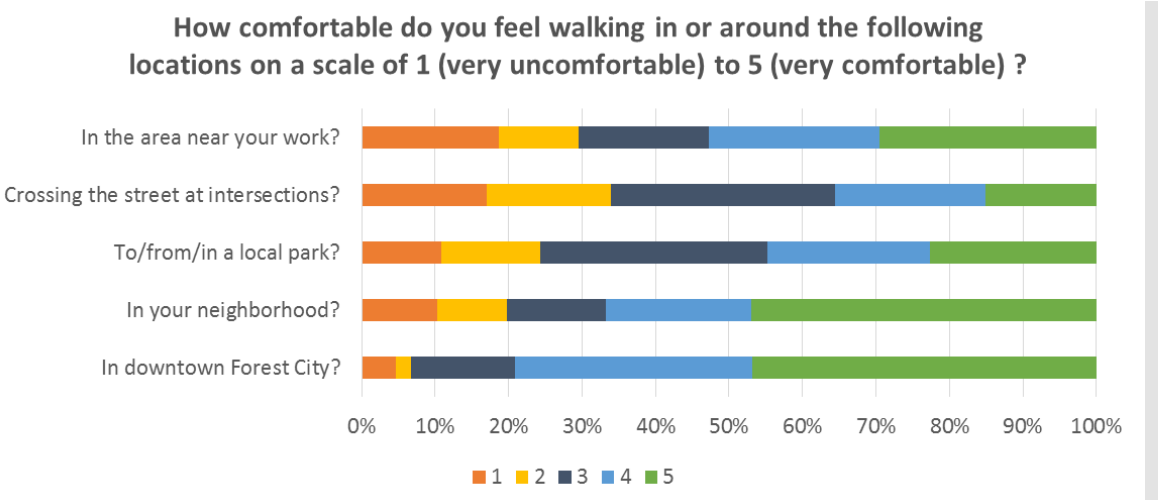
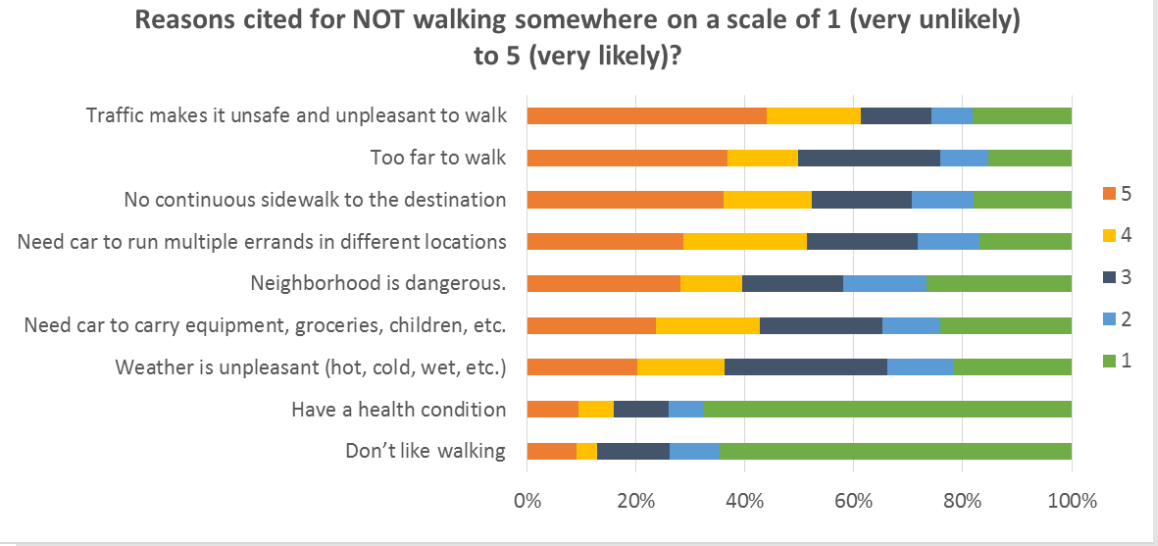


Exhibit 2-2: Survey Responses Related to Comfort Features





under-represented among survey respondents, which likely explains why school was among the least popular walking destinations in responses to questions 4 and 8.

Walking Destinations and Purposes. While over 90% of respondents walk for exercise or recreation, only a third walk for the purpose of transportation. Half of respondents walk sometimes or more often to the home of a friend or family member. Walking as a form of transportation to other non-residential destinations is much less common. Roughly a third of respondents walk sometimes or more often to destinations for recreation, entertainment, and shopping.

Walking Comfort Levels and Factors Discouraging Walking. A large majority of respondents feel comfortable or very comfortable walking in downtown Forest City. However, roughly a third of respondents feel uncomfortable when crossing the street in Forest City. Survey respondents answering Question 11 identified numerous intersections in and around downtown where crosswalks and pedestrian signals are lacking or inadequate.

As is common in many towns, an automobile-oriented transportation network with inadequate pedestrian facilities works in tandem with a sprawling, segregated pattern of development to discourage people in Forest City from walking. Traffic that makes walking unsafe or unpleasant was the most likely reason to be cited by survey respondents for not walking to a destination.

Over half of respondents were also likely to avoid walking somewhere due to the lack of a continuous sidewalk to the destination. Roughly half of respondents were also likely to avoid walking somewhere because the destination was too far away and/or because they had too many errands to run in different locations.

The most popular destinations that respondents would like to walk to more often included parks or recreation centers (e.g. Crowe Park) and entertainment / cultural events (e.g.

Owls baseball game at McNair field). Close to 90 respondents would also like to be able to access the Thermal Belt Trail for recreation or transportation. Other equally popular destinations included the homes of friends and family and shopping locations.

Locations to Expand or Improve Pedestrian Facilities. Questions 9 through 11 asked respondents to identify locations for new sidewalks or trails that improve pedestrian connectivity, existing sidewalks in need of repair or upgrade, and intersections in need of pedestrian crossing facilities. Popular pedestrian network improvements suggested by respondents are summarized below for each question and illustrated with a word cloud.

Question 12 provided an open-ended response for additional comments on the pedestrian issues in Forest City. A full list of responses to questions 9 through 12 have been included in the Appendix.

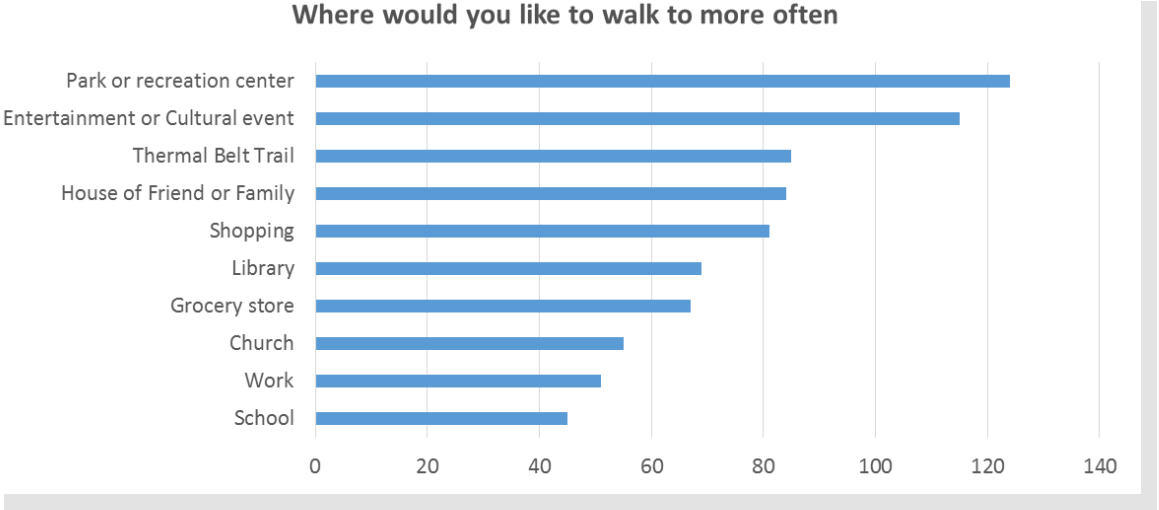
Popular locations suggested for new sidewalks included extending W Main Street west towards Spindale, extending the Church Street sidewalk south to the Dollar General and Hwy 74, and extending the sidewalk on Trade Street west to McNair field. Extending the rail trail from Spindale to Forest City was also a very popular recommendation.

Locations identified for sidewalk repair and improvement included E Main Street, Broadway Street and Arlington Street. The most common issue cited was uneven or cracked pavement.

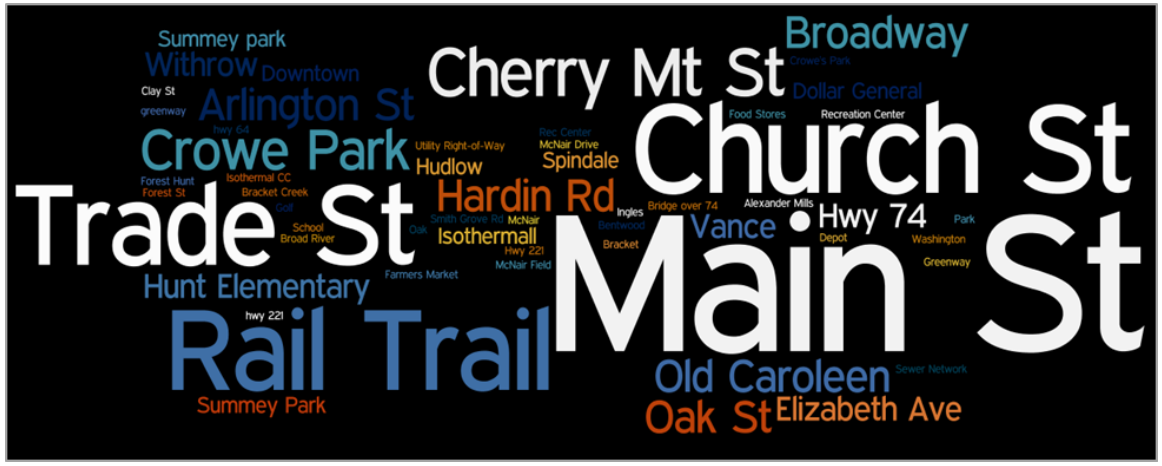
Overgrown vegetation and dim lighting were other common issues cited with the existing sidewalk network. Pedestrian improvements were most frequently recommended at the intersections of Church Street and Main Street, Arlington Street and Broadway Street, and Main Street and Broadway Street.

A crosswalk and pedestrian signal was the most commonly recommended improvement suggested on Main Street at the intersections with Church Street and Broadway St.

Exhibit 2-3: Survey Responses Related to Destinations



When asked about streets where they would like to see sidewalks or greenways, survey respondents said…



When asked to identify where sidewalks are in need of repair, survey respondents said…

Multiple respondents also commented that the pedestrian light at the intersection of Oak Street and Church Street was too short to cross all lanes on Oak Street.

Common themes found in additional comments made by survey respondents include:

- Adding street lighting to make it safer to walk at night;
- Extending the pedestrian network to connect residents with parks (e.g. Crowe Park, Summey Park) and shopping (e.g. Wal-Mart, Dollar General, Ingles).

US Census Data & Demographics

It is important to examine a community's demographics as part of developing a pedestrian plan because demographic information provides valuable clues about travel behavior, preferences and can identify potential heath-related concerns as they relate to the socioeconomic conditions in which someone is raised and/or lives.

Characteristics such as age, income, vehicle ownership, and commute time can suggest a population's potential for walking as a mode of transportation. This section provides a summary of the demographic analysis for Forest City and explains the implications of the analysis for the recommendations made in *Forest City: Heart & Sole*. The Census data summarized in this section includes those consider most relevant.

According to 2010 U.S. Census data, the Forest City's population tips slightly toward older adults age 60 and higher (Exhibit 2-4) when compared to North Carolina overall demographics. This population cohort comprises 23.4 of the town's overall population compared to only 18.4 of the state's population in this age group.

Older adults are seeking walkable communities because they want to lead an independent lifestyle as they approach retirement and ultimately retire. Older adults are concerned about their safety while walking in terms of self -defense and the risk of falling. The isolation that can come from being in a large, rural estate during retirement

has been shown to have negative physical and mental health effects.

The youth percentage for Forest City is 20.4% and similar to the 19.9% of North Carolina's population that is age 15 years and younger. Youth seek to explore the world around them and express their free will in these years. With increasing demands on the family and most households having both parental units in the workforce, youth are being asked to be more independent. Walkable communities allow for this to occur in a safe environment.

The working population of Forest City is 56.2% of the population and is lower than North Carolina's proportion at 61.4%. The life of a working adult is complicated. They are seeking greater work/life balance while also considering the needs of the family, both elders and offspring.

Exhibit 2-4: Population Pyramid for Forest City & Age Cohort Characteristics Related to Walking

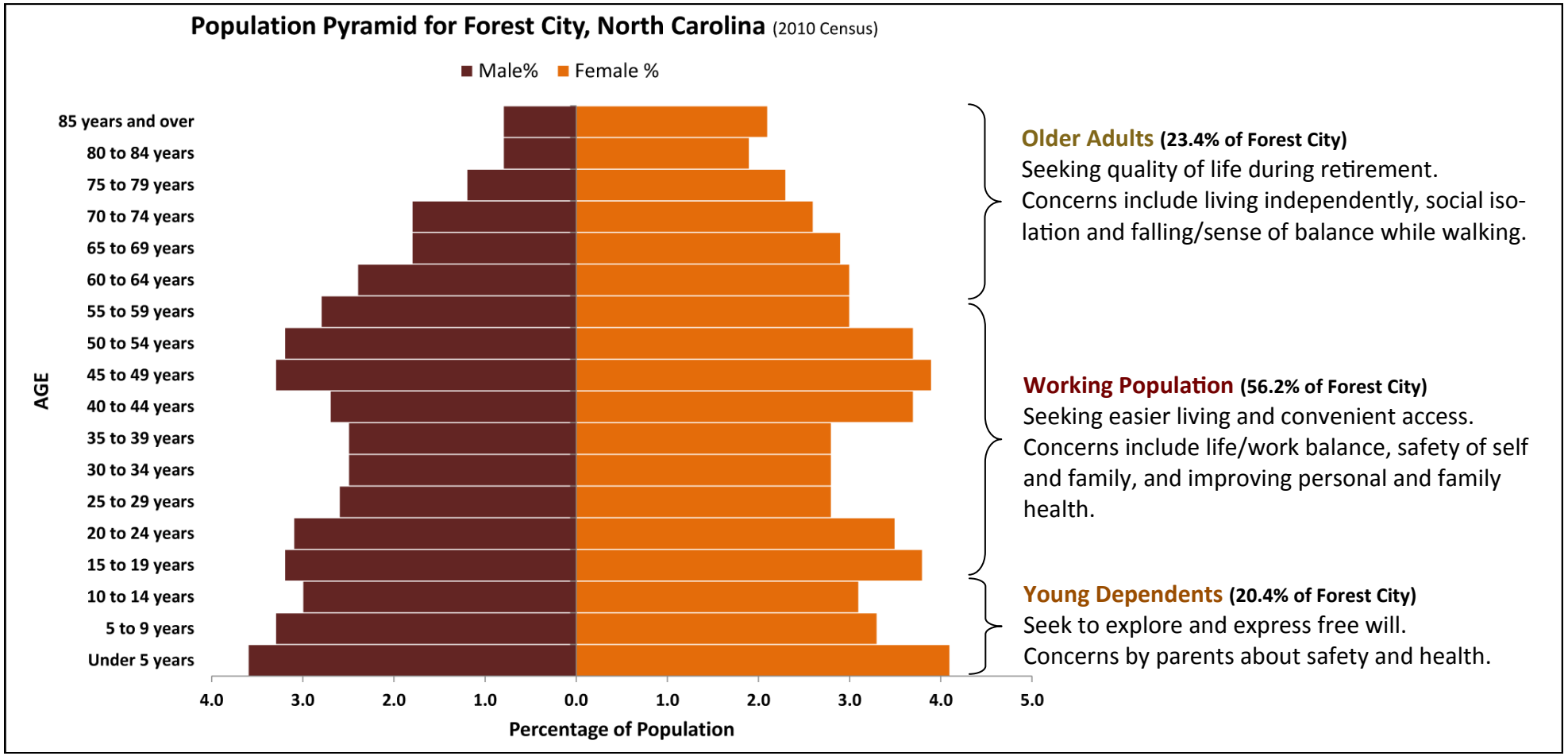


Exhibit 2-5: Forest City Commute Data (2010 Census)

Mode of Transportation to Work	Forest City %	NC %
Drove Alone	82.8%	81.1%
Carpooled	14.5%	10.4%
Worked at Home	1.7%	4.4%
Public Transportation	0.5%	1.1%
Walked	0.2%	1.8%
Bicycle	0.0%	1.3%

Travel Time to Work for Forest City Residents	Percentage
Less than 10 minutes	34.30%
10 to 14 minutes	25.10%
15 to 19 minutes	13.00%
20 to 24 minutes	5.80%
25 to 29 minutes	3.80%
30 to 34 minutes	5.90%
35 to 44 minutes	1.60%
45 to 59 minutes	6.80%
60 or more minutes	3.80%
Mean travel time to work (minutes)	16.9

For other Census-related data, the American Community Survey is used for estimates for mode of transportation to work and travel time to work. The American Community Survey only measures commute modes of transportation and has no metric to indicate number of walking trips per day for recreation or other purposes.

Unfortunately, the American Community Survey data for small towns and rural areas is largely unreliable within the margins typically seen for pedestrian mode share. For example, the survey, which samples a portion of the population every 5 years, indicates no one in Forest City commutes on a bicycle. This is a statistic that seems unlikely.

Exhibit 2-5 shows some select journey to work data for the estimated 2,455 workers age 16 years and older in Forest City. The mode to work share indicates 0.2% of workers 16 years and older in Forest City walk as a means of commuting (the margin of error is +/- 0.5%). The table also includes data for North Carolina.

The American Community Survey indicates that the average travel time to work for Forest City residents is 16.9 minutes, which is less than the NC average. More than one-third of residents report a commute time of less than 10 minutes and almost 60% of working age residents in Forest City have a commute time less than 15 minutes. This could indicate greater potential for converting some trips to walking or bicycling.

It is also estimated that 6.6% of Forest City working age individuals have no access to a car, meaning they rely on carpooling, walking, public transportation, taxicab, scooter or bicycle as their primary means of travel to work. Workers reporting only one vehicle available in a household is 27.0%, with 39.6% of female workers reporting only one car in the household. This could also indicate potential trips that could be taken by a mode other than the automobile.

3. Existing Plans & Policies

Fueled by the booming economy in the post-World War II era, planners and decision makers implemented zoning ordinances, development regulations, and transportation policies that prioritized the needs of automobiles at the expense of pedestrians and other non-motorized travelers. As we separated our land uses and built bigger roads, we lost the connectivity between our homes and our schools and we increased the distance between our office and the grocery store.

We made it difficult to navigate from place to place by anything other than a car. Forest City was not immune to this type of land development pattern. As noted in the Introduction, the town's development activity shifted away traditional neighborhood development patterns near the Main Street neighborhoods to auto-oriented development patterns along today's US 74-A and US 74 Business, where there was an adequate land supply to accommodate large parking lots and wide roads.

The old schools, nearer to downtown neighborhoods were closed or repurposed when larger, less accessible schools opened. However, Forest City is on a path of change. With recent projects, plans, and codes, Forest City is taking steps to reestablish pedestrian connections and improve overall walkability.

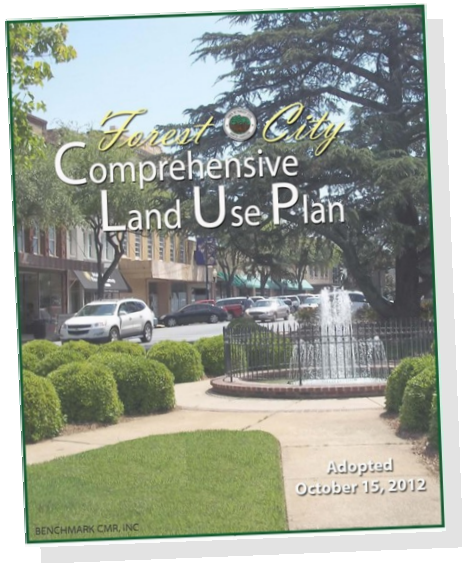
When one views Forest City's plans as a complete body of work, it is clear that the town wants to become a place that is well-connected—a town where residents can walk to the grocery store, to schools, to parks, and to Main Street businesses. While stating a desire or adopting a vision is a good starting place, a vision alone cannot create a connected and coordinated pedestrian network.

A community needs good policies and implementation plans to transform its vision to on-the-ground sidewalks, safe intersection crossings, and off-street paths. In other words, Forest City needs a set of built-environment policies (recreation facilities, neighborhood design, safety, aesthetics, facilities, destinations to walk to, policies that influence land use and transportation systems) that result in features that facilitate walking. This section of *Heart & Sole* evaluates the Forest City's built-environment policies. Exhibit 3-1 includes a list of plans and policies evaluated for the plan.

Before evaluating Forest City's specific plans and policies, it is important to think about the difference between pedestrian networks where pedestrians feel safe, comfortable, and welcome and a place that feels unsafe, uncomfortable, or even life threatening. While not exhaustive, the following list highlights the key elements that make the difference.

Exhibit 3-1: Plans & Policies Evaluated

Town of Forest City Plans and Policies
• Forest City Comprehensive Land Use Plan (2012) • Downtown Forest City Plan 2010-2027 • Streetscape Improvements Plan (DRAFT 2014, to be finalized concurrently with Pedestrian Plan) • Town of Forest City Unified Development Ordinance
Regional Plans and Policies
• Thermal Belt Rail Trail • Isothermal RPO / Rutherford County Comprehensive Transportation Plan • Safe Routes to Schools
State / Federal Plan and Policies
• NCDOT STIP, Funding Prioritization Process • NCDOT Complete Streets Policy • Other Guiding Plans and Policies



"Forest City is highly regarded throughout the region and North Carolina as a progressive and dynamic small town where people want to live, work, shop, play and visit."

- Forest City Comprehensive Land Use Plan 2025

- **Street Design (SD):** Well-designed streets reduce vehicle speeds but do not inhibit the efficient flow of transit. Crosswalks are appropriately spaced, signed, signaled, and easy to see. Streets accommodate a balance of users, including cars, bikes, and pedestrians. Connected streets are prioritized over cul-de-sacs and dead end streets.
- **Sidewalk Design (SWD):** Sidewalks are accessible and passable for those in wheelchairs or with strollers. The width, ideally 5 to 8 feet across, allows for comfortable passing. Sidewalks are in good repair, are well-lighted, and are continuous. Pedestrians can progress down the street without stepping around trees, benches, bicycle racks or other street furniture.
- **Visual Appeal (VA):** Streets have a sense of place and they include public spaces. Texture is provided by trees, benches, lighting, and public art. Buildings are oriented to the street with street facing storefronts that are interesting and welcoming. Retail and restaurant establishments cater to the pedestrian. Buildings have design elements that appeal to the pedestrian. The built environment provides cues to drivers that they are entering a pedestrian area.
- **Sense of Direction (DIR):** Pedestrians know where they are and how to get to the next destination, with signage, informational materials, and education programs to promote walking trips.
- **Land Use Integration (LU):** Land use and density patterns throughout the town integrate residential land use with other land uses, such as commercial centers, schools, and parks to decrease the distance between homes and destinations.
- **Development Integration (DI):** Sidewalk construction and the placement of other pedestrian features is required during the development process. The development process considers the needs of pedestrians in dimensional development standards (e.g. building setbacks, building entrance placement, parking lot standards, and building height, scale, and mass).

Town of Forest City Plans and Policies

The Town of Forest City has completed several planning efforts that ultimately lead to an improved quality of life for town residents. These plans include the Forest City Comprehensive Land Use Plan, the Forest City Downtown Plan 2010-2027, the Streetscape Improvements Plan, and the Town of Forest City Unified Development Ordinance.

Forest City Comprehensive Land Use Plan (2012). The Town of Forest City Comprehensive Land Use Plan (CLUP), adopted in October 2012, serves as the basis for

Forest City's future land use and growth management decisions over the next 20 years. The CLUP's stated purpose is to "pull together and prioritize implementation strategies from previous planning initiatives and establish the policy framework for implementing the long-range growth and development objectives of the Town of Forest City." The CLUP also details the town's guiding vision, which states:

> *"Forest City is recognized for its livability image of a small town with a great climate and quality of life amenities that gives it a competitive edge for economic growth. The vibrant downtown reflects a memorable city-image of a town that promotes, protects and celebrates its unique and distinctive character. Forest City is highly regarded throughout the region and North Carolina as a progressive and dynamic small town where people want to live, work, shop, play and visit."*

The CLUP is sectioned in to six goal areas and strategies designed to help the town actualize its vision. These areas are: Community Character and Identity; Land Use, Growth Management, and Environment; Transportation; Services and Infrastructure; Parks and Recreation, Open Space; and Downtown Development and Historic Resources. What follows in Exhibit 3-2 is a summary of the strategies from the goal areas that are relevant to pedestrian connectivity in Forest City and how they relate to elements that create a pedestrian friendly environment.

Downtown Forest City Plan 2010-2027. The Downtown Forest City Plan was adopted in 2010 and looks to the horizon year of 2027. The plan sets a vision for enhancing Downtown Forest City and details the efforts the downtown community hopes to accomplish in that timeframe. The projects that make up the plan include a number of revitalization efforts, facility rehabilitation, and new development. Exhibit 3-3 is a summary of how elements of the downtown plan reflect goals for walkability.

Streetscape Improvements Plan (DRAFT 2014). McGill & Associates released a draft Streetscape Improvement Plan in June 2014. The plan includes 23 recommendations in and around the downtown area for enhanced crosswalks and landscaping to improve the aesthetic appeal of the area. The streetscape plan incorporates many of the elements that lead to a more pedestrian friendly environment, especially in the areas of street design, sidewalk design, and improvements to make the area visually interesting. The summary table is included in Exhibit 3-4.

The Downtown Forest City Plan sets a vision for enhancement of the central business district, which is one of Western North Carolina's urban planning jewels.

Photo: Don Kostelec

Exhibit 3-2: Forest City Land Use Plan Strategies Relevant to Walkability

Forest City Land Use Plan Goals

	Community Character and Identity: Cultivate the identity of the Town of Forest City as a hub of economic activity in the region with a small town atmosphere.	**SD**	**SWD**	**VA**	**DIR**	**LU**	**DI**
C5.	Improve landscaping and lighting requirements for new developments and work with existing developments to retrofit outdated sites.			Y			Y
C6.	Establish building design requirements to set an architectural standard for construction in the Town and work with existing developments to retrofit outdated buildings.			Y			Y
C7.	Improve sign regulations for commercial development to reduce visual clutter and enhance rather than detract from the built environment.			Y	Y		
C9.	Install wayfinding signs to direct residents and visitors to area attractions.		Y		Y		
	Land Use, Growth Management, and Environment: Promote a sustainable land development pattern that complements the character of the Town, utilizes existing resources, and promotes economic development.	**SD**	**SWD**	**VA**	**DIR**	**LU**	**DI**
L6.	Promote additional infill residential development to support existing and future commercial development.	Y				Y	Y
L10.	Improve commercial development standards for access management, parking lot location and design, landscaping, lighting, building design, fencing and signage along major corridors.	Y		Y		Y	Y
	Transportation: Establish a safe and efficient multi-modal transportation network that accommodates the demand from proposed land uses.	**SD**	**SWD**	**VA**	**DIR**	**LU**	**DI**
T1.	Follow a priority schedule and budget funds annually for sidewalk construction to extend and loop the existing system while connecting likely pedestrian destinations like parks, schools, churches and government buildings.	Y	Y			Y	
T3.	Work with the RPO and NCDOT to complete new road connections, intersection improvements, and pedestrian crossing improvements as show on the Transportation Network Improvements Map.	Y	Y				
T4.	Work with the RPO and NCDOT to utilize preferred cross sections in the Rutherford County Comprehensive Transportation Plan (CTP) for state roads in Forest City's jurisdiction.	Y	Y				
T5.	Require the addition or replacement of sidewalks and bicycle facilities for development projects along thoroughfares and within new subdivisions.		Y				
T6.	Improve access management by limiting curb cuts along West Main Street, Oak Street, South Broadway Street and US Highway 74-A Bypass.	Y	Y			Y	Y

SD: Street Design **SWD:** Sidewalk Design **VA:** Visual Appeal **DIR:** Sense of Direction **LU:** Land Use Integration **DI:** Development Integration

Exhibit 3-2 continued: Forest City Land Use Plan Strategies Relevant to Walkability

Forest City Land Use Plan Goals

	Parks and Recreation, Open Space: Provide opportunities for residents to connect with facilities throughout the City that provide a variety of activities.	SD	SWD	VA	DIR	LU	DI
P1.	Connect residential areas to schools, parks and other amenities with greenways sidewalks, bikeways and rails-to-trails.					Y	
	Downtown Development and Historic Resources: Foster a vibrant and attractive downtown atmosphere that residents and visitors enjoy and preserved community character and a sense of place through the preservation of historic resources.	**SD**	**SWD**	**VA**	**DIR**	**LU**	**DI**
D1.	Encourage the rehabilitation and reuse of older homes, historic buildings and neighborhoods.			Y		Y	
D2.	Pursue the adaptive re-use of the historic Florence Mill buildings, rehabilitation of surrounding historic properties and development of green space with pedestrian amenities.		Y	Y		Y	Y
D5.	Throughout downtown, continue the historic preservation of existing buildings, construction of new infill buildings, upgrading of sidewalks and crosswalks and additional pedestrian friendly amenities.	Y	Y	Y		Y	Y
D12.	Create a downtown parking plan and post signs directing visitors to additional public parking.	Y			Y		Y

Exhibit 3-3: Downtown Forest City Plan Strategies Relevant to Walkability

Downtown Forest City Plan Goals

Goals/Objectives	SD	SWD	VA	DIR	LU	DI
Florence Mills Redevelopment- the project consists of redeveloping Florence Mills for post-industrial uses, including residential units and open space. The plan specifically notes the importance of developing pedestrian amenities.	Y			Y		Y
Main Street- upgrade pedestrian amenities, including sidewalks and crosswalks along downtown areas of Main Street.	Y			Y		Y
Trade Street Redevelopment- develop a mix of uses along Main Street, including homes, stores, and offices.	Y			Y		Y
Other parts of the Downtown Plan include the development of more residential units close to downtown, in areas adjacent to the Florence Mill and along Trade Street.	Y			Y		Y

SD: Street Design **SWD:** Sidewalk Design **VA:** Visual Appeal **DIR:** Sense of Direction **LU:** Land Use Integration **DI:** Development Integration

Downtown Streetscape Plan Recommendations

Street/Crossing	Recommendations	SD	SWD	VA	DIR	LU	DI
E Main Street @ Church Street	Soften lot targeted for future development with landscaping, stamped brick crosswalks, crosswalk improvements	Y	Y	Y			
E Main Street @ Yarboro Street	Visually delineate a downtown boundary, ADA curb ramps	Y	Y	Y	Y		
E Main Street @ Thomas Street	Visual entrance to overlooked street, landscaping, bulbouts, ADA curb ramps, crosswalk improvements, wayfinding	Y	Y	Y	Y		
E Main Street and Depot Street @ Cherry Mountain Street	Crosswalk improvements, landscaping, bulbouts, ADA curb ramps, improved pedestrian guidance	Y	Y	Y	Y		
E Main Street/Mill Street @ Maritn Alley	Delineated link to parking, improved pedestrian guidance, crosswalk improvements, curb ramps, landscaping, bulbouts, decorative features, visually delineate a downtown boundary	Y	Y	Y	Y		
E Main Mid-Block Crossing between Powell/Cherry Mountain	Crosswalk improvements, pedestrian signage, ADA curb ramps	Y	Y		Y		
E Main Street @ Powell Street	Crosswalk treatment, refuge, landscaping, bulbouts, ADA ramps	Y	Y	Y			
E Main Street @ N Broadway	Delineate downtown district, crosswalk treatment, bulbout, landscaping, pedestrian direction	Y	Y	Y			
S Broadway @ W Main Street	Wayfinding, crosswalk treatment, landscaping, underground utilities	Y		Y	Y		
Depot Street @ Main Street	Crosswalk treatments, street lights, visual enhancements, wayfinding	Y		Y	Y		
Cherry Mountain St @ Blanton Alley	Crosswalk treatments, sidewalk repair, ADA curb ramps, visual delineation of downtown, traffic calming	Y	Y		Y		
N Powell Street @ Blanton Alley	Crosswalk treatment, traffic calming, wayfinding, ADA curb ramp	Y	Y		Y		
Martin and Blanton Alleys	Crosswalk treatment, link to parking, ADA Curb ramps, visual improvements	Y	Y	Y	Y		
Powell Street @ Mill Street	Crosswalk treatment, ADA curb Ramps, Landscaping, visual improvements, pedestrian refuge	Y	Y	Y			
Mill Street @ Harmon Street Roundabout	Crosswalk treatment, visual improvements, ADA curb ramps	Y	Y	Y			
Mill Street @ Huntley Street	Dropoff area for pedestrians, ADA curb ramps, visual improvements, wayfinding	Y	Y	Y	Y		
E Main Street @ N Broadway	Delineate downtown district, crosswalk treatment, bulbout, landscaping, pedestrian direction						
Blanton Alley Parking Lot Trade Street @ Powell Street McDaniel Alley Dumpsters McDaniel Alley @ Martin Street Mill Street Open Space Mill Street Curb Cuts	Landscaping, link to parking, landscaping, ADA curb ramps, brick pavers, decorative features, Sidewalk Repair, ADA Curb ramp, brick pavers, landscaping, link to parking through signage, lighting, visual features, wayfinding	Y	Y	Y	Y		

SD: Street Design **SWD:** Sidewalk Design **VA:** Visual Appeal **DIR:** Sense of Direction **LU:** Land Use Integration **DI:** Development Integration

Town of Forest City Unified Development Ordinance

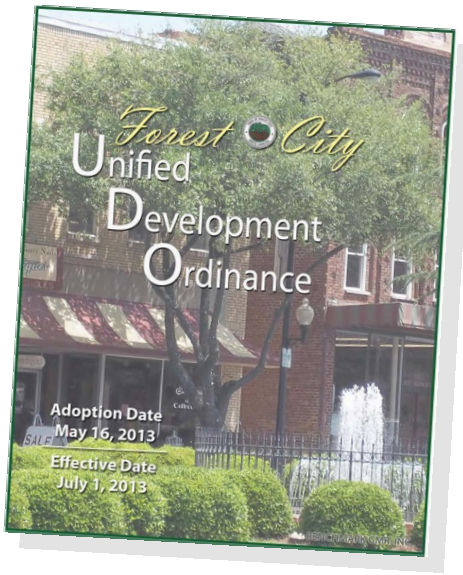
Adopted in May 2013, the Town of Forest City's Unified Development Ordinance (UDO) is the Town's guiding policy document for land development. The UDO is the town's most useful tool to translate the Forest City's vision to on-the-ground projects. Forest City recognizes that providing a pedestrian network that is safe and accessible requires a land development ordinance that integrates the needs of the pedestrian with built environment standards. Forest City's UDO contains a variety of standards that lead to a more pedestrian friendly network.

The UDO's **Conservation Subdivision** standards require developers to set aside a minimum of 50 percent of the subdivision's total area for common open space. Open space, as defined by the UDO, is a playground, square, park, green, greenway, greenbelt, agriculture preserve, or nature preserve. Rather than being a prescriptive standard, conservation subdivisions present an opportunity for the Town's pedestrian network. When working though the development process, town officials can engage with the developer to determine if the subdivision's open space can enhance existing and or help build new planned pedestrian connections.

Forest City's **Traditional Neighborhood Development (TND)** standards allow for mixed-use, pedestrian-oriented neighborhoods that minimize traffic congestion, sub-urban sprawl, infrastructure costs, and environmental degradation. Some of the pe-destrian oriented standards of this zoning district include edge lots that must be pe-destrian accessible to retail and recreation uses (a distance not greater than ¼ mile) and an interconnected street network with small blocks.

Additionally, a minimum of 30 percent of the total area of the TND shall be set aside in open space. Similar to Conservation Subdivisions, Forest City has an opportunity to build or enhance existing or build new pedestrian connections when TNDs are de-veloped.

The UDO's **Special Requirements** section contains standards related to **Outdoor Display of Merchandise** and **Outdoor Dining**. The town allows for the outdoor dis-play of merchandise and outdoor dining on sidewalks the Central Business District (C -1) and General Business District (C-2). A retail establishment may display merchan-dise on the sidewalk and outdoor seating is permitted immediately in front of a restau-rant provided that not more than one-half (½) of the width of the sidewalk is obstruct-ed and at least three (3) feet of the sidewalk is left unobstructed. This type of street activity should be encouraged as both the display of merchandise and outdoor dining contribute to a business district's vibrancy and visual attractiveness. In other words, these activities engage the pedestrian.



Stemming from the Land Use Plan recommendations, Forest City's Unified Development Ordinance is the Town's guiding document for land development.

However, three feet of sidewalk makes for a tight passage for a single person and very difficult passage for someone in a wheelchair. This also assumes the pathway is unobstructed with obstacles and protruding objects such as benches, bike racks, fire hydrants, planers, utilities, etc. The minimum acceptable ADA sidewalk width is five feet (four feet if a five-foot wide pathway is placed at least every 200 feet). Exhibit 3-5 provides an illustration based on Main Street in Forest City.

Exhibit 3-5: Sidewalk Zones

Forest City's UDO could be strengthened by illustrating expectations for businesses along Main Street and in other future pedestrian-oriented locations. Designating the furnishings zone, pedestrian access route and frontage zone helps identify where features such as sandwich boards and plants should be placed so they do not interfere with a required clear zone for pedestrians.

Illustration: Don Kostelec

Recommendations:

- Work with the business community to evaluate the effect of street merchandise and outdoor dining. Is the remaining pathway unobstructed? Can the obstruction be moved? Are there "off-limits" sections of sidewalk? The illustration at left shows an example of the pedestrian access route. It should be kept clear of any obstructions or protruding objects.
- Encourage wider that the five-foot minimum in C-1 and C-2 redevelopment projects.
- Change UDO standards to define the minimum width for the pedestrian access as four feet of clear linear space.

Downtown Building Design Guidelines. The UDO contains sections dedicated to Downtown Building Design Guidelines and Non-residential Building Requirements. The intent of the these Guidelines is to maintain Downtown Forest City's historic character and ensure that infill development is compatible. The guidelines, which are voluntary, are in place to protect downtown's character and vibe; a character and vibe that is rooted in its pedestrian friendliness. Protecting Downtown's character through the design guidelines naturally protects and enhances pedestrian connections in the Downtown.

The Town's **Non-residential Building Requirements** require design elements such as windows on the first floor, primary-street fronting facades, street level windows that are visually permeable, and other pedestrian oriented standards that result in activated streets and places.

One of the stated intents of the UDO's section on **signs** is, "to prevent signs from dominating the visual appearance of the area in which they are located and to enhance the aesthetic environment of the Forest City area." While the UDO contains a wide va-

riety of sign standards, two are closely associated with pedestrian friendliness. First, the UDO allows the Town of Forest City to place town-sponsored wayfinding signs a use by right; allowing for the easy placement of pedestrian oriented wayfinding signs. Second, signs allowed in the C-1 and C-2 districts--those that are or will become pedestrian friendly--are smaller and more oriented to pedestrians than automobiles.

When it adopted the new UDO, Forest City implemented standards that require developers to install **sidewalks** in conjunction with new development. The standards require that sidewalks shall be provided along the frontage street and at least on one side of the new streets for all developments, and sidewalks shall be at least five feet wide and shall be separated from the street by a minimum four-foot buffer. The standards also address sidewalk thickness and joints. The standards do not address accessibility or curb ramps, nor does the UDO state that developers are required to label sidewalks on subdivision plats or development plans.

Recommendations.

- Consider adding language to the ordinance or adopting a policy that states that sidewalk design and standards should follow NCDOT's sidewalk standards.
- Consider adding standards that require developers to bring sidewalks up to standard during building rehabilitation projects.

Finally, the UDO contains **miscellaneous standards** that enhance the town's pedestrian friendliness. These standards include:

- **Environmental Protection and Open Space:** This section includes a provision that allows narrow walking paths in stream buffers.
- **Open Space Requirements for New Developments with Five or More Lots:** The amount of open space is dependent upon the development's density. The types of open space allowed include playgrounds, squares, parks, greens, greenways, greenbelts, agriculture preserves, and nature preserves. The standards also allow for payment in lieu of open space.
- **Landscaping:** A variety of landscaping requirements for commercial and residential developments lead to a more pedestrian friendly environment. Of note are the standards related to commercial parking lot design.
- **Parking Lots:** While primarily auto-oriented, Forest City's UDO standards related to parking lots minimize a pedestrian's exposure to automobiles through landscaping and planting islands, maintenance, encroachment, and connectivity standards. The UDO does not include standards for bicycle parking.

Recommendation: Consider adding bicycle parking standards. These standards should take into consideration that once a cyclist is off the bike, s/he becomes a pe-

Sandwich boards placed on the sidewalks by merchants are the most common obstruction encountered along downtown sidewalks. They infringe upon the pedestrian access route and make it difficult for older adults, persons in a wheelchair and persons with visual impairments to freely navigate the sidewalk system.

Photo: Don Kostelec

The intersection of West Main Street and Withrow Road / Hudlow Road is in need of improvements for both pedestrians and motorists. Forest City should work with the RPO to ensure this intersection is identified in the Comprehensive Transportation Plan and considered for inclusion in a future STIP.

Photo: Don Kostelec

destrian. Bicycle racks should be placed in locations that are not in conflict with automobile circulation.

- **Driveways:** The UDOs minimum width standards pertaining to driveway widths—10 feet minimum for one way traffic and 18 feet minimum for two way traffic- are acceptable widths to reduce a pedestrian's exposure to automobiles. However, driveway design is not a clear cut or simple process.

Recommendation: Before issuing a driveway permit, Forest City, or in negotiations with NCDOT, should make it a policy to consider how the driveway design affects pedestrians and, when appropriate, implement mitigation measures.

Regional Plans and Policies

Thermal Belt Rail Trail. The Thermal Belt Rail Trail does not currently reach the limits of Forest City, but does serve the neighboring towns of Spindale and Rutherfordton. A section of the trail between Ruth and Spindale was recently paved, increasing user-safety and allowing more people to use the trail. Community members want the trail to continue to Forest City and this may be an option sometime in the future.

Isothermal RPO, Rutherford County CTP. The Isothermal RPO hosted the first meeting of the Rutherford County Comprehensive Transportation Plan (CTP) in January 2015. A CTP is a multi-modal transportation plan that, according to NCDOT, "represents a community's consensus on the future transportation system (including the existing system and improvements) needed to support anticipated growth and development over a 25- 30 year timeframe." The CTP planning process is Forest City's opportunity to introduce the town's pedestrian projects into NCDOT's funding process. The RPO anticipates a late 2015, early 2016 plan completion date. Findings of *Forest City: Heart & Sole* should be incorporated into the CTP.

Safe Routes to Schools. As of December 2014, there are no Safe Routes to Schools/Active Routes to Schools projects planned in Forest City, nor are there any existing projects. According to the region's Active Routes to Schools Coordinator, there is some interest from the elementary school community to host a Walk to School Day.

State and Federal Planning Policies

The NCDOT State Transportation Improvement Plan (STIP), released in December 2014, contains only two pedestrian specific improvement projects in Forest City and Rutherford County; which are two sections of the Thermal Belt Rail Trail. Section 1 Runs from Aydlotte Road (SR 1531) to US 64 and calls for trail widening and resurfacing of the existing trail. The total project cost for this project is $2.3 million

and is scheduled for construction in 2023. Section 2 runs from US 64 to Oakland (SR 2169) for $1.5 million and construction in 2022. A streetscape project is also slated for Mill Street from Main Street to Depot Street. Oak Street is also planned for widening west of US 74.

The STIP also contains a number of road improvements, including bridge repair and replacements. There is a Division managed bridge replacement program. Forest City should use the Isothermal RPO both to program pedestrian-specific projects and to ensure that bridge projects contain needed pedestrian design features on both sides of the bridge. DOT will fund and construct sidewalks on both sides of bridges less than 200 feet in length; one side for structures with a span greater than 200 feet.

NCDOT's Complete Streets Planning and Design Guidelines. The adoption of the state's Complete Streets policy in 2009 began the process for NCDOT to develop a set of guidelines for implementation of the policy. While NCDOT has adopted the Complete Streets policy, they also encourage individual towns to adopt their own policy via resolution. As new projects come on-line, developments are considered and improved, and parks and other public facilities are constructed, Forest City should ensure their design and street connections comply with Complete Streets goals.

NCDOT's Complete Streets policy states that "Complete Streets is North Carolina's approach to interdependent, multi-modal transportation networks that safely accommodate access and travel for all users."

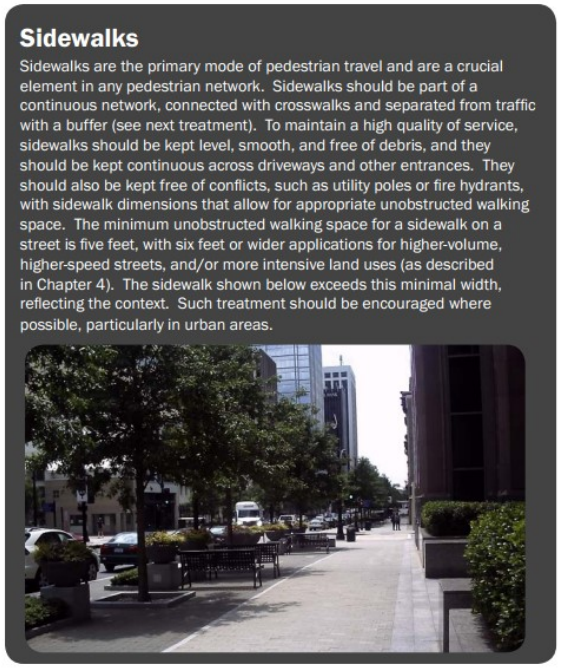
In its Policy Statement, DOT says "Transportation, quality of life, and economic development are all undeniably connected through well-planned, well-designed, and context sensitive transportation solutions."

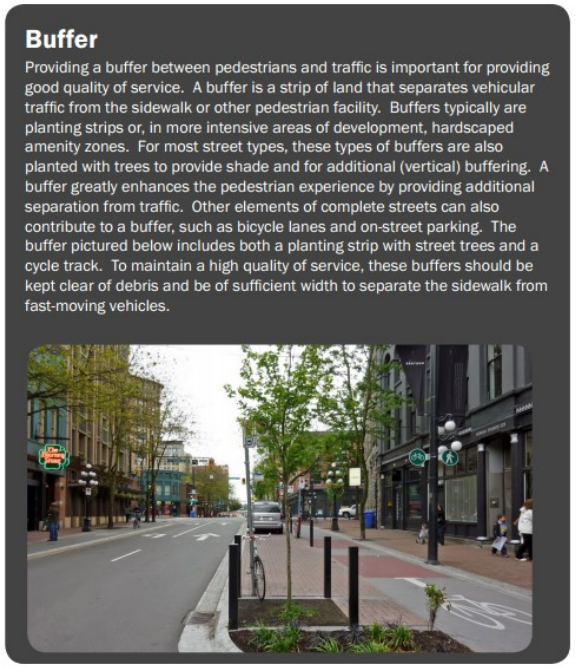
Further, in its role as stewards over the transportation infrastructure, it states NCDOT is committed to:

- Providing an efficient multi-modal transportation network in North Carolina such that the access, mobility, and safety needs of motorists, transit users, bicyclists, and pedestrians of all ages and abilities are safely accommodated;
- Caring for the built and natural environments by promoting sustainable development practices that minimize impacts on natural resources, historic, businesses, residents, scenic and other community values, while also recognizing that transportation improvements have significant potential to contribute to local, regional, and statewide quality of life and economic development objectives;
- Working in partnership with local government agencies, interest groups, and the public to plan, fund, design, construct, and manage complete street networks that

"Complete streets are designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists, and individuals of all ages and capabilities.

- North Carolina Department of Transportation Complete Streets Guidelines





NCDOT's Complete Streets Planning & Design Guidelines include several illustrations on how to build a community for people who walk. The Guidelines also contain conceptual cross-sections that serve as the starting point for project discussions. These Guidelines and associated documents can be accessed via the following site:
http://www.completestreetsnc.org/

Other NCDOT Policies for Reference:

NCDOT Bridge Policy
https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Bridge%20Policy.pdf

NCDOT Pedestrian Policy Guidelines
http://www.ncdot.gov/bikeped/download/bikeped_Ped_Policy.pdf

NCDOT Greenway Policy
http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/bikeped/download/bikeped_laws_Greenway_Admin_Action.pdf

NCDOT Board of Transportation Resolution for Bicycling and Walking
http://www.ncdot.gov/bikeped/download/bikeped_laws_BOT_Mainstreaming_Resolution.pdf

sustain mobility while accommodating walking, biking, and transit opportunities safely.

This policy requires that NCDOT's planners and designers consider and incorporate multi-modal alternatives in the design and improvement of all appropriate transportation projects.

The adoption of Complete Streets policies at the local government level should go beyond design standards like those in the NCDOT Complete Streets guidance and should consider how subdivision, zoning, stormwater management and other ordinances consider the needs of all modes of travel.

Streets should not be deemed "complete" unless the design of the land uses adjacent to those streets is also complete in its consideration of bicycle and pedestrian modes, as it does little to promote use of non-motorized modes to have a bicycle lane or a sidewalk if those users cannot safely reach the front door of a store or business, and park their bicycle, once they leave the street environment. The Town should also pursue policies and design guidance for non-DOT streets and greenways that help connect complete streets to a variety of land use types.

With the passage of the Strategic Transportation Investments law in 2013, NCDOT is prohibited from using state funds for standalone pedestrian and bicyclist projects.

4. Building a System for People who Walk

Developing a list of projects to improve walkability in Forest City is not as simple as identifying where sidewalks exist and where they are missing. Identifying projects that promote walkability is an exercise in identifying destinations or land uses that are most likely to generate pedestrian trips if linked through a network of quality pedestrian facilities.

The concept of "quality" is critical to understand as pedestrians are not a homogenous user of the transportation system; seniors have different needs than adults, as do children. Understanding what constitutes a quality of service for each user type will lead a community down the correct path to identify the proper pedestrian facility and corresponding dimensional needs.

The project recommendations explored for Forest City are a mix of traditional treatments such as sidewalks and greenways along with ideas geared toward addressing places along streets or in parking lots that are of concern based on crash data.

Existing Facilities

Like most downtown areas, Forest City is connected with a sidewalk network that has been in place since downtown took its current form. While the Town may be interested in upgrades to enhance it for pedestrians safety and economic development purposes, the basic elements of facilities for people who walk downtown provide a pleasant environment.

Many of the primary routes whose footprints were established decades ago have sidewalks along one or both sides of the street. These are the routes radiating from the downtown area and reflect sidewalk design qualities from an era where separation from traffic was common and links were provided to neighborhoods. Broadway Street, Main Street, Harmon Street, Clay Street and Old Caroleen Road are a few such places. Most of these sidewalks are still functional but many lack modern curb ramps for better access for people of all ages and abilities, including those with disabilities. Many intersections are in need of updated or new marked crosswalks to provide better visibility for those who walk.

Streets constructed within the past decade begin to reflect new policies and interest by Forest City and NCDOT to better accommodate pedestrians. The new section of Oak Street, Learning Parkway, and the streets around the Florence Mills site are examples. These modern sidewalks are in good shape and have only minor upgrades needed in their design with regard to ADA needs, primarily the curb ramps.

The remaining streets that lack sidewalks were developed in eras where requirements were not as prevalent as they are today. Street segments where adjacent land was

This chapter addresses a variety of project types for people who walk. It is combination of upgrades along corridors like Main Street (above) as well as new sidewalks on streets where projects are a high priority.

Photo: Don Kostelec

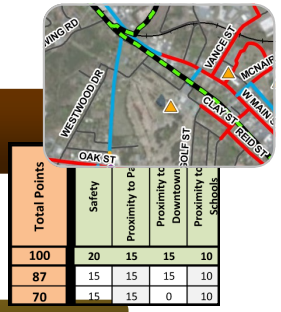
How projects were identified for
Forest City: Heart & Sole

Recommendations from Past Plans

Input via Open House & Survey

Steering Committee & Health Workshop

Consultant Field Review & Input



Total Points	Safety	Proximity to Pa	Proximity to Downtown	Proximity to Schools
100	20	15	15	10
87	15	15	15	10
70	15	15	0	10

Mapping & Project Rankings

Public & Steering Committee Review

Forest City: Heart & Sole

Final Recommendations

annexed into Forest City over the past several decades have not been upgraded to include sidewalks. Many of these streets, especially those with higher volumes of vehicular traffic, were identified through the Land Use Plan and the Pedestrian Plan as those with the highest level of need for walking facilities. A map of existing facilities is shown on the following page (Exhibit 4-1).

Primary Generators & Attractors

Initial input on the plan from Steering Committee members and health professionals focused on the destinations within or near Forest City that should be linked via a network of facilities for people who walk. These generators or attractors of pedestrian activity are:

- Downtown and the Florence Mills site;
- Forest City - Dunbar and Forrest Hunt Elementary Schools;
- McNair Field;
- Callison Recreation Center & Municipal Golf Course;
- Crowe Park;
- Hardin Road Park;
- Shopping areas along the US 74 Bypass and Broadway Street;
- Thomas Jefferson Academy;
- Rutherford Opportunity Center;
- Isothermal Community College; and
- Rutherford County Government complex between Forest City and Spindale.

Overall Recommendations

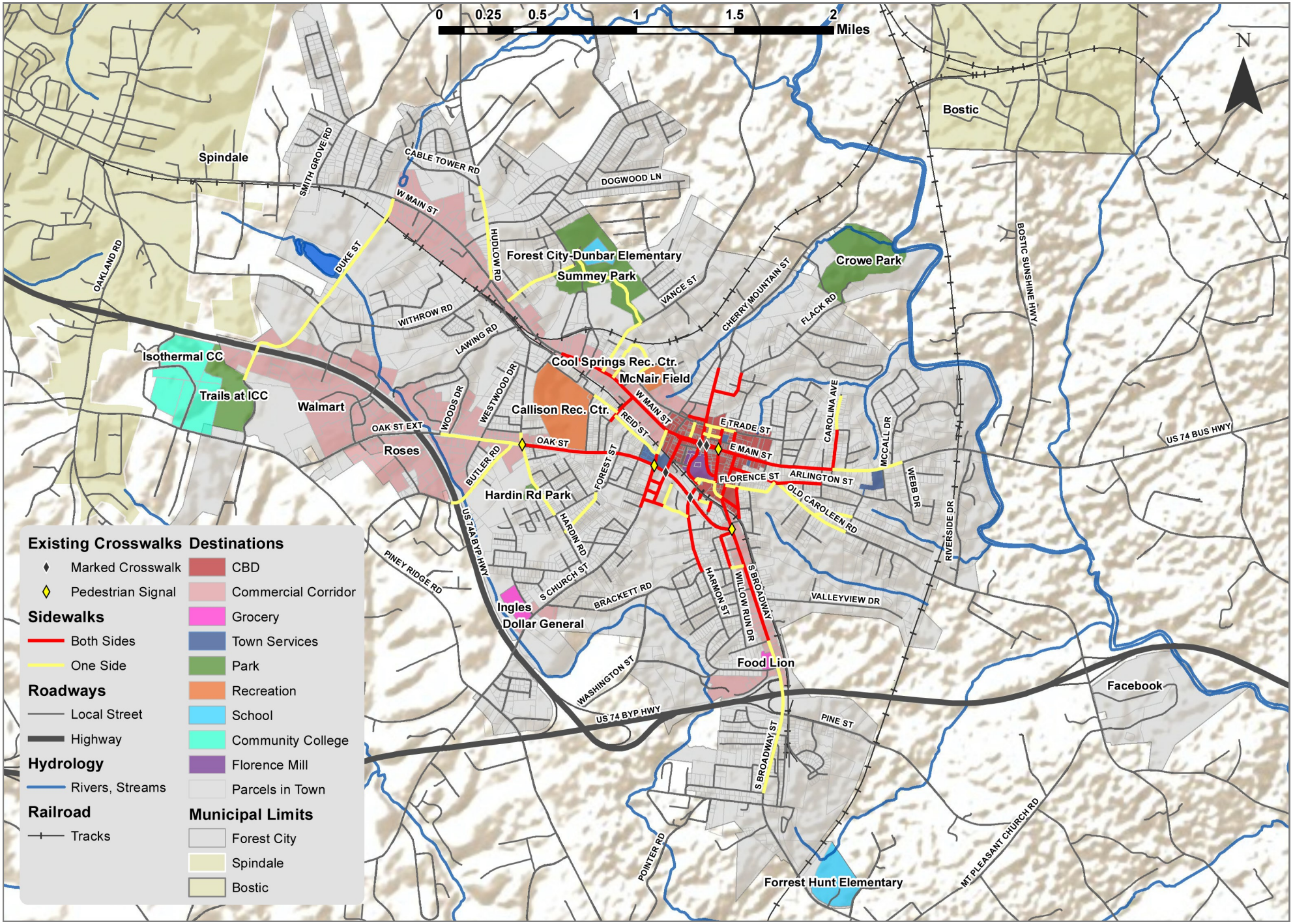
The process of identifying projects for Forest City consisted of:

- Reviewing project recommendations in the Forest City Land Use Plan and Downtown Streetscape project;
- Gathering feedback at the Steering Committee meetings, through public involvement efforts and through the health workshop;
- Conducting field evaluation of walking conditions; and
- Identifying popular destinations and walking routes.

From this input, the projects recommendations contained in this chapter are developed at what is referred to as “planning level,” meaning that they were examined for their relative value and evaluated based on field observations. Detailed right-of-way analysis or design processes were not conducted as part of this Plan, rather those steps will follow as the Town, NCDOT and its partners work toward implementation. The cost estimates contained in this Plan are based on this planning level evaluation and prevailing costs per mile of similar facilities at the time of Plan development.

Exhibit 4-1

Existing Pedestrian Facilities & Activity Centers in Forest City



The Steering Committee met to identify how they would prioritize projects based on weighting of a variety of factors. The average weight placed upon these factors by the Committee was used to develop the ranking process.

Photo: Sealy Chipley

Project Development. To become reality, projects may go through up to four phases depending on their level of complexity.

1. **Feasibility studies** may occur on projects like greenways or streetscape plans to gather more information. This could include a field review by Town staff;
2. Most projects begin with **Design**, which is the surveying, measuring and scoping of the project to produce a set of drawings to define the exact parameters of the projects and the manner in which it can be constructed;
3. **Acquisition of land** may then occur if the project design process indicates additional land is needed; in some cases there may be existing right-of-way to accommodate the project; and
4. Once the project is designed and land has been acquired or is available, the project may then move into the **Construction** phase. A majority of the projects identified in this Plan are at a point they can move into either a design phase or a joint feasibility study / design phase. Depending on the implementing agency, design may be done by in-house staff or can be contracted through a design consultant.

All pedestrian facility recommendations along NCDOT-maintained routes require review by NCDOT Highway Division 13 prior to implementation.

Ranking Projects

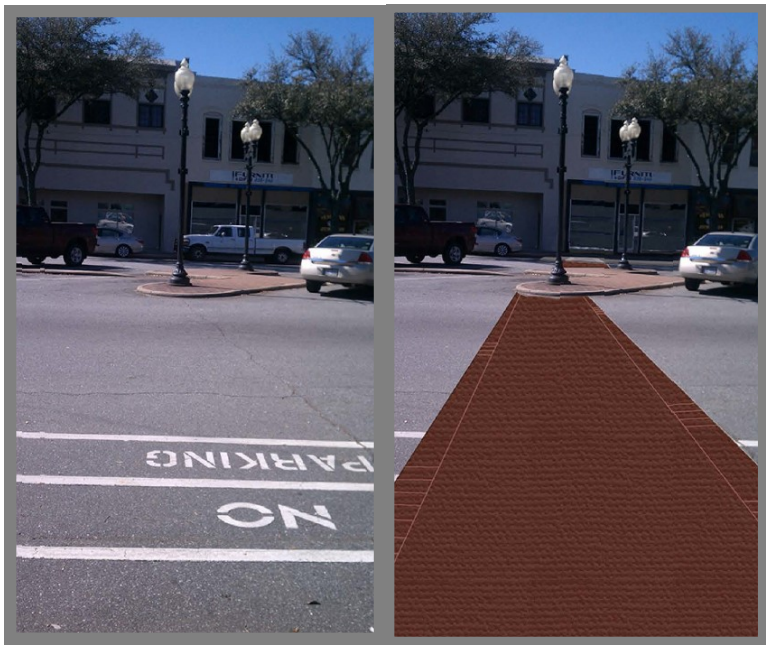
The projects identified through the early stages of the plan were mapped for consideration by the Steering Committee and review by the public at the second Open House meeting. The Steering Committee was convened in January 2015 to identify the criteria by which they wanted to evaluate the projects in order to develop a priority list.

The criteria shown on the following page (Exhibit 4-2) illustrate how projects were scored. The maximum number of points available for each criteria (ranging from 5 points to 20 points) was identified by the Steering Committee. Individual committee members were asked to identify how they would score projects on a matrix of criteria. Their inputs were averaged to then identify the relative weight (reflective in the maximum number of points available) of each criterion.

Projects were scored based on this weighting. At the final Steering Committee meeting, the group was then allowed to assign committee points to projects they saw as a priority or ones where they felt the criteria did not (and could not) address every factor for making it a priority. The consultant team used the outcomes of this ranking process (Exhibit 4-3) to identify the top-10 projects that constitute short-term priorities for Forest City.

Exhibit 4-2: Project Ranking Criteria

Primary Criteria	Possible Points	Secondary Criteria	Possible Points
Safety: Crash data indicate a history of pedestrian crashes along the proposed route (2005-2012 data)	20: Corridor has fatal crashes 15: Corridor has 3 documented crashes 10: Corridor has 2 documented crashes 5: Corridor has 1 documented crash 0: Corridor has no crashes	**Access to Food:** Project will connect major food outlets to neighborhoods.	5: Project is within ¼-mile of a major food outlet (grocery story or farmers market) 3: Project is within ½-mile of a major food outlet (grocery story or farmers market) 1: Project is within ¼-mile of a minor food market (convenience store) 0: Project is beyond these limits.
Proximity to Parks or Natural Areas: Project will connect parks to neighborhoods and other destinations.	15: Project has direct connection or is within ¼-mile of a park 10: Project is within ¼-mile of a park but has no direct connection 5: Project is within ½-mile of a park but has no direct connection 0: Project is beyond ½-mile	**Population in Need:** Project is within a Census Block Group identified as having socioeconomic needs related to income and/or race.	5: Project is within a block group showing need among more than 2 categories 3: Project is within a block group showing need among 2 categories. 1: Project is within a block group showing need in 1 category. 0: Project is not within a block group showing need.
Proximity to Downtown and/or Jobs: Project will connect downtown to neighborhoods and other destinations; or major employment centers.	15: Project has direct connection or is within ¼-mile of downtown 10: Project is within ¼-mile of downtown but has no direct connection 5: Project is within ½-mile of downtown but has no direct connection 0: Project is beyond ½-mile	**Traffic Exposure:** Based on function of the roadway project is along.	5: Project is along or crosses a US highway route 3: Project is along or crosses a state highway or other arterial route 1: Project is along a local street that connects two highways or arterials 0: Project is along a local street that does not connect two highways or arterials.
Proximity to Schools/ Churches: Project will connect a school or churches to neighborhoods and other destinations.	10: Project has direct connection or is within ¼-mile of a school 7: Project is within ¼-mile of a school but has no direct connection 4: Project is within ½-mile of a school but has no direct connection 0: Project is beyond ½-mile	**Identified in Past Plans:** Project was identified in past local or regional plans.	5: Project is identified in 2 or more past plans or in Priority Group A of Land Use Plan. 3: Project is identified in a past plan. 0: Project is not identified in past plans.
Ease of Implementation: Measures the likelihood that project can be easily implemented based on available right-of-way and other constraints.	10: Project has no evident right-of-way constraints or other feasibility issues 7: Project has limited right-of-way constraints or few feasibility issues 4: Project has a right-of-way or feasibility issue but not both 0: Project has major right-of-way constraints or feasibility issues	**Fills Gap in System:** Project will connect to existing facilities by filling the gap between them.	5: Project fills a gap in the existing sidewalk system along a high volume route. 3: Project fills a gap in the system along secondary routes. 0: Project does not address a gap in the system.
Note: *Measurements are approximate. Where measurements were borderline or unclear, the score for a criterion reflects the higher number.*		**Steering Committee Priority:** Points assigned by the steering committee.	Steering committee was asked to assign a score from 1 to 5 for each project. Points assign reflect the average points (rounded) assigned by the steering committee.



The Downtown Streetscape Improvements Plan includes several before (left) and after (right) drawings of ideas for enhancement the downtown walking environment.

Rendering: McGill & Associates

Short-Term Project Priorities

The following pages contain more detailed project profiles for the top-10 projects identified through the project ranking. These top-10 projects are labeled as short term investments because they are the ones Forest City and its partners should seek funding options to implement them over the next one to 10 years.

A shortcoming of any project ranking method is that it cannot assign factors to deal with all project influences in terms of implementation realities related to budgeting, grant availability and unknown factors that can only be determined through project development or design. While Forest City should begin pursuing its top priorities it should not overlook opportunities that arise to fund projects ranked lower on the list of short-term improvements.

It is also important to understand that opportunities for implementation may vary greatly for greenway projects and sidewalk projects. Acquisition of the rail line will be the major determinant in the feasibility of constructing the Thermal Belt Rail Trail through the Town. If this opportunity does not arise, it does not mean that the project should not be the Town's top priority; it simply means that other priorities may be more effectively addressed in the short-term.

Exhibit 4-3 shows the project ranking with the top-10 projects identified as short-term improvements. Estimates include full project estimates (sidewalks plus intersections) Exhibit 4-4 is a map of recommended projects, both short– and long-term. Exhibit 4-5 contains more detailed descriptions and cost estimates for short-term projects, which are inclusive of all known intersection improvements. Note that detailed intersection improvements are unknown due to planning-level evaluation of these projects.

T6

Downtown Focus Area

The Downtown Streetscape Improvements Plan identifies nearly $1 million worth of improvements within and beyond the pedestrian realm. In total, these improvements are intended to promote economic development in the downtown core and create a showcase for walkability in Forest City. There are 23 projects at intersections identified in the Streetscape Improvements Plan. These were incorporated into the ranking methods for this Plan and prioritized as Main Street Streetscape Improvements. These improvements are not specifically identified in the project profiles as this section. Details are available in the streetscape document.

For this plan the consultant team identified those features within the Downtown Streetscape Plan that best aligned with the purpose of the pedestrian plan—primarily sidewalk and crossing upgrades. The collection of these projects is identified in the project ranking exhibit. The Town of Forest City is working to identify the funds for some of these improvements as part of its fiscal year 2015-2016 budget.

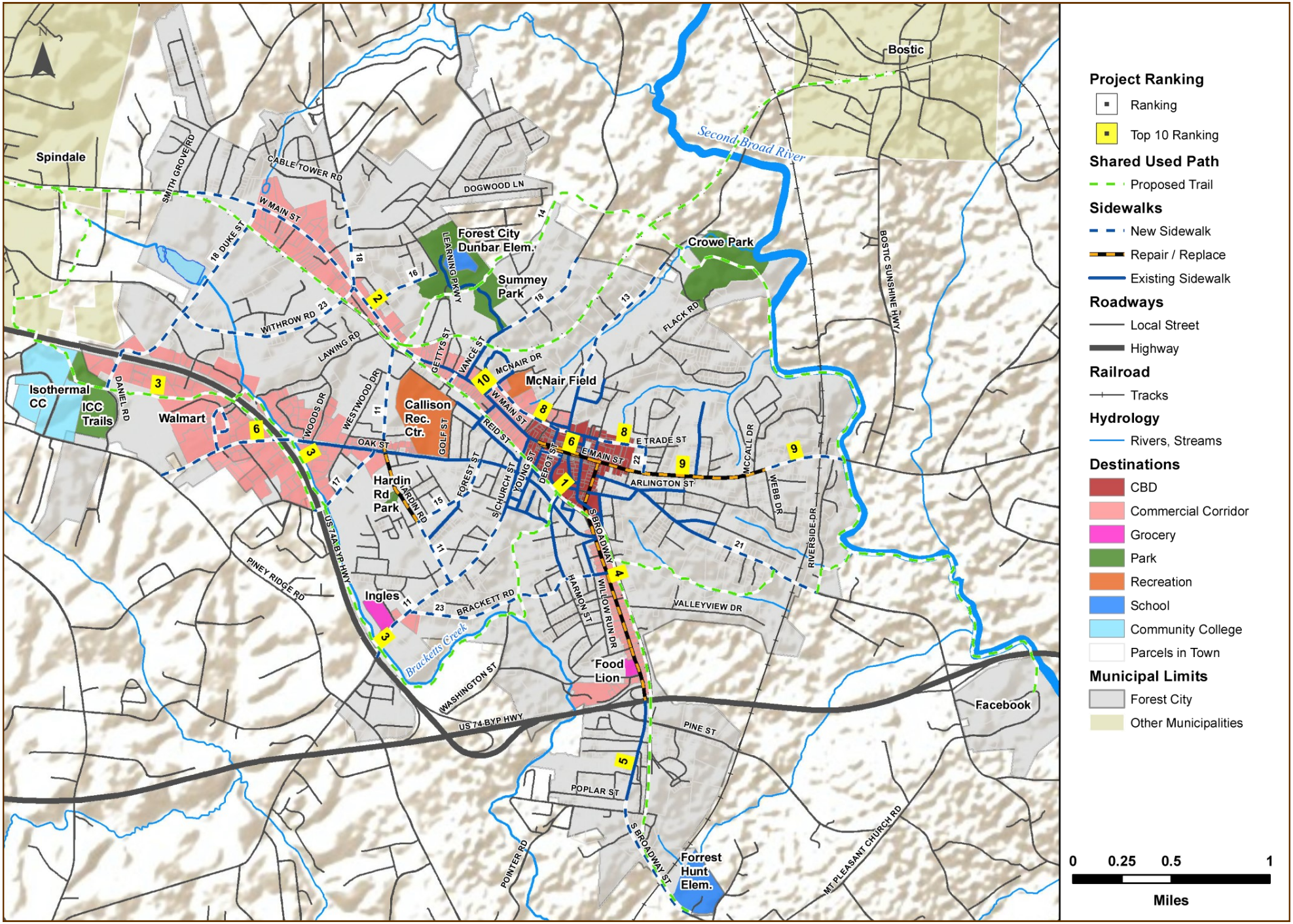
Exhibit 4-3: Project Rankings

The project ranking was developed through input from the Steering Committee about which factors they felt were most important for people who walk in Forest City. The maximum points available for each category was determined by this input and each project was scored on those merits.

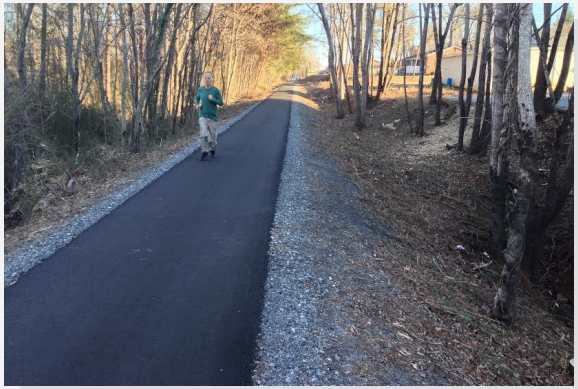
	Project Ranking	Project Name	Estimated Cost	Total Points	Safety	Proximity to Parks	Proximity to Downtown/Jobs	Proximity to Schools/Churches	Ease of Implementation	Access to Food	Population in Need	Traffic Exposure	Identified in Past Plans	Fills Gap in System	Steering Committee Priority
		Maximim Points →		100	20	15	15	10	10	5	5	5	5	5	5
Short-Term Priorities	1	Thermal Belt Rail-Trail, Oakland St to Forest Hunt Dr.	$ 3,000,000	92	15	15	15	10	7	5	5	5	5	5	5
	2	W. Main St, Smith Grove Rd to Gettys St	$ 1,730,000	78	15	10	15	4	10	1	5	5	3	5	5
	3	Bracketts Creek Greenway, Isothermal CC to Church St	$ 1,500,000	73	15	15	0	10	7	5	3	5	5	5	3
	4	Broadway St, Sunnysisde Dr to Main St	$ 120,000	66	15	0	15	7	10	5	5	5	0	0	4
	5	Broadway St, Forest Hunt Dr to Sunnyside Dr	$ 480,000	61	15	0	5	10	10	5	5	5	0	5	1
	6	Oak St, Piney Ridge Rd to US 74 Bypass (north side)	$ 130,000	59	20	0	10	0	4	5	3	5	5	5	2
	6	Main Street Streetscape Improvements	$ 510,000	59	10	10	15	0	10	1	0	5	5	0	3
	8	Trade St, McNair St to Elizabeth St	$ 100,000	58	5	15	15	0	10	1	1	0	5	3	3
	9	E Main St, Broadway St to east Town Limit	$ 420,000	57	10	5	15	4	7	1	1	5	3	5	1
	10	McNair Dr, Main St to Trade St	$ 30,000	53	10	15	10	0	7	1	0	0	5	3	2
Long-Term Priorities	11	Hardin Rd, W. Main St to Church St	$ 680,000	49	10	15	0	0	7	3	5	3	3	3	0
	11	Church St, Spruce St to US 74 Alt	$ 570,000	49	5	5	10	7	4	5	1	1	5	3	3
	13	Cherry Mountain Rd, Main St to Crowe Park Dr	$ 560,000	47	5	15	15	0	4	1	0	0	3	3	1
	14	Parks Greenway, Summey Park to Crowe Park	$ 800,000	44	0	15	0	10	10	0	3	0	3	3	0
	15	Forest St, Hardin Rd to Oak St	$ 270,000	43	10	10	5	0	4	1	5	0	5	3	0
	16	Turner St, Main St to McDaniel St / Dunbar Elementary	$ 260,000	37	0	15	0	10	4	0	5	0	0	3	0
	17	Butler Rd, US 74 Bypass to Oak St	$ 240,000	29	10	5	0	0	4	1	5	1	0	3	0
	18	Duke St/Daniel Rd, W Main St to Isothermal CC Trail Crossing	$ 790,000	24	0	15	0	4	0	0	1	1	0	3	0
	18	Hudlow Rd, W Main St to Cable Tower Rd	$ 270,000	24	5	5	0	0	4	1	3	0	3	3	0
	18	Vance St, Learning Pkwy to Town Limit	$ 370,000	24	5	5	0	4	4	0	0	0	3	3	0
	21	Old Caroleen Rd, Florida Av to Riverside Dr	$ 310,000	22	0	10	0	4	0	0	0	0	3	5	0
	22	Elizabeth Av, E Main St to Trade St	$ 70,000	16	0	5	5	0	0	1	0	0	5	0	0
	23	Brackett Rd/Washington St, S. Church St to Broadway St	$ 560,000	15	0	0	0	0	4	5	2	1	3	0	0
	23	Withrow Dr, Duke St to W Main St	$ 520,000	15	0	5	0	0	4	0	0	0	3	3	0

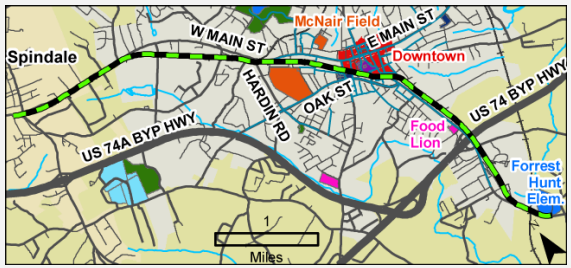
Exhibit 4-4

Project Recommendations



1 Thermal Belt Rail-Trail
Oakland St to Forrest Hunt Dr



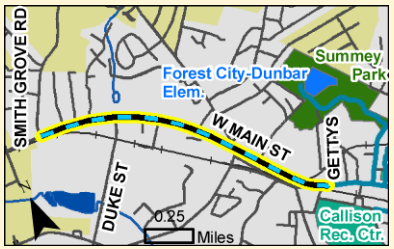


Construct a 10-foot wide (12-foot wide through downtown area) paved multiuse trail along the rail line. The five-mile long pathway would link many destinations within Forest City and is identified as the Town's top overall priority and the project most likely to have the greatest impact on community health.

Influences:
- Existing trail in Spindale
- Downtown & Florence Mills site
- Rutherford County complex
- Callison Recreation Center
- Neighborhoods along the trail
- Forrest Hunt Elementary School

Cost Estimate:	**$3,000,000**
Length:	5.1 miles
Health Impact:	High
Economic Impact:	High

2 West Main Street
Smith Grove Rd to Gettys St



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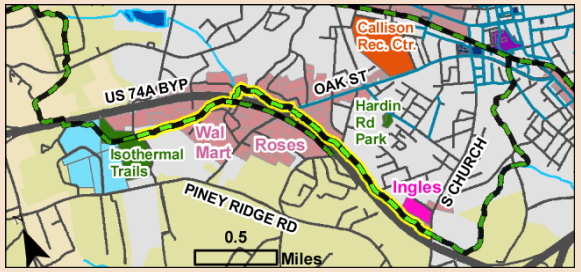
Rural Avenue

Construct a 6-foot wide sidewalk buffered by a five-foot planting strip along both sides of West Main Street (north side preferred if only one side is chosen). Crosswalks and intersection upgrades to modern standards at signals and public streets should be included with this project to facilitate safe crossing of the corridor and connection to the rail-trail. Right-of-way does not appear to be a major constraint.

Influences:
- Busy highway corridor with no sidewalks
- Route has documented crash history
- Neighborhoods west of downtown
- Businesses along West Main Street
- Access to future rail-trail

Cost Estimate:	**$1,730,000**
Length:	1.7 miles
Health Impact:	High
Economic Impact:	Moderate

3 Bracketts Crk Greenway
Isothermal CC to Church St

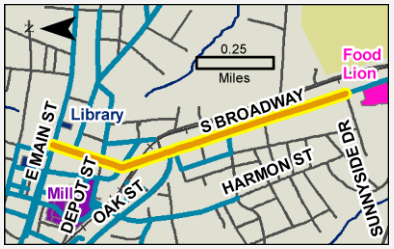


Construct a 10-foot wide paved multiuse trail along existing sewer easements and parallel to the US 74 Bypass. The 2.6-mile trail could extend up to 3.0 miles to connect to downtown and the proposed rail-trail. The pathway could run along the east side of US 74 Bypass to the Oak Street intersection if crossing under or at Plaza Drive is difficult.

Influences:
- Isothermal Community College
- Shopping areas along US 74 Bypass
- Neighborhoods on south side of Town
- Connection to future rail-trail

Cost Estimate:	**$1,500,000**
Length:	2.5 miles
Health Impact:	High
Economic Impact:	High

4 Broadway Street
Sunnyside Dr to Main St



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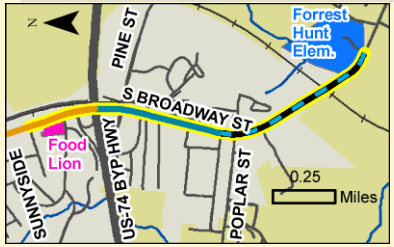
3-lane Urban/ Suburban Blvd

Reconstruct broken sidewalks in combination with curb ramp and driveway upgrades to meet ADA design guidelines. Fill sidewalk gaps, including along parking areas fronting the street. Improve signalized intersections with high visibility crosswalks and pedestrian signals. Intersections include Washington Street and Oak Street. Space constraints may require modified design of ramps.

Influences:
- High crash location
- Downtown access
- Shopping areas along the route
- Grocery store access
- Neighborhoods along the route
- Forrest Hunt Elementary School

Cost Estimate:	**$120,000**
Length:	1.0 miles
Health Impact:	Moderate
Economic Impact:	Moderate

5 Broadway Street
Forrest Hunt to Sunnyside



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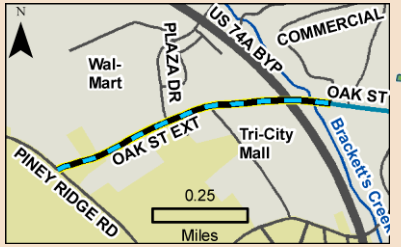
3-lane Urban/ Suburban Blvd

Improve Wells Dr crossings to allow pedestrians to cross from west to east side in to access overpass. Improve crossings at Pine St for better visibility at off-ramps. Construct sidewalks along route to Forrest Hunt Dr. Upgrade curb ramps and driveways where sidewalks already exist and fix broken sidewalks. Identify locations for mid-block crossings at or near the schools.

Influences:
- High crash location
- Lack of crossings north and south of interchange
- Shopping areas along the route
- Neighborhoods along the route
- 3 public/private/charter schools

Cost Estimate:	**$480,000**
Length:	1.5 miles
Health Impact:	High
Economic Impact:	High

T6 Oak Street
Piney Ridge Rd to US 74-Byp



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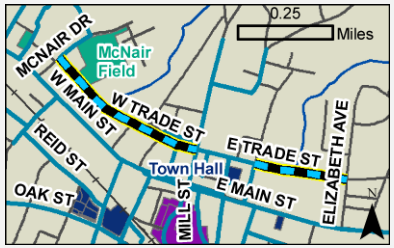
Rural Road

Construct a 5-foot wide sidewalk buffered by a five-foot planting strip (north side preferred to connect to existing sidewalks near shopping areas) with project U-5833. Consider rural cross section to avoid curb/gutter costs and other constraints. Crosswalks and intersection upgrades should be included to facilitate crossing of the corridor at key intersections and entrance to shopping areas.

Influences:
- Area shopping and employment
- Future Bracketts Creek greenway connection
- Access to Oak Street corridor east of Bypass

Cost Estimate:	**$130,000**
Length:	0.6 miles
Health Impact:	Moderate
Economic Impact:	High

8 Trade Street
McNair St to Elizabeth St



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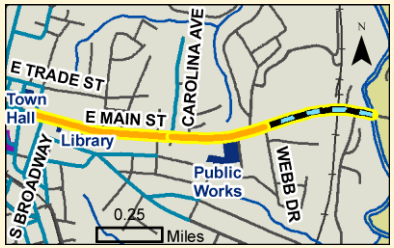
Urban/ Suburban Main Street

Fill sidewalk gaps and reconstruct sidewalks with buffer where feasible. Upgrade crossing treatments at intersections to include pedestrian signals and crosswalks at signalized intersections and crosswalks at unsignalized locations of all public street intersections. Install new curb ramps. Right-of-way and existing structure are a constraint that may require narrower sidewalks in some sections.

Influences:
- Downtown
- Neighborhoods to north and east
- McNair Field
- Town Hall

Cost Estimate:	**$100,000**
Length:	0.9 miles
Health Impact:	Moderate
Economic Impact:	High

9 East Main Street
Broadway St to Town Limit



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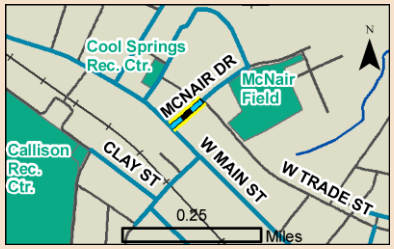
Rural Village Main Street

Construct new sidewalks to fill gaps and replace broken sidewalks along 1.3 mile section east of downtown. Install crosswalk/signal at Broadway. Utility pole locations suggest there is existing right-of-way to accommodate sidewalks. The railroad overpass is a major constraint and would require shortening of left turn lane at entrance to Nu Way Packing Road to fit under the bridge.

Influences:
- Downtown access
- Crash history
- Rutherford Opportunity Center nearby
- Neighborhoods along the route
- Future greenway along the river

Cost Estimate:	**$420,000**
Length:	1.3 miles
Health Impact:	Moderate
Economic Impact:	Low

10 McNair Drive
Main St to Trade St



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Rural Village Main Street

Construct a new 6-foot wide sidewalk with 2-foot buffer (as space allows) along east side to fill this one-block gap in the sidewalk that would link Main Street to McNair Field. Project would provide an upgrade to the edge of the parking lot for the business at that location.

Influences:
- McNair Field
- Downtown
- Fills gap in system to population destination
- Provides a segment between McNair Field and future rail-trail.

Cost Estimate:	**$30,000**
Length:	0.1 miles
Health Impact:	Low
Economic Impact:	Moderate

Long-Term Project Priorities

Fourteen long-term projects were identified through planning process in addition to the 10 short-term projects. These were identified as long-term due to their ranking. It is generally anticipated these projects could be constructed beyond a 10-year timeframe. Exhibit 4-6 includes a brief summary of these projects and cost estimates.

Forest City should continue to seek opportunities to construct these projects or require any new development along them to install sidewalks in anticipation of a future full-length project along these routes. The construction of the greenways and rail-trail projects may influence these projects.

In general these projects ranked lower because they were along routes with fewer influences or destinations and lower traffic volumes.

Exhibit 4-6: Long-Term Project Recommendations (in Priority Order)

Project / Cost Estimate	Description	Project / Cost Estimate	Description
Hardin Rd, W Main St to Church St ($680,000; 1.3 miles)	Construct a 6-foot wide sidewalk buffered by a five-foot planting strip (west side preferred if only one side is chosen).	**Duke St/Daniel Rd, W Main St to Isothermal CC Crossing** ($790,000; 1.5 miles)	Construct sidewalks along one side. Will link future greenway to rail-trail and Main Street. US 74 is a major crossing.
Cherry Mtn Rd, Main St to Crowe Park Dr ($560,000; 1.1 miles)	Construct sidewalks along one side (west side seems most suitable). Will link future greenway to neighborhoods and shopping.	**Hudlow Rd, W Main St to Cable Tower Rd** ($270,000; 0.5 miles)	Construct sidewalks along one side; may be detached with drainage swale between road and pathway.
Church St, Spruce St to US 74 Alternate ($570,000; 1.1 miles)	Construct sidewalks on east side (due to US 74 approach) of the street to connect to Crowe Park.	**Vance St, Learning Pkwy to Town Limit** ($370,000; 0.7 miles)	Construct sidewalks along west side to link residential areas north of school entrance road. Links to future Parks Greenway crossing.
Parks Greenway, Summey Park to Crowe Park ($800,000; 1.3 miles)	Construct multiuse trail along existing easements and access roads between the two parks.	**Old Caroleen Rd, Florida Av to Riverside Dr** ($310,000; 0.6 miles)	Construct/replace sidewalks along south side to town limits. Explore ways to connect via pathway to future greenway along the river.
Forest St, Hardin Rd to Oak St ($270,000; 0.5 miles)	Construct sidewalks on one side of the street. There may be major constraints due to narrow road width and utilities.	**Elizabeth Av, E Main St to Trade St** ($70,000; 0.1 miles)	Construct sidewalk along east side to connect neighborhood to East Main Street and Trade Street. Church sidewalks are offset from street.
Turner St, Main St to McDaniel St / Dunbar Elem ($260,000; 0.5 miles)	Construct sidewalks on one side with connection to school property and track. Will provide future rail-trail to school connection.	**Brackett Rd/Washington St, Church St to Broadway St** ($560,000; 1.1 miles)	Construct sidewalk along one side of road to connect neighborhoods and nearby shopping areas as well as future trails.
Butler Rd, US 74 Bypass to Oak St ($240,000; 0.4 miles)	Construct sidewalks along one side. Will link future greenway to neighborhoods and shopping.	**Withrow Dr, Duke St to W Main St** ($520,000; 1.0 miles)	Construct sidewalk along one side of the street to link to future rail-trail.

Special Project

Oak Street - US 74 Bypass to Broadway Avenue

Oak Street (SR 2241) represents a category of roadway that typically presents both safety and accessibility problems for pedestrians. Facilities like Oak Street act as a barrier for pedestrians, causing people not to take trips or to use a car for short, otherwise walkable, trips in order to avoid having to cross the road on foot. Additionally, because of the high average speed of vehicles on Oak Street, any crash that does occur there is more likely to be fatal than a crash on a local street.

This is identified as a "special project" because we recognize many of the facilities along it are new and addressing existing and emerging issues will require a detailed level of analysis by NCDOT to correct deficiencies in the roadways overall design. This will require approaches and funding sources beyond the normal scope of what is identified in a pedestrian plan.

Oak Street was constructed with some facilities for pedestrians. There are sidewalks on both sides of the corridor from South Broadway Street (Alt 221) to Hardin Road, and there are some crosswalk markings and pedestrian signals. Intersections create a number of potential conflict points where existing marked crosswalks may even give pedestrians a false sense of security. The intersections at Harmon and Young Streets have marked crosswalks but no traffic signals. NCDOT's Traffic Survey Unit observed a volume of approximately 11,000 vehicles per day (AADT) on Oak Street just east of Church Street in 2013.

The Federal Highway Administration's (FHWA) publication, *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines* (2005) discourages the use of marked crosswalks without additional pedestrian safety measures (including signals, signage, and traffic calming such as bulbouts or median pedestrian refuges). Oak Street does not conform to these Guidelines.

FHWA recommends using additional treatments with unsignalized marked crosswalks on similar roadways with volumes of 9,000 to 11,000 vehicles per day. These recommendations are based on studies of driver compliance with crosswalk laws at selected unsignalized crosswalks. The guidelines also advise against the use of marked, unprotected crosswalks on any facility with a speed limit of 40 mph or higher. The current speed limit on Oak Street is 45 mph.

Pedestrians wishing to cross Oak Street at Harmon Street are subject to a crosswalk that is 150-feet long across six lanes of traffic—the widest section along the entire stretch of Oak Street. There is no protection for pedestrian or measures to slow vehicle speeds. This route connects housing to the south to downtown and Florence Mills site. *Photo: Don Kostelec*

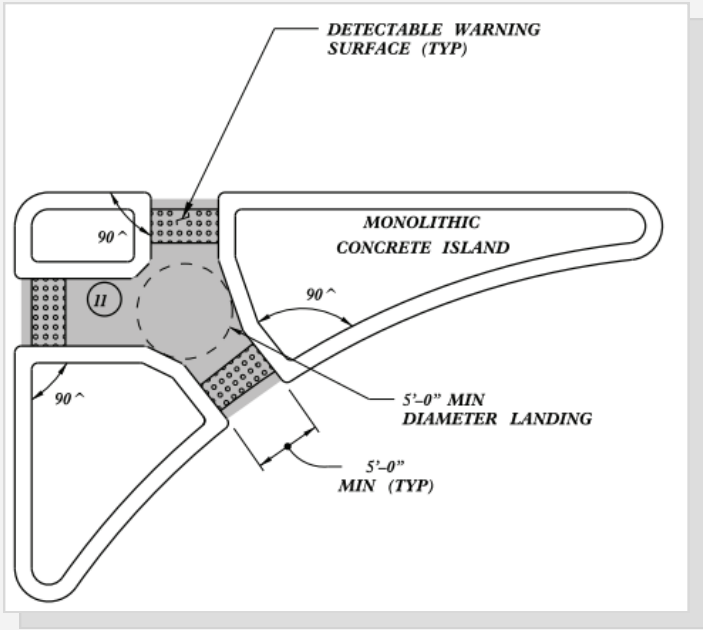
Recommendations for Existing Intersections

- **Short term:** NCDOT could consider marking corner islands with thermoplastic markings and tubular delineators. These will create slip lanes for motor traffic and pedestrian refuges with shorter crossing distances for pedestrians. Pedestrian refuge areas could be placed in the center lane by restriping Oak Street with narrower lanes.
- **Long term:** Replace the "marked" islands with concrete islands with either cut-through (lower cost and usually more comfortable) or ramped paths (may be needed for drainage reasons). Request evaluation for NCDOT Highway Safety Improvement funds due to the fatalities along the route.

Oak Street - US 74 Bypass to Broadway Avenue

Other recommendations to consider along Oak Street include:

- **Broadway St**: Reduce curb radius or install channelized islands to discourage high speed turning traffic and reduce pedestrian crossing distance.
- **Liberty St**: Due to the curvature of Oak and Liberty Streets and wide turning radii at intersections, there are potential visibility problems at crosswalks. Extending curbs to reduce turning radii could improve safety and would allow for flat landings to bring the curb ramps into compliance with ADA standards
- **Harmon St**: This crossing is a substantial distance from the signalized intersections at Broadway and Church. Crosswalks are marked in all four legs of the intersection, but there is no other traffic control. FHWA recommends additional protections for pedestrians at such a crossing. The geometry of this intersection also poses a challenge for pedestrians. If signalized, a realignment to calm traffic, improve sight lines, and shorten the pedestrian crossing distance should be explored. As an interim measure, signage could alert drivers to upcoming marked crosswalks and reminding them of their duty to yield to pedestrians.
- **Young St:** Young Street has uncontrolled marked crosswalks on all four legs. The crosswalk across Young Street on the south leg of the intersection is unnecessarily diagonal and could benefit from realignment to minimize crossing distance and alleviate potential confusion for visually impaired pedestrians. This intersection could also benefit from replacing the parallel crosswalk markings with ladder markings to improve visibility.
- **Church St:** The crosswalk markings could be replaced with higher visibility treatments. Additional signage to alert motorists to the presence of pedestrians can be added and a longer term project might include squaring off the corners to shorten crossing distance and provide curb ramps with ADA-compliant landings.
- **McArthur Street to Golf Street, including Forest St.:** Intersections in this section have ramps behind the stop bars, meaning a motorist waiting for a clearance would obstruct the crosswalk. Placement of curb ramps and stop bars should be evaluated.
- **Hardin Rd:** Align crosswalks with continuous path for better visibility. Add refuge islands and install accessible pedestrian buttons. Evaluate signal timing to allow for crossing of older residents who live south of Oak Street and access the store.



Channelized island, like those shown above from design details from NCDOT's Standard Drawings, should be considered at intersections along Oak Street to reduce pedestrian exposure to long crossing distances and unprotected crossings.

Recommendations for Roadway Reconfiguration

- **Short term:** Reducing the speed of vehicles on Oak Street should be a key component of a pedestrian-friendly traffic calming strategy. Lowering the speed limit to 35 mph is recommended, but speed limit signs do little to actually influence driver behavior.
- **Long term:** Consideration should be given to narrowing travel lanes on Oak Street and adding bicycle lanes to promote a more multi-modal environment, as well as to adding a landscaped median (or enhancing existing landscaped medians) to all or parts of the corridor.

Intersection Improvements

Intersections present many challenges to constructing standalone pedestrian safety projects, especially if no sidewalks are present. Right-of-way constraints are a primary factor in intersection improvement if there are no sidewalks as oftentimes these properties are developed close to the intersection.

Intersection upgrades can take many forms, but primarily consist of sidewalks, curb ramps, crosswalks, and audible pedestrian signals. Other features may include channelized islands, median refuge islands and bus stop pads and shelters. A combination of these features must be included when full-length sidewalk projects are constructed and impact an intersection.

Forest City should work with NCDOT to identify intersection upgrades where necessary and already connected to existing sidewalks along state-managed routes. An example of this is the crosswalks and pedestrian signals at the intersection of Oak Street and US 74 Bypass that were installed in 2014.

There are three main corridors identified in this pedestrian plan for intersection upgrades. Oak Street, Broadway Street and Main Street represent the areas of Forest City where there is a combination of the highest pedestrian volumes and highest vehicular traffic volumes.

Where these two modes conflict is at intersections, which is a contributor to the pedestrian crashes along these routes. The short-term projects identified earlier in this chapter outline recommendations for Broadway and Main Street. Details on Oak Street are outlined in the next section.

Exhibit 4-7 includes recommendations for intersection along other streets. Exhibit 4-8 is a map of recommended intersection improvements.

Exhibit 4-7: Intersection Recommendations

Project / Cost Estimate	Description
Hardin Rd at Forest St ($5,000)	Complete sidewalk link from mortuary to corner, mark crosswalk on north leg of intersection across Hardin.
US 74 Bypass at Church St ($110,000)	Install channelized islands for refuges with pedestrian signals and crosswalks. Evaluate elimination of 3rd northbound through lane.
W Main Street at Withrow St/ Hudlow St ($36,000)	Add pedestrian signals to existing signal and add crosswalks with curb ramps and landing area.
Arlington St at Old Caroleen Rd ($10,000)	Stripe high visibility crosswalks and curb ramps in line with sidewalks along with appropriate signage.
Depot St at Farmer's Market ($40,000)	Install stamped asphalt crosswalk with landscaping and lighting. (Estimate per Streetscape Plan)
Cherry Mountain St at Blanton Alley ($12,000)	Install stamped asphalt crosswalks and curb ramps.
Broadway St and US 74 interchange ($55,000)	Upgrade existing sidewalks with buffers. On bridge consider plastic posts (e.g. modular lane separators) to shy traffic away from 4-

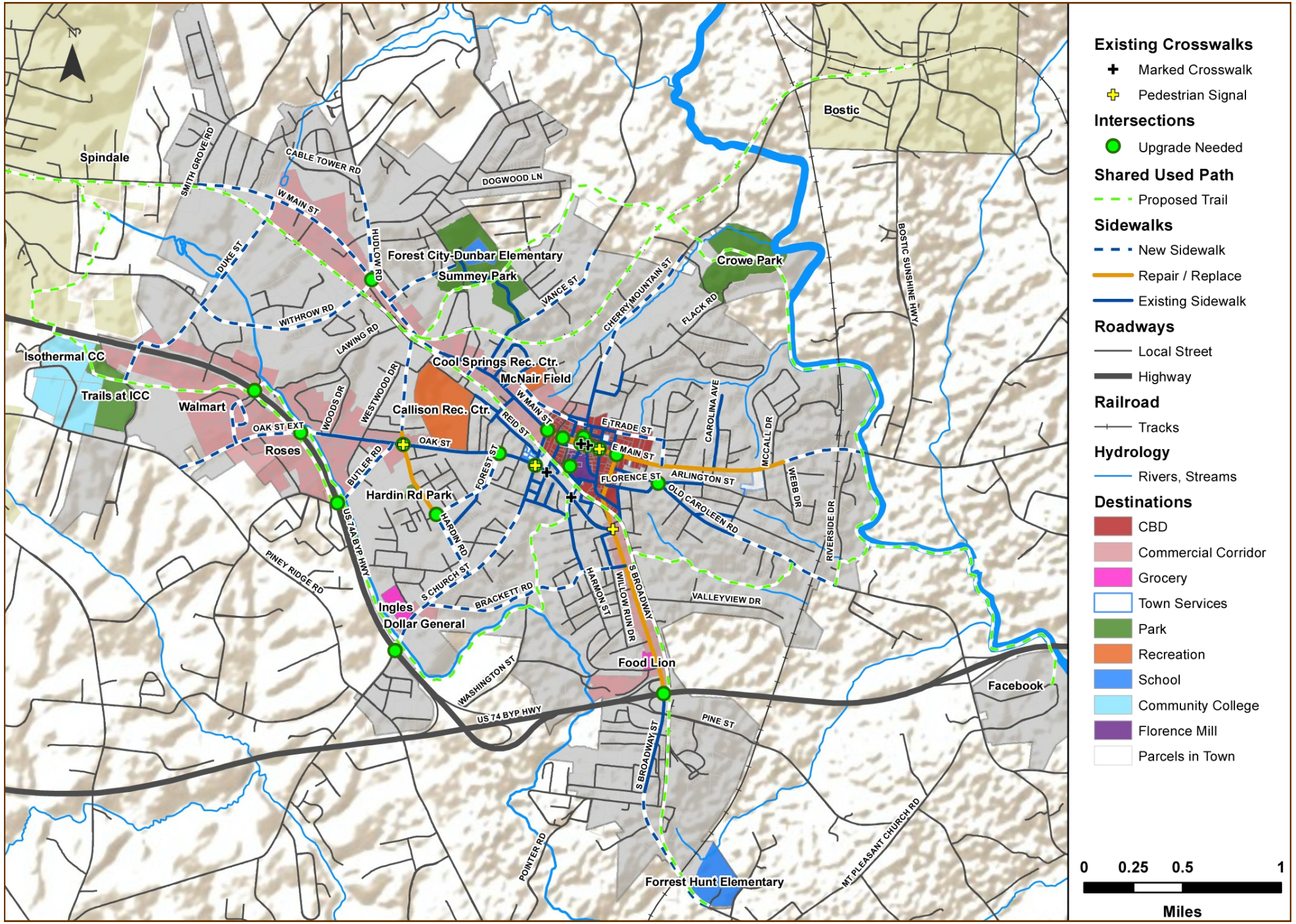
Greenways

Forest City: Heart & Sole proposes more than 15 miles of greenways throughout the town on the rail line and along the river. It is an ambitious goal and includes creating both a complete outer greenway loop of the town and a cross-town connector via an extended Thermal Belt Rail Trail. The sidewalk system would ultimately connect to these major greenway corridors providing a comprehensive pedestrian network to and from all sections of the town.

This system, once complete, will make Forest City a role model for small town greenway systems. The system, in combination with the sidewalk network, will essentially allow any Forest City resident the ability to travel throughout and town and to key des-

Exhibit 4-8

Intersection & Crossing Recommendations



tinations like Isothermal Community College without using a vehicle. The length of the system combined with the connectivity to other trails in the area like the existing Thermal Belt Rail Trail will make Forest City a destination solely for the greenways. Visitors will be attracted to the area and the system will be a key recruiting and retention tool to businesses and residents.

Some guiding principles for the greenway system include:

- Think long-term and have a vision for a connected, paved system for transportation and recreation
- Continually garner community support
- Use on-road and sidewalk connections until complete system is built
- Do not use eminent domain
- Be creative with the routing, don't get stuck on one route if barriers exist
- Always be building, have an active project each year until finished
- Maintain the system, build in maintenance to the town budget and cultivate volunteers; and
- Aggressively seek grants and funding partners.

It will take years to fully complete the greenway system, some components of which will be beyond the life of this plan. The Thermal Belt Rail Trail, Bracketts Creek Greenway and Parks Greenway are included in the detailed short– and long-term project lists. The greenway along the river is mapped but considered a longer term objective for purposes of this pedestrian plan. Much of it falls outside existing town limits.

Top Priority: Thermal Belt Rail Trail. The current Thermal Belt Rail Trail extends from the Oak Springs Road in the community of Gilkey to Oakland Road in Spindale. It is nearly 8 miles long. The trail is between 6-8 feet wide and includes a newly paved 1.8-mile section in Spindale. The remainder of the trail is gravel. Improvements to the trail are planned for early 2015 including new compacted gravel and a 0.5 mile extension of the paved section.

Extension of the rail trail into Forest City was the number one request of respondents to the survey included in this plan. This is the 'game-changer' project for Forest City for its greenway vision. The excitement around the current rail trail is large and growing with exponential increase in use on the newly paved section. Continuing the pavement into Forest City would start a new era of community to community connected greenways.

Extension of the Thermal Belt Rail Trail from its current terminus in Spindale through Forest City was the number one priority of the public through input at meetings and the survey. It is also the top-ranked priority for Forest City through the project ranking methodology.

Photo: Jerry Stensland

The width of a greenway is important to consider based on location and anticipated usage. Communities that build only 10-foot wide greenways in high traffic areas soon find they require more space. A 12-foot wide trail is recommended through the heart of Forest City and could taper to a 10-foot wide trail as it leaves the downtown core. *Photo: Don Kostelec*

The benefits of such a long trail (14 miles) are substantial as it essentially connects five communities (Gilkey, Ruth, Rutherfordton, Spindale & Forest City). The trail instantly becomes a haven for recreation and transportation and would be heavily used due to its visibility and easy accessibility from many of Forest City's neighborhoods and downtown. The railroad grade makes it also easy to use as there are no significant hills.

Feasibility. The railroad corridor is not currently available to be converted to a trail. It is considered an active rail line though it has not seen any commercial use in at least four years. The line is currently owned by Rutherford Railroad Development Corporation which has an agreement with Thermal Belt Railways to operate it as a railroad. Rutherford Railroad has stated in informal talks they may be interested in converting the line to a trail in the future but are currently pursuing new railroad customers.

For the sake of the economic health of the town and the county, the maximum benefit comes with exhausting all possibilities to use the corridor for its original purpose. The intent of including the rail trail option in this plan is to ensure strong community support and preliminary planning for a quick conversion to a trail should the opportunity arise. It gives the railroad corridor owners a viable alternative that will also positively impact the community. The existing Thermal Belt Rail Trail serves as a direct model as to how to convert the corridor to a trail.

ADA Upgrades

The age of many of the existing sidewalks in Forest City means that intersection treatments and driveways do not comply with modern requirements established under the Americans with Disabilities Act (ADA) and the Public Right-of-Way Accessibility Guidelines. Forest City should consider an annual allocation to upgrading curb ramps along roadways that have sidewalks.

If Forest City or NCDOT resurfaces a street or intersection, ADA requires new curb ramps to be installed to meet modern accessibility requirements (Note: Even if there is an existing curb ramp there is good chance they do not meet the modern standards and should be upgraded with the resurfacing project; Oak Street is an example where some ramps do not meet ADA requirements due to a lack of flat landing areas and detectable warnings).

The town may obtain the list of planned resurfacing projects by NCDOT Division 13 at this link: https://connect.ncdot.gov/resources/Asset-Management/Pages/HMIPDIV.aspx

Maintenance Program

Sidewalks and greenways are only as functional as a municipalities ability to maintain them. Older sidewalks throughout Forest City show how well sidewalks can stand the test of time as many are still functional and have few areas where they are in complete disrepair.

Forest City could allocate a dedicated annual fund for maintenance upgrades to sidewalks with an emphasis on primary walking routes. This can include sidewalk replacement, updating driveway crossings and building sidewalks through the edge of parking lots where old sidewalks were allowed to be replaced with asphalt.

Maintenance needs along future greenways will emerge roughly 10 years after construction as the integrity of an asphalt surface erodes much faster than concrete. Root heaves, encroachment of foliage and stormwater runoff all impact the amount of maintenance necessary on a greenway.

Walmart & Shopping Mall Area

Several pedestrian crashes have occurred in the Walmart parking lot based on the data provided by NCDOT. This indicates there are conflicts in how motorists and pedestrians react to one another in the parking lot. Forest City could seek ways to remedy these concerns by talking with the owners of the shopping center and pointing out the findings from the pedestrian plan. The UDO now requires walkways but it is always a challenge with development to properly orient them to anticipated walk routes and ensure they connect to on-street facilities.

At minimum there should be a walking path from nearby sidewalks on side streets to the front door of the Walmart. The next priority would be the construction of a walking path through the parking lot (as shown at left) or striping a walking lane in the parking lot to better channel pedestrians and make them more visible to motorists.

Isothermal Community College Multiuse Trail

The Community College campus is outside the town limits but future greenways planned for Forest City will link to existing nature trails on the college's property. Forest City can encourage the college and other municipalities to work to provide a system of paved multiuse trails on and around the campus to serve area residents. At minimum, a paved trail from Daniel Road to the reservoir could be constructed to provide access to this amenity.

Cities can enact policies to require big box development to provider accommodations for pedestrians through parking lots. This example shows a center median route leading to the front door of the store. Such developments should have a route from the nearest street.

Photo: Don Kostelec

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5. Designing for People who Walk

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, Forest City should be able to create a built environment that will promote walking and increase the number of pedestrians in the Town.

This section is intended to be a general reference for sidewalk and pedestrian facilities as well as a guide for various "Best Practices" that apply to special pedestrian situations. This section is not exhaustive but rather it refers to various national and state guidelines to respond to specific situations that may arise in Forest City.

Currently, the Town has few standards for pedestrian facilities – sidewalks, crosswalks, and other pedestrian-related amenities are constructed on an ad-hoc, as-needed basis. This section of the Plan is important because it provides a consistent set of guidelines within Forest City to help ensure that safety and accessibility goals are realized and clear expectations are set for drivers and pedestrians.

Design standards are constantly changing and evolving, so it is recommended that the Town confer with NCDOT and various national resources guides (included on the final page of this chapter) whenever embarking on new facilities.

There are many subtle elements and design dimensions, such as the slope of ramps and sidewalk width, that are critically important to people of all ages and abilities. Unfortunately, there is no single design manual to reference, which makes it difficult for designers and practitioners to wade through the various standards.

Photo: Don Kostelec

Design Guidance

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

- NCDOT Roadway Standard Drawings (2012);
- NCDOT Complete Streets Planning and Design Guidelines (2012)
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004);
- Manual on Uniform Traffic Control Devices (MUTCD);
- US Access Board Guidelines for Pedestrians Facilities in Public Right-of-Way (2011); and
- Numerous Federal Highway Administration publications.

It is best for Forest City to refer to these design publications when special conditions arise in the design of projects. Every effort should be made to address the requirements, particularly those concerning ADA, to maximum extent possible even if it means additional right-of-way or construction is needed.

Sidewalks

The typical sidewalk is least five feet in width, made of concrete, and placed along roadways at least three feet behind the curbline (a 5' buffer 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.

Exhibit 5-1: Operating width & clearance requirements for people who walk

User Type	Surface Width (feet)	Clearance Required (feet)
Pedestrian using a walker	3	4
Tourist with wheeled luggage	3	4
Wheelchair user	3	4
Jogger	3	5
Parent walking with child in hand	4	6
Romantic couple walking arm-in-arm	4	5
Business colleagues walking side-by-side	5	6
Wheelchair user with assistance dog or pet	5	7
Two parents side-by-side with strollers	6	7
Wheelchair user on a date with somebody using a walker	6	8

Exhibit 5-1 shows the operating characteristics of a pedestrian. The downside of a typical 5-foot sidewalk is that it barely allows for enough width for two people to walk side by side or comfortably pass when considering clearance width. Sidewalks should fit the design characteristics of the area in which they are constructed and designers should recognize when more width is required.

Additional design considerations for on-street sidewalk facilities are:

- 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.

In general, standard sidewalks should be concrete, which is more durable than asphalt. 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.

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 ADA such that cross-slopes should not exceed 2 percent, and preferably not exceed 1.5 percent where possible.

Curb Ramps

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.

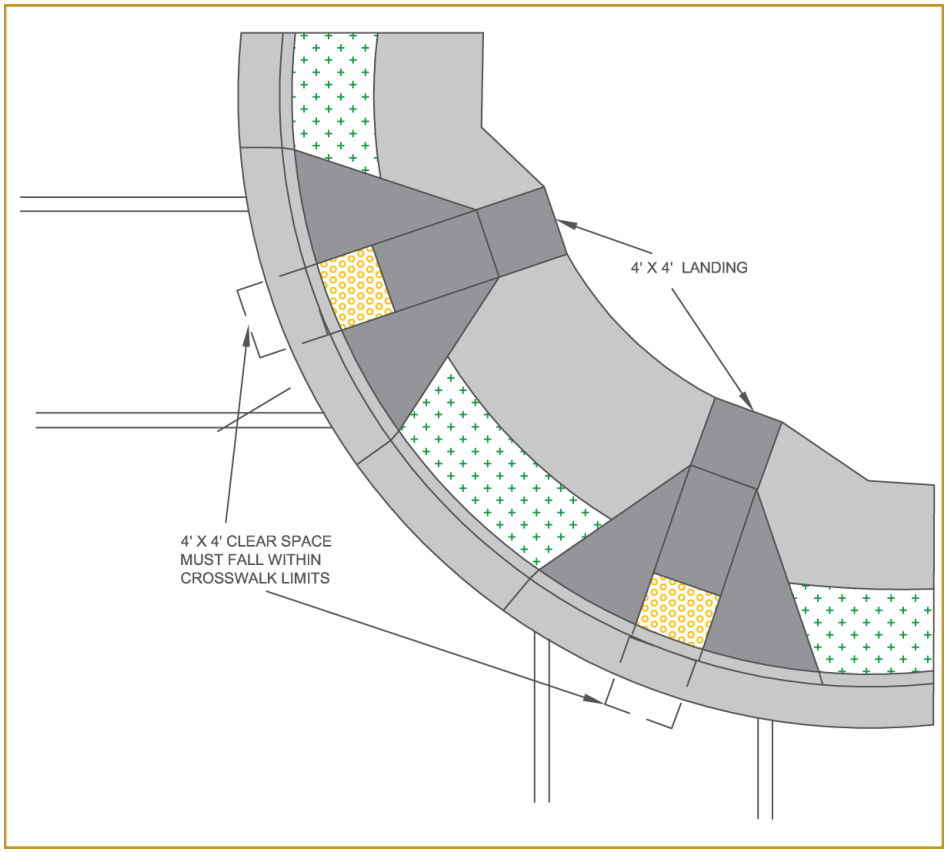
Curb ramps should not have a running slope greater than 1:12, meaning that for every foot of travel, the slope should not rise more than one inch. To provide a tactile warning to the visually impaired, raised truncated domes with a color contrast to the background material (typically concrete) should be used. The ADA Accessibility Guidelines for Buildings and Facilities 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.

Curb ramps are also required to have a 4-foot by 4-foot flat landing (no greater than 2 percent cross slope in either direction) area at the top of the ramp to allow people who walk to orient themselves. In some cases, the 4x4 landing may be accommodated at the bottom throat of the ramp.

This is a design requirement that is noted in NCDOT's design standards for wheelchair ramps, 2012 Roadway Standards Drawings 848.05 and 848.06 (Exhibit 5-2). NCDOT's website for Roadway Standard Drawings also includes four different alternative curb ramp designs intended to help communities meet ADA requirements in a variety of constrained situations (Exhibit 5-3).

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.

Exhibit 5-2: Standard Drawing for Curb Ramp (NCDOT 848.05)



The presence of a 4'x4' flat landing and ADA-compliance entry slopes within the footprint of a curb ramp are the most critical element of designing for people of all ages and abilities. This is where the sidewalk meets the street and where pedestrians must orient themselves to the street crossing.

Rendering: J.M. Teague Engineering

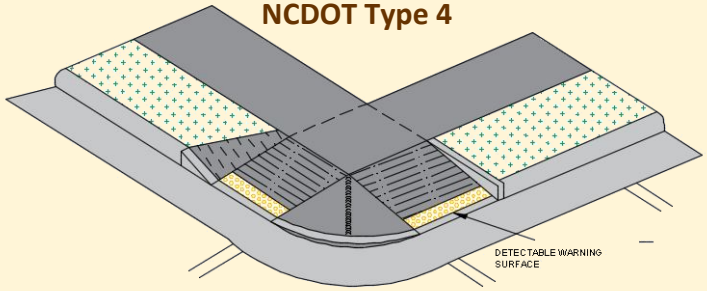
Crossings

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.

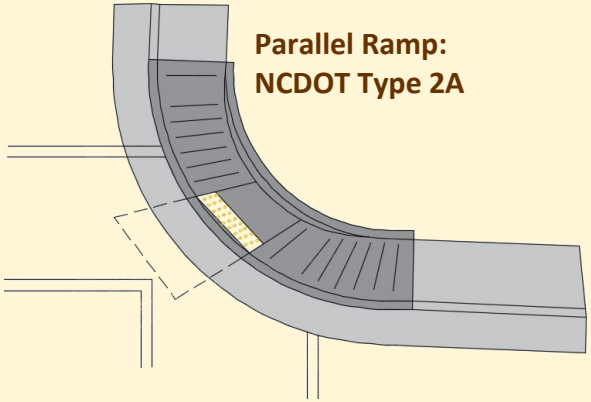
Exhibit 5-3: Best Practices for Curb Ramps

Curb ramps are the most difficult element of ADA-compliant pedestrian facility design to address. Getting the slopes and flat landings properly constructed is critical to the function of a person in a wheelchair or someone on crutches as they prepare to enter or leave the street. Across North Carolina, curb ramps are the most commonly misapplied elements in street design as many do not meet ADA requirements as they lack the flat landing. The landing allows a flat space for a person in a wheelchair to orient themselves to cross the street or turn to go in their desired direction on the sidewalk.

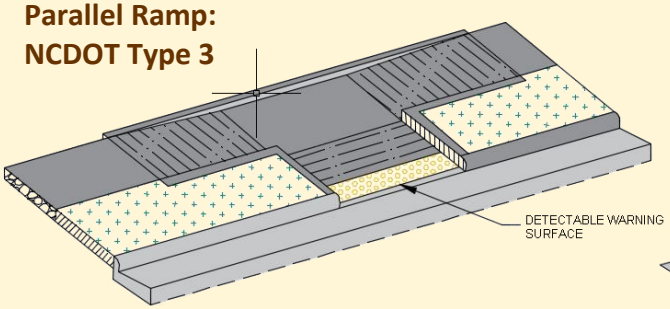
Shared Landing NCDOT Type 4



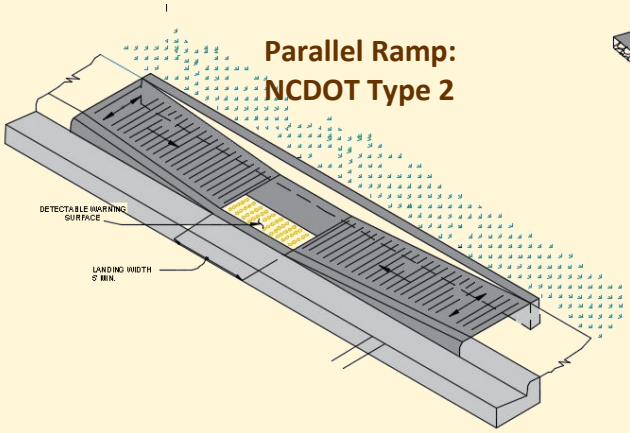
Parallel Ramp: NCDOT Type 2A



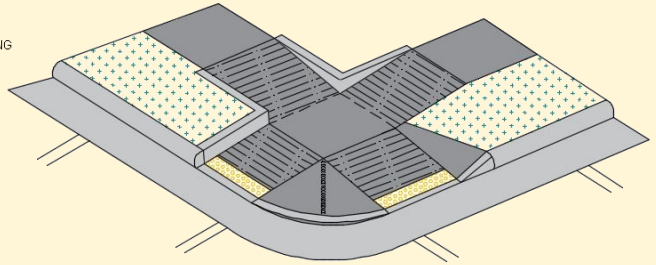
Parallel Ramp: NCDOT Type 3



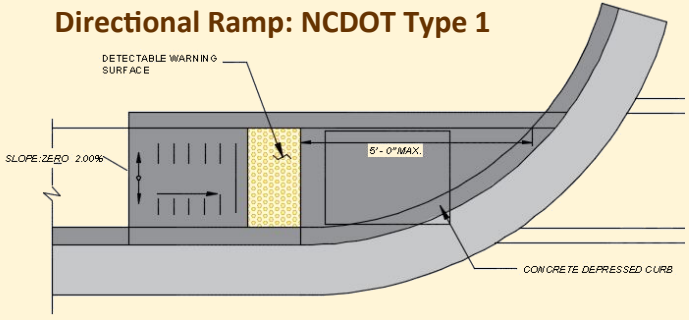
Parallel Ramp: NCDOT Type 2



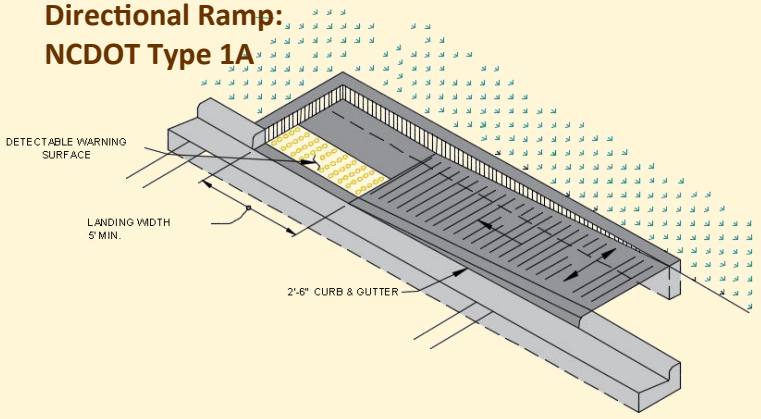
Shared Landing NCDOT Type 5



Directional Ramp: NCDOT Type 1



Directional Ramp: NCDOT Type 1A



Renderings: J.M. Teague Engineering

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 a treatment for unsignalized intersections, encouraging motorists to stop for pedestrians as they cross the street. These signs offer a visual cue and instill some friction in the roadway, as they are typically placed in the middle of a bi-directional, two-lane road. Additional treatments can be added for crosswalk visibility at unsignalized and signalized locations, including decorative brick, textured crosswalks or experimental paint colors.

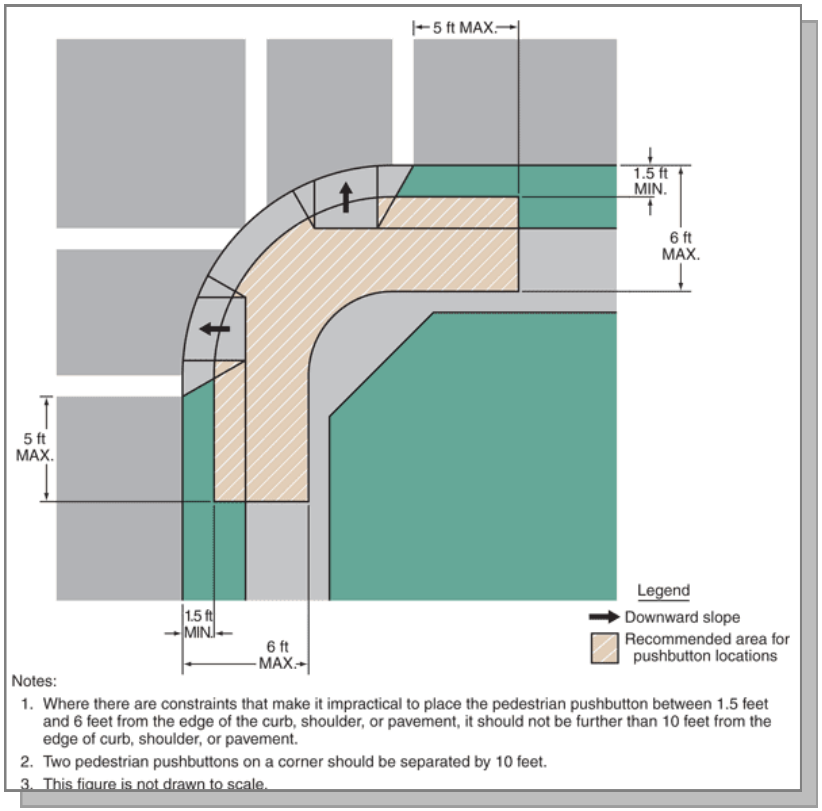
All signalized intersections should be outfitted with countdown pedestrian signals and crosswalks, per NCDOT and MUTCD standards. MUTCD standards dictate that timing must allow for a pedestrian to safely cross the street at a speed of 3.5 feet per second. In some cases, the built environment or user context may require more crossing time or more specialized treatments to alert motorists to the presence of pedestrians. MUTCD notes that 3.0 feet per second can be used to allow sufficient time for slower pedestrians, such as older adults, those in wheelchairs or who are visually disabled.

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 to 10 feet from the pedestrian crosswalk (with 6 to 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 must follow ADA placement guidelines.

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. Push buttons should not be used in central business districts or high traffic locations as the only means of providing a walk signal.

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. It is advisable for Forest City to follow this same guidance or confer with NCDOT Division 13 staff before making changes to signal timing.

Exhibit 5-4: Pushbutton Location Area (MUTCD; Figure 4E-3)



Special care must be given to the placement of push buttons so they are accessible to all users. An all-too-common application is attaching them to traffic signal poles in a location that is not within reaching distance for wheelchair users.

Rendering: MUTCD, Figure 4E-3

Crossings for Multi-Use Trails

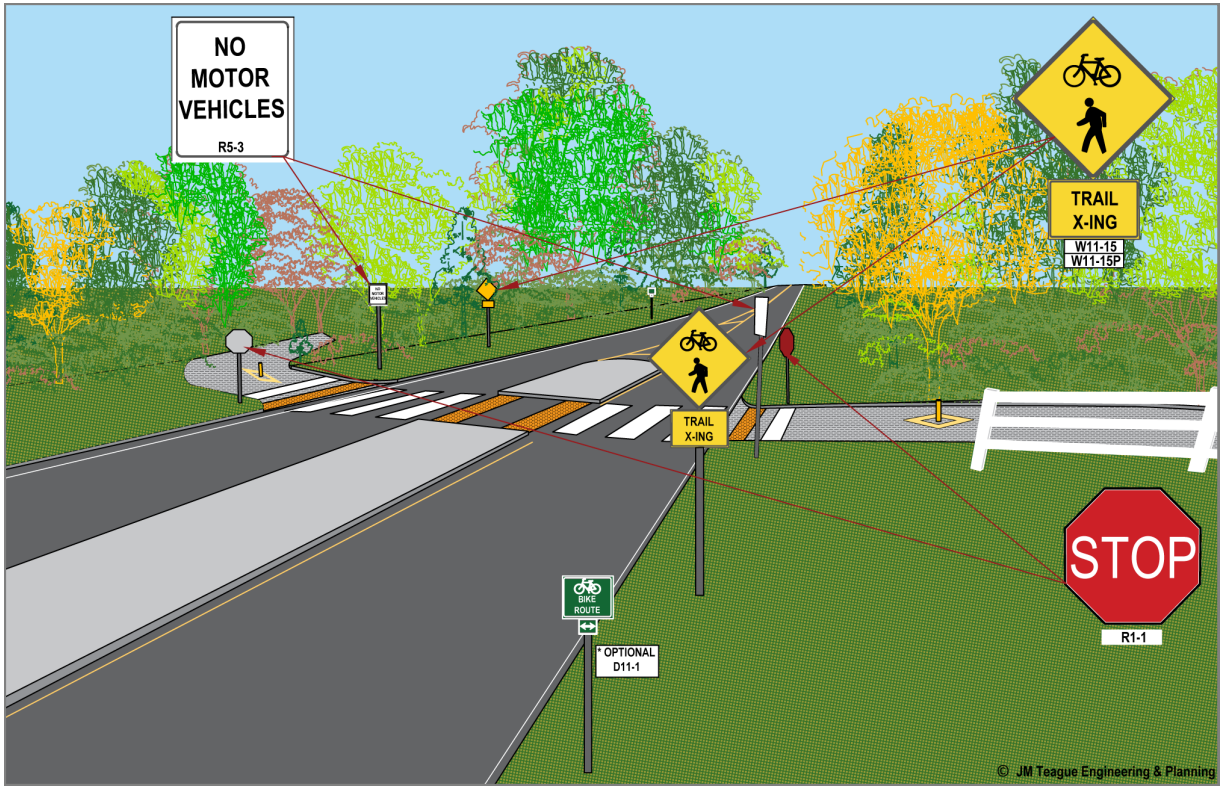
Where multi-use trails meet the street is one of the most critical, yet overlooked, design elements. These locations are where a diverse yet of users must cross a street or intersection and they travel at varying speeds. The illustrations (Exhibits 5-5 and 5—6) produced for this Plan are intended to show common treatments for multi-use trail crossings based on common conditions in Forest City.

Two-lane neighborhood and collector streets where the future rail-trail will cross at a mid-block location requires design treatments that are very different than a common crosswalk/sidewalk/ramp combination. Crossings and curb ramps must be as wide as the trail. Exhibit 5-5 shows best practice treatments for these conditions.

Four-lane highways such as US 74 Business and Oak Street require extra special care for trail crossings. Exhibit 5-6 illustrates some treatments for these locations.

It is important for Forest City to work with designers and DOT on these crossings, as multi-use trail design standards are not included in current NCDOT standard drawings.

Exhibit 5-5: Typical Crossing Treatment for Multi-Use Trail at a two-lane road



The Thermal Belt Rail-Trail will cross several two-lane streets across Forest City and in other nearby communities. Trail crossings require special care due to the diverse nature of users, both in terms of mode and age. The rendering at left shows some best practice treatments for Forest City and its partners to consider in designing the trail where it intersects streets. Common features include:

- Ramps and crosswalks that are the same width as the trail (10-feet preferred).
- Detectable warning surfaces like you see on sidewalk ramps, with detectable warnings placed in medians, if present.
- Advance warning trail crossing signage, as contained in MUTCD.
- On-street bicycle route wayfinding.
- Stop signs on the trail (unless the community decides to require motorists to stop and gives right-of-way to trail users.

Rendering: JM Teague Engineering

Exhibit 5-6: Typical Crossing Treatment for Multi-Use Trail at a four-lane highway

Future multi-use trails identified in this plan will likely have to cross existing four-lane highways in an around Forest City. This image illustrates common best practices for getting trail users across large and sometimes confusing intersections. This illustration also showcases some best practices that could be applied elsewhere in Forest City to improve conditions for pedestrians crossing at intersections with sidewalks.

Rendering: JM Teague Engineering

It is common practice to sign and designate a detour route for motorists when there is a lane closure. The same is required, per MUTCD, for pedestrians. Sidewalk closures should be carefully evaluated and contractors should be required to design and sign proper detour routes. Sidewalk closure in the downtown area should be limited in terms of duration and extent.

Photo: Don Kostelec

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 MUTCD. The MUTCD provides guidance for warning signs which can be used at both crosswalks, or along the roadway.

Temporary accommodation during construction

For residents to be comfortable using walking as a primary mode of transportation in their town and neighborhood, they need to be confident that the facilities they count on will be available consistently. Therefore it is of high importance to adhere to guidelines laid out in Chapter 6D of the Manual on Uniform Traffic Control Devices regarding Temporary Traffic Control to ensure pedestrian access when construction or special events obstruct the usual pedestrian route. The Town of Forest City is responsible for ensuring that both municipal construction crews and contractors comply with these guidelines whenever a pedestrian path is impacted by construction activity.

Incorporating pedestrian design features into regulatory documents

Many design features that are integral to the user experience occur only some of the time or on private property. For this reason, it is essential that pedestrian friendly requirements be incorporated into a wide variety of documents, ranging from the UDO to contracts with contractors who work on city streets, sidewalks, and public facilities.

Parking Lots

Pedestrian circulation through parking lots is an essential element of walkability and can make the difference between a resident walking to a store or getting into a car for a short trip. Zoning should include requirements for pedestrian-friendly circulation to and from the front doors of places of business, and development review should include an assessment of pedestrian access and safety through vehicular areas in private developments, including attention to the standards described in this chapter for curb ramps, crosswalks, and driveways.

Ensuring good design in new construction and redevelopment

The town's zoning ordinance should be as specific as possible regarding pedestrian facility requirements for new construction and redevelopment. Developers should be told up front about expectations for pedestrian facilities that not only meet minimum requirements but enhance the pedestrian experience. Requirements may vary by zoning district, size of development, and the functional classification and design features of the road the development abuts.

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. 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 following paragraphs.

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. The type of vehicles (especially trucks) using the route should be considered in the design of curb extensions.

Medians and Refuge Islands. One approach where wide, high volume and/or high speed roadways create an obstacle to pedestrian mobility is to provide refuge islands to shorten the length of the crossing and give pedestrians who are not able to cross the entire street in one signal cycle the opportunity to split their crossing. These islands, along with medians, also enclose the visual space for motorists and therefore encourage compliance with speed limits and other traffic laws.

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 considered safer for all road users than a two-way, left-turn lane (TWLTL) roadway.

Creative, yet simple, solutions to providing space for people who walk helps address a present-day need in combination with present-day budget realities. A paving machine used to lay 5-foot asphalt strips was used in this situation to fill a gap in the sidewalk system alongside a street that did not curb and gutter.

Photo: Don Kostelec

Alternative Pedestrian Facilities

Given ever-present budget limitations, Forest City and NCDOT may find opportunities to explore other options for accommodating people who walk in a manner that addresses required technical elements of design but is cost-effective from a budgetary perspective. The common design manuals provide for the perfect solution and the traditional curb, gutter and sidewalk approach to building pedestrian facilities has been around since the 1800s. But this is not always possible given an area's context.

Exhibit 5-5 highlights various approaches by North Carolina communities and others to provide for effective but low-cost transportation facilities. A community should not pursue these improvements lightly as they still need to comply with ADA requirements for slopes, access at intersections and other treatments. But they have been proven to be effective in providing a space for pedestrians along various types of roadways, including state and US highways in North Carolina.

These improvements can sometimes be constructed at 1/10th the cost of traditional curb, gutter and sidewalk, which is why it is important to consider these options before embarking on more costly improvements. People are already walking along many of Forest City's streets and that requires them to walk in the roadway at times. These alternative facilities simply allow for that use to continue while giving those who walk some space that is clearly delineated from the vehicular realm.

Options such as curbless sidewalks (image E) may be pursued on roadways such as West Main Street to avoid costly stormwater facilities that would be required with a typical curb, gutter and sidewalk treatment.

Painted pedestrian lanes or simple markings (images A and D) are more suited for low speed, low volume residential streets where motorists and pedestrians are already sharing the road space. Alternatives such as image C could be an interim measure before full-scale pedestrian improvements or a linkage between greenways alongside a street.

Images B and F are also effective in linking greenway segments along a street. A unique feature of image F is that it provides typical curb features alongside the road but can be designed to accommodate stormwater movement across the pavement as if it were a shoulder.

The image shown in F was constructed in Idaho using federal Safe Routes to School funds and image E was constructed with federal Transportation Enhancements funds (now Transportation Alternatives Program). This shows there are opportunities to utilize federal funds for these types of improvements. They can also be designed to meet ADA requirements.

Exhibit 5-7: Alternative pedestrian facilities

Low-Cost and Interim Active Transportation Facilities for Neighborhood & Constrained Streets

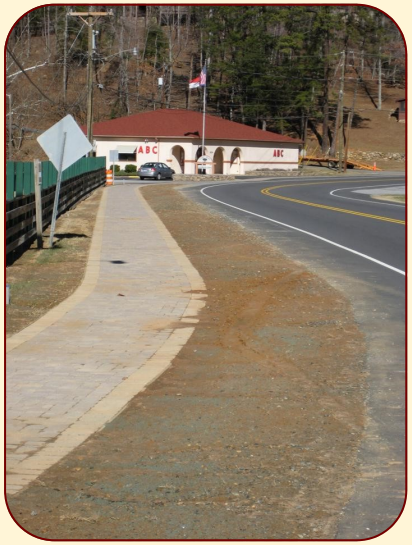
These images illustrate a variety of improvements that can be made along roadways, under certain conditions, to promote pedestrian and bicycle travel in a low-cost manner. Considerations such as traffic interaction, compliance with ADA, snow removal, and maintenance practices will impact whether such investments can be applied.

A: On-street pedestrian lane in Boone, NC.

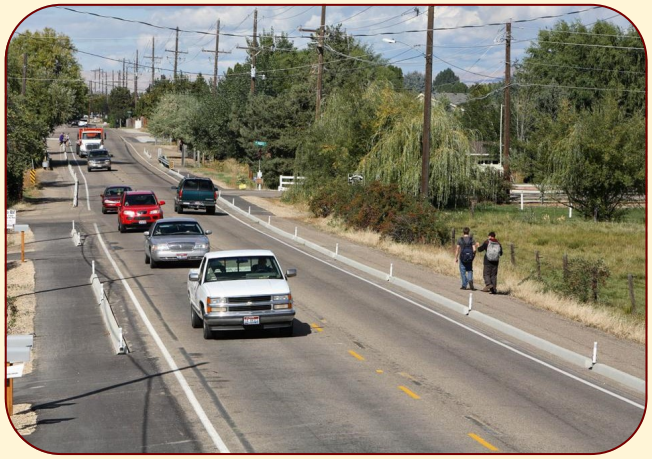
B: Shoulder turned multi-use trail in Talkeetna, Alaska.

C: Gravel sidewalk along the NC Highway 9 near Black Mountain, NC.

D: Pedestrian shared street markings in Olympia, WA.



E: Curbless sidewalks along US 64 in Lake Lure, NC.



F: Shoulder/extruded curb pathway in Ada County, ID (constructed with federal Safe Routes to School funds)

Photos: Don Kostelec

Exhibit 5-8: Design Resources

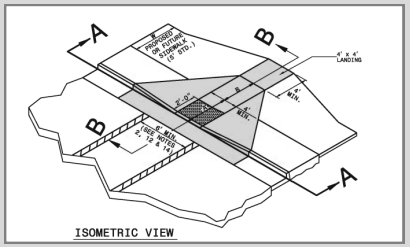
Design Resources for Pedestrian Facilities

The various publications and design guidelines for pedestrian facilities are continually being reviewed and revised. Below are some of the common resources that can be referenced by Forest City. Links are provided for each resources with a footnote if they are free for download.

NCDOT Roadway Standard Drawings

These design standards are kept current on NCDOT's website and are updated as other design manuals or design standards such as ADA are modified. Pedestrian facilities are included in Division 08 - Incidentals. DOT also provides several Alternative Curb Ramp Designs on this page.

https://connect.ncdot.gov/resources/specifications/pages/2012-roadway-drawings.aspx



NCDOT Complete Streets Policy & Design Guidelines

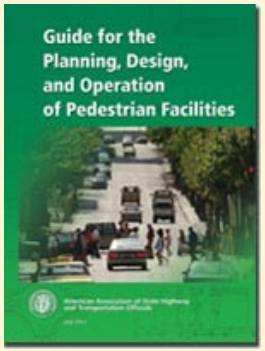
This reference document outlines several aspects of the state's policies and design guidelines. There are sections that address specific elements of complete streets and general guidelines that serve as a starting point for design of major facilities.

http://www.completestreetsnc.org/

Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG)

The guidelines are the specific implementation of the Americans with Disabilities Act for pedestrian facilities in the public right-of-way. The guidelines define the public right-of-way to mean "public land or property, usually in interconnected corridors, that is acquired for or dedicated to transportation purposes." It provides many elements not addressed in other design guides.

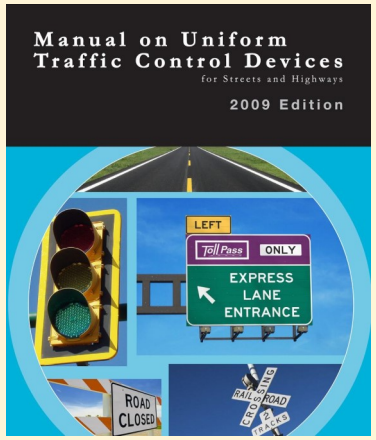
http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way



AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)

This design manual published by AASHTO is becoming dated, but it includes many of the foundational elements of pedestrian facility design. NCDOT's design publications do not address all aspects of pedestrian facility design, so this manual is useful for referencing other features.

https://bookstore.transportation.org/item_details.aspx?id=1334



Manual on Uniform Traffic Control Devices (MUTCD, 2009)

MUTCD provides specifications for the design and placement of various traffic control devices. For people who walk, this manual impacts design and placement of signage, timing of pedestrian signals, the design of crosswalks and many other features.

http://mutcd.fhwa.dot.gov/kno_2009r1r2.htm

6. Pedestrian Safety & Enforcement

Utilizing NCDOT's Pedestrian Crash Tool, the consultant team was able to assemble a summary of characteristics of pedestrian crashes in Forest City from 1997 through 2012. This data was gathered by the NCDOT Division of Bicycle and Pedestrian Transportation and the UNC Highway Safety Research Center and enables researchers to examine pedestrian crash trends based on a number of different variables. Examining the characteristics of crashes in Forest City helps to establish a general background of where crashes are occurring, at what time of day, what time of year, and if segments of the population are being disproportionately affected. These findings are used to help identify project, program and policy priorities for Forest City.

Between 1997 and 2012, 79 pedestrians were involved in crashes:

- 5 pedestrians were killed;
- 8 suffered disabling injuries;
- 27 had evident injuries;
- 30 had possible injuries; and
- 9 were either not injured or their status was not known.

During this time period, Forest City had one of the highest rates of pedestrian crashes per 1,000 residents when compared to other communities in western North Carolina (Exhibit 6-1). This does not necessarily mean that Forest City is an unsafe place to walk. It could mean that more people walk as a form of transportation or it could mean that more focused enforcement efforts are needed.

In order to begin to implement countermeasures to make Forest City a safer, more pedestrian-friendly place, the who, what, where, and when of pedestrian crashes needs to be understood.

Promoting pedestrian safety is an art that requires proper understanding of how pedestrians move and what motorists can and should do to avoid a crash.

Photo: Don Kostelec

Who was involved in Pedestrian Crashes?

Pedestrian crashes involve every part of the Forest City population, but some demographic groups are more affected than others.

Pedestrians involved in crashes were overwhelmingly male. Across North Carolina, the trend is similar. In Forest City, 63% of pedestrians involved in a crash were male, while statewide, 60% of pedestrian involved in a crash were male. Males accounted for all pedestrian fatalities in Forest City during the studied time period.

Pedestrian age is a factor that plays a role in the severity of the crash. More vulnerable age-groups, either the younger or older parts of the populations, are more likely to

Exhibit 6-1: Pedestrian Crash Rates in WNC Towns

Town	Population (2010)	Crashes (1997-2012)	Crashes per 1,000 pop.
Robbinsville	620	11	**17.7**
Hayesville	311	4	**12.9**
Sylva	2,588	30	**11.6**
Forest City	**7,476**	**79**	**10.6**
West Jefferson	1,299	13	**10.0**
Bryson City	1,424	13	**9.1**
Blowing Rock	1,241	10	**8.1**
Columbus	999	7	**7.0**
Murphy	1,627	11	**6.8**
Rutherfordton	**4,213**	**26**	**6.2**
Franklin	3,845	23	**6.0**
Sparta	1,770	10	**5.6**
Rosman	576	3	**5.2**
Spruce Pine	2,175	11	**5.1**
Andrews	1,781	9	**5.1**
Brevard	7,609	35	**4.6**
Highlands	924	4	**4.3**
Tryon	1,646	7	**4.3**
Weaverville	3,120	13	**4.2**
Marion	7,838	32	**4.1**
Spindale	**4,321**	**17**	**3.9**
Hot Springs	560	2	**3.6**
Maggie Valley	1,150	4	**3.5**
Mars Hill	1,869	6	**3.2**
Waynesville	9,869	31	**3.1**
Cherokee	2,138	6	**2.8**
Canton	4,227	9	**2.1**
Jefferson	1,611	3	**1.9**
Burnsville	1,693	3	**1.8**
Clyde	1,223	2	**1.6**
Fletcher	7,187	11	**1.5**
Banner Elk	1,028	1	**1.0**
Cullowhee	6,228	6	**1.0**
Woodfin	6,123	5	**0.8**

be seriously injured or killed if hit by a car. In Forest City, 1 pedestrian fatality was a 3 -years old, another was 64 years old.

In examining the race of pedestrian crash victims, 33.3% of the pedestrian crash victims were African-American, which is a percentage notably higher than the 24% of Forest City's population that is African-American.

Where are Pedestrian Crashes occurring?

The vast majority of the pedestrian crashes occurred on either local roads or public vehicular areas such as parking lots (Exhibit 6-2). Of the 79 crashes, 43 were on local streets, 32 were in public vehicular areas, 2 were on secondary state roads, and 2 were on US routes.

Another set of data illustrated what part of the roadway crashes occurred. Of the four categories, 32 occurred in non-roadway locations (e.g. parking lots, driveways), 25 were non-intersection related, 10 were intersection-related, and 12 took place in intersections. While pedestrian crashes were the most frequent in non-roadway locations, they were also the least likely to be severe. No fatalities occurred in non-roadway locations, 2 fatalities occurred at non-intersection locations, 2 fatalities occurred at intersection-related locations, and 1 fatality occurred at an intersection.

Vehicular Speed

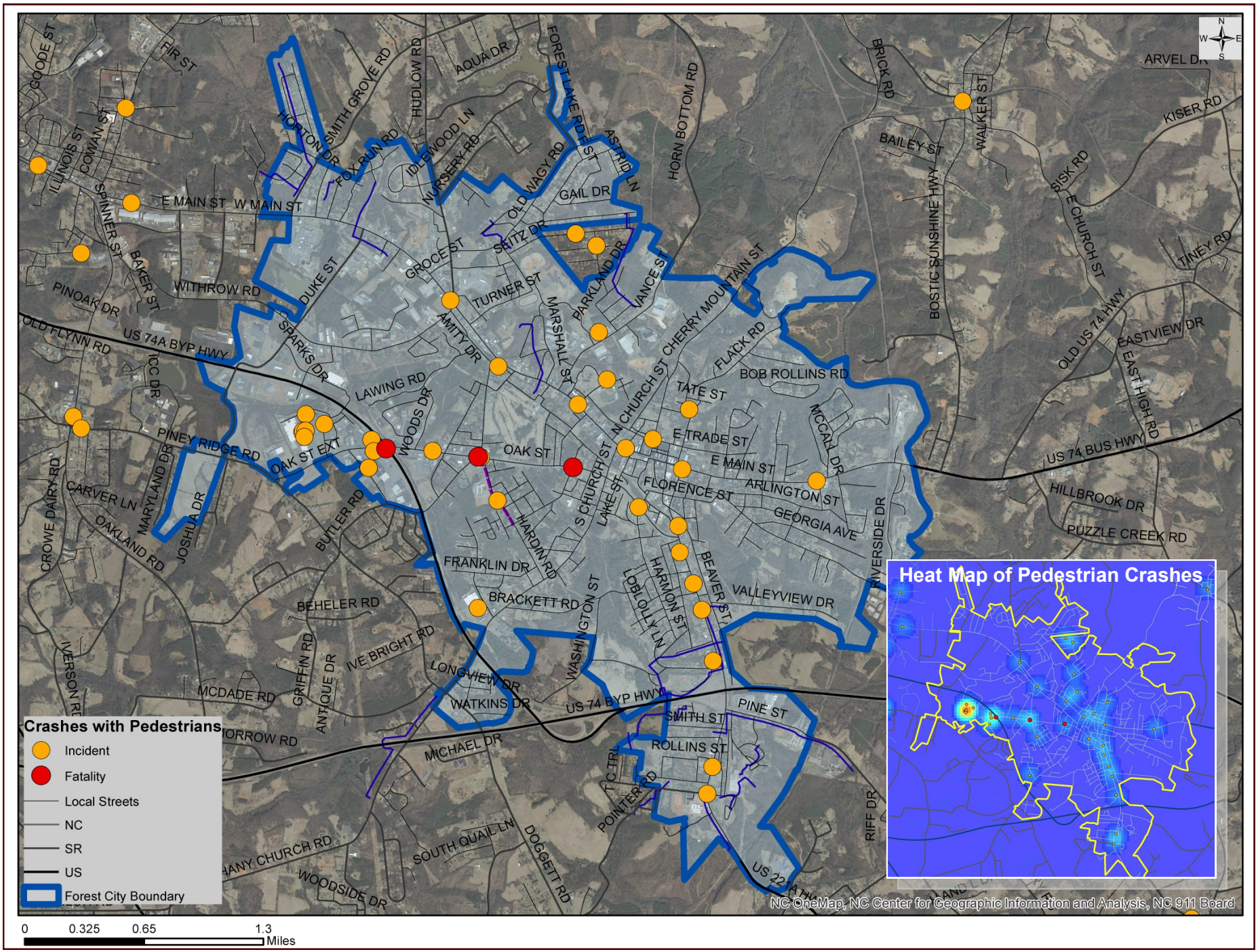
The speed of the vehicle at the time of the pedestrian crash plays a large part in the severity of the pedestrian's injuries. Studies have shown that the chance of a pedestrian being killed by an automobile can increase from 6% at 20 mph to 94% at 40 mph. Pedestrian crashes in Forest City most frequently occurred with the automobile traveling 30-35 mph. All five pedestrian fatalities occurred with a vehicle's estimated speed of at least 30 mph.

When are Pedestrian Crashes occurring?

The months when pedestrian crashes are most frequent in Forest City are October and December. Conversely, June and September had the fewest pedestrian crashes. February and March are the deadliest months for pedestrians in Forest City; 3 of the 5 fatalities occurred in these 2 months, while only 9 of the 79 total crashes occurred during these months.

Pedestrian crashes generally took place during daylight hours. Of the 79 crashes, 25 occurred during non-daylight hours (dusk or night.) However, 4 of the 5 pedestrian fatalities occurred at times when it was "dark." Of these 4 fatalities, 2 occurred on lighted roadways, the other 2 occurred on non-lighted roadways.

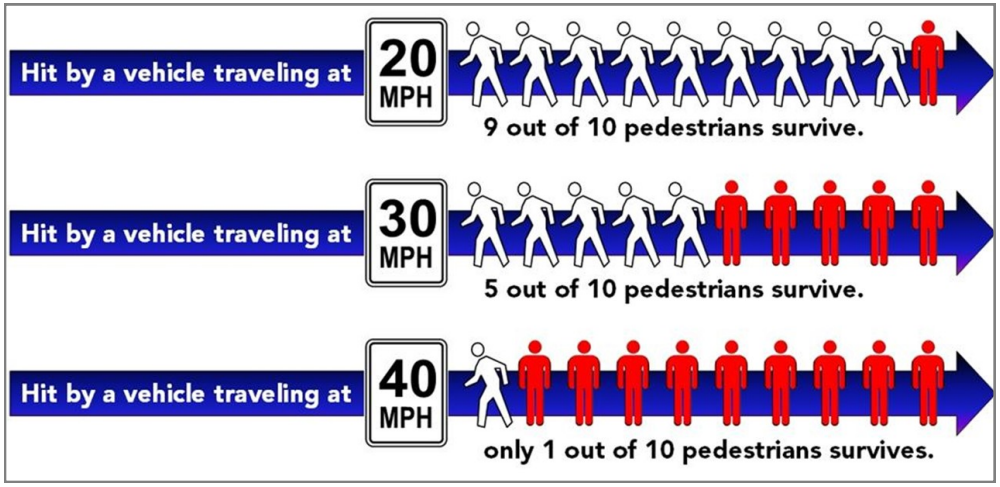
Exhibit 6-2: Pedestrian Crashes in and around Forest City (2007-2012)



Law Enforcement for Pedestrian Safety

There are a number of documented approaches to law enforcement that enhance the safety of pedestrians. Most of these involve simply targeting existing enforcement of traffic laws to locations where there is high pedestrian traffic or a documented history of pedestrian-vehicle conflicts. Speed enforcement is particularly important in areas of high pedestrian traffic, as small differences in vehicle speed make dramatic differences in survivability for the pedestrian.

Exhibit 6-3: The impact of vehicle speed



The speed of the motor vehicle at the time of impact with a pedestrian is major influence on the likelihood of death.

Officers patrolling areas of high pedestrian activity can also step up enforcement for distracted driving violations, unsafe lane changes, failure to signal, aggressive driving, DUI, and other unsafe motorist behaviors that create a particularly grave danger for vulnerable road users. These actions can discourage individuals from choosing walking as their mode of transportation for short trips because a car gives them more protection from dangerous drivers. Officers patrolling near unprotected crosswalks, intersections with unmarked crosswalks, or signalized intersections where there is heavy turning traffic should pay particular attention to the crosswalks and ticket or warn motorists who fail to yield the right-of-way. In addition, crosswalk enforcement actions, often referred to as “stings,” provide a targeted way to increase public awareness of the requirement to yield to pedestrians in crosswalks. They are discussed in the next section.

Crosswalk Enforcement Actions

Police departments in jurisdictions participating in the Watch for Me NC campaign (see Chapter 7) have received specialized training in conducting crosswalk enforcement actions. In these targeted operations, officers set up around a marked, unsignalized crosswalk and have an officer, usually wearing highly visible clothing but not a police uniform, cross the street. The decoy officer is trained to begin crossing when an approaching vehicle is far enough away to easily stop but close enough to see him/her. Other officers intercept drivers who fail to yield and issue citations or warnings, along with educational material. When these actions are held, they are typically accompanied by press releases to maximize educational impact.

Campaigns usually begin less aggressively, issuing warnings to all but the most egregious violators or those who are committing multiple traffic violations, and move toward issuing tickets instead of warnings after the campaign has received news coverage. In some jurisdictions nationally, creative decoys are used to further attract public attention. For example, Las Vegas has had the plainclothes officers serving as de-

coys dress up as Santa Claus in December and in the small town of Mechanicsburg, PA, the mayor has gone through training with the police department and frequently serves as the decoy instead of a police officer. Support for planning crosswalk enforcement actions, including accompanying educational handouts, is available through the Watch for Me NC program.

What about enforcement for pedestrians?

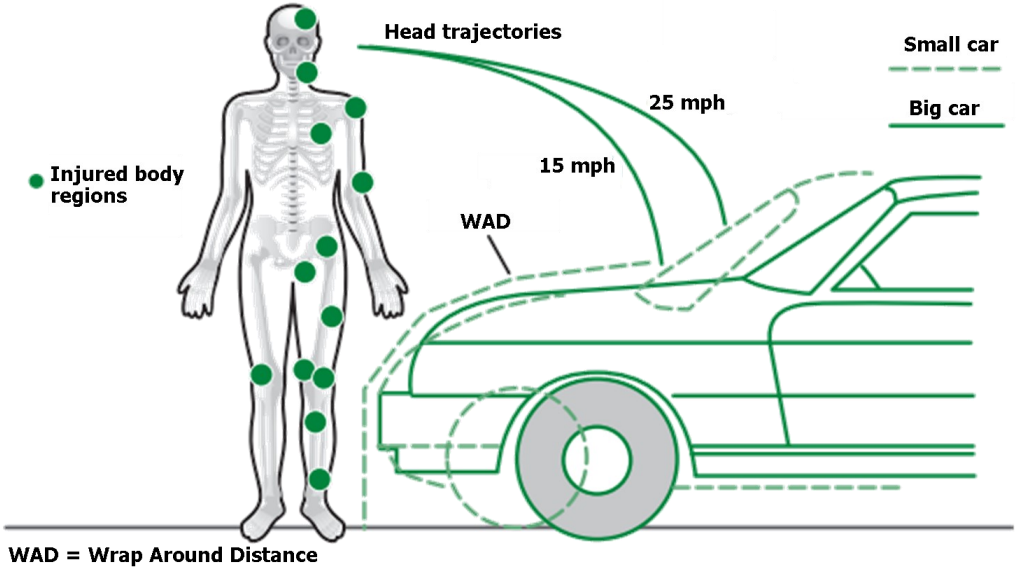
While motorists ticketed for failure to yield to pedestrians often demand "equal treatment," it is important to remember that motorists and pedestrians are not equal in their vulnerability, their potential to cause harm to others, or their requirements for being on the road. Whereas all legal motorists are licensed, theoretically responsible adults operating machines that have the potential to kill or maim, pedestrians include the very young and very old and people incapacitated by illness or disability who may not be able to fully understand the rules of the road. Pedestrians are not required to have a license to simply walk.

Educational efforts to reduce problematic pedestrian behaviors have value, but enforcement focus is most effectively used on ensuring that licensed road users are prepared to respond to obstacles and control their vehicles even in adverse circumstances. Additionally, enforcement of "jaywalking" laws has historically occurred disproportionately in minority and low-income communities, serving to strain police-community relations and lead to a disproportionate financial burden on residents who are forced to walk in less than desirable traffic conditions because they can't afford safer options.

Practically speaking, because most people have a survival instinct, the majority of "jaywalking" or technically illegal street crossings by pedestrians take place in circumstances where a crash is not likely to occur. Therefore, issuing tickets to pedestrians who disobey signals or cross between adjacent signalized intersections typically does not have any significant impact on pedestrian crash rates.

As documented by the District of Columbia Department of Transportation and Metropolitan Police Department in their Street Smart Pedestrian and Bicycle Safety Enforcement Training Manual (2007), the city of Seattle conducted an aggressive "jaywalking" enforcement campaign in the late 1900s, but found that it had no impact on the city's rate of pedestrian crashes. After changing the focus of their pedestrian

Exhibit 6-4: Injured body regions of a pedestrian when hit by a motorist



Source: World Health Organization / Yang J. *Review of injury biomechanics in car-pedestrian collisions. 2001.*

This diagram, modified from a World Health Organization image, illustrates the injured body regions of a pedestrian being hit by a car and where contact will occur based on the size and speed of the vehicle.

Technically, people "jaywalk" across Main Street all the time to reach parking spots in the middle of the street. Should we perceive this as "unsafe," discourage it or find ways to make it as safe as possible?

Photo: Don Kostelec

safety programs and undertaking other efforts to make the city more walkable, Seattle is now a Platinum-level Walk Friendly Community and was recently ranked as the #1 safest city for pedestrians by Liberty Mutual Insurance.

Crosswalk actions and general enforcement of speeding, distracted driving, and other motor vehicle safety laws have proven far more effective in reducing crash rates. Officers who witness particularly dangerous pedestrian law violations can issue tickets, but a concentrated effort of forcing pedestrians to wait for signals or go out of their way to use crosswalks is of limited safety value, particularly if drivers are not fully compliant with laws at crosswalks.

Education for Law Enforcement Officers

As pedestrian and bicyclist volumes increase across the country, many jurisdictions are realizing that training of law enforcement officers related to nonmotorized road users needs to be updated and augmented. Officers must not only enforce the laws, but also set a positive example for other drivers by complying with crosswalk laws and operating their cruisers safely. Officer training should include a refresher course on state laws relating to pedestrians, including the definition of an unmarked crosswalk and driver responsibilities at all crosswalks and under what circumstances it is legal for a pedestrian to cross at mid-block.

In areas with new pedestrian enforcement programs, it is not uncommon for police to issue tickets to pedestrians for crossing at mid-block even though the pedestrian was not between two adjacent signalized intersections, for example. Officers, along with other municipal employees, can also benefit from education about the physical and mental health benefits of walking.

7. Education & Encouragement

Pedestrian education efforts have two primary areas of focus: safety and rules of the road, and education about where, how, and why to walk, which is also encouragement. Safety education typically involves cooperation between planning and transportation staff, law enforcement, health departments, and schools, as well as non-profit community organizations.

The Watch for Me NC program is a valuable source of outreach materials and potential funding for such campaigns, and nationally, the National Highway Traffic Safety Administration (NHTSA) funds many similar programs. All materials created with NHTSA funding are available in the public domain for use and adaptation by other agencies, although Watch for Me NC materials will contain specific information on North Carolina laws.

Outreach can range from simply passing out printed materials created by other NHTSA campaigns, to a targeted media blitz combined with in-person outreach at community events or high traffic intersections and coordinated with enforcement actions. It is often said that the most effective education for drivers is "enforcement, enforcement, and education about the enforcement."

Children and schools play a key role in creating a safe, pedestrian-friendly culture. Safe Routes to School and related programs can not only make children more aware while walking to and from school, but also help them to become better future drivers and to positively influence their parents' driving by reminding them to slow down, avoid distractions, and watch for pedestrians and bicyclists.

Context Sensitivity

In safety education campaigns, it is important to recognize that the majority of existing outreach materials were created in and for major metropolitan areas where pedestrian crashes make up the highest percentage of traffic fatalities and pedestrian traffic is relatively high. Some of their messages, like "always use crosswalks" may not be applicable or practical in less dense areas where roads do not have frequent intersections. Focus of a safety campaign should be on locally observed problems and responsive to local conditions, so messages such as walking facing traffic or watch-

Exhibit 7-1: Pedestrian Law in North Carolina

Pedestrian Laws in North Carolina

- **When sidewalk is available, pedestrian must walk on the sidewalk.**
- **Motorists shall yield right-of-way to pedestrians within any *marked or unmarked crosswalk* in residential and business areas except where there is a traffic or pedestrian signal regulating traffic movements.** ***(NC General Statutes, Chapter 20, Section 173a)***
- **Pedestrians also have right of way when approaching an alley, building entrance, private road, or driveway from any sidewalk or walkway.** ***(NC General Statutes, Chapter 20, Section 173c)***
- **At intersections, motorists must yield the right-of-way to pedestrians when making a right-on-red movement.**
- **Where sidewalks are not provided, *any pedestrian walking along and upon a highway shall, when practicable, walk only on the extreme left of the roadway or its shoulder facing traffic which may approach from the opposite direction*. Such pedestrian shall yield the right-of-way to approaching traffic.** ***(NC General Statutes, Chapter 20, Section 174d)***

ing for pedestrians on the shoulder while driving on roads without sidewalks are more relevant in areas with fewer sidewalks and more rural roads.

Reaching a Broad Audience

Messages in an education campaign should be clear and have a broad appeal, but also target those groups most likely to be at risk or to pose a risk to others. Since men and boys constitute a substantial majority of pedestrians hit by cars and also a majority of drivers who kill pedestrians safety-related advertising may be targeted towards sporting events or other programming with an audience that skews male. , Women and girls are more likely to be restricted from active transportation due to safety concerns from spouses and parents.

Media outlets and events that reach minority and low-income communities should be particularly targeted for pedestrian-focused messages, whereas messages aimed at making drivers more aware and respectful of pedestrians may be most relevant in suburban or higher-income areas.

Materials should be provided in any foreign languages spoken within the community, particularly Spanish, and cultural differences should be considered. For example, recent immigrants from Latin America may work long hours, traveling to and from work on farms or constructions sites when it is dark outside, and may walk or bike longer distances than the typical US-born resident will tolerate. Watch for Me NC campaign materials are tailored to suit various community contexts and are oriented for both pedestrian– and motorist-focused outreach.

They may also walk with traffic, bicycle against traffic, be accustomed to drivers being more aware of their presence because they came from a place with higher walking levels, and be completely unaware of US “jaywalking” laws, as in many countries around the world, pedestrians are permitted to cross the street wherever they need to.

Watch for Me NC materials are available in English and Spanish to help communities reach a broader audience and be sensitive to local populations.

Watch for Me NC

Watch for Me NC is a program, run by NCDOT in partnership with local communities, aimed at reducing the number of pedestrians and bicyclists hit and injured in crashes with vehicles. According to NCDOT, Watch for Me NC involves two key elements:

- Safety and educational messages directed toward drivers, pedestrians and bicyclists, and
- Enforcement efforts by area police to crack down on some of the violations of traffic safety laws.

Local programs are typically led by municipal, county, or regional government staff with the involvement of many others, including pedestrian and bicycle advocates, city planners, law enforcement agencies, engineers, public health professionals, elected officials, and others. NCDOT piloted the program in Wake, Durham, and Orange counties (Triangle Area) in 2012. In 2014, communities were asked to apply for Watch for Me NC funding to become partner communities. Any community is allowed to use the materials developed for the program, which are available at ***www.watchformenc.org***.

Let's Go NC!

The Let's Go NC program is an educational curriculum intended for school-age children to teach them how to walk and bike safely. The program is intended to give children essential skills they need to enjoy a healthy and active lifestyle.

Let's Go NC! A Pedestrian and Bicycle Safety Skills Program for Healthy, Active Children provides teachers, parents and PTAs an all-in-one package of lesson plans, materials, activities and instructional videos that encourages children to learn about and practice fundamental skills that build safe habits.

This program, developed for NCDOT's Division of Bicycle and Pedestrian Transportation Division and Safe Routes to School Program by NC State University, is a free program with materials and videos available online. The program materials can be accessed here: ***www.ncdot.gov/bikeped/safetyeducation/letsgonc/***

Encouragement

Pedestrian outreach always needs to balance safety messages with reminders that walking is a healthy, beneficial activity. People should not be scared away from it because the built environment isn't ideal and crashes with vehicles do happen. Providing wayfinding to comfortable walking routes including greenways, main street shopping districts, and low-traffic neighborhood streets with optimal sidewalks is an important part of building pedestrian traffic in a community so that broad support can be built for improving the less walkable areas.

Encouragement should be available multiple ways – through public signage, brochures, and web sites, and promoted through community newsletters and other similar forums. Information on physical and mental health benefits of walking and the economic impact of walkability and foot traffic on local businesses are particularly useful. Environmental messages about reducing short car trips are a powerful motivating factor for some, but seen as a threat by others. Some individuals may need reassurance about the safety of walking, particularly senior citizens, parents of

The Let's Go NC! curriculum teaches children safe walking and bicycling tips.

young children, residents of higher crime neighborhoods, people with disabilities, and women who may have experienced street harassment or even assault.

Attention should be paid to making sure messages are inclusive and do not reach only the groups of people who are most likely to walk anyway ("preaching to the choir"). While a health fair is a good place to start spreading a pro-walking message, efforts are also needed to reach people who may not be as aware or concerned about fitness. Messages and activities should be positive, fun, and accessible – focusing on the benefits of even a small amount of walking and the possibility of incremental change. Outreach to the business community and civic organizations can also build synergy toward raising the profile of walking in the community as multiple influencers relay related messages about the many benefits of walking to the community and take small steps to improve the pedestrian environment.

Giveaways

Education and encouragement programs frequently feature prizes such as t-shirts, bags, reflective items like zipper pulls or even small blinking lights. Low cost pedometers can also be particularly useful for encouragement programs. Healthcare organizations are often sponsors of these items, and local businesses that benefit from foot traffic may also be interested in promotional opportunities. Local artists or students can be involved in developing creative materials to add interest to the campaign.

Reflective items can be particularly useful since people frequently need to walk home after dark from a destination where they can't wear reflective clothing, such as a job with a dark uniform, and for many people who need to walk in dark locations the most due to economic circumstances, buying reflective clothing could be a hardship.

Small lights or reflective tchotchkes can be kept in a purse or work bag and provide both a means of visibility and a reminder of the campaign's message. Similarly, a keychain or bumper sticker with a message of "I yield for pedestrians" may help drivers to remember to be cautious. Each piece of education, enforcement, and encouragement campaigns should work together to make walking easier and safer and to support the engineering improvements being made as part of the pedestrian master plan.

Other Resources

Pedestrian & Bicycle Information Center Education
http://www.pedbikeinfo.org/programs/education.cfm

WalkBikeNC Program Resources
http://www.walkbikenc.com/plan-resources/#program

North Carolina Bike/Pedestrian Laws Guidebook
http://www.ncdot.gov/bikeped/lawspolicies/laws/

8. Walking: The Wonder Drug

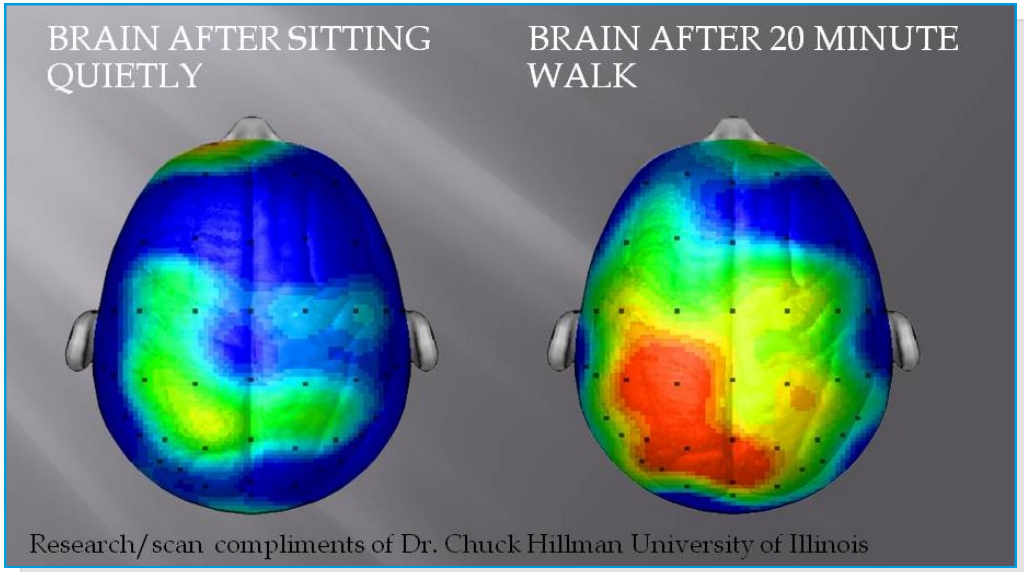
The World Health Organization defines *health* as "a state of complete physical, mental and social well-being and not merely the absences of disease or infirmity." Using this holistic definition of health implies that to improve the health of a population, the social determinants of health (the conditions in which people are born, grow, live, work and age, shaped by the distribution of money, power and resources at global, national and local levels) must be considered and addressed to promote health and wellness for all. These same factors should be considered with regard to walkability.

Wellness is much more than physical health, exercise or nutrition. It is the full integration of states of physical, mental, and spiritual well-being.

Walkability and associated programs to promote walking play a significant role in creating a quality of life that promotes the health of Forest City's residents. Forest City workshop participants noted that the area should consider investments in programs and facilities that attempt to maximize the positive benefits of the initiative as they related to these dimensions of health. The also identified physical activity rates, cardiovascular disease and diabetes as local concerns that can be addressed through creating a more walkable community.

The model for health used in *Forest City: Heart & Sole* includes physical, environmental, emotional, intellectual, social, spiritual, and occupational wellness. These dimensions act and interact in a way that contributes to our own quality of life.

Exhibit 8-1: This is your brain on walking



Walking may be seen as having a direct physical outcomes, but it also impacts emotional health. This image illustrates the brain after sitting versus the brain after 20 minutes of walking.

Physical Health & Wellness

Physical wellness involves aspects of life that are necessary to keep yourself in top condition and capable of doing daily activities without undue fatigue or physical stress. Optimal physical wellness is developed through the combination of beneficial physical activity/ exercise and healthy eating habits. Elemental components of physical wellness include building muscular strength and endurance, cardiovascular strength and endurance and flexibility. Creating a walkable neighborhood with destinations within walking distance promote physical wellness. Additionally:

- Walking is a low-impact and easy way to improve physical health that can be enjoyed by people of all ages.
- Walking gives your heart, blood vessels and lungs a good workout, as well as increased cardiovascular fitness; increased strength and flexibility; improved joint

mobility; improved posture and coordination; and decreased body fat.

- It is one of the best ways to reduce the risk of health problems such as stroke, heart disease, some cancers, diabetes and arthritis.
- 30 minutes of moderate walking per day five days a week can help ensure a longer, healthier and happier life.
- One hour of walking may increase your life expectancy by two hours.

The hiking trails at Isothermal Community College embody many of the seven dimensions of health. Adults and children can enjoy physical activity while in nature, which promotes emotional and spiritual health. The campus setting promote intellectual health.

Photo: Don Kostelec

Emotional Health & Wellness

Emotional Wellness is the ability to understand ourselves and cope with the challenges life can bring. The ability to acknowledge and share feelings of anger, fear, sadness or stress; hope, love, joy and happiness in a productive manner contributes to our Emotional Wellness. It also involves being attentive to your thoughts, feelings, and behaviors, whether positive or negative. Walking can improve our mood and help flush toxins out of our body that can negatively effect our mental health. Exhibit 4-1 illustrates how walking affects brain function. The brain after just 20 minutes of walking is invigorated and ready to respond to challenges.

Social Health & Wellness

Social Wellness is the ability to relate to, interact with, and connect with other people in our world. It involves using good communication skills, having meaningful relationships, respecting yourself and others, and creating a support system that includes family members and friends. Our ability to establish and maintain positive relationships with family, friends, and co-workers contributes to our Social Wellness. Walking can and should be a social endeavor. When given a quiet and safe place to walk, families and friend can enjoy time together and explore a neighborhood, share a meal or run errands together.

Environmental Health & Wellness

Environmental Wellness is the realization of our innate connection to nature and our ability to recognize our own responsibility for the quality of the air, the water, and the land that surrounds us. The ability to make a positive impact on the quality of the environment--be it our homes, our communities or our planet-- contributes to our Environmental Wellness. Protecting yourself from environmental hazards and minimizing the negative impact of your behavior on the environment are also central elements. If we ask that pedestrians walk in an area that is filled with noise pollution or high traffic volumes, special accommodations should be made to mitigate the negative influences of that environment.

Intellectual Health & Wellness

Intellectual Wellness is the ability to open our minds to new ideas and experiences

Exhibit 8-2: The Health Benefits of Walking (Source: Everybody Walk!)

that can be applied to personal decisions, group interaction and community betterment. The desire to learn new concepts, improve skills and seek challenges in pursuit of lifelong learning contributes to our Intellectual Wellness. Historic walking tours or designated routes can help community member and visitors gain greater appreciation, in an active way, of Forest City. Safe walking areas can be enjoyed by school classes, Sunday school classes and other types of instruction-based endeavors.

Spiritual Health & Wellness

Spiritual Wellness is the ability to establish peace and harmony in our lives. It is a personal matter involving values and beliefs that provide a purpose in our lives. While different individuals may have different views of what spiritualism is, it is generally considered to be the search for meaning and purpose in human existence, leading one to strive for a state of harmony with oneself and others while working to balance inner needs with the rest of the world. Having a quiet place to walk and reflect on life can be a spiritual experience. Churches are starting to provide walking tracks on their property or provide a space for community gardens, which can link the spiritual realm to the physical realm.

Occupational Health & Wellness

Occupational Wellness is the ability to get personal fulfillment from our jobs or our chosen career fields while still maintaining balance between work and leisure time in our lives. It focuses on our search for a calling and involves exploring various career options and finding where we fit. It also involves addressing workplace stress and building relationships with co-workers. Because what we do for a living encompasses so much of our time, it is important for our overall well-being to do what we love and love what we do. Being able to walk while on a lunch break or making it convenient to walk to a bus stop can improve overall occupational health by providing a place to recreate or reducing the cost burden by allowing a person to access a cheaper mode of transportation.

Public transportation in combination with bus stops that are accessible via a safe walking network promote occupational health and wellness by allowing individuals to access a job or education without the burden of the cost of owning and operating a motor vehicle.

Photo: Don Kostelec

Health Impacts of Pedestrian Facility Investments

Exhibit 8-3 outlines the likely impacts of people's behavior for each mile of sidewalk or greenway constructed. Exhibit 8-4 indicates several types of pedestrian facility investments and the likely health impacts, both positive and negative, of those investments. It is hard to find negative impacts of investing in pedestrian facilities as many have the potential, based on research by academics, health professionals and transportation researchers, to greatly impact a community's health and an individual's health in many ways. Some of these positive impacts include:

- Providing a place for people of all ages and abilities to safely walk for transporta-

tion, recreation and socializing;
- Connecting destinations by facilities that encourage walking rather than driving, which saves money and increases physical activity;
- Eliminating the need for pedestrians to walk in the roadway;
- Places pedestrians in more predictable locations along roadways; and
- Provides a space that is more resilient to the impacts flooding and other episodic hazards.

The negative health impacts that can arise with pedestrian facility investment are primarily related to episodic incidents, construction impacts and a mix of users (e.g. bicyclists). Incorrect placement of pedestrian facilities or poorly constructed facilities can be a detriment to the health and safety of pedestrians.

Health-based Investments

The multi-criteria evaluation for pedestrian projects in Forest City included several categories that relate to improve health conditions as a result of the project. These factors were safety, proximity to parks, schools and employment, access to food and populations in need. In a review of the recommended projects for Forest City as well as prevailing research related to health impacts and project evaluation criteria, the following projects appear to have the most potential to positively impact the health of the community:

- **Thermal Belt Rail Trail**, due to its connecting to many neighborhoods, activity centers and employment hubs throughout the town;
- **West Main Street sidewalks**, due to its filling a critical gap in the pedestrian city, addressing a safety need, serving neighborhoods in needs and linking the downtown area to these neighborhoods;
- **Broadway Street sidewalks**, due to their potential to address safety needs, link neighborhoods in need, and provide access to grocery stores and downtown; and
- **Oak Street sidewalks west of the US 74 Bypass**, due to the area's employment figures, lack of sidewalk connecting and emerging safety concerns.

It is recommended that Forest City pursue health-based funding for these high priority health projects.

Exhibit 8-3: Behavior change resulting from a mile of new sidewalks/greenways

Days per Month (% of users)	Duration in Minutes	Impacted Users	Minutes per Month Max Duration x Days per Month
4-6 (17%)	20-30	105	120-180
	31-40		160-240
7-10 (49%)	20-30	310	210-300
	31-40		280-400
11-14 (17%)	20-30	105	330-420
	31-40		440-560
15+ (17%)	20-30	105	450+
	31-40		600+

Will people walk more if facilities are built? The answer is: Yes! This table illustrates the results of research through Health Impact Assessment and related modeling to identify how many days per month individuals will walk and likely impact to user per mile of facility constructed.

Source: Buncombe Co. Greenways & Trails Plan HIA

Exhibit 8-4: Broad Health Bene-

Facility:	Description	Broad Health Benefits (↑ = Positive; ↓ = Negative)
Complete Streets	A "complete street" is one designed to provide appropriate space for the safe movement of all users including motorists, bicyclists and pedestrians. In addition, a street is deemed "complete" if it adequately considers and optimizes adjacent land uses, is designed for a context sensitive travel speed, and provides ample buffer space between uses.	↑ Gives ample space for pedestrians and bicyclists, fostering and promoting active modes. ↑ An attractive and vibrant street can attract more use and users ↑ Buffer space and design limits high vehicle speeds, conflicts with defenseless users ↓ All elements of the street need to be maintained to ensure continued intentions
New Sidewalks	Constructing new sidewalks compliant with ADA standards where they currently do not exist is a cornerstone of a walkable and active community. New sidewalk will vary in width where pedestrian use is higher and should be built with adequate roadway buffer space where warranted.	↑ Provides stable and predictable walking surface ↑ Heightens profile and presence of pedestrians to motorists ↑ Can be usable space for providing street furniture, signage, vegetation ↑ Is not prone to flooding, roadway debris, or rutting like gravel or dirt surfaces ↓ Initial construction can generate noise, dust, and potential stress
Crosswalks	Providing a designated space for pedestrians to cross a street either at an intersection or mid-block is the intended use for crosswalks. Crosswalk design can range from simple paint schemes, to more complex design including the use of pedestrian or traffic signals, pedestrian countdown signals, auditory devices and refuge islands.	↑ Fosters pedestrian movement at predictable locations ↑ Allows accessibility to particular land uses ↑ Heightens awareness for pedestrian presence to drivers ↑ If used with an elevated platform, can calm traffic and reduce severity of possible crash ↓ Without maintenance, crosswalks can lose both reflective properties and visual prominence ↓ Crosswalks generally put pedestrians in direct line with motorists. Use is principally dependent on driver compliance.
Separated Pathway	Greenway routes are constructed to ADA standards, are generally outside of roadway right of ways and span through open space, riverways, or through designated easements. Greenways are free of vehicle traffic, but can intersect roads and accommodate all user types both pedestrian and bicyclists.	↑ Removes user from roadways ↑ Dedicated pedestrian/bicyclist space ↑ Connects land uses other than by roadway ↑ Provides stable walking surface ↓ If isolated, perception of danger heightened ↓ User type variability could lead to bike/pedestrian, or bike/bike crashes ↓ If outside of peripheral vision of motorists, crashes rates at intersection increased
Natural path	A natural path is one that is without a paved or artificial surface and can be used by pedestrians and bicyclists. Natural paths are generally built with minimal enhancements, and can be near roads or streets or in natural landscape settings like hills, or river or lake shorelines	↑ Removes users from roadways ↑ Dedicated pedestrian/bicyclist space ↑ Immerses users in a natural setting ↑ Lower cost to construct ↓ Surface can become unpredictable or unstable without normal maintenance ↓ Can be limited due to weather events such as flooding or soiling

9. Implementation & Evaluation

Completion of *Forest City: Heart & Sole* is only one step in creating a community that is accommodating to people who walk. The implementation of the Plan will require a coordinated effort amongst Town officials, leaders, and citizen volunteers as well as follow-up plans and studies on more specific improvements. This chapter 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.

The implementation strategies of the Pedestrian Plan are closely aligned with areas the state of North Carolina identified for Bicycle and Pedestrian Safety Strategies through a series of summits in early 2011 and through NCDOT's Complete Streets efforts. The major action initiatives identified through those summits to help guide NCDOT and other state agencies through the next decade were:

- Fully implement Complete Streets;
- Address multi-modal funding;
- Retrofit existing facilities;
- Require more from all road users;
- Increase public awareness through education;
- Connect transportation and land use; and
- Improve law and strengthen enforcement.

Each of these themes are addressed to some degree within the *Forest City: Heart & Sole* plan. This can help stakeholders within Forest City and Rutherford County articulate to local, regional and state leaders that the implementation of this Plan is consistent with what has been identified at the state level.

These actions also help support the vision and goals of NCDOT as well as making a case to the state and its leaders that pedestrian needs are important. It will take the energy of communities like Forest City and its stakeholders, as well as many advocates, for walking and bicycling to once again become a priority for North Carolina.

10 Action Steps

Completing the 10 Action Steps (Exhibit 9-1) on the next two pages helps guide development of the proposed walking network and creates a supportive program and policy environment for a walk-friendly Forest City. These steps will be crucial in moving forward with the overall recommendations of the Pedestrian Plan.

The 10 Action Steps for Implementation are intended to serve as a barometer for short-term accomplishments related to this plan. Forest City should review these steps each year to determine the best approach to achieving them.

Implementation of Forest City: Heart & Sole can seem daunting. This chapter identifies 10 Action Steps for Implementation to help guide the plan post-adoption and make it easy for the community to track its progress in improving conditions for people who walk.

Photo : Don Kostelec

10 Action Steps for Implementation

1 Adopt the Plan

This is the first stage of implementation. The Plan should be forwarded to regional and state decision-makers, such as the RPO and NCDOT Division office, for inclusion in regional planning and development processes. Rutherford County—its planning, economic and health departments— should also receive a copy for consideration when other plans or programs are updated.

Partners: Town, RPO

2 Meet with Partners, Stakeholders & Others

The planning effort engaged citizens and organizations in visioning, goal-setting and identification of projects, programs, and policies. Keeping citizens and organizations engaged in regular conversation about implementation is vital and Forest City should consider an advisory committee for these topics. The meetings and conversations, particularly with NCDOT Division 13, often lead to identification of mutual interests and projects or funding sources. These regular discussions, perhaps through a countywide pedestrian/greenways advisory committee, can help identify funding opportunities.

Partners: Town, RPO, NCDOT, Health Department

3 Pursue High Priority Project Implementation

Forest City should begin working toward implementation of its highest priority greenway, sidewalk and intersection projects as identified in Chapter 4. This should also include an upgrade of curb ramps along Main Street or Broadway. NCDOT, the RPO and others can help identify the best implementation strategies and potential partners.

Partners: Town, RPO, NCDOT, County

4 Create Annual Fund for Facilities & Maintenance

Working toward high priority projects can only come with financial commitment. As recommended in the Land Use Plan, Forest City should include an annual allocation for facilities for people who walk, both new routes and mintenance. This fund may rotate its priority between greenways, sidewalks and intersections or suballocate a portion of the funds each year to different types of investments.

Partners: Town

5 Adopt Complete Streets Resolution & Policies

Forest City now has a pedestrian plan that incorporates NCDOT's Complete Streets policy and design guidance, which bolsters the case for walking-related improvements on area roadways. To strengthen this position, the town should adopt a Complete Streets resolution and amend existing the UDO to improve walkability.

Partners: Town

6 Be Involved in Complementary Planning Efforts

Incorporate the recommendations of *Forest City: Heart & Sole* into future and existing plans developed and updated at the local, regional and statewide level. For instance, the recommendations of the Plan should be incorporated into the Comprehensive Transportation Plan for Isothermal RPO and any regional trail or greenway plans. Involvement in these efforts will also bolster support for improvements and document the Town's priorities for future NCDOT project prioritization cycles.

Partners: Town, RPO, NCDOT, County

7 Develop Education, Encouragement & Enforcement Programs

Pedestrian facilities alone will not lead to a walk-friendly community. A variety of program recommendations are highlighted in Chapters 6 and 7 to promote safer conditions for people who walk. Ideally, programs and policy priorities should be implemented alongside infrastructure improvements, but the community should recognize that programs such as installing signage or wayfinding can occur several years before major infrastructure projects. Forest City should work with the Active Routes to School program to identify school-based programs in 2015 and 2016.

Partners: Town, Police Dept, Sheriff Dept., Schools

8 Measure performance

This chapter identifies methods by which Forest City and its partners can track the performance in implementation of the Plan, which can help justify funding pursuits and strengthen the ability of the community to gain funding from various sources.

Partners: Town, Volunteers, Health Dept.

9 Engage Youth & Seniors to Raise Awareness

Our youth and senior populations are the most vulnerable pedestrians who use the system. Design of facilities should be done in a manner that is accessible for persons of all ages and abilities. New program ideas and suggestions for specific design features can emerge through engaging youth and seniors in the design of pedestrian facilities. Know where they want to play along the greenway, where they want to rest, and what amenities they desire. If built with youth and seniors in mind, the pedestrian system of Forest City will be safe for all.

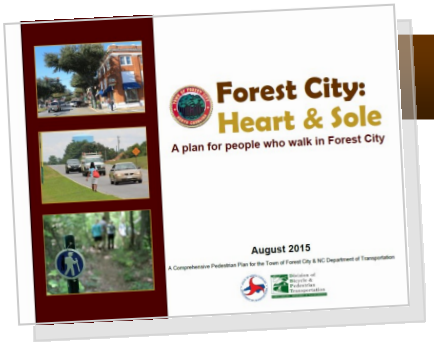
Partners: Town, Health Dept., County

10 Be unique. Think big.

This Plan contains many firsts for Forest City with regard to: a pedestrian plan, a Health Impact Assessment, and a more detailed list of greenway projects. These components should position the Town at the top of the list in the region when it comes to funding for pedestrian investments and recognizing the community as a place that values walkability for safety, health and economic reasons.

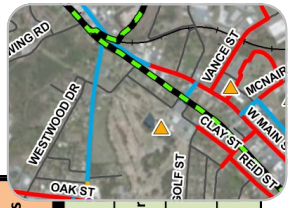
Partners: Everyone

Exhibit 9-2: Potential Implementation Schedule



1. Adopt the Plan—Fall 2015

2. Meet with Partners, Stakeholders & Others to discuss project options and funding pursuits —Fall 2015 and beyond



Total Points	Safety	Proximity to Par	Proximity to Downtown	Proximity to Schools
100	20	15	15	10
87	15	15	15	10
70	15	15	0	10

3. Pursue High Priority Project Implementation - Starting with FY 2016-2017 & RPO SPOT update

4. Create Annual Fund for Facilities & Maintenance—Starting with FY 2016-2017

completestreets

5. Adopt Complete Streets Resolution & Policies - Fall 2017

6. Be Involved in Complementary Planning Efforts – Ongoing after implementation schedule for key projects is known

WATCH FOR ME NC

7. Develop Education, Encouragement & Enforcement Programs—FY 2017-2018

8. Measure Performance —Starting with FY 2017-2018 (earlier if volunteers emerge)

9. Engage Youth & Seniors to Raise Awareness—As staff resources allow or programs are implemented.

10. Be Unique. Think **BIG**—Always!

Evaluation

Transportation-based projects, programs and policies are some of the most measurable aspects of the built environment in that an organization or municipality can track the progress of investments and policy changes. Given the economic uncertainty in many communities and within funding sources, non-profits, cities, RPOs and DOTs are finding value in tracking the performance of a variety of actions. For agencies like Forest City, methods of tracking the performance of projects, programs and policies can greatly help in justifying need for additional projects as grants are pursued. Communities that show measurable progress in the implementation of their plans find themselves in a more strategic position to receive funding from grants and other pursuits.

Performance should not be confused with prioritization, as performance is measured as a change over a period of time, not a ranking of strategies. Performance for walkability and related endeavors can fall into many categories, each of which is in turn measured by some criterion.

Exhibit 9-3: Evaluation Measures for Forest City

Evaluation Measure	Frequency (Every X years)	Evaluation Measure	Frequency (Every X years)
Engineering		**Education**	
• Projects pursued in Pedestrian Plan	1	• Children taught safe walking skills in school	1
• Miles of Sidewalks in Forest City	2	• Senior citizens taught safe walking skills	1
• Miles of Multi-Use Trails/Greenways	2		
• Signage Added along Routes	2	**Evaluation**	
		• Pedestrian Counts along Broadway Street, Oak Street, downtown, and at parks	2
Encouragement		• Total Volunteer Hours	1
• Participants in Walk to School Day	1	• Economic Impact Survey	5
• Participants in Safe Routes to School Program	1	• BMI Rates at Forest City Schools	1
• Outreach opportunities to businesses, visitors	1	• Meetings with Town Officials	1 to 2
		• Funding allocated to pedestrian-related expenditures	1 to 2
		• Interaction with municipal, corridor & regional Plans	Ongoing
Enforcement			
• Number of Crashes (by level / total)	2	• Number of presentations to civic groups, others	1
• Meetings with Law Enforcement	1	• Number of grants pursued	1
• Public Service Announcements	1	• Participation in seminars, webinars & training	1
• Number of Walking Route Maps Distributed	1		

Forest City and its part-
ners should track performance of the pedestrian system on an annual basis and promote this performance through an annual report and presentation to the Town, County and other organizations. Exhibit 9-2 depicts several performance areas that Forest City should consider to measure and document performance of itself and outreach efforts related to walkability.

Funding

Facilities for people who walk are constructed – and therefore funded – through a number of avenues and there are even more funding sources to pursue for programmatic implementation measures. Funding is generally divided into five categories of sources: local, state, federal, non-profit and private funding. The following section describe some of the more prominent sources in each category that Forest City could tap for implementation of this plan.

Creating expectations for future funding and greenway facilities can help create momentum for funding and document a need for the community, such as this signage for a planned greenway in downtown Greensboro, NC.

Photo : Don Kostelec

Local Funding. It is recommended that Forest City establish an annual budget line item specifically for pedestrian improvements. A specific budget item is the most direct way to ensure that funding for pedestrian facilities is available, but sometimes a municipality's budget may be too limited to finance this work. Pedestrian facilities can also be built through "incidental" projects, by ensuring that pedestrian-related features (e.g. sidewalk upgrades, curb ramps) 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, connections and parking.

Municipalities often plan for the funding of pedestrian and greenway 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.

This section highlights common sources of funding; however, these are in a constant state of flux due to transportation funding discussions occurring at the state and federal levels. Isothermal RPO and NCDOT are able to provide the latest information on these funding options.

State and Federal Funding. The State Transportation Improvement Program is based on the Strategic Transportation Investments Bill (2013). The law introduces the Strategic Mobility Formula to prioritize projects funding. With this law, state transportation funds cannot be used to match federally-funded bike and pedestrian projects. The Strategic mobility formula assigns projects for all modes into one of three catego-

ries: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs. Pedestrian projects are in the Division Needs category. It is important to track changes or adjustments in these programs through Isothermal RPO as funding allocations and programs are in flux on a regular basis.

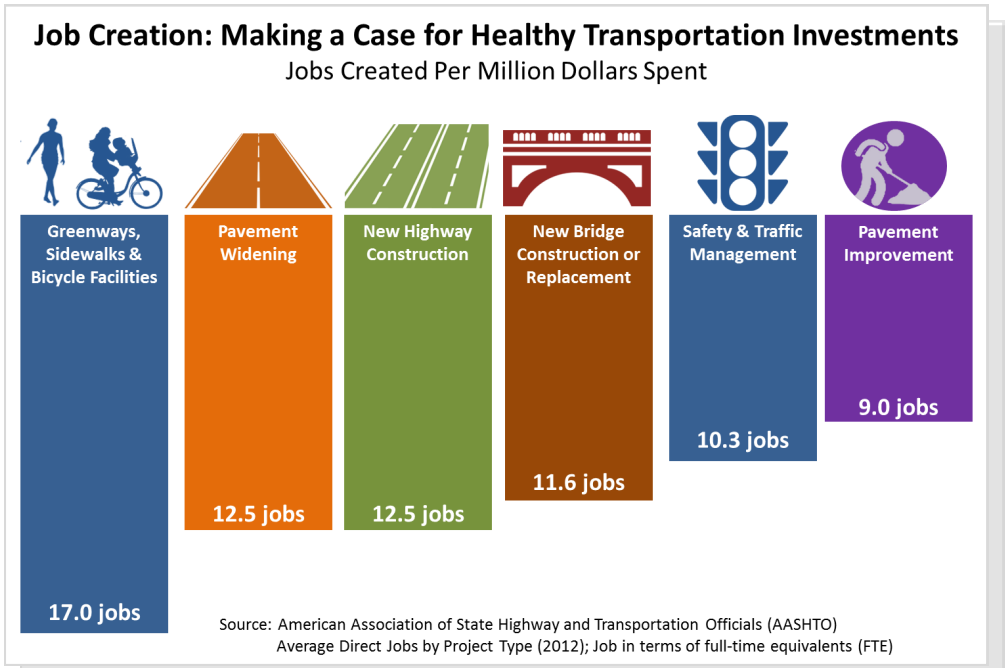
NCDOT's Complete Streets Policy, and similar preceding policies, allows the Department to partner with local governments during the design and construction of roadway and bridge projects to accommodate bicycle and pedestrian improvements. Local governments should consider how planned road resurfacing, widening and safety projects can include bicycle and pedestrian facilities. Cost sharing construction of a sidewalk as part of a roadway project is far less costly to local governments than funding those improvements independently. It is crucial that NCDOT knows the interests of the local government well in advance of project design and construction. Local officials should spend time with Division staff reviewing expectations for accommodating bicycle and pedestrian travel as part of TIP or other roadway and bridge projects.

Transportation Alternative Program (TAP). North Carolina receives an annual allocation of TAP funds from the federal government. Sidewalks and greenways are eligible expenses under this program. Due to state restrictions, the full 20% match required on these funds must be borne by the municipality. North Carolina may have additional TAP funds that were not allocated through the Statewide Transportation Improvement Program and related prioritization processes. Forest City should work through the RPO and with other regional municipalities to develop strategies to help the state utilize these funds.

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. New sidewalks or replacement of existing sidewalks are an eligible expense for these funds.

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

Exhibit 9-4: Job Creation Potential of Walking Facilities



A study conducted by AASHTO—the federal lobbying organization for state DOTs—found that transportation investments such as greenways, sidewalks and bicycling facilities produce more jobs per million dollars spent than any other type of traditional transportation investment.

Illustration: Don Kostelec

Recreation Plan.

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. The projects in this plan that create connections to Forest City's Parks are a good match for PARTF funds.

Non-Profit / Private Funding

Another method of funding sidewalks and greenways is to partner with public agencies, private companies, the hospital or hospital foundation, and/or not-for-profit organizations. Most private funding sources offer limited grants and public-private partnerships engender a spirit of cooperation, civic pride and community participation.

The key to the involvement of non-profit and private partners is to make a compelling argument for their participation. Major employers and developers could be identified and provided with a “Benefits of Walking, Bicycling and Greenways” handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners’ monetary support following a successful master planning effort.

Potential partners include major employers, such as Facebook, which are located along or accessible to sidewalks, bicycle routes 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 legal counsel review the agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

Volunteer Work

It is expected that many citizens will be excited about the development of Forest City’s greenway system and this is already evident in the energy level of those involved with the *Heart & Sole* Plan. Individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on route and greenway development on special community work days. Volunteers can also be used for fund-raising, maintenance, and programming needs.

Volunteers are used by many communities to patrol and conduct light maintenance along greenways. Above, a volunteer patrol in Boise, Idaho, sweeps leaves off the greenway and provides a presence on the trail, which creates a greater sense of safety for users.

Photo Credit: Don Kostelec

Appendix: Survey for Pedestrian Plan

DRAFT Town of Forest City Pedestrian Survey

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

For more information on the Pedestrian Plan, contact Amy Bridges at (828) 247-4417 or amybridges@townofforestcity.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 return the survey to the Forest City Pedestrian plan table, mail this survey to the address on the back, or deliver it to Town Hall. Thank you for your time!

General Information

I am a resident of:

Forest City Rutherford County Other

Gender: M F

Age:

☐ Under 20 ☐ 35-49 ☐ 65-80

☐ 20-34 ☐ 50-64 ☐ 80 and over

On a scale of 1 to 5, where 5 is *very frequently* and 1 is *never*, how often do you walk *to*:

Work	1	2	3	4	5
A school	1	2	3	4	5
Church	1	2	3	4	5
The grocery store	1	2	3	4	5
The library	1	2	3	4	5
A park or recreation center	1	2	3	4	5
A restaurant	1	2	3	4	5
Shopping	1	2	3	4	5
Entertainment or cultural event	1	2	3	4	5
A friend's house or to visit family	1	2	3	4	5
Other:_____	1	2	3	4	5

How many days a week do you walk. . .

For exercise or recreation	0	1	2	3	4	5	6	7
For transportation (to go to work, school, shopping, etc.)	0	1	2	3	4	5	6	7
To walk the dog	0	1	2	3	4	5	6	7
Other:_____	0	1	2	3	4	5	6	7

On a scale of 1 to 5, where 5 is *very comfortable* and 1 is *very uncomfortable*, how comfortable do you feel walking…

In your neighborhood?	1	2	3	4	5
In downtown Forest City?	1	2	3	4	5
In the area near your work?	1	2	3	4	5
Crossing the street at intersections?	1	2	3	4	5
To/from/in a local park?	1	2	3	4	5

Which locations would you like to walk to *more* if conditions were different?

☐ Work ☐ School

☐ The grocery store ☐ The library

☐ Church ☐ Shopping

☐ Owl Stadium ☐ Park or Recreation Center

☐ Cultural event ☐ Thermal Belt Trail

☐ A friend's house or to visit family

☐ Other:_____

On a scale of 1 to 5, where 5 is *highly likely* and 1 is *highly unlikely*, how likely are you to choose NOT to walk somewhere because…

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

Please tell us the roads where you would like to see sidewalks or greenways / paved trails:

Road Name	Starting Point	Ending Point
(example) Oak St.	Church St.	Westwood Dr.

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

Road Name, Start, End	Problem
(ex.) Vance St. between Ellis Ave. and King St.	Cracked pavement from tree roots. Dangerous for 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) Broadway St. and Washington 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 : _____

☐ **Yes, I'd like to receive email updates on the Plan.**

Thank you for taking the Town of Forest City Pedestrian Survey! You can return this survey to the Forest City Pedestrian Plan table or to Town Hall when you pay your utility bill.

Appendix: Individual Survey Responses as Referenced in Chapter 2 (questions 9-12)

Downtown & Main Street:

- Cracked/uneven sidewalks, Large Pot holes, Patch job or redo sidewalk
- West Main Dr, Handin, West Main Dr: I work at a group home and the people that live there love to walk but we do not have a side-walk on West Main Dr
- I love exercising in downtown. There are adequate sidewalks, but all are in need of repair. I had rather see repairs than additional sidewalks.

Need for sidewalks

- Vance St, Dollar General, access to Forest City Dunbar
- Hwy 221 A, Chase High Rd, Broadway
- Church St
- Jefferson St
- Hwy 64
- Hedlow Rd
- East Main St from Carolina Ave to Neal St;
- It would be great to have a sidewalk all the way to McCall Drive, but this is not likely because of opposition
- Cherry Mtn Street from downtown to Crowes Park
- Daniel Road to Butler Road along Bracket Creek, Summey Park to Crowe Park
- East Main St
- Broadway from Main to 74
- Rail Trail from Spindale end to Forrest Hunt Elementary

Greenways

- Greenway Along 2nd Broad River, Ideally, Forest City would have a complete greenway loop that connects major destinations like Isothermal Community College, Wal-Mart, grocery stores, parks and rec locations and a crosstown greenway via the rail corridor that bisects the loop and connects it to downtown.

Other Needs:

- More lighting would help a lot to feel safe
- Have to wait a long time to cross Hwy 221 A, please provide pe-destrian Signal
- Butler Rd and Hwy 74; Traffic light takes too long
- Hazelwood and Pine Oak Dr have many pot holes making it easy to fall or tear ankle when walking; All destinations other than homes of friends / family are too far to walk;

Other Comments:

- I walk 4-6 miles a day and would like more options for walking and prefer not to walk on a track and love walking the city.
- I would like to see an over pass at Hardin rd and oak to keep peo-ple from walking out in front of me in my vehicle
- People are still using the road, such as RR ave to ride their bikes, instead of the new bike road. There should be a law preventing cyclists to use the main road, and only use the bicyclist road.

Appendix: Cost Estimating Table

Cost estimates for projects contained in this plan were derived from "planning level" estimating techniques. Due to the scope and resources available for this plan, planning level estimates are used to generalize costs for projects due to the high variability and unknown factors involved. They are based on prevailing construction costs on a per unit (per mile in this case) estimate of general project features, including: sidewalks with curb and gutter included; sidewalks without curb and gutter include; and greenways or multi-use trails. Little is known about available right-of-way due to limitations of GIS data and lack of documented right-of-way along many North Carolina highways.

Any greater level of specificity on estimates would imply a level of known detail or level of field work that is not commensurate with a pedestrian plan of this type. A feasibility study or detailed design is needed to obtain more detailed estimates. Design costs are typically 10-15% of construction costs. The topography, existing cross-section, and drainage requirements could slightly lessen or greatly increase these values.

Type of Improvement	Unit	Cost per unit
New Sidewalks *(assume 5-feet in width, concrete surface)*		
• One side of a street, including curb and gutter	Per mile	$500,000
• Both sides of a street, including curb and gutter	Per mile	$1,000,000
• One side of a street, no curb and gutter work required	Per mile	$150,000
• Both sides of a street, no curb and gutter work required	Per mile	$3000,000
Paved Multi-Use Trail or Greenway *(assume 10-feet in width, asphalt)*		
• Multi-use trail along existing railbed (prepped)	Per mile	$600,000
• Multi-use trail along waterway, such as a creek or stream	Per mile	$1,000,000
Major Intersection Upgrades		
• Includes installation of pedestrian signals, audible pedestrian buttons, curb ramp upgrades and crosswalk striping	Per each	$15,000
Minor Intersection Upgrades		
• Includes crosswalk striping and curb ramp upgrades	Per each corner	$3,000