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TOWN OF GIBSONVILLE

2014 Comprehensive Pedestrian Plan

alta GREENWAYS

Citizen Involvement

A special thanks to the 100+ local residents who participated in this planning process through comment forms, public workshops, and meetings.

Key Partners

The Town of Gibsonville

The North Carolina Department of Transportation (NCDOT)

Burlington-Graham Metropolitan Planning Organization (BGMPO)

Pedestrian Plan Steering Committee

Ben Baxley, Town Manager, Town of Gibsonville

Brandon Parker, Planning Director, Town of Gibsonville

Mike Nunn, Director, Burlington-Graham MPO

Mark Averette, Alley, Williams, Carmen and King, Inc

Rob Elliott, Assistant Director of Public Works, Town of Gibsonville

Coy May, Director of Public Works, Town of Gibsonville

Ron Parrish, Police Chief, Town of Gibsonville

Mike Dupree, Director of Parks and Recreation, Town of Gibsonville

Josh Johnson, Alley, Williams, Carmen and King, Inc

Project Consultants

Lindsay Smart, AICP, Alta/Greenways

John Cock, Alta/Greenways

Brittain Storck, Alta/Greenways

Steve Bzomowski, Alta/Greenways

Allison Bullock, Alta/Greenways

Matt Hayes, AICP, Alta/Greenways

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1 Introduction

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Purpose

The Comprehensive Pedestrian Plan for the Town of Gibsonville guides the future development and enhancement of pedestrian facilities within the town, and intends to make walking an integral mode of transportation in Gibsonville. This plan was developed with extensive input from the community, seeks to meet Gibsonville's needs and desires for pleasant, enjoyable and safe places to walk, and reflects the regional collaboration between the Town of Gibsonville, Alamance and Guilford Counties, the Burlington-Graham Metropolitan Planning Organization (MPO), and other local and regional partners.

Vision Statement and Goals

What will Gibsonville be like for pedestrians in the future? This plan seeks to answer that question and is guided by a vision statement and set of measurable goals. The vision statement and goals were developed during the steering committee kick-off meeting and were supported by residents of Gibsonville during public outreach and engagement activities. The statement below describes Gibsonville's vision for a pedestrian-friendly future and the goals describe how Gibsonville will achieve their vision.

Pedestrian Master Plan Vision Statement

The Town of Gibsonville will be a place where pedestrian connectivity and access is provided to downtown, schools, parks, and other recreation destinations; where comprehensive pedestrian design is integrated into all future planning and development; and where active transportation improvements enable residents of Gibsonville to enjoy a high quality of life.

Goals of the Pedestrian Plan

- Adoption of this Comprehensive Pedestrian Plan
- Provide for a strong, interconnected network of sidewalks
- Develop and implement educational programs
- Identify and prioritize gaps in the pedestrian network
- Revise development regulations to include a sidewalk ordinance
- Increase the quality of sidewalks

The Planning Process

The Project Steering Committee

The project steering committee consisted of local stakeholders, Town staff, Burlington-Graham MPO staff, and interested residents. The steering committee met with project consultants three times throughout the process. During the first meeting in October of 2013, the committee focused on the project vision, goals, and existing conditions. During the second meeting in February of 2014, the committee discussed proposed improvements and pedestrian-related programs needed in Gibsonville. The committee also reviewed a draft pedestrian plan document. The third steering committee meeting occurred in April of 2014 with a review of the final pedestrian master plan document for presentation to Town Council for adoption.

The project kicked off on October 28th, 2013 with a steering committee meeting.

Members of the steering committee participated in a visioning and goal setting exercise.

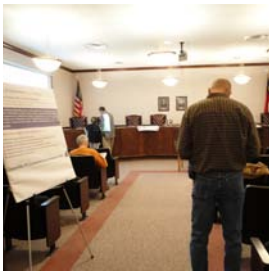
Public Involvement

Residents stopped by the booth at the Lighting of the Green event to learn about the project and provide input on improving the pedestrian environment in Gibsonville.

Extensive public outreach and engagement activities were conducted to garner local knowledge and input. Public input was gathered through several different means,including steering committee meetings, a project website, a project comment form, press releases, project information cards, and public workshops.

In October of 2013, a project website was developed with guidance from the steering committee. The website was publicly launched following the kick-off meeting. It was updated regularly throughout the planning process with project information, a link to the online comment form, upcoming public events, a summary of project progress, and a link to the draft plan when it was made publicly available in February of 2014.

The first public engagement event was held on November 22, 2013 during the annual Lighting of the Green event in downtown Gibsonville. A public input map for suggested areas of improvement, comment forms, and posters were provided for review, and consultants answered questions and took comments. Project information cards were also distributed with the link for the web-based comment form. Many residents stopped by the booth to learn about the plan and provide input. The general feedback was highly positive, with many people interested in learning more about Gibsonville's plans to create a walkable community.



A public open house was held in Town Council Chambers in February 2014.

A second public outreach event was facilitated as a public open house in Town Council Chambers in February of 2014. Residents were able to review preliminary recommendations in a powerpoint presentation and by looking at a series of maps. Residents asked questions and marked up their input on the maps.

Public Comment Form

The public comment form developed for the Comprehensive Pedestrian Plan was made available in both hardcopy and online formats. The comment form was available online throughout the duration of the project. To maximize responses to the online form, the web address was distributed at public meetings, advertised in press releases, broadcast through a telephone message recording, sent out to local interest groups, and included on information cards that were distributed around the Town.

Results of the comment form were collected and tabulated to provide insight into local residents' values and opinions about the project. Appendix B, "Public Engagement," includes a summary of the responses received to the public comment form.

Data Collection and Analysis

Collection of existing geographic information systems (GIS) data such as the Town's existing sidewalk network, aerial photography, and planned greenway network, occurred during project kick-off.

After collecting baseline information about the study area, the consultants began assessing existing conditions (described in more detail in Chapter 2). Consultants used aerial photography and GIS data to identify opportunities and constraints for pedestrian facility development. These preliminary findings were then tested for applicability and appropriateness through on-the-ground research, including an intersection inventory and a photographic inventory in the fall of 2013. Field research included the exploration of neighborhoods, schools, parks, existing trails, and the downtown core of Gibsonville to identify opportunities for connections between neighborhoods and key destinations such as recreation areas, schools, and downtown.

This evaluation of existing data, physical conditions, opportunities, and challenges serves as the foundation for comprehensive recommendations for the development of pedestrian facilities. The existing conditions and the preliminary findings were presented to the steering committee and the public in February of 2014.

Pedestrians are active in downtown Gibsonville.

A residential area along Railroad Avenue adjacent to downtown GIbsonville features well-maintained sidewalks.

Benefits of a Walkable Community

When considering the level of dedication in time and valuable resources that it takes to create a walk-friendly community, it is also important to assess the immense value of active transportation. Better walking and bicycling facilities improve safety and encourage more people to walk and bike, which in turn improves health, provides a boost to the local economy, creates a cleaner environment, reduces congestion and fuel costs, and contributes to a better quality of life and sense of community.

Communities across the country are experiencing the benefits of providing a supportive environment for walking and bicycling. With a better active transportation network, Gibsonville can create a stronger, more vibrant community.

Increased Health and Physical Activity

A growing number of studies show that the design of our communities—including neighborhoods, towns, transportation systems, parks, trails, and other recreational facilities—affects our level of physical activity. Regular physical activity is recognized as an important contributor to good health. The Centers for Disease Control and Prevention (CDC) recommend 30 minutes of moderate physical activity each day for adults and 60 minutes each day for children.[1] Unfortunately, many people do not meet these recommendations because they lack environments where they can be physically active. The CDC reports that "physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic."[2] These conditions also increase families' medical expenses; each year North Carolinians spend over $24 billion on health care costs associated with a lack of physical activity, excess weight, type 2 diabetes, and poor nutrition.[3]

Having accessible pedestrian facilities available, such as sidewalks and greenways, can help people more easily incorporate physical activity into their daily lives. Sixty percent of North Carolinians say they would increase their level of physical activity if they had better access to walking facilities, such as sidewalks and trails.[4] Regular physical activity, such as walking, is shown to have numerous health benefits:[5]

- Reduces the risk and severity of heart disease and diabetes
- Reduces the risk of some types of cancer
- Improves mood
- Controls weight
- Reduces the risk of premature death

The American Public Health Association also recognizes the health benefits of walk-friendly communities. According to its 2010 report, "Investments in transit, walking, and bicycling facilities support transit use, walking, and bicycling directly; they also support the formation of compact, walkable, transit-oriented neighborhoods that in turn support more walking, bicycling and transit and less driving. These built environments have repeatedly been associated with more walking, bicycling and transit use, more overall physical activity, and lower body weights; lower rates of traffic injuries and fatalities, particularly for pedestrians; lower rates of air pollution and greenhouse gas emissions; and better mobility for non-driving populations."[6]

The CDC determined that creating and improving places to be active could result in a 25 percent increase in the number of people who exercise at least three times a week.[7] This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits. The establishment of a safe and reliable network of sidewalks and multi-use trails can have a positive impact on the health of nearby residents. The Rails-to-Trails Conservancy puts it simply: "Individuals must choose to exercise, but communities can make that choice easier."[8]

The National Health Costs of…	$$ (Billions)	Estimate Includes	Source
Obesity and overweight	$142	• Healthcare costs • Lost wages due to illness & disability • Future earnings lost by premature death	National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Statistics Related to Overweight and Obesity: The Economic Costs. Available at: http://win.niddk.nih.gov/statistics/index.htm
Air pollution from traffic	$50-80	• Health care costs • Premature death	Federal Highway Administration. 2000. Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, May 2000. Available at: www.fhwa.dot.gov/policy/hcas/addendum.htm
Traffic crashes	$180	• Healthcare costs • Lost wages • Property damage • Travel delay • Legal/administrative costs • Pain & suffering • Lost quality of life	AAA. Crashes vs. Congestion? What's the Cost to Society? Cambridge, MD: Cambridge Systematics, Inc.; 2008. Available at: www.aaanewsroom.net/assets/files/20083591910.crashesVscongestionfullreport2.28.08.pdf

With a better active transportation network, Gibsonville can create a stronger, more vibrant community and reduce the costs of an inactive lifestyle.

Economic Benefits

Transportation Savings

When it comes to transportation costs, walking is the most affordable form of transportation available. According to the American Automobile Association, the cost of owning and operating a medium-sized sedan for one year is approximately $7,804.[9] In contrast, owning and operating a bicycle costs just $120 per year, according to the League of American Bicyclists,[10] and walking is virtually free. The Pedestrian and Bicycle Information Center explains how these lower costs help individuals and communities as a whole: "When safe facilities are provided for pedestrians and bicyclists, more people are able to be productive, active members of society. Car ownership is expensive, and consumes a major portion of many Americans' income."

Walking becomes even more attractive from an economic standpoint when the unstable price of gasoline is factored into the equation. Oil prices more than quadrupled between 2000 and 2008, when gasoline prices topped $4 per gallon.[11] The unreliable cost of fuel reinforces the idea that local communities should be built to accommodate active transportation. Many established North Carolina communities already have traditional mixed-use and generally compact land development patterns; when combined with new strategies for improving alternative transportation, many communities could foster local reductions in auto- and oil-dependency.

Vehicle Operation Annual Costs per Mile

costs		yearly totals
operating costs		
gas per mile		_____
total miles driven	×	_____
total gas	=	_____
maintenance	+	_____
tires	+	_____
total operating costs	+ =	_____
ownership costs		
depreciation		_____
insurance	+	_____
taxes	+	_____
license and registration	+	_____
finance charges	+	_____
total ownership costs	+ =	_____
other costs (washing, accessories, etc.)	+	_____
total driving costs	=	_____
total miles driven	÷	_____
cost per mile	=	_____

Increased Property Values

Bicycle and pedestrian facilities such as bike lanes, paths, sidewalks, and greenway trails are popular community amenities that add value to properties nearby. According to a 2002 survey by the National Association of Realtors and the National Association of Homebuilders, homebuyers rank trails as the second-most important community amenity out of 18 choices, above golf courses, ball fields, parks, security, and others.[12] This preference for trails is reflected in property values around the country. In the Shepard's Vineyard residential development in Apex, North Carolina, homes along the regional greenway were priced $5,000 higher than other residences in the development—and these homes were still the first to sell.[13] These higher prices reflect how trails and greenways add to the desirability of a community, attracting homebuyers and visitors alike.

Environmental Improvements

Air Quality

Providing the option of walking as an alternative to driving can reduce the volume of gasoline consumed and resulting car-related emissions, which in turn improves air quality. Cleaner air reduces the risk and complications of asthma, particularly for children, the elderly, and people with heart conditions or respiratory illnesses.[14] Lower automobile traffic volumes also help to reduce neighborhood noise levels and improve local water quality by reducing automobile-related discharges that are washed into local rivers, streams, and lakes. Furthermore, every car trip replaced with a walking trip reduces U.S. dependency on fossil fuels, which is a national goal. According to a survey by the National Association of Realtors and Transportation for America, 89 percent of Americans agree that transportation investments should support the goal of reducing energy use.[15]

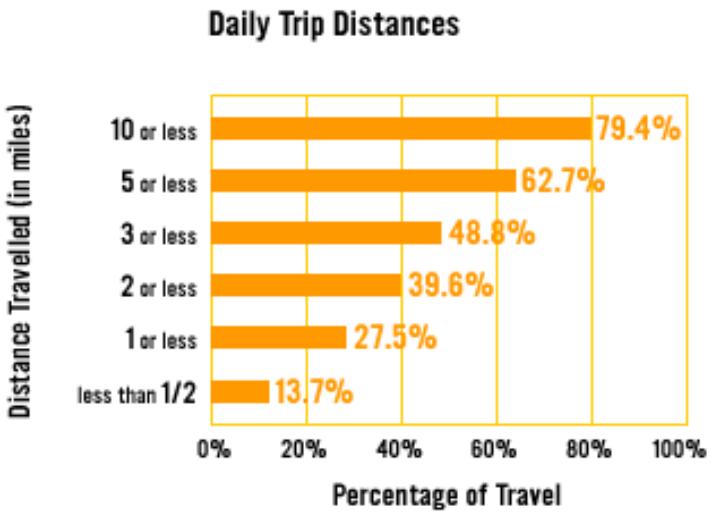
Environmental Services of Greenways

Greenways and trails are a key component of any pedestrian network and carry environmental benefits as well. Greenways protect and link fragmented habitat and provide opportunities for protecting plant and animal species. By conserving plant cover, greenways also preserve the natural air filtration processes provided by plants, which remove harmful pollutants such as ozone, sulfur dioxide, carbon monoxide, and airborne heavy metal particles. Finally, greenways improve water quality by creating a natural buffer zone that protects streams, rivers, and lakes, preventing soil erosion, and filtering pollution caused by agricultural and road runoff. Greenways also act as a line of defense against natural hazards, such as flooding.

Transportation Benefits

Many North Carolinians do not have access to a vehicle or are unable to drive. According to the 2001 National Household Travel Survey, 12 percent of persons age 15 or older do not drive, and 8 percent of U.S. households do not own an automobile. Providing a well-connected pedestrian network provides those who are unable or unwilling to drive with a safe transportation option. Pedestrian improvements can increase access to important destinations for the young, the elderly, low-income families, and others who may be unable to drive or do not have a motor vehicle.

Investing in pedestrian facilities can also help to reduce congestion and the pollution, gas costs, wasted time, and stress that comes with it. Each person who makes a trip by foot is one less car on the road or in the parking lot. A network of sidewalks, trails, and paths gives people the option of making a trip by foot, which helps to alleviate congestion for everyone. Pedestrian facilities can also help to substantially reduce transportation costs by providing a way of getting around without a car for some trips. More than one-quarter of all daily trips are one mile or less, equivalent to a 15 to 20 minute walk.[16] With a safe, convenient alternative transportation network, some of these shorter trips could be comfortably made by foot, saving money on gas, parking costs, and vehicle wear and tear over time.



More than one-quarter of all daily trips in the U.S. are one mile or less, equivalent to a 15 to 20 minute walk.

Quality of Life

Many factors go into determining the quality of life for the citizens of a community: the local education system, the prevalence of quality employment opportunities, and the affordability of housing are all commonly cited. Increasingly, though, citizens are demanding a cleaner, safer, more enjoyable community that provides amenities for adults and children alike. Communities with quality greenways, trails, and sidewalks attract new residents as well as new businesses and industries. Getting outdoors and being physically active also helps to relieve stress, improve mood, and foster social connections between residents.

Communities with pedestrian, bicycle, and trail amenities can attract new businesses, industries, and in turn, new residents. Furthermore, quality of life is positively impacted by walking and bicycling through the increased social connections that take place by residents being active, talking to one another, and spending more time outdoors and in their communities. According to the Brookings Institution, the number of older Americans is expected to double between 2000 and 2025.[17] All but the most fortunate seniors will confront an array of medical and other constraints on their mobility even as they continue to seek both an active community life, and the ability to age in place. Off-road trails built as part of the pedestrian and bicycle transportation network generally do not allow for motor vehicles; however, they do accommodate motorized wheelchairs, which is an important asset for the growing number of senior citizens who deserve access to independent mobility. For those seniors who remain ambulatory, off-road trails provide an excellent and safe opportunity for exercise and fitness.

Children under 16 also deserve access to safe mobility and a higher quality of life. In recent years, increased traffic and a lack of pedestrian and bicycle facilities have made it less safe for children to travel to school or to a friend's house. In 1969, 48 percent of students walked or biked to school, but by 2001, less than 16 percent of students walked or biked to or from school.

In a 2004 CDC survey, 1,588 adults answered questions about barriers to walking to school for their youngest child aged 5 to 18 years.[18] The main reasons cited by parents included distance to school, at 62%, and traffic-related danger, at 30%. Strategic additions to the bicycle and pedestrian network could shorten the distance from homes to schools, and overall pedestrian and bicycle improvements can improve the safety of the roadways so that children within Gibonsville could once again safely walk in their communities. According to the National Center for Safe Routes to School, "Walking or biking to school gives children time for physical activity and a sense of responsibility and independence; allows them to enjoy being outside; and provides them with time to socialize with their parents and friends and to get to know their neighborhoods."[19] Ensuring that children have safe connections to their schools and throughout their neighborhoods can encourage them to spend time outdoors, get the physical activity they need for good health, and enjoy a higher quality of life.

The creation of a safe pedestrian and bicycle facility network will serve as a link to the outdoors, providing residents of Gibsonville with easily accessible opportunities for community-building, recreation, education, exercise, and transportation. Sidewalks, bikeways, and greenway trails are facilities that are available to all income groups, all neighborhoods, and all community groups, regardless of background and experiences. Many residents will take pride in the facilities, as they will become part of their daily, weekly, or monthly lives. These facilities will allow residents to access basic needs and interact with neighbors without dependence on an automobile.

A greenway can also serve as a hands-on environmental classroom for people of all ages to learn historical information and experience natural landscapes, furthering environmental awareness. Local schools and community groups will be able to incorporate outdoor learning activities into their curricula and provide children with outdoor education. Outdoor classrooms also offer the chance for a better knowledge of natural resources and the interconnectedness of these resources. Opportunities are available in an outdoor classroom to educate youth on the importance of taking care of the environment.[20]

Conclusion

The benefits of fully accommodating pedestrians, and increased rates of walking, are diverse and substantial. While increased safety for pedestrians and bicyclists is the most apparent benefit, a safe and comprehensive network reduces the collision risk for all users and contributes valuable health, economic, environmental, transportation,

and quality of life benefits to Gibsonville residents and visitors.

Endnotes

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2 Existing Conditions

Chapter Contents

Introduction

Walking is the most basic form of transportation. In North Carolina, it is also the most popular means of recreation and exercise. Yet choosing to make a trip on foot in Gibsonville and most North Carolina communities requires careful planning and consideration due to land use patterns and lack of infrastructure connectivity. Generally, people will not choose to walk to work, school, or a park if they don't have sidewalks or other dedicated pedestrian pathways and are not within a reasonable walking distance (one-half mile or 10 minutes) of their destination.

History and Land Use Development

History

The Gibson family were some of the earliest settlers and entrepreneurs in this area. From 1851-1855, Joseph Gibson facilitated the construction of the railroad through the center of town and the first post office, bearing the town's name, opened for business in 1855. The Town of Gibsonville was officially incorporated in 1871, and the original area was one square mile (3.5 square miles today).

The railroad would play a significant role in the growth of the town as most businesses grew within accessible distance to the railroad station. The late 19th century and 20th century saw the growth of several mills in Gibsonville. Cotton and the textile industry would become key elements of the town's business landscape similar to much of the piedmont region of central North Carolina.[1]

Location

Gibsonville straddles the Alamance/Guilford county border, with over half of the land area located on the Guilford County side. It is well connected to many major centers in North Carolina due to several major highways traversing the area. US 70, NC 100, NC 61, and NC 87 all pass through or very near the town. Interstate 85/40 lies less than three miles to the south. This accessibility allows Gibsonville to utilize many larger population centers and what they have to offer. Within one hour of the town limits are the large urban centers of the Triangle and Triad, with Greensboro less than 20 miles to the west.

Gibsonville's geographic characteristics, existing roadway and land use configurations, and limited existing sidewalk facilities significantly affect the viability of pedestrian transportation and recreation, and the everyday decisions of citizens. A complete and effective pedestrian network consists of facilities such as sidewalks, traffic calming measures, crosswalks, curb ramps, pedestrian countdown signals, walking trails and multi-use pathways, and railroad crossings that are highly visible, attractive, and safe. Today, the town features ten miles of existing sidewalk networks.

Geographic Information Systems (GIS) Analysis

Geographic Information Systems (GIS) data was obtained from the Town of Gibsonville and the State of North Carolina. Map 2.1, titled "Existing Conditions," on page 2-3, presents existing conditions in Gibsonville and serves as the foundation for analyzing the current pedestrian environment. The analysis included evaluation of the existing pedestrian network, locations of pedestrian-related crashes, and the identification of popular destinations; natural and historic areas; sidewalk gaps; and demographic patterns that may be useful in assessing need for future pedestrian facilities. The compact, historic downtown core offers visitors and residents walkable areas. Important destinations are located within a one mile radius of the downtown core area. Maps 2.2 and 2.3 on pages 2-4 and 2-5, respectively, present half-mile and one mile radius buffers of the downtown core area. These maps highlight the existing pedestrian network and the locations of destinations within walking distance of the downtown business district.

Trip Attractors

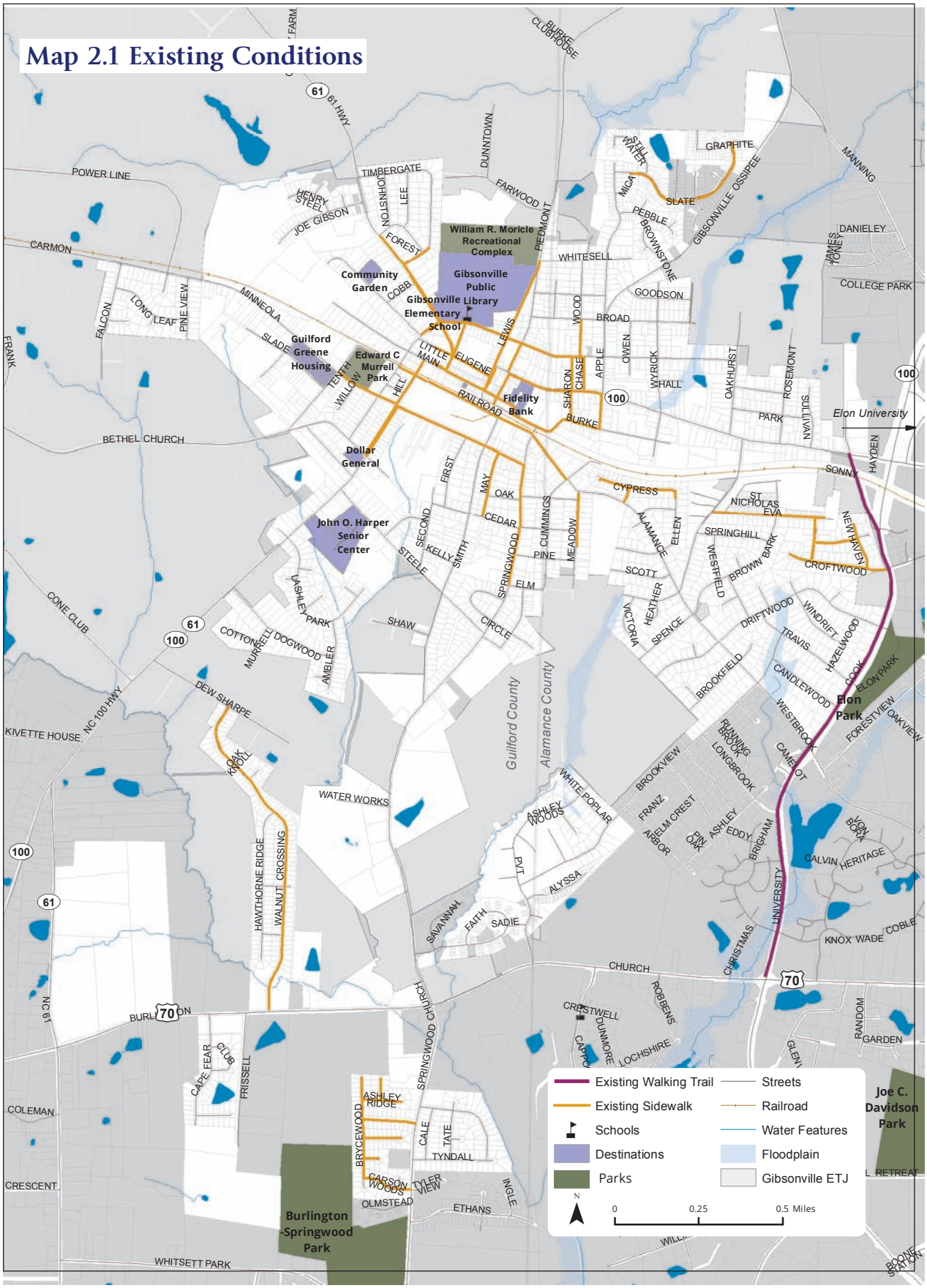
People currently drive, walk, or bike to a variety of destinations across Gibsonville for various purposes. These potential destinations and points of origin for residents and visitors are referred to in this document as 'trip attractors'. Many, but not all, of the trip attractors in Gibsonville are labeled on Map 2.1.

Trip attractors in and around Gibsonville include the following:

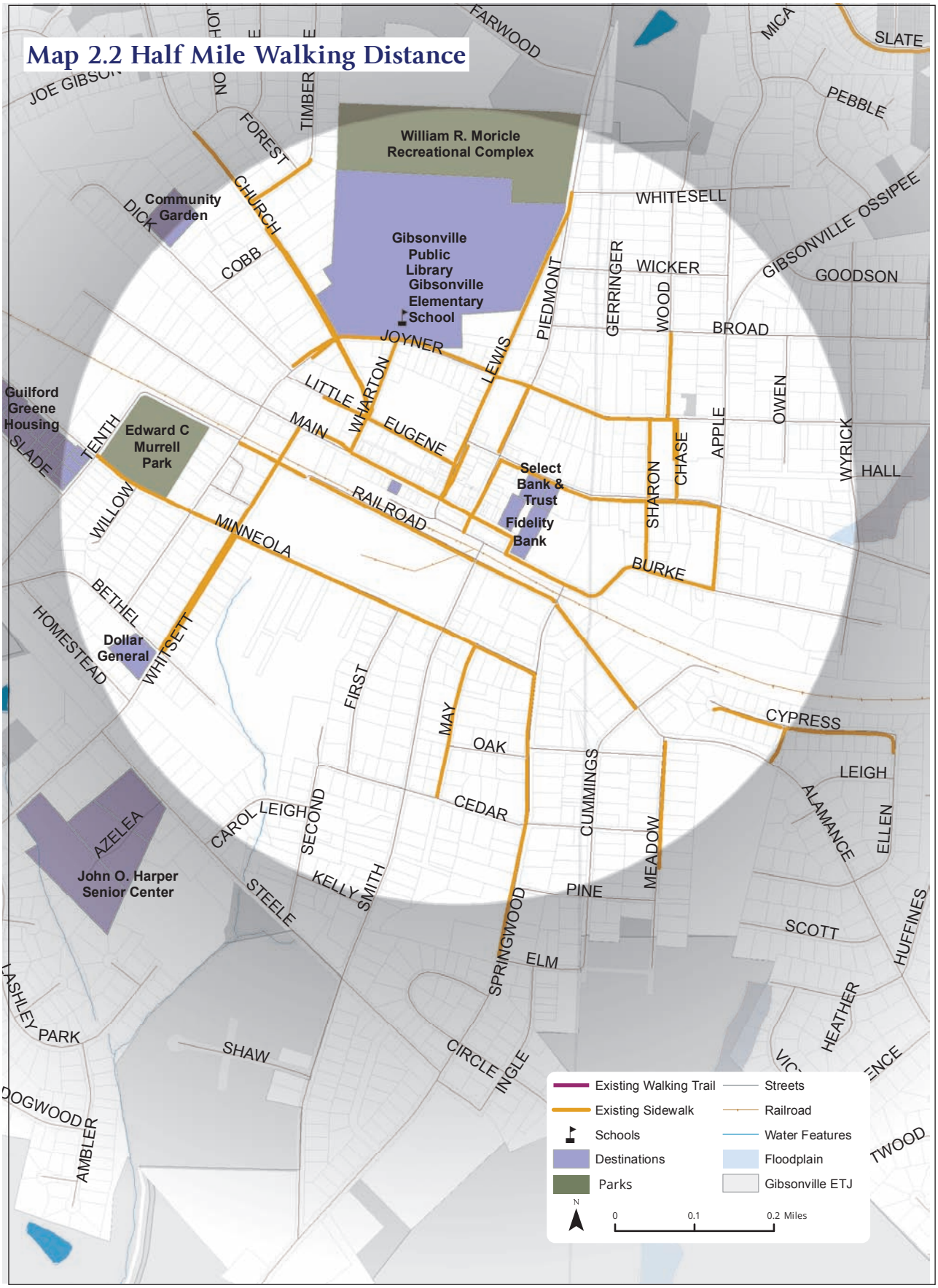
- Downtown Gibsonville
- Town of Gibsonville Parks
- Public destinations: Gibsonville Public Library, school, post office
- Cook Road and University Drive walking paths
- Elon University just east of Gibsonville

The trip attractors listed above were considered when determining locations for recommended pedestrian network improvements. They represent important starting and ending points for travel and provide a good basis for planning ideal routes. While Elon University is not within the Town of Gibsonville boundary, the walking trail along Cook/University is a significant travel corridor for residents and visitors of Gibsonville and for faculty, students, and staff of Elon University for travel into Gibsonville.

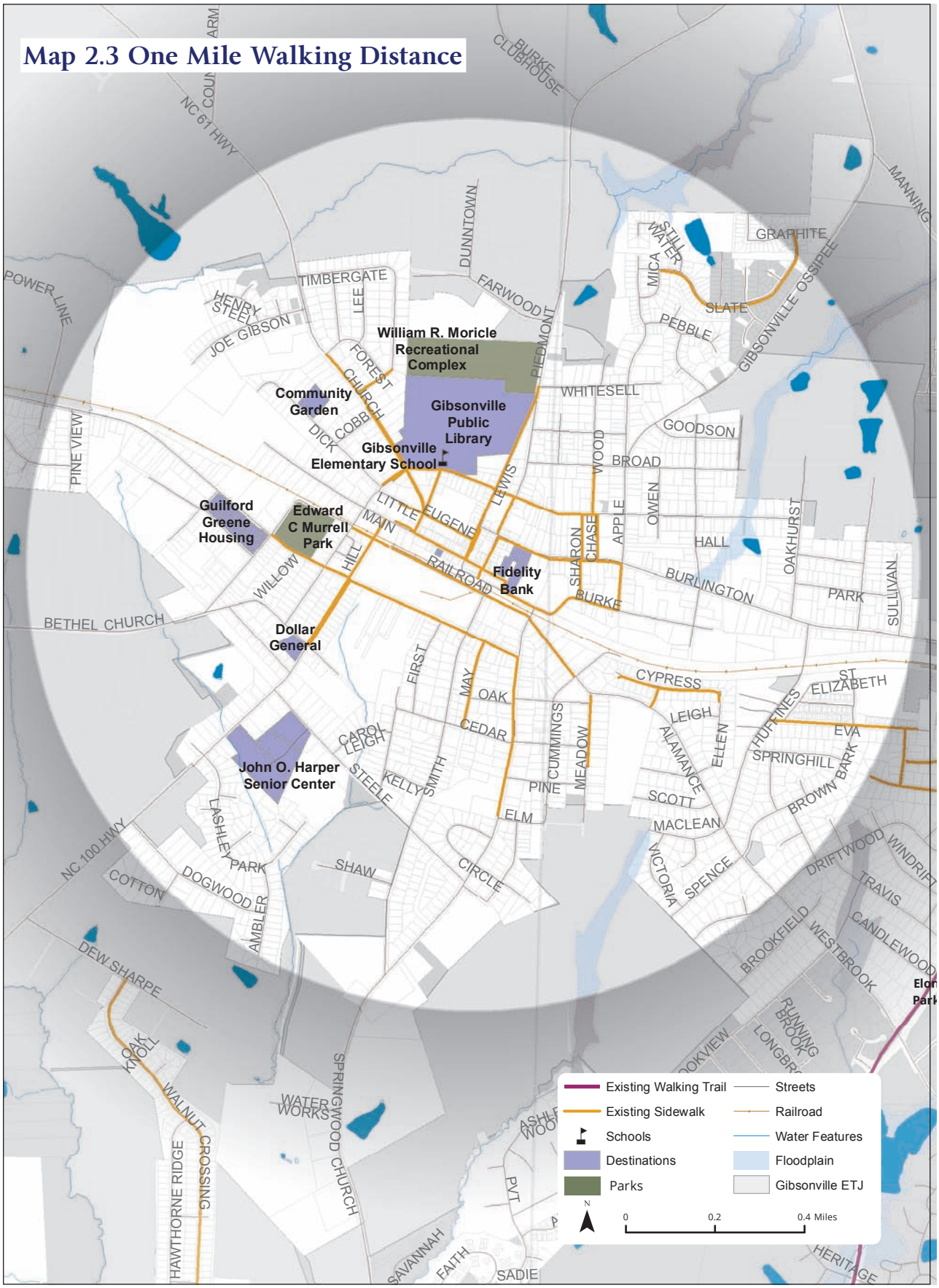
Map 2.1 Existing Conditions



Map 2.2 Half Mile Walking Distance



Map 2.3 One Mile Walking Distance



Demographic Analysis

The walking needs and demands of different populations in Gibsonville can be better understood through an analysis of demographic information. 2010 U.S. Census Bureau data and 2007-2011 U. S. Census Bureau, American Community Survey (ACS) data were obtained and analyzed during the current conditions evaluation of this plan. Data sets such as population density, minority populations, households without access to a vehicle, people who walk to work, and median household income were mapped by Census Block or Block Group.

Table 2-1: Gibsonville Population Characteristics

Gibsonville Demographics (US Census Bureau)	Source	Estimate	% of Total
Total Population	2010 Decennial Census	6,410	100
Hispanic/Latino Population		378	5.9
Minority Population		1,320	20.6
Population Living Below the Poverty Line	ACS 5-Year (2007-2011)	615	9.6
- Alamance County		N/A	16.1
- Guilford County		N/A	16.2
- North Carolina		N/A	16.1
Median Household Income per Year		$62,580	N/A
- Alamance County		$44,430	N/A
- Guilford County		$46,288	N/A
- North Carolina		$46,291	N/A

Population Characteristics

As of the 2010 U.S. Census estimate, Gibsonville had a total population of 6,410. Females represent 53.8 percent of the population and males 46.2 percent. Over half of the population (63.3 percent) falls between the ages of 18 and 65 years old. Youth under the age of 18 make up 25.2 percent of the population and adults over the age of 65 account for 11.5 percent. Table 2-1 provides a summary of Gibsonville population characteristics and how they compare to Alamance County, Guilford County, and North Carolina as a whole.

Population Density

Map 2.4 on page 2-8, titled "Population Density," shows population density by U.S. Census Block in Gibsonville. The most densely populated area is located at Eva and Brown Bark in the eastern portion of town. Additional areas with population densities greater than ten persons per acre include the townhomes at Park Drive and Rosemont Street, and neighborhoods in the northeast portion of town. Providing safe access between highly populated areas and destinations such as commercial centers, employment areas, and the downtown business district should be considered high priorities for Gibsonville.

Racial Minority Populations

According to the 2010 U.S. Census, 20.6 percent of the total population in Gibsonville is considered to be minority. Map 2.5 on page 2-9, titled "Minority Populations," is a map of the minority populations within Gibsonville. Higher density clusters of minority populations exist adjacent to Burlington Avenue and Joyner Street in the central portion of town, as well as Minneola Street and Tenth Street on the west side of town. It is important to consider these areas when planning for pedestrian infrastructure projects to ensure that the town provides equitable access to the pedestrian network.

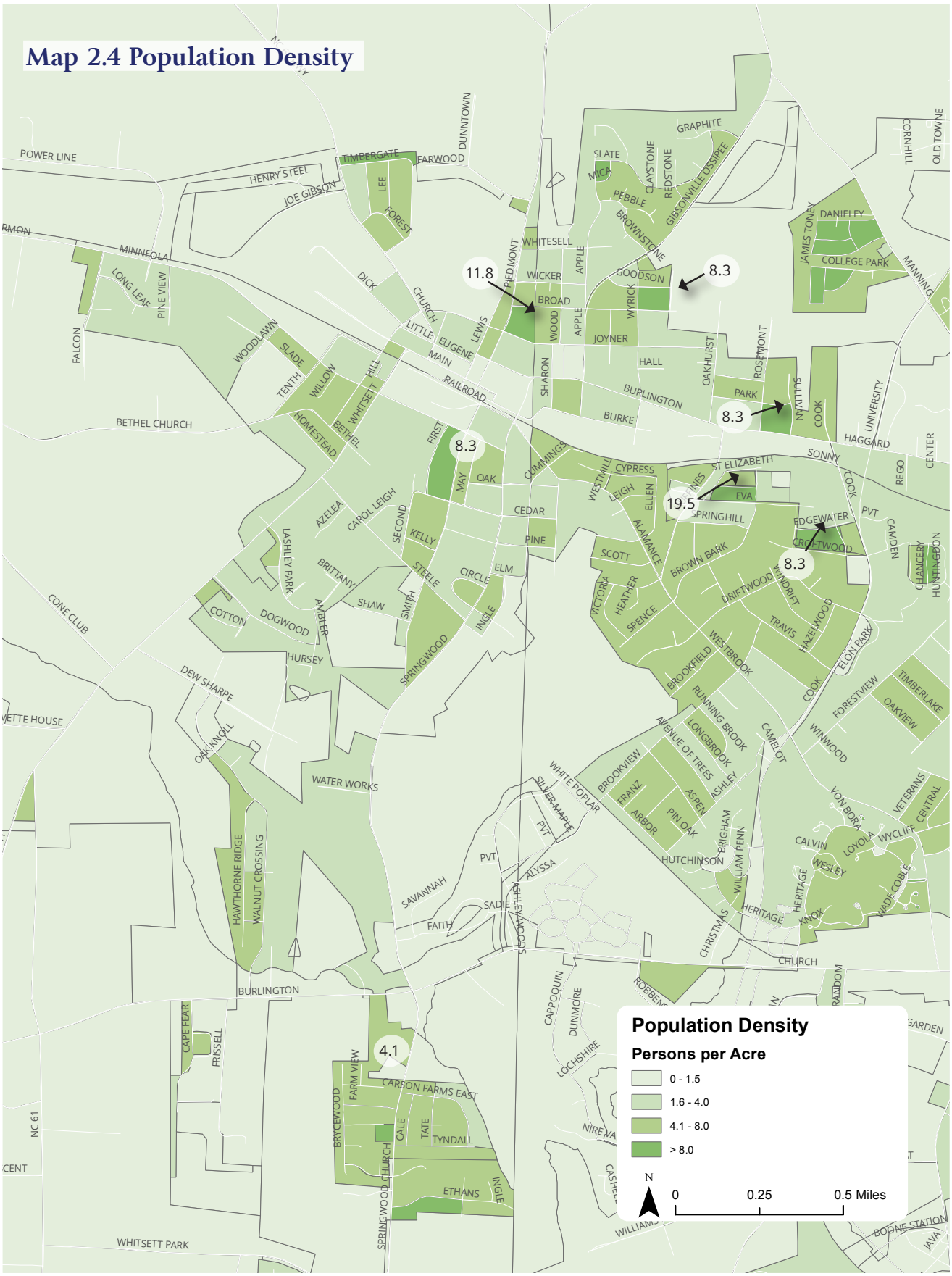
Hispanic or Latino Ethnicity/Origin Populations

According to the 2010 U.S. Census, approximately 5.9 percent of Gibsonville's total population are considered to be of Hispanic or Latino ethnicity/origin. Map 2.6 on page 2-10, titled "Hispanic/Latino Origin Populations," illustrates the concentrations of the Latino population in Gibsonville. Higher density clusters of Latino populations exist in the western portions of town, along Minneola Street, Whitsett Avenue, and First Street. Other areas with higher proportions of Latino populations are along Burlington Avenue and in the neighborhoods in southwest Gibsonville. It is important to consider these areas when planning for infrastructure projects to ensure that the town provides equitable access to the pedestrian network.

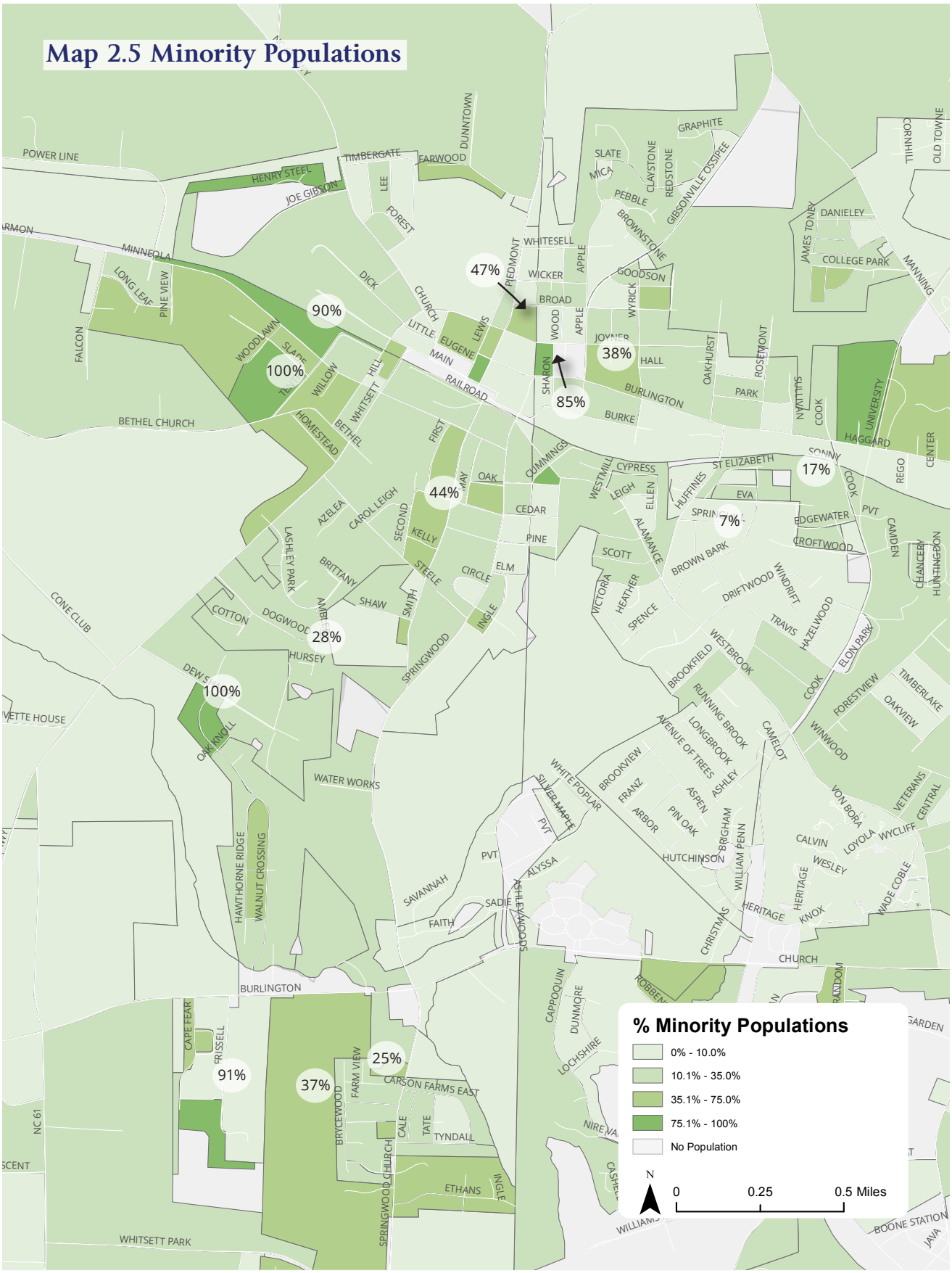
Median Household Income Levels

Median household income is mapped by U.S. Census Block Group. According to 2007-2011 U.S. Census ACS data, the median household income for Gibsonville is $62,580. Median household income levels for Gibsonville Census Block Groups are illustrated in Map 2.7 on page 2-11, and range from $34,358 in the northwest portion of town to $127,411 on the east and southeast sides of town. To ensure convenient walking opportunities, a strong pedestrian network should be in place to safely connect residents of all income levels to destinations that provide access to basic needs.

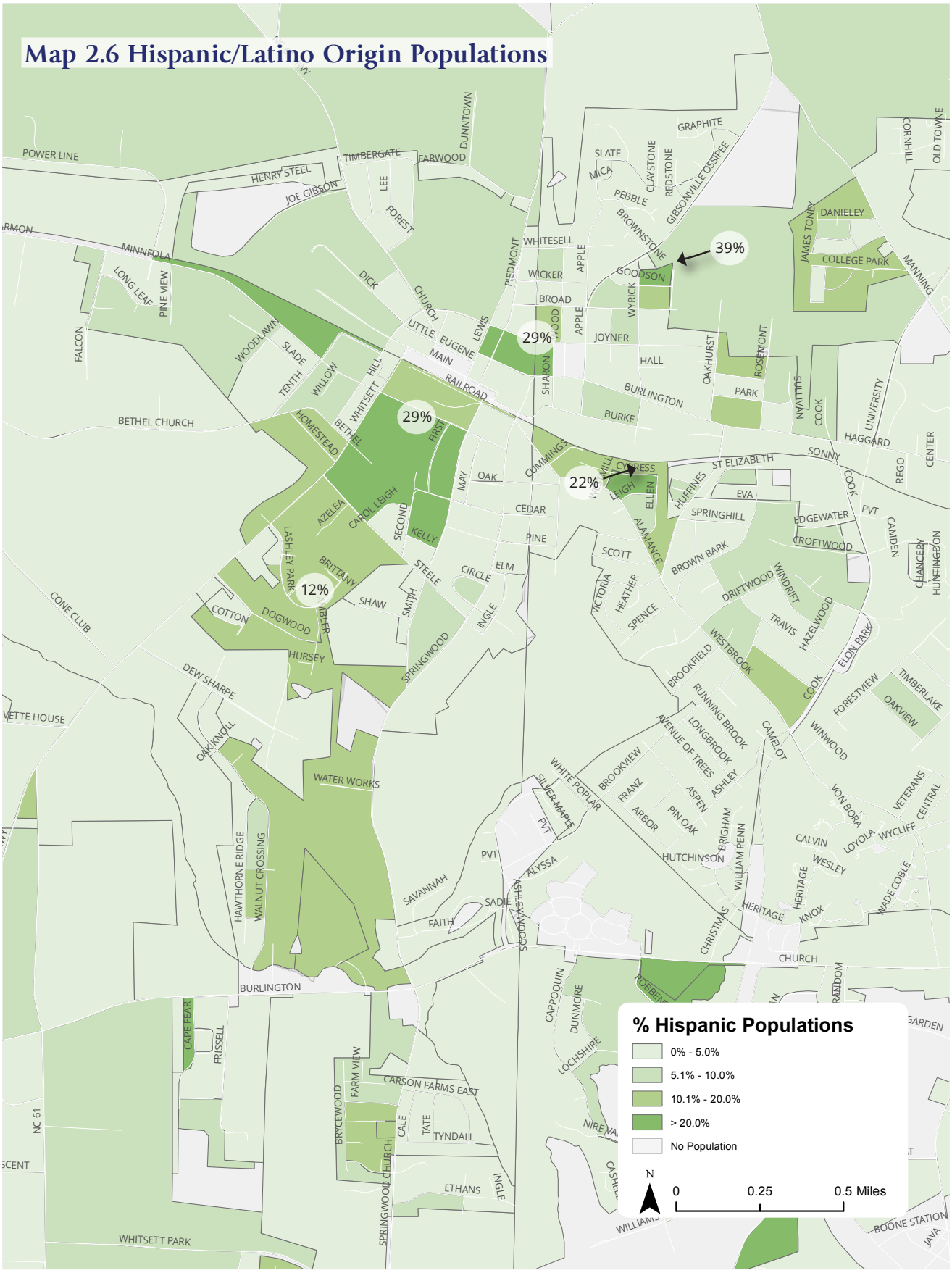
Map 2.4 Population Density



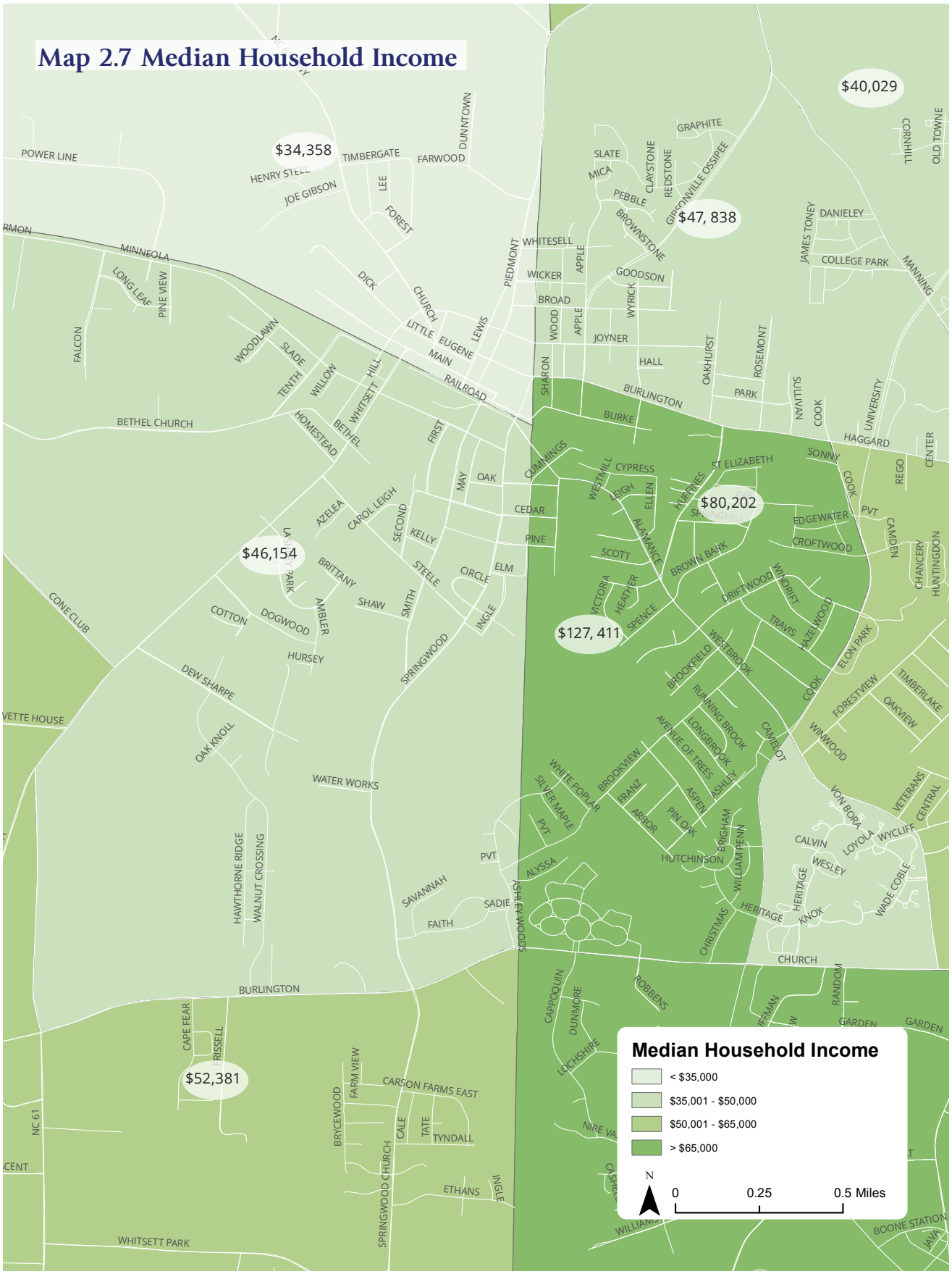
Map 2.5 Minority Populations



Map 2.6 Hispanic/Latino Origin Populations



Map 2.7 Median Household Income



Walk to Work Populations

Map 2.8 on page 2-13, titled "Pedestrian Commuters," illustrates ACS Census Block Group data for the populations in Gibsonville that walk to work. The ACS Census Block Group with the highest percentage (1.7%) of pedestrian commuters exists in the northeastern portion of town. It is important to note that 20.3% of the Census Block Group just northeast of Gibsonville Town Limits walks to work – this likely highlights the influence of nearby Elon University. Areas with people walking to work have an immediate need for safe, connected pedestrian facilities.

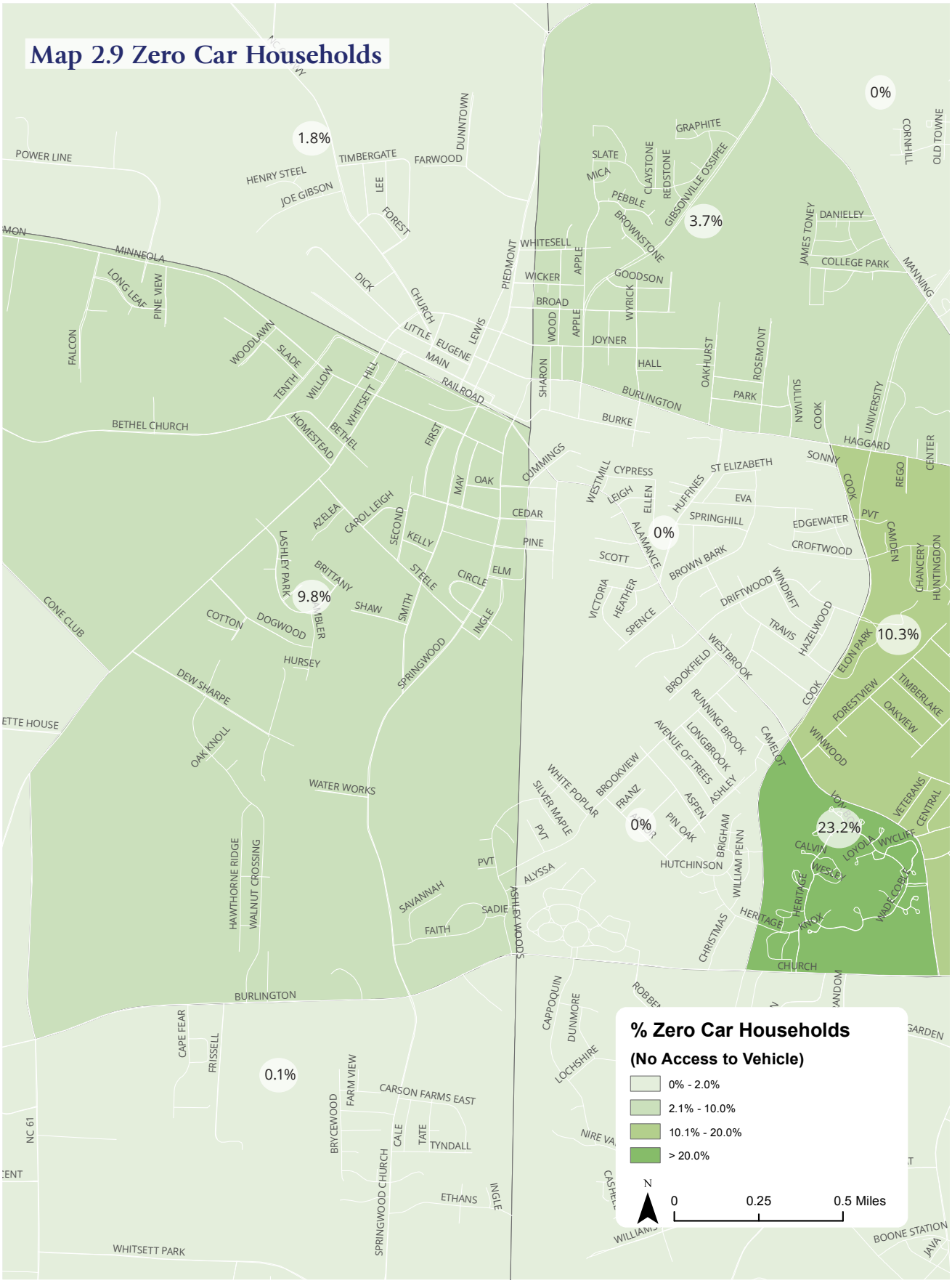
In much of Gibsonville, no commuters currently walk to work. Areas with a low proportion of pedestrian commuters may have latent potential demand for better infrastructure. Improved facilities and access would enable residents to consider walking to their place of employment or other high-priority destinations.

Population with No Access to a Vehicle (Zero Car Households)

Map 2.9 on page 2-14, titled "Zero Car Households," illustrates the concentrations of Zero Car Households in and around the Town of Gibsonville. Based on 2007-2011 U.S. Census ACS estimates, 3.3 percent of households in Gibsonville do not have access to a vehicle. Areas with high proportions of households with no access to a vehicle are shown in the darkest green color in Map 2.9. The southwestern portion of town has the highest percentage of households with no access to a vehicle, at 9.8 percent. Roughly one of every ten people in this area must get around by other means, whether by foot, bicycle, carpool, or other transportation mode. Neighborhoods southeast and east of the Gibsonville town limits also have a higher proportion of households with no access to a vehicle (23.2% and 10.3%, respectively) and could benefit from connections from the town limits into Gibsonville. Safe walking routes and facilities are especially important to households without a car so that they may access high-priority destinations throughout town.

Map 2.8 Pedestrian Commuters

Map 2.9 Zero Car Households



One of Gibsonville's more diverse population areas lies along Minneola Street south and southwest of downtown.

Oakhurst Street: While this section of Gibsonville has the highest walk to work percentage (1.7%), just northeast of this street and Gibsonville Town Limits, many people walk to work (20.3%), likely to Elon University.

Whitsett Avenue: Lower average incomes and higher percentages of households without cars are found in the western half of Gibsonville. Households in the southwest section of Gibsonville include nearly 10% that do not own a car.

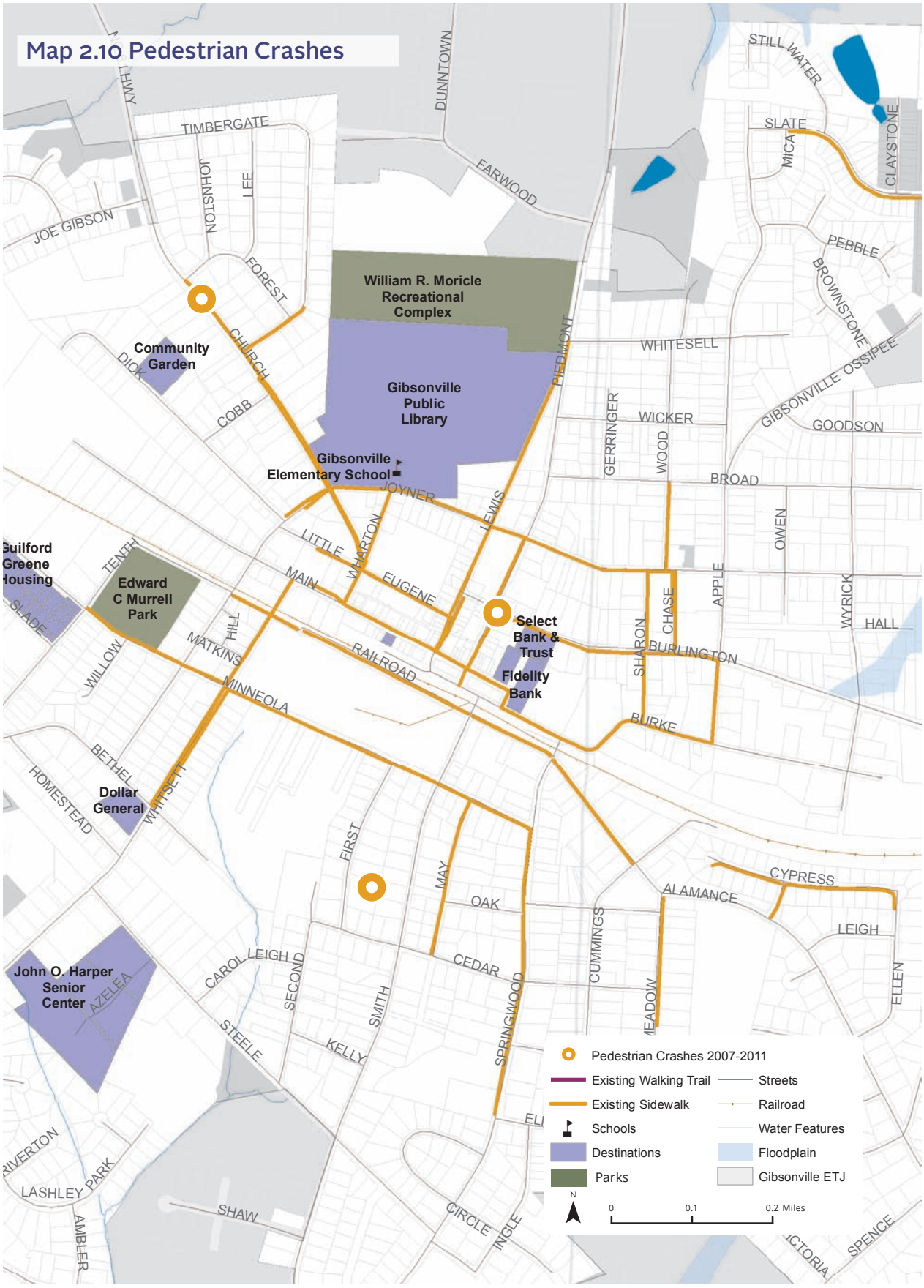
A pedestrian walking along Piedmont Avenue near Broad Street. This area of Gibsonville is one of the most densely populated.

NCDOT-Reported Pedestrian Crashes

Data for pedestrian crashes involving motor vehicles from 2007-2011 was provided by NCDOT early in the planning process. It is important to note that not all pedestrian-related crashes are reported to the police, and only reported crashes are included in this evaluation. The three crashes in Gibsonville during this time period are mapped on page 2-17.

The locations of the three crashes were assessed during field work investigations. Existing intersection crossing conditions and the pedestrian environment were noted, as well as any barriers to pedestrian or motorist safety. Examples of existing barriers to pedestrian travel in Gibsonville are presented on page 2-20. The recommendations presented in Chapter 3 take into account the locations of the three crashes and the results of the field work assessment of each crash location. The three pedestrian-auto crash locations in Gibsonville were on NC 100/Burlington Avenue, NC 61/Church Street, and 1st Street.

A view of the Burlington Avenue/Piedmont Avenue intersection where one pedestrian crash has occurred.


Map 2.10 Pedestrian Crashes
William R. Moricle Recreational Complex
Community Garden
Gibsonville Public Library
Gibsonville Elementary School
Edward C Murrell Park
Select Bank & Trust
Fidelity Bank
Dollar General
John O. Harper Senior Center
Guilford Greene Housing
DUNNTOWN
STILL WATER
SLATE
MICA
CLAYSTONE
TIMBERGATE
JOHNSTON
LEE
FARWOOD
JOE GIBSON
FOREST
CHURCH
DICK
COBB
PIEDMONT
PEBBLE
BROWNSTONE
WHITESELL
OSSIPEE
GIBSONVILLE
GOODSON
GERRINGER
WICKER
WOOD
BROAD
OWEN
JOYNER
LEWIS
LITTLE
WHARTON
EUGENE
MAIN
TENTH
SLADE
WILLOW
HILL
MATKINS
RAILROAD
MINNEOLA
BURKE
SHARON
CHASE
APPLE
WYRICK
HALL
BURLINGTON
BETHEL
HOMESTEAD
WHITSETT
FIRST
MAY
OAK
CEDAR
CAROL LEIGH
SECOND
SMITH
KELLY
STEELE
SPRINGWOOD
CUMMINGS
ALAMANCE
CYPRESS
LEIGH
ELLEN
AZELEA
LASHLEY PARK
SHAW
AMBLER
CIRCLE
INGLE
SPENCE
Pedestrian Crashes 2007-2011
Existing Walking Trail
Existing Sidewalk
Schools
Destinations
Parks
Streets
Railroad
Water Features
Floodplain
Gibsonville ETJ
N
0
0.1
0.2 Miles

Opportunities and Challenges

An analysis of Gibsonville's pedestrian conditions identified a number of elements that are considered opportunities and challenges for creating a walkable community. An **opportunity** represents a situation or condition that is favorable to pedestrian travel, either today or in the future. A **challenge** represents a situation or condition that is a potential limitation or restriction to pedestrian access. This section identifies the opportunities and challenges associated with the existing pedestrian environment in Gibsonville, as noted by the consultant team's field review and input from the public, Town staff, the steering committee, and key stakeholders.

Key Opportunities

1. Pedestrian Activity/Existing Sidewalk Mileage

The Town of Gibsonville currently features about seventeen miles of sidewalk along its roadways. Main Street, Lewis Street, Joyner Street, Minneola Street, Railroad Avenue, Burke Street, and Whitsett Avenue have sidewalks along one or both sides of the roadway that provide pedestrian access (with some upgrading needed) to important destinations. Numerous pedestrians were observed around Gibsonville, particularly near many of the locally-owned shops in the downtown core. There is a paved walking trail along Cook Road/University Drive that runs adjacent to Gibsonville town limits in Elon. Many residents of Gibsonville and Elon, and faculty, staff, and students from Elon University use the walking trail.

2. Proximity of Destinations

Gibsonville Elementary is the only school that exists in Gibsonville and can be seen in Map 2.1. This school is surrounded by residential areas and is located two blocks from downtown. The two parks of Gibsonville, Edward C. Murrell Park and William R. Moricle Recreation Complex, are within a half-mile walking distance of downtown (see Map 2.2), connected by sidewalks.

The Town of Gibsonville is relatively compact and a grid street network exists in some areas, especially near the downtown core. As shown in Maps 2.2 and 2.3, several destinations are within a half-mile to one-mile walking distance of each other. Neighborhoods, schools, and parks are situated close to the downtown and to each other, making walking a feasible option for many trips if a connected network of sidewalks and safe crossings is available.

3. Downtown Core

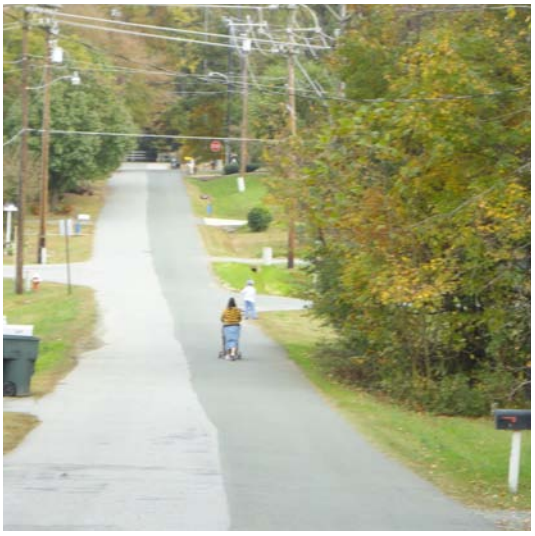
The downtown commercial center generally provides lighted and well-maintained sidewalks and intersections feature pedestrian crossing treatments. Whitsett Avenue, Church Street, Lewis Street, Piedmont Avenue, Main Street, Alamance Street, Burlington Avenue, and Burke Street all feature sidewalks leading into the downtown core. The downtown core also features pedestrian amenities such as waste receptacles, benches, and American flags.

Photographic Inventory of Existing Pedestrian Network Strengths

Pedestrian bridge connection over Whitsett Street.

Edward G. Murrell Park is a local destination bounded by Joyner Street, Minneola Street, and 10th Street.

Downtown Gibsonville has a well established sidewalk network, planters and shrubs, and other pedestrian amenities such as waste receptacles and benches.



Pedestrians were observed walking in the street on lower-volume roadways such as Whitesell Street.

Key Challenges

1. Existing Sidewalk Network

Sidewalk Connectivity

A well-maintained sidewalk exists along Main Street in the downtown core, and several arterial roadways feature sidewalks that connect to downtown. However, many roadways that connect the downtown core with residential areas and local destinations are without sidewalks, offer sidewalks on only one side of the road, or are separated by an intersection without adequate pedestrian crossing treatments. Examples of streets that are key arteries through town that lack sidewalk connectivity include, but are not limited to, the following:

- Burlington Avenue
- Lewis Street
- Whitsett Avenue

Facility Standards

Americans with Disabilities Act (ADA) requirements specify five foot minimum width for sidewalks. Numerous sidewalks in Gibsonville built before the enactment of these requirements do not meet the minimum standard. Examples of streets with narrow sidewalks include, but are not limited to, the following:

- Church Street
- Alamance Street
- Springwood Avenue

Additionally, some sidewalk facilities do not follow current best practices. For example, several sidewalks such as those along Minneola Street and Burlington Avenue would benefit from a vegetated buffer to separate pedestrians from the roadway.

Open Drainage Swales

Open drainage swales present a challenge when considering the development of pedestrian improvements. A roadway corridor that would benefit by sidewalk or side path development must consider drainage during the design phase. If no space is available between the roadway corridor and swale or the swale and the furthest extent of the right-of-way (ROW), then it may be necessary to install a drainage system with curbing and gutters. An example of an open drainage swale can be seen in the photo of Minneola Street to the right.

2. Lack of Multi-Use Trails

"Multi-use trails" refer to both greenway trails and side paths built in open spaces or stream corridors, or along a roadway, that accommodate pedestrians and a variety of other non-motorized trail users. Although there is a walking trail in nearby Elon, currently, no multi-use trails exist in Gibsonville. This impacts the ability of children to walk to school, opportunities for physical activity, and the ability to walk between neighborhoods and important destinations rather than traveling by car.

Photographic Inventory of Existing Barriers to Pedestrian Mobility

Many areas, such as the neighborhoods adjacent to Westbrook Avenue, along with Alamance Street, are within walking distance of downtown and other destinations but do not offer pedestrian accommodations.

Sidewalks such as those along Minneola Street at the Whitsett Street intersection are narrow and do not include a buffer between pedestrians and automobiles.

Open drainage swales, such as this one along West Minneola Street, present challenges to sidewalk and side path design.

Sidewalks along Lewis Street are another example where minimum width should be upgraded to meet the five-foot-wide minimum ADA standard.

3. Intersections and Railroad Crossings

Intersections

During fieldwork investigations, the consultant team evaluated pedestrian safety and accessibility at several intersections in Gibsonville. Intersections were initially selected by mapping NCDOT pedestrian crash data in GIS, and were further assessed based on feedback from the steering committee and from public input. Crossing treatments such as pedestrian signals are non-existent, curb ramps should be ADA-compliant, and intersections with high-visibility crosswalks are needed throughout Gibsonville. Examples of key intersections with single, parallel bar crosswalks that could benefit from high visibility crosswalk design include, but are not limited to, the following:

- Joyner Street and Church Street
- Burlington Avenue and Piedmont Avenue
- Piedmont Avenue and Main Street

Railroad Crossings

Railroad crossings are another considerable challenge for pedestrians in Gibsonville. During fieldwork, the consultant team noted that many pedestrians navigate across the Norfolk Southern at-grade railroad crossings in town, even though these crossings do not contain curb ramps, appropriate crossing treatments, signage, or other pedestrian amenities. The lack of safe crossing facilities for the at-grade railroad corridor is a significant barrier to pedestrian travel between the northern and southern halves of Gibsonville. The following railroad crossings were evaluated during field work investigations:

- Norfolk Southern Railroad and Springwood Avenue
- Norfolk Southern Railroad and Joyner Street

The photo to the right of Springwood Avenue at the railroad crossing emphasizes the unsafe pedestrian crossing environment.

Photographic Inventory of Existing Barriers to Pedestrian Mobility

There are no pedestrian crossing facilities at Springwood Avenue (pictured above) or other at-grade crossings for the active rail line that traverses downtown from east to west, creating a significant separation between the northern and southern sections of Gibsonville.

The majority of intersections in Gibsonville lack pedestrian crossing treatments, such as the intersection of Burlington Avenue and Apple Street shown above.

Existing Policies and Plans Related to Pedestrian Travel

Gibsonville Land Development Plan – 2012

This plan, updated in 2012, provides guidance for growth and development for the Town of Gibsonville, including transportation strategies. One of the objectives of the plan is to "encourage pedestrian trails and sidewalks to link commercial, residential, and recreational centers of the town and provide transportation alternatives." The plan's strategies for constructing pedestrian facilities include reviewing and making revisions to the town's development regulations to require pedestrian walkway and sidewalk improvements, to require alternative transportation modes (sidewalks, greenways, bike paths) to be included in all new developments, and to pursue the development of this Pedestrian Plan with NCDOT to identify pedestrian needs within the town.

The Land Development Plan places special focus on creating a more pedestrian-friendly Town Center around Main Street. Design characteristics for future development of the Town Center should focus on the traditional, pedestrian-oriented downtowns of the early 1900's, including attributes such as sidewalks, street trees, storefronts, and complementary building styles.

Specific development goals for the Town Center include:

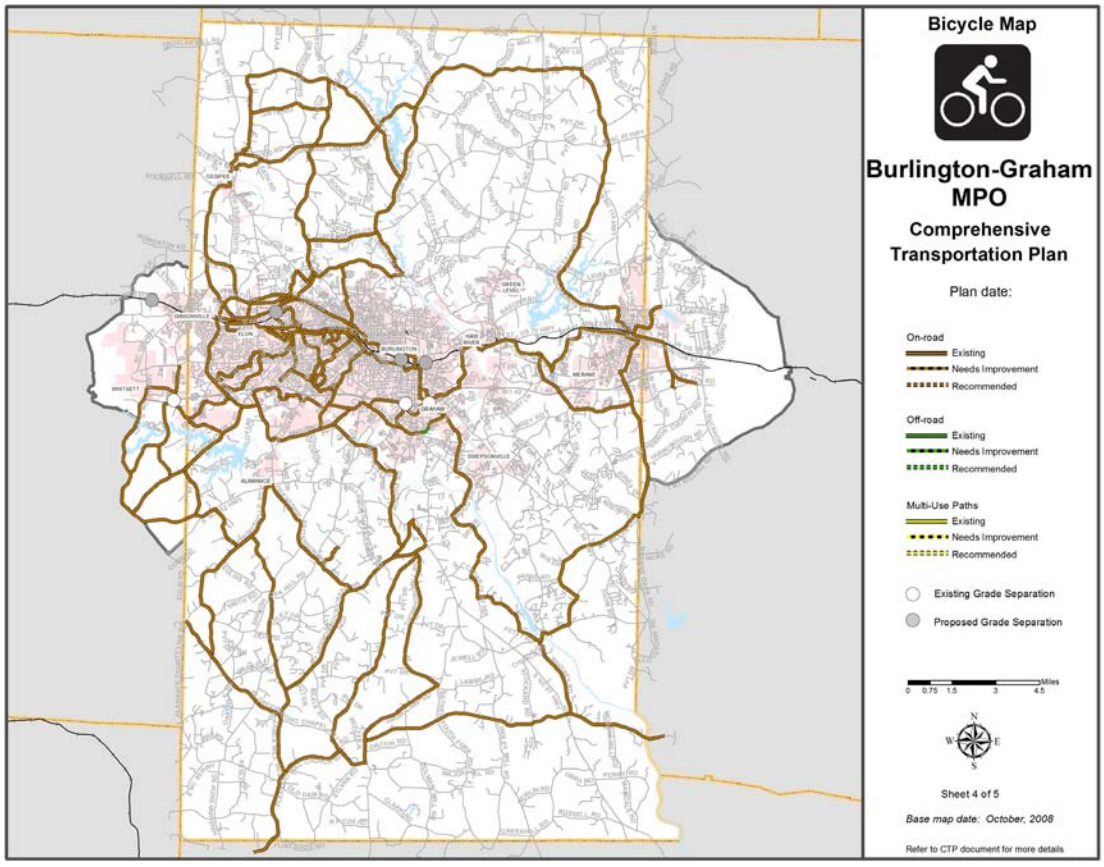
- Improve pedestrian opportunities in the Town Center through the repair and construction of sidewalks and greenways connecting neighborhoods, parks, schools, shopping, and employment locations
- Initiate a corridor improvement program for the Town Center and Main Street that will place utilities underground, improve pedestrian crossings, and develop streetscapes
- Continue to promote a mix of uses and pedestrian-scaled developments within the Town Center

Burlington-Graham MPO Long Range Transportation Update – 2008

Bicycle and pedestrian mobility is important in the Burlington-Graham Urban Area (BGUA), which includes the Town of Gibsonville. The purpose of this plan is to provide the BGUA with basic bicycle and pedestrian facilities inventory and a plan for implementation. Projects are eligible for funding under the Urban Area's Local Transportation Improvement Program.

The plan discusses the need for incidental and independent pedestrian projects in future transportation improvements. The pedestrian projects in the urban area listed in the plan include:

- Hopedale Road, O'Neal Street and the Alamance Parkway – Graham
- North Carolina Bike Route #2
- Mountains to Sea Bicycle Route
- Bike Routes 70, 71, 72, 73, 74, and 6
- Lake Macintosh Greenway
- Haw River Greenway



The 2008 Burlington-Graham MPO Long Range Transportation Update identifies several bicycle and pedestrian projects in the Burlington-Graham Urban Area (BGUA), which includes Gibsonville.

Burlington-Graham Urban Area Transportation Improvement Program (TIP): 2012-2020 Local Need Projects List

The Transportation Improvement Program is the transportation planning document that identifies the top priority transportation projects in the region for funding and construction. The Burlington-Graham Urban Area's TIP includes the Town of Gibsonville and lists the following pedestrian projects:

- Sidewalk project on Westbrook Avenue/Alamance Street from University Drive/ Cook Road to Springwood Avenue
- Sidewalk project on Steele Street from Springwood Avenue to Whitsett Street (Highway 61/100) to provide residents who live in senior housing safe access to the Dollar General and local churches.
- Sidewalk project on Springwood Avenue from Elm Street to Smith Street (Gibsonville Cemetery)
- Sidewalk project on Whitsett Street from Steel Street to Bethel Street

Alamance County Land Development Plan – 2007

This Land Development Plan includes several policies for encouraging greenways, trails, and sidewalks to improve the pedestrian environment in Alamance County. The plan calls for the county to support pedestrian, bikeway, and other similar facilities as energy-efficient and environmentally sound transportation alternatives. Commercial development should promote pedestrian traffic and should be planned with the objective of minimizing travel time between businesses. Sidewalks should be required between existing and planned commercial development. In residential areas, the plan recommends that the county incorporate residential development incentives, such as a density bonus, to promote higher design standards that include curb and gutter streets, sidewalks, and traffic calming islands.

Guilford County Comprehensive Plan – 2006

This Comprehensive Plan contains a series of recommendations for how Guilford County should guide future growth and development. One of the goals of the plan is to "support a functional countywide transportation network that is environmentally sound in design and promotes safety, efficiency, and choice for the residents and visitors of Guilford County." The plan recommends a review of development ordinances that affect pedestrian travel, as well as support of non-motorized modes of transportation and a connected network throughout Guilford County and adjoining areas. Relevant policies that are recommended in the plan and support this pedestrian plan include:

- Provide credits or reductions for projects that incorporate pedestrian, bicycle, and transit facilities
- Review and recommend changes to subdivision standards in the Development Ordinance that will enhance safety, "calm traffic", improve efficiency, and promote connectivity

- Review and recommend changes to landscape/buffering standards in the Development Ordinance that will address noise impacts, reduce air pollution, and promote safe, aesthetically pleasing design
- Assist in public awareness efforts to advise citizens of Guilford County of existing and future trail systems
- Annually pursue funding sources to support the expansion and connectivity of trail systems throughout Guilford County

Alamance County Destination 2020 Strategic Plan – 2003

Destination 2020 outlines a vision for orderly growth, transportation, economic development, education, utility infrastructure, and quality of life in Alamance County. The plan envisions a pedestrian-friendly county where "...pedestrian paths have been developed in many parts of the county, taking advantage of the opportunities afforded by stream and utility corridors... We also see a well-developed system of walking and biking trails adjacent to the Haw River and its tributaries, as well as within certain utility corridors. This 'greenway system' connects many schools, parks, open spaces, and neighborhoods and is enjoyed by hikers and bicyclists of all ages." The plan calls for transportation and parks and recreation policies that support this vision:

- The development of bikeways, sidewalks, trails, and other means of transportation shall be encouraged. Particular attention should be given to the priority bicycle and pedestrian needs as submitted for inclusion in the State Transportation Improvement Program.
- Alamance County shall work proactively with other local and state governments, utility companies, industries and other major landowners in the development of walking and bicycling trails for the public.

Endnotes

1. Wyrick, M. 1971. History of Town of Gibsonville North Carolina.

3 Network Recommendations

Chapter Contents

Overview

This chapter contains a series of recommended changes to the Town of Gibsonville's physical environment that will create a more connected, comprehensive pedestrian network. The recommended pedestrian network provides a connected system of sidewalks, multi-use trails, and crossing improvements that connect schools, parks, recreation centers, business corridors, libraries, shopping centers, and other key destinations. The network serves multiple users and interests, and improves access for residents of varying physical capabilities, ages, and skill levels. This chapter describes the methodology for developing the network recommendations, the overall pedestrian network, and key project recommendations.

Methodology

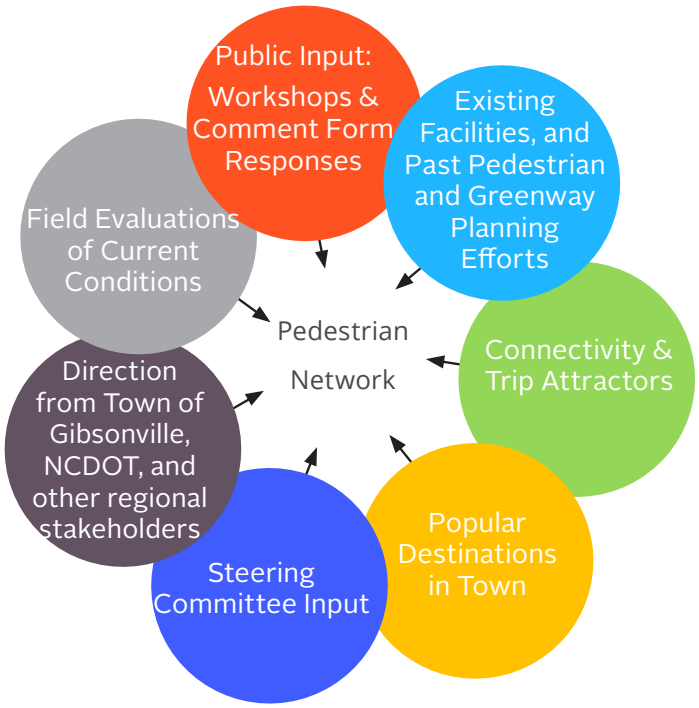
The guiding philosophy for devising the comprehensive pedestrian network is the "hubs and spokes" model. Pedestrian corridors (spokes) should connect to trip attractors (hubs), such as parks, schools, downtown, shopping areas, commercial centers, and other destinations. The network then becomes a practical solution for pedestrian connectivity. The hubs and spokes model (shown with the graphic on page 3-2) conceptually illustrates how destinations in Gibsonville will be linked through various types of pedestrian facilities.

A variety of resources were consulted during the development of the recommended pedestrian network, including the following:

- Previously adopted plans
- Maps developed from GIS data (demographic data, sidewalk gap analysis)
- Input from the steering committee
- Input obtained during public involvement events
- Fieldwork inventory and evaluation
- Identification of pedestrian trip attractors
- Guidance from town staff and officials

Hubs & Spokes Methodology Diagram

The graphic below illustrates the approach that was taken during the planning process to obtain input from a variety of sources. As described in Chapter 2, fieldwork included an examination of conditions at major intersections along primary corridors and a consideration of sidewalk and trail connectivity. Map review and analysis was conducted at steering committee meetings and public meetings to pinpoint specific areas in need of pedestrian improvements. All recommendations were developed at a planning level and will need a more detailed project-level review prior to implementation.



The Pedestrian Network

The recommended pedestrian infrastructure projects for Gibsonville aim to expand the existing pedestrian network to provide a more connected system that provides safe linkages between origins and destinations. Five project **types**, or groups of projects, were identified during the planning process to complete gaps in the existing system and provide new facilities that meet the goals of this plan.

The following five project **types** are presented in detail in this chapter.

- Sidewalk network expansion areas
- Corridor enhancements and traffic calming measures
- Intersections and crossings
- New multi-use trail corridors
- Regional connections

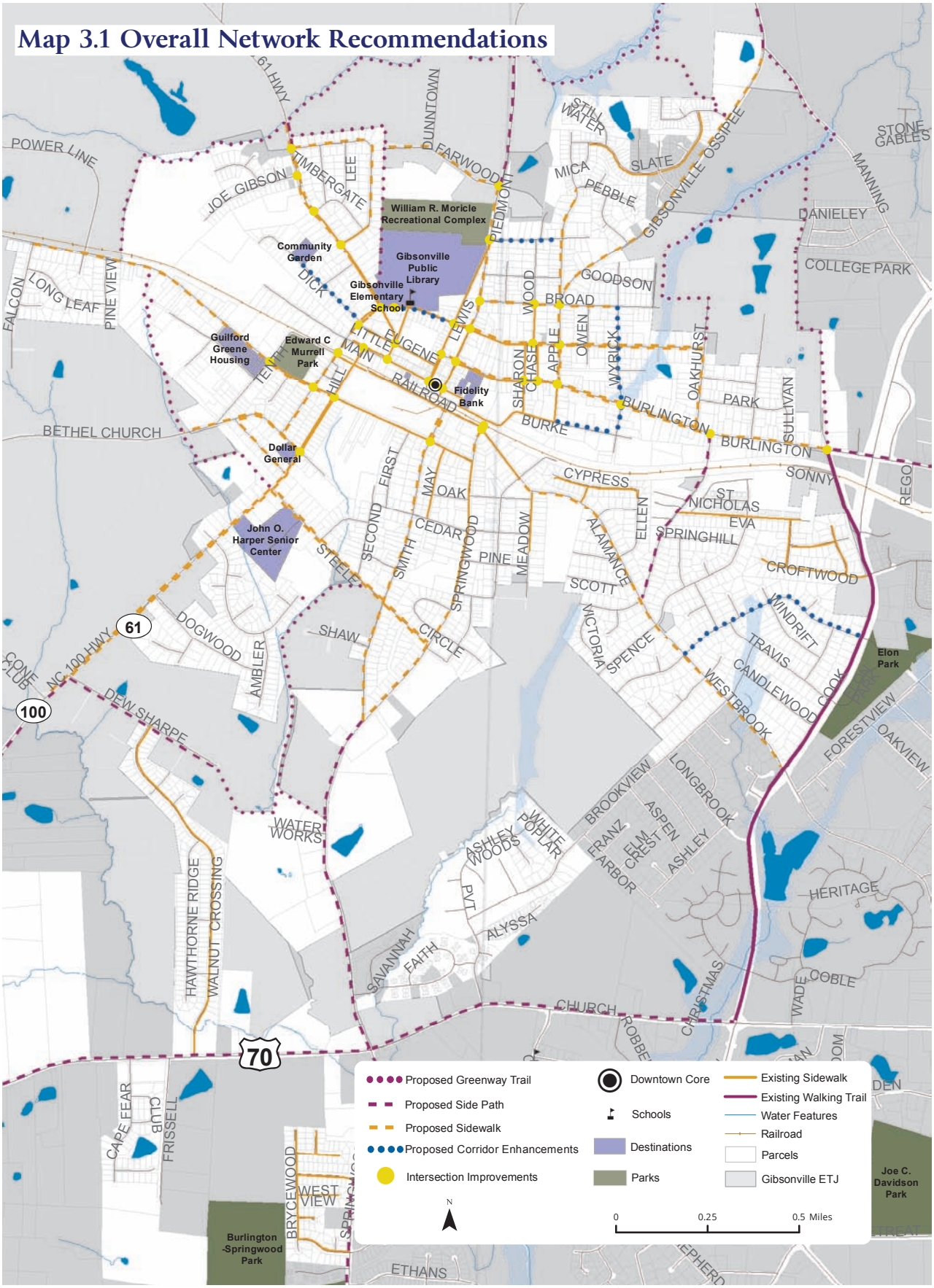
All pedestrian infrastructure projects should aim to meet the highest standards possible when topography and right-of-way allows. The design guidelines in Appendix A provide detailed information regarding facility types and treatments.

Although the recommendations illustrated by the maps in this chapter do not depict sidewalks or multi-use paths on every street, sidewalks should be provided on both sides of all major roads and on at least one side of local roads where warranted by density or system connectivity (See Chapter 5 for policy recommendations). Traffic calming measures and speed limit enforcement should be considered for local roads where sidewalks are not recommended because of right-of-way constraints, topography and other environmental constraints, or density does not warrant the construction of sidewalks. Map 3.1 on page 3-4 presents overall pedestrian network recommendations and Map 3.2 on page 3-5 is a view of recommendations in and adjacent to downtown Gibsonville. Table 3.6 on page 3-3 presents the full list of pedestrian project recommendations.

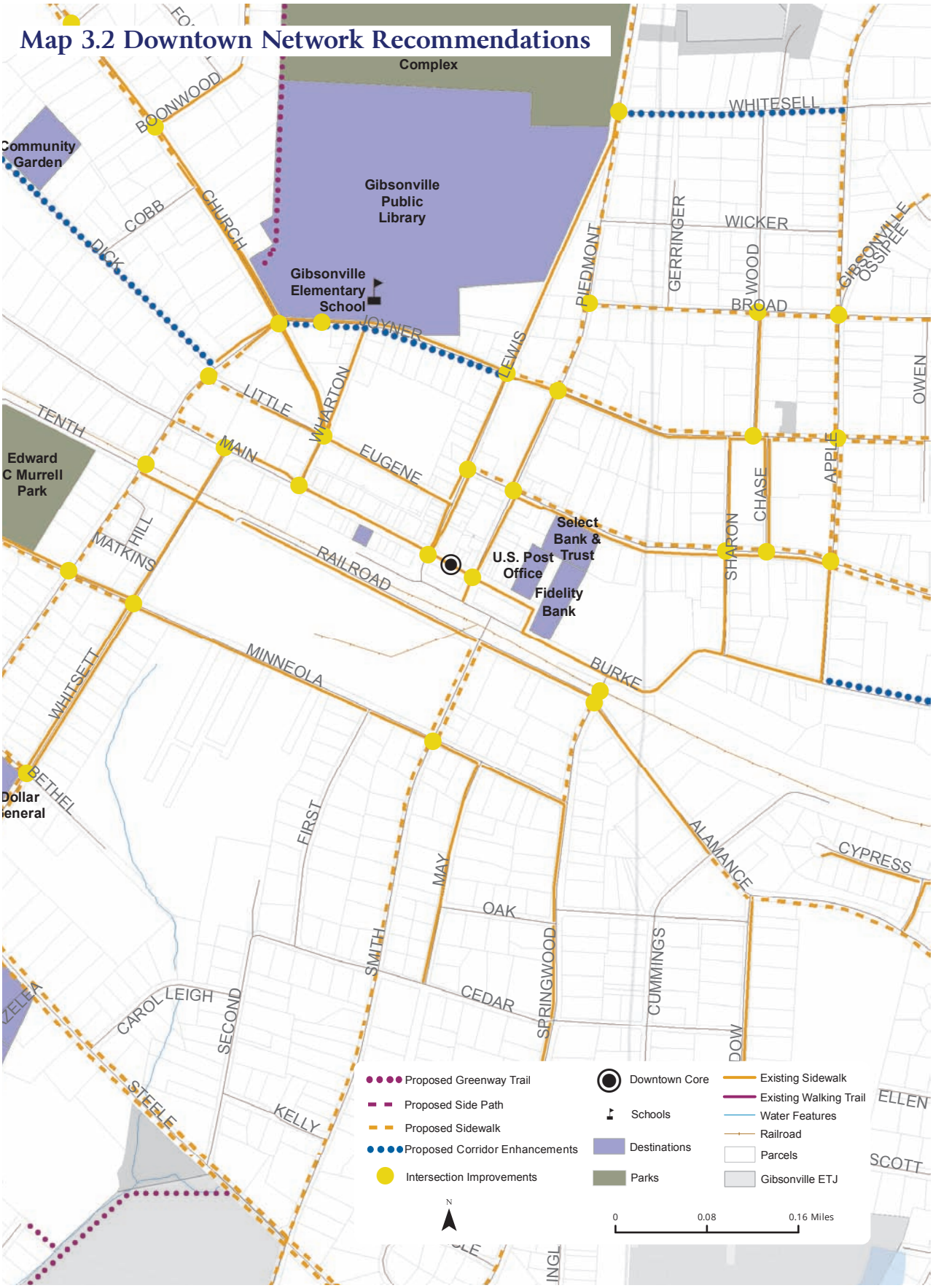
Table 3.1: Pedestrian Network Summary Table

Pedestrian Network	Length (miles)
Existing Sidewalk Mileage	9.78
Existing Multi-use Trail Mileage	0
Proposed Sidewalk Mileage	14.3
Proposed Multi-Use Trail Mileage	16.13
# of Intersection Improvement Recommendations	37

Map 3.1 Overall Network Recommendations



Map 3.2 Downtown Network Recommendations



Sidewalk Network Expansion Areas

The existing pedestrian network lacks connectivity, and collectively, the disconnected areas pose barriers to pedestrian travel. Gaps in the network remain as a result of historic land use development, sidewalk requirement policies, and funding over the previous decades. Performing spot improvements to fill gap areas and extend the existing network into neighborhood areas will have a significant impact on the pedestrian environment and improve the overall accessibility of the existing sidewalk network.

Improvements to fill gaps and expand on the existing network include:

Fill sidewalk gaps – The infill of key sidewalk segments will decrease gaps and improve overall connectivity. Areas for sidewalk infill were selected if the length of the infill area was less than 600 feet, and if the infill area connected to sidewalks on either end.

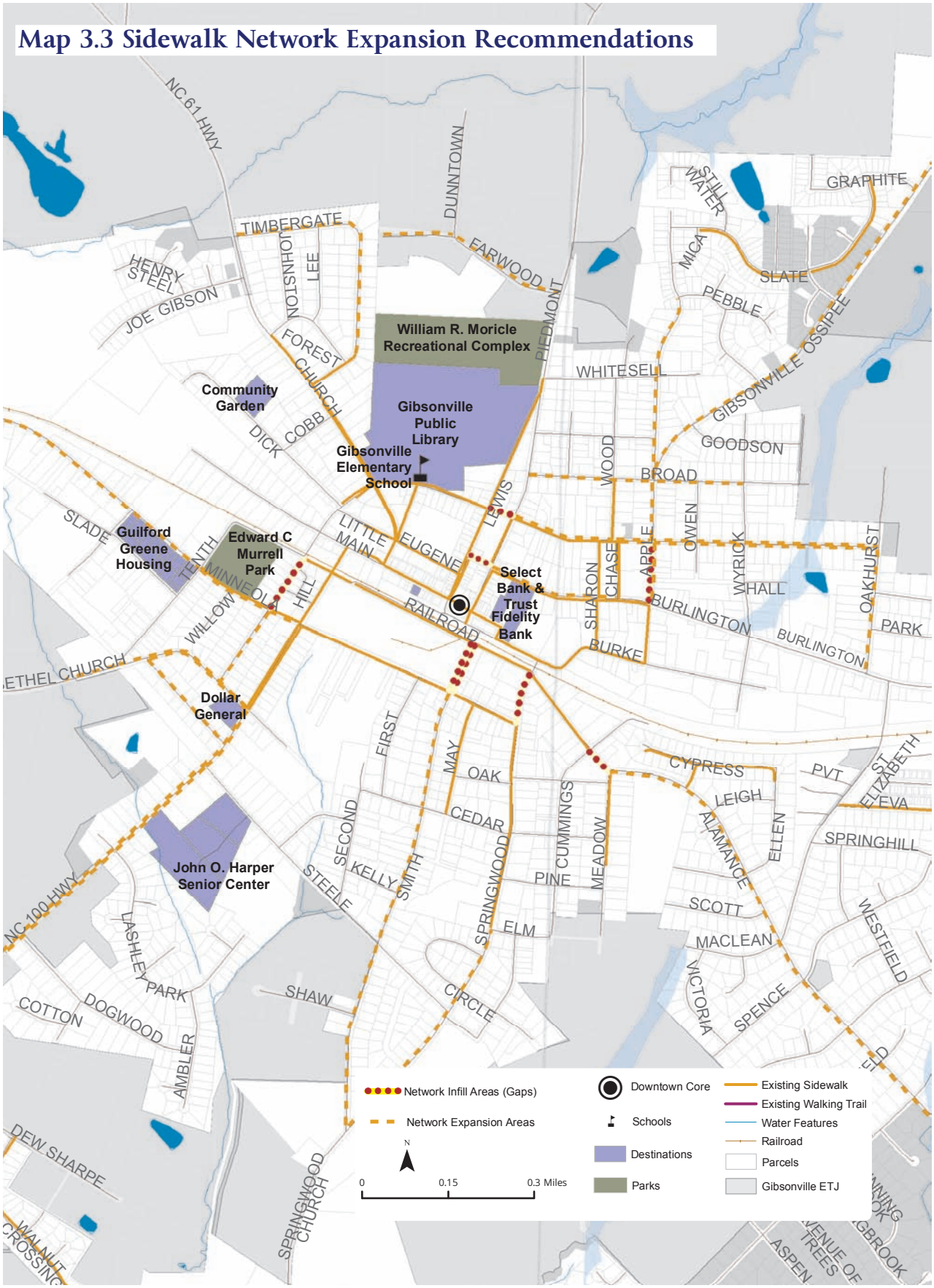
Sidewalk gap projects are mapped on page 3-7 and include:

- Burlington Ave from Lewis St to Piedmont Ave
- E. Joyner St from Lewis St to Piedmont Ave
- Apple from Burlington Aveto E. Joyner St
- Smith St from Railroad Ave to Minneola St
- Springwood Ave from Railroad Ave to Minneola St
- S. Joyner St from Railroad Ave to Minneola St
- Alamanace St from Cummings St to Meadow St

Expand existing sidewalk - The development of sidewalks along arterial and collector streets will expand the reaches of the existing network and increase opportunities for pedestrian travel. Map 3.3 on page 3-7 presents key roadway corridor areas to provide better connectivity and expand on the existing pedestrian network.

A gap in the sidewalk network along Burlington Avenue as it approaches Lewis Street forces pedestrians to walk through a parking lot and grass area.

Map 3.3 Sidewalk Network Expansion Recommendations



Corridor Enhancements

Corridor enhancement projects provide for a safer and more attractive environment along priority corridors in Gibsonville. There are many types of corridor enhancements that would help to improve the physical health and welfare of citizens and visitors by encouraging exercise and by promoting pedestrian usage. Corridor enhancements also improve the economic health of Gibsonville by enhancing the connections to primary economic development corridors, which are often downtown areas, by making them more attractive for redevelopment. Enhancements can occur through regulation and guidance of site development including, but not limited to: sidewalks, off-street parking, signage, landscaping, mechanical unit placement, lighting, as well as building materials and architectural features such as roof pitch, broken wall planes, façade enhancements, and porches, thereby enhancing the overall appearance of the corridor, while improving access along the corridor through increased walkability and interconnectivity.

Corridor enhancements can also occur through the implementation of traffic calming projects. Traffic calming projects are roadway design strategies or measures that can be implemented to reduce vehicular traffic speed and volumes, create a more pedestrian-friendly environment, and allow residential and commercial streets to better balance their multiple uses. The type of projects can range from a few minor changes to major rebuilding of a street network.

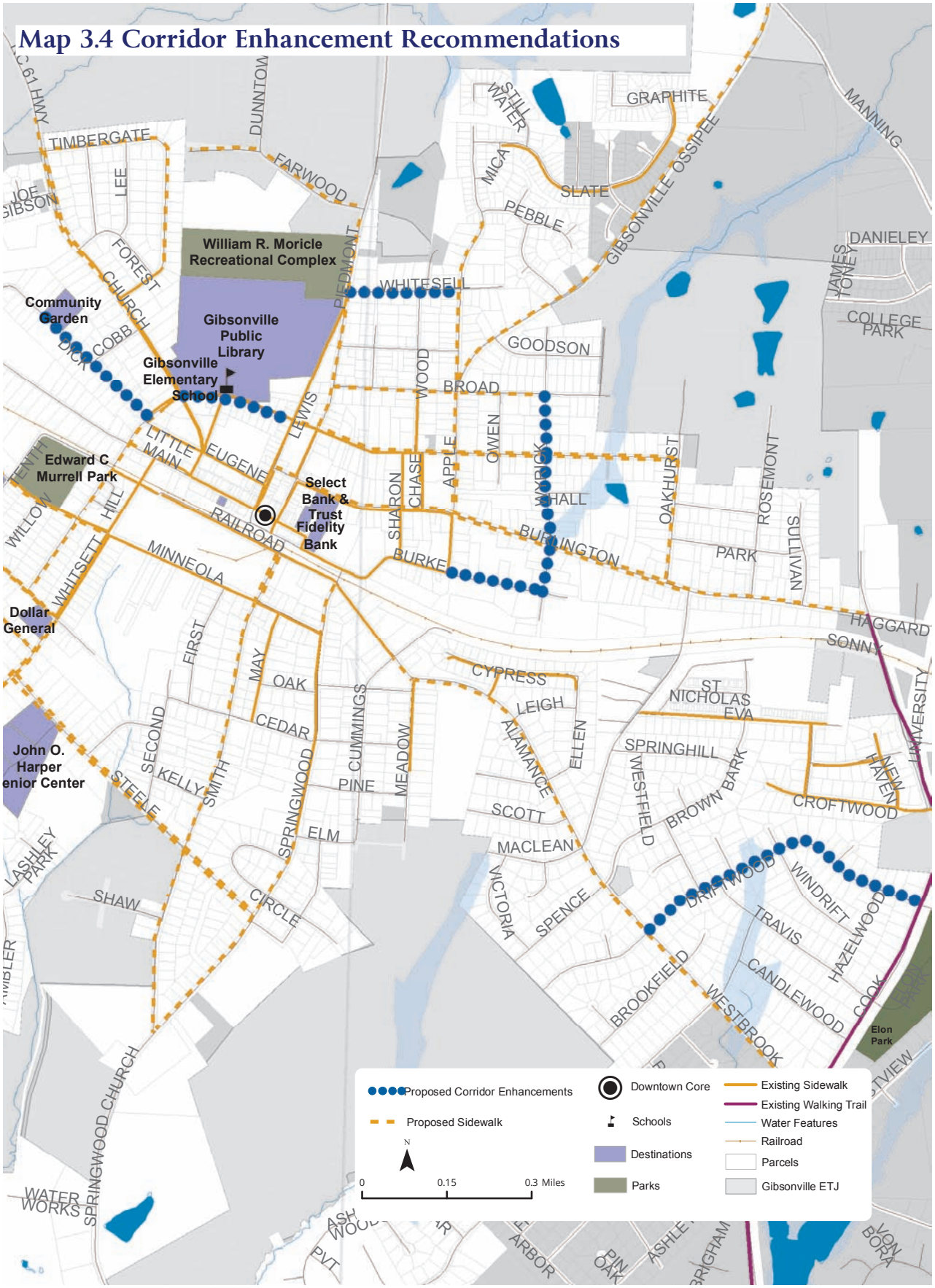
Besides their primary function of reducing speeds or volumes, the large majority of measures also have the ability to reduce conflicts between vehicles and pedestrians, bicyclists, and other vehicles. In addition, well designed and landscaped traffic calming measures can enhance a neighborhood's appearance and the quality of life of its residents.

Traffic calming measures should be considered on low-volume, local roadways where sidewalks may be warranted but cannot be constructed due to physical constraints that exist along the roadway corridor. The selection of traffic calming measures for these environments should be based on:

- The measures potential to address volume or speed reduction on affected roadways
- The type of roadway
- Actual site conditions

Specific measures are often grouped into four categories (horizontal deflection, vertical deflection, physical obstruction, signs and pavement markings) based upon the means by which they reduce volumes or speeds. In Gibsonville, a variety of measures would be appropriate for different roadways. Detailed design and engineering would need to be performed to determine the most appropriate measure for each roadway environment. More information on specific design standards for traffic calming measures can be found in Appendix A, Design Guidelines.

Map 3.4 Corridor Enhancement Recommendations



Intersections and Crossings

Intersections and crossings that lack safe and visible treatments are considered barriers to pedestrian travel. These barriers should be reduced by implementing context-appropriate pedestrian amenities such as marked crosswalks, pedestrian countdown signals, ADA-compliant curb ramps, and advanced warning signage. The consultant team evaluated pedestrian safety and accessibility at 37 key intersections in Gibsonville and determined that a few intersections offered some of the necessary amenities, but not pedestrian safety treatments. Opportunities exist at each intersection for new or retrofitted pedestrian crossing facilities. The at-grade railroad crossings for the rail line should be the focus of future detailed engineering studies and recommendations made in concert with NCDOT and Norfolk Southern Railroad. Appendix A provides design guidance for pedestrians treatments for at -grade railroad crossings.

Three primary intersection treatment concepts were identified during this planning process to serve as a guide during implementation for Gibsonville: signalized, non-signalized, and mid-block crossings. Each of the 37 intersections have a corresponding intersection treatment concept recommendation.

Gibsonville should not limit intersection improvements to only these 37 intersections, and should apply recommendations presented by the intersection treatments concepts to other intersections in Gibsonville, as appropriate.

The 37 intersections that were evaluated are listed in Table 3.2 on page 3-12. Each intersection is identified on Map 3.5 on page 3-11. Appendix A provides additional design guidance based on AASHTO, MUTCD, and NACTO standards and guidelines for each of the three intersection and crossing types.

Joyner Street and Wyrick Street un-signalized intersection

Map 3.5 Intersection Recommendations

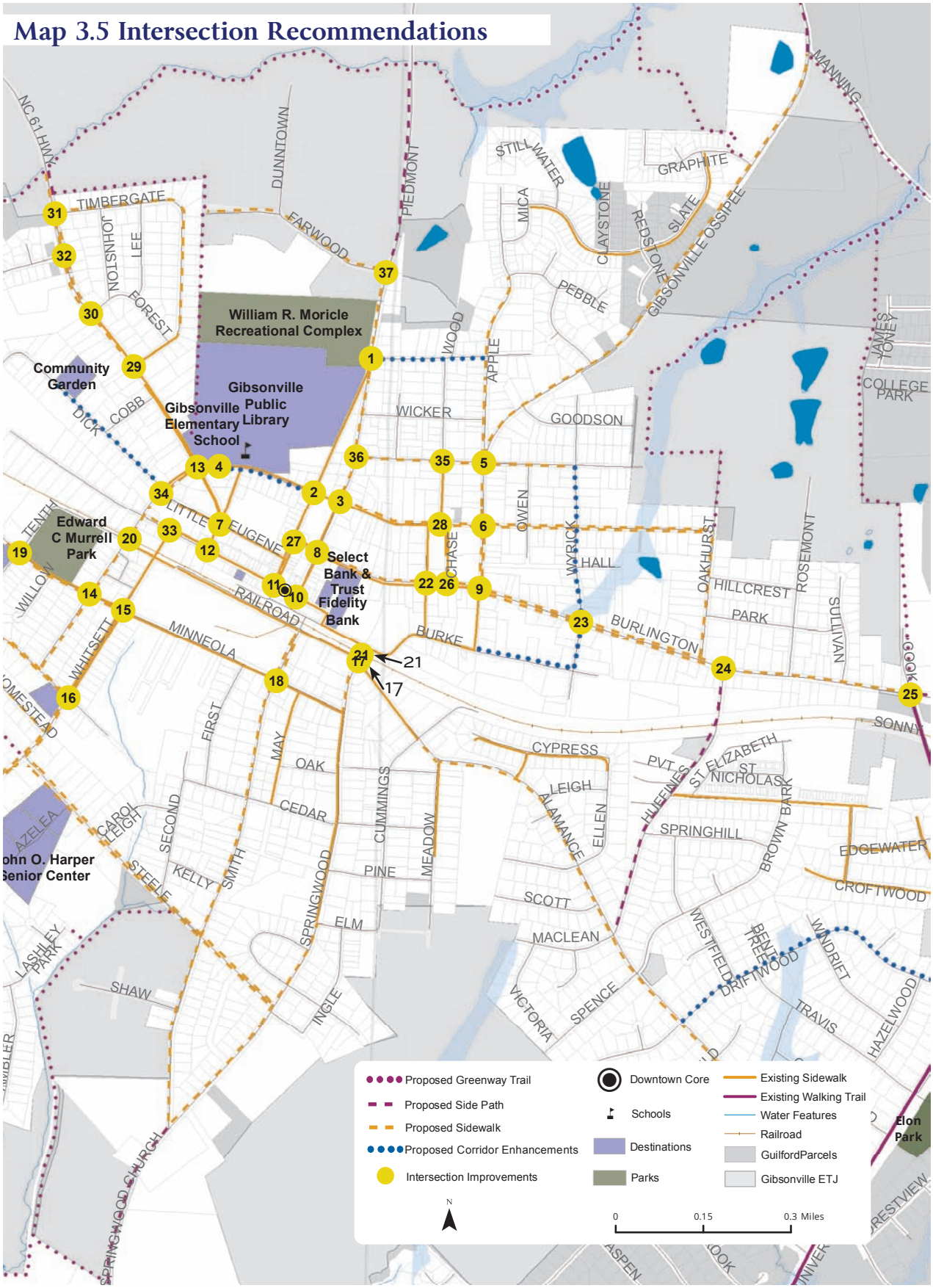


Table 3.2: Intersections & Crossings

ID #	Primary Roadway	Intersecting Roadway	Treatment Concept
1	Piedmont	Whitesell	Unsignalized
2	Lewis	Joyner	Unsignalized
3	Piedmont	Joyner	Unsignalized
4	Joyner	Mid-block	Mid-block
5	Apple	Broad	Unsignalized
6	Joyner	Apple	Unsignalized
7	Wharton	Eugene	Unsignalized
8	Burlington	Piedmont	Signalized
9	Burlington	Apple	Signalized
10	Main	Piedmont	Signalized
11	Main	Lewis	Unsignalized
12	Main	Wharton	Signalized
13	Church	Joyner	Signalized
14	Minneola	Joyner	Unsignalized
15	Minneola	Whitsett	Unsignalized
16	Whitsett	Bethel	Unsignalized
17	Springwood	Railroad	At-grade Railroad/ Unsignalized
18	Minneola	Smith	Unsignalized
19	Minneola	Tenth	Mid-block
20	Joyner	Railroad	At-grade Railroad/ Unsignalized
21	Springwood	Railroad	At-grade Railroad/ Unsignalized
22	Burlington	Sharon	Unsignalized
23	Burlington	Wyrick	Unsignalized
24	Burlington	Huffines	Mid-block
25	Burlington	Cook	Signalized
26	Burlington	Chase	Unsignalized
27	Burlington	Lewis	Unsignalized
28	Joyner	Wood	Unsignalized
29	Church	Boonwood	Unsignalized
30	Church	Forest	Unsignalized
31	Church	Timbergate	Unsignalized
32	Church	Joe Gibson	Unsignalized
33	Witsett	Main	Unsignalized
34	S Joyner	LIttle	Unsignalized
35	Broad	Wood	Unsignalized
36	Piedmont	Broad	Mid-block
37	Piedmont	Farwood	Unsignalized

Minneola Street and Whitsett Street existing conditions

Minneola Street and Whitsett Street simulation of improvements

Multi-Use Trails

The term "multi-use trail" refers to both multi-use greenway trails and multi-use side paths built in open space or stream corridors, or along a roadway. Multi-use trail corridors often become off-road transportation facilities with simultaneous benefits. They help protect the environment, create an alternate mode of transportation, encourage healthy living, provide opportunities for recreation, and generate economic activity. Multi-use trails that are built within greenway corridors give pedestrians and other non-motorized trail users access to natural areas. Greenway corridors also provide opportunities to restore wildlife habitat in areas that have been previously disturbed. Multi-use trails are closed to motorized traffic and designed for two-way travel. As described in Appendix A: Design Guidelines, a multi-use trail should be an all-weather surface and accessible within urban, suburban, and rural areas.

Each trail project will also require close coordination with nearby property owners. Design features such as landscaped screening, fencing, lighting,and other treatments should be considered to create safe spaces and help ensure privacy where desired.

Recommended Multi-Use Greenway Trails in Gibsonville

Gibsonville should work closely with Guilford and Alamance Counties and NCDOT to develop multi-use trails that connect to neighborhoods, commercial areas, downtown, and other key local and regional destinations. Potential multi-use trail opportunities exist in Gibsonville, including connections to the existing Elon Walking Trail. Other areas located within town limits or the Extra Territorial Jurisdiction, as well as along roadways where the existing right-of-way widths allow, present opportunities for future trail development. The multi-use greenway trail recommendations presented in the maps contained throughout this chapter are planning level analyses, and each corridor, waterway crossing, roadway crossing, and railroad crossing will require additional evaluation during the feasibility and design phases of a project.

Multi-Use Greenway Trails

One type of multi-use trail is a greenway trail, defined as a linear corridor of land that is typically more recreational in character and consists of trails along stream corridors and other open space (e.g., utility corridors such as power line easements and sewer easements, railroad right-of-way). Greenway trails can be designed to accommodate a variety of trail users. Greenway trails in Gibsonville should be integrated with and serve as an off-road extension of the proposed pedestrian network.

Multi-Use Side Paths

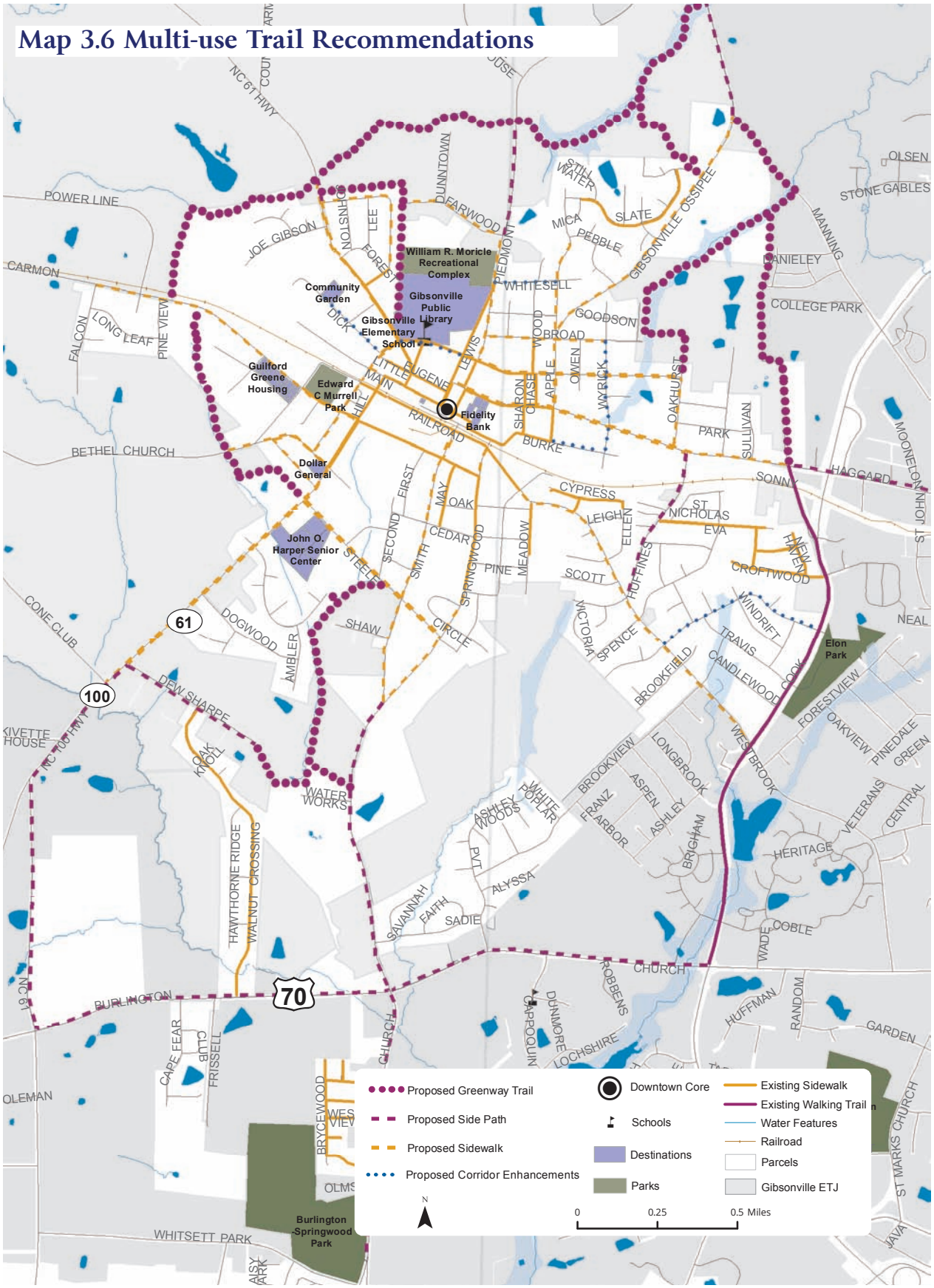
A multi-use side path is a trail that follows a road corridor but is separated from on-road traffic. Side paths are more transportation-oriented in character and are used by both bicyclists and pedestrians. Where side paths are proposed in Gibsonville, factors such as the distance between destinations, adjacent land use, and population density were considered.

Families and casual users are often most comfortable on off-road facilities. Therefore, a comprehensive network of multi-use trails that includes greenway trails and side paths is an integral part of the overall pedestrian facility network, and its development should be a priority of the Town of Gibsonville. The photos below demonstrate multi-use greenway trails in more natural environments and multi-use side paths along rural, higher-speed roads in North Carolina. More information on the design for each of these trail types can be found in Appendix A, Design Guidelines.

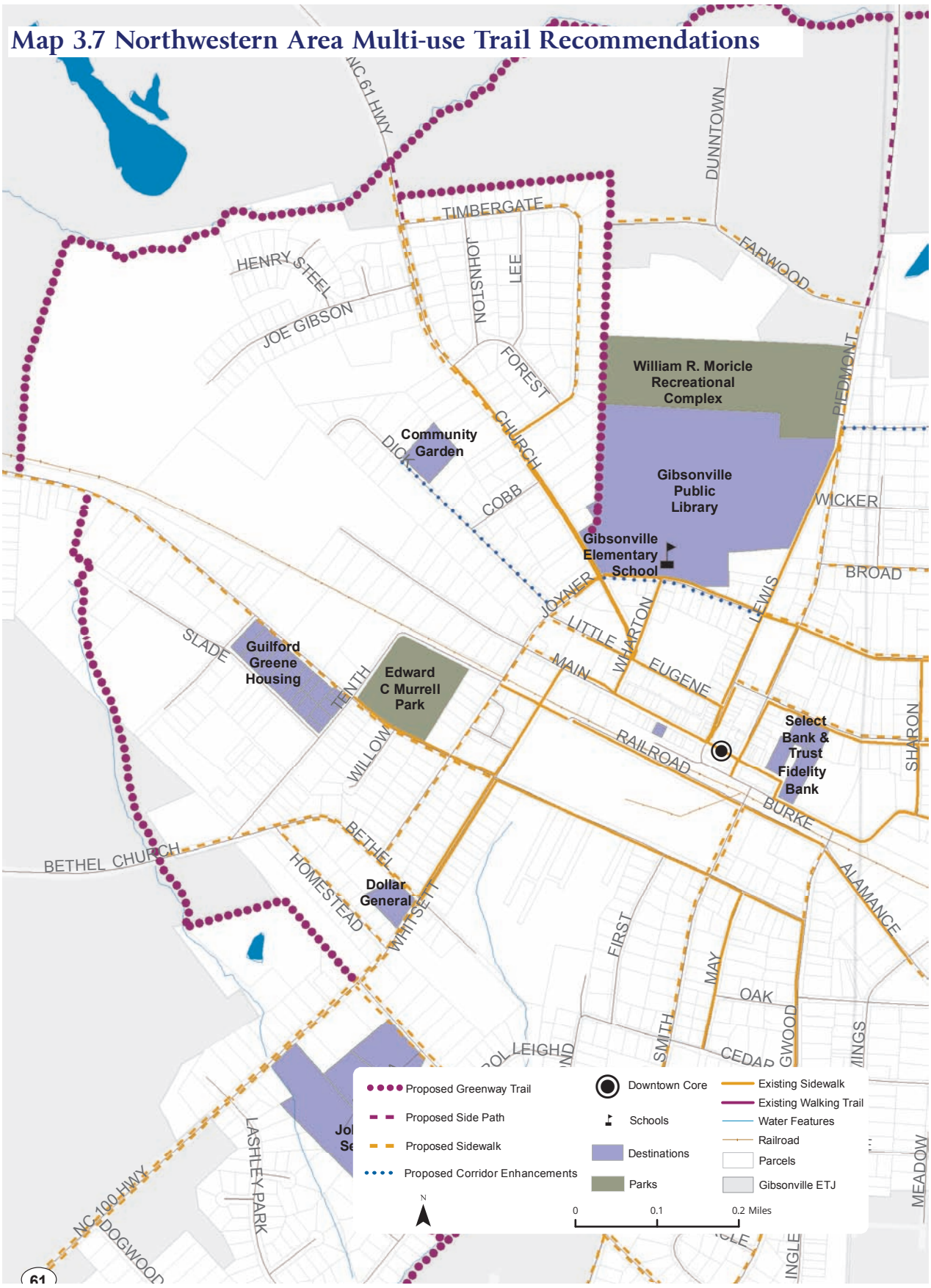
Multi-use Greenway Trails

Multi-use Side Paths

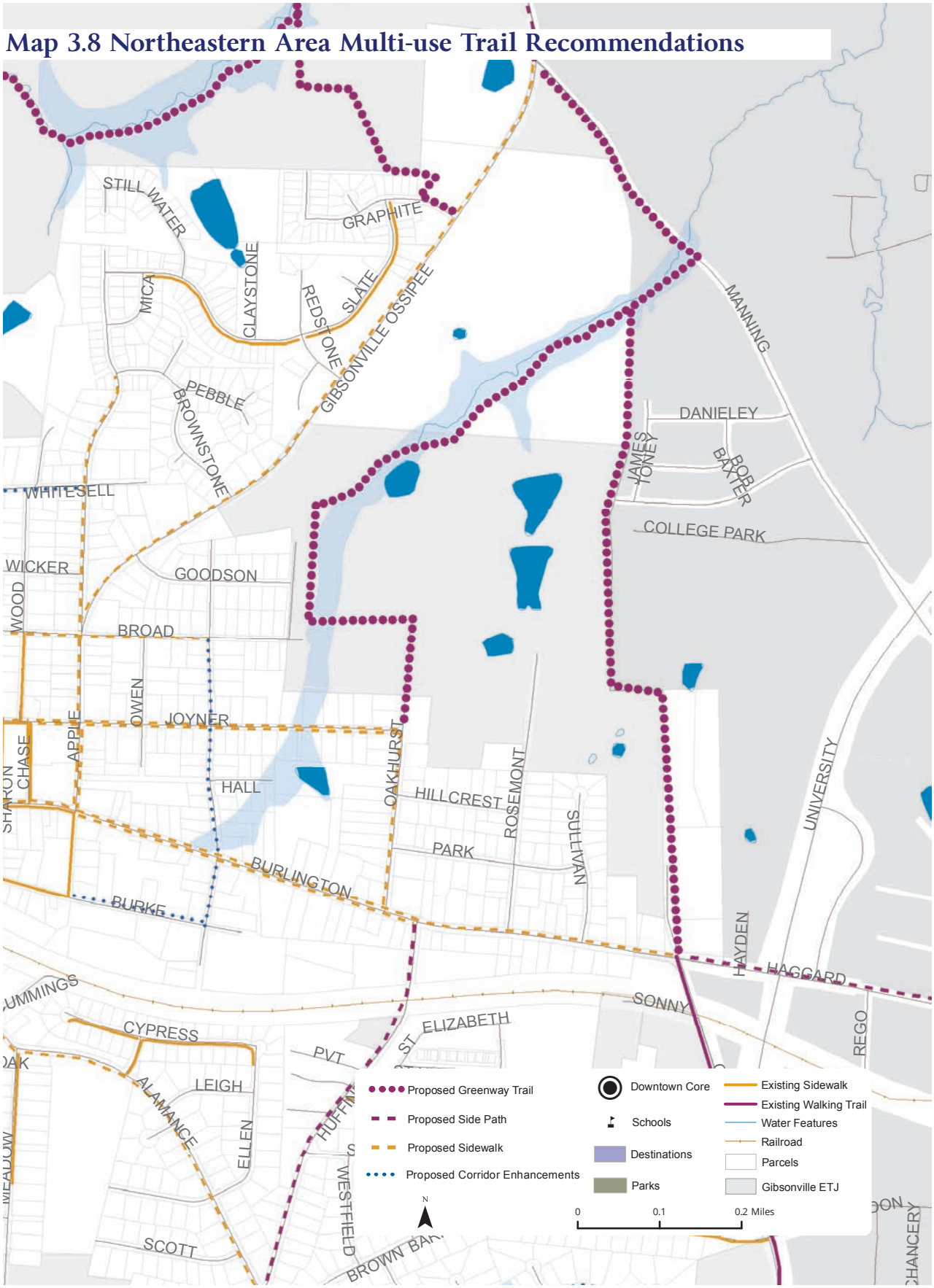
Map 3.6 Multi-use Trail Recommendations



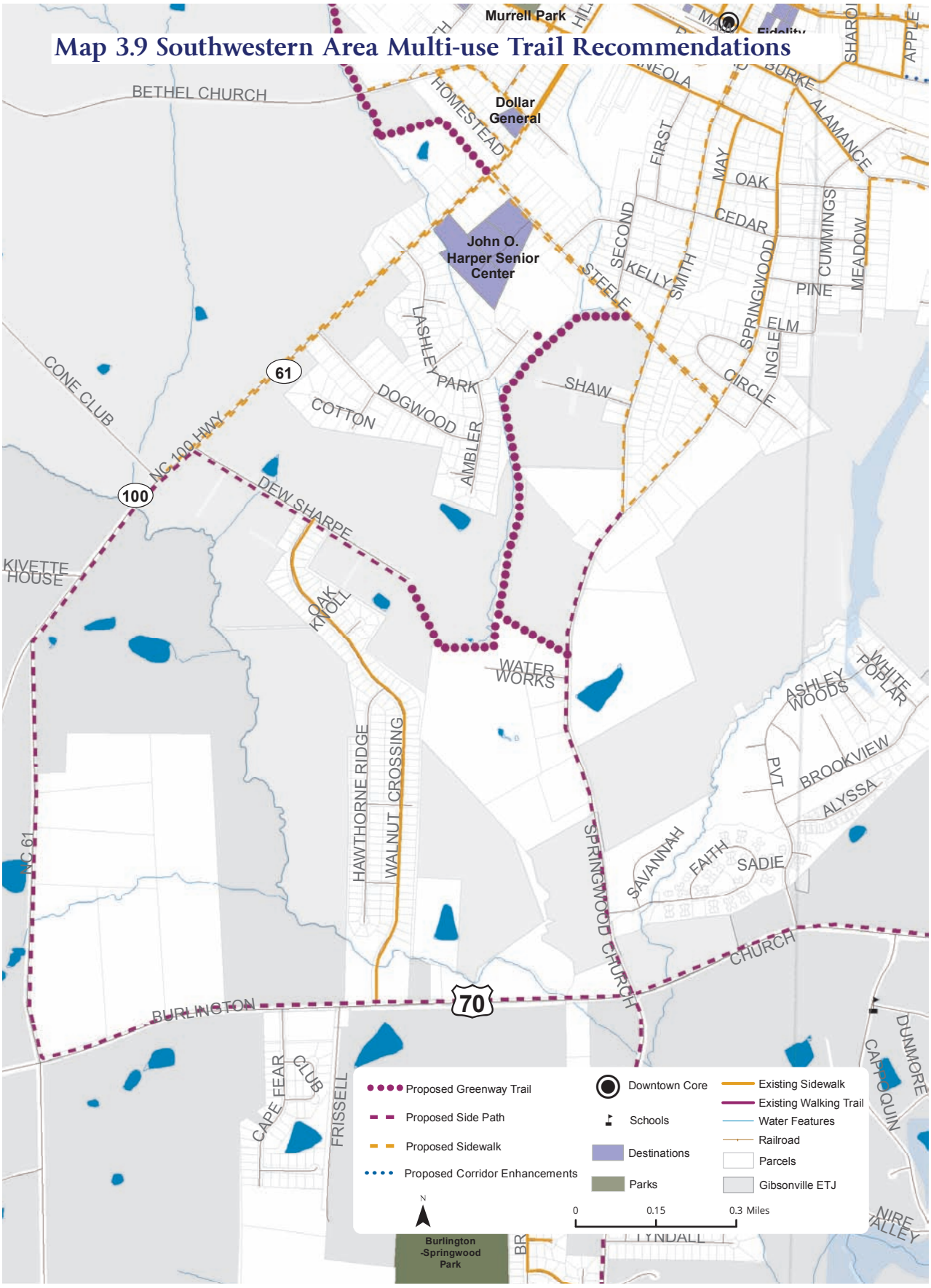
Map 3.7 Northwestern Area Multi-use Trail Recommendations



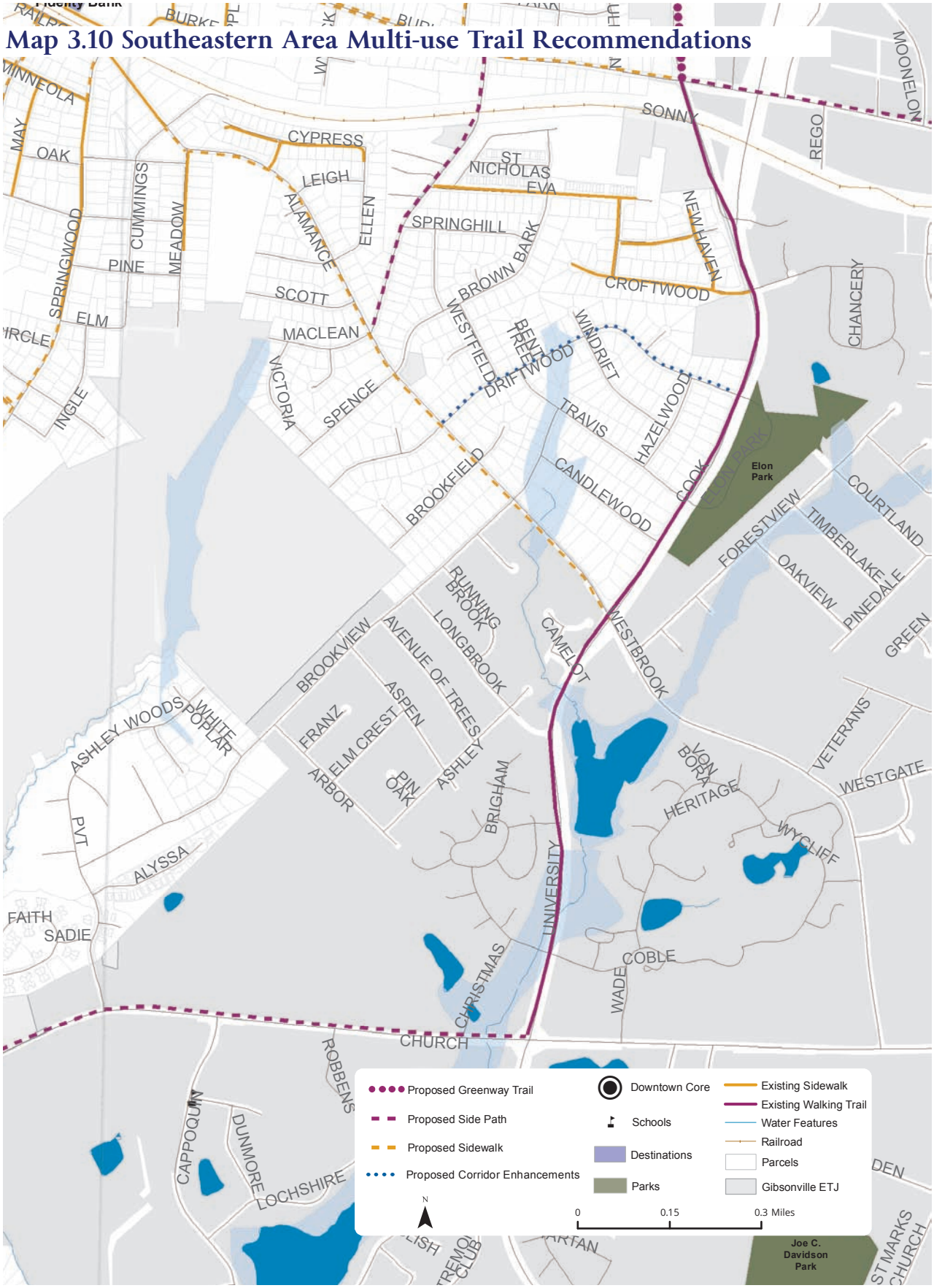
Map 3.8 Northeastern Area Multi-use Trail Recommendations



Map 3.9 Southwestern Area Multi-use Trail Recommendations



Map 3.10 Southeastern Area Multi-use Trail Recommendations



Making Regional Connections

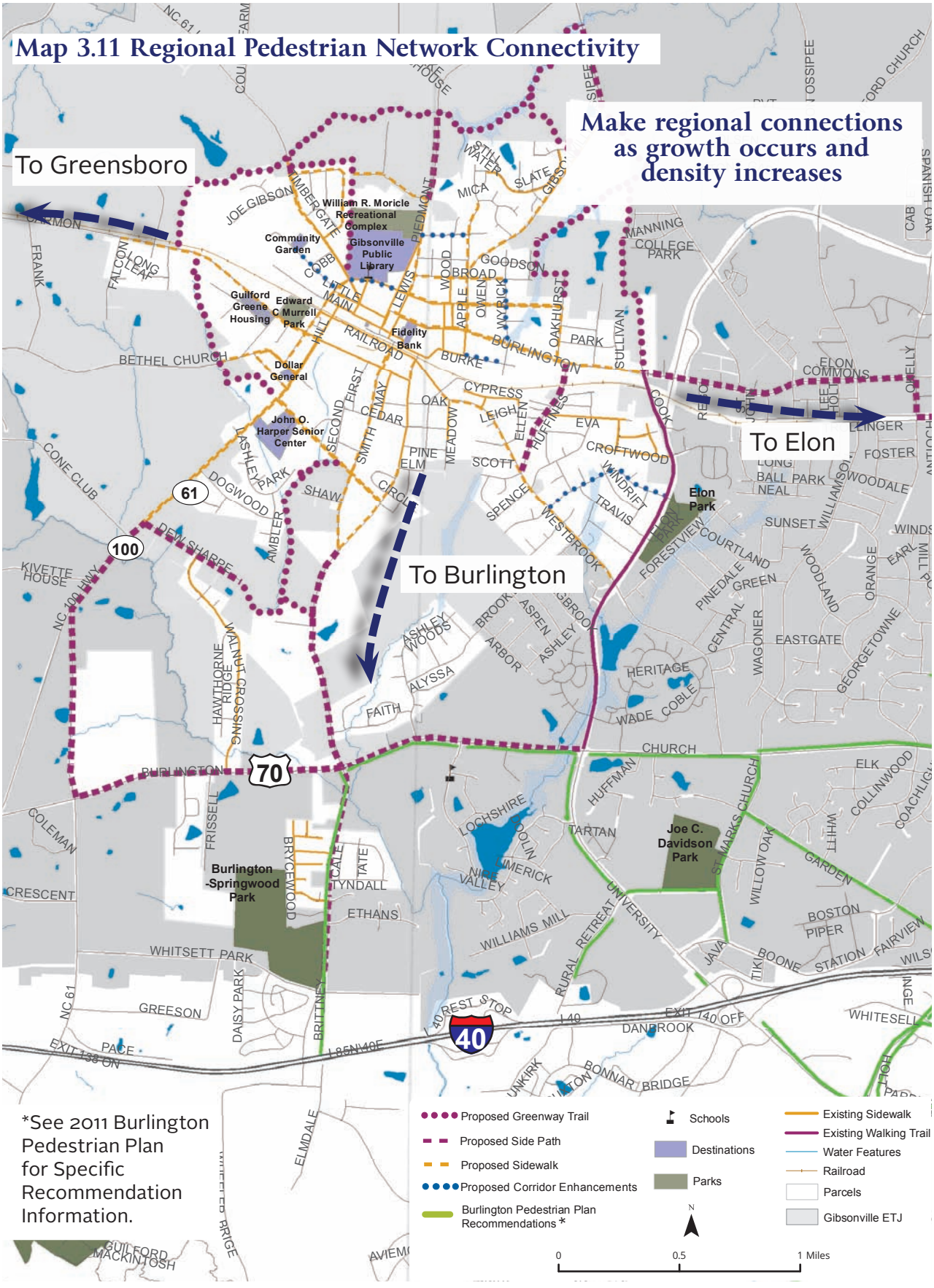
Connecting adjacent or nearby municipalities and destinations will be essential as the Gibsonville region continues to grow. It will be necessary to work with Elon, Burlington, Guilford and Alamance Counties, and NCDOT to make these connections over time. Map 3.11 on page 3-22 demonstrates Gibsonville's regional proximity to other municipalities and destinations. Important connections to the following places should be considered priorities for the Town of Gibsonville:

- Connection to Elon via a multi-use trail along Burlington Avenue/NC 100
- Connection to Lake Mackintosh via University Drive
- Connections to Burlington via sidewalk and multi-use trail connections along Witsett Avenue, NC 61, NC 100, Burlington Road/US 70, Springwood Avenue, and Springwood Church Road as density increases
- Longer-term connections to Greensboro and UNC-Greensboro via multi-use trail connections as density increases or via rail-with-trail projects

Pedestrian recommendations in areas of Gibsonville that border the Burlington City limits will connect to the recommendations included in the 2011 Burlington Pedestrian Plan.

Connections to the Downtown Greensboro Multi-use Trail System as the area continues to grow will be important for multi-modal access and regional travel.

Map 3.11 Regional Pedestrian Network Connectivity



Project Prioritization Process

The prioritization process began with input from Town staff and steering committee members on high priority corridors during the project kick off meeting. The consultant team then reviewed previous planning documents for Gibsonville and extracted information on project priorities. During field work investigations the consultant team evaluated and ground-truthed the high priority corridor areas to identify the most appropriate facility type or each area.

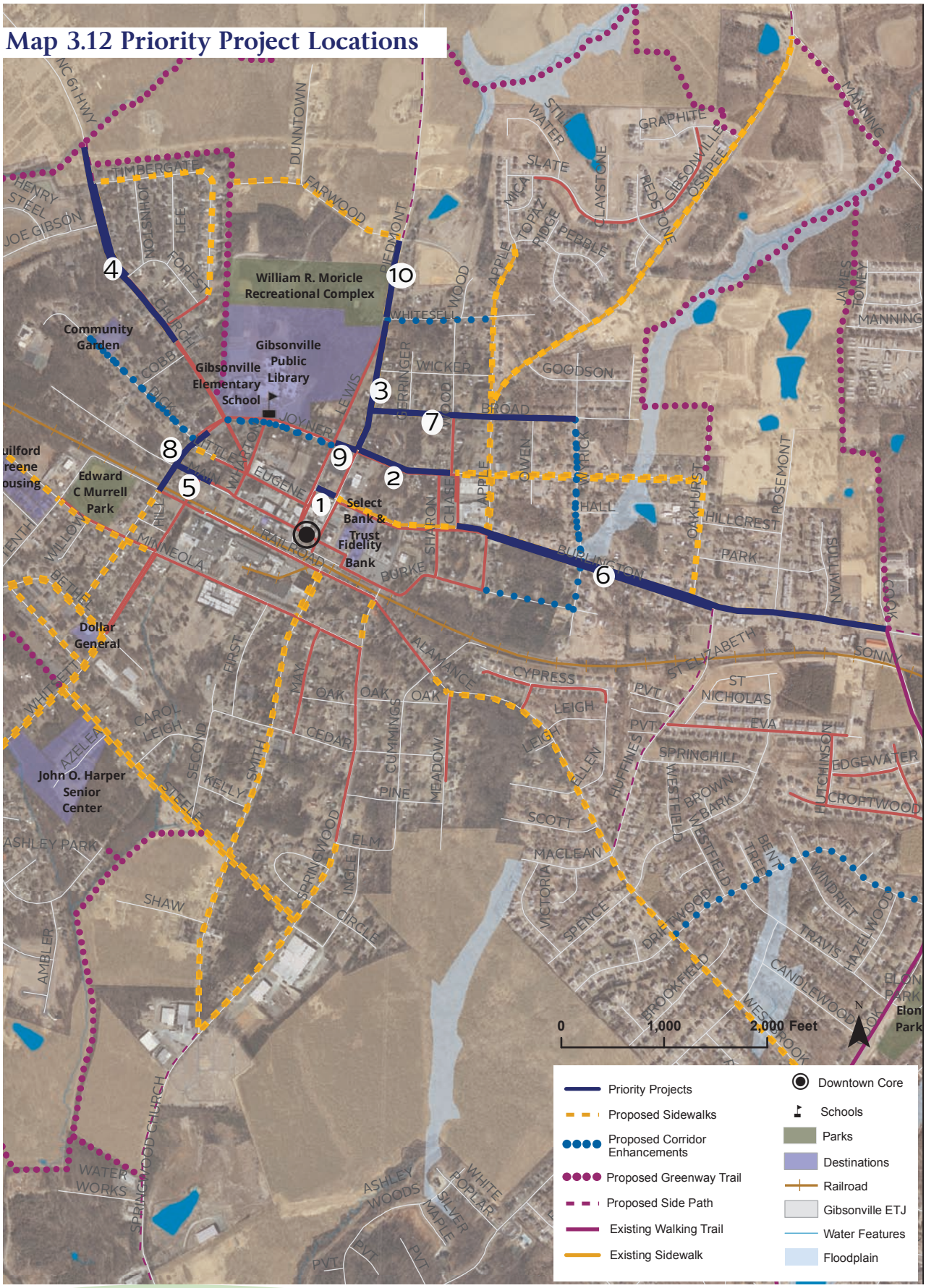
During a committee meeting, project prioritization criteria were discussed and selected by the steering committee members. Committee members were then asked to assign a score to each prioritization criterion. All of the scores were averaged and a final weighted score for each criterion was determined. Table 3.3 below presents the results of the project prioritization criteria scoring process.

The top priority multi-use trail, sidewalk, and intersection projects were all evaluated against the criteria presented in Table 3.3. The final priority projects were reviewed and discussed with the steering committee, Town staff, and Burlington-Graham MPO staff. The final priority projects were inventoried and divided into logical segments based on input from the public, the steering committee, Town staff, and connections between destinations. The final priority project segments are presented beginning on page 3-26.

Table 3.3 Weighted Scores for Project Prioritization Criteria

Prioritization Criteria	Weighted Score
Low-income Areas (US Census)	3.69
Low-vehicle Access Areas (US Census)	2.88
High Density Areas (US Census)	3.69
Minority Population Areas (US Census)	3.38
Reported Pedestrian Crash Location	4.13
Direct Access to/from an Existing Trail or Sidewalk	4.00
Connectivity/access to Proposed Facilities	3.25
Top 1-3 Recommendations from 2013 Public Comments	3.38
Park, Library, or Recreation Center Proximity (1/2 mile radius)	4.00
Elem., Middle, and High School Proximity (1/2 mile radius)	4.56
Direct Access to Major Shopping Centers/Business Areas/Downtown	4.13
Existing Footpath(s)	3.69

Map 3.12 Priority Project Locations



Project Cut Sheets

The following pages offer details for the ten priority project recommendations listed in Table 3.4 below. The purpose of these project sheets is to provide a detailed assessment of each priority project area to assist the Town during the implementation of this plan's recommendations. In each map, the priority project segment is highlighted by a blue line.

Each project cut sheet offers an explanation of the recommendations and a *planning-level* cost estimate for the priority project. The cost estimates are based on the most recently available per unit cost information and include a potential contingency or mobilization fee. Project costs vary over time and by geography. Further evaluation during project design and engineering will be needed to determine exact project costs. A summary table (Table 3.5) of cost estimates for the ten priority projects is included at the end of this chapter. A project inventory table (Table 3.6) of all sidewalk recommendations is included at the end of this chapter.

Table 3.4: Project Prioritization Results

ID #	Roadway	Lower Income Area	Zero Car Households	Highest Population Density	Largest Minority Populations	Pedestrian Crash Location	Connects to Existing Sidewalks or Trails	Connects to Proposed Sidewalks or Trails	Top 1-3 Public Responses	Within 1/2 Mile of Park, Library, Recreation Center	Within 1/2 Mile of a School	Within 1/2 Mile of Downtown	Existing Footpath	TOTAL
1	Burlington Ave	3.69	0	0	3.38	4.13	4	3.25	3.38	4	4.56	4.13	0	34.50
2	E. Joyner St	3.69	0	3.69	3.38	0	4	3.25	0	4	4.56	4.13	3.69	34.38
3	Piedmont Ave	3.69	0	3.69	0	0	4	3.25	0	4	4.56	4.13	3.69	31.00
4	Church St	3.69	0	0	0	4.13	4	3.25	0	4	4.56	4.13	0	27.75
5	W. Main St	3.69	0	0	0	0	4	3.25	0	4	4.56	4.13	3.69	27.31
6	Burlington Ave	0	0	3.69	0	0	4	3.25	3.38	4	4.56	4.13	0	27.00
7	Broad St	3.69	0	0	0	4.13	0	3.25	0	4	4.56	4.13	0	23.63
8	S. Joyner St	0	0	3.69	0	0	4	3.25	0	4	4.56	4.13	0	23.63
9	E. Joyner St	3.69	0	0	0	0	4	3.25	0	4	4.56	4.13	0	23.63
10	Piedmont Ave	3.69	0	0	0	0	4	3.25	0	4	4.56	4.125	0	23.63

1. *Burlington Avenue* between Lewis Street and Piedmont Avenue

Priority Project Score: 34.50

Project Distance: 207.6 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within lower-income area
- Located within higher minority population area
- Previous pedestrian crash location
- Connects to existing sidewalk on Piedmont Avenue
- Connects to existing sidewalk on Lewis Street
- Connects to existing sidewalk on Burlington Avenue
- Connects to proposed pedestrian facilities
- Top 1-3 Public Comment Form response
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $17,750

Project Recommendations

From Lewis Street to Piedmont Avenue

- Sidewalk along north side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections

Intersection Improvement Information

There are two intersections along the Burlington Avenue priority project corridor. One intersection is signalized and one intersection is unsignalized. Each intersection is identified labeled on Map 3.13.

- At the Burlington Avenue and Lewis Street intersection (#27), two crosswalks and four ADA compliant curb ramps are needed.
- At the Burlington Avenue and Piedmont Avenue intersection (#8) two crosswalks, and four ADA compliant curb ramps are needed.

Burlington Avenue near Lewis Street

Map 3.13 Priority Project #1: Burlington Avenue

2. E. Joyner Street between Piedmont Avenue and Wood Street

Priority Project Score: 34.39

Project Distance: 921.7 feet

Roadway Corridor Ownership: Gibsonville

Prioritization Information:

- Located within lower-income area
- Located within higher density population area
- Located within higher minority population area
- Connects to existing sidewalk on Piedmont Avenue
- Connects to existing sidewalk on Wood Street
- Connects to existing sidewalk on Joyner Avenue
- Connects to existing sidewalk on Piedmont Avenue
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation Center, or Library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Existing footpath identified along corridor
- Planning Level Cost Estimate: $34,805

Project Recommendations

From Piedmont Avenue to Wood Street

- Sidewalk along north side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections

Intersection Improvement Information

There are two intersections along the E. Joyner Street priority project corridor. The two intersections are unsignalized. Each intersection is labeled on Map 3.14.

- At the Joyner Street and Piedmont Avenue intersection (#3), four crosswalks and eight ADA compliant curb ramps are needed.
- At the Joyner Street and Wood Street intersection (#28) two crosswalks and four ADA compliant curb ramps are needed.

Joyner Street near Piedmont Ave

Map 3.14 Priority Project #2: E. Joyner Street

3. Piedmont Avenue between Joyner Street and Whitesell Street

Priority Project Score: 31.01

Project Distance: 1,289.7 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within lower-income area
- Located within a higher density population area
- Connects to existing sidewalk on Lewis Street
- Connects to existing sidewalk on Joyner Street
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Existing footpath identified along corridor
- Planning Level Cost Estimate: $41,153

Project Recommendations

From Joyner Street to Whitesell Street

- Sidewalk along west side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections
- Consider in-road signage for mid-block crossings

Intersection Improvement Information

There are three intersections along the Piedmont Avenue priority project corridor. All three intersections are unsignalized, and two are mid-block crossings. Each intersection or crossing is labeled on Map 3.15.

- At the Piedmont Avenue and Whitesell Street mid-block crossing (#1), one crosswalk and two ADA compliant curb ramps are needed.
- At the Piedmont Avenue and Broad Street mid-block crossing (#36) one crosswalk, and two ADA compliant curb ramps are needed.
- At the Piedmont Avenue and Joyner Street intersection (#3), four crosswalks and eight ADA compliant curb ramps are needed.

Piedmont Avenue near Broad Street

Map 3.15 Priority Project #3: Piedmont Avenue

4. Church Street between Boonwood Drive and Town Boundary/ Proposed Trail

Priority Project Score: 27.76

Project Distance: 3,111.2 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within lower-income area
- Previous pedestrian crash location
- Connects to existing sidewalk on Church Street
- Connects to existing sidewalk on Boonwood Street
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $74,606

Church Street near Forest Drive

Project Recommendations

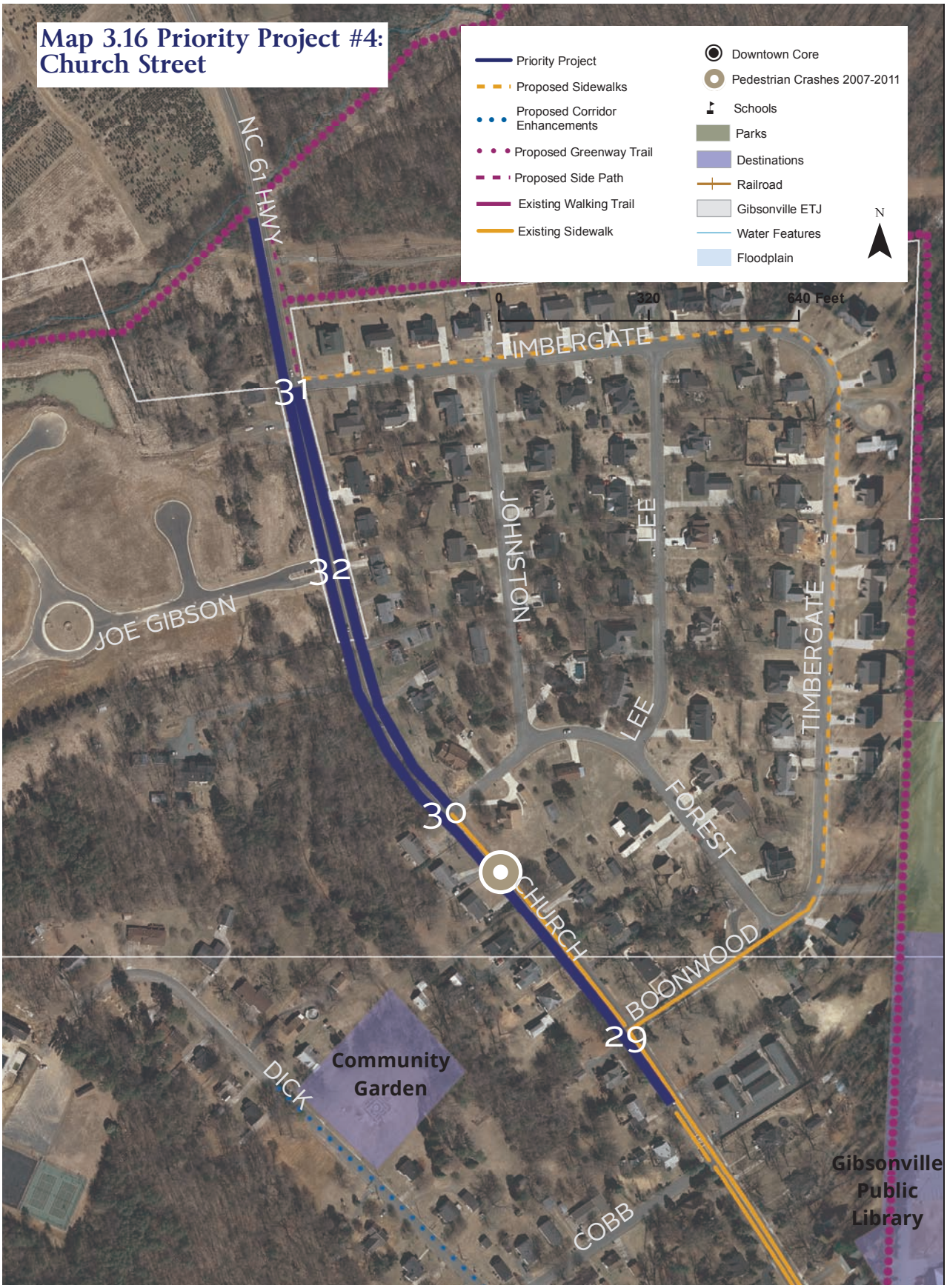
From Existing Sidewalk along Church Street to Town Boundary & Greenway Trail Recommendation

- Sidewalk along both sides of the road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections
- Consider in-road signage at mid-block crossings

Intersection Improvement Information

There are four intersections along the Church Street priority project corridor. The four intersections are unsignalized and three are mid-block crossings. Each intersection or crossing labeled on Map 3.16.

- At the Church Street and Timbergate Drive intersection and mid-block crossing (#31), two crosswalks and four ADA compliant curb ramps are needed.
- At the Church Street and Joe Gibson Drive intersection (#32) one crosswalk across Joe Gibson Drive and two ADA compliant curb ramps are needed.
- At the Church Street and Forest Drive intersection and mid-block crossing (#30), two crosswalks and four ADA compliant curb ramps are needed.
- At the Church Street and Boonwood Drive intersection and mid-block crossing (#29), two crosswalks are needed and two ADA compliant crosswalks are needed.


Map 3.16 Priority Project #4: Church Street
Priority Project
Proposed Sidewalks
Proposed Corridor Enhancements
Proposed Greenway Trail
Proposed Side Path
Existing Walking Trail
Existing Sidewalk
Downtown Core
Pedestrian Crashes 2007-2011
Schools
Parks
Destinations
Railroad
Gibsonville ETJ
Water Features
Floodplain
N
0
320
640 Feet
NC 61 HWY
TIMBERGATE
31
JOHNSTON
LEE
32
JOE GIBSON
LEE
TIMBERGATE
FOREST
30
CHURCH
BOONWOOD
29
DICK
Community Garden
COBB
Gibsonville Public Library

5. W. Main Street between S. Joyner Street and Whitsett Avenue

Priority Project Score: 27.32

Project Distance: 276.5 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within lower-income area
- Connects to existing sidewalk on Main Street
- Connects to existing sidewalk on Whitsett Avenue
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Existing footpath identified along corridor
- Planning Level Cost Estimate: $7,920

Project Recommendations

From Joyner Street to Existing Sidewalk along Main Street

- Sidewalk along north side of road
- High-visibility crosswalks at intersection
- ADA compliant curb ramps at intersection
- Consider in-road signage at mid-block crossings

Intersection Improvement Information

There is one unsignalized intersection along the Main Street priority project corridor and it is a mid-block crossing. The crossing is labeled on Map 3.17.

- At the Main Street and Whitsett Avenue mid-block crossing (#33), one crosswalk and two ADA compliant curb ramps are needed.

W. Main Street looking west toward Joyner Street

Map 3.17 Priority Project #5: W. Main Street

6. *Burlington Avenue from Chase Street to Cook Road*

Priority Project Score: 27.01

Project Distance: 6,594.3 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within higher population density area
- Connects to existing sidewalk on Burlington Avenue
- Connects to existing sidewalk on Chase Street
- Connects to proposed pedestrian facilities
- Top 1-3 Public Comment Form response
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $257,434

Burlington Avenue at Apple Street

Project Recommendations

From Chase Street to Cook Road

- Consider replacing two way left turn lane with left turn pockets as appropriate along entire corridor
- Sidewalk along both sides of the road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections
- Consider in-road signage at mid-block crossings
- Pedestrian countdown timers at signalized intersections.

Intersection Improvement Information

There are five intersections along the Burlington Avenue priority project corridor. Two intersections are signalized and three intersections are unsignalized.

- At the Burlington Avenue and Chase Street intersection (#26), one crosswalk across Chase Street and two ADA compliant curb ramps are needed.
- At the Burlington Avenue and Apple Street intersection (#9) four crosswalks, and eight ADA compliant curb ramps are needed. Eight pedestrian countdown timers are needed.
- At the Burlington Avenue and Wyrick Street intersection (#23) one crosswalk across Wyrick Street and two ADA compliant curb ramps are needed.
- The Burlington Avenue and Huffines Street mid-block crossing (#23) one crosswalk and two ADA compliant curb ramps are needed.
- At the Burlington Avenue and Cook Road intersection (#25) two crosswalks and four ADA compliant curb ramps are needed. Eight pedestrian countdown timers are needed.

Map 3.18 Priority Project #6: Burlington Avenue

Burlington Avenue Existing Conditions

Burlington Avenue near Wyrick Street

- Priority Project Score: 27.01
- Roadway Corridor Ownership: NCDOT/ Gibsonville
- East-west arterial roadway connecting Gibsonville with Elon and the Interstate Highways
- Existing Corridor Width: Approximately 40 ft
- 2012 AADT: 1,400 - 1,500
- Speed limit: 35 MPH
- Existing Cross Section: Two travel lanes, one two-way left turn lane
- Gateway area into downtown Gibsonville

Burlington Avenue Photo Simulation

Burlington Avenue Recommendations

- Consider replacing two way left turn lane with left turn pockets as appropriate along entire corridor to create landscaped medians
- Landscaped medians improve aesthetics, motorist and pedestrian safety, and serve as traffic calming measures
- Add five foot wide sidewalks along both sides of the roadway
- Improve pedestrian crossings at each intersection along entire corridor
- Create welcoming gateway area into Gibsonville

7. Broad Street between Piedmont Avenue and Wyrick Street

Priority Project Score: 23.63

Project Distance: 1,972.4 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within higher population density area
- Previous pedestrian crash location
- Connects to existing sidewalk on Wood Street
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $44,180

Project Recommendations

From Piedmont Avenue to Wyrick Street

- Sidewalk along south side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections
- Consider in-road signage at mid-block crossings

Intersection Improvement Information

There are three unsignalized intersections along the Broad Street priority project corridor. Each intersection labeled on Map 3.19.

- At the Broad Street and Piedmont Avenue mid-block crossing (#36), one crosswalk across Piedmont Avenue and two ADA compliant curb ramps are needed.
- At the Broad Street and Wood Street intersection (#35) one crosswalk across Wood Street and two ADA compliant curb ramps are needed.
- At the Broad Street and Apple Street intersection (#5) one crosswalk across Apple Street and two ADA compliant curb ramps are needed.

Broad Street near Owen Street

Map 3.19 Priority Project #7: Broad Street

8. S. Joyner Street from north of Little Street to South of Railroad Crossing

Priority Project Score: 23.63

Project Distance: 743.4 feet

Roadway Corridor Ownership: Gibsonville

Prioritization Information:

- Located within lower-income area
- Connects to existing sidewalk on Joyner Street
- Connects to existing sidewalk on Railroad Avenue
- Connects to proposed pedestrian facilities
- Top 1-3 Public Comment Form response
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $22,512

Joyner Street at -grade railroad crossing

Project Recommendations

From Existing Sidewalk on Joyner Street to Existing Sidewalk on Railroad Avenue

- Sidewalk along east side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections
- Consider in-road signage at mid-block crossings

Intersection Improvement Information

There are three intersections along the Joyner Street priority project corridor. One intersection is an at-grade railroad crossing, two intersections are unsignalized and one of the intersections has a mid-block crossing. Each intersection labeled on Map 3.20.

- At the Joyner Street and Little Street/Dick Street intersection and mid-block crossing (#34), two crosswalks, one across Little Street and one across Joyner Street, and four ADA compliant curb ramps are needed.
- At the Joyner Street and Main Street intersection (#33), one crosswalk across Main Street and two ADA compliant curb ramps are needed.
- At the Joyner Street and at-grade railroad crossing (#22), one parallel bar crosswalk across the rail lines and an improved asphalt approach and crossing area and are needed.
- See Design Guidelines in Appendix A for detailed pedestrian crossing treatment recommendations for at-grade railroad crossings.

Map 3.20 Priority Project #8: S. Joyner Street

9. E. Joyner Street between Lewis Street and Piedmont Avenue

Priority Project Score: 23.63

Project Distance: 223.0 feet

Roadway Corridor Ownership: Gibsonville

Prioritization Information:

- Located within lower-income area
- Connects to existing sidewalk on Piedmont Avenue
- Connects to existing sidewalk on Lewis Street
- Connects to existing sidewalk on Joyner Street
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $28,742

Project Recommendations

From Lewis Street to Piedmont Avenue

- Sidewalk along north side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections

Intersection Improvement Information

There are two unsignalized intersections along the Joyner Street priority project corridor. Each intersection is labeled on Map 3.21.

- At the Joyner Street and Lewis Street intersection (#2), four crosswalks and eight ADA compliant curb ramps are needed.
- At the Joyner Street and Piedmont Avenue intersection (#3), four crosswalks and eight ADA compliant curb ramps are needed.

Joyner Street near Lewis Street

Map 3.21 Priority Project #9: E. Joyner Street

10. Piedmont Avenue between Whitesell Street and Farwood Road

Priority Project Score: 23.63

Project Distance: 767.6 feet

Roadway Corridor Ownership: NCDOT/ Gibsonville

Prioritization Information:

- Located within lower-income area
- Connects to existing sidewalk on Piedmont Avenue
- Connects to proposed pedestrian facilities
- Within 1/2-mile of park, recreation center, or library
- Within 1/2-mile of a school
- Within 1/2-mile of downtown Gibsonville
- Planning Level Cost Estimate: $19,700

Project Recommendations

From Whitesell Street to Farwood Road

- Sidewalk along west side of road
- High-visibility crosswalks at intersections
- ADA compliant curb ramps at intersections
- Consider in-road signage at mid-block crossings

Intersection Improvement Information

There are two unsignalized intersections along the Piedmont Avenue priority project corridor. Each intersection labeled on Map 3.22.

- At the Piedmont Avenue and Whitesell Street mid-block crossing (#1), one crosswalk across Piedmont Avenue and two ADA compliant curb ramps are needed.
- At the Piedmont Avenue and Farwood Road intersection (#37), one crosswalk across Farwood Drive and two two ADA compliant curb ramps are needed.

William R. Moricle Recreational Complex along Piedmont Avenue

Map 3.22 Priority Project #10: Piedmont Avenue

Table 3.5: Priority Project Cost Estimates

ID #	Roadway Name	Length (Linear Feet)	Concrete Sidewalk Cost $27 / per Sq Yard	# of Crosswalks	High-visibility Thermo Plastic Crosswalk Marking $68 / per marking*	# of Curb Ramps	ADA Curb Ramps $1200 / per curb ramp	# of Ped Countdown timers	Ped Count-down Timers $6000 / per timer	Cost Estimate ($)	Cost Estimate & 15% Mobilization or Contingency Fee
1	Burlington Ave	207.60	$3,114	4	$2,720	8	$9,600	0	0	$15,433.92	$17,749.01
2	E. Joyner St	921.70	$13,825	6	$2,040	12	$14,400	0	0	$30,265.16	$34,804.94
3	Piedmont Ave	1,289.70	$19,345	6	$2,040	12	$14,400	0	0	$35,785.03	$41,152.78
4	Church St	3,111.20	$46,667	7	$3,808	12	$14,400	0	0	$64,874.86	$74,606.09
5	W. Main St	276.50	$4,147	1	$340	2	$2,400	0	0	$6,887.40	$7,920.51
6	Burlington Ave	6,594.30	$98,912	9	$7,344	18	$21,600	16	$96,000	$223,856.09	$257,434.50
7	Broad St	1,972.40	$29,585	3	$1,632	6	$7,200	0	0	$38,417.28	$44,179.87
8	S. Joyner St	734.40	$11,016	4	$1,360	6	$7,200	0	0	$19,575.73	$22,512.09
9	E. Joyner St	223.00	$3,345	8	$2,448	16	$19,200	0	0	$24,992.92	$28,741.86
10	Piedmont Ave	767.70	$11,515	2	$816	4	$4,800	0	0	$17,131.22	$19,700.90

Table 3.6: Overall Pedestrian Network Projects

ID #	Roadway Name	Length (Linear Feet)	Project Type	Priority Project ?
1	Burlington	207.65	sidewalk	y
2	E. Joyner	921.75	sidewalk	y
3	Piedmont	1289.77	sidewalk	y
4	Church	3115.81	sidewalk	y
5	Main	274.72	sidewalk	y
6	Burlington	6594.31	sidewalk	y
7	Broad	1972.49	sidewalk	y
8	Joyner	744.86	sidewalk	y
9	Joyner	223.03	sidewalk	y
10	Lewis	767.62	sidewalk	y
-	Alamance	5621.79	sidewalk	n
-	Apple	522.34	sidewalk	n
-	Bethel	1398.43	sidewalk	n
-	Bethel Church	474.90	sidewalk	n
-	Burke	861.96	traffic calming	n
-	Burlington	1196.55	sidewalk	n
-	Dick	1405.13	traffic calming	n
-	Driftwood	2948.56	traffic calming	n
-	Farwood	640.44	sidewalk	n
-	Gibsonville Ossipee	4721.02	sidewalk	n
-	Homestead	1043.50	sidewalk	n
-	Joyner	806.13	sidewalk	n

Table 3.6: Overall Pedestrian Network Projects Continued

ID #	Roadway Name	Length (Linear Feet)	Project Type	Priority Project ?
-	Joyner	1049.89	traffic calming	n
-	Little	253.76	sidewalk	n
-	Minneola	3897.96	sidewalk	n
-	Oakhurst	1122.37	sidewalk	n
-	Smith	471.19	sidewalk	n
-	Springwood	2260.63	sidewalk	n
-	Timbergate	2297.97	sidewalk	n
-	Whitesell	1035.99	traffic calming	n
-	Witsett	5085.30	sidewalk	n
-	Wyrick	547.84	traffic calming	n
-	Dew Sharpe	2473.23	Side Path	n
-	NC 61 and NC 100	6618.51	Side Path	n
-	Burlington Road	5891.87	Side Path	n
-	Burlington Road	5356.10	Side Path	n
-	Huffines Road	2592.02	Side Path	n
-	Southern Greenway Trail	4558.10	Greenway Trail	n
-	Dew Sharpe Greenway Connector	1573.44	Greenway Trail	n
-	Lashley Park Drive Spur Trail	190.07	Greenway Trail	n
-	Steele Street	2248.29	Side Path	n
-	Farwood to NC 61 Connector Trail	1691.17	Greenway Trail	n
-	Piedmont Ave Greenway Trail Connector	3862.12	Greenway Trail	n
-	NC 61	216.64	Side Path	n
-	Minneola Street Greenway Trail Connector	3913.20	Greenway Trail	n
-	Gibsonville Ossipee Road	1912.66	Side Path	n

Table 3.6: Overall Pedestrian Network Projects Continued

ID #	Roadway Name	Length (Linear Feet)	Project Type	Priority Project ?
-	Gibsonville Ossipee Road Greenway Trail Connector	4624.26	Greenway Trail	n
-	Piedmont Avenue	1864.02	Side Path	n
-	Greenway Trail	4452.70	Greenway Trail	n
-	Granite Road Greenway Connector Trail	2090.11	Greenway Trail	n
-	Oakhurst Greenway Connector Trail	6781.41	Greenway Trail	n
-	Cook -Manning Road Greenway Connector Trail	4459.85	Greenway Trail	n
-	Springwood Church Rd	4972.02	Side Path	n
-	Recreation Complex Connector Trail	2056.52	Greenway Trail	n
-	Steele	859.50	Side Path	n
-	Springwood Church Rd	4504.64	Side Path	n
-	Burlington Ave Regional Connector	8358.79	Side Path	n


PARK

4 Program & Policy Recommendations

Chapter Contents

Overview

Meeting the goals of this pedestrian master plan will not only require new facilities, but also implementation of pedestrian-related programs and policies. This plan recommends a comprehensive approach that incorporates the "5 E's" (Engineering, Education, Encouragement, Enforcement, and Evaluation) to increase the safety and comfort of walking and to become designated as a Walk-Friendly Community by the Pedestrian and Bicycle Information Center. The approach must focus on overall livability and walkability in all planning decisions involving land use, growth, and transportation. Recommendations addressing the first "E", engineering, are covered in Chapter 3: Network Recommendations, while the other four "E's" are addressed in this chapter under "New Program Recommendations and Resources" starting on page 4-3.

Existing Programs

The Town of Gibsonville hosts the following events throughout the calendar year. Even though these events are not linked to specific pedestrian programs, they encourage pedestrian activity and therefore can be excellent opportunities for further advancing pedestrian safety and active living.

Market Day

This event is coordinated by the Town of Gibsonville and takes place every Saturday from May to November from 8 am to 4 pm at the Downtown Green at Burke Street and Main Street. This event offers the opportunity for local residents to access healthy, locally grown foods while enjoying downtown's pedestrian friendly atmosphere.

Type: Weekly

Recommendation: Farmer's markets create an ideal atmosphere for community engagement and camaraderie. The Town should consider closing off Main Street (within the market limits) and using the open space as a venue for community interaction and active play. For example, the town could provide tables and chairs as amenities for market shoppers and set up outdoor games for kids.

Gibsonville Fall Festival

This event takes place once a year on a Saturday in October from 10 am to 4 pm in Downtown Gibsonville. This family-oriented street festival offers an opportunity for the residents of Alamance County, Guilford County, and surrounding areas to enjoy arts, crafts, foods, children's activities, and other attractions.

Type: Annual

Recommendation: This is a successful event that attracts thousands of local and regional residents. The town could consider hosting Pedestrian Safety Awareness campaigns during the festival. This is an ideal opportunity to educate people of all ages about pedestrian safety.

Lighting of the Green

The Lighting of the Green event is hosted annually by the Gibsonville Merchant's Association in mid-November. The Town's Christmas Tree is lit while live music entertains the crowds, downtown shops are open, and Santa and his elves celebrate the festivities with attendees.

Type: Annual

Recommendation: This is a successful family event that attracts hundreds residents. The town could consider facilitating walking groups to encourage residents to walk to the event together from nearby residential neighborhoods.

Gibsonville/Elon Kiwanis Club Annual Car Show

This fundraising event is held every April and is free and open to the public. Burke Street in downtown Gibsonsville is closed to automobile traffic during the event.

Type: Annual

Recommendation: This event attracts local and regional car enthusiasts. The town could consider hosting "Rules of the Road" campaigns during the festival. This is an ideal opportunity to educate people of all ages about motorist and pedestrian safety.

Gibsonville "Saturdays at Seven" Concert Series

This concert series occurs on the first Saturday of each month from May through September each year. The concert is set up on the Town green in downtown Gibsonville.

Type: Monthly (May through September)

Recommendation: The town could consider creating a walkathon competition for residents who walk from their home to each concert. The resident(s) who walk to and from their home for all six Saturday concerts receive a prize or acknowledgement during the final concert event.

Monthly Senior Walks

The John O. Harper Senior Center offers monthly day trips for seniors. These trips offer the opportunity for seniors to gather in fellowship, be active, and enjoy the outdoors around town and its vicinity.

Type: Monthly

Recommendation: To build on the momentum of the Senior Center's monthly walk, the town or other local organizations should organize walking groups that meet regularly to encourage physical activity. These groups could be specialized to attract different interest groups. Examples include:

- Mother's Morning Club (moms with strollers)
- Town of Gibsonville Wednesday Walks (weekly walk during lunch break or after work)
- Lunch Bunch (workers who walk or run during their lunch hour)

New Program Recommendations and Resources

Pedestrian-related programs fall into four main categories: education, encouragement, enforcement, and evaluation. The programs listed in this chapter demonstrate the variety of opportunities available for promoting walking and active lifestyles in Gibsonville. The town should work closely with local volunteers and community organizations to implement events and activities, research new program ideas, and improve upon existing programs.

Education

Public Education and Educational Devices

Gibsonville could develop a variety of safety materials and distribute them throughout the community. Educational materials focus on safe behaviors, rules, and responsibilities. This safety information is often available for download from national pedestrian advocacy organizations, such as the Pedestrian and Bicycle Information Center (www.walkinginfo.org). Furthermore, NCDOT has prepared a series of pedestrian education and enforcement materials which are available for distribution to state jurisdictions.

The Information can be distributed through brochures, newsletters, newspapers, bumper stickers, and other print media that can be inserted into routine mailings. It can also be posted on municipal websites and shown on local cable access television.

Coordinated Campaigns

Through cooperation with NCDOT, the Town of Gibsonville and local organizations should provide strong education, encouragement, enforcement, and evaluation campaigns whenever a major pedestrian improvement occurs. When a major improvement is made, the roadway environment changes and proper interaction between all users is critical for overall safety. This type of outreach could take place through the local media outlets, on-site, or at special events.

Stickers and posters developed for the NCDOT Watch for Me NC pedestrian education campaign.

Internal Education

"Internal" education refers to the training of people who are involved in the actual implementation of the Pedestrian Plan. Key town staff, members of the Town Board, the steering committee, NCDOT Division staff, and Alamance and Guilford County staff should be included in training sessions whenever possible. This training could cover planning, design, development review, construction, and maintenance. This type of 'inreach' can be in the form of brown bag lunches and attendance at special sessions or conferences. Even simple meetings to go over the Pedestrian Plan and communicate its strategies and objectives can prove useful for staff and newly elected officials. Guidance and materials for internal education methods is available from the NCDOT Bicycle and Pedestrian Division and the Institute for Transportation Research and Education (ITRE).

Below are several training course examples:

- www.michaelronkin.com/courses
- www.pps.org/training/custom-tailored-training/
- www.fhwa.dot.gov/context/trainingguide/ExistingClasses.htm

Let's Go NC – Pedestrian Curriculum

Let's Go NC is a pedestrian and bicycle safety skills program for children in grades K-5 in North Carolina. The pedestrian component is based on the National Traffic and Safety Highway Administration (NHTSA) pedestrian curriculum. The program encourages children to be healthy and active by teaching the skills necessary for safe walking. The curriculum is currently under development and includes Safe Routes to School Components, classroom curriculum materials, and videos and exercises.

Eat Smart Move More NC

Eat Smart Move More is a statewide movement that promotes increased opportunities for healthy eating and physical activity wherever people live, learn, earn, play, and pray. Through this program, grants are available for towns to implement physical activity programs in local schools.

http://www.eatsmartmovemorenc.com/

Education Resources

America Walks is a national coalition of local advocacy groups dedicated to promoting walkable communities. Their mission is to foster the development of community-based pedestrian advocacy groups, to educate the public about the benefits of walking, and, when appropriate, to act as a collective voice for walking advocates. They provide a support network for local pedestrian advocacy groups.

http://americawalks.org

Stepping Out is an online resource for mature adults to learn about ways to be healthy by walking more often, and walking safely.

Pedestrian Safety is a program of the National Highway Traffic Safety Administration (NHTSA) designed to improve the safety of pedestrians through education, enforcement, and outreach programs. The website includes downloadable materials pertaining to school age children.

http://www.nhtsa.gov/Pedestrians

Safe Kids Worldwide is a global network of organizations whose mission is to prevent accidental childhood injury, a leading cause of death for children 14 and under. More than 450 coalitions in fifteen countries bring together health and safety experts, educators, corporations, foundations, governments, and volunteers to educate and protect families. Visit their website to receive information about programs, media events, and hands-on educational activities for kids and their families.

http://www.safekids.org/

Speed Campaign Tool Kit. This NHTSA tool kit provides marketing materials and ideas for communities to fit local needs and objectives, while at the same time partnering with other states, communities, and organizations all across the country on a speed management program. Free TV and radio materials, posters, billboards, and other media materials can be downloaded here:

http://www.nhtsa.gov/Driving+Safety/Enforcement+&+Justice+Services

Pedestrian and Bicycle Safety: Pedestrian information related to children from the FHWA.

http://safety.fhwa.dot.gov/ped_bike/

The NCDOT Division of Bicycle and Pedestrian Transportation has an extensive selection of how-to manuals, informative guidebooks, and kits that provide comprehensive information on a variety of topics. These educational materials may be used by the general public, event organizers, teachers, or others. All are downloadable in PDF version. Manuals and guidebooks that are available in hard copy may be requested through the Safety Materials Order Form:

www.ncdot.gov/bikeped/safetyeducation/manuals/

For more information and program examples, visit the following websites:

- www.pedbikeinfo.org (Pedestrian and Bicycle Information Center)
- www.bikewalk.org/workshops (National Center for Bicycling and Walking)
- www.saferoutesinfo.org (Safe Routes to School)
- www.active-living.org (Partners for Active Living)
- www.BGMPO-nc.us/bikepedestrian.html (Capital Area MPO)
- www.smartcommutechallenge.org (Triangle Area - Smart Commute Challenge)
- www.usa.safekids.org (Safe Kids Worldwide)
- www.worldcarfree.net (Worldcarfree)
- www.nhtsa.dot.gov/people/injury/pedbimot/bike/resourceguide/index.html (National Resource Guide on Laws Related to Pedestrian and Bicycle Safety)

Encouragement

School Programs

Community leaders, parents, and schools across the country are using Safe Routes to School programs to encourage and enable more children to safely walk and bike to school. The National Center for Safe Routes to School aims to assist these communities in developing successful Safe Routes programs and strategies. The Center offers a centralized resource of information on how to start and sustain a Safe Routes to School program, case studies of successful programs, and many other resources for training and technical assistance. Visit www.saferoutesinfo.org for more detail.

Awareness Days and Events

A specific day of the year can be devoted to a theme to raise awareness and celebrate issues relating to that theme. A greenway and its amenities can serve as a venue for events that will put the greenway on display for the community. Popular events such as the Fall Festival serve as excellent opportunities to include pedestrian information distribution.

The following are examples of other national events that can be used to increase use of pedestrian facilities:

Walk to Work Day/International Car Free Day

(Typically held on September 22) Designate one day a year for people to walk to work to promote active living and raise awareness for environmental issues. Walk to Work Day can be the culmination of an entire week or month of pedestrian promotional activities, including fitness expos, walking and jogging group activities, and running and bicycling races and rides.

Strive Not to Drive Day

This example from the Town of Black Mountain, NC, is an annual event to celebrate and promote the town's pedestrian achievements for the year. Awards for pedestrian commuters, as well as booths, contests, and other events are organized through their local MPO Bicycle and Pedestrian Task Force and the Land-of-Sky Regional Council. A similar event could be held in Gibsonville as the Pedestrian Plan is implemented.

National Trails Day

This event is held every year in June. Other events, competitions, races, and tours can be held simultaneously to promote future greenways in Gibsonville.

Earth Day

Earth Day is celebrated on April 22nd every year and offers an opportunity to focus on helping the environment. Efforts can be made to encourage people to help the environment by walking to destinations and staying out of their vehicles. This provides an excellent opportunity to educate people of all ages.

Pedestrian Activities/Promotion within Local Organizations

The Town of Gibsonville has numerous organizations that could help promote pedestrian activities (e.g., the Parks and Recreation and Police departments). Education, enforcement, and encouragement programs can be advertised and discussed in local organization newsletters, seminars, and meetings. Such organizations could even coordinate their own group walks, trail clean-ups, and other activities.

Walk Friendly Community (WFC) Designation

The Walk Friendly Communities program, administered by the Highway Safety Research Center's Pedestrian and Bicycle Information Center (PBIC), is a national recognition program developed to encourage towns and cities across the U.S. to establish or recommit to supporting safer walking environments. The WFC program recognizes communities that are working to improve a wide range of conditions related to walking, including safety, mobility, access, and comfort.

Revenue Generating Events

The Town of Gibsonville should consider holding events that can help fund future facilities. Program and event ideas that could be used to generate revenue in the Town include:

- Races and triathlons (fees or donations)
- Educational walks, nature walks, and historic walks (fees or donations)
- Fund-raisers including dinners or galas
- Concerts (fees or donations)
- Events coinciding with other local events such as fairs or festivals

Open Streets Events

Usually held on a weekend day, open street events temporarily close streets to cars and open them up to people walking, bicycling, skating, playing sports, and so on. These events have been very successful in cities across North America.

An open streets event promotes health and community while celebrating bicycling and walking, such as this Open Streets event in Carrboro, NC.

"Weekend Walkabout" Program

Walking programs such as "Weekend Walkabout" are regularly occurring events that promote walking while also bringing attention to pedestrian infrastructure. "Weekend Walkabouts" walking routes should highlight safe and inviting places to walk in the public realm (rather than private or enclosed facilities such as walking tracks) and should be three miles or less in length. These events are ideal for families and seniors.

Walking Youth Engagement Contest

Students in grades four, five, or six would be the ideal audience for this contest. By partnering with the state, school districts could coordinate to schedule a poster, Photovoice, YouTube, or other media contest and develop a "scoring" criteria. Students would be tasked with creating a product that highlight the benefits and value of walking. A selection panel made up of representatives from the town and the school will choose the winner of the contest.

Encouragement Resources

National Walk our Children to School Day is usually held in October with the objective of encouraging adults to teach children safe pedestrian behavior, identify safe routes to school, and remind everyone of the health benefits of walking. To register, go to the main webpage and follow the International Walk to School link:

www.walktoschool-usa.org

Walk a Child to School in North Carolina. A growing number of community groups throughout the nation, such as health professionals, traffic safety groups, local PTAs, and elected officials, are promoting walking to school initiatives. In North Carolina, Walk a Child to School Programs have gained a foothold and are growing each year. To date more than 5,000 students in twelve communities have participated.

http://www.walktoschool.org

Kidswalk-to-School is a resource guide to help communities develop and implement a year-long walk-to-school initiative; sponsored by the Centers for Disease Control and Prevention. **http://www.cdc.gov/nccdphp/dnpa/kidswalk/**

Preventing Pedestrian Crashes Preschool/Elementary School Children provides information to parents on pedestrian risks for preschool and elementary school children.

http://www.nhtsa.gov/Driving+Safety/Enforcement+&+Justice+Services

Enforcement

Motorist Enforcement

Based on observed patterns of behavior, local police can use targeted enforcement to focus on key issues such as motorists speeding, not yielding to pedestrians in crosswalks, or parking on sidewalks. The goal is for pedestrians and motorists to recognize and respect each other's rights on the roadway.

The NCDOT Division of Bicycle and Pedestrian Transportation funded a study on pedestrian issues, including school zone safety, and decided to establish a consistent training program for law enforcement officers responsible for school crossing guards. According to the office of the North Carolina Attorney General, school crossing guards may be considered traffic control officers when proper training is provided as specified in G.S. 20-114.1.

Speed Feedback Signs

These signs serve as a traffic calming device when used at strategic roadway locations. The town should use speed feedback signs on streets with new pedestrian facilities and should include information about requesting a speed feedback sign on the town's website. Speed feedback signs can also be used in conjunction with corridor enhancement recommendations. See Chapter 3 for information on specific roadways that would benefit from corridor enhancements.

Enforcement Actions

- Local police should use targeted enforcement to focus on key issues such as motorists speeding, not yielding to pedestrians in crosswalks, or parking on sidewalks
- Establish a crossing guard program for peak school hours and for peak pedestrian activity
- Require crossing guards to complete an NCDOT Crossing Guard Training Program

Enforcement Resources

- NCDOT School Crossing Guard Program: **www.ncdot.org/transit/bicycle/safety/programs_initiatives/crossing.html**
- NCDOT's Guide to North Carolina Bicycle and Pedestrian Laws: **www.nhtsa.dot.gov/people/injury/pedbimot/bike/resourceguide/index.html**

Evaluation

Pedestrian and Bicycle Advocacy Committee

The Town of Gibsonville should support the creation of a local pedestrian and bicycle committee. The Plan's steering committee is a good starting point for establishing this group. Even though this is a pedestrian plan, the needs and objectives of bicycle and pedestrian advocates are closely related, and stand to benefit mutually from their combined efforts. Local advocacy groups are resources for promoting safety, providing feedback on opportunities and challenges of the pedestrian and bicycle network, and coordinating events and outreach campaigns (such as the programs outlined throughout this section). Advocacy groups also play a critical role in encouraging and evaluating the progress of overall plan implementation.

Pedestrian Needs Checklist

A Pedestrian Needs Checklist would ensure the full participation and timely review of the NCDOT Bicycle and Pedestrian Transportation staff in the development of new projects which have the potential to benefit pedestrians. One component of the checklist would be to increase pedestrian related amenities at intermodal facilities and any existing or future Park & Ride facilities. There are many examples of checklists available online in the form of Complete Streets Checklists.

Facility Inspection and Maintenance

There are minimum standards acceptable for sidewalk facility conditions. Setting and maintaining minimum condition standards will enable all users to use facilities safely. The Town of Gibsonville could require sidewalk inspection when properties are sold to reduce liability for property owners, who can be held liable if someone is injured on the sidewalk in front of their property. The town could set up a hotline to effectively and efficiently collect information regarding problematic facilities.

Table 4-1: Programmatic Recommendations

Strategy	Target Audience	Lead Facilitator	Partnerships for Success	Time Frame	Duration
Education					
Public Education and Educational Devices	General public	Town of Gibsonville	Town departments, Gibsonville schools, NCDOT	Short-term	Ongoing
Coordinated Campaigns	General public	Gibsonville Planning Dept	NCDOT, BGMPO, neighboring municipalities	Medium-term	Ongoing
Internal Education	Town staff; Law enforcement	Gibsonville Planning Dept	NCDOT; BGMPO; HSRC; ITRE	Medium-term	Annual
Let's Go NC - Pedestrian Curriculum	Schoolchildren	Gibsonville schools	School administration; District administration; Town of Gibsonville	Medium-term	Ongoing
Eat Smart Move More NC	Schoolchildren; General public	Gibsonville schools; School administration	Town agencies; Guilford & AlamanceCounty Human Services Dept	Medium-term	Ongoing
Encouragement					
School Programs	Schoolchildren	Gibsonville schools; School administration	Town agencies; Gibsonville Police Department; Guilford & AlamanceCounty Human Services Dept	Short-term	Ongoing
Awareness Days and Events	General public	Town of Gibsonville; Town agencies	Local non-profit; Local running and cycling clubs; DENR	Medium-term	Annual
Pedestrian Activities/Promotion within Local Organizations	General public	Local non-profit; Gibsonville Chamber of Commerce	Town agencies; local businesses	Medium-term	Ongoing
Walk-Friendly Community (WFC) Designation	General public	Gibsonville Planning Dept	Town agencies; Town administration	Medium-term	Annual
Revenue Generating Events	General public	Town of Gibsonville	Gibsonville Chamber of Commerce; Guilford & Alamance Chamber of Commerce; Advocacy groups; Non-profits	Medium-term	Biannual
Open Streets Event	General public	Gibsonville Parks, Recreation, & Cultural Resources Dept; Gibsonville Planning Dept	Local advocacy groups; Non-profits; Businesses	Short-term	Biannual
"Weekend Walkabout" Program	General public	Gibsonville Parks, Recreation, & Cultural Resources Dept; Neighborhoods; Non-profits	Local advocacy groups	Short-term	Weekly
Walking Youth Engagement Contest	Children and teens	Gibsonville schools	Local advocacy groups; Non-profits	Medium-term	Annual

Strategy	Target Audience	Lead Facilitator	Partnerships for Success	Time Frame	Duration
Enforcement					
Motorist Enforcement	Motorists	Gibsonville Police Department	Town of Gibsonville	Short-term	Ongoing
Speed Feedback Signs	Motorists	Gibsonville Police Department	Town agencies	Short-term	Ongoing
Evaluation					
Bicycle and Pedestrian Advocacy Committee	General public	Town administration; Town Board	Gibsonville Planning Dept; Parks, Recreation, & Cultural Resources Dept	Short-term	Ongoing
Pedestrian Needs Checklist	Town staff	Gibsonville Public Works Dept	Gibsonville Planning Dept; Police Dept; Guilford & Alamance County staff; NCDOT	Medium-term	Ongoing
Facility Inspection and Maintenance	Town staff	Gibsonville Public Works Dept	Gibsonville Planning Dept; Parks, Recreation, & Cultural Resources Dept	Medium-term	Annual

Pedestrian Policies

Town planning staff should become familiar with (and, in many cases, continue to support) the following policies and regulations. Walkability should be an item considered with all future development and growth decisions. More people will walk when their proximity to key destinations is reasonable. For example, a mixed use development will engage more walking while the development of a school at the outskirts of the city will promote less walking and more driving. Suggested policy statements and paragraphs by category are provided below.

Complete Streets

Goal: Adopt a "Complete Streets" approach and philosophy that all streets and development on streets be designed and operated to enable safe access for all users, ages, and abilities.

- Ensure that transportation agencies, planners, engineers, and developers design and operate the entire right of way to enable safe access for all users including transit users, drivers, pedestrians, bicyclists, as well as for seniors, children, and people with disabilities.
- Educate leaders, business owners, residents, and all stakeholders of the benefits of Complete Streets including: livability, safety, increased social interaction, increased economic activity, attractiveness, healthier living, less pollution, and increased access.
- Follow NCDOT's Complete Streets Policy, Implementation and Design Guideline development. The Town should ensure that these practices are followed and that local NCDOT Division staff and MPO staff are aware of these new guidelines.

Pedestrian Network and Connectivity

Goal: Create and maintain a pedestrian network that provides direct connections between city center, trip attractors, schools, and residential/commercial areas.

- To the maximum extent possible, make walkways accessible to people with physical disabilities.
- Develop a system of informational and directional signage for pedestrian facilities and multi-use trails.
- Provide sidewalks on all roads surrounding schools with safe crosswalks.
- Provide pedestrian access through cul-de-sacs and large parking lots, which are typical obstacles to pedestrian connectivity.
- Accommodate pedestrians and bicyclists on future roadway bridges, underpasses, and interchanges and on any other roadways that are impacted by a bridge, underpass, or interchange project (except on roadways where they are prohibited by law).

Safety

Goal: Strive to maintain a complete, safe sidewalk network free of broken or missing sidewalks, curb cuts, or curb ramps and that include safety features such as traffic calming, lighting, and sidewalk repairs.

- Provide raised medians or pedestrian refuge islands where practical, at crosswalks on streets with more than three lanes, especially on streets with high volumes of traffic. They should be six to ten feet wide.
- Monitor and identify pedestrian facilities that are not ADA-compliant including missing, damaged, or non-compliant curb ramps, stairs, or sidewalk segments of inadequate width and create a plan for improving them.
- Develop a traffic calming program to slow traffic through downtown and on major residential corridors, making them aware that they share the corridors with pedestrians.
- Make pedestrian crossings a priority and initiate improvements recommended in Chapter 3. Consider variations in pavement texture and clear delineation of crosswalks. Also, ensure that crosswalks are properly lit at night.
- Implement pedestrian-scale lighting at regular intervals in areas of high pedestrian activity to promote pedestrian safety and discourage criminal activity.
- Develop and expand the Town's maintenance program of sidewalk repairs, debris removal, and trimming of encroaching vegetation.
- Follow design guidelines in Appendix A to the maximum extent possible. For example, the buffer space between the sidewalk and the curb and gutter should be maximized within the available right-of-way.

Aesthetics Comfort and Enjoyment

Goal: Encourage the inclusion of art, historic, and natural elements along with street furniture and landscaping in pedestrian improvement projects.

- Require street trees and planting buffers between the sidewalk and the street along all new roadways and sidewalk construction. Keep all vegetation trimmed.
- Encourage and/or require private owners (of residences and businesses) to keep their area in and around the sidewalk free of debris and litter.
- Require benches, shelters, sheltered transit stops, trees, and other features to facilitate the convenience and comfort of pedestrians.
- Require pedestrian scale lighting along multi-use trails and most traveled sidewalks in the Town.

Land Use and Development

Goal: Promote land uses and site designs that make walking convenient, safe, and enjoyable.

- Encourage a mix of uses through building, zoning, and development codes to connect entrances and exits to sidewalks, and eliminate "blank walls" to promote street level activity.
- Require sidewalks have a minimum width of five feet but where pedestrian traffic is higher, including near schools, senior centers, multi-family housing, and commercial areas or where sidewalks connect or overlap with recommended on-road greenway connections.
- Require applicable buildings to build to the sidewalk. Also, prohibit parking lots from being developed in front of buildings where possible to develop pedestrian oriented areas.
- Promote parking and development policies that encourage multiple destinations within an area to be connected by pedestrian trips. Specifically, promote the connectivity of parking lots between businesses for increased safety and avoidance of roadway traffic.
- During preliminary site plan review, require public easements on properties or along corridors identified as priority areas or projects in this Comprehensive Pedestrian Plan.
- Disallow parked vehicles from blocking pedestrian walkways.

Multi-use Trails

Goal: Establish trails as part of Gibsonville's public infrastructure.

- Define 'Multi-Use Trails' as part of the Gibsonville's public infrastructure. Multi-use trails are public infrastructure that provide important functions to not only offer transportation alternatives, but to protect public health safety and welfare. Within flood-prone landscapes, multi-use trails offer the highest and best use of floodplain land, mitigate the impacts from frequent flooding, and offer public utility agencies access to floodplains for inspection, monitoring and management. Multi-use trails filter pollutants from stormwater and provide an essential habitat for native vegetation that serves to cleanse water of sediment. They also provide viable routes of travel for cyclists and pedestrians and serve as alternative transportation corridors for urban and suburban commuters. Multi-use trails serve the health and wellness needs of our community, providing close-to-home and close-to-work access to quality outdoor environments where residents can participate in doctor prescribed or self-initiated health and wellness programs. All of these functions make multi-use trails a vital part of community infrastructure.
- Require subdividers to provide natural buffers along both sides of all perennial streams. Public multi-use trails with limited disturbance along perennial and intermittent streams are excellent uses for these spaces and should be dedicated during the subdivision process.
- Encourage utility corridor development practices that allow for maximum compatibility with pedestrian and bikeway corridors. Land and easements purchased for the purpose of providing utilities (such as water and sewer) can serve a greater community benefit if developed to accommodate a multi-use trail.

Local Regulatory Review

The Town of Gibsonville is a political subdivision of the State of North Carolina and thus derives its power and authority from the provisions of state law. The Town may adopt ordinances and resolutions necessary for the exercise of its powers and it may prescribe fines and penalties for the violation for such ordinances.

Town of Gibsonville's Code of Ordinances

An ordinance holds the same authority of law, and updates or revisions to Gibsonville ordinances that take pedestrians into consideration would support the Town's goal of becoming more pedestrian friendly. The Code of Ordinances review table, with specific language recommendations begins on page 4-17 of this chapter.

Table 4.2 Town Code of Ordinance Review

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
GENERAL USE DISTRICTS	4.2.1.A	"The district is established for the following purposes..."	Items 1-4 establish a high standard for development in the AG district. It should be noted here that these four goals apply to equal (or greater) measure and effect in residential, commercial, office, industrial and overlay districts. Consider reinforcing the intent of these goals by prescribing them for all districts/zones.
RESIDENTIAL SINGLE-FAMILY DISTRICT	4-2.1.B.1 RS-40	RS-40. "established to promote single-family detached residences where environmental features, public service capacities or soil characteristics necessitate very low density single-family development.	Define environmental features, public service capacities or soil characteristics that would necessitate very low density residential development.
RESIDENTIAL SINGLE-FAMILY DISTRICT	4-2.1.B.4	RS-15	Consider adding specifications for lot width, setbacks, sidewalk requirements, street dimensions, etc. similar to RS-9.
RESIDENTIAL SINGLE-FAMILY DISTRICT	4-2.1.B.5	RS-12	Consider adding specifications for lot width, setbacks, sidewalk requirements, street dimensions, etc. similar to RS-9.
RESIDENTIAL SINGLE-FAMILY DISTRICT	4-2.1B.6	RS-9. "Additional standards include sidewalks required on ~~one side~~ both sides of the street, street pavement width reduced to 26 feet, back-of-curb, on a 50 foot right-of-way, sufficient driveways to accommodate two cars side-by-side, and covered entry ways for all residential construction."	A street pavement width of 26 feet, back-of-curb, on a 50 foot right-of-way allows for a five foot sidewalk and seven foot planting strip on each side. Require sidewalks on both sides of street when both sides are developed, or when either side would provide a means of access or connection to other destinations within walking distance. Also consider provisions for architectural/design elements including establishing maximum garage/carport ratio and minimum window/door ratio for street-facing surfaces to encourage a more "street-friendly" active design (instead of the more typical auto-oriented suburban design, i.e. the "Snout House"). Example: ***"A garage or carport shall comprise no more than 50% of a residence's street-facing surface area. The front entrance must face the street, and combined with windows, shall comprise a minimum of 20% of the residence's front-facing facade."***

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
RESIDENTIAL MULTI-FAMILY DISTRICT	4-2.1C.1	"The RM-5, Residential Multi-Family District is primarily intended to accommodate duplexes, twin-homes, townhouses, cluster housing and similar residential uses at a maximum overall density of 5.0 units per acre."	5.0 units per gross acre equates to an average lot size of 8,712 square feet. Consider increasing density. Density should reference building setbacks, height and floor-area-ratio (FAR). Include additional requirements for street and sidewalk right-of-way widths, parking, circulation, lighting, common areas, children's recreational facilities, etc.
MULTI-FAMILY RESIDENTIAL DISTRICT	4-2.1.C.2	"The RM-8, Residential Multi-Family District is primarily intended to accommodate duplexes, twin-homes, townhouses, cluster housing and similar residential uses at a maximum overall density of 8.0 units per acre."	8.0 units per gross acre equates to an average lot size of 5,445 square feet. Consider increasing density. Density should reference building setbacks, height and floor-area-ratio (FAR). Include additional requirements for street and sidewalk right-of-way widths, parking, circulation, lighting, common areas, children's recreational facilities, etc.
OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.1	LO LIMITED OFFICE DISTRICT	Amend to include square footages, building setbacks, height and floor-area-ratios (FAR). Include additional requirements for street and sidewalk right-of-way widths, parking, circulation, lighting, common areas. Reference list of conforming land uses.
4-2.1.D.2 OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.2	GO-M GENERAL OFFICE MODERATE INTENSITY	Amend to include square footages, building setbacks, height and floor-area-ratios (FAR). Include additional requirements or references for street and sidewalk right-of-way widths, parking, circulation, lighting, common areas. It is also unusual that this district allows for much higher residential densities than the multifamily residential districts. Consider increasing density allowance for multi-family districts, and/or renaming this district. Example: **"GENERAL MIXED-USE MODERATE INTENSITY."** Define "supporting service and retail uses." Reference list of conforming land uses.

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.3	GO-H GENERAL OFFICE HIGH INTENSITY	Amend to include square footages, building setbacks, height and floor-area-ratios (FAR). Include additional requirements or references for for street and sidewalk right-of-way widths, parking, circulation, lighting, common areas. It is also unusual that this district allows for much higher residential densities than the multifamily residential districts. Consider increasing density allowance for multi-family districts and/or renaming this district. Example: **"GENERAL MIXED-USE HIGH INTENSITY."** Define "supporting service and retail uses." Reference list of conforming land uses.
OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.4	NB NEIGHBORHOOD BUSINESS DISTRICT	Is this a district/zone or a district/zone overlay? Specify allowable residential densities If the former, distinguish between mixed-use district and mixed-use buildings. Reference list of conforming land uses. Include parking maximums so as to clarify the intent of the zone. Elaborate on "design standards for both site layout and building." This could read similar to HB BUSINESS DISTRICT. Example: ***"The district is primarily established to provide locations for establishments which require high visibility and good access for short neighborhood trips, which cater primarily to non-motorized trips and require little to no parking."***
OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.5	LB LIMITED BUSINESS DISTRICT	This could read similar to HB HIGHWAY BUSINESS DISTRICT. Example: ***"The district is primarily established to provide locations for establishments which require high visibility and good access for short neighborhood/local trips, which cater primarily to non-motorized trips and require little to no parking."***
OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.8	CB CENTRAL BUSINESS DISTRICT. "The district is intended to accommodate a wide range of uses including office, retail, service, and institutional developments in a pedestrian-oriented setting."	Elaborate on "pedestrian-oriented setting." Does this include such things as pedestrian plazas, wide sidewalks, sitting areas, mixed-use office/residential buildings with ground floor retail, street trees landscaping, etc.? What about surface parking lots vs. structured parking lots?

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
OFFICE, COMMERCIAL, AND INDUSTRIAL	4-2.1.D.9	SC SHOPPING CENTER DISTRICT.	It is good that the distinction is made between mixed-use tracts and mixed-use buildings, and that both are allowed. The other district designations that allow/ encourage mixed-use could benefit from this clarification. The Shopping Center District seems very similar to GO-H, but with the addition of retail. In fact, many of these district designations are very similar and their descriptions seem to imply a more form-based code. Consider consolidating some of them since many trend toward a higher degree of mixed-use. To further simplify, also consider creating a list/matrix of specific land uses applicable to each district.
PUBLIC AND INSTITUTIONAL	4-2.1.E.	PI PUBLIC AND INSTITUTIONAL DISTRICT.	"land use impact" and "traffic generation potential" have important implications for the pedestrian environment. Consider adding: ***"Because of the larger scale of public and institutional districts, designs should incorporate a greater degree of pedestrian-oriented improvements including wide sidewalks, and well-lit indoor and outdoor public spaces. Walkways must be designed for peak pedestrian volumes typical of events such as classes, sporting events, or other large gatherings."*** Visibility and personal safety/security are also concerns in larger institutional settings during non-peak periods.
SKETCH PLAN	5-5.2	"The sketch plan shall be prepared in accordance with Appendix 2 (Map Standards) and submitted to the planning department."	Do the map standards specify pedestrian access/egress, circulation, dimensions for walkways, hallways, common areas, parking lot aisles, curb ramps, landings, lighting, and/or landscaping?

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
PRELIMINARY PLAT APPROVALS	5-6.3.A	"Plats meeting all requirements of a Minor Subdivision may receive preliminary approval from the Planning Department. Major Subdivisions shall require preliminary approval of the Planning Board."	"Subdivision" is defined in Article II per 5-1. Are "major" and "minor" subdivisions defined here as well? By area or density? SFR/MFR? Also,should there be a distinction between the definitions of "sidewalk" and "walkway." Some jurisdictions will define them as public and private, respectively.
PLANS	5-7.1	"For each subdivision section, the street and utility construction plans shall include all improvements lying within or adjacent to that section, including sidewalks/walkways, as well as all water and sanitary sewer lines lying outside that section and being required to serve that section."	Amend to include sidewalks and/or walkways as "improvements lying within or adjacent to that section" under "street construction plans." This will include them under all further reference to street construction plans (5-7.2, 5-7.3, etc).
LOT DIMENSIONS AND STANDARDS	5-13.2	"ACCESS REQUIREMENTS. All lots must have public street access and frontage meeting the requirement set forth in Article IV (Zoning).	Check Article IV references to specific street access and frontage requirement.
	6-3.G.5	PRIVATE STREET DESIGN CRITERIA. "In the event that sidewalks are constructed, the minimum width shall be four (4) feet.	Consider sidewalks mandatory for all private streets that connect to public streets. Recommended minimum through pedestrian zone width of five feet (without furnishing or frontage zones) per AASHTO standards and NCDOT Pedestrian Policy.
	6-3.J	CUL-DE-SAC MAXIMUM LENGTH	Consider reducing maximum length and/ or providing exception for pedestrian throughway. Example: ***"The maximum distance from an intersecting through street to the end of a cul-de-sac shall be four hundred (400 feet). If a pedestrian connection or throughway is provided at the end of cul-de-sac to an adjacent public street, a maximum length of (600) feet may be permitted, pending approval by the Technical Review Committee or Planning Board."***

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
	6-3.K	MINIMUM STREET OFFSET	Consider requiring the addition of pedestrian crossing treatments where streets intersect. Example: ***"Where one (or two) residential street(s) intersect another street at two locations, with a centerline offset of 125 feet or greater, pedestrian crossing treatments must be provided at each intersection."*** Pedestrian crossing treatments include traffic control devices, crosswalk pavement markings, median refuge islands, curb extensions, etc.
	6-3.Q.2	"The developer shall be required to provide traffic control signs in locations designated by the Jurisdiction."	Recommend traffic control signage requirement at all sidewalks and pedestrian crossings.
BLOCK LENGTH	5-13.4		Consider reducing maximum block lengths. Block lengths should also correspond to land use and zoning district and density. Consider providing provisions for pedestrian accessways to "break up" larger blocks. Example: ***"SHOPPING CENTER DISTRICT: Provide a pedestrian accessways at minimum intervals of 200 feet for block lengths greater than 600 feet."*** Also consider establishing minimum block length increments.
SIDEWALKS AND STREET LIGHTS	5-13.5.A	Sidewalks shall be required in all new commercial, industrial, and residential zone developments, including all thoroughfare streets and side streets. All sidewalks shall be installed within the right-of-way within a ~~two (2) foot~~ five (5) foot grass planting between the street curb and sidewalk... All sidewalks at cross streets shall have an ADA-compliant ramp.	A two foot planting strip is not wide enough to accommodate a full-grown tree (tree root growth will also necessitate frequent sidewalk repairs). Recommend perpendicular or bi-directional curb ramps over diagonal curb ramps. Wider sidewalk widths are necessary in higher intensity areas, and areas of heavy pedestrian traffic, e.g. cafe seating in the CB District.
SIDEWALKS AND STREET LIGHTS	5-13.5.A.1	In all residential zones, all sidewalks shall be located on one side of the street, including the circumference of each cul-de-sac. All residential zone sidewalks shall be a minimum width of ~~four (4) feet~~ five (5) feet.	Increase minimum through pedestrian width to five feet per AASHTO design standards and NCDOT Pedestrian Policy.

Ordinance	Page	Existing Ordinance Text (Abridged) Suggested additions shown in red. Attention is drawn to italicized text.	Comments
SIDEWALKS AND STREET LIGHTS	5-13.5.B	"Street lights shall be installed in all new developments in accordance with the municipal street lighting plan on file in the Planning Office."	Distinguish street lighting from pedestrian-scale lighting. Specify pedestrian-scale lighting spacing interval and placement. Example: ***"lamp poles should be placed in the furnishing zone of the sidewalk so as not to obstruct pedestrian travel, and should be spaced so as to provide improved visibility for pedestrians and motorists, particularly near intersections."*** Pedestrian-scale lighting is typically spaced at intervals of 30-50 feet.


Gibsonville
Community
Garden
NOTICES:

5 Implementation Strategies

Overview

Chapter Contents

This chapter defines a structure for managing the implementation of the Town of Gibsonville Pedestrian Master Plan. Implementing the recommendations within this Plan will require leadership and dedication to pedestrian facility development on the part of a variety of agencies. Equally critical, and perhaps more challenging, will be meeting the need for a recurring source of revenue. Even small amounts of local funding could be very useful and beneficial when matched with outside sources. Most importantly, the Town of Gibsonville need not accomplish the recommendations of this Plan by acting alone—success will be realized through collaboration with state and federal agencies, the private sector, and non-profit organizations. Funding resources that may be available to Gibsonville are presented in Chapter 6 of this Plan.

Given the present day economic challenges faced by local governments (as well as their state, federal, and private sector partners), it is difficult to know what financial resources will be available at different time frames during the implementation of this Plan. However, there are still important actions to take in advance of major investments, including key organizational steps, the initiation of education and safety programs, and the development of strategic, lower-cost pedestrian facilities. Following through on these priorities will allow the key stakeholders to prepare for the development of the regional network over time while taking advantage of strategic opportunities as they arise. Key action steps fall into three categories: policies, programs, and infrastructure. Each of the recommendations that constitute these categories have been presented in the previous chapters of this Plan. Infrastructure recommendations are presented in Chapter 3, and policy and program recommendations are presented in Chapter 4. More detailed action steps tied to each of these categories are found in the table at the end of this chapter along with the responsible agency and expected time frame for completion.

Policy Action Steps

Several policy steps are crucial to the success of future facility development. These steps will legitimize the recommendations found in this plan and enable the right-of-way acquisition necessary to carry out those recommendations.

Adopt This Plan

Adoption procedures vary from community to community depending on existing plans and policies. In each jurisdiction, the planning board (as applicable) should review and recommend the plan to its governing body, which in turn must consider and officially incorporate the recommended pedestrian improvements of this plan into its land-use plans. The following entities should consider adopting this plan:

- The Town of Gibsonville
- Alamance and Guilford Counties
- The Burlington-Graham Metropolitan Planning Organization

Adoption of this Plan also signifies that the design guidelines provided in Appendix A are established as pedestrian facility standards for each of the adopting agencies. This will establish consistency in design across jurisdictional boundaries, ensuring that future facilities will be developed with consistency and will accommodate a variety of user types.

This Plan and its recommended on- and off-road facilities should be approved by the NCDOT and NCDENR, and they should be included in the future planning of each agency. This Plan's recommendations should be integrated into future updates to the Comprehensive Transportation Plans for Alamance and Guilford Counties. NCDOT should refer to this document when assessing the impact for future projects and plans.

Establish Land Right-of-Way Acquisition Mechanisms

It is recommended that each local zoning and subdivision ordinance be amended to ensure that, as developments are planned and reviewed, the pedestrian facilities and greenway corridors identified in this Plan are protected or provided, especially in the case of sidewalks. This would entail amending development regulations to have developers set aside land for trails whenever a development proposal overlaps with the proposed facilities, as adopted. Gibsonville staff should ensure that an effective review of all pedestrian elements of proposed developments takes place.

In addition, local policies should be revised so that all new sewer and utility easements allow for public access for trail users, as a matter of right. Although many easements do not currently prohibit greenway development, they do require the approval of landowners, increasing the complexity of trail development in these easements.

Greenway trail right-of-way acquisition can be accomplished through a number of other methods where trail recommendations run through currently developed areas. Wherever acquisition is successful, property owners should be approached and informed by the implementing agency (e.g., the municipality, the county, NCDENR, etc.) in advance of the design process.

Programmatic Action Steps

While recommended regulatory amendments and capital investments provide a legal basis for on- and off-road pedestrian facility development, the program recommendations included in Chapter 4 of this Plan will build community support for the creation of new facilities and establish a strong walking and bicycling culture.

Form a Pedestrian and Bicycle Advisory Committee

The Town of Gibsonville should establish a Pedestrian and Bicycle Advisory Committee (PBAC) to assist in the implementation of this Plan. The Town Planning Department would oversee this group, which should champion the recommendations of this Plan. Formation of the PBAC will also represent a significant step toward becoming a Walk Friendly Community. See Chapter 4 for more details.

Communication and Outreach

A subgroup of the PBAC should be created to establish a communication campaign to celebrate successes as facilities are developed and otherwise raise awareness of the overall pedestrian network and its benefits. A key first task of this group is to design and implement a pedestrian and bicycle wayfinding system. Please refer to Appendix A: Design Guidelines for more information about signage and wayfinding.

Establish a Monitoring Program

From the beginning, and continuously through its life, the PBAC should brainstorm specific benchmarks to track through a monitoring system and should honor their completion with public events and media coverage. Monitoring should be supported by the programmatic recommendations included in Chapter 4, such as a pedestrian needs checklist and a facility inspection and maintenance program. Benchmarks should be revisited and revised periodically as the pedestrian facility network evolves.

Become Designated as a Walk Friendly Community

A long term goal for Gibsonville should be for the Town to seek a "Walk Friendly Community" designation. The Walk Friendly Community campaign is an award program (described in more detail in Chapter 4) that recognizes municipalities that actively support pedestrian activities and safety. The development and implementation of this Plan is an essential first step toward becoming a Walk Friendly Community. With ongoing efforts and the short-term work program recommended here, the town should be in a position to apply for and receive WFC status within a few short years.

Infrastructure Action Steps

While establishing the policies and programs described, Gibsonville should move forward with the design and construction of priority projects described in Chapter 3. They should also work to identify funding for long-term, higher-cost projects.

Identify Funding

Achieving the vision defined within this Plan will require, among other things, a stable and recurring source of funding. Communities across the country that have successfully engaged in pedestrian programs have relied on multiple funding sources to achieve their goals. No single source of funding will meet the recommendations identified in this Plan. Instead, stakeholders will need to work cooperatively with municipality, state, and federal partners to generate funds sufficient to implement the program.

The ability of local agencies to generate a source of funding for pedestrian facilities depends on a variety of factors, such as taxing capacity, budgetary resources, voter preferences, and political will. It is very important that these local agencies explore the ability to establish a stable and recurring source of revenue for facilities such as an annual allocation in the Town's Capital Improvement Program (CIP).

Donations from individuals or companies are another potential source of funding. The PBAC should establish an Adopt-A-Greenway program as a mechanism to collect donations for the development of greenway trails. In addition to a formalized program, a website should be set up as an easy way for individuals to donate smaller amounts. Federal and state grants should be pursued along with local funds to pay for necessary right-of-way acquisition and project design, construction, and maintenance expenses. "Shovel-ready" designed projects should be prepared in the event that future federal funds become available. Additional recommended funding sources may be found in Chapter 6: Funding Resources.

Complete Short-Term Priority Projects

By quickly moving forward on priority projects, Gibsonville will demonstrate a commitment to carrying out this Plan and will better sustain the enthusiasm generated during the public outreach stages of the planning process. Refer to Chapter 3: Network Recommendations for priority project ranking and the prioritization methodology.

Key Partners in Implementation

The following are suggested roles for the core stakeholders involved in implementation. Actual roles may vary depending on how this Plan is implemented over time and the ongoing level of interest and involvement by specific stakeholders.

Role of State Agencies (NCDENR and NCDOT)

As key supporting partners in the development of this Plan, NCDOT and NCDENR should continue to play a role in implementation, including participation in the following tasks.

- The NCDOT Division of Bicycle and Pedestrian Transportation should be prepared to provide guidance and technical support to local NCDOT offices that are implementing pedestrian-related facilities, such as sidewalks, multi-use paths in roadway corridors, roadway crossings, and improvements that increase safety for pedestrians and bicyclists crossing bridges on state roadways.
- NCDOT should also continue to work with local and regional planners to coordinate upcoming and future roadway projects with pedestrian and trail recommendations.
- NCDENR should be a supporting partner and provide guidance on recommendations, such as pedestrian interface with natural resource areas and proper alignment of trails through sensitive and regionally significant environmental features.

Role of the Local NCDOT, Division 7

Division 7 of the NCDOT is responsible for the construction and maintenance of pedestrian facilities on NCDOT-owned and maintained roadways in the Town of Gibsonville, except where it allows for the Town to do so with encroachment agreements. Division 7 should be prepared to:

- Recognize this Plan as an adopted plan of the Town of Gibsonville, and assist in the integration of this Plan's recommendations into an update to the NCDOT's CTPs for Alamance and Guilford Counties .
- Become familiar with the pedestrian facility recommendations for NCDOT roadways in this Plan (Chapter 3); take initiative in incorporating this Plan's recommendations into the Division's schedule of improvements whenever possible.
- Become familiar with the standards set forth in Appendix A of this Pedestrian Plan as well as state and national standards for pedestrian facility design; construct and maintain pedestrian facilities using the highest standards allowed by the State (including the use of innovative treatments on a trial basis).
- Notify the Town of Gibsonville Public Works Department of all upcoming roadway reconstruction, resurfacing and restriping projects in Gibsonville, by no later than the design phase and provide sufficient time for comments from the planning staff.
- If needed, seek guidance and direction from the NCDOT Division of Bicycle and Pedestrian Transportation on issues related to this Plan and its implementation.

Role of the Burlington-Graham Metropolitan Planning Organization

The Burlington-Graham Metropolitan Planning Organization (MPO) is the transportation planning agency serving the Town of Gibsonville and the surrounding communities. Local governments are represented by an elected official on the Transportation Advisory Committee and staff members, NCDOT, and FHWA staff comprise the Technical Coordinating Committee. The MPO should be prepared to:

- Become familiar with the recommendations of this Plan and support its implementation.
- Oversee long-range transportation planning and ensure the development of a multi-modal transportation network.
- Ensure recommendations from this Pedestrian Plan are integrated into regional planning and project implementation.
- Follow upcoming roadway reconstruction and resurfacing projects and work early in the design process with Town and NCDOT staff to ensure pedestrian facilities are incorporated into the design.
- Keep up with current and changing funding sources and opportunities such as Safe Routes to School (SRTS).

Role of the Board of Aldermen

The Town Board of Aldermen will be responsible for adopting this Plan. Through adoption, the Town's leadership would further recognize the value of pedestrian transportation and put forth a well-thought out set of recommendations for improving public safety and overall quality of life (see the 'Benefits of a Walkable Community' in Chapter 1). By adopting this Plan, the Town Board of Aldermen would also signify that they are prepared to support the efforts of other key partners in the Plan's implementation, including the work of Town departments and NCDOT Division 7.

Role of the Town of Gibsonville Planning Department

The planning staff handles comprehensive long-range planning, subdivision administration, permitting, inspections, and code enforcement. The department will take primary responsibility for contact with new development projects to implement the Plan, with support from the Public Works Department. The staff should be prepared to:

- Communicate and coordinate with local developers on adopted recommendations for pedestrian facilities, including paved multi-use trails.
- Assist the Public Works Department in communicating with the NCDOT and regional partners.
- Maintain and update the pedestrian and bicycle facility GIS database which includes sidewalks, greenways, bicycle facilities and crossing facilities.

Role of the Town of Gibsonville Public Works Department

The Public Works Department handles the responsibility for the construction and maintenance of pedestrian facilities on Town-owned and maintained roadways, as well as on NCDOT roadways, where encroachment agreements are secured. The department also operates and maintains traffic signalization, traffic signs, and markings. The department should be prepared to:

- Communicate and coordinate with other Town departments and the PBAC on priority pedestrian projects.
- Become familiar with the design standards set forth in Appendix A of this Pedestrian Master Plan, as well as state and national standards for pedestrian facility design.
- Secure encroachment agreements for work on NCDOT-owned and maintained roadways.
- Assist with local roadway projects and ensure pedestrian accommodations are being made.
- Design, construct, and maintain pedestrian facilities.
- Communicate and coordinate with NCDOT Division 7 on this Plan's recommendations for NCDOT-owned and maintained roadways. Provide comment and reminders about this Plan's recommendations no later than the design phase.
- Work with Division 7 to ensure that when NCDOT-owned and maintained roadways in Gibsonville are resurfaced or reconstructed, this Plan's adopted recommendations for pedestrian facilities are included on those streets. If a compromise to the original recommendation is needed, then contact NCDOT Division of Bicycle and Pedestrian Transportation for guidance on appropriate alternatives.

Role of the Town of Gibsonville Parks and Recreation Department

The Town of Gibsonville Parks and Recreation Department operates a recreational complex (with a baseball/softball field, picnic shelters, beach volleyball court, tennis courts, walking trail, and tot lot), a park, and a senior center. The Department also sponsors seasonal activities such as spring soccer, softball, baseball, tee-ball, football, flag football, beginner pee-wee football, cheerleading, fall soccer, and basketball. The Parks and Recreation Department should be prepared to:

- Meet with the PBAC; provide progress updates for plan implementation and gather input regarding pedestrian and trail related issues.
- Pursue grants for funding priority projects and priority programs.
- Select and carry out walking-related programs—work with local advocacy groups and the PBAC to assist in organizing walking/running events, educational activities,

and enforcement programs.

- Communicate and coordinate with Alamance and Guilford Counties and neighboring municipalities and counties on regional trail facilities such as the CTT and partner for joint funding opportunities.
- Identify safety concerns and work with residents to improve trail safety and the perception of safety.

Role of the Town of Gibsonville Police Department

The Town of Gibsonville Police Department is responsible for providing the community with the highest quality law enforcement service and protection to ensure the safety of citizens and visitors The Police Department should be prepared to:

- Become experts on pedestrian-related laws in North Carolina.
- Develop pedestrian-trained law enforcement officers to utilize existing equipment.
- Continue to enforce not only pedestrian-related laws, but also motorist laws that affect the safety of pedestrians, such as speeding, running red lights, or aggressive driving.
- Participate in pedestrian-related education programs.
- Review safety considerations with the Public Works Department as projects are implemented.

Role of the Pedestrian and Bicycle Advisory Committee

The Committee should be prepared to:

- Meet with staff from the MPO, the Planning Department, and the Public Works Department.
- Evaluate progress of the Plan's implementation and offer input regarding pedestrian-related issues; assist Town staff in applying for grants and organizing pedestrian-related events and educational activities.
- Build upon current levels of local support for pedestrian issues and advocate for local project funding.

Role of Developers

Developers in Gibsonville can play an important role in facility development whenever a project requires the enhancement of transportation facilities or the dedication and development of sidewalks, trails, or crossing facilities. Developers should be prepared to:

- Become familiar with the benefits, both financial and otherwise, of providing amenities for walking and biking (including trails) in residential and commercial developments.

- Become familiar with the standards set forth in Appendix A of this Plan, as well as state and national standards for pedestrian facility design.
- Be prepared to account for a pedestrian circulation and connectivity in future developments.

Role of Local and Regional Stakeholders

Stakeholders for pedestrian facility development and related programs, surrounding jurisdictions, the Alamance County Public Health Department, the Guilford County Department of Public Health, Guilford County Schools, and local economic development organizations play important roles in the implementation of this plan. Local and regional stakeholders should be prepared to:

- Become familiar with the recommendations of this Plan, and communicate and coordinate with the Town for implementation, specifically in relation to funding opportunities, such as grant writing and developing local matches for facility construction.
- Alamance and Guilford Counties should coordinate with the Town on regional trail development and SRTS grants.
- The local school system and school leaders should assist in carrying out SRTS workshops and programs, and also assist in SRTS grant applications.

Role of Local Residents, Clubs, and Advocacy Groups

Local residents, clubs, and advocacy groups play a critical role in the success of this plan. They should be prepared to:

- Continue offering input regarding pedestrian issues in Gibsonville.
- Assist Town staff and the PBAC by volunteering for pedestrian-related events and educational activities, and participating in such activities.
- Assist Town staff and the PBAC by speaking at Town Board meetings and advocating for local pedestrian project and program funding.

Role of Volunteers

Services from volunteers, student labor, and seniors, or donations of material and equipment may be provided in-kind, to offset construction and maintenance costs. Formalized maintenance agreements, such as an Adopt-a-Trail (or greenway) or Adopt-a-Highway, can be used to provide a regulated service agreement with volunteers. Other efforts and projects can be coordinated as needed with senior class projects,

scout projects, interested organizations, clubs, or a neighborhood's community service group. Advantages of utilizing volunteers include reduced or donated planning and construction costs, community pride, and personal connections to the Town's greenway and pedestrian networks.

Facility Development Methods

This section describes the different construction methods for the proposed pedestrian network outlined in Chapter 3. Note that many types of transportation facility construction and maintenance projects can be used to create new pedestrian facilities. It is much more cost-effective to provide pedestrian facilities during roadway construction and re-construction projects than to initiate the improvements later as "retrofit" projects.

To take advantage of upcoming opportunities and to incorporate pedestrian facilities into routine transportation and utility projects, the Town should keep track of NCDOT's projects and any other local transportation improvements. While doing this, the Town should be aware of the different procedures for local and state roads.

NCDOT Transportation Improvement Program

The Transportation Improvement Program (TIP) is an ongoing program at NCDOT which asks localities to present their transportation needs to state government. Pedestrian facility and safety needs are an important part of this process. Every other year, a series of TIP meetings are scheduled around the state. Following the conclusion of these meetings, all requests are evaluated. Pedestrian improvement requests which meet project selection criteria are then scheduled into a four-year program as part of the state's long-term transportation program.

There are two types of projects in the TIP:

Incidental and **independent.** Incidental projects are those that can be incorporated into a scheduled roadway improvement project. Independent are those that can stand alone, such as a trail project, not related to a particular roadway.

The Town of Gibsonville, guided by the priority projects within this Plan, should present pedestrian projects along state roads to the Burlington-Graham MPO and NCDOT. Local requests for small pedestrian projects, such as crosswalks and smaller segments of sidewalk, can be directed to the MPO or the local NCDOT Division 7 office.

Local Roadway Construction or Reconstruction

Pedestrians should be accommodated any time a new road is constructed or an existing road is reconstructed. All new roads with moderate to heavy motor vehicle traffic should have sidewalks and safe intersections. The Town of Gibsonville should take advantage of any upcoming construction projects, including roadway projects outlined in local comprehensive and transportation plans. Also, case law surrounding the ADA has found that roadway resurfacing constitutes an alteration, which requires the addition of curb ramps at intersections where they do not yet exist.

Residential And Commercial Redevelopment

The construction of sidewalks and safe crosswalks should be required during development. Construction of pedestrian facilities that corresponds with site construction is more cost-effective than retrofitting. In commercial development, emphasis should also be focused on safe pedestrian access into, within, and through large parking lots.

Retrofit Intersections and Roadways with New Pedestrian Facilities

There may be critical locations in the pedestrian network that have pedestrian safety issues or are essential links to destinations. In these locations, it may be justifiable to add new pedestrian facilities before an intersection or roadway is scheduled to be repaved or reconstructed.

In some places, it may be relatively easy to add crosswalk markings, but others may require constructing curb extensions, or building refuge islands or ADA-compliant curb ramps. Retrofitting intersections with curb dimensions or roadways with side paths create challenges. Improvements in these locations are typically recommended in the long-term.

Some roads may require a "road diet" solution in order to accommodate pedestrian facilities. Road diets involve removing vehicle travel lanes and replacing these lanes with on-road bicycle facilities and sidewalks or side paths. These are generally recommended only in situations where the vehicular traffic count can be safely and efficiently accommodated with a reduced number of travel lanes. Further study may be necessary for recommended road diets to ensure that capacity needs are balanced against pedestrian needs, maintaining expected levels of service for each.

Rail-to-Trail Projects

Many communities in the Southeastern United States, and North Carolina in particular, are beginning to more frequently pursue the development of greenway trail projects along former railroad corridors, known as "rail-to-trail" projects, through the federal process of "railbanking."

Railbanking takes place during the rail corridor abandonment process. Official negotiations with the railroad begin after the railroad submits an initial notification to abandon the line (similar to a letter of intent to abandon) to the Surface Transportation Board. Negotiations end with either railbanking or line abandonment.

Under the railbanking statute, a railroad is allowed to remove all of its equipment, with the exception of bridges, tunnels, and culverts, from a corridor and to turn the corridor over to any qualified private organization or public agency that has agreed to maintain the corridor for future rail use. This property transfer precludes abandonment.

As railbanking is voluntary, Gibsonville will need to convince the railroad that railbanking the corridor is in the railroad's best interest. This is particularly important because most railroad personnel have historically relied on the piecemeal sale of a corridor as their preferred method for disposing of a corridor.

More information on the history and legal issues of railbanking can be found at the Rails-to-Trails website: www.railstotrails.org/resources/documents/resource_docs/RailbankingHistory.pdf

Bridge Replacement

Provisions should always be made to include a walking facility as a part of vehicular bridges, underpasses, or tunnels, especially if the facility is part of the pedestrian network. All new or replacement bridges should accommodate pedestrians with wide sidewalks on both sides of the bridge. Even though bridge construction and replacement does not occur regularly (especially in Gibsonville) it is important to consider these policies for long-term pedestrian planning.

NCDOT bridge policy states that sidewalks shall be included on new NCDOT road bridges with curb and gutter approach roadways. A determination of providing sidewalks on one or both sides is made during the planning process. Sidewalks across a new bridge shall be a minimum of five to six feet wide with a minimum handrail height of 42 inches.

Bridge replacement projects on controlled access freeways where pedestrians and bicyclists are prohibited by law should not include facilities to accommodate pedestrians and bicyclists. In cases, however, where a bridge replacement project on a controlled access freeway impacts a non-controlled access roadway (i.e., a new overpass over an arterial roadway), the project should include the necessary access for pedestrians and bicyclists on the non-limited access roadway (e.g., paved shoulders, sidewalks, and pedestrian/bicycle crossing improvements).

At-Grade Railroad Crossings

Railroad crossings can be particularly hazardous to pedestrians and other non-motorized users. Rails or ties that are not embedded in the travel surface create a tripping hazard and wheelchairs can become caught in track channels.

There are several at-grade railroad crossings in Gibsonville. The crossings at Joyner Street and Springwood Avenue were identified as high priorities during the planning process. However, Gibsonville should improve all inadequate at-grade railroad crossings during roadway improvement projects. As roadway improvements for these sections are planned, the Town Public Works Department and NCDOT should work with Norfolk Southern Corporation to ensure railroad crossing improvements are communicated and prioritized during the planning and design process.

Signage and Wayfinding Projects

Signage programs that include informational, warning, and regulatory signage can be updated to include wayfinding signage to make it easier for people to find destinations. Pedestrian-scale signage as a component of a wayfinding signage program should be installed along roadways independently of other signage projects or as a part of a more comprehensive wayfinding improvement project. More information on signage design standards can be found in Appendix A of this plan.

Maintenance

All facilities, including sidewalks and crosswalks, require regular maintenance to reduce the damage caused over time by the effects of weather, use, and surrounding human and natural infrastructure (such as tree roots). A connected sidewalk system is useless if maintenance is neglected and sidewalks degrade or marked crosswalks fade. Walkway maintenance includes fixing potholes, sidewalk decay, and damaged benches, and restriping crosswalks.

In order to maintain passable sidewalk conditions, it is important to have a system in place to identify maintenance needs on existing sidewalks. Options include:

- Devoting a branch of the Public Works Department to sidewalk inspection and repair
- Developing a public reporting system where pedestrians can report maintenance issues
- Establishing maintenance of existing sidewalks and crosswalks as part of the overall pedestrian facility component of the capital improvement program

Typical pedestrian facility maintenance problems include:

- Step separation (vertical displacement at any point in the walkway that could cause pedestrians to trip or prevent wheelchair or stroller wheels from rolling smoothly)
- Badly cracked concrete/asphalt
- Settled areas that trap water (depressions in sidewalk or curb ramp that hold water)
- Tree root damage
- Vegetation overgrowth
- Obstacles in sidewalk
- Pedestrian countdown signal malfunction
- Faded, invisible marked crosswalk
- Damaged ancillary facilities such as benches, trash receptacles, and pedestrian-scale lighting

It is recommended that the Town of Gibsonville take a three-step approach to pedestrian facility maintenance. First, the Town should provide a hotline or maintenance request form to accept resident complaints for improvement and repair. Resident complaints should be given first consideration for improvement or repair if the reporting involves a safety or access issue. Secondly, the Town should devote some of its Public Works staff to conducting routine sidewalk and crosswalk inspection. Public Works staff will need to work closely with NCDOT staff to ensure sidewalk and crosswalk maintenance is conducted on all roads in Gibsonville as part of regular practice. Third, the Town should make it the responsibility of individual property owners to maintain clear sidewalks, free of debris and vegetation.

Table 5.1: Implementation Action Steps Table

Action Step	Lead Agency	Support	Details	Phase
Present Plan to Town	Project Consultants	Planning Staff	Presentation to Town BOC in Summer 2014	Short term
Adopt this plan	Town Board of Aldermen	Planning Staff, Project Consultants	Through adoption, the Plan becomes an official planning document of the Town. Adoption shows that the Town of Gibsonville has undergone a successful, supported planning process.	Short term
Present this Plan to other local and regional bodies and agencies.	Planning Staff	PBAC	This Plan should be presented to other local and regional bodies and agencies. Possible groups to receive a presentation might include regional transportation and greenway planners, health clubs and fitness facilities, schools and youth organizations, environmental clubs, civic organizations, chambers of commerce, and large neighborhood groups.	Short term
Present this Plan's recommendations to NCDOT Division and District Offices, as well as other Departments.	Planning Staff	NCDOT Bike/ Ped Division	This Plan should be presented to other NCDOT Divisions, Districts and Departments to integrate this Plan's recommendations into an update to the Comprehensive Transportation Plan (CTP).	Short term
Designate Staff	Town Board of Aldermen & Town Manager	Leadership of Town/ Town Departments	Designate staff to oversee the implementation of this plan and the proper maintenance of the facilities that are developed. It is recommended that a combination of existing Planning and Public Works Staff oversee the day-to-day implementation of this plan.	Short term
Create a Bicycle and Pedestrian Advisory Committee (PBAC)	Town	Planning Staff	The committee should help coordinate the implementation of this Plan, develop programs, listen to community needs, promote the pedestrian network, and keep positive momentum going.	Short term
Provide police officers with educational material to distribute with warnings	Police Department	NCDOT Bike/ Ped Division	Provide officers with an informational handout to be used during pedestrian and bicycle-related citations and warnings.	Short term

Action Step	Lead Agency	Support	Details	Phase
Adopt the Recommendations for Amendments to the Town Local Codes	Town Board of Aldermen	Planning Staff, Town Public Works, NCDOT Bike/ Ped Division	Changing current policy has the greatest long-term implication of any action that a government can take to alter its future conditions. By doing so, it implies that the community is committed to providing an efficient multi-modal transportation network such that access, mobility, and safety needs of motorists, pedestrians, and bicyclists are accommodated.	Short term
Launch Programs as New Projects are Built	PBAC	Planning Staff	Assist in the coordination of education and encouragement programs, such as Bicycle/ Pedestrian Month Activities.	Ongoing/ Medium term
Begin Semi-annual Meeting With Key Project Partners	Planning Staff	Town Departments, NCDOT, PBAC, and local & regional stakeholders	Key project partners should meet on a semi-annual basis to evaluate the implementation of this Plan. Meetings could also occasionally include on-site tours of locations where facilities are recommended. MPO meetings could also serve as an opportunity to coordinate.	Ongoing/ Medium term
Seek Multiple Funding Sources and Begin Facility Development	Planning Staff	Town Finance Officer, PBAC	Chapter 3 contains recommended projects. See Chapter 6 for potential funding opportunities.	Ongoing/ Medium term
Design Orientation	Public Works Staff and NCDOT Division 7	NCDOT Bike/ Ped Division	Become familiar with the guidelines featured in Appendix A of this Plan, as well as state and national standards for pedestrian facility design.	Fall 2014
Develop Pedestrian Facility and Trail Specifications	Public Works Staff	Planning Staff	Town staff could prepare these using the design guidelines in Appendix A.	Ongoing/ Medium term

Action Step	Lead Agency	Support	Details	Phase
Notify Town Planning Staff of all upcoming roadway reconstruction or resurfacing/ restriping projects, no later than the design phase.	Public Works Director, and NCDOT Division 7	Planning Staff, NCDOT Bike/ Ped Division, & NCDOT Maintenance Engineers of Alamance and Guilford Counties	Provide sufficient time for comments. Incorporate pedestrian recommendations from this Plan. If a compromise to the original recommendation is needed, then contact NCDOT Division of Bicycle and Pedestrian Transportation for guidance on appropriate alternatives. Also, coordinate with the NCDOT Maintenance Engineers of Alamance and Guilford Counties, on the Annual Resurfacing Plan's 3-year project list.	Ongoing/ Medium term
Develop a long term funding strategy	Town Manager & Finance Officer	Planning Staff & Town Board of Aldermen	To allow continued development of the overall system, capital improvement program (CIP) and Powell Bill funds for pedestrian facility construction should be set aside every year, even if only a small amount (small amounts of local funding can be matched to outside funding sources). Funding for an ongoing maintenance program should also be included in the Town's operating budget.	Medium term
Ensure planning efforts are being integrated regionally	Planning Staff	Regional planning organizations, neighboring municipalities, PBAC	Combining resources and efforts with surrounding municipalities, regional entities, and stakeholders is mutually beneficial, especially with trail development. Communicate and coordinate with the regional partners on regional trails and pedestrian facilities and partner on joint-funding opportunities. After adoption by the Town, this document should also be recognized in regional transportation plans.	Ongoing/ Medium term
Apply for further Safe Routes to School Grants and Infrastructure Funding	Planning Staff	NCDOT Division 7 & PBAC	Establish 'walking school buses' 'bike-to-school' groups or other similar activities for children through the Safe Routes to School Program. Inquire about pedestrian infrastructure funding for projects within 1.5 miles of schools through NCDOT Division 7.	Medium term

Action Step	Lead Agency	Support	Details	Phase
Explore possibility of a regional multi-modal coordinator	Town Manager	Planning Staff, PBAC, regional planning organizations, and neighboring municipalities	Explore the possibility of partnership with neighboring municipalities or the MPO in hiring a regional Multi-Modal Transportation Coordinator	Medium term
Become familiar with the pedestrian facility recommendations for NCDOT roadways in this Plan (Chapter 4); take initiative in incorporating this Plan's recommendations into the Division's schedule of improvements.	NCDOT Division 7	Planning Staff, NCDOT Bike/ Ped Division	Construct and maintain all pedestrian facilities using the highest standards allowed by the State including Complete Streets guidelines (as well as considering the possibility of using innovative treatments on a trial basis). Seek guidance and direction from the NCDOT Division of Bicycle and Pedestrian Transportation on issues related to this Plan and its implementation.	Ongoing

6 Funding Resources

Chapter Contents

Overview

When considering possible funding sources for pedestrian projects in the Town of Gibsonville, it is important to remember that not all construction activities or programs will be accomplished with a single funding source. It will be necessary to consider several sources of funding, that when combined, will support full project completion. Funding sources can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. This chapter outlines the most likely sources of funding from the federal, state, and local government levels as well as from the private and non-profit sectors. A summary table of funding sources is included at the end of this chapter. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice.

Federal Funding Sources

Federal funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations. Federal funding typically requires a local match of anywhere from five percent to 50 percent, but there are sometimes exceptions, such as the recent American Recovery and Reinvestment Act stimulus funds, which did not require a match. The following is a list of possible Federal funding sources that could be used to support construction of pedestrian and bicycle improvements.

Moving Ahead for Progress in the Twenty-First Century (MAP-21)

The largest source of federal funding for pedestrian and bicycle projects is the USDOT's Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, Moving Ahead for Progress in the Twenty-First Century (MAP-21) was enacted in July 2012 as Public Law 112-141. The Act replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), which was valid from August 2005 - June 2012.

MAP-21 authorizes funding for federal surface transportation programs including highways and transit for the 27 month period between July 2012

and September 2014. It is not possible to guarantee the continued availability of any listed MAP-21 programs, or to predict their future funding levels or policy guidance. Nevertheless, many of these programs have been included in some form since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, and thus may continue to provide capital for active transportation projects and programs.

In North Carolina, federal monies are administered through the North Carolina Department of Transportation (NCDOT) and Metropolitan Planning Organizations (MPOs). Most, but not all, of these programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system.

There are a number of programs identified within MAP-21 that are applicable to pedestrian and bicycle projects. These programs are discussed below.

For more information, visit: http://www.fhwa.dot.gov/map21/summaryinfo.cfm

Transportation Alternatives

Transportation Alternatives (TA) is a new funding source under MAP-21 that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SR2S), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did.

Average annual funds available through TA over the life of MAP-21 equal $814 million nationally, which is based on a 2% set-aside of total MAP-21 allocations. Note that state DOT's may elect to transfer up to 50% of TA funds to other highway programs, so the amount listed on the website represents the maximum potential funding. Remaining TA funds (those monies not re-directed to other highway programs) are disbursed through a separate competitive grant program administered by NCDOT. Local governments, school districts, tribal governments, and public lands agencies are permitted to compete for these funds.

Each State Governor is given the opportunity to "opt out" of the Recreational Trails Program. However, as of the date of the writing of this Plan, only Florida and Kansas have "opted out" of the RTP. For all other states, dedicated funds for recreational trails continue to be provided as a subset of TA. MAP-21 provides $85 million nationally for the RTP.

For the complete list of eligible activities, visit: http://www.fhwa.dot.gov/environment/transportation_enhancements/legislation/map21.cfm

For funding levels, visit: http://www.fhwa.dot.gov/MAP21/funding.cfm

Surface Transportation Program

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of pedestrian improvements are eligible, including trails, sidewalks, crosswalks, pedestrian signals, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. 50 percent of each state's STP funds are allocated by population to the MPOs; the remaining 50 percent may be spent in any area of the state.

For more information: http://www.fhwa.dot.gov/map21/stp.cfm

Highway Safety Improvement Program

MAP-21 doubles the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU. HSIP provides $2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. MAP-21 preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds.

For more information: http://www.fhwa.dot.gov/map21/hsip.cfm

Congestion Mitigation/ Air Quality Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. States with no non-attainment areas may use their CMAQ funds for any CMAQ or STP eligible project. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Purely recreational facilities generally are not eligible. Communities located in attainment areas who do not receive CMAQ funding apportionments may apply for CMAQ funding to implement projects that will reduce travel by automobile.

For more Information: http://www.fhwa.dot.gov/map21/cmaq.cfm

Federal Transit Administration (FTA) Metropolitan Planning

This program provides funding for metropolitan coordinated transportation planning. Federal planning funds are first apportioned to State DOTs. State DOTs then allocate planning funding to MPOs. Eligible activities include pedestrian or bicycle planning to increase safety for non-motorized users, and to enhance the interaction and connectivity of the transportation system across and between modes.

For more information: http://www.fhwa.dot.gov/map21/mp.cfm

Federal Transit Administration Enhanced Mobility of Seniors and Individuals with Disabilities

This program can be used for capital expenses that support transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs.

For more information: http://www.fta.dot.gov/documents/MAP-21_Fact_Sheet_-_Enhanced_Mobility_of_Seniors_and_Individuals_with_Disabilities.pdf

Partnership for Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT). The partnership aims to "improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide." The Partnership is based on five Livability Principles, one of which explicitly addresses the need for bicycle and pedestrian infrastructure ("Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health").

The Partnership is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including both TIGER I and TIGER II grants). North Carolina jurisdictions should track Partnership communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrowly limited in scope to pedestrian improvement efforts.

For more information:

- http://www.sustainablecommunities.gov/
- http://www.epa.gov/smartgrowth/partnership/
- Resource for Rural Communities: http://www.sustainablecommunities.gov/pdf/Supporting_Sustainable_Rural_Communities_FINAL.PDF

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Department of Environment and Natural Resources as a grant program for states and local governments. Maximum annual grant awards for county governments, incorporated municipalities, public authorities, and federally recognized Indian tribes are $250,000. The local match may be provided with in-kind services or cash.

More information: http://www.ncparks.gov/About/grants/lwcf_main.php

Rivers, Trails, and Conservation Assistance Program

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation funds available. Projects are prioritized for assistance based on criteria including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. This program may benefit trail development in North Carolina locales indirectly through technical assistance, particularly for community organizations, but is not a capital funding source.

More information: http://www.nps.gov/ncrc/programs/rtca/ or contact the Southeast Region RTCA Program Manager Deirdre "Dee" Hewitt at (404) 507-5691

National Scenic Byways Discretionary Grant Program

The National Scenic Byways Discretionary Grants program provides merit-based funding for byway-related projects each year, utilizing one or more of eight specific activities for roads designated as National Scenic Byways, All-American Roads, State scenic byways, or Indian tribe scenic byways. The activities are described in 23 USC 162(c). This is a discretionary program; all projects are selected by the US Secretary of Transportation.

Eligible projects include construction along a scenic byway of a facility for pedestrians and bicyclists and improvements to a scenic byway that will enhance access to an area for the purpose of recreation. Construction includes the development of the environmental documents, design, engineering, purchase of right-of-way, land, or property, as well as supervising, inspecting, and actual construction.

More information: http://www.bywaysonline.org/grants/

Federal Lands Transportation Program

The FLTP funds projects that improve access within Federal lands (including national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands) on federally owned and maintained transportation facilities. $300 million per fiscal year has been allocated to the program for 2013 and 2014.

More information: http://www.fhwa.dot.gov/map21/fltp.cfm

Energy Efficiency and Conservation Block Grants

The Department of Energy's Energy Efficiency and Conservation Block Grants (EECBG) may be used to reduce energy consumptions and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in transportation including development of infrastructure such as bike lanes and pathways and pedestrian walkways. Although the current grant period has passed, more opportunities may arise in the future.

More information: http://www1.eere.energy.gov/wip/eecbg.html

State Funding Sources

The funding sources covered in this section were updated in the Fall of 2013 and reviewed for accuracy by NCDOT staff. However, at the time of development of this plan, the Strategic Transportation Investment initiative was being reviewed by the Joint Legislative Transportation Oversight Committee. Therefore, the status of future funding sources is subject to change. The availability of these funding resources should be confirmed during the implementation of a project.

North Carolina Department of Transportation (NCDOT) State Transportation Improvement Program

The NCDOT's State Transportation Improvement Program is based on the Strategic Transportation Investments bill, signed into law in 2013. The Strategic Transportation Investments (STI) initiative introduces the Strategic Mobility Formula, a new way to fund and prioritize transportation projects to ensure they provide the maximum benefit to our state. It allows NCDOT to use its existing revenues more efficiently to fund more investments that improve North Carolina's transportation infrastructure, create jobs and help boost the economy.

The new Strategic Transportation Investments initiative is scheduled to be fully implemented by July 1, 2015. Projects funded for construction before then will proceed as scheduled under the current Equity Formula; projects slated for after that time will be ranked and programmed according to the new formula. The new Strategic Mobility Formula assigns projects for all modes into one of three categories: Statewide Mobility, Regional Impact, and Division Needs. All independent bicycle and pedestrian projects are placed in the "Division Needs" category, and are ranked on the following five criteria:

- Safety
- Demand or density
- Benefit/cost ratio
- Access
- Constructability

This ranking largely determines which projects will be included in the department's State Transportation Improvement Program (STIP). The STIP is a federally mandated transportation planning document that details transportation improvements prioritized by stakeholders for inclusion in the Work Program over the next ten years. The STIP is updated every two years.

The STIP contains funding information for various transportation divisions of NCDOT including: highways, aviation, public transportation, rail, bicycle and pedestrian, and the Governor's Highway Safety Program. Access to many federal funds require that projects be incorporated into the STIP. The STIP is the primary method for allocating state and federal transportation funds. However, beginning July 1, 2015, state funds cannot be used to match federally funded projects. Only Powell Bill or local funds can be used as a match for federally funded bicycle and pedestrian projects.

For more information on STI: www.ncdot.gov/strategictransportationinvestments/

To access the STIP: https://connect.ncdot.gov/projects/planning

For more about the STIP process:
http://www.ncdot.org/performance/reform/

Incidental Projects

Bicycle and pedestrian accommodations such as bike lanes, sidewalks, intersection improvements, widened paved shoulders and bicycle and pedestrian-safe bridge design are frequently included as incidental features of highway projects. Incidental Projects are often constructed as part of a larger transportation project, when they are justified by local plans that show these improvements as part of a larger, multi-modal system

In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds or with a local fund match.

More information: http://www.ncdot.gov/bikeped/funding/process/

Spot Safety Program

The Spot Safety Program is a state funded public safety investment and improvement program that provides highly effective low cost safety improvements for intersections, and sections of North Carolina's 79,000 miles of state maintained roads in all 100 counties of North Carolina. The Spot Safety Program is used to develop smaller improvement projects to address safety, potential safety, and operational issues. The program is funded with state funds and currently receives approximately $9 million per state fiscal year. Other monetary sources (such as Small Construction or Contingency funds) can assist in funding Spot Safety projects, however, the maximum allowable contribution of Spot Safety funds per project is $250,000.

The Spot Safety Program targets hazardous locations for expedited low cost safety improvements such as traffic signals, turn lanes, improved shoulders, intersection upgrades, positive guidance enhancements (rumble strips, improved channelization, raised pavement markers, long life highly visible pavement markings), improved warning and regulatory signing, roadside safety improvements, school safety improvements, and safety appurtenances (like guardrail and crash attenuators).

A Safety Oversight Committee (SOC) reviews and recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. Criteria used by the SOC to select projects for recommendation to the BOT include, but are not limited to, the frequency of correctable crashes, severity of crashes, delay, congestion, number of signal warrants met, effect on pedestrians and schools, division and region priorities, and public interest.

For more information: https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

High Hazard Elimination Program

The Hazard Elimination Program is used to develop larger improvement projects to address safety and potential safety issues. The program is funded with 90% federal funds and 10% state funds. The cost of Hazard Elimination Program projects typically ranges between $400,000 and $1 million. A Safety Oversight Committee (SOC) reviews and recommends Hazard Elimination projects to the Board of Transportation (BOT) for approval and funding. These projects are prioritized for funding according to a safety benefit to cost (B/C) ratio, with the safety benefit being based on crash reduction. Once approved and funded by the BOT, these projects become part of the department's State Transportation Improvement Program (STIP).

More information: https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx

Governor's Highway Safety Program

The Governor's Highway Safety Program (GHSP) funds safety improvement projects on state highways throughout North Carolina. All funding is performance-based. Substantial progress in reducing crashes, injuries and fatalities is required as a condition of continued funding. This funding source is considered to be "seed money" to get programs started. The grantee is expected to provide a portion of the project costs and is expected to continue the program after GHSP funding ends. State Highway Applicants must use the web-based grant system to submit applications.

More information: http://www.ncdot.org/programs/ghsp/

Eat Smart, Move More North Carolina Community Grants

The Eat Smart, Move More (ESMM) NC Community Grants program provides funding to local communities to support their efforts to develop community-based interventions that encourage, promote and facilitate physical activity. The current focus of the funds is for projects addressing youth physical activity. Funds have been used to construct trails and conduct educational programs.

More information: http://www.eatsmartmovemorenc.com/Funding/CommunityGrants.html

The North Carolina Division of Parks and Recreation

The North Carolina Division of Parks and Recreation and the State Trails Program offer funds to help citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking and horseback riding to river trails and off-highway vehicle trails.

More information: http://www.ncparks.gov/About/grants/main.php

NC Parks and Recreation Trust Fund (PARTF)

The Parks and Recreation Trust Fund (PARTF) provide dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities and public authorities, as defined by G.S. 159-7, are eligible applicants.

A local government can request a maximum of $500,000 with each application. An applicant must match the grant dollar-for-dollar, 50 percent of the total cost of the project, and may contribute more than 50 percent. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match.

For more information: http://www.ncparks.gov/About/grants/partf_main.php

NC Department of Environment and Natural Resources – Recreational Trails and Adopt-A-Trail Grants

The State Trails Program is a section of the N.C. Division of Parks and Recreation. The program originated in 1973 with the North Carolina Trails System Act and is dedicated to helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking and horseback riding to river trails and off-highway vehicle trails. The Recreation Trails Program awards grants up to $75,000 per project. The Adopt-A-Trail Program awards grants up to $5,000 per project.

Powell Bill Funds

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Beginning July 1, 2015 under the Strategic Transportation Investments initiative, Powell Bill funds may no longer be used to provide a match for federal transportation funds such as Transportation Alternatives.

Community Development Block Grant Funds

Community Development Block Grant (CDBG) funds are available to local municipal or county governments that qualify for projects to enhance the viability of communities by providing decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low- and moderate-income. State CDBG funds are provided by the U.S. Department of Housing and Urban Development (HUD) to the state of North Carolina. Some urban counties and cities in North Carolina receive CDBG funding directly from HUD. Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. These community improvement projects are administered by the Division of Community Assistance and the Commerce Finance Center under eight grant categories. Two categories might be of support to pedestrian and bicycle projects in 'entitlement communities': Infrastructure and Community Revitalization.

Clean Water Management Trust Fund (CWMTF)

This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection, eligible for application by a state agency, local government, or non-profit. At the end of each year, a minimum of $30 million is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems. Funds may be used for planning and land acquisition to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits.

For more information: http://www.cwmtf.net/#appmain.htm

cleanwater
MANAGEMENT TRUST FUND

Safe Routes to School Program (managed by NCDOT, DBPT)

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

The state of North Carolina was allocated $15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. In 2009, more than $3.6 million went to 22 municipalities and local agencies for infrastructure and non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding.

For more information:

- https://connect.ncdot.gov/projects/BikePed/Pages/Safe-Routes-To-School.aspx
- http://www.ncdot.gov/download/programs/srts/SRTS.pdf

Or contact DBPT/NCDOT at (919) 807-0774.

Urban and Community Forestry Grant

The North Carolina Division of Forest Resources Urban and Community Forestry grant can provide funding for a variety of projects that will help toward planning and establishing street trees as well as trees for urban open space. The goal is to improve public understanding of the benefits of preserving existing tree cover in communities and assist local governments with projects which will lead to a more effective and efficient management of urban and community forests. Grant requests should range between $1,000 and $15,000 and must be matched equally with non-federal funds. Grant funds may be awarded to any unit of local or state government, public educational institutions, approved non-profit 501(c)(3) organizations and other tax-exempt organizations. First-time municipal applicant and municipalities seeking Tree City USA status are given priority for funding.

For more about Tree City USA status, including application instructions, visit: http://ncforestservice.gov/Urban/urban_grant_overview.htm

Local Government Funding Sources

Municipalities often plan for the funding of pedestrian and bicycle facilities or improvements through development of Capital Improvement Programs (CIP). In Raleigh, for example, the greenways system has been developed over many years through a dedicated source of annual funding that has ranged from $100,000 to $500,000, administered through the Recreation and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the following: capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each category is described below. A variety of possible funding options available to North Carolina jurisdictions for implementing pedestrian and bicycle projects are also described below. However, many will require specific local action as a means of establishing a program, if not already in place.

Capital Reserve Fund

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

Capital Project Ordinances

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

Local Improvement District (LID)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

Municipal Service District

Municipalities have statutory authority to establish municipal service districts, to levy a property tax in the district additional to the town-wide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts, and can include projects such as street, sidewalk, or bikeway improvements within the downtown taxing district.

Tax Increment Financing

Project Development Financing bonds, also known as Tax Increment Financing (TIF) is a relatively new tool in North Carolina, allowing localities to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Streets, streetscapes, and sidewalk improvements are specifically authorized for TIF funding in North Carolina. Tax Increment Financing typically occurs within designated development financing districts that meet certain economic criteria that are approved by a local governing body. TIF funds are generally spent inside the boundaries of the TIF district, but they can also be spent outside the district if necessary to encourage development within it.

Other local funding options

- Bonds/Loans
- Taxes
- Impact fees
- Exactions
- Installment purchase financing
- In-lieu-of fees
- Partnerships

Private and Non-Profit Funding Sources

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

Land for Tomorrow Campaign

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the public and General Assembly for protecting land, water and historic places. The campaign was successful in 2013 in asking the North Carolina General Assembly to continue to support conservation efforts in the state. The state budget bill includes about $50 million in funds for key conservation efforts in North Carolina. Land for Tomorrow works to enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; and historic downtowns and neighborhoods will be there to enhance the quality of life for generations to come.

For more information: http://www.land4tomorrow.org/

The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To assure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

For more specific information about what types of projects are funded and how to apply, visit www.rwjf.org/applications/

North Carolina Community Foundation

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

For more information: http://nccommunityfoundation.org/

Walmart State Giving Program

The Walmart Foundation financially supports projects that create opportunities for better living. Grants are awarded for projects that support and promote education, workforce development/economic opportunity, health and wellness, and environmental sustainability. Both programmatic and infrastructure projects are eligible for funding. State Giving Program grants start at $25,000, and there is no maximum award amount. The program accepts grant applications on an annual, state by state basis January 2nd through March 2nd.

Online resource: http://foundation.walmart.com/apply-for-grants/state-giving

The Rite Aid Foundation Grants

The Rite Aid Foundation is a foundation that supports projects that promote health and wellness in the communities that Rite Aid serves. Award amounts vary and grants are awarded on a one year basis to communities in which Rite Aid operates. A wide array of activities are eligible for funding, including infrastructural and programmatic projects.

Online resource: https://www.riteaid.com/about-us/rite-aid-foundation

Z. Smith Reynolds Foundation

This Winston-Salem-based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. They have two grant cycles per year and generally do not fund land acquisition. However, they may be able to offer support in other areas of open space and greenways development.

For more information: www.zsr.org

Bank of America Charitable Foundation, Inc.

The Bank of America Charitable Foundation is one of the largest in the nation. The primary grants program is called Neighborhood Excellence, which seeks to identify critical issues in local communities. Another program that applies to greenways is the Community Development Programs, and specifically the Program Related Investments. This program targets low and moderate income communities and serves to encourage entrepreneurial business development.

For more information: www.bankofamerica.com/foundation

Duke Energy Foundation

Funded by Duke Energy shareholders, this non-profit organization makes charitable grants to selected non-profits or governmental subdivisions. Each annual grant must have:

- An internal Duke Energy business "sponsor"
- A clear business reason for making the contribution

The grant program has three focus areas: Environment and Energy Efficiency, Economic Development, and Community Vitality. Related to this project, the Foundation would support programs that support conservation, training and research around environmental and energy efficiency initiatives.

For more information: http://www.duke-energy.com/community/foundation.asp

American Greenways Eastman Kodak Awards

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($250 to $2,000) to stimulate the planning, design and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities.

For more information: www.conservationfund.org

National Trails Fund

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a $200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project.

Projects the American Hiking Society will consider include:

- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects - including volunteer recruitment and support.

For more information: http://www.americanhiking.org/national-trails-fund/

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about $35,000 each. Since its inception in 1989, The Conservation Alliance has contributed $4,775,059 to environmental groups across the nation, saving over 34 million acres of wild lands.

The Conservation Alliance Funding Criteria:

- The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation.
- The Alliance does not look for mainstream education or scientific research projects, but rather for active campaigns.
- All projects should be quantifiable, with specific goals, objectives and action plans and should include a measure for evaluating success.
- The project should have a good chance for closure or significant measurable results over a fairly short term (one to two years).
- Funding emphasis may not be on general operating expenses or staff payroll.

More information: http://www.conservationalliance.com/grants

The Conservation Alliance
Outdoor Business Giving Back to the Outdoors

National Fish and Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, nonprofit, tax-exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation awards matching grants under its Keystone Initiatives to achieve measurable outcomes in the conservation of fish, wildlife, plants and the habitats on which they depend. Awards are made on a competitive basis to eligible grant recipients, including federal, tribal, state, and local governments, educational institutions, and non-profit conservation organizations. Project proposals are received on a year-round, revolving basis with two decision cycles per year. Grants generally range from $50,000-$300,000 and typically require a minimum 2:1 non-federal match.

Funding priorities include bird, fish, marine/coastal, and wildlife and habitat conservation. Other projects that are considered include controlling invasive species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals.

For more information: http://www.nfwf.org/pages/grants/home.aspx

The Trust for Public Land

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well-being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities.

More information: http://www.tpl.org

BlueCross BlueShield of North Carolina Foundation (BCBS)

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome approach to improve the health and well-being of residents. The Health of Vulnerable Populations grants program focuses on improving health outcomes for at-risk populations. The Healthy Active Communities grant concentrates on increased physical activity and healthy eating habits. Eligible grant applicants must be located in North Carolina, be able to provide recent tax forms and, depending on the size of the nonprofit, provide an audit.

For more information: http://www.bcbsncfoundation.org/

Alliance for Biking & Walking: Advocacy Advance Grants

Bicycle and pedestrian advocacy organizations play the most important role in improving and increasing biking and walking in local communities. Advocacy Advance Grants enable state and local bicycle and pedestrian advocacy organizations to develop, transform, and provide innovative strategies in their communities. With sponsor support, the Alliance for Biking & Walking has awarded more than $500,000 in direct grants, technical assistance, and scholarships to advocacy organizations across North America since the Advocacy Advance Grant program's inception. In 2009 and 2010, these one-year grants were awarded twice annually to startup organizations and innovative campaigns to dramatically increase biking and walking. The Advocacy Advance Partnership with the League of American Bicyclists also provides necessary technical assistance, coaching, and training to supplement the grants.

For more information, visit www.peoplepoweredmovement.org

Local Trail Sponsors

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

Corporate Donations

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

Private Individual Donations

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Municipalities typically create funds to facilitate and simplify a transaction from an individual's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

Fundraising / Campaign Drives

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

Volunteer Work

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

A group of trail advocates volunteer for a trail clean-up day on the Carolina Thread Trail in April 2014.

Table 6-1: Funding Summary Table

Funding Source	Planning	Programming	Design/ Construction
Federal Funding			
Transportation Alternatives	x	x	x
Surface Transportation Program			x
Highway Safety Improvement Program		x	x
Congestion Mitigation/Air Quality		x	x
FTA Metropolitan Planning Program	x		
FTA Enhanced Mobility of Seniors and Individuals with Disabilities		x	x
Partnership for Sustainable Communities	x	x	x
Land and Water Conservation Fund	x		x
Rivers, Trails, and Conservation Assistance Program	x		
National Scenic Byways Discretionary Grant Program			x
Federal Lands Transportation Program	x		x
Energy Efficiency and Conservation Block Grants	x		x

Funding Source	Planning	Programming	Design/ Construction
State Funding			
NCDOT State Transportation Improvement Program			x
Incidental Projects			x
Spot Safety Program			x
High Hazard Elimination Program			x
Governor's Highway Safety Program			x
Bicycle and Pedestrian Planning Grant Initiative	x	x	
Eat Smart, Move More North Carolina Community Grants		x	x
The North Carolina Division of Parks and Recreation			x
The North Carolina Parks and Recreation Trust Fund (PARTF)			x
Adopt-a-Trail Program			x
Powell Bill Funds			x
Community Development Block Grant	x	x	x
Clean Water Management Trust Fund	x	x	x
Safe Routes to School Program	x	x	x
Urban and Community Forestry Grant	x		x

Funding Source	Planning	Programming	Design/ Construction
Local Funding			
Capital Reserve Fund			x
Capital Project Ordinance			x
Local Improvement District			x
Municipal Service District			x
Tax Increment Financing			x
Bonds and Loans			x
Revenue Bonds			x
General Obligation Bonds (cities, counties, and service districts)			x
Special Assessment Bonds			x
State Revolving Fund Loans			x
Sales Tax	x		x
Property Tax	x		x
Excise Tax			x
Occupancy Tax			x
Stormwater Utility Fees			x
Streetscape Utility Fees			x
Impact Fees			x
Exactions			x
Installment Purchase Financing			x
In-Lieu-of Fees			x

Funding Source	Planning	Programming	Design/ Construction
Private/Non-Profit Funding			
The Robert Wood Johnson Foundation	x	x	
North Carolina Community Foundation	x	x	
Walmart State Giving Program	x	x	x
The Rite Aid Foundation Grant		x	x
Z. Smith Reynolds Foundation			x
Bank of America Charitable Foundation	x	x	
Duke Energy Foundation		x	
American Greenways Eastman Kodak Awards	x	x	x
National Trails Fund		x	x
The Conservation Alliance	x	x	
National Fish and Wildlife Foundation	x	x	x
The Trust for Public Land	x	x	
Blue Cross Blue Shield of North Carolina Foundation		x	x
Alliance for Biking and Walking Advocacy Advance Grants			x
Local Trail Sponsors			x
Corporate Donations	x	x	x
Private Individual Donations	x	x	x
Fundraising/Campaign Drives	x	x	x
Volunteer Work	x	x	x


Welcome to
GIBSONVILLE

A Design Guidelines

Overview

Appendix Contents

The sections that follow serve as an inventory of pedestrian and bicycle design treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent the tools for creating a pedestrian and bicycle-friendly, safe, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements. Some improvements may also require cooperation with the NCDOT for specific design solutions. The following standards and guidelines are referred to in this guide.

The Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD) is the primary source for guidance on lane striping requirements, signal warrants, and recommended signage and pavement markings.

- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, updated in June 2012 provides guidance on dimensions, use, and layout of specific bicycle facilities.
- The National Association of City Transportation Officials' (NACTO) 2012 Urban Bikeway Design Guide is the newest publication of nationally recognized bikeway design standards, and offers guidance on the current state of the practice designs. All of the NACTO Urban Bikeway Design Guide treatments are in use internationally and in many cities around the US.
- Meeting the requirements of the Americans with Disabilities Act (ADA) is an important part of any pedestrian or bicycle facility project. The United States Access Board's proposed Public Rights-of-Way Accessibility Guidelines (PROWAG) and the 2010 ADA Standards for Accessible Design(2010 Standards) contain standards and guidance for the construction of accessible facilities.
- The North Carolina Department of Transportation (NCDOT) houses a number of design guidelines that are referenced here including the Bicycle Facilities Planning and Design Guidelines (1994), Traditional Neighborhood Development (TND) Guidelines (2000), and the Complete Streets Planning and Design Guidelines (2012).

Should the national standards be revised in the future and result in discrepancies with this chapter, the national standards should prevail for all design decisions. A qualified engineer or landscape architect should be consulted for the most up to date and accurate cost estimates at the time of project implementation.

Design Needs of Pedestrians

Types of Pedestrians

Pedestrians have a variety of characteristics and the transportation network should accommodate a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing. Table A.1 to the right summarizes common pedestrian characteristics for various age groups.

The MUTCD recommend a normal walking speed of three and a half feet per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to three feet per second for areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the transportation system should accommodate these users to the greatest reasonable extent.

Table A.1: Pedestrian Characteristics by Age

Age	Characteristics
0-4	Learning to walk
	Requires constant adult supervision
	Developing peripheral vision and depth perception
5-8	Increasing independence, but still requires supervision
	Poor depth perception
9-13	Susceptible to "dart out" intersection dash
	Poor judgment
	Sense of invulnerability
14-18	Improved awareness of traffic environment
	Poor judgment
19-40	Active, fully aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street
	Vision loss
	Difficulty hearing vehicles approaching from behind Could become disoriented or have limited cognitive abilities

Sidewalks

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel that is separated from vehicle traffic. Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped planting strip area. Sidewalks are a common application in both urban and suburban environments.

Attributes of well-designed sidewalks include the following:

- Accessibility: A network of sidewalks should be accessible to all users.
- Adequate width: Two people should be able to walk side-by-side and pass a third comfortably. Different walking speeds should be possible. In areas of intense pedestrian use, sidewalks should accommodate a high volume of walkers.
- Safety: Design features of the sidewalk should allow pedestrians to have a sense of security and predictability. Sidewalk users should not feel they are at risk due to the presence of adjacent traffic.
- Continuity: Walking routes should be obvious and should not require pedestrians to travel out of their way unnecessarily.
- Landscaping: Plantings and street trees should contribute to the overall psychological and visual comfort of sidewalk users, and be designed in a manner that contributes to the safety of people.
- Drainage: Sidewalks should be well graded to minimize standing water.
- Social space: There should be places for standing, visiting, and sitting. The sidewalk area should be a place where adults and children can safely participate in public life.
- Quality of place: Sidewalks should contribute to the character of neighborhoods and business districts.

Sidewalk Widths

Pedestrian Amenities

Sidewalk Obstructions and Driveway Ramps

Sidewalk Widths

Description

The width and design of sidewalks will vary depending on street context, functional classification, and pedestrian demand. Below are preferred widths of each sidewalk zone according to general street type. Standardizing sidewalk guidelines for different areas of the city, dependent on the above listed factors, ensures a minimum level of quality for all sidewalks.

Street Classification	Parking Lane/ Enhancement Zone	Furnishing/ Green Zone	Pedestrian Through Zone	Frontage Zone	Total Sidewalk Area
Local Streets	7 feet	4 - 8 feet	5 - 6 feet	N/A	9 - 12 feet
Commercial Areas	8 - 10 feet	6 - 8 feet	6 - 12 feet	2 - 8 feet	14- 28 feet
Arterials and Collectors	8 - 10 feet	6 - 8 feet	4 - 12 feet	2 - 4 feet	12 -24 feet

Areas that have significant accumulations of snow during the winter may prefer a wider furnishing zone for snow storage.

Six feet enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably

Total sidewalk area excludes parking dimensions

Recommended dimensions shown here are based on the NCDOT Complete Streets Planning and Design Guidelines. Exact dimensions should be selected in response to local context and expected/ desired pedestrian volumes.

Discussion

It is important to provide adequate width along a sidewalk corridor. Two people should be able to walk side-by-side and pass a third comfortably. In areas of high demand, sidewalks should contain adequate width to accommodate the high volumes and different walking speeds of pedestrians. The Americans with Disabilities Act requires a 4 foot clear width in the pedestrian zone plus 5 foot passing areas every 200 feet.

Materials and Maintenance

Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb, gutter, and/or landscaped boulevard. Surfaces must be firm, stable, and slip resistant.

Additional References

USDOJ. (2010). ADA Standards for Accessible Design.
United States Access Board. (2007). Public Rights-of-Way Accessibility Guidelines (PROWAG).
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

Sidewalk Obstructions and Driveway Ramps

Description

Obstructions to pedestrian travel in the sidewalk corridor typically include driveway ramps, curb ramps, sign posts, utility and signal poles, mailboxes, fire hydrants and street furniture.

Guidance

- Reducing the number of accesses reduces the need for special provisions. This strategy should be pursued first.
- Obstructions should be placed between the sidewalk and the roadway to create a buffer for increased pedestrian comfort.

Dipping the entire sidewalk at the driveway approaches keeps the cross-slope at a constant grade. This is the least-preferred driveway option.

Where constraints preclude a planter strip, wrapping the sidewalk around the driveway allows the sidewalk to still remain level.

When sidewalks abut hedges, fences, or buildings, an additional two feet of lateral clearance should be added to provide appropriate shy distance.

Planter strips allow sidewalks to remain level, with the driveway grade change occurring within the planter strip.

When sidewalks abut angled on-street parking, wheel stops should be used to prevent vehicles from overhanging in the sidewalk.

Discussion

Driveways are a common sidewalk obstruction, especially for wheelchair users. When constraints only allow curb-tight sidewalks, dipping the entire sidewalk at the driveway approaches keeps the cross-slope at a constant grade. However, this may be uncomfortable for pedestrians and could create drainage problems behind the sidewalk.

Materials and Maintenance

Excessive cracks, gaps, pits, settling, and lifting of the sidewalk creates a pedestrian tripping hazard and reduces ADA accessibility; damages sidewalks should be repaired.

Additional References

USDOJ. (2010). ADA Standards for Accessible Design.
United States Access Board. (2007). Public Rights-of-Way Accessibility Guidelines (PROWAG).
AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Pedestrian Amenities

Description

A variety of streetscape elements can define the pedestrian realm, offer protection from moving vehicles, and enhance the walking experience. Pedestrian amenities should be placed in the furnishing zone on a sidewalk corridor. Signs, meters, and tree wells should go between parking spaces. Key features are presented below.

Street Trees

In addition to their aesthetic and environmental value, street trees can slow traffic and improve pedestrian safety. Trees add visual interest to streets and narrow the visual corridor, which may cause drivers to slow down. It is important that trees do not block light or the vision triangle.

Street Furniture

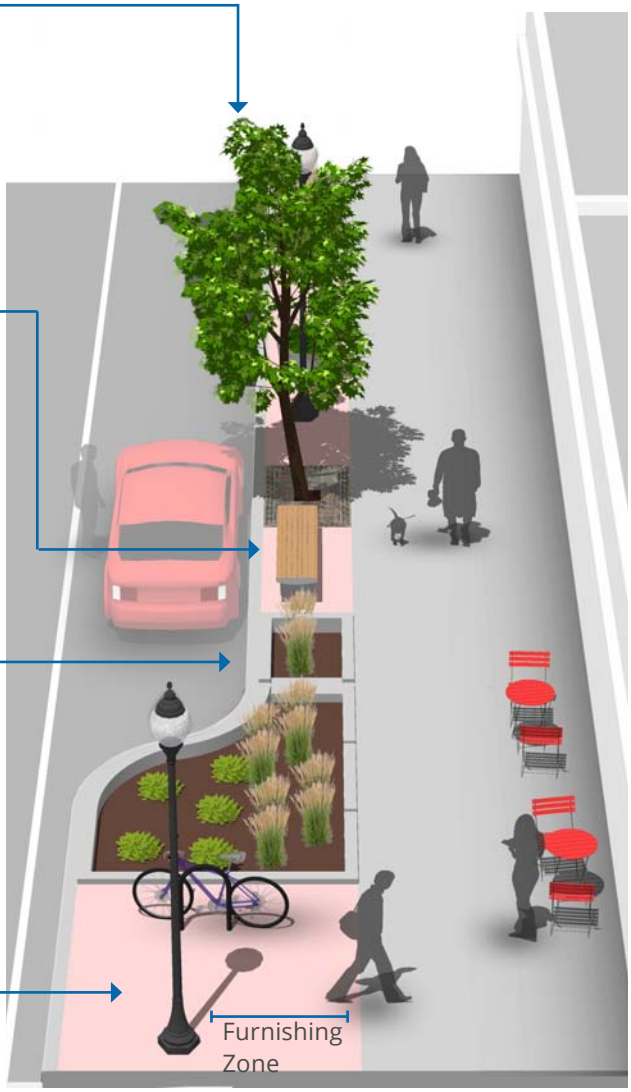
Benches at rest areas and viewpoints encourage people of all ages to use the walkways by ensuring that they have a place to rest along the way. Benches should be 20" tall to accommodate elderly pedestrians. Benches can be simple (e.g., wood slats) or more ornate (e.g., stone, wrought iron, concrete). If alongside a parking zone, street furniture must be 3 feet from the curbface.

Green Features

Green stormwater strategies may include bioretention swales, rain gardens, tree box filters, and pervious pavements. Bioswales are natural landscape elements that manage water runoff from a paved surface. Plants in the swale trap pollutants and silt from entering a river system.

Lighting

Pedestrian scale lighting improves visibility for both pedestrians and motorists - particularly at intersections. Pedestrian scale lighting can provide a vertical buffer between the sidewalk and the street, defining pedestrian areas.



Materials and Maintenance

Establishing and caring for your young street trees is essential to their health. Green features may require routine maintenance, including sediment and trash removal, and clearing curb openings and overflow drains.

Additional References

United States Access Board. (2007). Public Rights-of-Way Accessibility Guidelines (PROWAG).
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

Pedestrians at Intersections

Attributes of pedestrian-friendly intersection design include:

Clear Space: Corners should be clear of obstructions. They should also have enough room for curb ramps, for transit stops where appropriate, and for street conversations where pedestrians might congregate.

Visibility: It is critical that pedestrians on the corner have a good view of vehicle travel lanes and that motorists in the travel lanes can easily see waiting pedestrians.

Legibility: Symbols, markings, and signs used at corners should clearly indicate what actions the pedestrian should take.

Accessibility: All corner features, such as curb ramps, landings, call buttons, signs, symbols, markings, and textures, should meet accessibility standards and follow universal design principles.

Separation from Traffic: Corner design and construction should be effective in discouraging turning vehicles from driving over the pedestrian area. Crossing distances should be minimized.

Lighting: Adequate lighting is an important aspect of visibility, legibility, and accessibility.

These attributes will vary with context but should be considered in all design processes. For example, suburban and rural intersections may have limited or no signing. However, legibility regarding appropriate pedestrian movements should still be taken into account during design.


Marked/Raised Crosswalks


Minimizing Curb Radii


Median Refuge Islands


Curb Extensions


ADA Compliant Curb Ramps

Marked Crosswalks

Description

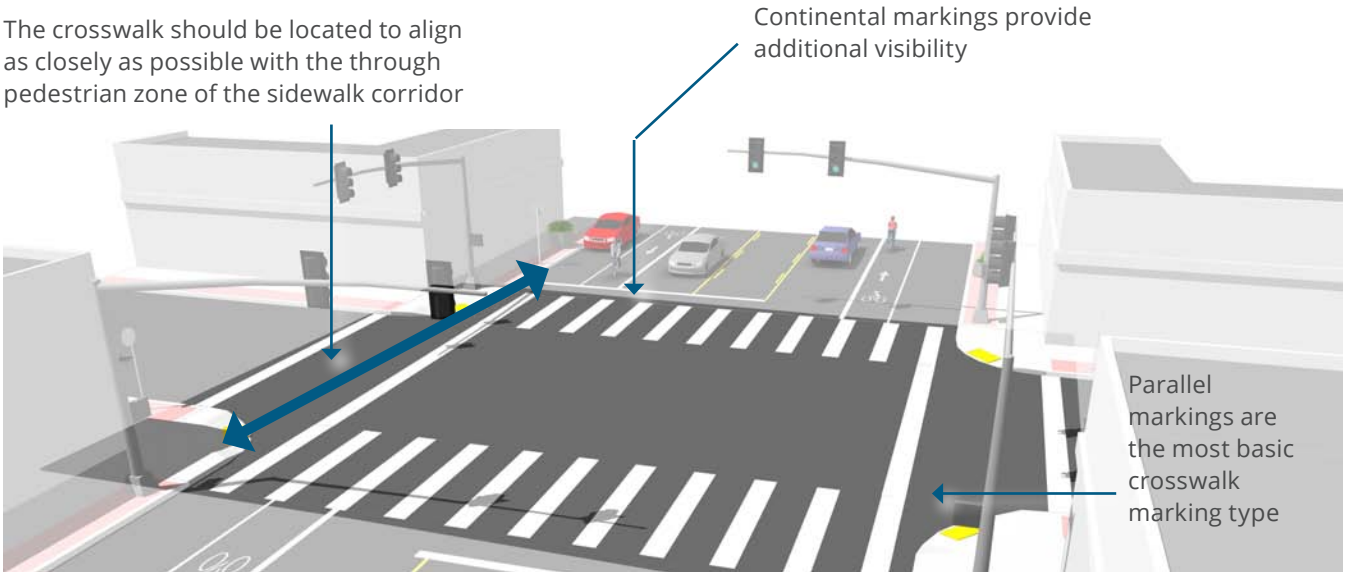
A marked crosswalk signals to motorists that they must stop for pedestrians and encourages pedestrians to cross at designated locations. Installing crosswalks alone will not necessarily make crossings safer especially on multi-lane roadways.

At mid-block locations, crosswalks can be marked where there is a demand for crossing and there are no nearby marked crosswalks.

Guidance

At signalized intersections, all crosswalks should be marked. At unsignalized intersections, crosswalks may be marked under the following conditions:

- At a complex intersection, to orient pedestrians in finding their way across.
- At an offset intersection, to show pedestrians the shortest and safest route across traffic.
- At an intersection with visibility constraints, so that pedestrians can best be seen by traffic.
- At an intersection within a school zone on a walking route.



Discussion

Continental crosswalk markings should be used at crossings with high pedestrian use or where vulnerable pedestrians are expected, including: school crossings, across arterial streets for pedestrian-only signals, at mid-block crosswalks, and at intersections where there is expected high pedestrian use and the crossing is not controlled by signals or stop signs.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority. Thermoplastic markings offer increased durability compared to conventional paint.

Additional References

FHWA. (2009). Manual on Uniform Traffic Control Devices. (3B.18)
FHWA. (2005). Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations.
FHWA. (2010). Crosswalk Marking Field

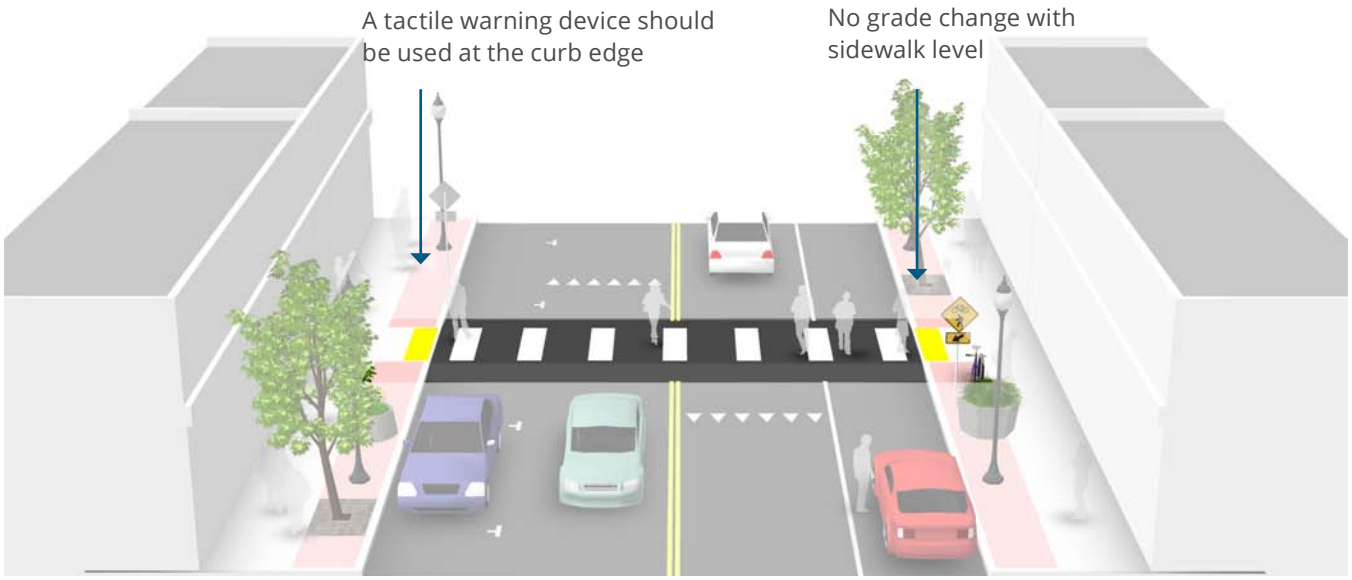
Raised Crosswalks

Description

A raised crosswalk or intersection can eliminate grade changes from the pedestrian trail and give pedestrians greater prominence as they cross the street. Raised crosswalks should be used only in very limited cases where a special emphasis on pedestrians is desired, and application should be reviewed on case-by-case basis.

Guidance

- Use detectable warnings at the curb edges to alert vision-impaired pedestrians that they are entering the roadway.
- Approaches to the raised crosswalk may be designed to be similar to speed humps.
- Raised crosswalks can also be used as a traffic calming treatment.



Discussion

Like a speed hump, raised crosswalks have a traffic slowing effect which may be unsuitable on emergency response routes.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority.

Additional References

FHWA. (2009). Manual on Uniform Traffic Control Devices.
AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.
USDOJ. (2010). ADA Standards for Accessible Design.
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

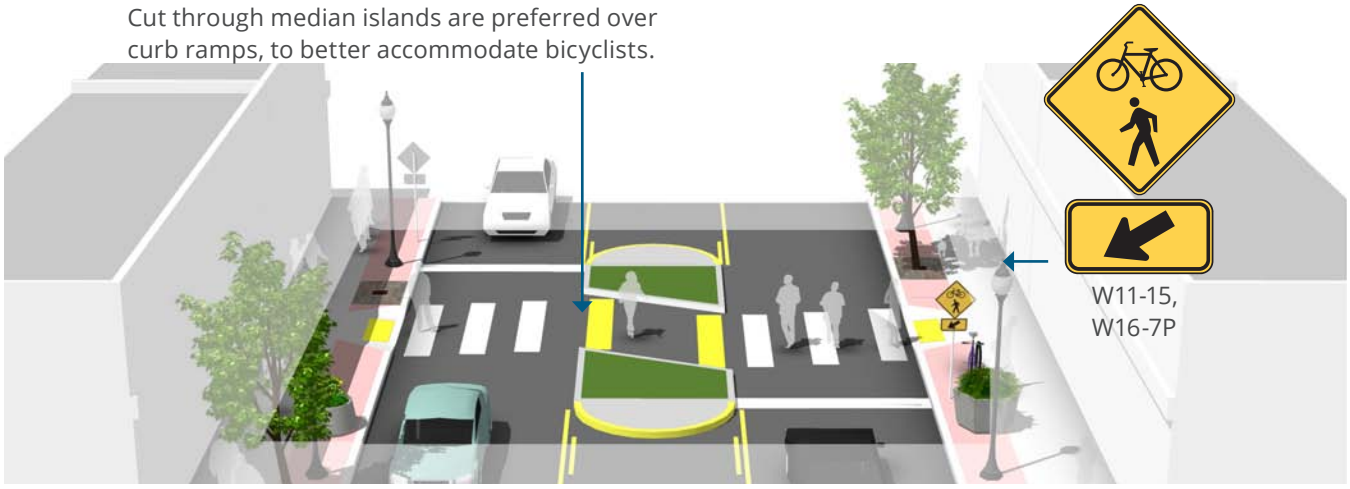
Median Refuge Islands

Description

Median refuge islands are located at the mid-point of a marked crossing and help improve pedestrian safety by allowing pedestrians to cross one direction of traffic at a time. Refuge islands minimize pedestrian exposure by shortening crossing distance and increasing the number of available gaps for crossing.

Guidance

- Can be applied on any roadway with a left turn center lane or median that is at least 6' wide.
- Appropriate at signalized or unsignalized crosswalks
- The refuge island must be accessible, preferably with an at-grade passage through the island rather than ramps and landings.
- The island should be at least 6' wide between travel lanes (to accommodate bikes with trailers and wheelchair users) and at least 20' long.
- On streets with speeds higher than 25 mph there should also be double centerline marking, reflectors, and "KEEP RIGHT" signage.



Discussion

If a refuge island is landscaped, the landscaping should not compromise the visibility of pedestrians crossing in the crosswalk. Shrubs and ground plantings should be no higher than 1 ft 6 in. On multi-lane roadways, consider configuration with active warning beacons for improved yielding compliance.

Materials and Maintenance

Refuge islands may collect road debris and may require somewhat frequent maintenance. Refuge islands should be visible to snow plow crews and should be kept free of snow berms that block access.

Additional References

FHWA. (2009). Manual on Uniform Traffic Control Devices.
AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.
NACTO. (2012). Urban Bikeway Design Guide.
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

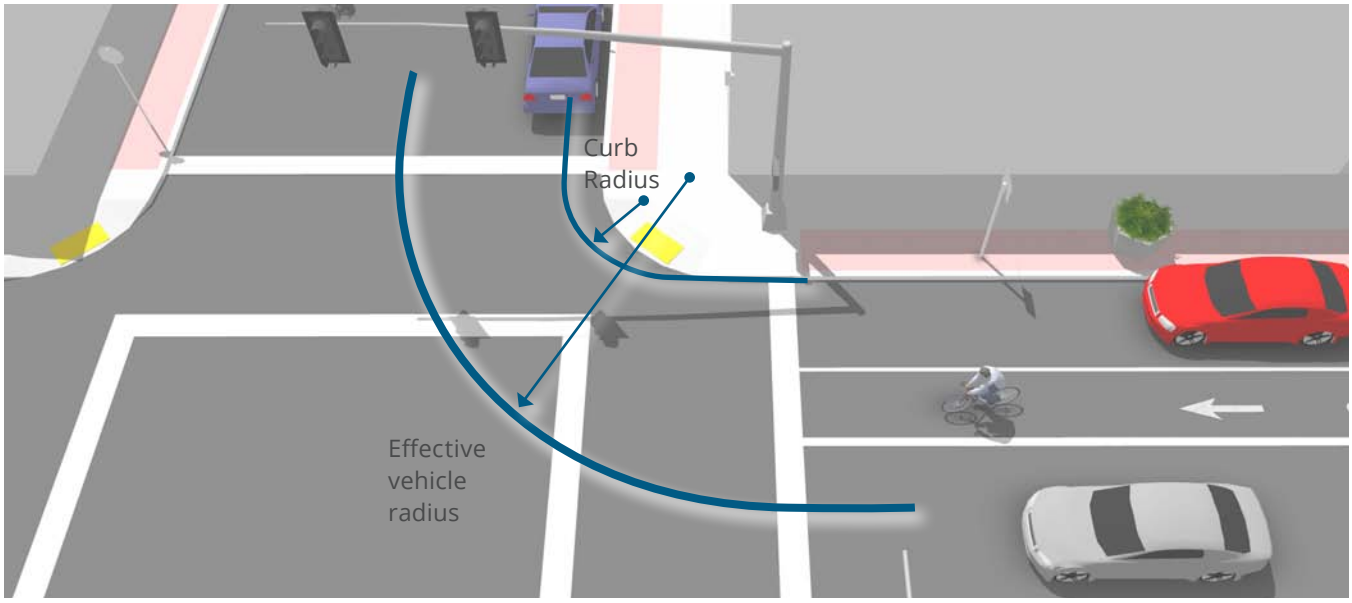
Minimizing Curb Radii

Description

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances.

Guidance

- The radius may be as small as 3 ft where there are no turning movements, or 5 ft where there are turning movements, adequate street width, and a larger effective curb radius created by parking or bike lanes.



Discussion

Several factors govern the choice of curb radius in any given location. These include the desired pedestrian area of the corner, traffic turning movements, street classifications, design vehicle turning radius, intersection geometry, and whether there is parking or a bike lane (or both) between the travel lane and the curb.

Materials and Maintenance

Improperly designed curb radii at corners may be subject to damage by large trucks.

Additional References

AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.
AASHTO. (2004). A Policy on Geometric Design of Highways and Streets.
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

ADA Compliant Curb Ramps

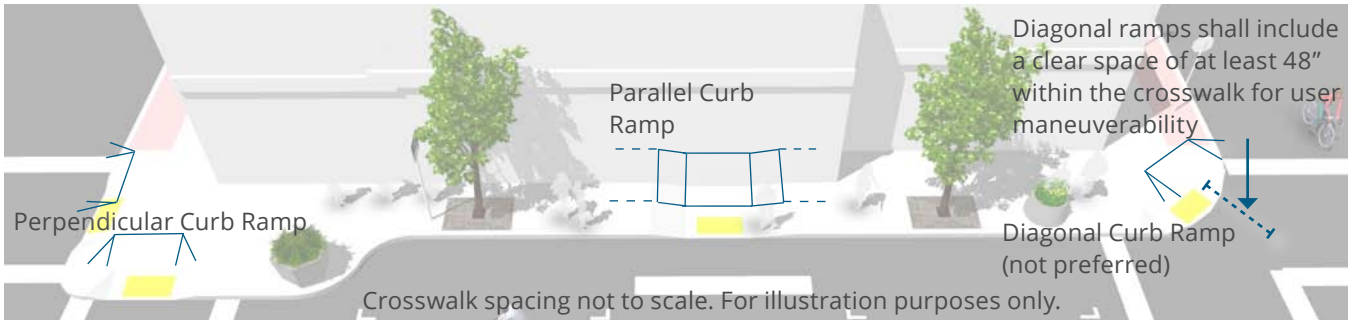
Description

Curb ramps are the design elements that allow all users to make the transition from the street to the sidewalk. There are a number of factors to be considered in the design and placement of curb ramps at corners. Properly designed curb ramps ensure that the sidewalk is accessible from the roadway. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access.

Although diagonal curb ramps might save money, they create potential safety and mobility problems for pedestrians,including reduced maneuverability and increased interaction with turning vehicles, particularly in areas with high traffic volumes. Diagonal curb ramp configurations are the least preferred of all options.

Guidance

- The landing at the top of a ramp shall be at least 4 feet long and at least the same width as the ramp itself.
- The ramp shall slope no more than 1:50 (2.0%) in any direction.
- If the ramp runs directly into a crosswalk, the landing at the bottom will be in the roadway.
- If the ramp lands on a dropped landing within the sidewalk or corner area where someone in a wheelchair may have to change direction, the landing must be a minimum of 5'-0" long and at least as wide as the ramp, although a width of 5'-0" is preferred.



Discussion

The edge of an ADA compliant curb ramp will be marked with a tactile warning device (also known as truncated domes) to alert people with visual impairments to changes in the pedestrian environment. Contrast between the raised tactile device and the surrounding infrastructure is important so that the change is readily evident. These devices are most effective when adjacent to smooth pavement so the difference is easily detected. The devices must provide color contrast so partially sighted people can see them.

Materials and Maintenance

It is critical that the interface between a curb ramp and the street be maintained adequately. Asphalt street sections can develop potholes at the foot of the ramp, which can catch the front wheels of a wheelchair.

Additional References

United States Access Board. (2002). Accessibility Guidelines for Buildings and Facilities.
United States Access Board. (2007). Public Rights-of-Way Accessibility Guidelines (PROWAG).
USDOJ. (2010). ADA Standards for Accessible Design.

Pedestrian At-grade Railroad Crossings

Description

Locations where sidewalks must cross railroad tracks are problematic for pedestrians, particularly for those with mobility or vision impairments.

Wheelchair and scooter casters can easily get caught in the flangeway gap, and slippery surfaces, degraded rough materials, or elevated track height can cause tripping hazards for all pedestrians.

Angled track crossings also limit sight triangles, impacting the ability to see oncoming trains.

Guidance

- Bells or other audible warning devices may be included in the flashing-light signal assembly to provide additional warning for pedestrians and bicyclists.
- Pedestrians need clear communication and warning to know that they may encounter a train and when a train is coming. Provide clear definition of where the safest place to cross is.
- The crossing should be as close as practical to perpendicular with tracks. Ensure clear lines of sign and good visibility so that pedestrians can see approaching trains
- The crossing must be level and flush with the top of the rail at the outer edge and between the rails.
- Flangeway gaps should not exceed 2.5 in (3.0 in for tracks that carry freight.)

Discussion

Crossing design and implementation is a collaboration between the railroad company and highway agency. The railroad company is responsible for the crossbucks, flashing lights and gate mechanisms, and the highway agency is responsible for advance warning markings and signs. Warning devices should be recommended for each specific situation by a qualified engineer based on various factors including train frequency and speed, path and trail usage and sight distances.

Additional References

AASHTO. Planning, Design, and Operation of Ped. Facilities. 2004.
FHWA. Manual on Uniform Traffic Control Devices. 2009.
FHWA. Railroad-Highway Grade Crossing Handbook. 2007.
TRB. TCRP 17: Integration of Light Rail Transit into City Streets. 1996.
NCDOT. Complete Street Planning and Design Guidelines. 2012.
Rails-to-Trails Conservancy. Rails-with-Trails: A Preliminary Assessment of Safety and Grade Crossings. 2005.

Signalization

Crossing beacons and signals facilitate crossings of roadways for pedestrians and bicyclists. Beacons make crossing intersections safer by clarifying when to enter an intersection and by alerting motorists to the presence of pedestrians and bicyclists.

Flashing amber warning beacons can be utilized at unsignalized intersection crossings. Push buttons, signage, and pavement markings may be used to highlight these facilities for pedestrians, bicyclists and motorists.

Determining which type of signal or beacon to use for a particular intersection depends on a variety of factors. These include speed limits, traffic volumes, and the anticipated levels of pedestrian and bicycle crossing traffic.

An intersection with crossing beacons may reduce stress and delays for crossing users, and discourage illegal and unsafe crossing maneuvers.

Pedestrians at Signalized Crossings


Pedestrian Hybrid Beacon

Materials and Maintenance

It is important to repair or replace traffic control equipment before it fails. Consider semi-annual inspections of controller and signal equipment, intersection hardware, and loop detectors.

Additional References

United States Access Board. (2007). Public Rights-of-Way Accessibility Guidelines (PROWAG).
AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

Pedestrians at Signalized Crossings

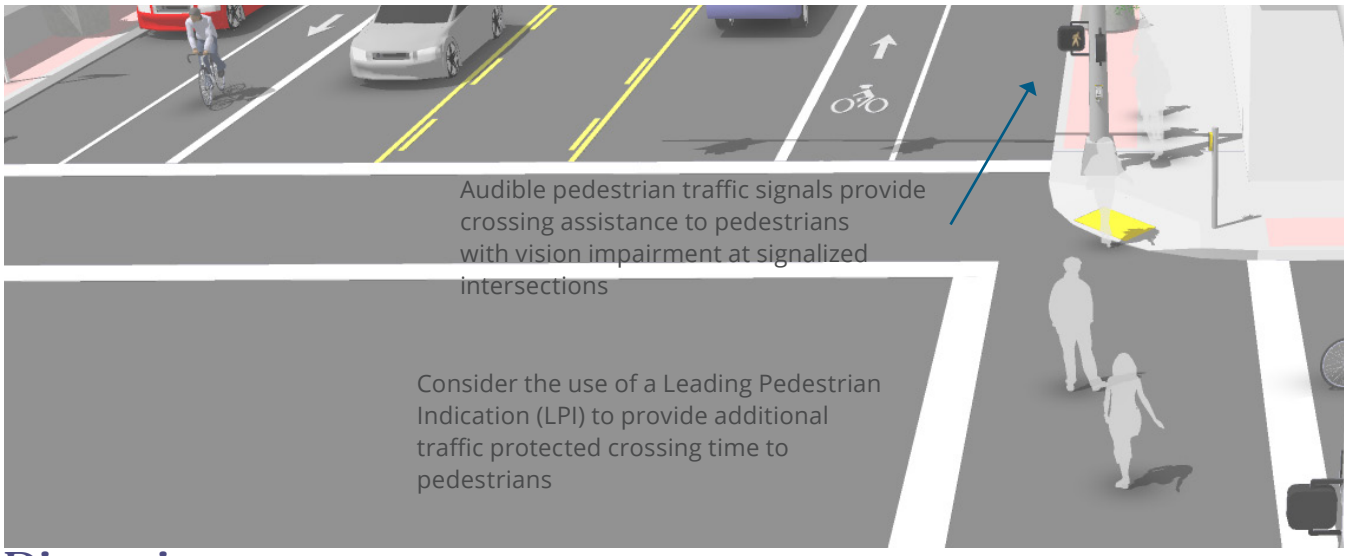
Description

Pedestrian Signal Head

- All traffic signals should be equipped with pedestrian signal indications except where pedestrian crossing is prohibited by signage.
- Countdown signals should be used at all signalized intersections to indicate whether a pedestrian has time to cross the street before the signal phase ends.

Signal Timing

- Adequate pedestrian crossing time is a critical element of the walking environment at signalized intersections. The MUTCD recommends traffic signal timing to assume a pedestrian walking speed of 3.5' per second. The length of a signal phase with parallel pedestrian movements should provide sufficient time for a pedestrian to safely cross the adjacent street.
- At crossings where older pedestrians or pedestrians with disabilities are expected, crossing speeds as low as 3' per second may be assumed.
- In busy pedestrian areas such as downtowns, the pedestrian signal indication should be built into each signal phase, eliminating the requirement for a pedestrian to actuate the signal.



Discussion

When push buttons are used, they should be located so that someone in a wheelchair can reach the button from a level area of the sidewalk without deviating significantly from the natural line of travel into the crosswalk, and marked (for example, with arrows) so that it is clear which signal is affected. In areas with very heavy pedestrian traffic, consider an all-pedestrian signal phase to give pedestrians free passage in the intersection when all motor vehicle traffic movements are stopped.

Materials and Maintenance

It is important to repair or replace traffic control equipment before it fails. Consider semi-annual inspections of controller and signal equipment, intersection hardware, and loop detectors.

Additional References

United States Access Board. (2007). Public Rights-of-Way Accessibility Guidelines (PROWAG).
AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

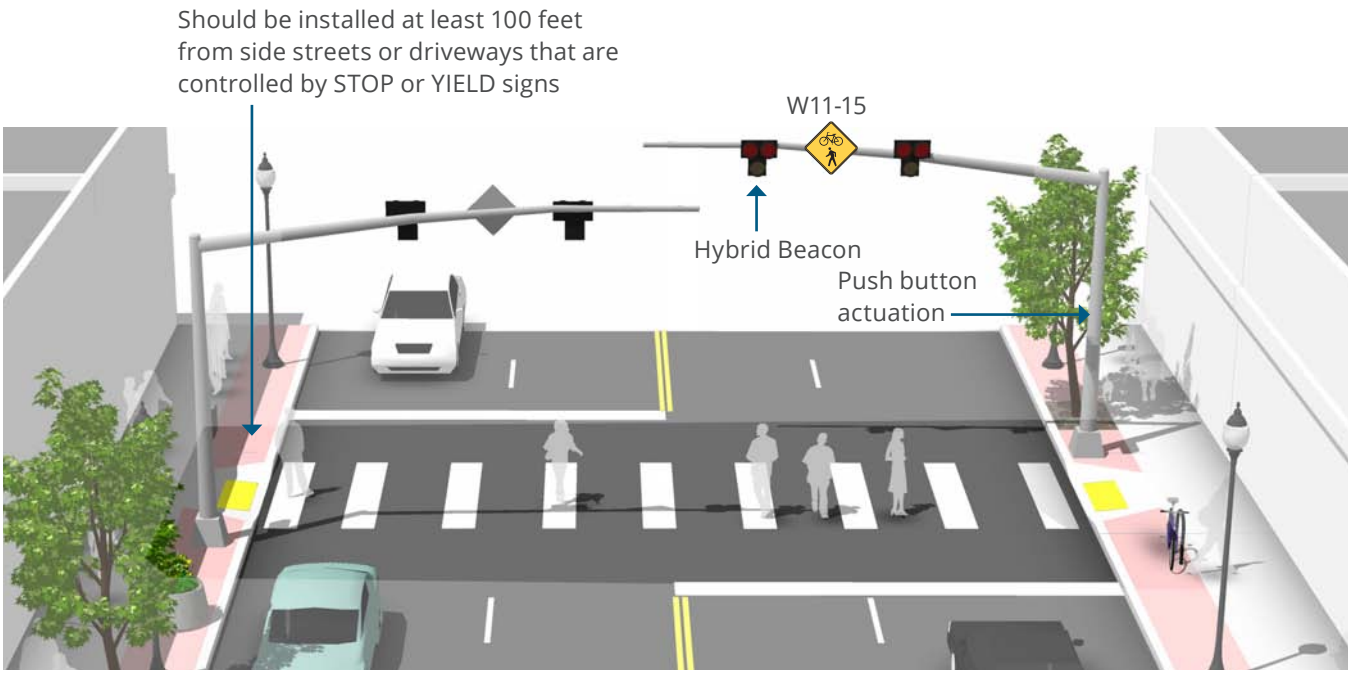
Pedestrian Hybrid Beacon

Description

Hybrid beacons are used to improve non-motorized crossings of major streets. A hybrid beacon consists of a signal-head with two red lenses over a single yellow lens on the major street, and a pedestrian signal head for the crosswalk

Guidance

- Hybrid beacons may be installed without meeting traffic signal control warrants if roadway speed and volumes are excessive for comfortable pedestrian crossings.
- If installed within a signal system, signal engineers should evaluate the need for the hybrid signal to be coordinated with other signals.
- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance.



Discussion

Hybrid beacon signals are normally activated by push buttons, but may also be triggered by infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street. Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity, and safety.

Materials and Maintenance

Hybrid beacons are subject to the same maintenance needs and requirements as standard traffic signals. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

Additional References

FHWA. (2009). Manual on Uniform Traffic Control Devices.

NACTO. (2012). Urban Bikeway Design Guide.

NCDOT. (2012). Complete Streets Planning and Design Guidelines.

Active Warning Beacons

Description

Active warning beacons are user actuated illuminated devices designed to increase motor vehicle yielding compliance at crossings of multi lane or high volume roadways.

Types of active warning beacons include conventional circular yellow flashing beacons, in-roadway warning lights, or rectangular rapid flash beacons (RRFB).

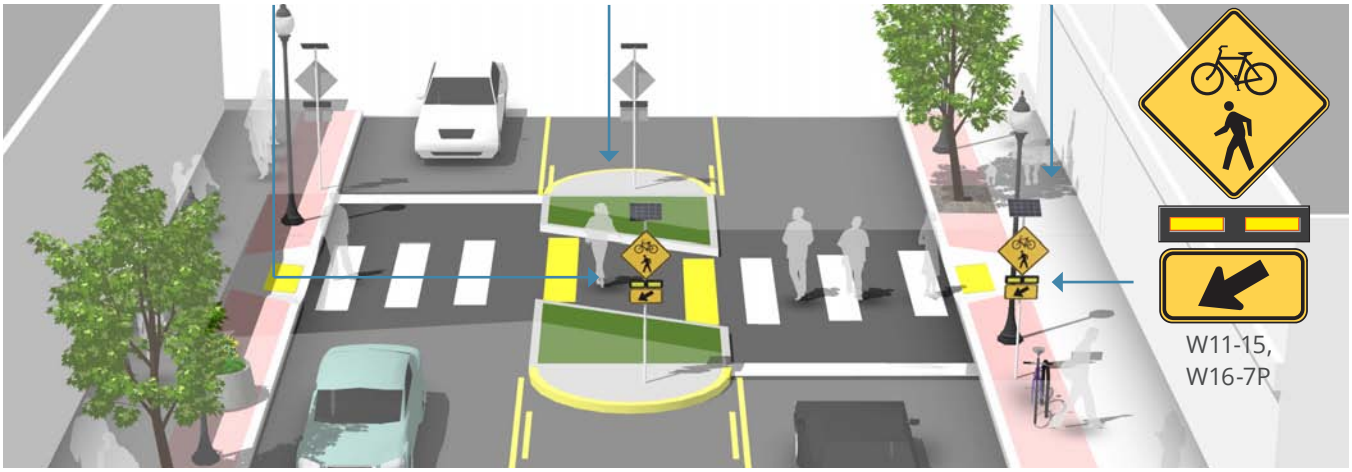
Guidance

- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs or traffic signals.
- Warning beacons shall initiate operation based on pedestrian or bicyclist actuation and shall cease operation at a predetermined time after actuation or, with passive detection, after the pedestrian or bicyclist clears the crosswalk.

Providing secondary installations of RRFBs on median islands improves driver yielding behavior.

Median refuge islands provide added comfort and should be angled to direct users to face oncoming traffic.

Rectangular Rapid Flash Beacons (RRFB) dramatically increase compliance over conventional warning beacons.



Discussion

Rectangular rapid flash beacons have the highest compliance of all the warning beacon enhancement options. A study of the effectiveness of going from a no-beacon arrangement to a two-beacon RRFB installation increased yielding from 18 percent to 81 percent. A four-beacon arrangement raised compliance to 88 percent. Additional studies over long term installations show little to no decrease in yielding behavior over time.

Materials and Maintenance

Depending on power supply, maintenance can be minimal. If solar power is used, RRFBs can run for years without issue.

Additional References

NACTO. (2012). Urban Bikeway Design Guide.
FHWA. (2009). Manual on Uniform Traffic Control Devices.
FHWA. (2008). MUTCD - Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11)

Pedestrian Signs and Wayfinding

Signage provides important safety and wayfinding information to motorist and pedestrian residents and tourists. From a safety standpoint, motorists should be given advance warning of upcoming pedestrian crossings or of traffic calming areas. Signage of any type should be used and regulated judiciously. An inordinate amount of signs creates visual clutter. Under such a condition, important safety or wayfinding information may be ignored resulting in confusion and possible pedestrian vehicle conflict. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic.

Regulatory Signage

Regulatory signage is used to inform motorists or pedestrians of a legal requirement and should only be used when a legal requirement is not otherwise apparent (AASHTO, 2004: Guide for the Planning, Design, and Operation of Pedestrian Facilities).

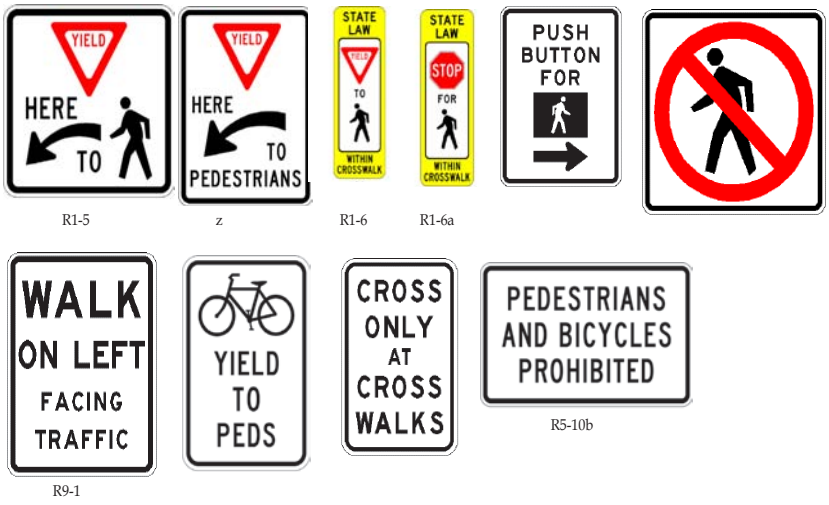
Warning Signage

Warning signage is used to inform motorists and pedestrians of unexpected or unusual conditions. When used, they should be placed to provide adequate response times. These include school warning signs and pedestrian crossing signs.

Informational and Wayfinding Signage

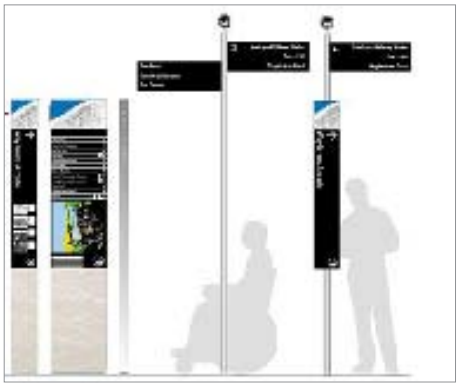
Informational and wayfinding signage can provide information providing guidance to a location along a trail or other pedestrian facility. Wayfinding signage should orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity.

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



R1-5 z R1-6 R1-6a R5-10b R9-1

Regulatory signs.



Wayfinding signs promote aesthetics as well as provide important information (image from Stefton, UK: http://www.sefton.gov.uk).


S1-1

S3-1


W11-2


W15-1


I-4

Sign	MUTCD Code	MUTCD Section	Conventional Road	
Yield here to Peds	R1-5	2B.11	450x450 (18x18)	Regulatory
Yield here to Peds	R1-5a	2B.11	450x600 (18x24)	
In-Street Ped Crossing	R1-6, R1-6a	2B.12	300x900 (12x36)	
Peds and Bikes Prohibited	R5-10b	2B.36	750x450 (30x18)	
Peds Prohibited	R5-10c	2B.36	600x300 (24x12)	
Walk on Left Facing Traffic	R9-1	2B.43	450x600 (18x24)	
Cross only at Crosswalks	R9-2	2B.44	300x450 (12x18)	
No Ped Crossing	R9-3a	2B.44	450x450 (18x18)	
No Hitch Hiking	R9-4	2B.43	450x600 (18x24)	
No Hitch Hiking (symbol)	R9-4a	2B.43	450x450 (18x18)	
Bikes Yield to Peds	R9-6	9B.10	300x450 (12x18)	
Ped Traffic Symbol	R10-4b	2B.45	225x300 (9x12)	
School Advance Warning	S1-1	7B.08	900x900 (36x36)	School, Warning, informational
School Bus Stop Ahead	S3-1	7B.10	750x750 (30x30)	
Pedestrian Traffic	W11-2	2C.41	750x750 (30x30)	
Playground	W15-1	2C.42	750x750 (30x30)	
Hiking Trail	I-4	--	600x600 (24x24)	

1. Larger signs may be used when appropriate.

2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.

3. First dimension in millimeters; dimensions in parentheses are in inches.

4. All information in table taken directly from MUTCD.

For a step-by-step guide to help non-professionals participate in the process of developing and designing a signage system, as well as information on the range of signage types, visit the Project for Public Places website:

http://www.pps.org/info/amenities_bb/signage_guide

Multi-Use Trails and Off-Street Facilities

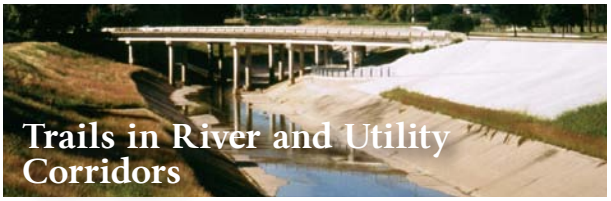
A multi-use trail (also known as a greenway) allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. Trail facilities can also include amenities such as lighting, signage, and fencing (where appropriate).

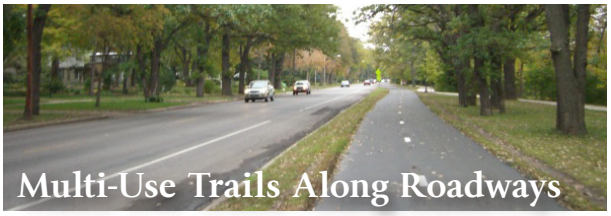
Key features of multi-use trails include:

- Frequent access points from the local road network.
- Directional signs to direct users to and from the trail.
- A limited number of at-grade crossings with streets or driveways.
- Terminating the trail where it is easily accessible to and from the street system.
- Separate treads for pedestrians and bicyclists when heavy use is expected.

This Section Includes:

- General Design Practices
- Trails in River and Utility Corridors
- Multi-Use Trails along Roadways
- Multi-Use Trails in Existing Active Rail Corridors
- Multi-Use Trails in Inactive Rail Corridors
- Natural Surface Trails





General Design Practices

Description

Multi-use trails can provide a desirable facility, particularly for recreation, for users of all skill levels. Bicycle trails should generally provide directional travel not provided by existing roadways.

Guidance

Width

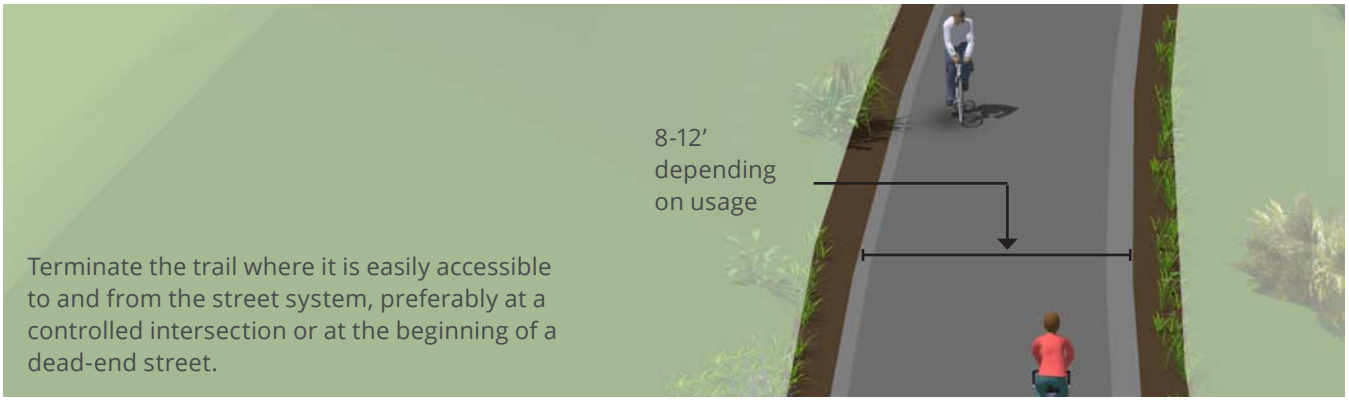
- 8 feet is the minimum allowed for a two-way bicycle trail and is only recommended for low traffic situations.
- 10 feet is recommended in most situations and will be adequate for moderate to heavy use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

Clearance

- A 2 foot or greater shoulder on both sides of the trail should be provided. An additional foot of lateral clearance (total of 3') is required by the MUTCD for signage or other furnishings.
- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.

Striping

- When striping, use a 4" dashed yellow centerline stripe with 4" solid white edge lines.
- Provide solid centerlines on tight or blind corners and approaches to roadway crossings.



Terminate the trail where it is easily accessible to and from the street system, preferably at a controlled intersection or at the beginning of a dead-end street.

Discussion

The AASHTO Guide for the Development of Bicycle Facilities generally recommends against the development of shared use trails along roadways. Also known as "sidepaths", these lead to a portion of bicycle traffic riding against the flow of motor vehicle traffic and can result in wrong-way riding when either entering or exiting the trail.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

Additional References

Flink, C. (1993). Greenways: A Guide To Planning Design And Development.

Trails in River and Utility Corridors

Description

Utility and waterway corridors often offer excellent greenway development and bikeway gap closure opportunities. Utility corridors typically include powerline and sewer corridors, while waterway corridors include canals, drainage ditches, rivers, and beaches. These corridors offer excellent transportation and recreation opportunities for bicyclists of all ages and skills.

Guidance

Trails in utility corridors should meet or exceed general design practices. If additional width allows, wider trails, and landscaping are desirable.

Access Points

Any access point to the trail should be well-defined with appropriate signage designating the trail as a bicycle facility and prohibiting motor vehicles.

Trail Closure

Public access to the greenway may be prohibited during the following events:

- Canal/flood control channel or other utility maintenance activities
- Inclement weather or the prediction of storm conditions

Discussion

Similar to railroads, public access to flood control channels or canals is undesirable for all. Hazardous materials, deep water or swift current, steep, slippery slopes, and debris all constitute risks for public access. Appropriate fencing may be required to keep trail users within the designated travel way. Creative design of fencing is encouraged to make the trail facility feel welcoming to the user.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

Additional References

AASHTO. (2012). Guide for the Development of Bicycle Facilities. FHWA. (2009). Manual on Uniform Traffic Control Devices.
Flink, C. (1993). Greenways: A Guide To Planning Design And Development.

Multi-Use Trails Along Roadways (Side Path)

Description

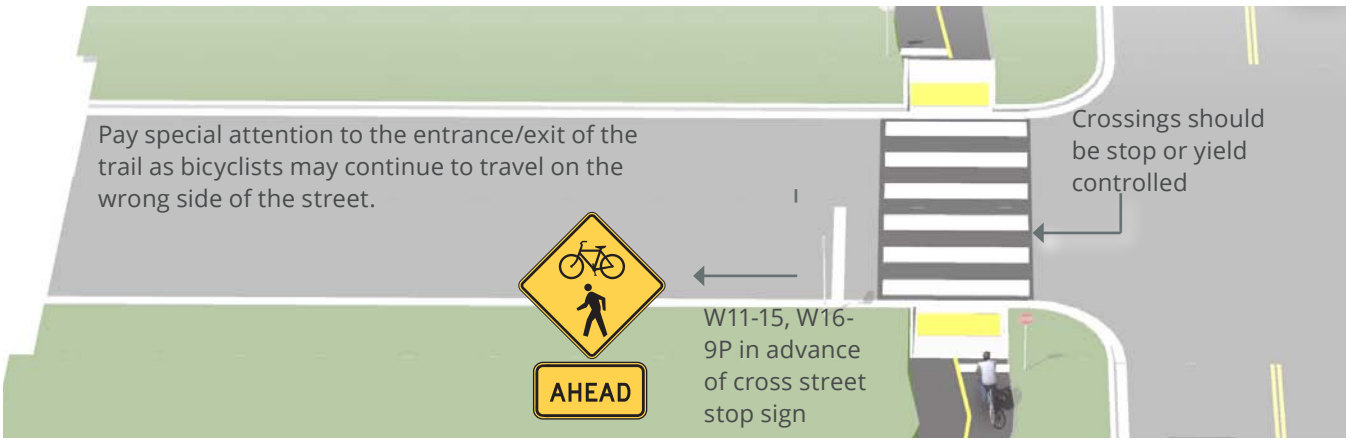
A multi-use trail allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles.

Along roadways, these facilities create a situation where a portion of the bicycle traffic rides against the normal flow of motor vehicle traffic and can result in wrong-way riding where bicyclists enter or leave the trail.

The AASHTO Guide for the Development of Bicycle Facilities generally recommends against the development of multi-use trails directly adjacent to roadways.

Guidance

- 8 feet is the minimum allowed for a two-way trail and is only recommended in low traffic.
- 10 feet is recommended in most situations and will be adequate for moderate to heavy use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple user types. A separate track (5' minimum) can be provided for pedestrian use.
- Bicycle lanes should be provided as an alternate facility whenever possible.



Discussion

When designing a bikeway network, the presence of a nearby or parallel trail should not be used as a reason to not provide adequate shoulder or bicycle lane width on the roadway, as the on-street bicycle facility will generally be superior to the "sidepath" for experienced bicyclists and those who are cycling for transportation purposes.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

Additional References

AASHTO. (2012). Guide for the Development of Bicycle Facilities.
NACTO. (2012). Urban Bikeway Design Guide. See entry on Raised Cycle Tracks.

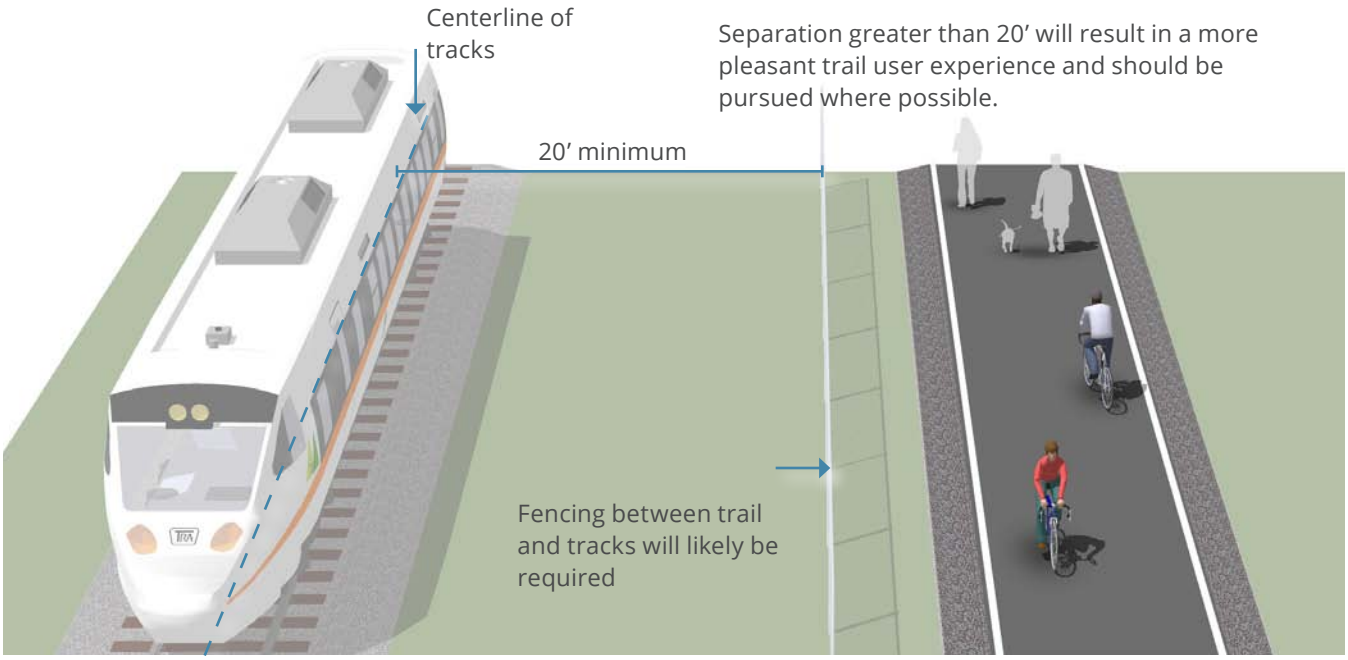
Multi-Use Trails in Active Rail Corridors

Description

Rails-with-Trails projects typically consist of trails adjacent to active railroads. It should be noted that some constraints could impact the feasibility of rail-with-trail projects. In some cases, space needs to be preserved for future planned freight, transit or commuter rail service. In other cases, limited right-of-way width, inadequate setbacks, concerns about safety/trespassing, and numerous mid-block crossings may affect a project's feasibility.

Guidance

- Multi-use trails in utility corridors should meet or exceed General Design Practices. If additional width allows, wider trails, and landscaping are desirable.
- If required, fencing should be a minimum of 5 feet in height with higher fencing usual next to sensitive areas such as switching yards. Setbacks from the active rail line will vary depending on the speed and frequency of trains, and available right-of-way.



Discussion

Railroads typically require fencing with all rail-with-trail projects. Concerns with trespassing and security can vary with the amount of train traffic on the adjacent rail line and the setting of the bicycle trail, i.e. whether the section of track is in an urban or rural setting.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

Additional References

AASHTO. (2012). Guide for the Development of Bicycle Facilities. FHWA. (2009). Manual on Uniform Traffic Control Devices.
FHWA. (2002). Rails-with-Trails: Lessons Learned.

Multi-Use Trails in Inactive Rail Corridors

Description

Commonly referred to as Rails-to-Trails or Rail-Trails, these projects convert vacated rail corridors into off-street paths. Rail corridors offer several advantages, including relatively direct routes between major destinations and generally flat terrain.

In some cases, rail owners may rail-bank their corridors as an alternative to a complete abandonment of the line, thus preserving the rail corridor for possible future use.

The railroad may form an agreement with any person, public or private, who would like to use the banked rail line as a trail or linear park until it is again needed for rail use. Municipalities should acquire abandoned rail rights-of-way whenever possible to preserve the opportunity for trail development.

Guidance

- Multi-use trails in abandoned rail corridors should meet or exceed general design practices. If additional width allows, wider trails and landscaping are desirable.
- In full conversions of abandoned rail corridors, the sub-base, superstructure, drainage, bridges, and crossings are already established. Design becomes a matter of working with the existing infrastructure to meet the needs of a rail-trail.
- If converting a rail bed along an active rail line, see "Multi-Use Trails in Active Rail Corridors".

Discussion

It is often impractical and costly to add material to existing railroad bed fill slopes. This results in trails that meet minimum trail widths, but often lack preferred shoulder and lateral clearance widths.

Rail-to-trails can involve many challenges including the acquisition of the right of way, cleanup and removal of toxic substances, and rehabilitation of tunnels, trestles and culverts. A structural engineer should evaluate existing railroad bridges for structural integrity to ensure they are capable of carrying the appropriate design loads.

Materials and Maintenance

Concrete trails have proven to be more durable than asphalt over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

Additional References

AASHTO. (2012). Guide for the Development of Bicycle Facilities. FHWA. (2009). Manual on Uniform Traffic Control Devices.
Flink, C. (1993). Greenways: A Guide To Planning Design And Development.

Natural Surface Trails

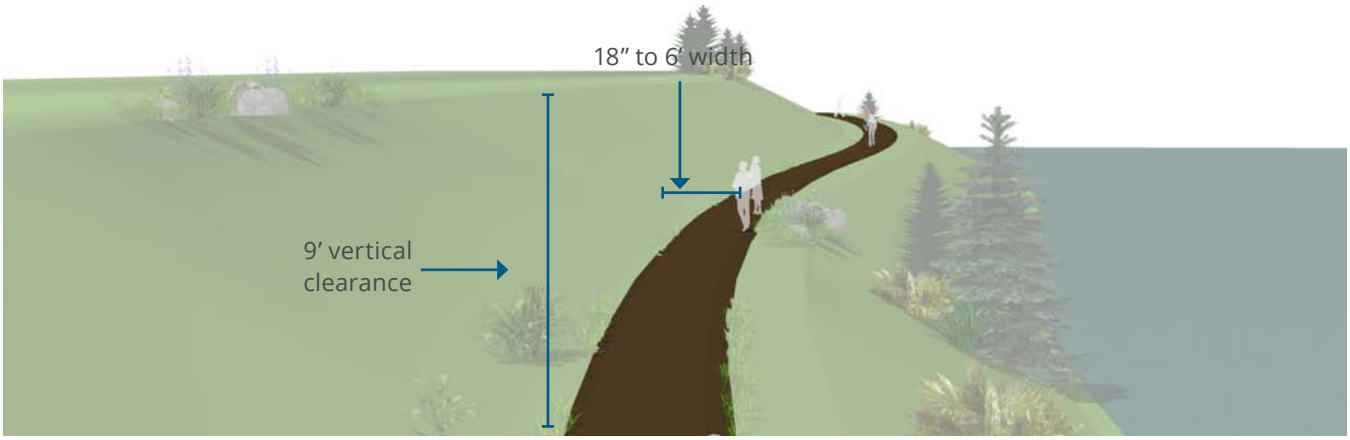
Description

Sometimes referred to as footpaths or hiking trails, the natural surface trail is used along corridors that are environmentally-sensitive but can support bare earth, wood chip, or boardwalk trails. Natural surface trails are a low-impact solution and found in areas with limited development or where a more primitive experience is desired.

Guidance presented in this section does not include considerations for bicycle users. Natural surface trails designed for bicycle users are typically known as single track trails.

Guidance

- Trails can vary in width from 18 inches to 6 feet or greater; vertical clearance should be maintained at nine-feet above grade.
- Base preparation varies from machine-worked surfaces to those worn only by usage.
- Trail surface can be made of dirt, rock, soil, forest litter, or other native materials. Some trails use crushed stone (a.k.a. "crush and run") that contains about 4% fines by weight, and compacts with use.
- Provide positive drainage for trail tread without extensive removal of existing vegetation; maximum slope is five percent (typical).



Discussion

Trail erosion control measures include edging along the low side of the trail, steps and terraces to contain surface material, and water bars to direct surface water off the trail; use bedrock surface where possible to reduce erosion.

Materials and Maintenance

Consider implications for accessibility when weighing options for surface treatments.

Additional References

Flink, C. (1993). Greenways: A Guide To Planning Design And Development.

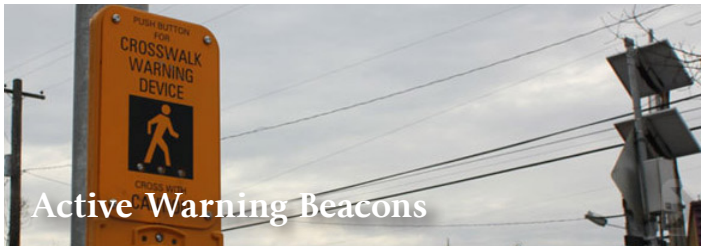
Multi-Use Trail Crossings

At-grade roadway crossings can create potential conflicts between trail users and motorists. However, well-designed crossings can mitigate many operational issues and provide a higher degree of safety and comfort for trail users. This is evidenced by the thousands of successful facilities around the United States with at-grade crossings. In most cases, at-grade trail crossings can be properly designed to provide a reasonable degree of safety and can meet existing traffic and safety standards. Trail facilities that cater to bicyclists can require additional considerations due to the higher travel speed of bicyclists versus pedestrians.

Consideration must be given to adequate warning distance based on vehicle speeds and line of sight, with the visibility of any signs absolutely critical. Directing the active attention of motorists to roadway signs may require additional alerting devices such as a flashing beacon, roadway striping or changes in pavement texture. Signage for trail users may include a standard "STOP" or "YIELD" sign and pavement markings, possibly combined with other features such as bollards or a bend in the trail to slow bicyclists. Care must be taken not to place too many signs at crossings lest they begin to lose their visual impact.

A number of striping patterns have emerged over the years to delineate trail crossings. A median stripe on the trail approach will help to organize and warn trail users. Crosswalk striping is typically a matter of local and State preference, and may be accompanied by pavement treatments to help warn and slow motorists. In areas where motorists do not typically yield to crosswalk users, additional measures may be required to increase compliance.

Marked/Unsignalized Crossings



Active Warning Beacons

Route Users to Existing Signals

Unsignalized Marked Crossings

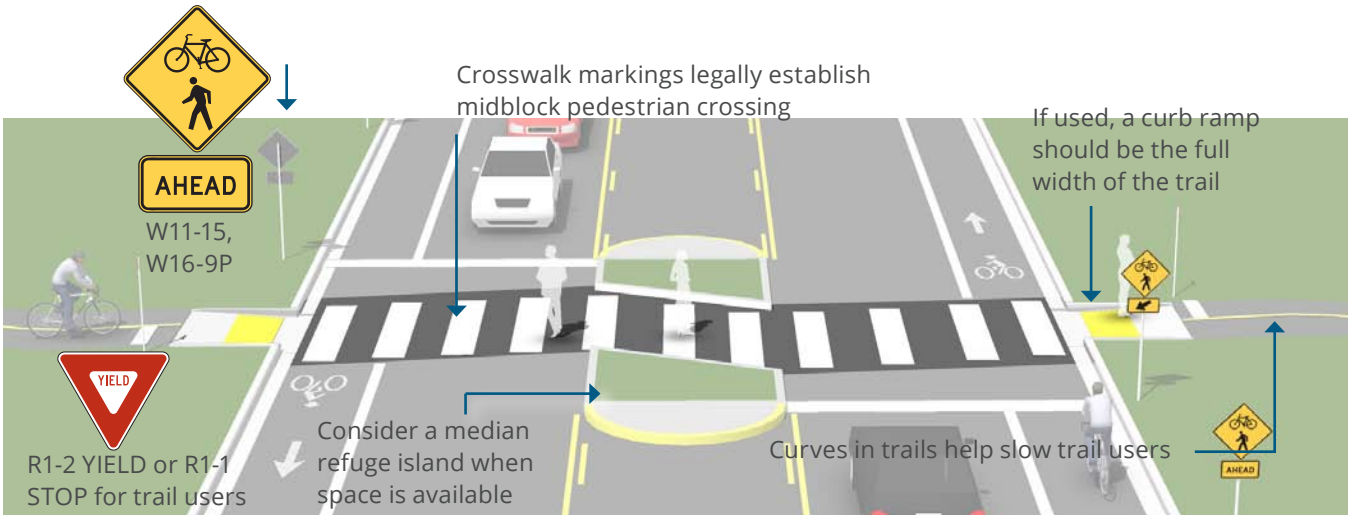
Description

An unsignalized marked crossing typically consists of a marked crossing area, signage, and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, trail traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.

Guidance

- Refer to the FHWA report, "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations" for specific volume and speed ranges where a marked crosswalk alone may be sufficient.
- Where the speed limit exceeds 40 miles per hour, marked crosswalks alone should not be used at unsignalized locations.
- Crosswalks should not be installed at locations that could present an increased risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices.



Discussion

Marked crosswalks alone will not make crossings safer, nor will they necessarily result in more vehicles stopping for pedestrians. It is important to consider other treatments (e.g. raised median, traffic signal, roadway narrowing, enhanced overhead lighting, curb extensions, etc.) as needed to improve crossing safety. Good engineering judgment should be used to determine appropriate treatments.

Materials and Maintenance

Locate markings out of wheel tread when possible to minimize wear and maintenance costs.

Additional References

AASHTO. (2012). Guide for the Development of Bicycle Facilities.
FHWA. (2009). Manual on Uniform Traffic Control Devices.
NCDOT. (2012). Complete Streets Planning and Design Guidelines.

Active Warning Beacons

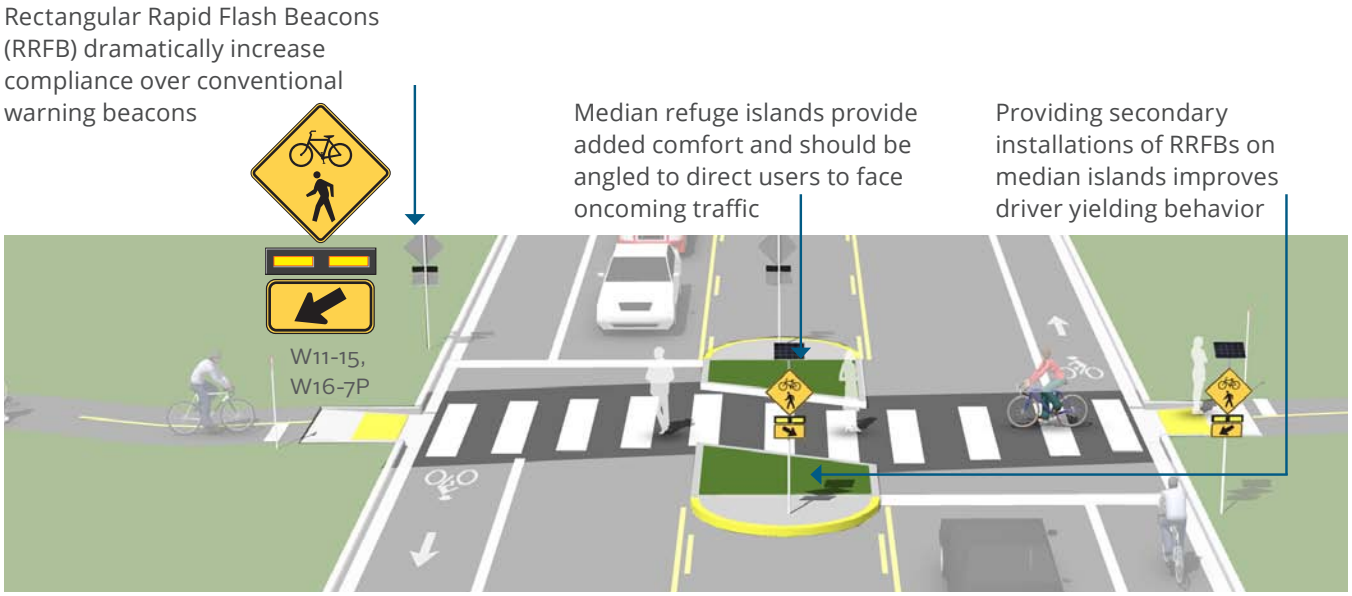
Description

Enhanced marked crossings are unsignalized crossings with additional treatments designed to increase motor vehicle yielding compliance on multi-lane or high volume roadways.

These enhancements include trail user or sensor actuated warning beacons, Rectangular Rapid Flash Beacons (RRFB) shown below, or in-roadway warning lights.

Guidance

- Guidance for Unsignalized Marked Crossings applies.
- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.
- Warning beacons shall begin operation upon user actuation and shall cease operation at a predetermined time after actuation or, with passive detection, after the user clears the crosswalk.



Discussion

Rectangular rapid flash beacons show the most increased compliance of all the warning beacon enhancement options.

A study of the effectiveness of going from a no-beacon arrangement to a two-beacon RRFB installation increased yielding from 18 percent to 81 percent. A four-beacon arrangement raised compliance to 88 percent. Additional studies of long term installations show little to no decrease in yielding behavior over time.

Materials and Maintenance

Depending on power supply, maintenance of active warning beacons can be minimal. If solar power is used, signals should run for years without issue.

Additional References

NACTO. (2012). Urban Bikeway Design Guide.
FHWA. (2009). Manual on Uniform Traffic Control Devices.
FHWA. (2008). MUTCD - Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11) NCDOT. (2012). Complete Streets Planning and Design Guidelines.

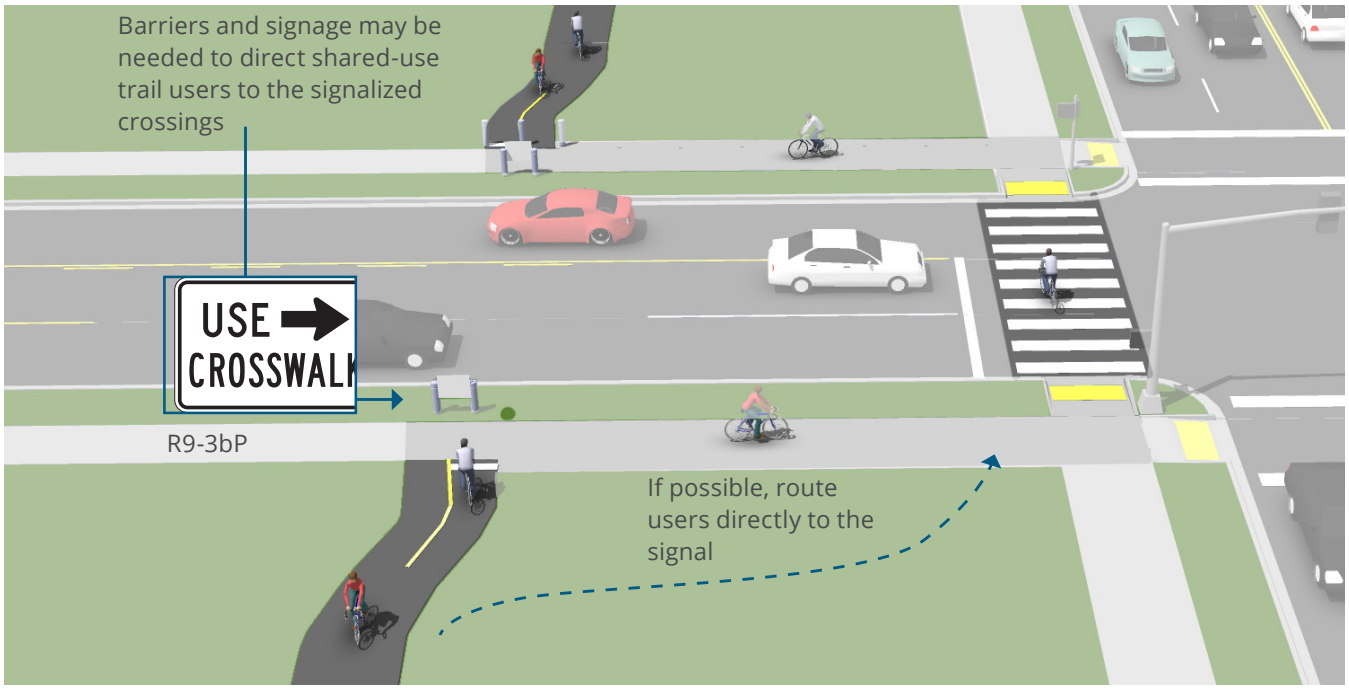
Route Users to Signalized Crossings

Description

Trail crossings within approximately 400 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal. For this restriction to be effective, barriers and signing may be needed to direct trail users to the signalized crossing. If no pedestrian crossing exists at the signal, modifications should be made.

Guidance

- Trail crossings should not be provided within approximately 400 feet of an existing signalized intersection. If possible, route trail directly to the signal.



Discussion

In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 feet. Engineering judgement and the context of the location should be taken into account when choosing the appropriate allowable setback. Pedestrians are particularly sensitive to out of direction travel and jaywalking may become prevalent if the distance is too great.

Materials and Maintenance

Municipalities should maintain comprehensive inventories of the location and age of bicycle wayfinding signs to allow incorporation of signs into any asset management activities.

Additional References

AASHTO. (2012). Guide for the Development of Bicycle Facilities.
AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

B Public Engagement

Overview

Public engagement involved numerous components to spread awareness of the Pedestrian Master Plan and to ensure a variety of local perspectives containing essential insight were appropriately incorporated into the plan. Various mediums and resources were constructed so that all residents and stakeholders in Gibsonville and the surrounding areas had the opportunity to participate.

The public engagement component of this Plan included the following:

- Steering Committee meetings
- Public outreach events
- Project information resources
- Project comment forms
- Project website with link to online comment form
- Project information cards

Steering Committee Meetings

The Steering Committee was involved throughout the planning process. During the kick-off meeting, the group reviewed and provided feedback on the project website, project comment form, established a vision statement and goals for the plan, and discussed the timeline and schedule of the planning process. Members of the Steering Committee worked with the consultant team to mark up local and regional maps to identify gaps in the current network, unsafe crossing locations, and other high priority areas. Input from the Steering Committee is reflected throughout the recommendations of this planning document.

Appendix Contents

Stakeholder Meetings & Public Outreach Events

Downtown Gibsonville Lighting of the Green

The first public outreach event was held at the Lighting of the Green in downtown Gibsonville on Friday, November 22, 2013, from 6 pm to 8:30 pm. Residents at the event visited the booth to learn more about the plan, complete the public comment form, ask questions, and provide feedback on where they would like to see pedestrian improvements in Gibsonville. Dozens of people stopped by to provide input. The feedback was highly positive, with many people interested in seeing the town become a more walkable community.

Highlights of public input received during the event include:

- Need better crosswalks in downtown
- Need speed enforcement in neighborhoods
- Need connections to William R. Moricle Recreation Complex
- Sidewalks should be required with all new residential and commercial development

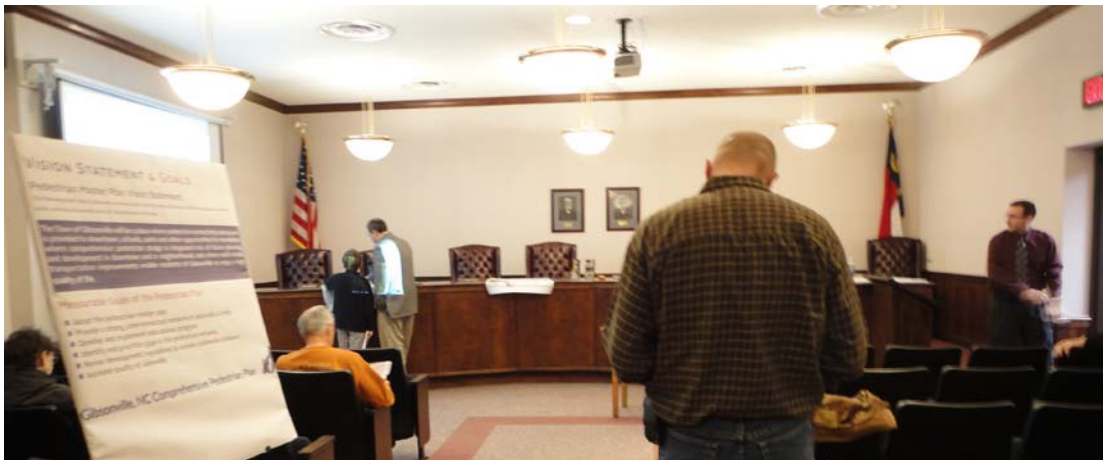
Residents examining the informational project boards at the Lighting of the Green.

2nd Public Outreach Event

The project consultant team facilitated a Town Hall open house on February 27th in Council Chambers. A presentation was offered that highlighted key components of the draft plan. People were invited to learn more about the draft plan recommendations provide comments on the plan document. A public input map, brochures, and posters were displayed and a project consultant answered questions and took comments.

Highlights of public input received on the draft plan recommendations include:

- The photo simulations are a very helpful visual tool
- Top priority projects were "as expected"
- There may be local hesitation to some of the greenway corridors identified on sewer easements because they run close to people's yards



Photos above are from the February 27, 2014 Town Hall open house event.

Project Resources

A number of resources were developed to enhance project awareness and participation. These tools also played a significant role in ensuring all members of the general public would have the opportunity to participate.

Project Website

A project website was developed to provide further project information, maps, contact information, and additional resources. The website also featured a link to the online public comment form page, offering an additional medium for the Gibsonville community to become engaged and participate in the planning process.

Public Comment Form

A comment form, shown on the following page, was developed and was made available in both hard copy and online formats. The comment form was available online throughout the duration of the project. To maximize responses to the online form, the web address was distributed at public meetings, advertised in press releases, sent out to local interest groups, and included on flyers that were distributed around town. Over 50 residents completed the comment form.

Results of the comment form were collected and tabulated by the Consultant to provide insight into local residents' values and opinions about the project. The form can be seen on the following page and the results are included in this appendix.

Project Information Cards

The information card shown on page 1-5 was designed to spread awareness of the project as well as to direct interested citizens to the website and to project contacts for further information. By providing the general public with access to different avenues of public input, these public engagement components provided a variety of opportunities for the voices of Gibsonville residents to be heard.

Town of Gibsonville

Pedestrian Plan
Public Comment Form

Project Website: www.gibsonvillepedplan.com

1. How do you rate present pedestrian conditions (sidewalks, trails, crosswalks, etc.) in Gibsonville? (Please select one option)

☐ Excellent ☐ Above Average ☐ Average ☐ Below Average ☐ Poor

2. Gibsonville should be a community where: (Please select any that apply)

☐ Sidewalks are only provided on major roadways
☐ Sidewalks are provided on neighborhood roadways
☐ Sidewalks are provided on all roadways
☐ Greenway trails are available throughout the community and people can use them to get to important destinations
☐ Sidewalks are not provided on roadways

3. Which pedestrian design elements should be required with future construction, or developments? (Select any that apply)

☐ Sidewalks ☐ Adequate Lighting
☐ Pedestrian Signage ☐ Marked Crosswalks
☐ Grass Buffer between Sidewalk and Roadway
☐ Pedestrian Connectivity between Neighborhoods, Shopping Centers, Parks, and Other Important Destinations
☐ Traffic Calming (stop signs, raised crosswalks, etc.)

4. Which funding resources should be used to improve pedestrian facilities and options? (Please select any that apply)

☐ Public Grants ☐ Local Funding ☐ Federal Funding
☐ State Funding ☐ Private Funding ☐ Capital Improvement Funds

5. In your opinion, which road, location, or neighborhood in Gibsonville is the least safe for pedestrians?

☐ Alamance Street/Westbrook Avenue to Cook Road/ University Drive
☐ Springwood Avenue from Elm Street to Cemetery Road
☐ Gibsonville Ossipee Road/Apple Street
☐ Burlington Avenue from Apple Street to City Limits
Other (please specify)_____

6. In your opinion, which intersections are the least safe for pedestrians to cross? (Please select any that apply)

☐ Tenth Street & Minneola Street
☐ Apple Street & Burlington Avenue
☐ Whitsett Avenue & Main Street
☐ Meadow Street & Alamance Street
Other (please specify)_____

7. How often do you walk now? (Check one)

☐ Never ☐ A few times per month
☐ A few times per week ☐ 5+ times per week

8. For what purposes do you walk now, and/or would you want to walk for in the future? (Please select any that apply)

☐ Fitness or Recreation ☐ Town Events
☐ Spending Time Outdoors ☐ Social Visits
☐ Reaching a Destination (shopping area, downtown, etc.) ☐ Walking to School
Other (please specify)_____

9. Where do you walk, or where would you like to walk? (Please select any that apply)

☐ Downtown
☐ Place of Work
☐ Place of Worship
☐ School
☐ Parks
☐ Shopping
☐ Entertainment
☐ Town Hall
☐ Gym
☐ Non-Fast Food Restaurant
☐ Pharmacy/Drug Store
☐ In My Neighborhood / On My Street
☐ Trails & Greenways
☐ No Destination / Just for Fun or Exercise
☐ Library
☐ Friend/Relative's House
☐ I don't walk to any of these places or for any of these reasons
Other (road, trail, place, etc.): _____

10. What factors discourage walking in Gibsonville? (Please select any that apply)

☐ Lack of Sidewalks & Trails ☐ Lack of Nearby Destinations
☐ Narrow Width of Roads ☐ Aggressive Driver Behavior
☐ Lack of Street Lighting ☐ Automobile Traffic & Speed
☐ Sidewalks in Need of Repair ☐ Criminal Activity
☐ Lack of Landscaping or Buffer between Sidewalk and Road
☐ Lack of Pedestrian Countdown Timers at Traffic Signals
☐ Lack of Crosswalks at Traffic Signals

What is your age? ☐ <18 ☐ 18-26 ☐ 27-35 ☐ 36-44 ☐ 45-54 ☐ 55-64 ☐ 65-74 ☐ 75+ | ☐ MALE ☐ FEMALE

Return Completed Form To: Mr. Ben Baxley, 129 West Main Street, Gibsonville, NC 27249

Citizens of all ages were invited to view town maps and discuss walking issues.

GIBSONVILLE, NC PEDESTRIAN PLAN

Imagine a More Walkable Gibsonville!

Where do you wish you could walk in Gibsonville?

Where do you want to see crosswalks?

Where should the next greenway trail be?

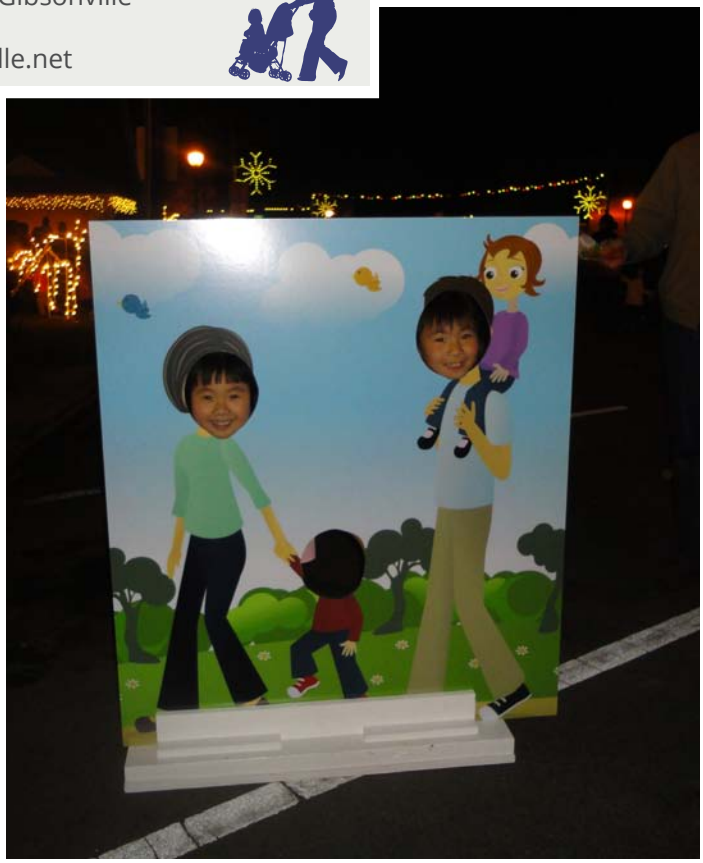
Find Out More, Visit the Project Website:

www.gibsonvillepedplan.com

Project Contact: Mr. Ben Baxley
Town Manager, Town of Gibsonville
Phone: 336-449-4144
Email: bbaxley@gibsonville.net

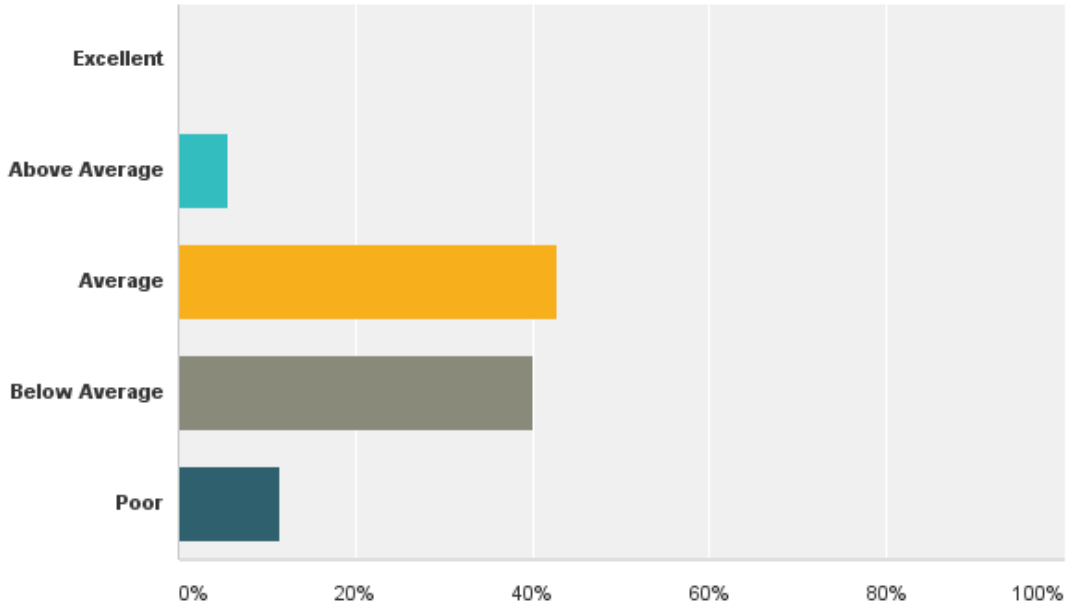
Above: Project information card describing the pedestrian plan.

Right: Children visited the informational booth at the Lighting of the Green in November 2013.

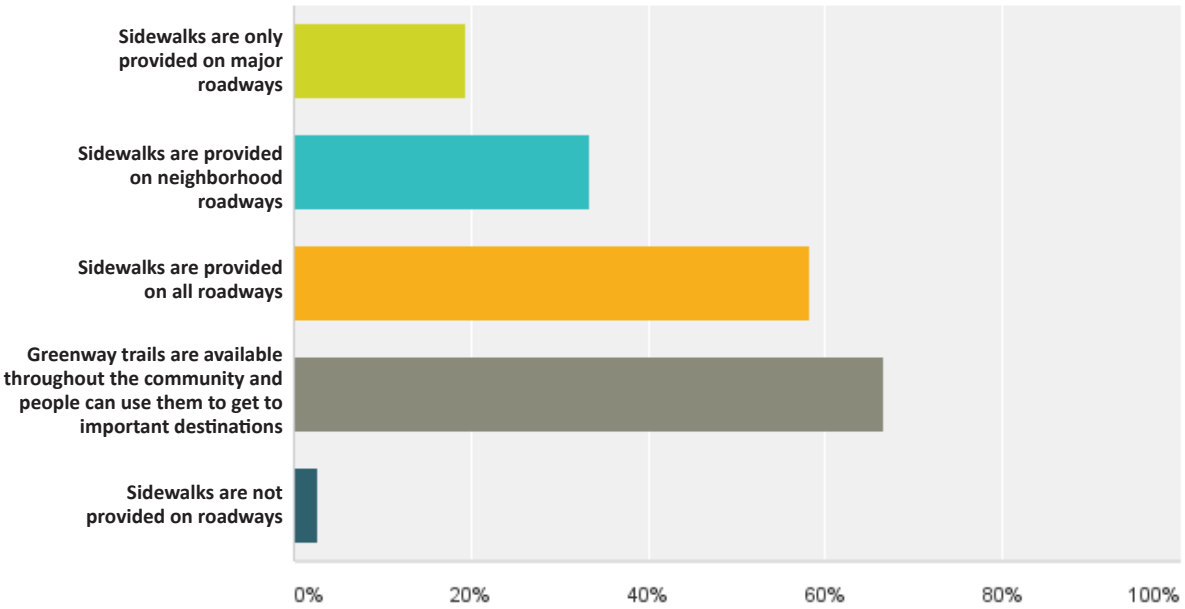


Public Comment Form Responses

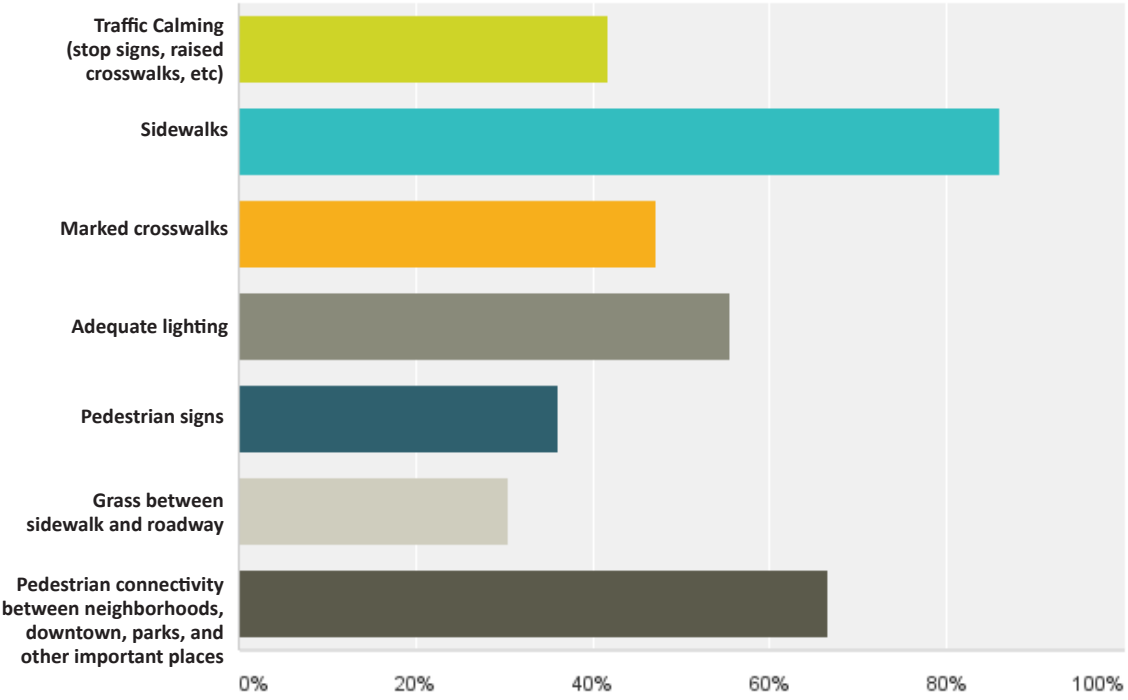
1. How do you rate present pedestrian conditions (sidewalks, trails, crosswalks, etc.) in Gibsonville? (Select one)



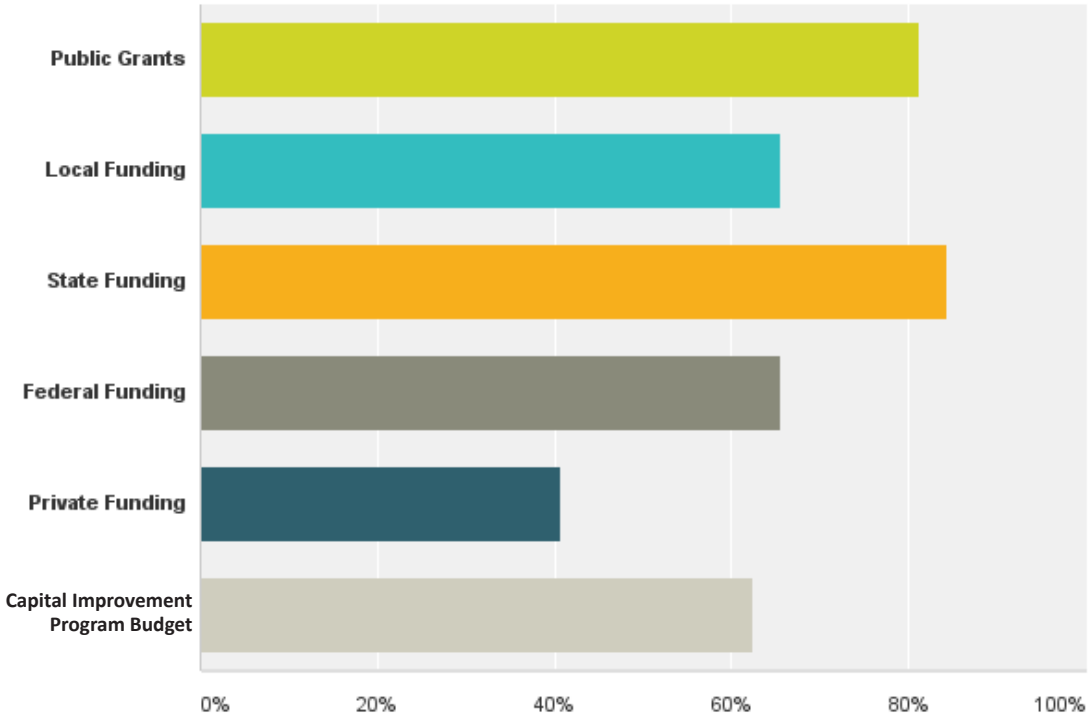
2. Gibsonville should be a community where: (Check all that apply)



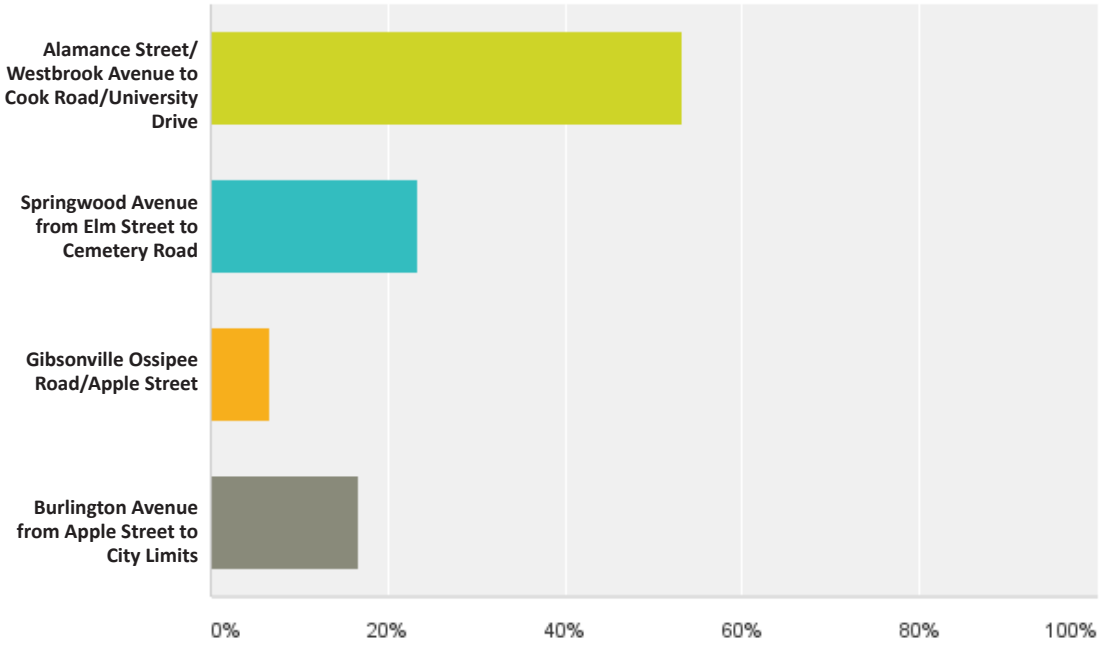
3. Which pedestrian design elements should be required with future construction projects, reconstruction projects, and/or developments? (Check all that apply)



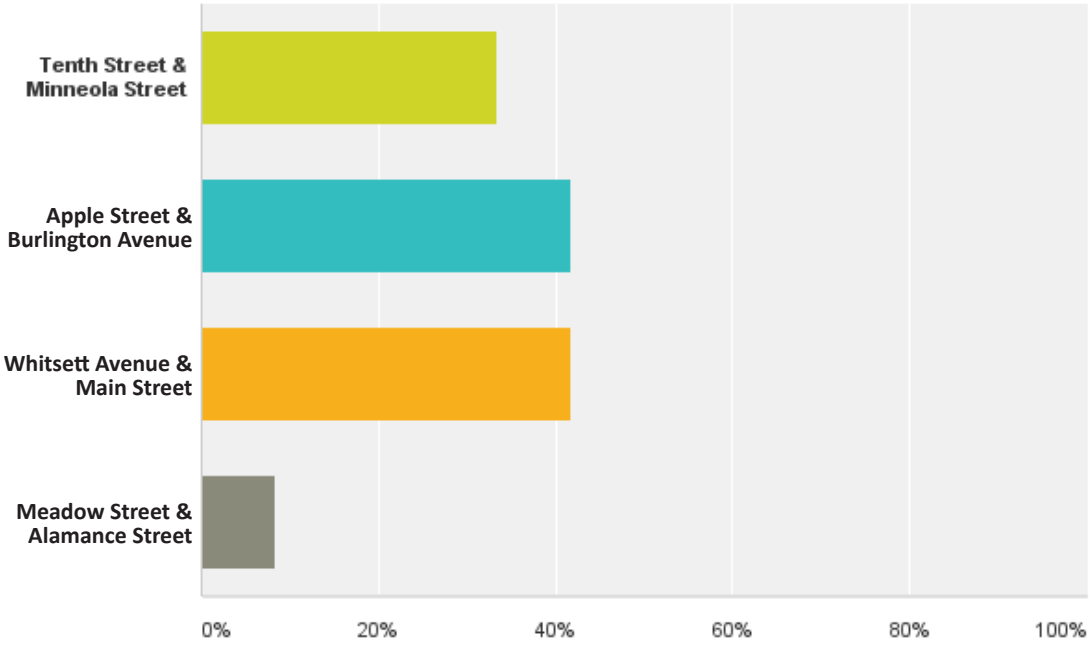
4. Which funding resources should be used to improve pedestrian facilities and options? (Check all that apply)



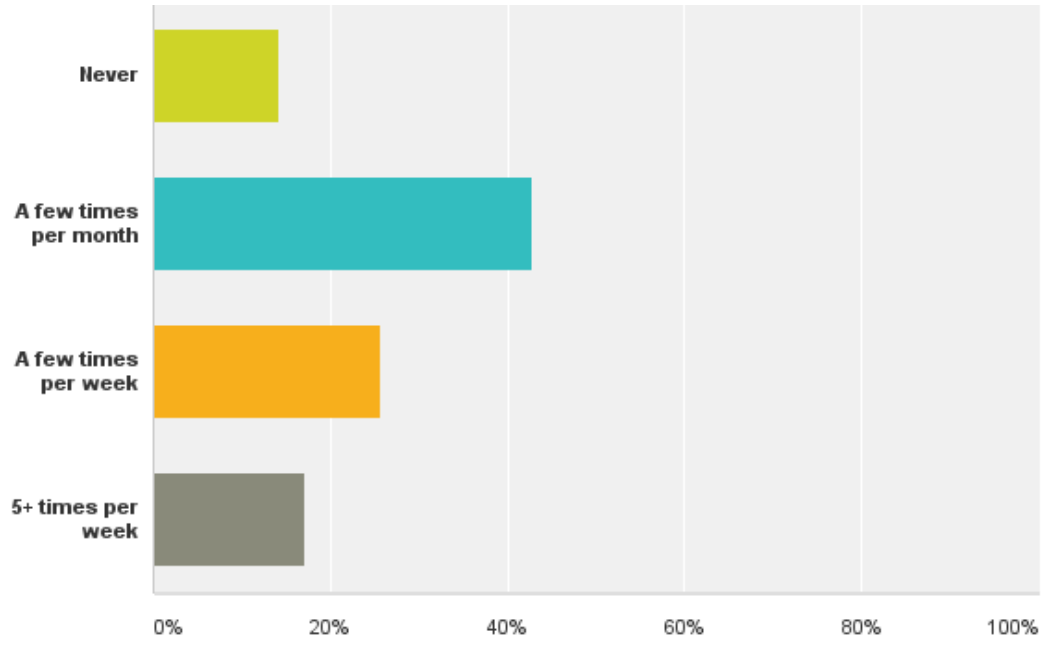
5. In your opinion, which road, location or neighborhood in Gibsonville is the least safe for pedestrians? (Select one)



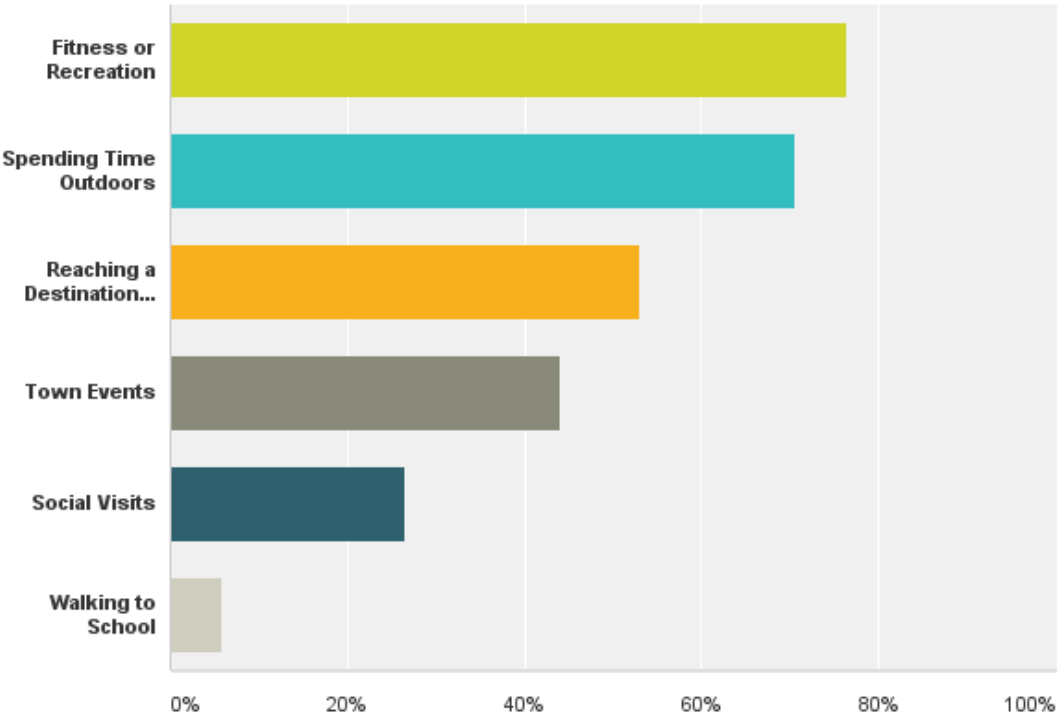
6. In your opinion, which intersections are the least safe for pedestrians to cross? (Check all that apply)



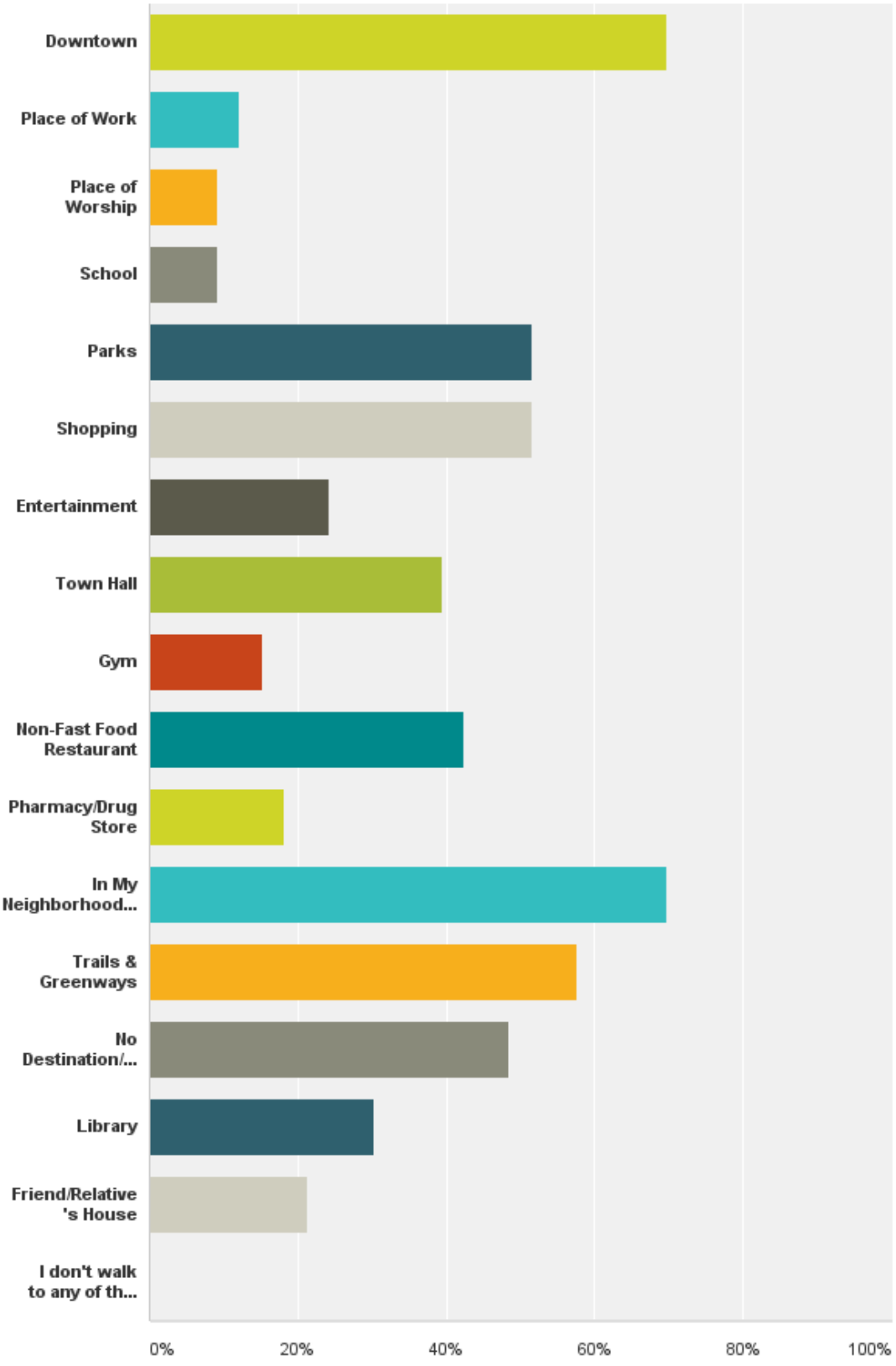
7. How often do you walk now? (Check one)



8. For what purposes do you walk now, and/or would you want to walk for in the future? (Check all that apply)



9. Where do you walk, or where would you like to walk? (Check all that apply)



10. What factors discourage walking in Gibsonville? (Check all that apply)