



Mooresville Comprehensive Pedestrian Plan

June 2006





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1.1. SETTING THE STAGE

Mooresville has undergone radical change since it was founded. The railroad is no longer the primary means of transporting people and goods into and out of town; trucks and automobiles serve this purpose. Rising costs of living and a change in social norms create dual income households, which, in turn, position families' homes geographically between the employment areas. The pace of life has increased, free time has decreased, nutritional and exercise habits are slipping, and the public more commonly perceives the pedestrian as inferior, hazardous, or even dangerous. In fact, the words "dull" and "ordinary" appear in a thesaurus as synonyms for "pedestrian". All of these factors make transportation by foot very difficult for those who currently walk, those who would prefer to walk but cannot, and those who will need to walk in the future.

Quick Facts on Walking

- Current land use patterns such as large-lot or strip development, lack of through streets or walkways, dead wall space, lack of crosswalks, long blocks, unappealing walks, wide and unshaded streets, wide streets with no medians and large shopping malls all inhibit walking. (*Local Government Commission. Why People Don't Walk and What City Planners Can Do About It (online at www.lgc.org - no date)*)
- In neighborhoods with square city blocks, people walk up to three times more than in neighborhoods with cul-de-sac streets or other connectivity-reducing features. (*Rutherford, McCormack, and Wilkinson. Travel impacts of urban form: implications from an analysis of two Seattle area travel diaries. Presented at the TMIP Conference on Urban Design, Telecommunications and Travel Forecasting, 1996*)
- One-fourth of all trips are one mile or less, but three-fourths of these short trips are made by car. (*Nationwide Personal Transportation Survey. US Department of Transportation, Federal Highway Administration, Research and Technical Support Center, 1997*)
- Children between the ages of 5 and 15 walked or rode their bicycles 40% less from 1977 to 1995. (*Nationwide Personal Transportation Survey. US Department of Transportation, Federal Highway Administration, Research and Technical Support Center, 1997*)
- The majority of U.S. children do not walk or bike to school, approximately one third ride a school bus, and half are driven in a private vehicle. Less than one trip in seven is made by walking or biking. (*Center for Disease Control, no date*)
- Urban Sprawl is linked to obesity. The denser the city's development, the less likely its citizens are to be overweight. (*University of Maryland's National Center for Smart Growth, no date*)



- 38% of all Americans feel that the availability of bikeways, walking paths, and sidewalks for getting to work, shopping and recreation is very important in choosing where to live. (*Bureau of Transportation Statistics (BTS) October 2000 Omnibus Household Survey*)
- Trails and greenways have been shown to bolster property values and make adjacent properties easier to sell. A 1998 study of property values along the Mountain Bay Trail in Brown County, Wisconsin, shows that lots adjacent to the trail sold faster and for an average of nine percent more than similar property not located next to the trail. (*Recreation Trails, Crime, and Property Values: Brown County's Mountain-Bay Trail and the Proposed Fox River Trail, Brown County Planning Commission, Green Bay, July 6, 1998*)
- A School of Public Health study showed that where more walking trails had been built, nearly 40% of people with access had used the trails and more than 55% of trail walkers had increased their amount of walking since they began using the trail. (*Public Walking Trails May Increase Community Fitness Levels, Center for the Advancement of Health, no date*)
- Studies show that a 5- to 10-mph reduction in traffic speeds can increase adjacent property values by roughly 20% (*Local Government Commission. The Economic Benefits of Walkable Communities (online at www.lgc.org - no date)*)
- About one-third of all Americans cannot or do not drive because they may be too young, too old, or unable to afford a car. (*1990 U.S. Census*)

The amount of facts that could be listed to support pedestrian improvements could go on indefinitely, but it is clear that a better pedestrian community creates a better community economically, aesthetically, socially, and health-wise. Current trends show that planning efforts to accommodate the automobile while ignoring the pedestrian has made our population less active than it ever was in history, and thus more prone to health problems. These trends need to be reversed. (*Comic source, Frazz, by Jef Mallett, 2006*)



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Benefits of Walking

Health Benefits

The health benefits of regular physical activity include the reduced risk of coronary heart disease, stroke, and other chronic diseases; lower health care costs; and improved quality of life for people of all ages. Regular exercise gives senior adults a stronger heart, a positive mental outlook and an increased chance of remaining independent longer. In fact, walking for a minimum of 30 minutes each day or about 12 miles each week is required to retain a healthy body, but 60% of Americans lead completely sedentary lifestyles and 40% are clinically overweight (*1998 Report of the American Medical Association*).

Transportation Benefits

Bicycling and walking can help to reduce roadway congestion. Gridlocked streets waste time and energy, cause excessive pollution, increase transportation costs, and result in driver frustration. Bicycling and walking require less space per traveler than automobiles, and roadway improvements to accommodate pedestrians and bicycles can actually enhance safety for motorists. A 1995 Rodale Press survey found that Americans want the opportunity to walk or bike instead of drive and 40% of U.S. adults say they would commute by bike if safe facilities were available.

Environmental Benefits

Reductions in air pollution (emissions and tire wear), water pollution (surface runoff, oil production, and disposal), noise pollution, landfill materials, litter, urban sprawl, and wildlife habitat fragmentation will be a result of each person who chooses to walk instead of drive. Sixty percent of the pollution created by automobile emissions happens in the first few minutes of operation, meaning that shorter car trips are more polluting on a per-mile basis than longer trips.

Economic Benefits

Direct driving costs include gasoline, insurance, taxes and registration, maintenance, accidents, fines, parking, tolls, and depreciation. In fact, the American family spends about one-fifth of its income on transportation expenses, second only to housing. There are indirect costs of driving that society subsidizes with tax dollars, product pricing, salaries, and housing costs including road infrastructure, environmental mitigation, parking, health costs, and work loss due to health, traffic or maintenance issues.

Walking could also stimulate the economy. Pedestrian malls attract customers that would typically miss the vendors' storefront advertisements and are more convenient for passers-by on foot to "hop in" for a quick purchase. Shopping is also likely to become a social or a tourist attraction in pedestrian areas, which could enhance sales for storeowners. In addition, the recent gas price increases showed that when people spend more money on gas, they spend less money on other things. (An ABC News Poll found that 45% of people in August of 2005 spent less on other things to pay for gas.)

Quality of Life Benefits

Walking relieves stress, creates better health, saves money, provides outdoor recreational opportunities, creates learning opportunities for children, gives citizens the freedom of independence, and provides countless other benefits that make life better. In addition, the acts



of removing vehicles from the roads or creating more areas where people are free to be away from automobiles make life less stressful. Several studies show that children who live near busy roads have higher blood pressure, faster heart beats, and higher levels of stress hormones due to the constant low level noise. (One source is a 2001 Cornell University study.)

1.2. PLANNING FOR PEDESTRIANS IN MOORESVILLE

Past Efforts and Recent Initiatives

The Town of Mooresville recently has been actively involved in several planning efforts containing elements related to pedestrian travel. The recent Downtown Mooresville Master Plan, Cascade Neighborhood Master Plan, Mount Mourne and South Iredell Master Plan, and Parks and Greenways Comprehensive Master Plan all include recommendations to enhance walking, and the current Comprehensive Transportation Plan will include findings from this pedestrian plan as a component of a study that encompasses all modes of transportation in Mooresville. Each of these plans will have a significant effect on the pedestrian environment in the area, and thus have a large effect on Mooresville's future.

Current Trends

This pedestrian plan represents Mooresville's first comprehensive study that focuses entirely on improving walking conditions. The Town is growing rapidly, and recognizes that if it wants to retain its charm, character, and quality of life, walking must be integrated into the fabric of the community. Pedestrian facility improvements must be made to realize the benefits of walking described earlier, and programs and policies must be in place to ensure that walking is a viable option for area residents in the years to come. The Town has made several recent additions to its sidewalk network; however, these improvements have been initiated as a result of citizen requests, and are not necessarily linked to other planning projects.

Local residents are becoming more actively involved in advocating for pedestrian and bicycle improvements, particularly with regard to safety concerns for walkers along busy streets in primarily residential areas. Residents of Mooresville understand that rapid growth is changing their town, and want to protect the safety of pedestrians as growth and development continue to occur. The citizens that have participated in this planning process have reacted favorably to the development of the Comprehensive Pedestrian Plan, and generally are excited about the prospects of improved conditions for walking. In time, the rising fuel prices will cause more citizens to demand alternatives to driving, and having a plan and the necessary infrastructure in place at that time will be a great value.

North Carolina Department of Transportation Bicycle and Pedestrian Planning Grant Initiative

In 2004, the Town of Mooresville was awarded a \$24,500 matching grant from the NCDOT Bicycle and Pedestrian Planning Grant Initiative to create a comprehensive pedestrian plan. This program encourages the development of comprehensive municipal bicycle and pedestrian plans. The Initiative stipulates that plans may be developed by consultants or by a combination



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of both municipal staff and consultants and a full time, permanent employee of the municipality must be assigned as project manager to oversee the plan development. URS Corporation, using staff primarily based in Charlotte was selected to develop the plan with Mooresville's Transportation Planner Chris Bauer acting as Project Manager for the Town. The requirements also call for a steering committee comprised of relevant local staff, regional planning staff, advocates and representatives of stakeholder groups to oversee development of the plan. As NCDOT's Program Manager, David Bender of NCDOT was actively involved with the process of this plan's completion.

Scope and Purpose of Plan

The scope of this pedestrian plan is to provide a comprehensive assessment, including identifying pedestrian needs and deficiencies, examining optional improvements, and prioritizing implementation strategies with viable funding sources. The Plan also examines existing conditions, identifies pedestrian route networks, conducts needs assessments, identifies design elements, and develops a strategic implementation plan.

The study area includes the entirety of Mooresville's planning jurisdiction, including all areas within the Town limits as well as adjacent areas such as Mt. Mourne and the Morrison Plantation / Brawley School Road area. A map of the study area is shown in Exhibit 1-1.

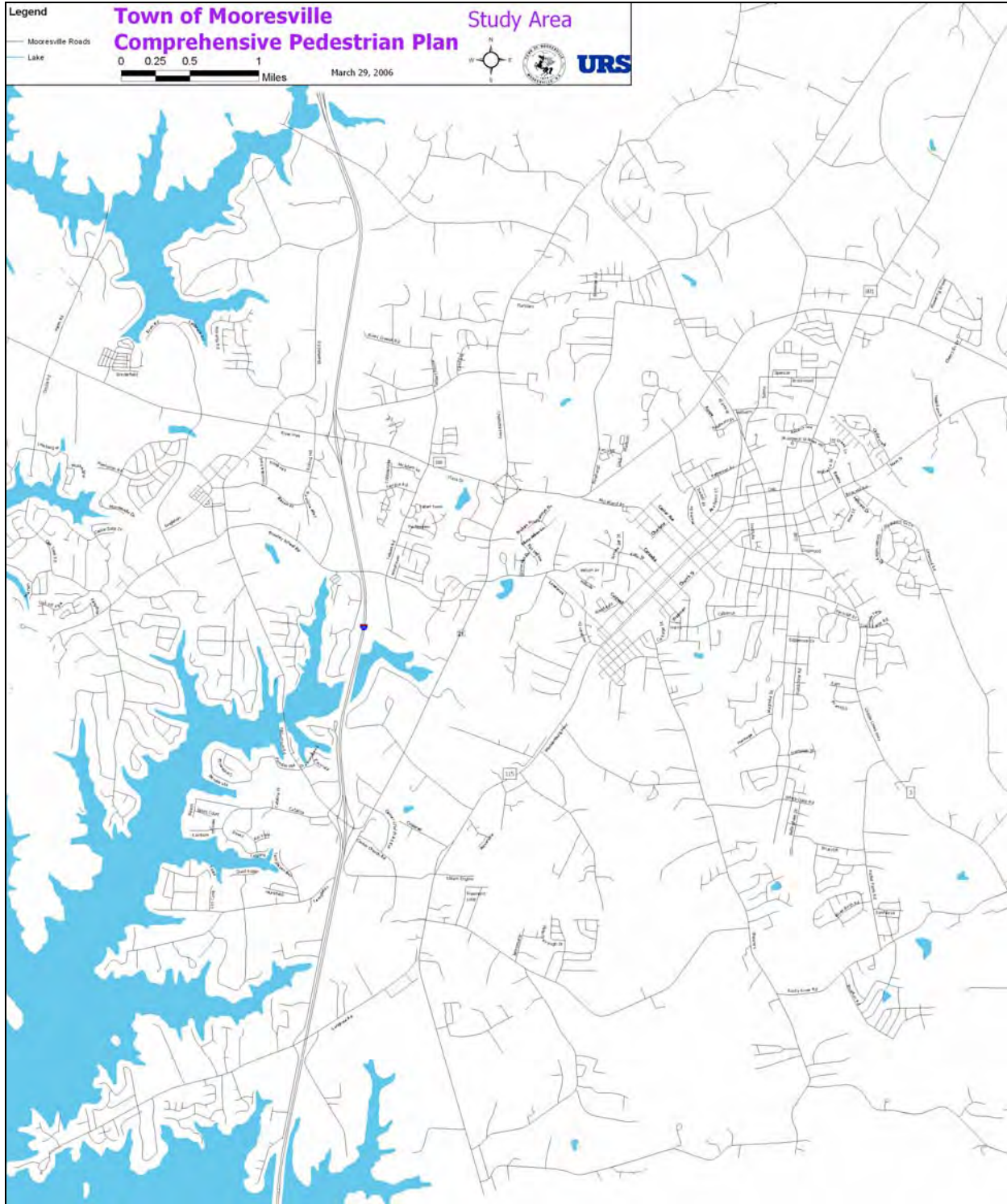
The development of this plan was guided by a steering committee comprised of Town staff and local stakeholders, including representatives of the following organizations:

- Mooresville Planning staff;
- Mooresville Planning Board;
- Mooresville Engineering staff;
- Town of Mooresville Board of Commissioners;
- Mooresville Police Department;
- Mooresville Graded School District;
- Mooresville Parks and Recreation Department;
- Mooresville Public Works Department;
- Mooresville – South Iredell Chamber of Commerce: Transportation Infrastructure and Air Quality Group;
- Iredell County Transportation Advisory Board;
- Centralina Council of Governments;
- North Carolina Department of Transportation; and
- Local citizens.

The Steering Committee met four times through the planning process to review interim material and offer guidance on study direction and efforts. As discussed later in this document, it is recommended that the Steering Committee or a similar appointed committee continue to be active after the conclusion of this study as an advisory committee to monitor implementation of the Plan and to advocate for additional pedestrian improvements.



Exhibit 1-1: Study Area





1.3. GOALS OF PEDESTRIAN PLAN

To guide the development of the Plan itself, a series of goals was defined. Goals provide the framework for the entire study, and are needed to ensure that the Plan's recommendations address the true needs of the Town. These goals illustrate the most important pedestrian principles to local stakeholders, based on input received from the Steering Committee and at the first public forum (discussed later in this report). The goals developed for this plan were also used as a basis for the project prioritization criteria (also described later in this report).

Defining the goals at the beginning of the project ensures that the recommendations are tailored to the needs of the Town, and linking the project prioritization criteria to the goals provides a mechanism for ensuring that the most beneficial projects are ranked highly for implementation. The following six goals were defined, based on stakeholder input:

1. *Connect important destinations with sidewalks, greenways, and other pedestrian routes so that walking is a viable transportation option.*
2. *Support a comprehensive multi-modal transportation management program that fits into current and future land use plans.*
3. *Improve safety and accessibility for pedestrians with a special concern for the disabled, elderly, children, and low income residents.*
4. *Improve environmental conditions and health by reducing pollution and by increasing physical activity.*
5. *Promote livable communities by creating new opportunities for social interactions and by reducing stress inducers.*
6. *Educate the community on the wide-ranging benefits of pedestrian travel.*

Improvements that address these goals will make Mooresville a better community for pedestrians.



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2.1. OVERVIEW OF CURRENT CONDITIONS

Mooresville has an opportunity. Although the Town is growing and changing quickly, it has the opportunity to act before its remaining tracts of land are developed, before the Town's character is forever changed by pressures to accommodate growing numbers of automobiles on widened streets, and before the automobile becomes the only practical form of transportation available to its residents. Mooresville can act now to acquire new lands and easements, something that larger cities wished they did years ago. Mooresville can act now to create transit- and pedestrian-friendly developments that will provide vital support to future transit services. Mooresville can act now to reduce its citizens' future health problems and their associated costs and Mooresville can act now to make the Town a place that people will always like to live and to visit. Mooresville cannot afford to look back a decade from now and wish that they had acted sooner. The time has come to encourage the Town to walk.



Mooresville has a functioning historical town center complete with a hardware store, clothing stores, bakery, a bicycle shop, a library, a community center, public park space, schools, and nearby housing. As the Town has grown and become more suburban in character, the location of I-77, housing developments closer to the lake, land use policies and land costs have stretched the core of Mooresville outward. Every effort must be made to revitalize and continue to develop the inner core of Mooresville's historical downtown. A downtown is the most pedestrian accessible region of a city because the

blocks are small, the sidewalks are accommodating, the distances are short, vendors are numerous, and the conveniences are huge. Dense development is typically associated with limited parking as well, which in turn encourages people to walk.

Other regions of the Town outside of downtown need to be more densely developed as well, to encourage greater levels of pedestrian travel. Morrison Plantation adjoins the automobile-oriented intersection of Brawley School and Williamson Roads, and Mt. Mourne could be potentially served by commuter rail and is an emerging employment center. Extensive efforts need to be made to develop these areas in a sustainable, pedestrian-friendly manner to help manage growth pressures on the thoroughfares that connect them.

2.2. COMMUNITY CONCERNS, ISSUES, AND NEEDS

The determination of community concerns, issues, and needs is paramount to a successful pedestrian plan. The issues described in the following pages were used as the framework to develop strategies and recommendations to improve the walking environment in and around Mooresville. Specific recommendations resulting from these efforts are described in subsequent sections.



Public Forums

A total of two public forums were held over the course of this project. The first forum was intended to introduce the project, present background information, and seek input from the community regarding pedestrian needs and issues. A second forum was held later in the study to present draft recommendations, based on an assessment of needs through mechanisms including public and stakeholder input, a review of relevant plans and projects, and policies, and field reconnaissance.



The first public forum for the Mooresville Comprehensive Pedestrian Plan was held on September 13, 2005 at the Charles Mack Citizen Center. The meeting was held in an open house format from 5:00 P.M. to 7:30 P.M.

The second public forum was held on February 21, 2006 at the Charles Mack Citizen Center. The meeting was held from 5:00 PM to 7:30 PM. An “open house” was held between 5:00 PM and 6:00 PM, followed by a 30-minute presentation on the highlights of the plan. The presentation summarized the highlights of the draft plan, including the following elements:

- Purpose of Pedestrian Plan / Benefits of Walking;
- Pedestrian Plan Goals;
- Existing Pedestrian Conditions and Policies;
- Summary of Public Input;
- Deficiencies in Pedestrian Network;
- Development Patterns and Walkability;
- Types of Pedestrian Projects;
- Overall Recommendations;
- Summary of Projects;
- Policy and Program Recommendations;
- Funding Sources;
- Implementation Process; and
- Next Steps.

The participants were invited to comment on the highlights of the draft plan, to ensure that public feedback is fully incorporated into the findings and recommendations. A question-and-answer session followed the formal presentation. Additional details regarding the advertising, conduct, and findings of these public forums are included as **Appendix A**.

Steering Committee

A Steering Committee was formed to help guide the development of this Pedestrian Plan. This committee, which met four times over the course of the study, provided insight and ideas that were incorporated into the planning process. Minutes from the Steering Committee meetings are included as **Appendix B**.



Media Contacts

The local reporter for the Charlotte Observer participated in several Steering Committee meetings, and wrote an article prior to the first public forum describing the goals of the planning process. This article was beneficial in informing the public about the Plan itself, and provided publicity for the Public Forum. This article was published in the August 25, 2005 edition of *The Charlotte Observer (Neighbors of Lake Norman section)*. A second article was published in the Tuesday, February 21, 2006 edition of *The Charlotte Observer (Neighbors of Lake Norman section)*. This article, published just prior to the second public forum, summarized the purpose of the plan and served to inform readers about the second public forum. These two articles are included as **Appendix C**.

Staff and Agency Concerns and Issues

Representatives from local agencies including the Mooresville Planning, Engineering, Parks and Recreation, Public Works, and the Police Departments, as well as the Mooresville Graded School District participated in the Steering Committee for this planning process.

The minutes from the Steering Committee meetings, contained in Appendix B, describe the input and feedback received from these stakeholders. In general, the stakeholders agree that pedestrian improvements should be focused on areas of greatest need, including low-income areas in which many residents may not have means of transportation other than walking. Another point of emphasis should be pedestrian connections to the planned commuter rail stations in Mooresville and Mount Mourne.

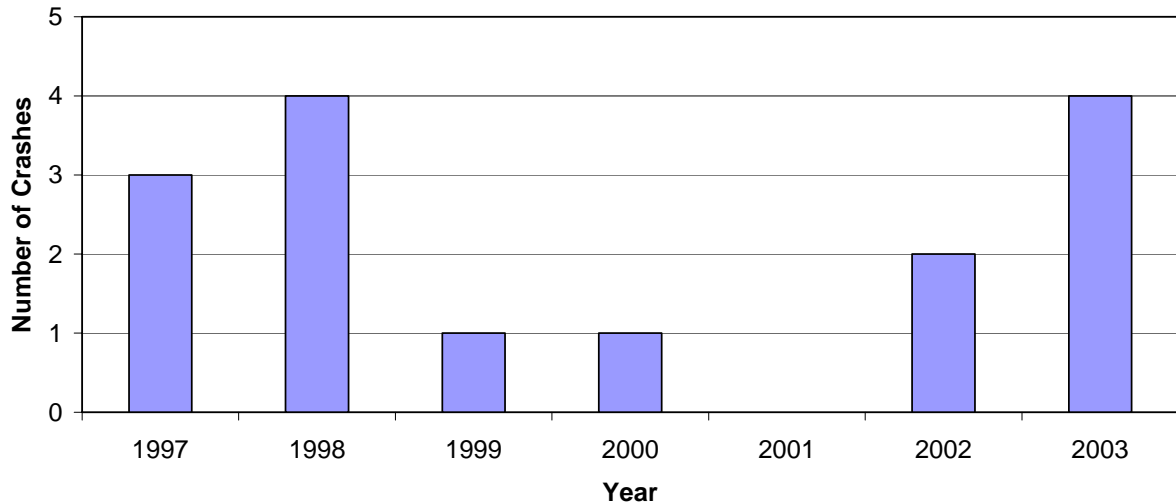
Planning staff emphasized the need for a pedestrian plan that is realistic, implementable, and provides a prioritized list of projects and strategies that can be used to enhance the walkability of the Town. The Town of Mooresville has implemented several sidewalk projects in recent years, but this document should provide a framework for further improvements.

Pedestrian Crash Data

Recent pedestrian crash data for Mooresville were analyzed using NCDOT's web-based pedestrian crash database (http://www.ncdot.org/transit/bicycle/safety/safety_crashdata.html) to determine safety trends and identify specific areas of concern with regard to motorist / pedestrian incidents. Using this database, a total of 15 pedestrian crashes was reported between 1997 and 2003 in Mooresville (more recent data were not available). The distribution by year of these incidents is illustrated in Exhibit 2-1. Over the past seven years for which data are available, the number of pedestrian crashes per year has varied between zero and four.



EXHIBIT 2-1: Total Pedestrian Crashes by Year



Crash data were further analyzed to determine specific characteristics of the reported incidents, including aspects related to the incident location, injuries resulting from the crashes, and the circumstances of the crashes. These attributes are illustrated in the following charts.

Exhibit 2-2 identifies the road features associated with each of the reported incidents. Five of the crashes were reported at a location that had “no special feature”; however, eight crashes occurred at a definite point of conflict between vehicles and pedestrians (driveways and four-way intersections). These numbers illustrate a need for increased awareness of pedestrians at potential conflict points.

EXHIBIT 2-2: Road Features (Pedestrian Crashes 1997-2003)

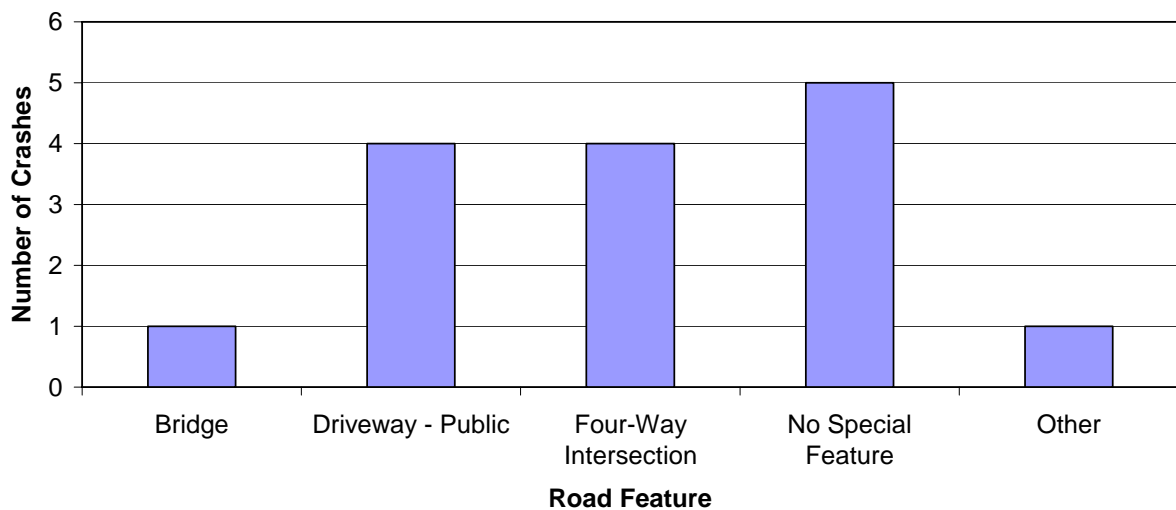
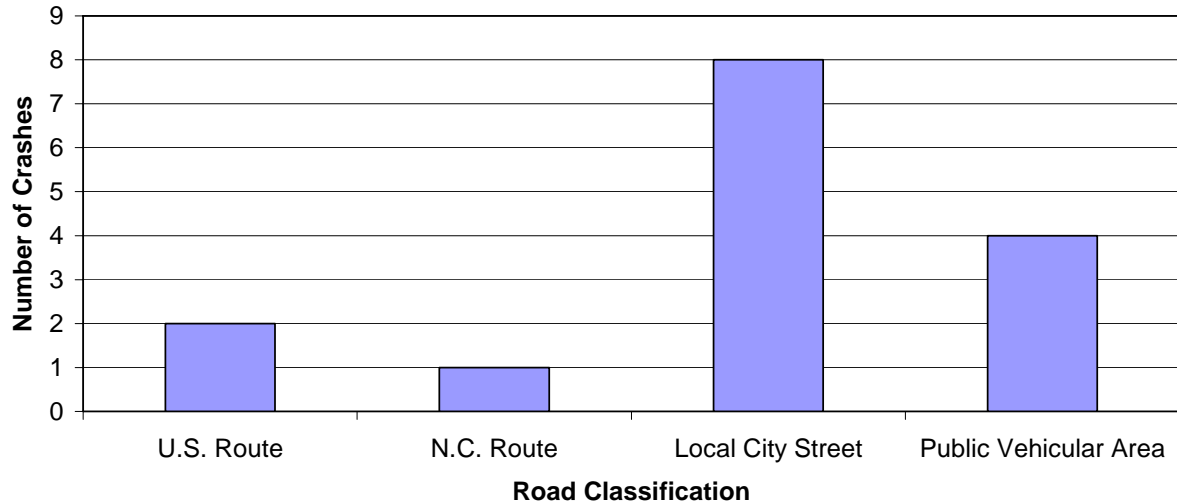




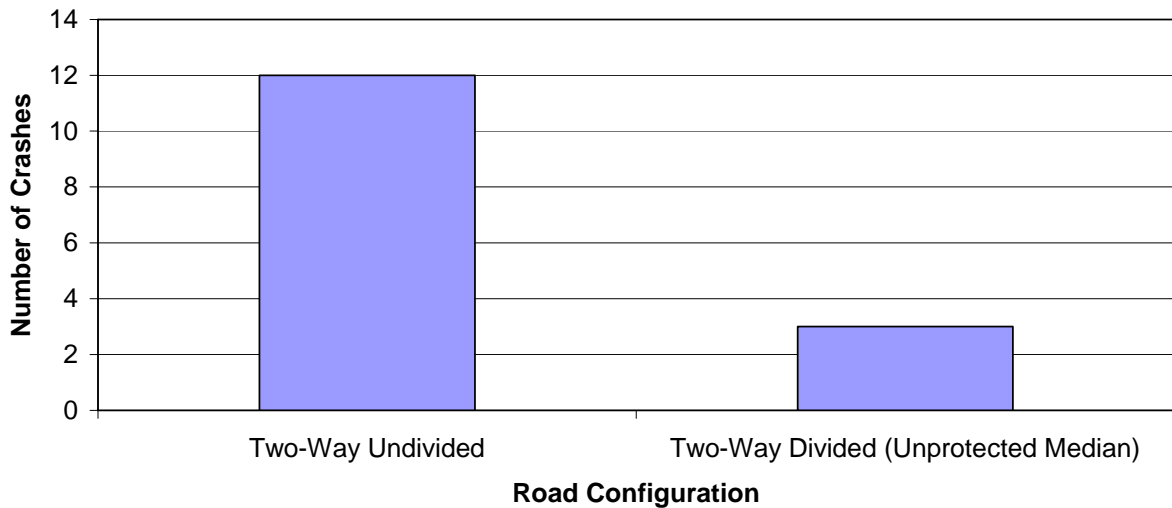
Exhibit 2-3 shows that most pedestrian crashes occurred on local city streets or in public vehicular areas (e.g. parking lots). These statistics are logical because these two areas represent places in which more pedestrians typically can be found. U.S. routes and N.C. routes typically have fewer pedestrians due to the higher-speed nature of the roadways. However, safety is of paramount importance in all areas, including parking lots.

EXHIBIT 2-3: Road Classification (Pedestrian Crashes 1997-2003)



Most roadways in Mooresville do not have a median; therefore, it is logical that most crashes occurred on two-way undivided sections of roadway, as shown in Exhibit 2-4.

EXHIBIT 2-4: Road Configuration (Pedestrian Crashes 1997-2003)





The severity of pedestrian injuries associated with reported incidents between 1997 and 2003 is illustrated in Exhibit 2-5. One pedestrian was killed, while five others had a severe, “disabling” injury.

EXHIBIT 2-5: Pedestrian Injuries (Pedestrian Crashes 1997-2003)

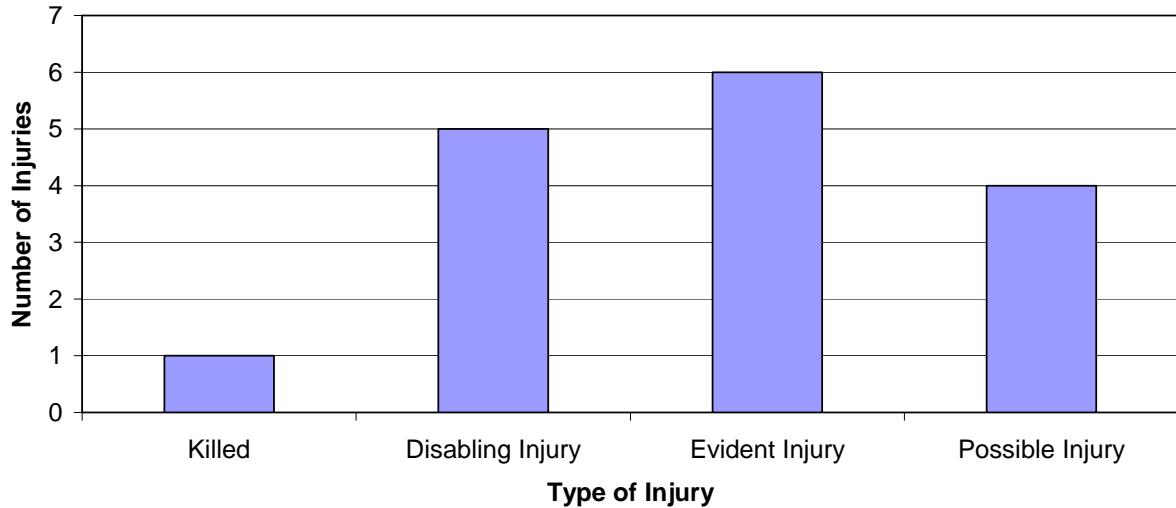
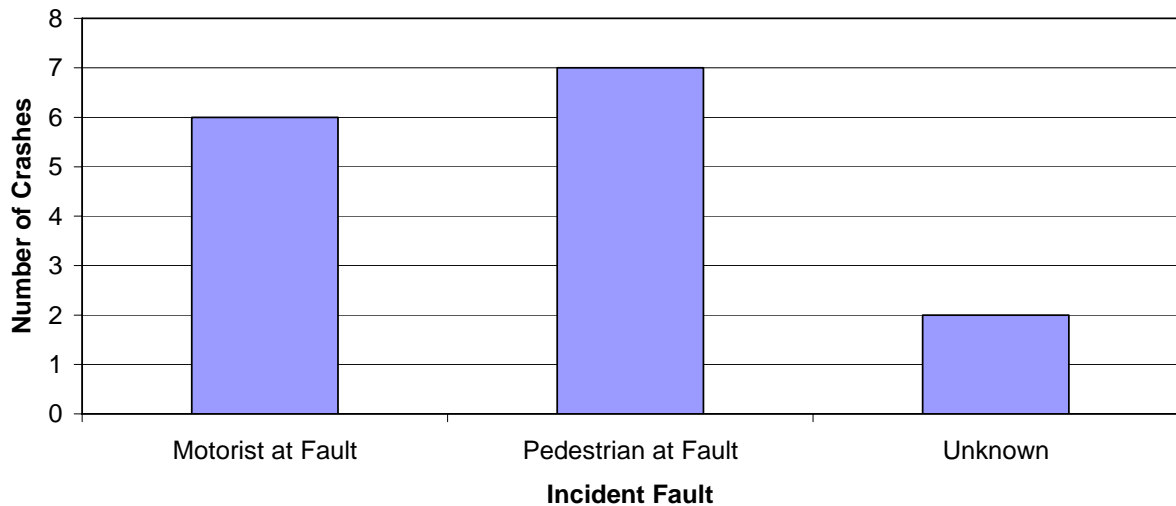


Exhibit 2-6 displays the incident fault for recently-reported crashes. In seven cases, the pedestrian was at fault, while the motorist was at fault in six other cases. These data demonstrate the need to develop safety programs that are oriented to both motorists and pedestrians. It is important to educate motorists on the rights of pedestrians; however, it is just as important to educate pedestrians on the rules of the road and safe walking practices.

EXHIBIT 2-6: Incident Fault (Pedestrian Crashes 1997-2003)





The time-of-day of recently-reported pedestrian crashes is illustrated in Exhibit 2-7. The highest number of crashes (six) occurred in the evening hours, when it is becoming dark and more difficult to see pedestrians. These data imply a need for strategies to increase awareness of pedestrians in periods of reduced visibility. However, crashes occurred throughout the day, including midday hours when automobile and pedestrian volumes are higher.

EXHIBIT 2-7: Time-of-Day of Incidents (Pedestrian Crashes 1997-2003)

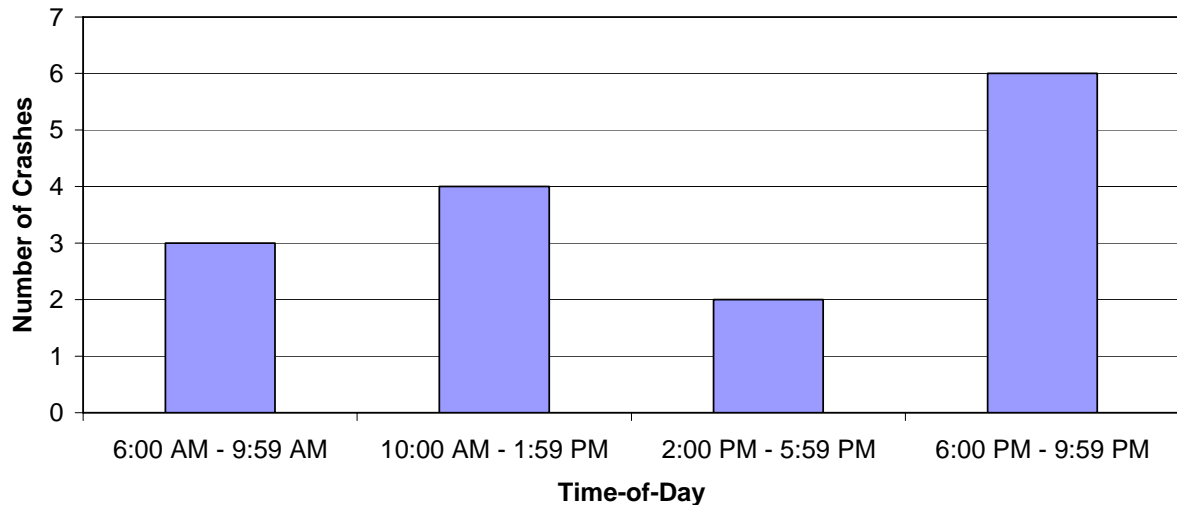
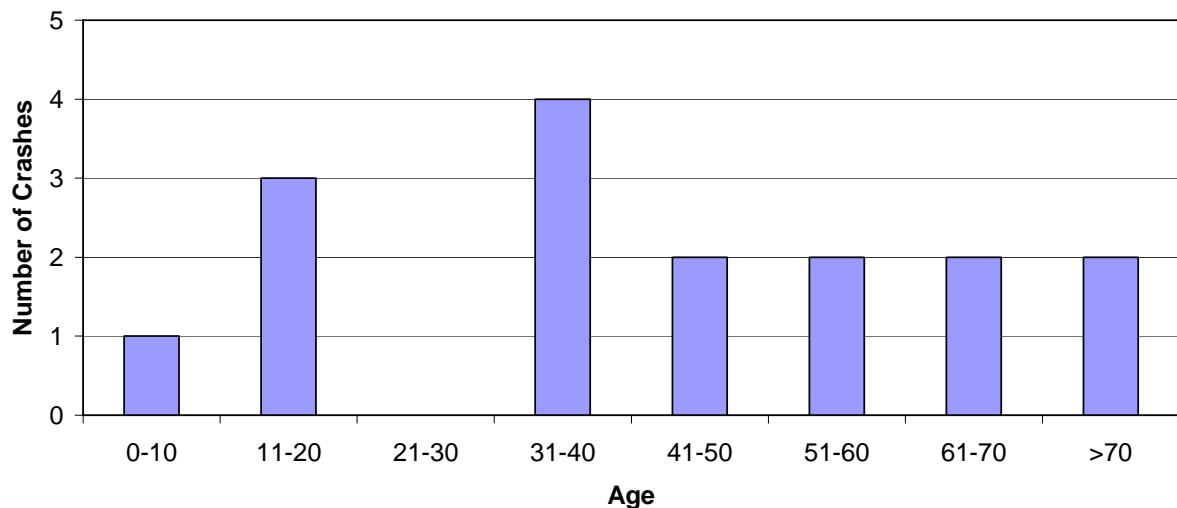


Exhibit 2-8 shows the age of pedestrians involved in the crashes. People of all ages are pedestrians at some point, and as illustrated in the chart, pedestrians of all ages can be involved in incidents. Four crashes occurred among pedestrian of age 31-40, but there are no strong trends regarding age groups that are more heavily involved in accidents than others.

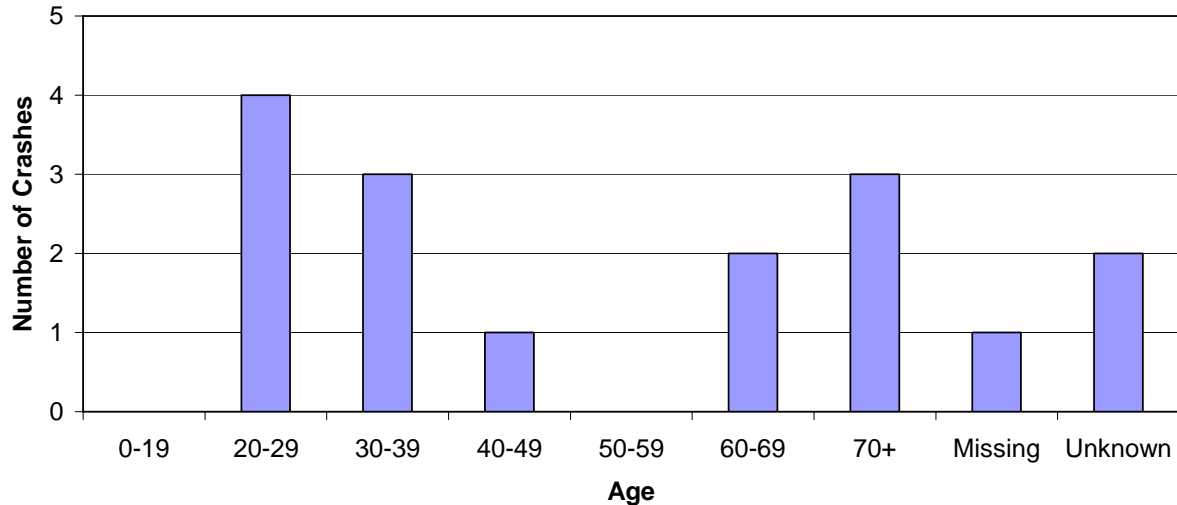
EXHIBIT 2-8: Age of Pedestrian in Crash (Pedestrian Crashes 1997-2003)





Although there are no strong trends in the age of pedestrians involved in crashes, the motorists involved in pedestrian crashes tended to be young and elderly drivers. Seven of the motorists involved were between ages 20 and 39, while five motorists were age 60 or older. Only one motorist between ages 40 and 59 was involved in a pedestrian crash. These data help support a need for pedestrian awareness programs aimed at younger and older drivers.

EXHIBIT 2-9: Age of Motorist in Crash (Pedestrian Crashes 1997-2003)



2.3. EXISTING PEDESTRIAN FACILITIES

Pedestrian Friendliness of Local Transportation System

Although Mooresville has a fairly well-developed sidewalk network in the downtown area and some surrounding neighborhoods, additional pedestrian system elements such as crosswalks and pedestrian crossing signals are extremely limited. Special signage and treatments are used to identify crosswalks in a few areas with high levels of walking (e.g. mid-block crosswalks on Main Street and on Magnolia Avenue), but intersection treatments for pedestrians are rare. Many older residential areas have no pedestrian facilities at all. Most roadway bridges were designed to accommodate automobile travel only, which creates unique connectivity challenges.



There appears to be higher levels of walking in neighborhoods where sidewalks are present (especially newer subdivisions with sidewalks on both sides of the street); however, most of this pedestrian activity is recreational in nature and is confined to the specific neighborhood where sidewalks are present. Opportunities for longer-distance walking (i.e. between neighborhoods or to nearby commercial districts) are limited, because there are few main thoroughfares with sidewalks extending for longer



distances. When such pedestrian activity occurs, walkers are forced to walk in the road or in potentially unsafe areas (e.g. ditches, overgrown areas) adjacent to the roadway.

Mooresville has the opportunity to make significant positive enhancements for pedestrians. A growing community awareness of the need for safe and effective pedestrian infrastructure is establishing a climate for improvements, as illustrated by the Town's desire to develop a comprehensive pedestrian plan. Furthermore, additional growth and new transportation options such as the proposed commuter rail line between Mooresville and Charlotte will require significant provisions for pedestrian access to the rail stations. These opportunities will help Mooresville increase its level of "pedestrian friendliness".

Inventory of Existing Facilities

An inventory of existing sidewalks was developed as part of the field review for the development of this plan. Current sidewalks are delineated in Exhibit 2-10. As illustrated in the exhibit, Mooresville's sidewalk network is fairly well-developed in the older downtown area, with sidewalks present along most downtown streets. However, many of the neighborhoods surrounding downtown, as well as those developed in the 1960s, 70s, and 80s, have limited sidewalk provisions. An example is the limited sidewalk infrastructure in the neighborhoods surrounding Magnolia Street and Fieldstone Road. Newer subdivisions have a well-developed sidewalk system, as a result of changes to the subdivision ordinances in recent years that require the construction of sidewalks in new subdivisions.



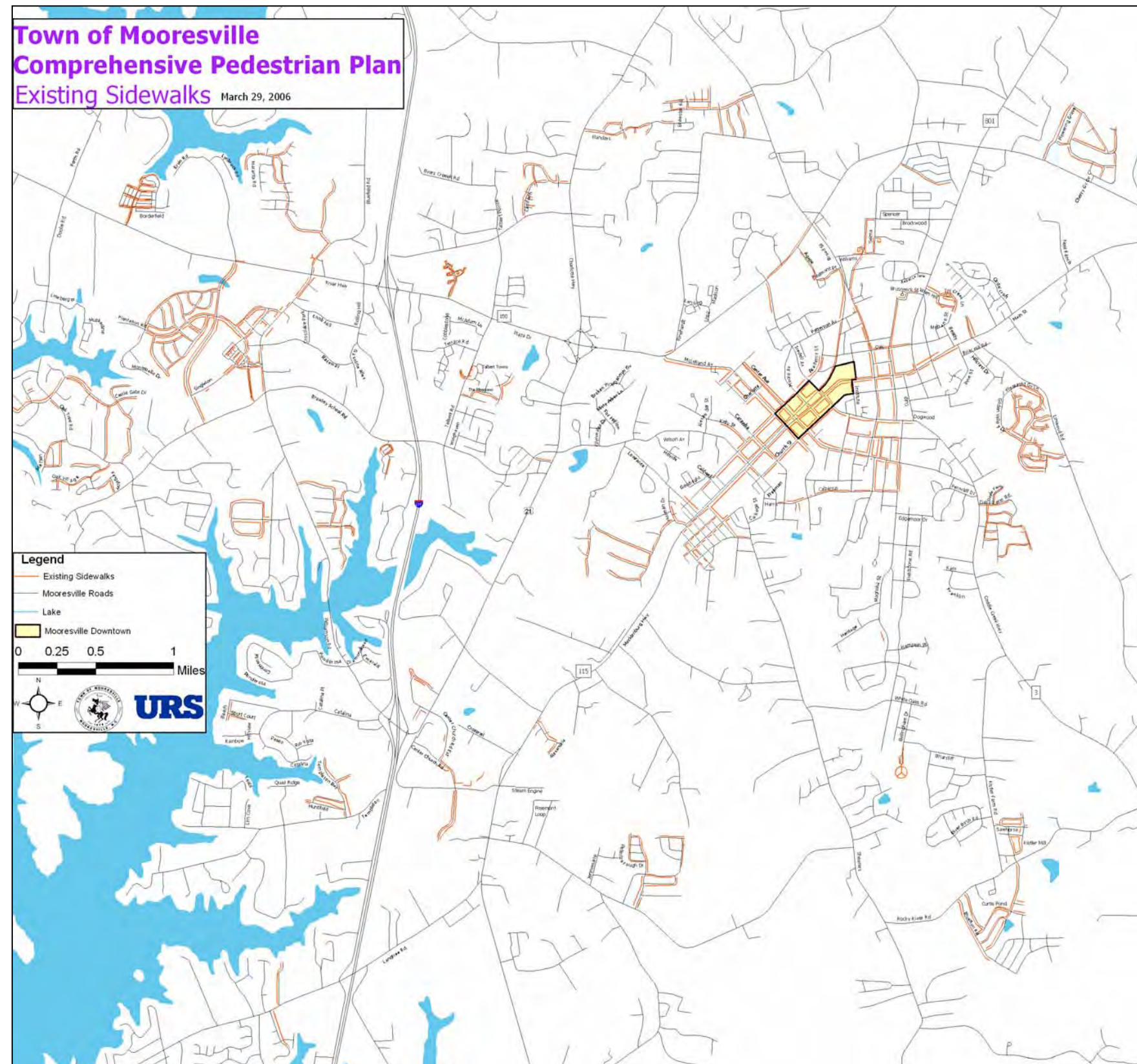
Most new sidewalks are in good condition; however, some of the older sidewalks in the downtown area are in need of repair. Crosswalks and curb cuts are in place at a limited number of major intersections, and there are also several mid-block crosswalks in the Town (e.g. downtown on Main Street and on Magnolia Street between Mooresville Senior High School and Mooresville Middle School).

The center of the study area has a number of well-developed and well-utilized parks, but there are no greenways in the Town. A Greenway Plan was developed fairly recently, and opportunities have been identified for providing pedestrian and bicycle connections along creek corridors in and around the Town.



Exhibit 2-10 shows the current location of the sidewalks in the study area.

Exhibit 2-10: Existing Sidewalks





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Identification of Deficiencies

Although Mooresville has made great strides toward improving the pedestrian environment as the Town continues to grow, several key deficiencies are apparent, and a number of barriers increase the challenge associated with providing effective pedestrian facilities. These deficiencies are categorized as follows:

- Natural barriers;
- Man-made barriers;
- Safety hazards; and
- Gaps in system.

Natural Barriers

The most significant natural barrier in the area is Lake Norman. Although primarily located on the fringe of the study area, the lake forms a barrier that divides potential origins and destinations of pedestrian trips. For example, the bridge on Williamson Road between I-77 and Brawley School Road is narrow and has no room for a sidewalk. Unfortunately, there are no other opportunities for pedestrian connections between areas on opposite sides of this portion of Lake Norman. The lake also forms a barrier between neighborhoods off of Brawley School Rd. and destinations along NC 150. West of Morrison Plantation, there are no additional opportunities for pedestrian connections.

Man-Made Barriers

Several man-made barriers impact walkability in the Mooresville area, the most significant of which is I-77. Not only is I-77 a formidable physical barrier, but the Interstate is also a psychological barrier between “old” Mooresville on the east side of the freeway, and “new” Mooresville on the west side. There are few roadway crossings of I-77, none of which are pedestrian-friendly. NC 150 is extremely hazardous to pedestrians. Even in areas with sidewalks, the development patterns, numerous driveways, and high traffic volumes along this corridor make walking a perilous task. South of NC 150, Brawley School Road currently has no sidewalks. There are plans to widen Brawley School Road including provisions for sidewalks, but care must be taken to provide effective pedestrian connections after the new I-77 interchange at Brawley School Road is completed. A greenway connection following Byers Creek was identified as a possible connection between the east and west sides of I-77, and is discussed later in this plan.



The development patterns around NC 150 and Williamson Road also create a barrier to safe, effective pedestrian connections. Significant commercial development has occurred in these areas in recent years, and most construction has been almost entirely oriented to automobile access. Neighborhoods with cul-de-sacs limit connectivity, and commercial development backs to residential areas, but restrict pedestrian access. Large parking lots and setbacks and limited connectivity severely reduce the opportunities for walking to and from these destinations. As additional development occurs, site planning should include provisions to make the infrastructure and building access more pedestrian friendly.

The railroad tracks in downtown Mooresville create a unique barrier. Because of the extremely limited rail traffic, the tracks are not a major barrier at this point; however, with the possible



initiation of commuter rail service from Charlotte to Mooresville, the railroad tracks may become much more heavily used and the station areas may become major pedestrian destinations. New pedestrian infrastructure will be needed to provide these important connections. The changes needed to provide for the proposed rail service might be an opportunity to make certain that the crossings are free of trip hazards and gaps.

Safety Hazards

Although the Mooresville area has many key sidewalk connections in place, the lack of sidewalks in specific areas is a significant safety hazard. For example, the Mill Village neighborhood in the area of West Wilson Avenue has notable pedestrian traffic, but very few sidewalks. Many of the low-income residents in these areas walk regularly, but are forced to walk in the street because there are no pedestrian facilities.

Many potential pedestrian destinations are located along NC 150 near the I-77 interchange, but heavy traffic volumes and frequent curb cuts result in safety hazards for pedestrians. While options to improve these conditions are limited, the Town should take steps to ensure that future commercial development provides more pedestrian-friendly infrastructure.

Gaps in System

As mentioned above, gaps in the existing sidewalk network present a safety hazard for pedestrians walking in these areas. Furthermore, these gaps discourage walking in these areas for anyone other than those who must walk. A key focus area for pedestrian facility recommendations as part of this study is to identify these critical gaps in the system. Gaps are evident in areas such as the following:

- Small areas in and around downtown;
- Wilson Avenue and adjoining neighborhoods;
- Areas surrounding schools (Mooresville and Iredell County schools);
- W. Iredell Avenue and adjoining neighborhoods; and
- Major thoroughfares west of I-77.



2.4. CURRENT USAGE

No formal pedestrian counts have been conducted in Mooresville; however, the “walkability checklist” discussed in Appendix A and anecdotal evidence indicates that there is a growing concern for pedestrian safety. During the field investigations for this project, a moderate number of pedestrians were observed. Most pedestrian traffic occurs around the downtown area and in other areas (such as newer subdivisions) that have a well-developed sidewalk network. However, a significant number of pedestrians walk in areas without an extensive sidewalk network, such as neighborhoods in the W. Iredell Avenue and Wilson Avenue area. According to the 2000 U.S. Census, 9,050 workers age 16 and over live in Mooresville. Of these workers, 66 (0.7%) reported that they walk to work. The national average of workers who walk to work is 2.9%.



3.1. REVIEW OF RELEVANT PLANS

Several recent, relevant plans have been prepared that include findings that can be incorporated into this pedestrian plan. Projects recommended in these other efforts have been integrated as recommendations in this pedestrian plan, and the inclusion of projects in other relevant plans is considered in the prioritization of projects specified in this pedestrian plan. Highlights of these relevant planning projects are presented below.

Bicycle Plans

Mooresville has not conducted a Comprehensive Bicycle Plan, but the Town has received NCDOT funding in 2006 to conduct such a plan. Although this pedestrian plan will not address bicycle facilities and programs in detail, the pedestrian plan recommendations will be designed in a way to not preclude bicycle improvements as well.

The Centralina Council of Governments is leading the planning efforts for an on- and off-road bicycle route around Lake Norman. The bicycle route will utilize low-volume roads, improve higher-volume roads through techniques such as adding / expanding paved shoulders, and provide off-road connections where necessary to create a 150-mile bicycle loop around Lake Norman. Potential connections into the downtown Mooresville area are also being studied, which could tie into proposed pedestrian improvements as part of this Comprehensive Pedestrian Plan.

Pedestrian Plans

No other pedestrian plans have been developed in recent years in the Mooresville area, although pedestrian elements are included in other recent planning efforts that are described in this section.

Greenway Plans

Although Mooresville does not have any developed greenways, the Town completed a *Parks and Greenways Master Plan Through the Year 2010* several years ago. This planning effort identified several potential greenways, but did not focus on providing implementation details. The greenways identified in the *Parks and Greenways Master Plan* are incorporated into the recommendations for this pedestrian plan, and are illustrated in the project maps later in this document. Several additional opportunities for potential greenways are also identified as part of this pedestrian plan.

Comprehensive Plans

Mooresville is currently conducting a Comprehensive Land Use Plan. The land use strategies addressed in the plan will likely include discussions of pedestrian-friendly land development patterns and action items to encourage new developments to be pedestrian-friendly.



Transportation Plans

A Comprehensive Transportation Plan for Mooresville is also currently under development, examining all modes of transportation in the area. This pedestrian plan will ultimately serve as an input to the Comprehensive Transportation Plan. In addition, the Comprehensive Transportation Plan will discuss the role of pedestrian and bicycle transportation as part of a complete multimodal transportation network.

Mooresville completed a *Thoroughfare Plan* in 1997. This plan outlined proposed locations for new major and minor thoroughfares and interchanges, including new east-west and north-south connectors in the Mount Mourne area and new I-77 interchanges at Langtree Road and Brawley School Road. Several of the projects identified in the thoroughfare plan have been advanced to more detailed stages of planning. However, the thoroughfare plan addressed roadways only, and did not identify pedestrian enhancements associated with the proposed roadways.

Roadway Project Plans

Several roadway projects in the Mooresville area are currently being designed. As these plans are advanced, appropriate pedestrian accommodations should be incorporated into the plans to enhance walking opportunities in these developing areas. On-going roadway design projects that should account for pedestrian travel include the following:

- New interchange at I-77 and Langtree Road;
- New interchange at I-77 and Brawley School Road;
- I-77 overpass at Alcove Road and Fairview Road;
- North-South and East-West Connectors in the Mount Mourne area; and
- Widening of Brawley School Road.

The widening of Brawley School Road (from Talbert Road to Chuckwood Road) is proposed to have wide outside lanes to increase accommodations for bicyclists. In addition, sidewalks are currently proposed on this road within the Town limits with a local match participation. The North Carolina Department of Transportation (NCDOT) will construct these sidewalks if local entities will maintain them. In the above-referenced segment, the Town of Mooresville will maintain the sidewalks. West of Oak Tree Road (outside the Mooresville town limits), NCDOT may also include sidewalks in the design plans, but because Iredell County does not maintain any roadways, the Town of Mooresville is exploring an interlocal agreement with Iredell County to enable Town of Mooresville staff to maintain any proposed sidewalks.

Small-Area Plans

In recent years, several small area land use plans and master plans have been developed for specific areas within the Mooresville region. Currently, the *Mount Mourne and South Iredell Master Plan* is being developed. This plan utilized public and stakeholder input to create a framework for development in the rapidly-growing Mount Mourne area. The transportation elements of this plan focused primarily on street connections and circulation; however, several of the recommendations included provisions for increased pedestrian and bicycle



accommodations, including a recommendation to “require new developments to have an internal roadway network that encourages pedestrian and bicycle trips within the neighborhood” (page 28).

In addition, the plan proposes a greenway to be constructed within new residential neighborhoods east of NC 115. A similar facility is proposed to provide pedestrian connectivity as part of this pedestrian plan. A developer has completed a master plan for a large tract east of NC 115 in the area of the proposed greenway. This developer is amenable to open space as part of the development, and may be receptive to the inclusion of a greenway on the property.

The *Cascade Neighborhood Master Plan* was published in March 2003. This planning process defined specific strategies to redevelop the historic Cascade mill village located just north of Mooresville’s downtown. One of the ten specific recommendations is to “increase the street and sidewalk network within the neighborhood to allow for connections and appropriate infill development” (page 5). Additional sidewalks are proposed along existing streets, and proposed street connections also include new sidewalks. Furthermore, potential greenways are identified to connect to adjoining neighborhoods. These concepts are reflected in the projects recommended as part of this pedestrian plan.

The Town is currently reviewing and updating their zoning ordinance. This pedestrian plan should be taking into account during this process.

Capital Improvement Plans

The *Downtown Mooresville Master Plan* was completed in 2000, and places a strong emphasis on increasing the pedestrian friendliness of downtown Mooresville. The Master Plan proposes widened sidewalks along downtown streets, noting that the width of sidewalks on Main Street can be increased by moving the curb line out, while still accommodating parallel parking. The plan also specifically mentioned the need for a wide pedestrian connection along Iredell Avenue from Main Street to Broad Street (page 10), and also recommends the construction of a greenway through Liberty Park to neighborhoods south of downtown (page 11). These connections are also proposed in this pedestrian plan.

3.2. CURRENT PROJECTS AND INITIATIVES

Construction Projects

Three sidewalk projects will be constructed by the Town of Mooresville in 2006:

1. Sidewalk on NC 150 (north side of street) between Rhinehardt Road and Iredell Avenue;
2. Sidewalk along Magnolia Avenue connecting Mooresville Senior High School and Mooresville Middle School (between Center Street and Edgemoor Avenue); and
3. Sidewalk on Oak Street (north side of street) between Park Avenue and Stewart Avenue (near Park View Elementary School).



These projects were identified based on needs expressed by residents and pedestrians in these areas. The projects have been funded through the Congestion Mitigation and Air Quality program using 80% Federal funds. The 20% local match is being expended from the Town's FY 2007 budget.

Programs and Initiatives

No formal pedestrian safety and/or encouragement programs have been implemented in the Mooresville area to date. As the Town continues to grow, the establishment of such programs will play an important role in increasing the level of pedestrian activity. Safety and encouragement programs can be oriented to all segments of the population, and suggested initiatives are described in Section 6 of this document.

3.3. EXISTING POLICIES AND INSTITUTIONAL FRAMEWORK

Existing Funding Sources

As stated above, the local match for Mooresville's recent sidewalk projects is included in the Town's departmental budgets. There is currently no dedicated funding source for pedestrian projects.

Existing Local Ordinances

Subdivision Ordinance

The primary local ordinance guiding sidewalk additions is the Town's subdivision ordinance, last revised in May 2002. This ordinance applies to all new subdivisions within Mooresville's planning jurisdiction. The subdivision ordinance includes the following provision for sidewalks in all new subdivisions:



“Wherever possible, sidewalks shall provide a continuous pedestrian network. Sidewalks shall comply with the Americans with Disabilities Act. Sidewalks shall be constructed along both sides of all residential streets except alleys and lanes. Cul-de-sacs and closes shall be reviewed on a site by site basis for this requirement.” (Town of Mooresville Subdivision Ordinance, Article 405.10)

Furthermore the subdivision ordinance states that where new sidewalks are constructed, a planting strip with a minimum width of six feet must be provided between the curb and the sidewalk. The sidewalk itself must be a minimum of five feet in width.



The subdivision ordinance also mandates the improvement of wheelchair ramps at intersections:

“In accordance with Chapter 136, Article 2A, Section 136-44.14, all street curbs in North Carolina being constructed or reconstructed for maintenance procedures, traffic operations, repairs, correction of utilities, or altered for any reason after September 1, 1973, shall provide wheelchair ramps for the physically handicapped at all intersections where both curb and gutter and sidewalks are provided and at other major points of pedestrian flow.”

Zoning Ordinance

The Town of Mooresville’s Zoning Ordinance contains only limited references to sidewalks and other pedestrian facilities. Most notably, Section 6.18 (Highway Corridor Overlay (HCO) District) specifies that a five-foot wide sidewalk shall be constructed in association with any development in the Williamson Road HCO District (from 1109 Bridge to NC 150). No sidewalk requirements are specified for the other two Highway Corridor Overlay Districts (Highway 150 HCO and Exit 33 HCO).

In addition, Article 16 (Mount Mourne Planning Area) provides specific regulations to guide new development in the area encompassed by the Mount Mourne Master Plan. This article emphasizes the creation of a pedestrian-friendly infrastructure, and incorporates the following standards for sidewalks:

“Sidewalks shall be constructed along both sides of all streets except alleys and lanes. Cul-de-sacs and closes shall be reviewed on a site-by-site basis for this requirement. Residential sidewalks shall be a minimum of 5 ft in width. Sidewalks serving mixed use and commercial areas shall be a minimum of 8 ft in width (10-12 ft is preferable in front of shopfronts). All sidewalks shall be constructed in brick pavers, concrete, or a similar material. Concrete sidewalks shall be a minimum of 4” in depth.” (Town of Mooresville Zoning Ordinance, Article 16, Section 6.2).

Article 16 also encourages mixed use development, stating that large scaled, highway-oriented retail and commercial development “is discouraged in favor of smaller, human-scaled mixed-use development serving the emerging employment center, hospital district, and the residents of the Mount Mourne community” (Town of Mooresville Zoning Ordinance, Article 16, Section 1.0).

Related to pedestrian-friendly development, the Off-Street Parking Ordinance (Article 9 of the Zoning Ordinance) requires off street parking for every new use or enlargements, expansions, or alterations of existing uses. Besides defining off-street parking, setting guidelines for widths, and stating potential provisions, it also sets required numbers of spaces for different uses.

Some examples from Section 9.2 of Mooresville’s Off-Street Parking Ordinance:

9.2.1 Automobile Wash Establishment: *One space per employee during the shift with the greatest employment plus four spaces per washing bay.*



- 9.2.2 *Elementary and Junior High Schools: Three spaces for each room used for instruction or administration, or one space for each four seats used for assembly purposes.*
- 9.2.5 *Hospitals: Two spaces per bed.*
- 9.2.6 *Office Uses: One space per employee during the shift with greatest employment plus one space for each 300 square feet of gross floor area.*
- 9.2.7 *Community Recreation Centers and Recreational Organizations: One space for each 150 square feet of gross floor area devoted to such use or one space per four seats available for patron use, whichever is greater.*
- 9.2.8 *Single Family Dwelling: Two spaces for each dwelling unit.*
- 9.2.9 *Shopping Centers: One space per 200 square feet of gross floor area.*

Comparison to Other Ordinances in the Region

The sidewalk requirements specified in Mooresville's subdivision ordinance (sidewalk width, location, and planting strip width) compare favorably to that of other municipalities and counties in the region. Exhibit 3-1 provides a comparison of the sidewalk policies in Mooresville to that of other localities.

Exhibit 3-1: Regional Sidewalk Policies (For New Subdivisions)			
LOCALITY	MINIMUM SIDEWALK WIDTH	MINIMUM PLANTING STRIP WIDTH	BOTH SIDES OF STREET?
Mooresville	5 feet	6 feet	Yes
Charlotte (current)	4 feet	4 feet	Yes
Charlotte (proposed)	5 feet	8 feet	Yes
Davidson	5 feet	6 feet	Yes
Mint Hill	5 feet	3 feet	No
Huntersville	5 feet	7 feet	Yes
Matthews	5 feet	8 feet	Yes
Pineville	5 feet	4 feet	Yes
Concord	5 feet	6 feet	Yes
Cabarrus County	5 feet	6 feet	Yes
Monroe	5 feet	10 feet	Yes
Union County	None	None	No
Belmont	4 feet	6 feet	Yes
Gastonia	4 feet **	2.5 feet ***	No
Gaston County	None	None	No
Rock Hill	4.5 feet	3 feet	Yes on most streets (unless waived)
Hickory	5 feet	4 feet	Yes, on streets with an average of more than 200 cars per day
Catawba County	None	None	No
Lincoln County *	None	4 feet	Yes
Lincolnton	4 feet	6 feet	Yes

* Sidewalk requirements in Lincoln County apply only to new subdivisions in "areas likely to be subject to heavy pedestrian traffic such as near schools and shopping areas."

** The requirement is 5 feet if the subdivision is built along a major thoroughfare or state road.

*** The planting strip is 6 feet and includes trees if the project is a planned residential development.

SOURCE: *The Charlotte Observer*, June 23, 2005, page 10A



Limitations of Existing Ordinances

Although the Town's Subdivision Ordinance mandates the inclusion of sidewalks at a relatively high level of design in new subdivisions, there are **few requirements for sidewalks or other pedestrian facilities along with new construction or reconstruction that is not associated with the subdivision of existing parcels**. In most cases, single-parcel projects that are not subject to the subdivision ordinance could be implemented without new pedestrian facilities.

The Town's Zoning Ordinance (which does cover single-parcel projects) contains a few specific references to the provision of pedestrian facilities, most notably the requirement for sidewalks to be constructed in the Williamson Road Highway Corridor Overlay District and in the Mount Mourne Planning Area. However, **there are no general provisions for pedestrian facilities beyond these two specific areas**. The Mount Mourne Planning Area code places a strong emphasis on mixed-use development; however, there are few other references to pedestrian-friendly development patterns.

The existing Subdivision Ordinance also **refers to residential streets only**; if any non-residential streets are constructed as part of new subdivisions, they may not be subject to the sidewalk requirements of "residential streets".

The Off-Street Parking Ordinance requires parking spaces available for the absolute highest amount of parking possible, which results in unused parking spaces most of the time. These **requirements encourage urban sprawl and vehicular use while making walking more difficult**. These requirements might also discourage the type of mixed use/high density development that should be encouraged to increase the town's walkability.



Staffing and Committees

The Town of Mooresville's Transportation Planner is responsible for addressing pedestrian-related issues in the Town, including the development of this pedestrian plan. As described in Section 1, a Steering Committee comprised of agency representatives, local citizens, and other stakeholders was established to provide input to this planning process. The Town's Transportation Planner leads this committee.

After completion of the pedestrian plan, the existing Steering Committee should be maintained as a bicycle / pedestrian advisory committee to work toward implementation of the plan and help continue to build momentum for pedestrian projects.



The Town of Mooresville works closely with other local, regional, and statewide agencies as needed for all transportation projects, including pedestrian improvements. Partnerships with Centralina COG and NCDOT will be particularly important as the Town implements additional projects.



4.1. SYSTEM OVERVIEW

National transportation surveys indicate that more than half the auto trips in the United States are less than two miles long. More than 25% of car trips in the United States are one mile or less, and 14% percent of car trips are a half-mile or less. But, Americans choose to not take a car for trips less than a mile only 25% of the time. In comparison, according to the London National Travel Survey, 39% of trips in London under five miles in length are walked, and 80% of trips under one mile in length are walked. In the Netherlands, up to 40% of all trips nationwide are made by bicycle, and a third of the people ride their bike to work everyday. One percent of all trips in American cities are by bicycle. Part of this difference is due to denser development in clusters, better pedestrian infrastructure, and intelligent land use policies in European cities. **Developing a pedestrian plan that encourages a reversal of the current tendency to drive short trips or that provides for more opportunities to make short trips would provide the largest benefit the Town can achieve over the long term.**

A preferred pedestrian corridor would position schools, businesses, and entertainment in the center of a cluster of residences that use these services daily. As one travels out from a compact center, high density housing becomes suburban housing, then transitions to rural residential areas and agricultural land that soon becomes suburban and then urban centers again. This development pattern makes it easy for residents to walk to their daily chores, with the option of using connecting roads to make less frequent trips to neighboring communities.

Downtown Mooresville was initially designed around the locomotive, and thus around the pedestrian as well. Pedestrian corridors in this area are easy to spot. Since the automobile has arrived, it has spurred a different type of growth (particularly around the interstate interchanges). Mooresville has grown outward, and clusters of pedestrian centers have become difficult to identify. However, potential pedestrian corridors can be developed from current automotive corridors that connect destinations.

4.2. PEDESTRIAN ORIENTED DEVELOPMENT ZONES

The Mooresville Comprehensive Pedestrian Plan is focused around a series of ***Pedestrian Oriented Development Zones***. By identifying zones that presently or potentially have community necessities such as residential areas, shopping areas, schools, parks, and employment centers, a successful pedestrian plan can be implemented. The two most important factors in designing a walkable community are pedestrian infrastructure and distance. There is a possibility that if the infrastructure is put in place physically or by policy, then the surrounding growth would develop to the pedestrian scale. So just as communities once evolved to fit with the pedestrian, then the horse and wagon, the train, the car; they can evolve to form with the pedestrian once again. A non-motorized transportation corridor installed today could attract appropriate shops and restaurants tomorrow.

These Pedestrian Oriented Development Zones are defined using quarter mile and half-mile radius circles that currently have or potentially will have the ingredients necessary for frequent walking trips. A quarter mile is the distance that is most likely to be considered walkable by the



greatest amount of pedestrians. It is preferred that the majority of the most frequented trip generators be located within the quarter mile zone. A half mile is considered to be the upper limit for most simple walking trips, and this portion of the Pedestrian Oriented Development Zone is usually best suited for residential areas or less frequented trip generators. This plan identifies the center of each zone and defines the borders of both the quarter mile and half mile radii. Greenways and other pedestrian infrastructure connect these zones to each other.

Each of these Pedestrian Oriented Development Zones can be developed differently. For the purposes of this plan, a “Community” is a pedestrian zone that has all of the elements that create a community including significant residential and commercial areas. Infill and redevelopment of these zones can potentially accommodate the mixed-use and higher density desired for a “Walkable Community.”

A “Neighborhood” is a pedestrian zone that does not have a significant commercial section, but has the connectivity and density that would support a walkable neighborhood. Neighborhoods also have a school, community center, or another public meeting facility that the residents have shared ownership. These Pedestrian Oriented Development Zones are not intended to be as densely developed as the Communities, but are meant to be established low, medium or high density residential areas with good connectivity and a central public gathering place.

A “Business Center” is a pedestrian zone that is focused almost entirely on a large business area that is mainly made up of long-distance commuters. Few or no residents live within the half mile radius, but a mix of shopping, restaurants and other commercial vendors exist mainly to serve the large offices during the work day. This designation should not exclude residential mixed-used development.

Several Pedestrian Oriented Development Zones have been labeled as “future” Communities or Neighborhoods based on their potential to develop. These designations were only based on an educated guess as to whether significant commercial development would be drawn to the area in the future, and should not be considered a certainty.

The designated Pedestrian Oriented Development Zones are intended primarily to identify areas in which pedestrian-friendly development should be encouraged. Recommendations for policies related to these zones are discussed in Section 8. Although many proposed pedestrian infrastructure projects are located within one or more of these zones, it is important to note that **sidewalks, paths, other infrastructure projects, and policies can and should be implemented outside of these zones as well.**

Exhibit 4-1 illustrates opportunities for pedestrian improvements in the Mooresville area, focused on the Pedestrian Oriented Development Zones. Major pedestrian destinations are also identified on the map.

Descriptions of each of the zones are provided on the following pages, referenced by the zone names as shown in Exhibit 4-1.



1. Wiggins Future Community

This area surrounds East Mooresville Intermediate School and provides a good opportunity to create positive pedestrian oriented growth. The Cherry Grove neighborhood on NC 150 has sidewalks and some promising land for paths owned by their homeowners' association, and more residential developments are possible surrounding the new ball park on Landis Highway. Proposed housing developments offer an opportunity to plan for off-road pedestrian infrastructure, and centralized undeveloped land offer opportunities for pedestrian oriented commercial development.

Currently, this zone is best defined as a "Neighborhood," but the addition of a pedestrian shopping area in between the school and the existing or proposed neighborhoods would offer the area reasonably close shopping opportunities. The selected center point for this zone is at a hypothetical future location for such a shopping plaza.

Pedestrian improvements in this zone would most benefit students traveling to and from East Mooresville Intermediate School.

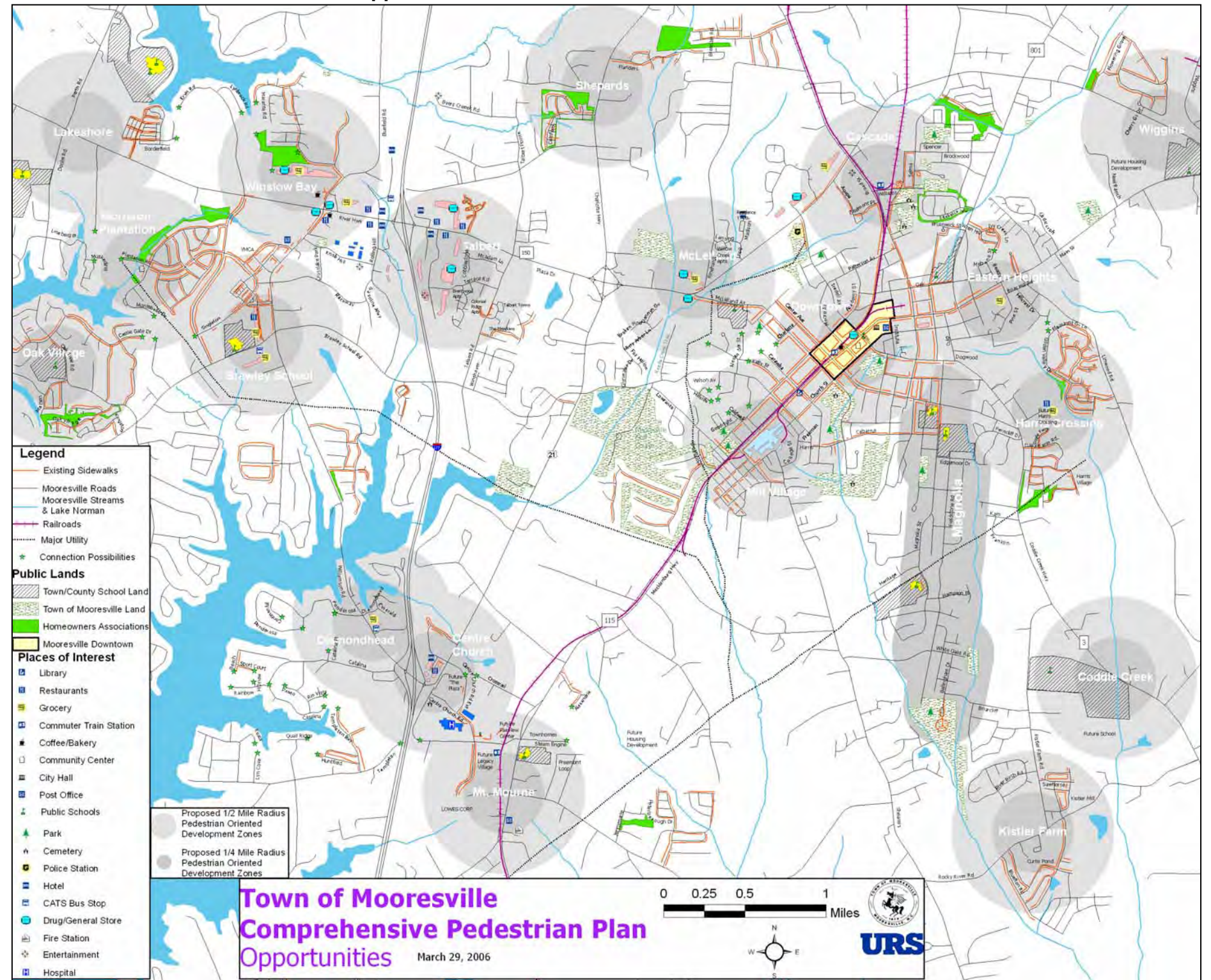
2. Cascade Future Community

The Cascade neighborhood is a historical area that is currently undergoing rehabilitation after their 1996 Redevelopment Plan and 2002 Master Plan. Recommendations from the recent Master Plan include increasing the street and sidewalk connections, considering local greenway connections between parks and cemeteries, redeveloping Kings Creek Apartments, transforming the Brawley Estate into a public use area, and anticipating transit-guided redevelopment. Some redevelopment has since occurred, and some streets have existing sidewalks that connect this area to Downtown.

The center point for this zone was placed at the proposed location for the Williams Street Commuter Rail Station. The shopping center on the corner of 150 and Broad Street technically allows this zone to be classified as a community now, but its location is beyond the quarter mile preferred distance. Future opportunities exist for Transit Oriented Development near the proposed rail station that would create more walkable shopping centers for this community. The locations of parks, cemeteries, sidewalks, creeks, and corridors of land owned by homeowners' associations offer excellent opportunities for developing pedestrian routes through these neighborhoods.

As of this time, the closest major trip generator is the Food Lion shopping area on NC 150, but redevelopment in the area might include new dense shopping areas to accommodate the rail commuters. Pedestrian projects in this zone would most benefit low-income residents and elderly citizens in the area, and young professionals who would use the proposed commuter rail

Exhibit 4-1: Mooresville Pedestrian Opportunities





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3. McLelland Community

The residents in this pedestrian zone have a wide range of commercial businesses, recreation opportunities, restaurants, entertainment, a school, and numerous residents all within walking distance. Because of this community structure, some features in this area could be some of the highlights of the Pedestrian Plan when considering the potential use of the improvements. Some sidewalks exist, but could be improved upon. Reeds Creek and utilities cut through the area, offering off-road pedestrian opportunities. Connectivity is poor, but land near this community center is yet fully developed and may one day have new roads or pedestrian routes.

The shopping center on the corner of NC 150 and McLelland Avenue was chosen for the center of this zone. With a wide variety of people in this area, the target demographic here for a pedestrian network is the low-income residents, elderly, and students.

4. Shepards Future Community

This cluster of new neighborhoods on either side of US 21 consisting of the sidewalked Brantley Place and Winborne neighborhoods has poor connectivity and is isolated far from any commercial business in Mooresville. Encouraging a functioning pedestrian-oriented community here would benefit those who need to make quick errands without an automobile. Some connection opportunities exist across land owned by the Winborne and Brantley Place Homeowners' Associations, and creeks run south and west out of this Pedestrian Oriented Development Zone that can serve as pedestrian pathways.

Currently, this zone is best defined as a "Neighborhood," but the addition of a pedestrian shopping area in between these two neighborhoods would offer the area reasonably close shopping opportunities. The selected center point for this zone is at a hypothetical future location for such a shopping plaza.

New medium to high income residents could receive health benefits from an increased pedestrian network in this area.

5. Downtown Community

Downtown is a very important part of Mooresville's pedestrian core. A hardware store, book store, bakery, coffee house, bicycle shop, clothing stores, and an array of other specialty shops help make this a vibrant downtown. A new city hall, community center and library enhance the civic services and project a positive light onto the Town. A proposed rail station in the heart of Downtown on Main Street will serve a growing number of people who are living in and within walking distance of this area.



Sidewalks exist throughout most of the downtown area, as well as part some of the nearby neighborhoods. Most sidewalks adjacent to the historical center of town are wide and accommodating, while the sidewalks throughout the rest of Downtown are narrow and less practical. A number of sidewalks are in poor repair and do not meet current standards for



accessibility. Existing amenities such as on-street parking, street furniture, and crosswalks make this zone more pedestrian friendly than other parts of the study area. Pedestrian corridor opportunities include Dye Creek, which runs from Liberty Park through the south part of town and major utility right of ways crossing through town. Some land in the neighboring single family neighborhoods could be developed with more connecting roads, and a recent interest in downtown living has stimulated proposed high density residential units in this zone.

The Charles Mack Citizen Center was chosen as the center point for this zone. The potential user group here is very diverse. Pedestrian improvements here would most benefit low-income residents, elderly citizens, young professionals living nearby using the proposed commuter rail, and downtown business users and owners.

6. Historic Mill Village Future Community

This zone is most notably centered on an old mill that has the possibility of becoming a new commercial and residential development. Centralized parks serve as public space opportunities. Historical neighborhoods sit adjacent to its southwest and east while comparatively newer residential development exists on West Wilson. These established neighborhoods have an extensive lack of good pedestrian and road connectivity to each other, a lack of safe pedestrian routes to the places that the residents need to go, and fast traffic. Some existing dead-end roads have the possibility of being connected to each other with future housing developments.



One historical neighborhood behind the mill has narrow sidewalks, but these amenities are absent in the rest of this area. The library is located in this zone and several nearby parks could certainly be redeveloped to make them more pleasant places to walk, sit, or socialize. A creek tributary, utility easements, and the future commuter rail line offer potential pedestrian infrastructure opportunities. The pedestrian value here is its location. In a very short time, this area could easily be “the place to be” in Mooresville, and with an influx of people in an urban core comes the needs and desires for pedestrian accommodations.

The primary potential user group here is currently the low income residents of the historical neighborhoods, and the middle class residents on West Wilson. There may potentially be a new wave of “Urban Pioneers” who see value in these historical housing pockets and realize the redevelopment potential.

7. Eastern Heights Community

This area is on the edge of Mooresville’s Downtown and is surrounded by residential areas. The Food Lion is the closest grocery store to the Downtown area now that the IGA is closed on Statesville Avenue, and was chosen as the center point for this zone. New duplexes with a large retirement population exist just behind the shopping center (with a fence dividing them from the shopping area), and an established neighborhood sits adjacent to it on its east side. A large housing development is nearing completion nearby on Linwood Road, and a new school



and park exists further east on Main Street / Landis Highway. New homes are being built



between Main Street and NC 801, and Park View Elementary School is nearby. Connecting all of these areas with a system of pedestrian routes and paths would bring residents within an easy walk to shopping, Downtown Mooresville, parks, and schools.

Some sidewalks exist up to the Food Lion from Downtown on Main Street, in the new Linwood Farms neighborhood, the new Wren Hill neighborhood, and surrounding Park View Elementary School.

New developments adjacent to existing neighborhoods, along with a creek provide opportunities for pedestrian connections and corridors. The largest opportunity that this area provides is its population structure. The primary potential user group in this zone is a mix of low, medium, and high income residents, students, and the elderly.

8. Harris Crossing Future Community

The Harris Crossing area is a rapidly growing part of Mooresville, with a large housing development nearing completion nearby on Linwood Road, Harris Village houses, and a proposed Harris Crossing shopping area. The new neighborhoods already have sidewalks, so connections to their doorsteps are easier here than in some zones. Rocky River Creek divides Linwood Village from the Harris Village and Harris Crossing area, making vehicular access impractical but creating an opportunity for pedestrian access across the creek via land owned by the Linwood Farms Homeowners' Association. The creek, nearby utility easements, and community land in this zone create opportunities for pedestrian walkways.

The center of this zone was identified as being the proposed Harris Crossing shopping area. The potential user group here is middle to upper income residents, and some low income residents. Many of these neighborhoods house retired persons as well.

9. Magnolia Neighborhood

This neighborhood is an area of town with a great amount of park space, good street connectivity, several schools, and a lot of pedestrian potential. A newer part of the old Mooresville, this zone is relatively close to Downtown shopping and future shopping on Highway 3, is fairly well connected with a semi-grid pattern of roads, and already has a relaxed and pleasant feel to it that is necessary when planning for pedestrians. This zone is bordered on two sides by creeks, and is linear in shape compared to the other





identified Pedestrian Oriented Development Zones. For these reasons, the radius from the Magnolia Street centerline was restricted to a quarter mile. Magnolia Street was chosen as the center of this linear zone because it connects the middle and high schools to the elementary school.

Future opportunities exist for pedestrian routes on separate corridors along the Dye Creek, Rocky River, and utility lines that originate in the Mt. Mourne area and terminate along property owned by Harris Village Property Owners' Association. Magnolia Street is currently wider than it needs to be for a low speed neighborhood road, and its extra right-of-way could be better utilized to serve pedestrians. Students of Mooresville High School, Mooresville Middle School, and South Elementary School will be the primary beneficiaries of proposed pedestrian projects, while other neighborhood residents and shoppers at the proposed Harris Crossing development would also benefit.

10. Coddle Creek Future Neighborhood

The Coddle Creek area is a rapidly developing suburban area south of Downtown Mooresville that presently has no commercial destinations to mention. Mooresville Intermediate School is located on a rural, 45 mph road with no sidewalk access, and a new school is planned to be nearby. Rocky River Creek connects the present school with the proposed school and the Harris Village neighborhood, providing an opportunity for a school greenway connection.

This center of this zone is the intersection of NC 3 and the proposed multi-use path on Rocky River Creek. In time, residential areas developed around this school would create a neighborhood with the school as its community center.

Improving pedestrian access here, and encouraging the development of housing areas surrounding the schools, will greatly benefit school children and overall family health in this area. Smart growth development of this corridor should be considered to allow it to grow as an automobile and pedestrian friendly area.

11. Kistler Farm Future Community

This zone currently consists of new housing developments on Rocky River Road and Kistler Farm Road. It is currently well away from any commercial development, but is growing quickly. Open space on Rocky River Road can easily be commercially developed, and policy decisions made now can impact how pedestrians will use it in the future. Both Dye Creek and Rocky River terminate near here, and should be considered as potential pedestrian corridors. In fact, both Mecklenburg and Cabarrus Counties have plans to place a greenway along Rocky River Creek. Extending the proposed greenway into Mooresville could provide a great tri-county link.

Currently, this zone is best defined as a "Neighborhood," but the addition of a pedestrian-friendly shopping area in the center of these neighborhoods (possibly on Rocky River Road, west of Kistler Farm Road) would offer the area reasonably close shopping opportunities. The selected center point for this zone is at a hypothetical future location for such a shopping plaza.

New medium to high income residents could receive health benefits from an increased pedestrian network in this area.



12. Talbert Community

The area surrounding Exit 36 is a community of its own, and one simple sidewalk route can make it possible for many people to walk, shop, eat, and be entertained. Recent commercial development has fostered poor pedestrian development patterns, multiple commercial businesses including Wal-Mart, Goody's, Belk, Kohl's, a movie theatre, fast food and sit-down restaurants, and hotels. The Wal-Mart shopping center was chosen as the center point for this Pedestrian Oriented Development Zone. No sidewalks exist along the roadways, with the storefront walkways and the sidewalks in the new developments being the only true pedestrian corridors here. The interesting feature about this zone is that there is a multitude of single family and high-density residential units within walking distance to these businesses, but with no perceivable safe pedestrian route.



Being close to an interstate highway, this zone would wisely accommodate people who drive in, park and then walk to any of several destination choices. One popular roadside attraction here is the North Carolina Racing Hall of Fame and the NASCAR shops a block away. Currently, there are no sidewalks that connect these tourist attractions.

Low and medium income shoppers can be positively affected with pedestrian improvements in this zone.

13. Winslow Bay Community



This area is presently disconnected for a typical pedestrian, but has principal attributes of a community that a successful pedestrian environment needs. It has residential areas within reasonable walking distance to shopping areas and even two coffee shops. The Target shopping center was identified as the center of this zone. The proximity of these trip generators, existing sidewalks, road connection possibilities, and community land create some fantastic opportunities for pedestrian infrastructure.

This zone consists primarily of middle income residents.



14. Lakeshore Future Community

This area is presently disconnected, but has building blocks in place for improved walkability. This community is home to schools, residential areas, and shopping areas within a reasonable walking distance. Presently, neighborhood roads do not connect to adjacent neighborhoods, and the elementary and middle schools are situated in a position and fenced in a way where students have no choice but to be driven. New subdivisions have sidewalks, and the entire area will likely grow rapidly in population. The locations of land owned by Arvida Homes and Iredell County Schools create some terrific opportunities for off-road pedestrian routes in this zone. A proposed commercial and residential development on the corner of Doolie/Perth Road and NC 150 offers opportunities for pedestrian infrastructure as part of the development. This proposed shopping area is the center of this zone. Potentially significant improvements for school accessibility make students the top benefactor with pedestrian projects in this area.



15. Brawley School Community

This area has several existing conditions that will help to make this a major pedestrian area. All of the roads in Morrison Plantation have sidewalks, Brawley Middle School is located nearby, new high-density residences are being constructed, and there is a pedestrian-scaled Harris Teeter shopping center, which is also the geographical center of this zone. Students and shoppers will be the primary beneficiaries of pedestrian improvements, with some CATS bus commuters also benefiting.

16. Morrison Plantation Neighborhood

Morrison Plantation has great connectivity to itself, sidewalks, a community center, creeks, land, utility right-of-ways, and proximity to commercial areas. It is already a good walking neighborhood, and with some road connections to neighboring communities and new long distance walking trails, it could become a center for pedestrian activity. The Morrison Plantation Community Center on Plantation Road is the geographical center of this Pedestrian Oriented Development Zone.

Residents in this pedestrian zone, plus residents of nearby pedestrian zones would benefit greatly from pedestrian enhancements.





17. Oak Village Neighborhood

This is a fairly isolated neighborhood and Pedestrian Oriented Development Zone with an elementary school at its core. Connections with Morrison Plantation, plus other minor connectivity improvements within the neighborhood could make this school very accessible. Pedestrian improvements here would primarily benefit students, give parents more free time, and increase overall neighborhood health.

18. Diamondhead Community

Just west of I-77 from the Mt. Mourne Pedestrian Zone, this area has not yet developed significantly other than the identified zone center, a Food Lion surrounded by residential areas. If large-scale strip development immediately adjacent to the interstate can be deterred west of this interchange, congestion could be minimized, and this shopping center could more easily become a pedestrian destination. Nearby housing developments include the Diamondhead single family and town homes. Several neighborhood roads have dead-ends which can be examined for connection possibilities.

Given the present demographics, retired citizens and residents who wish to walk for their short trips are the most likely pedestrians in this area. CATS bus commuters using the park and ride lot located here might also benefit.

19. Centre Church Business Center

Presently, little exists in this area for the pedestrian. Employees at the Lake Norman Regional Medical Center and the Lowe's Home Improvement Center, Inc. corporate headquarters frequent the restaurants nearby on US 21, but there is no existing pedestrian connection to these areas. At lunch hour, the nearby working staff packs restaurant parking lots. Development plans include new commercial development on US 21, a new hotel, and more commercial development. Centre Church Road Extension is the main vehicular route connecting the area, while Centre Church Road has been barricaded against both vehicular and pedestrian traffic. The restaurant plaza on US 21 is the chosen center point for this Pedestrian Oriented Development Zone.

Creating pedestrian connections and facilities from the hotel and restaurant area to the major business centers such as the hospital would greatly benefit the employees working in this area.



20. Mt. Mourne Future Community

This area will be vastly different in a few years with the coming Lowe's Home Improvement Center, Inc. corporate headquarters, Legacy Village, Fairview Center, and the proposed commuter rail station. Sidewalks around Lowe's and the hospital go nowhere, and primarily serve to take people from their cars to the nearby buildings. Mt. Mourne Elementary School is located on a busy road, with no pedestrian access to or from campus. Nearby housing



developments have no connection to each other, and feed only into rural high-speed thoroughfares. Future plans call for a commuter rail station, increased commercial activity due to a major addition to Lowe's, an interstate access point on Langtree Road, a new school, a pedestrian shopping area near the rail station, and several housing developments. The geographical center of this zone would be around the general location for the suggested "Mt. Mourne Downtown" along the proposed commuter rail line and NC 115.

A utility line connects the current and proposed neighborhoods around Mt. Mourne with South Elementary School. A stream runs through a proposed development. These corridors offer alternate off-road opportunities for greater pedestrian connectivity between pedestrian zones.

This area could potentially become a thriving community similar to Morrison Plantation, but with the feel of Downtown Mooresville. Business professionals, families, and the elderly will most likely be the target pedestrian group here.

Sidewalk, new development, and greenway policies implemented now will make the biggest impact on pedestrian access in this part of the county.



5.1. GENERAL PEDESTRIAN FACILITY GUIDELINES

Guidelines for the placement and design of pedestrian facilities should be flexible to some extent, so that context-sensitive design solutions can be implemented. Several overall guidelines for facility development are highlighted below.

- Give transportation priority to the completion of pedestrian routes to schools, neighborhood shopping areas, parks, and transit stops.
- Incorporate the natural and historical linear aspects of the city into pedestrian projects.
- Ensure that the safety and convenience of pedestrians are not compromised by transportation improvements aimed at motor vehicle traffic.
- Ensure that the pedestrian circulation system is safe and accessible to children, seniors and the disabled.
- Require storefront commercial development to be oriented to pedestrians.
- Street furniture, vendors, water fountains, bicycle racks, lighting, and other pedestrian necessities should be welcomed, but also be placed out of the immediate pedestrian travel area.
- Establish links between sidewalks, trails, parks, and the rest of the community.
- Retain public pedestrian access when considering private right-of-way requests.
- Support changes to existing policies that would enhance pedestrian travel.
- The pedestrian and bicycle system should connect to residential, commercial, industrial, educational, and recreational areas.
- Off-site street improvements or enhanced bicycle and pedestrian facilities may be required as a condition of approval for land divisions or other development permits.
- Aesthetics and landscaping shall be a part of the transportation system.
- Coordinate transportation planning and efforts with neighboring municipalities.

A number of specific improvement projects are proposed in this plan. These projects will play an important role in helping to improve the walkability of the Town; however, it is even more important to ensure that appropriate pedestrian accommodations are made with future development. It is useful for the Town to consider a set of guiding design principles that cater to the needs of pedestrians and the general means by which these needs are to be met. Some basic principles for incorporating pedestrian accommodations in a transportation system include the following:

- It should be safe and free from external factors such as noise, motorized traffic, and hazardous objects.
- It should be accessible.
- It should connect to the places where people want to go.
- It should be easy to use and convenient.
- It should provide a sense of place and make an effort to be appealing to the senses.
- It should be used for multiple purposes such as dining, shopping, and special events so long as it does not contradict any of these principles.



5.2. FACILITY DESIGN CONSIDERATIONS

Design considerations for a variety of types of pedestrian facilities are highlighted on the following pages. These design considerations are not intended to serve as “standards”, since the most appropriate design will vary from project to project. However, suggested minimums and guidelines are addressed for the following types of facilities:

- Sidewalks;
- Multiple-Use Paths;
- Intersections;
- Bicycle Lanes;
- Vehicular Lanes; and
- Lighting, Landscaping, and Signage.



Sidewalks

Clearly, no pedestrian system is complete without these amenities. Even if no pedestrian travel exists, studies show that walking can be expected to increase when the facilities are provided, and walking levels are highest when the pedestrian routes are complete and continuous. It is relatively easy to design a policy that requires new development to include sidewalks in their construction, but it can be difficult to retrofit new sidewalks into existing communities. The American Association of State Highway and Transportation Officials (AASHTO) recommends the construction of sidewalks on all city streets, including those in rural areas. The Institute of Transportation Engineers (ITE) recommends sidewalk installation on both sides of the street whenever possible for new urban and suburban streets, especially in commercial areas, residential areas with 4 or more units per acre, or residential areas on major arterials and collectors. If sidewalks on both sides of the road are not possible, lower density rural residential areas might adequately serve its pedestrians with a sidewalk on only one side and with four-foot wide shoulders.

Sidewalks are the most useful along low speed roads. The higher the speed, the more the need exists to route the pedestrian further from that road. Sidewalks should never be intentionally built directly adjacent to a roadway if the space exists for a buffer such as a planting strip, on-street parking, or bicycle lanes. Because of frequent intersections, dips, and narrow widths, sidewalks are not meant for bicycles other than new riders who are accompanied by a pedestrian trainer. One of the most common reasons for bicycle/car collisions are attributed to that rider being on the sidewalk. Bicycle provisions are addressed briefly in this plan, but should be addressed completely in a separate plan.

ITE Recommendations:

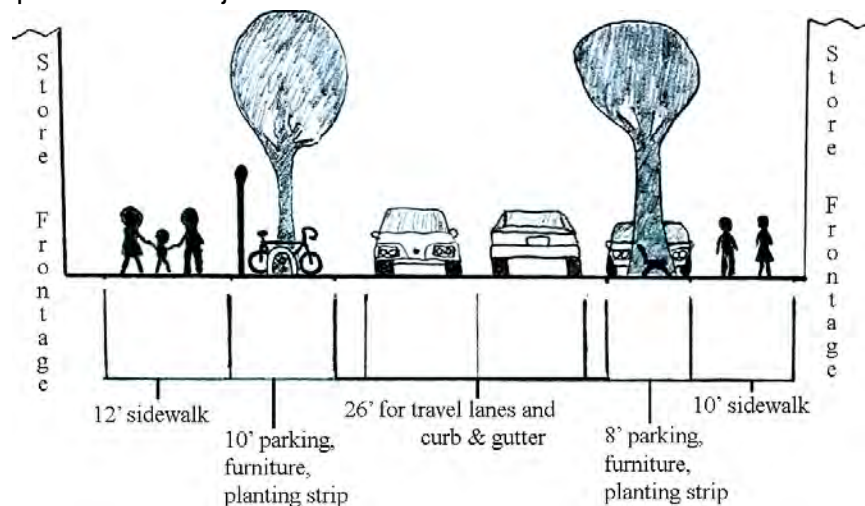
- *Central Business District: Wide enough to accommodate users. Minimum 8 feet.*



- *Commercial area outside the central business district: 7 feet wide if no planting strip is possible, or 5 feet wide with a 2-8 foot planting strip (Wider planting strips accommodate greater buffers from traffic and the opportunity to plant large shade trees).*
- *Residential areas should have 5 foot-wide sidewalks with a minimum of two-foot wide planting strips.*
- *4 to 8 foot wide planting strips are recommended along all sidewalks to provide separation from vehicles. This space is useful for landscaping, lighting, trash receptacles, water fountains, benches, temporary storage of weather debris, direct alignment with curb ramps at intersections and the room to accommodate driveway ramping while maintaining the sidewalks' cross slope.*
- *Sidewalks should be clear of obstructions such as utility poles, sign posts, fire hydrants, etc.*
- *Vertical clearance should be at least 7 feet from ground level to the bottoms of signs or the lowest tree branches.*
- *Increasing sidewalk widths by 2 -3 feet would accommodate shoulder-high intrusions like building walls, bridge railings, and fences.*
- *Maximum cross-slope of 1:50 (2%). Limit running slope to 5% (1:20), or no greater than 8.33% (1:12) where topography requires it. Ramps with landings and handrails would help users.*

The recommendations of this plan are to require sidewalks in neighborhoods to be a minimum of 5 feet wide. Planting strips with a width of 8 feet should be required as this is the recommended width for medium and large trees (the recommended planting strip width represents an increase in width as compared to the current minimum width of 6 feet as stated in the subdivision ordinance). A cross section illustration is included on page 5-10.

Sidewalks in commercial corridors and urban conditions should be a minimum 6-12 feet wide with 8-10 foot planting strips. As the Pedestrian Oriented Development Zones increase the development infill, slow the traffic, and bring the store fronts closer to the roadways, the width requirements for the sidewalks increase to provide for the increased use. The planting strips can, in some places, be paved areas adjacent to the sidewalk for street furniture such as benches, bicycle racks, water fountains, or informational boards. It is important to keep the walking area clear, and these zones allow for these amenities. In some areas, street-side parking could alternate in between the occasional landscaping or sidewalk furniture. Trees should be added to these planting strips by policy and should be placed every 25-50 feet, depending on type





and depending on the demand for sidewalk furniture and parking. Trees in the Poplar family should not be planted in planting strips because of the extensive pavement damage that their roots can cause. Store frontages should be encouraged to be built near the sidewalks, with a frontage zone of 1-3 feet from the sidewalk travel area. Using pervious materials for parking, sidewalk furniture areas, and for frontage zones could reduce environmental concerns. Alternate pedestrian routes should be created with multiple use trails for destinations along thoroughfares.

Multiple Use Paths

Multiple-use paths are intended to serve walkers, wheelchairs, runners, bicyclists, or any other non-motorized mode of transportation. These facilities may also be referred to as “greenways,” and should not be confused with sidewalks that share the right-of-way with vehicular roads, nor with “Greenbelt Buffers” that are not necessarily intended to accommodate for public access. Multiple-use paths can act both as pedestrian walkways and as vegetative buffers with an ecological function. Besides encouraging the reduction of all of the harmful environmental effects of automobile use, these trails can also stimulate the acquisition and conservation of wildlife corridors, be associated with stream improvement projects, and to give people a healthy respect for their natural surroundings by making public open space more accessible.

Multiple-use paths need to be a minimum of 10 feet wide; with minimum 2 foot wide graded shoulders on each side (AASHTO recommends 5 foot shoulders) to protect users from grade differences. These shoulders can be grass, sand, finely crushed rock or gravel, natural groundcover, or other material. Sections of the trail where shoulders are not possible because of stream crossings or other elevated grade issues should have protection such as rails, fences, or hedges. Parks and urban corridors tend to be popular sections of these trails and should possibly be wider. If it is not possible to increase the width, consider including a divider line down the center for bi-directional traffic.



The alignment of these corridors should avoid road right-of-way whenever possible to minimize intersection and driveway crossings. Because these paths typically do not cross roads at signalized intersections, they should include pedestrian crosswalks, underpasses, culverts, or overpasses at each road crossing for safety. Vertical clearance of 8 feet is required for safety of all users, and structures and shrubbery should not extend horizontally into the corridor. A vertical clearance of 10 feet is recommended for underpasses and culverts.



These paths should keep the contour of the land for aesthetic and environmental reasons, but for practicality reasons should not be unnecessarily curved. The minimum radii or curvature recommended by AASHTO is 30-50 feet, and the cross slope should typically be less than 2%. The grade should not be more than 5%, but could reach 11% for short distances according to ADA and AASHTO guidelines. Right angles should be avoided for safety reasons, especially when considering bridge and road crossings.

Environmental protection should be a priority with the planning and construction of a trail. Trail design, construction type, and construction schedule should all reflect environmental considerations. For example, a trail offers some leniency with its alignment compared to a sidewalk, offering opportunities for selective clearing of vegetation. Also, asphalt may not be considered a good surface material in wet areas because of its petroleum base, and construction during certain months of the year may disrupt wildlife nesting.

These trails should be open at all hours so that it can serve as a reliable transportation route. Lighting is not necessary and not recommended except through underpasses and culverts, and near safety hazards such as curbs, sharp directional changes, obstacles, or ending points. A reflective stripe or markers would help to make this trail navigable in limited light. Lighting the trail itself can restrict the visibility of areas beyond the trail. Existing street and structure lighting in urban areas can effectively and adequately light the adjacent trail. For safety reasons, requiring that all bicycles and roller-bladers carry lights and all pedestrians wear reflective clothing during non-daylight hours would be useful.

We recommend that these paths should be surfaced with a hard material that allows for easy walking and bicycling. Asphalt is cost effective and practical in most terrains, while concrete and boardwalks are best suited for flood prone (culverts and underpasses) or wet areas (wetlands and creek borders). Finely crushed stone or Granite Screening (rock dust) is a cost effective alternative that may be used outside of high traffic urban areas. Private motorized vehicles of any kind (besides motorized wheelchairs for legally disabled citizens) should never be allowed access to these trails. A summary of our recommendations for multiple use trails is below:

- Trails adjacent to roadway
 - Minimum 10 feet wide. (12 feet preferred)
 - Minimum 10-foot planting strip.
 - A cross slope of 2% is recommended, with grades of less than 5% required.
 - Minimum 2-foot graded shoulder on each side, with 5 feet preferred.
 - Asphalt is the best surface for multiple users such as bikes and roller blades. Concrete is a good alternative in flood-prone areas such as culverts, while boardwalks are best in frequently wet parts of the trails. Very fine gravel or Granite Screenings (rock dust) is a cost-effective substitute in rural areas and can accommodate pedestrians and most bicyclists.
 - Minimize driveway conflicts; path should stay level over driveways, while roads change grade to come to path. Non-paved driveways should have paved bibs to restrict debris accumulation.



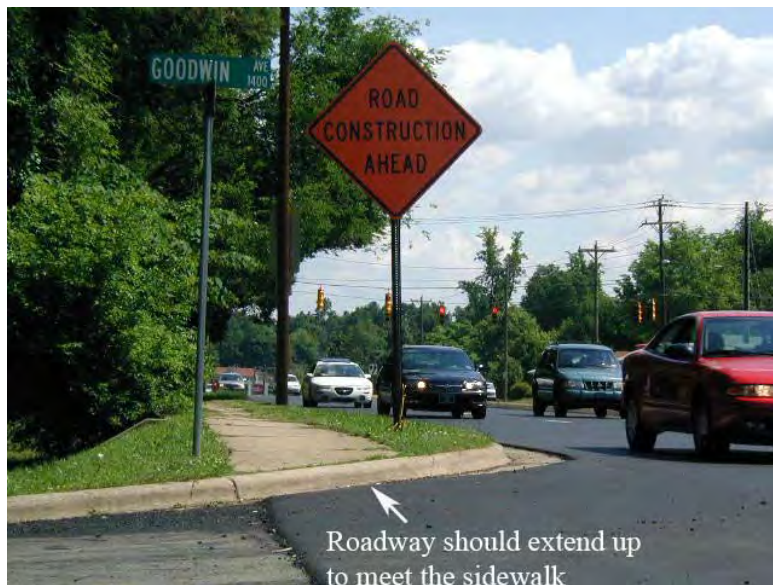
- On separate right-of-way
 - Minimum 10 feet wide. (12 feet preferred in high use areas)
 - A cross slope of 2% is recommended, with grades of less than 5%.
 - Minimum 2-foot graded shoulder on each side with 5 feet preferred.
 - Asphalt is best surface for multiple users such as bicycles and roller blades. Concrete is a good alternative in flood-prone areas such as culverts, while boardwalks are best in frequently wet parts of the trails. Very fine gravel or Granite Screenings (rock dust) is a cost-effective substitute in rural areas and can accommodate pedestrians and most bicyclists.

An example of a typical greenway cross section from Mecklenburg County Parks and Recreation is in **Appendix D**.

Intersections

Driveway and Roadway Intersections

Sidewalks that ramp down to driveways and roadways (or when there is no existing curb cut at all) make it clear to the pedestrian and to the driver that it is the drivers' territory, plus it makes conditions difficult for the disabled, along with common walkers and runners. Sidewalk and roadway standards that require new and maintained roads to ramp up to greet a level sidewalk makes the driver more aware that they are crossing into the pedestrians' territory, and makes the sidewalk more agreeable to the user. New and refurbished driveways and roads should greet the sidewalk and the street at right angles to adequately slow and stop the vehicle and to improve their line of sight.



Crosswalks

A study should be completed prior to placing crosswalks to determine the need and the best type and location of that crosswalk. Every effort must be made at crosswalks to make sure that the pedestrian has a clear view of the vehicles and the vehicles have a clear view of the pedestrian. Warning stripes leading up to the crosswalk and restricting parking and the placement of view-blocking objects on each end of the crosswalk should be standard.

8-foot wide crosswalks are recommended, with 6 feet being the minimum. Wider crosswalks could be used with higher pedestrian volumes or with the need to make the crosswalk more



conspicuous. Crosswalk lines of 10-12 inches of width are the recommended minimum. Crosswalks must line up with curb cuts. Other guidelines include the following:

- The shorter the crosswalk the better. Minimize intersection widths.

- Countdown lights give pedestrians a clear understanding of the amount of time that they have left in the intersection.

- A continuous travel path from sidewalk onto crosswalk is necessary.


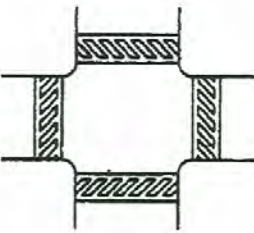
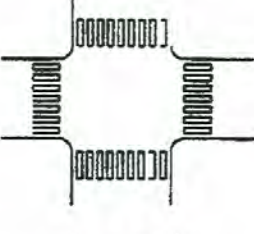
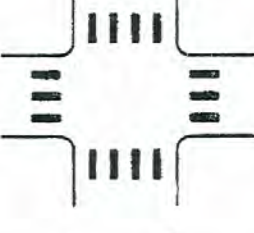
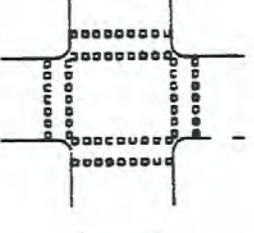
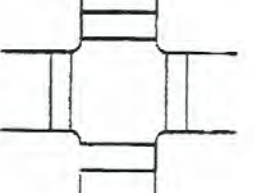
- All sidewalks must have adequate curb cuts, and these curb cuts must align with crosswalks.



- Provide clear, consistent markings (Zebra, Ladder, or Piano bars are recommended) with a 6" minimum stripe. See Exhibit 5-1 for further information.



Exhibit 5-1: Types of Crosswalk Markings
 (source: Washington DOT, *Pedestrian Facilities Guidebook*)

MARKING PATTERNS	ADVANTAGES	DISADVANTAGES
	<p>HORIZONTAL BARS</p> <p>Common practice at stop-controlled intersections, less expensive, easy to install and maintain.</p>	<p>Not as visible as some other marking types; bars tend to wear faster than other types; not appropriate for mid-block locations.</p>
	<p>ZEBRA</p> <p>Highly visible.</p>	<p>More maintenance required since wheel friction rubs off diagonal stripes; surface can be slippery.</p>
	<p>LADDER BAR</p> <p>Highly visible.</p>	<p>Wider stripes rub off with wheel friction, but can be placed to minimize this effect; surface can be slippery.</p>
	<p>PIANO</p> <p>Highly visible and becoming more commonly used; easy to maintain since stripes can be placed outside the wheel friction areas.</p>	
	<p>DASHED (European)</p> <p>Captures attention because it is not a commonly used pattern.</p>	<p>May not define space as well as some other choices.</p>
	<p>SOLID</p> <p>Visible (but may not be as eye-catching as other patterns); not commonly used.</p>	<p>Expensive; more difficult to install and maintain; surface can become slippery.</p>



- Bring the road to meet the sidewalk rather than the sidewalk to meet the road at driveways and intersections wherever possible. This reduces travel problems for the disabled and alerts drivers that they are crossing a pedestrian zone.
- ADA ramps should be a minimum of 8 feet wide.

Mid-Block Crossings

- Provide only on roads with a speed limit of less than 45 MPH.
- Do not install within 300 feet from another signalized crossing point.
- Base installation of a mid-block crossing on an engineering study or pedestrian route placement.
- These crossings are recommended near schools, pedestrian routes, retail areas, recreation, and residential areas.
- Require advance auto-warning signs and good visibility for both the driver and the pedestrian.
- Providing a safe crossing point is necessary since pedestrians tend not to walk far for a signalized intersection.
- Provide an audible tone.
- Include a pedestrian refuge island on wide streets that:
 - Have fast vehicle speeds, or with large vehicle or pedestrian traffic volumes.
 - Where children, people with disabilities, or elderly people would cross.
 - Have complex vehicle movements.
 - Offers insufficient time to cross because of traffic demands.

Signalization

- Clear, consistent activation buttons are necessary.
- A countdown signal with appropriate amount of time is well-received by pedestrians.

Curb Modification

- Tighten curb radius – it reduces the length of the crosswalk, gives drivers better visibility, and restricts fast turns.
- Where on-street parking is provided, extend the curb out to the travel lane at intersections. This will reduce crosswalk length and restrict fast turns. (Photo Source: safety.transportation.org)





Bicycle Lanes

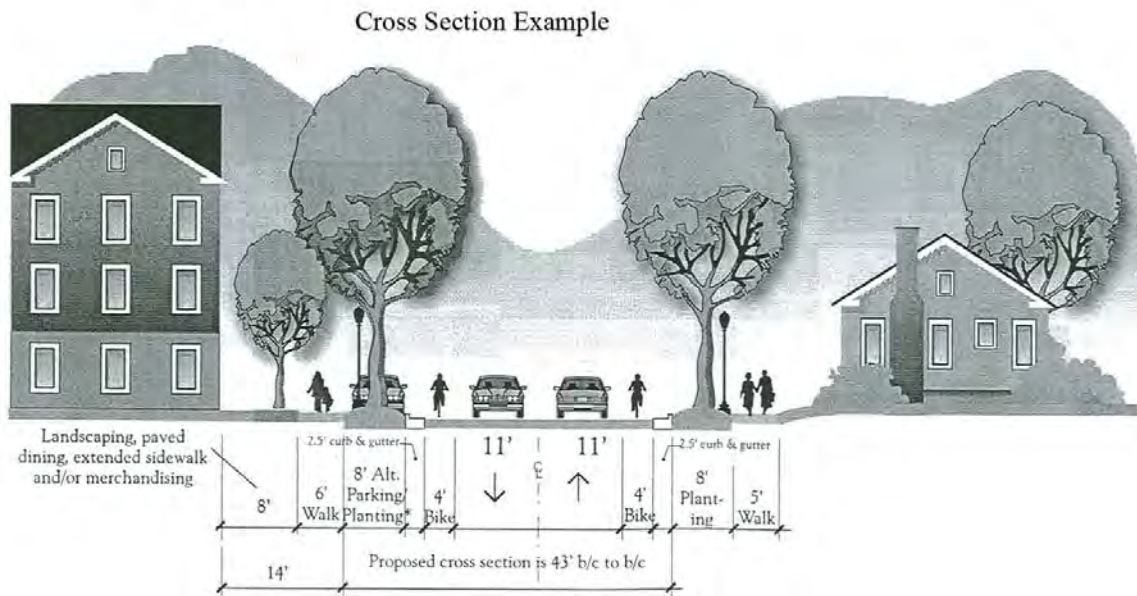


It is important to realize that sidewalks are not designed for bicycles, and bicycle planning needs to be incorporated with roadway planning or with paved paths off of the road right-of-way. Bicycle lanes offer a perception of safety to bicyclists, and make many drivers more comfortable with sharing the road with a cyclist. New striped bicycle lanes should be a minimum of 5 feet from the curb to the stripe, including the gutter pan. Retrofitted bicycle lanes may be 4.5 feet total width on streets with speeds of 30 MPH or less. Keep a minimum of 3' of the bike lane on the asphalt when the lane includes gutter pan, with a preferred width of 4'. An 8" fog stripe is recommended, with a 4" fog stripe being the minimum width. A bike stencil with a directional arrow should be placed periodically in each bike lane. Since bike lanes tend to accumulate debris swept over from the traffic lanes, a method to occasionally clean bike lanes should be determined, and unpaved roadways that intersect bicycle lanes should have paved bibs.

Vehicular Lanes

To keep speeds safe, 20-25 mph zones should have 10' – 10.5' lanes. 30-40 mph roadways should have 11' wide inside travel lanes and 12' outside lanes. Roadways that are 45 mph or greater should have 12' travel lanes with 14' wide outside lanes. Most collectors and arterials that have a 15' outside lane should also include striped bike lanes to control traffic speeds. Roadways with 14' outside lanes should have "Share the Road Signs." Narrow, low speed streets with high volume could have "Sharrows" stenciled in the roadway¹ that tell the automobiles and the bicyclists that they share an entire lane.

¹ Sharrows have not yet been approved by MUTCD, and are thus not supported by the NCDOT as of the development of this plan.



Source: Charlotte-Mecklenburg Planning Commission
Dilworth Land Use and Streetscape Plan

Lighting, Landscaping, and Signage

Lighting

- Use lighting that is appropriate for the pedestrian scale, not the automobile scale. When lighting is not feasible or desirable, reflective strips can guide pedestrians.
- Determine a need for lighting before installing it. In many cases, lights can make visibility poorer in areas beyond the path, which causes some uneasiness for pedestrians. Lighting should be standard where pedestrians cross under a structure, or when the path has obstacles such as curbs, steps, or abrupt directional changes.

Landscaping

- Native vegetation should be used to minimize maintenance and long term costs.
- Use low height shrubs near crossings or transit stops.
- The limbs of large canopy trees should not encroach within the walking area.
- Trees with damaging roots (Poplar family) should not be planted and root barriers should be placed.
- Planting strips should be wide enough to accommodate the vegetation planted. Large canopy trees need 5 – 8 feet, with 8 feet being preferred.
- Space large canopy trees evenly to provide adequate shade (25-50 feet apart). Understudy or small canopy trees might be spaced 20-25 feet apart.



- Utilize smaller canopy trees when conflicting overhead utilities are present.
- Recent studies suggest that the cover that trees provide sidewalks actually increase their lifespans. It may not be appropriate to use sidewalk cracking issues as a reason not to include trees in a pedestrian plan.

Recommendations for the Magnolia Street corridor (see Section 7) call for planting large canopy trees such as Magnolias along its proposed planting strip. The most common Magnolia in this area is the Southern Magnolia (*Magnolia grandiflora*). It is an outstanding shade tree with beautiful waxy foliage and large flowers. Unfortunately, it constantly drops these large waxy leaves throughout the year and may be a sidewalk maintenance problem. To continue with the Magnolia theme, the Sweetbay Magnolia (*Magnolia virginiana*) is a deciduous Magnolia native to the Piedmont with thin leaves that drop once a year. This poses far less of a maintenance issue. This tree prefers areas near creeks or wetlands. Another option is the Galaxy Magnolia (*Magnolia liliflora sprengeri*), which is a deciduous hybrid Magnolia that would make a lovely street tree.

Signage

- Pedestrian-oriented signs should be at a height of 4-5 feet.
- Signage should be minimal. Use existing signs, pavement, benches, or evaluate the needs for the sign at all.
- Signage should be aesthetically appealing.
- Signage should be maintained to be readable.

Sample costs for these items are given in **Appendix E**.





6.1. MAPPING AND SIGNING PROJECTS

Neighborhood and Comprehensive Route Systems

An ideal city transportation system might have neighborhood roads that take residents from their homes to densely developed satellite shopping, employment, and interior schools. Thoroughfare roads should exist that connect these communities to each other. Ideally, the land use in between these communities should not be commercial, but residential or rural, giving travelers the option of using grid roads to connect to the next commercial community. It has minimal congestion because the roads do not support the numerous intersections and spread out development that strip-style commercial business brings. These conditions do not exist in Mooresville, with residential roads commonly ending in cul-de-sacs and rarely leading to more than a few exits out of the development. Commercial strip development away from these residential access points with expansive parking facilities is far more common than nearby dense commercial development. Schools are also built on cheaper land on main highways away from neighborhoods. Changing the future development patterns is a far more effective planning strategy than pedestrian mapping or signing projects.



Connections with existing roads have been identified in this plan, and should be made immediately to ensure that the proposed routes are functional. Once a route is physically connected with pedestrian walkways, it should be named, mapped, and marked. Maps should be printed and distributed, with occasional updates added. The pedestrian structures, waste cans, or sidewalks themselves should have the route name posted on it without the need for additional signage.

These routes could eventually link the entire Lake Norman area, Mount Mourne, the Kistler Farm area, and Downtown. Once a policy-driven street connection system is developed, there will be no need for additional mapped local routes.

6.2. SPOT IMPROVEMENT PROGRAMS

Sidewalks / Walkways

Just as potholes, uneven pavement, and visual obstructions irritate automobile drivers, they do the same to pedestrians. Current sidewalks should be free of cracks, dead-ends, or uneven alignment. Funding should be set aside for maintenance of worn sidewalks and consideration should be made as to which material to use to maximize the sidewalks' lives.



Pedestrian Signals and Crosswalks

Signals should be in good working order, and replaced with a countdown signal with an audible tone when it has reached the end of its lifespan. Crosswalks should be clearly marked and maintained with a pattern that is clearly visible and recognizable by motorists. Curb cuts and



crosswalks should align in a straight path that connects the sidewalks, and mid-block pedestrian crosswalks should be made visible to cars using flashing lights, signage, or a mixture of both. All crossing areas should be clear of obstructions such as parked cars, signs, trees, or structures. Intersections and driveways should be constructed with tight right turns. This policy will shorten the crossing length for pedestrians, force the driver to take the turn at a safe speed or from a stop, and give the driver a clear view of both pedestrians and oncoming traffic before making the turn.

6.3. MAINTENANCE PROGRAMS

Provide Trash Receptacles and Enforce Litter Laws

Automobile traffic, by nature of its speed and relative isolation from the outside world, is less sensitive to littering eyesores than pedestrian traffic. Litter indicates a lack of social order, which is a deterrent to pedestrians. Automobile-generated litter tends to accumulate in places where drivers generally wait such as traffic lights. Some litter is dispersed at high-speed zones where conscious litterbugs can pitch without recognition, or where unconscious litterbugs allow non-secured trash to blow from their vehicles. To discard a cigarette out a car window is considered a social norm, but the accumulation of thousands of butts along a roadway can be an awful sight to a bicyclist or a walker. Pedestrians will tend to litter if there are no waste receptacles within a reasonable distance along walking routes, and it too will accumulate where they wait such as a transit stop, traffic light, or bench. Ample bins should be provided in these areas for the pedestrians, and there should be a known venture to enforce litter laws. With the fact that there are potential tattle-tales with cell phones everywhere, a local Litter Hotline should be established so that each driver understands that they might have a snitch behind them, or advertise the statewide NCDOT “Swat-A-Litterbug Program” around the Town. If offenders see that there is a campaign where they can be reported, it alone might curb some trashing of our streets and sidewalks. If they get a letter that they have been reported, it will help even more. This program gives the user an opportunity to call, mail, or submit violation information online. The phone number of their Customer Service Office is 1-877-DOT-4YOU (1-877-368-4968). The web address is:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/Beautification/litterbug/

Swat-A-Litterbug



Adopt a Road / Adopt a Sidewalk Programs

Adopt a Road programs are common, enabling members of the community to sponsor and help to clean a road of litter. The Town of Mooresville can begin a similar program for its sidewalks and (future) greenways. This program could also be used as a means for the community to alert the city when there is a maintenance issue with a sidewalk, or as a means for a sidewalk to get special attention, funding, and improvements because of the dedication of its community





sponsor. In the end, if the number of pedestrians in the Town increases, the awareness and sense of pride and ownership should eventually create a cleaner streetscape.

6.4. TRAFFIC CALMING INITIATIVES

Decrease Intersection and Driveway Widths by Tightening Turns

Intersections and driveways that are designed for cars to make quick right turns are unsafe for both drivers and pedestrians. Tightening up the turn will force the driver to come to a complete stop, give drivers a better angle-view on approaching traffic and cross walkers, and decrease the length of the crosswalk for the pedestrian. This solution enhances pedestrian safety at all intersections, and would greatly improve the safety at major intersections along NC 150, Williamson Road, US 21, NC 115, and Brawley School Road. Angled right turns, on the other hand, increase fuel efficiency because of these rolling stops and therefore decrease air pollution. A pedestrian island at right turns can make it a little safer for pedestrians, and keep these angled right turns at major intersections. Each new intersection and driveway should be constructed according to new guidelines that address these considerations. *(Photo Source: safety.transportation.org)*



Road Diets



Current roads with two travel lanes in each direction and no designated left turn lanes should be evaluated for the possibility of applying a “road diet”. This road diet would reduce the road to one travel lane in each direction, include designated left and right turn lanes with occasional median strips, and add bicycle lanes. This configuration will allow through traffic to keep their speed without stopping for turning vehicles, support alternate forms of transportation, provide buffers for pedestrians on the sidewalks, and give pedestrians safer crossing opportunities. Some studies show that this configuration could be safer and can be more efficient as a traffic mover than its counterparts. *(Photo Source: safety.transportation.org)*

Alternate On-Street Parking

Where there is space for on-street parking on only one side of the street on slow-speed roads, consider striping the travel lanes so that the parking spaces alternate from one side of the street to the next with each block or half block. This will give the road a serpentine shape and naturally reduce the speed of traffic. Roads near Downtown such as Wilson, College, Cabarrus, Center, and others may be candidates for this treatment.



6.5. TRANSIT INTERFACE

Future Local Bus Transit



Mass transit works well with densely developed commercial centers with nearby residential areas. Land use plans that encourage this type of development will maximize the efficiency of future transit routes, stops, and costs, ensuring a viable system with which pedestrians can be comfortable. Furthermore, encouraging pedestrian amenities now will make future transit routes more simple and affordable.

Proper land use planning is essential for the success of local bus transit. This plan has identified *Pedestrian Oriented Development Zones* where dense commercial and residential development is encouraged, similar to *Transit Oriented Development Zones*. Limited transit stops at or near these centers in the future will be far cheaper, efficient, and more utilized than multiple stops along several travel corridors. *Graphic by Moule & Polyzoides.*

Proposed Rail Station Impacts

Development guides where bus transit runs, while fixed transit systems such as the proposed CATS Commuter Rail can guide development around its stations. The Town of Mooresville should ensure that the areas surrounding these stations follow pedestrian compatible guidelines, and should support the arrival of nearby businesses such as coffee houses, restaurants, and shopping that compliments transit hubs. Nearby major shopping hubs and dense residential development will further guarantee the success of these stations. Zoning the residential areas immediately adjacent to the proposed commuter rail stops to support higher density, mixed-use development would begin these areas' transition into a more urban environment, and help draw more people into a walkable pedestrian zone.

Parking areas for the commuter rail stations should be designed carefully to define the pedestrian as the priority user for the service. Parking lots should be positioned where park-and-riders would have to walk through a mixed-use pedestrian area before reaching their cars.

Bicycle Accommodations on Public Transit and at Stations

Future public transit should accommodate for bicyclists with proper bike racks inside or outside of the vehicle. This will allow for users to decrease their travel time between transit stops and destinations without depending on the automobile for any short trips. Covered and secure overnight bicycle parking should also be available at transit stations. Some cities have tried "Yellow Bike Programs" where bicycles are left at transit stops or other popular pedestrian areas for those who need to use them. A problem with this program is theft, but this can be mitigated by issuing any interested person a "Bicycle Loan Card" from the public library for a small fee or no fee. With this card, the user could check out the bicycle from transit stations or from the library or other public institution where a combination is given to a lock that can be used with the



bicycle. The user must return the bicycle at the end of an appropriate time, or the combination could be given out to card holders to use at any time. Encouraging bicycle rental enterprises at these locations and along greenways will also benefit citizens, the Town of Mooresville, and small business owners. Cell phone technology also allows cell phone users to make reservations for these fleet bicycles.

6.6. CAR SHARING PROGRAMS AND BUSINESSES

Pedestrian-friendly communities with good mass transit are good candidates for car-sharing business to take root. Two premiere companies that are growing nationally are Zip Car and Flex Car, and they primarily allow families (or businesses) to own fewer cars while still giving them the convenience of “renting” a car by the hour for local tasks. Although the Charlotte metropolitan area is years away from having this option, Mooresville can consider it as a possibility when the commuter rail stops in Mt. Mourne and Downtown Mooresville. Supporting such a business will support the pedestrian infrastructure by giving more people a reliable vehicular backup when walking is not possible. This could mean easing their fears with becoming a full-time pedestrian.

This idea could be spread among the community, particularly near current and proposed transit stations and inside densely developed parts of town (i.e. Pedestrian Oriented Development Zones). Educational Programs could be offered to help families determine the cost savings and health benefits that may be associated with owning fewer cars. Fewer cars owned could mean fewer cars on the road if these people learn to walk or carpool more often.

Some areas of Mooresville might be good candidates for publicly supported car share programs. Retirement homes and low-income neighborhoods might benefit from such a program.

6.7. SAFETY EDUCATION PROGRAMS

The North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation has a wealth of information on their web site: http://www.ncdot.org/transit/bicycle/safety/safety_programs.html



This web site includes information on programs such as the *Basics of Bicycling Curriculum*, *Bicycle Helmet Initiatives*, *Bike Repair*, the *North Carolina School Crossing Guard Training Program*, the *Share the Road Initiative*, and the *Walk a Child to School Initiative*. The web site is also a good source of resources and materials.



Safety Signs on Pedestrian Routes

Pedestrian walkways should have certain amenities to make them comfortable such as benches, water fountains, shelters, waste and recycle cans, restrooms, landscaping, interpretation signs, lockers, boardwalks, bridges, etc. Use these structures to your advantage. Safety messages could be placed on any of the aforementioned amenities in a location where users could clearly read it, and quite possibly abide by its message. Using riddles, rhymes, or stories to make the point increases the public's interest. A local business or family could sponsor each structure and its corresponding safety sign.



School Safety Patrol Programs



School Safety Patrol Programs across the United States have been responsible for decreased pedestrian/vehicle collisions. The American Automobile Association (AAA), municipalities, and schools have sponsored these important safety programs in the past, and should be continued by Mooresville's schools. AAA Carolinas' contact person for the Safety Patrol Programs is Joy Dixon. She can be contacted by calling 704-569-7883. She can also provide pertinent information in reference to ordering supplies and starting up the program at Mooresville's schools.

Volunteer Community Crossing Guards

This program is a volunteer opportunity through the local school system that could help two groups at once with walking opportunities. While the student Safety Patrol handles the students' safety on campus, volunteer members of the community (retired citizens in most cases) could be stationed at nearby intersections and common crossing areas for students. They could act not only as traffic calmers, but as extra pairs of eyes watching the children as they make their way to school.

Twilight Walks

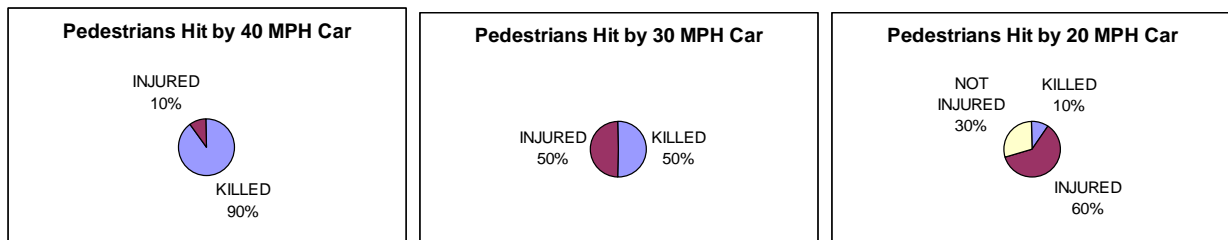
This program would be a volunteer program (possibly through the library) for both elderly residents and younger residents. The two will get together on a predetermined regular schedule and walk to a destination (such as the grocery store, movies, or restaurant). This walk will give the senior time to talk to a young person about anything that they want to talk about. It will also give the younger participant an opportunity to hear stories of the past and understand their city's history. The two will benefit from walking and from learning to become less dependent on their automobiles, and the senior who already depends on walking will have some security against possible (or usually just perceived dangers of) crime attacks.



6.8. ENFORCEMENT PROGRAMS

Twenty's Plenty

Once Pedestrian Oriented Pedestrian Zones are in place, there becomes a need to reduce automobile speeds to accommodate for increased pedestrian traffic. Creating an awareness program that encourages drivers to drive no more than 20 MPH in certain areas of town will make it more comfortable for the pedestrian to venture out on foot. As illustrated in the graphs below, the severity of pedestrian / automobile incidents drastically decreases with lower automobile speeds. The name, "Twenty's Plenty" has been used with success in other communities.



Foot Patrol

Once the Pedestrian Oriented Development Zones are functional, the Mooresville Police Department should assign officers to each zone to be a visible, walking police officer. That officer will get to know business owners, residents, and frequent visitors well, as they would be permanently assigned there.

6.9. ENCOURAGEMENT AND PROMOTION PROGRAMS

Urban Walker Program

The State of Florida's Division of Forestry realized that Floridians knew of their many State Parks, but were mostly unfamiliar with their State Forests. They began a "Trail Walker" Program that gave users a map of the forests and their trails, and allowed them to earn stickers and leveled patches according to the number of trails that they have done. The State Forests became more widely recognized, and many trail hikers scrambled to earn trail stickers and patches.

There are more than twenty proposed pedestrian routes and multi-use paths in the Mooresville Comprehensive Pedestrian Plan, and dozens of opportunities in the future. These routes could be named, mapped, and signed (marking the pavement is a less expensive and less intrusive method) for easy identification, and used in a similar program as Florida's Trail Walker program.





Residents could obtain a pedestrian route map, record log, and sticker sheet from the Parks and Recreation Department and commence their walking. Each time a user walks a portion of a route, they would record this walk in their log book and place a sticker in it.

Once they walk five different routes, they earn a “Pathfinder” patch. Five more routes, and they earn an “Urban Pioneer” patch. If they complete all of the routes, they earn a “Trekker” patch.

This way, residents become familiar with local pedestrian routes, and maybe determine that they can also use these routes to get to shopping, work, school, or to leisure activities.

Three more patches can be created for those who use the same paths routinely for these purposes. If the user records five walks on any path within one month, they earn a “Weekend Warrior” patch. If they record ten total walks in a month, they earn the “Rambler” title. With 20 walks in the same month, they earn the very prestigious designation of a “Pedestrian.” This program is an inexpensive way to familiarize residents (especially the elderly and children) with the local pedestrian network, and naming the highest level as a “Pedestrian” will associate the act of being a walker as a great honor.

Walkers’ Discounts

Americans end 90-99 percent of their car trips in misconceiving “free” parking spaces. With the average parking space costing \$1,000, fifty percent of this cost is paid by employers, the businesses drivers patronize, and by taxpayers. Another 40 percent is paid through rent and mortgages for off-street parking at home. This means that only about 1-10 percent of the nation's parking bill is pay-per-use at meters, lots, or garages. Pay parking is rare because antiquated provisions in zoning and tax codes - along with expansive street designs – produce an abundance of available parking. Most zoning codes (include Mooresville’s) require a surplus of parking spaces. The Town should reconsider all zoning requirements for off-street parking, allowing the market to dictate the amount of parking, and also increase the fees for parking to fair market price (with the money being used on pedestrian infrastructure.) In addition, businesses where “free” parking exists in designated Pedestrian Oriented Development Zone centers could join with the Town to offer discounts to patrons who walk to these businesses. Perhaps the market may then favor some businesses to develop parking lot land for denser infill development that supports pedestrian travel. This program can be tried during walk, bike, and transit encouragement weeks.

Spot Trot



The Iredell County Humane Society Shelter is considering a new location in either Mooresville or Mount Mourne. The shelter will not euthanize their rescued pets and the animals would always benefit from a walk. Nearby residents would also benefit from walking the dogs. A safe pedestrian route can be created near the shelter (or the volunteers could take the dogs to other existing pedestrian paths), and a volunteer dog walking joint program between the Town and the Humane Society could be established. Sandy Mills from the Iredell County



Final Report

Mooresville Comprehensive Pedestrian Plan

Humane Society is the contact, and she has stated some interest in this joint effort. She can be reached at (704) 880-1452.

“Walk for Prevention”

The Susan G Komen Breast Cancer Foundation Race for the Cure is a highly successful organized run whose proceeds go toward finding a cure for breast cancer. Some studies suggest that non-active lifestyles, poor diets, environmental cigarette smoke, and other lifestyle choices contribute to breast cancer risks. The City’s Park and Recreation Department or the Iredell County Department could sponsor a 5K and/or 1 mile run/walk whose proceeds might go to Mooresville’s pedestrian facilities, healthy school lunch foods, and tobacco education programs. The event would also educate the community about healthy lifestyle choices (especially walking) and the effects of unhealthy living. The route could include Downtown and the Magnolia area, and the right advertising might attract a large audience.



Greenway Events and Street Closings



Once the Dye Creek Greenway is constructed, it would create a perfect opportunity for regular special events. A festival could be set up both at Bellingham Park and at Liberty Park, with vendors and events taking place along the greenway. Downtown could also be closed off to vehicular traffic for seasonal festivals, or even on Saturdays, spurring a new and desired shopping experience that may draw more business than a typical Saturday, as in this photo on Charlotte’s Tryon Street.

Walk to Work, Shop, and Play Day

Designate a day, or preferably even a week or month (but “day” rhymes well with “play”) where people walk to their destinations. This can coincide with *International Walk to School Week*, or with Bike to Work Week, or with another common “Hike, Bike, and Bus” week that some municipalities sponsor. Advertise these events, have some fun events along common pedestrian routes, and offer prizes and recognition for shining participants. *International Walk to School Week* typically falls on the first week of October, and their web site with good information could be found at <http://www.walktoschool.org/>.



Walking Challenge



Have a web page set up where residents can enroll to receive a pedometer (at no cost or at a cost determined by the Town) and a map of Mooresville’s pedestrian routes. Participants record on the web site how much they walk each month, and have the opportunity to win recognition or awards. It is amazing how recording the results from a pedometer can addict users to walking. The Fit City Challenge is a national organization that Mecklenburg County has teamed with to create a web site that keeps track of the exercise and diets of users. Mooresville could create a



similar site, or advertise with Mecklenburg's web site. Its URL is: <http://www.fitcitychallenge.org/>.

Public Perception Marketing

Although an increase in pedestrian facilities is far more popular than many transportation projects, it is highly recommended that a positive marketing campaign start as soon as possible. Greenways, sidewalks, bikeways, and intersection improvements cost tax dollars, require right-of-way, and sometimes create friction between the impatient driver and the pedestrian. Off-road pedestrian paths such as greenways have shown through studies to occasionally increase property re-sale values, have no increase or actually might decrease neighborhood crime, and result in more positive ecological effects than negative. Once greenways are successfully on the ground in communities, the residents know first hand of their benefits and welcome more. However, communities are sometimes wary as to how these trails might negatively affect them, and false information and negative perceptions may allow for a public relations issue before the trails are in place.



In addition, recent political events concerning the acquisition of right-of-way has created some public uneasiness with sidewalk and other projects that might require land easements. The Town should first act to create a positive image for impending greenways, sidewalks, and intersection improvements before any opposition occurs. Circulate the facts concerning these facilities and show the positive benefits.

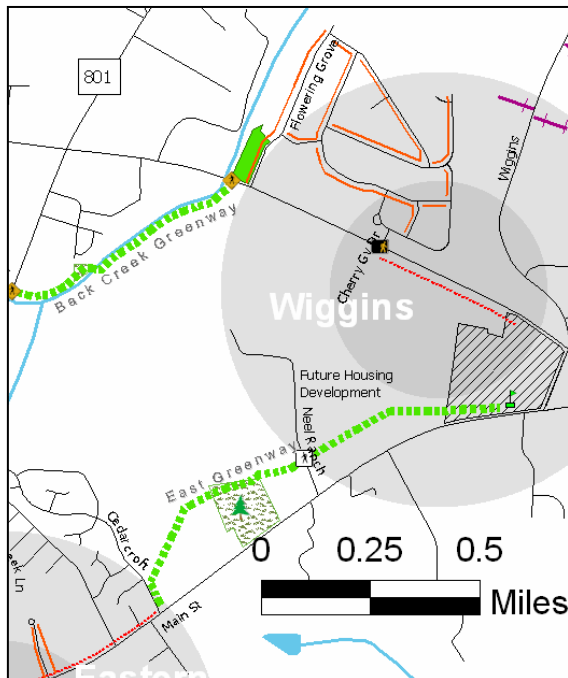


7.1. PROPOSED PROJECTS

Section 4 illustrated twenty “*Pedestrian Oriented Development Zones*,” each representing an area small enough to realistically walk and which contains some of the essential elements of a community including housing, shopping, businesses, and schools. A zone that contains significant elements of residential and commercial is considered a “community” for the sake of this project. A zone is referred to as a “neighborhood” if it is missing significant commercial development, and a “business center” if it is missing significant residential areas. Several Pedestrian Oriented Development Zones have been labeled as “future” communities or neighborhoods based on their potential to develop.

This Section identifies specific pedestrian projects in each of these zones (and in surrounding areas). Exhibit 7-1 provides an overall view of proposed projects, and more detailed maps are presented in conjunction with the discussion of projects related to each zone and in **Appendix F** (refer to the legend in Exhibit 7-1 for symbology for the maps of individual zones.)

1. Wiggins Future Community



A. Develop a wide multiuse path from Cedarcroft Road and Main Street through the new park and the new housing development and on to East Mooresville Intermediate School. This path should be a minimum of 10 feet wide, paved, and with a minimum of two foot shoulders on each side. The ten foot width would be conducive to multidirectional foot and bicycle traffic. The shoulders would provide additional walking/running area and maximize the life of the trail. Additional easements should be required for landscaping, benches, and adequate vegetation buffers from roads or houses. If possible, developers of the area should provide right-of-way and initial construction costs of the trail. Residents and businesses can donate benches, shelters, water fountains, bicycle racks, and other features that add to the usability of the route. Plans could be made to place the front of the homes along the greenway instead of the rear, allowing for privacy and possibly a neighborhood median parkway.

B. An additional sidewalk connector can be added from East Mooresville Intermediate School to Cherry Creek Road on NC 150 to serve students in a neighborhood that has existing sidewalks.

C. A neighborhood crosswalk should be installed on the greenway and Neel Ranch Road, and a study could be done to determine the need for a flashing mid-block crosswalk at the corner of Cherry Grove and NC 150. A common trend is to construct new schools away



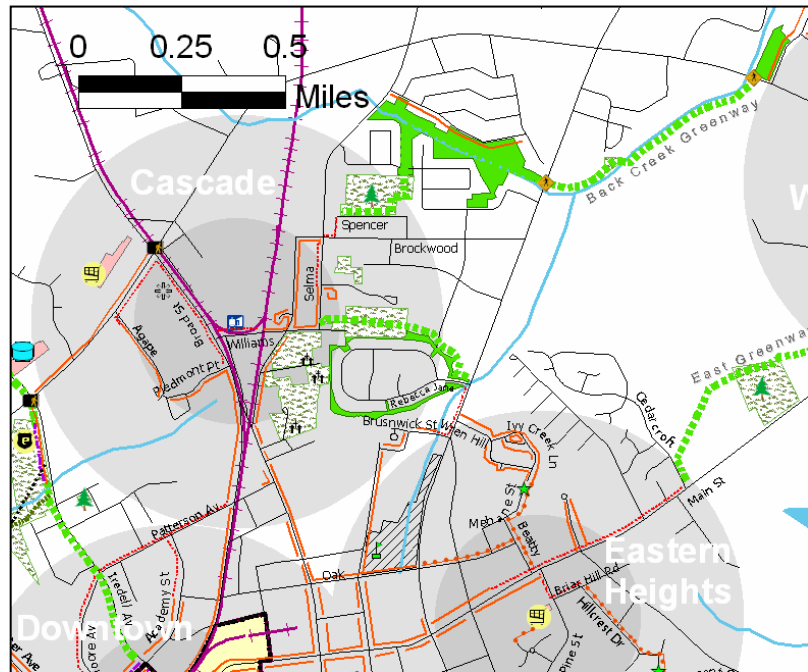
from neighborhoods and along busy highways even though schools nestled in neighborhoods allow for greater pedestrian access throughout the schools' lives. The location of the property for any new school should be closely evaluated for pedestrian accessibility. Consider a policy that requires new subdivision developments to set aside interior pieces of their property for schools.

- D. Encourage compact commercial development along the NC 150 corridor from the School to Cherry Grove only, with the hope of creating a community center in the area that would be close enough for pedestrians to access without their cars. Maintain residential zoning surrounding this area to create the desired "Donut" of houses surrounding a school and shopping areas.

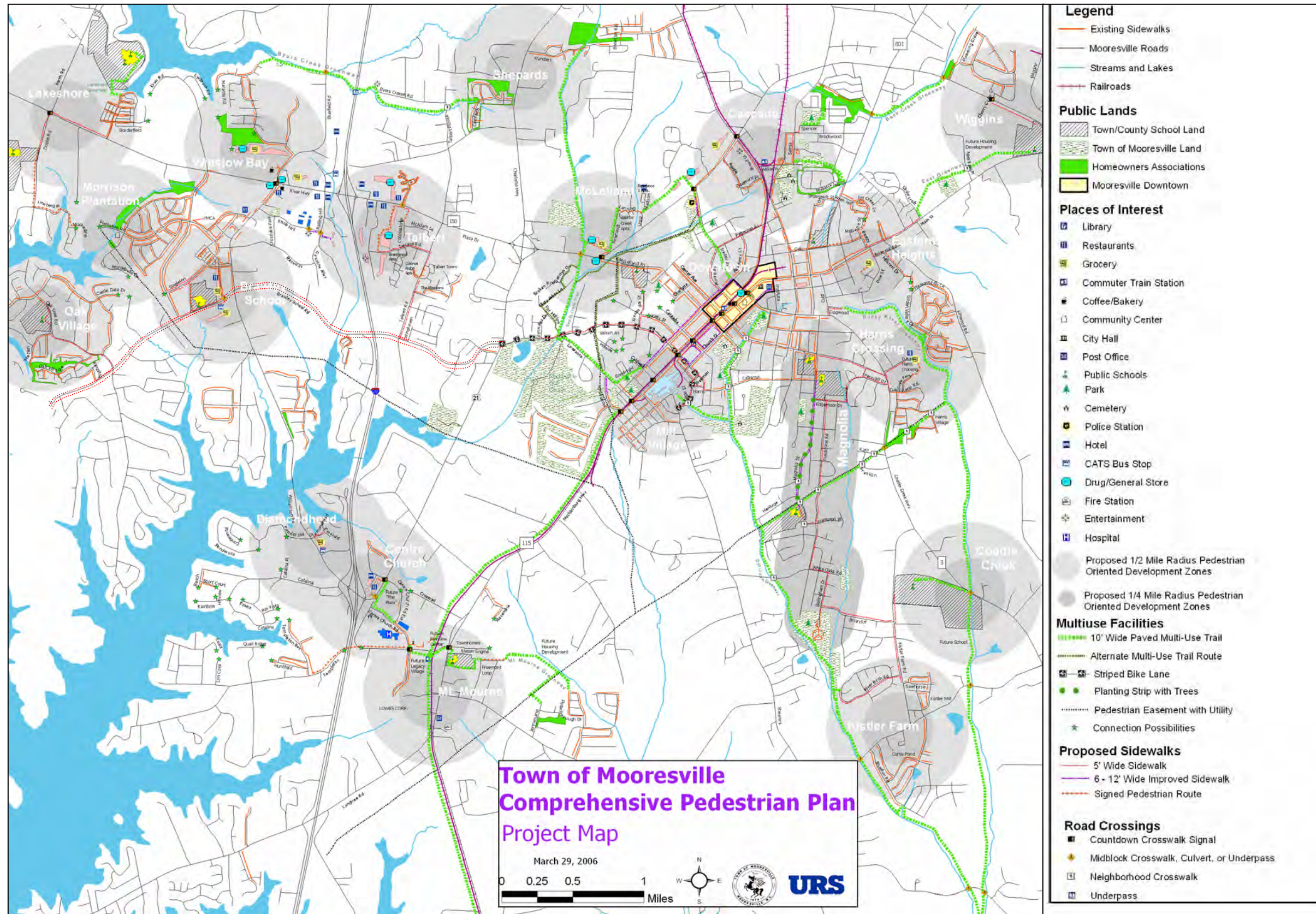
2. Cascade Future Community

These projects build upon the recommendations set forth in the 2002 Cascade Master Plan.

- A. The proposed commuter rail station on Williams Street has great potential to attract pedestrians from the Cascade neighborhood. It could also help define what Mooresville is to become. Implementing Urban Street Design Standards on Broad Street from Iredell Avenue to Highway 150 will help this rail corridor become a functioning pedestrian and business center. Support transit-guided development along the rail line that adds to the pedestrian connectivity of a passenger rail station. Out-of-town commuters who park nearby should have easy places to walk to patronize before and after catching their train.



- B. If implemented, the commuter rail station on Williams Street may serve a high number of park-and-riders because it is the northernmost terminus of the route, and there should be an effort to keep surface parking lots hidden from the pedestrian zone directly around the station. Parking garages that fit neatly into the surroundings are recommended to save land space near the station that could be used for businesses that serve the commuters. Placing the vendors in-between the train station and the parking garage will force pedestrian traffic to pass the storefronts, increase the tax base for the Town of Mooresville, and encourage and support pedestrian-based businesses. Necessary vendors for a community such as a grocery market and a general store should be supported near the station as well to serve both the residents of the Cascade neighborhood and the rail commuters.



Legend

- Existing Sidewalks
- Mooresville Roads
- Streams and Lakes
- Railroads

Public Lands

- Town/County School Land
- Town of Mooresville Land
- Homeowners Associations
- Mooresville Downtown

Places of Interest

- Library
- Restaurants
- Grocery
- Commuter Train Station
- Coffee/Bakery
- Community Center
- City Hall
- Post Office
- Public Schools
- Park
- Cemetery
- Police Station
- Hotel
- CATS Bus Stop
- Drug/General Store
- Fire Station
- Entertainment
- Hospital

Proposed 1/2 Mile Radius Pedestrian Oriented Development Zones

Proposed 1/4 Mile Radius Pedestrian Oriented Development Zones

Multiuse Facilities

- 10' Wide Paved Multi-Use Trail
- Alternate Multi-Use Trail Route
- Striped Bike Lane
- Planting Strip with Trees
- Pedestrian Easement with Utility
- Connection Possibilities

Proposed Sidewalks

- 5' Wide Sidewalk
- 6 - 12' Wide Improved Sidewalk
- Signed Pedestrian Route

Road Crossings

- Countdown Crosswalk Signal
- Midblock Crosswalk, Culvert, or Underpass
- Neighborhood Crosswalk
- Underpass

Exhibit 7-1:
Proposed Pedestrian
Projects (Overall)



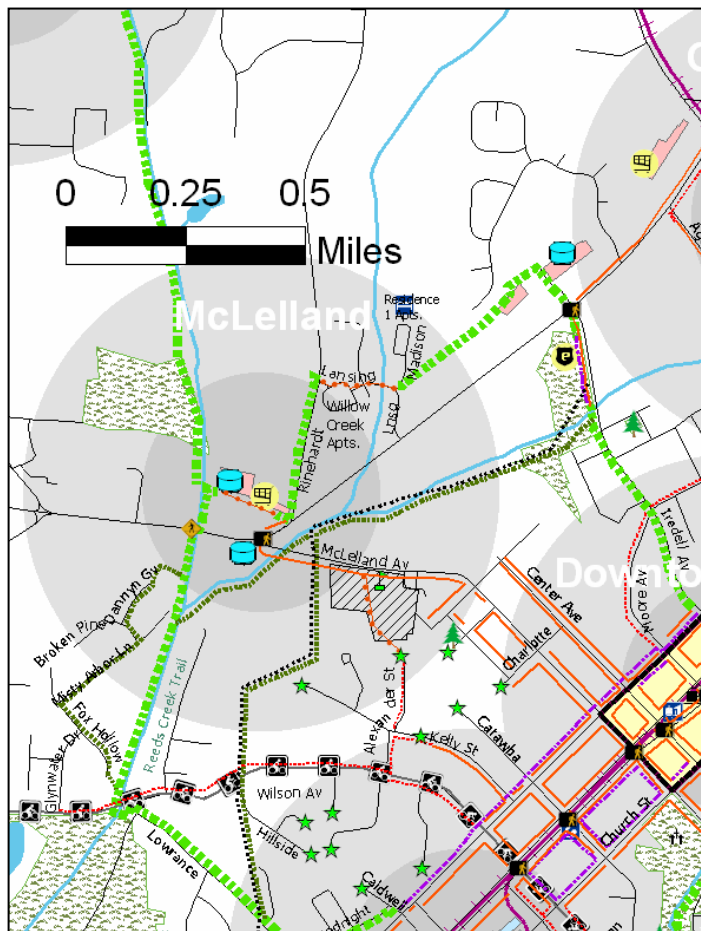
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- C. Create a greenway along Back Creek from the Cherry Grove Neighborhood Association land on Flowering Grove and NC 150, through Home Owner Association land, and through Magla Park. The greenway will continue on Selma and Williams, going through Town of Mooresville land and Homeowners Association land to Rebecca Jane Road and NC 801. The greenways can be connected by completing the sidewalks on Spencer, Brookwood, and Selma. Either flashing mid-block crosswalks or pedestrian culverts should be placed where the greenway crosses NC 150 and NC 801.
- D. This zone currently does not have a pedestrian unfriendly strip mall area on the corner of Broad Street and NC 150 that residents of the Cascade neighborhood could feasibly walk to. The sidewalk would need to be extended from Piedmont Point Road up Broad Street to NC 150, then continue west to Agape, then connect a few hundred yards south on Agape where the sidewalk terminates. This connection should enable a fair amount of residents to walk to the grocery store on NC 150, but future roadway improvements would have to be made before this is a walk that many people would enjoy. Restricting further commercial development east of Broad Street on NC 150 and west of the development on the corner of Iredell and NC 150 will allow for a more compact development pattern that is favorable to pedestrians.

3. McLelland Community

- A. Create the Reeds Creek Multi-Use Trail from Downtown on Academy and Caldwell to the businesses on NC 150 and back to downtown by way of Iredell. With the following practical route for a 10-foot wide trail, neighborhoods, shopping, parks, and Downtown Mooresville will all be connected on a safe and usable pedestrian path. The route will begin at Caldwell and Academy Street and travel north on Caldwell to Goodnight Street. It continues west on Goodnight Street through Academy Park. Some right-of-way must be obtained to connect to an existing road right of way dead-end off Lowrance Ave. Turn north on Lowrance, crossing Reeds Creek at the golf course. The trail hugs Reeds Creek past and across NC 150 to the Big Lots shopping center. Pedestrians can use the existing storefront walkways and signs to connect to Rhinehardt Road on its other side. The trail follows Rhinehardt north until it shares the road with Willow Creek





Apartments on Lansing Road. Once through the apartment complex, the trail begins again at the corner of Lansing and Madison, passing Residence One Apartments. Crossing behind what is now relatively undeveloped commercial property, the trail turns south at the Family Dollar Shopping Center on Iredell Avenue. It follows Iredell back to Academy, where users can use the improved sidewalk suggested earlier to return them to the beginning of the trail. If right of-way cannot be obtained along Reeds Creek, an alternate route can be made with sidewalks in the adjacent neighborhood using Fox Hollow Road, Misty Arbor Lane, Broken Pine Road, and Dannyn Grove. Short right-of-ways would have to be obtained from only two homeowners and a commercial landholder for this alternative. If access is not possible behind the park from Goodnight to Lowrance, then routing the trail from Norman to Main Street is an option. Other options include routing the trail along the Reeds Creek tributary until it reaches Iredell Avenue, or following the utility from Lowrance Avenue to Iredell. An effort was made to keep the trail away from NC 150 as much as possible. Pedestrians, and especially parents of children using the trail, feel more comfortable away from the noises and congestion of multi-laned roads. Sidewalks placed on Moore Avenue, Patterson Avenue, Academy Street, and Norman Drive will help to connect more residents to this trail. A countdown signal at NC 150 and Iredell along with a flashing mid block crosswalk or pedestrian culvert on Reeds Creek and NC 150 would make crossings safer at this road.

- B. This zone could be easily connected to the *Mill Village Pedestrian Oriented Development Zone* with a short path from the back of the technology and arts center to Alexander Street.
- C. Consider attaining a pedestrian path easement along the utility line that terminates in this zone. This particular utility extends from Iredell Avenue to another utility line in South Iredell near Mt Mourne. Future long-term plans may include connecting all of these pedestrian zones together with a long distance multi-use trail.
- D. Restricting commercial growth more than a ¼ mile from the corner of McLelland and NC 150 will provide a compact community center that is easy to get to and around by foot.

4. Shepards Future Community

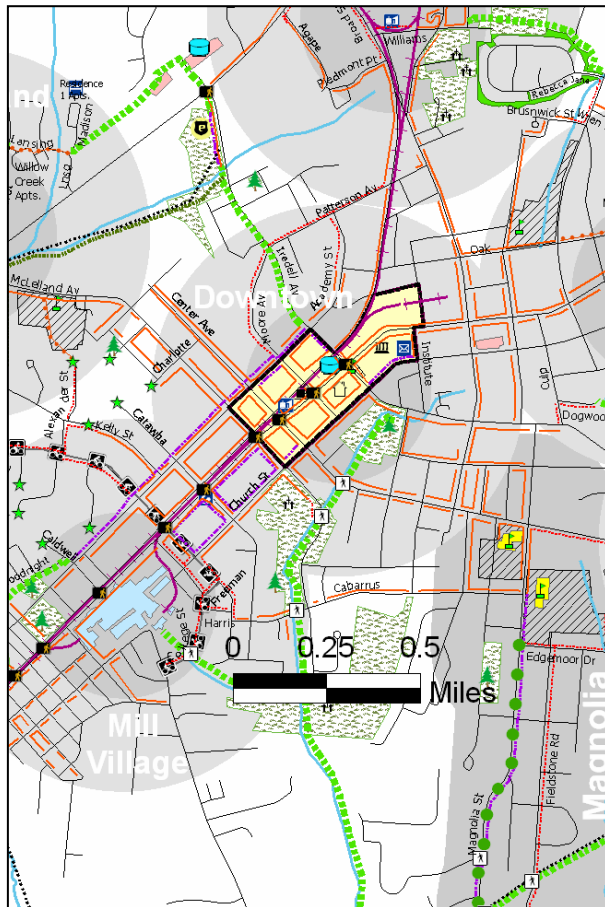


A. Brewster Road should be connected to itself with a road or a pedestrian path. An easement already exists for such a connection, and is surrounded by land owned by the Winborne Homeowners' Association. This exemplifies needed construction policy modifications and adds to the connectivity for future developments and retail, school bus stops, bicyclists, and emergency vehicular routes.



- B. Two multi-purpose paths should be created that connect this area to both downtown Mooresville and the neighborhoods across I-77. One would begin at the Brantley Place Homeowners Association land on Camforth, running east/west along Byers Creek to Byers Creek Road before continuing under I-77. Another could run north/south along Reeds Creek from Winborne Homeowners' Association land along Flanders until it meets up with the proposed Reeds Creek Greenway near the Big Lots shopping area. These connections play a vital pedestrian link from northwest Mooresville to Northeast and downtown Mooresville.
- C. A small, pedestrian friendly retail area for shopping on US 21 between the access points for the neighborhoods on the east and west side of this major road would nicely accommodate pedestrians from these communities. Encourage this area only for future commercial plans, restricting further commercial development south of this cluster of retail to curb sprawl and congestion.

5. Downtown Mooresville Community



A. The new library extends downtown, so consider developing a wider sidewalk (6-12') with a planting strip and on-street parking along Main Street from McLelland to Wilson Ave. to create the same pedestrian atmosphere that exists through the rest of downtown. Wrap this sidewalk around Wilson and northeast on Church up to Center, and complete the connection on Church from Iredell to Institute to complete the southern downtown perimeter. The northern edge would be completed by improving the sidewalk from Caldwell to Iredell on Academy Street, and connecting back to Broad Street via Iredell. Encourage appropriate infill in this area such as high density residential units, office buildings, restaurants, entertainment, and the arts. Other roads that would benefit from a wide sidewalk would be Academy Street from Caldwell to Iredell (to connect the Reeds Creek Trail), Academy Street from Center to Moore, Church Street from Iredell to Institute, and Church Street from McLelland to Center.

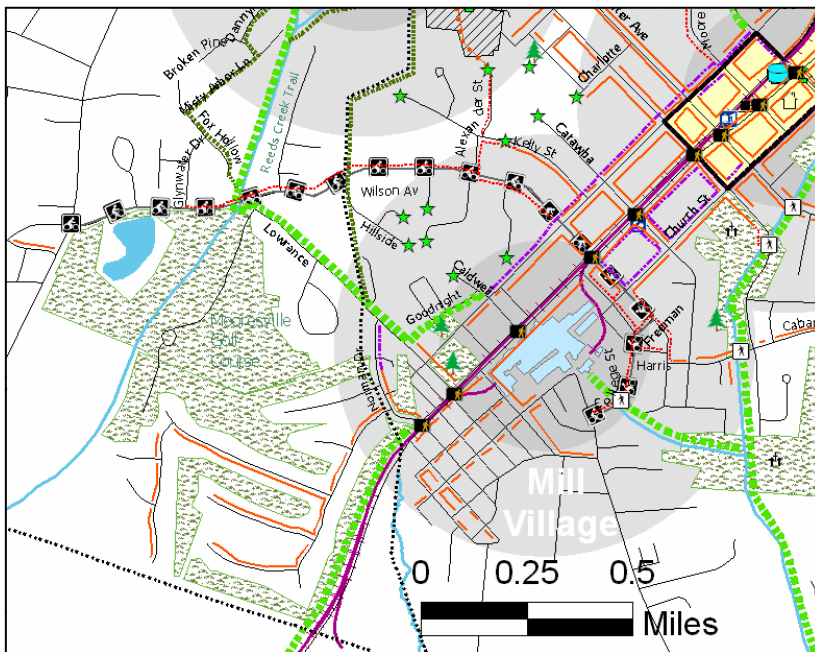
B. Five foot wide sidewalks should be placed on Moore/Patterson Avenue from Academy to Broad and on Academy from Patterson to Oak.

This would give safe walking areas for many people in areas that traditionally walk.



- C. Create Urban Street Design Standards along Broad Street to Highway 150 to compliment the proposed commuter rail station. These may include wide sidewalks and planting strips, short block lengths, on-street parking, roadside storefronts with additional parking in the rear, and low-speed traffic.
- D. Create the Dye Creek Greenway that will connect South Mooresville with downtown. Greenways are becoming popular ways for people to travel both for transportation and for recreation. They offer a travel mode through a park-like setting, and give children a safe path to travel. Neighborhoods are increasingly asking for these from their developers and from their municipalities, and resale values near greenways have increased. The Dye Creek greenway would begin on the undeveloped property on a creek tributary to Bluefton Road in the new Curtis Pond subdivision. It would hug the creek past an access point belonging to Mooresville Development LLC to River Birch Rd, then travel through Bellingham Park on its way toward South Elementary School. From there, it would continue past the Memorial Cemetery Park and Willow Valley and the downtown cemetery before terminating at Liberty Park. A sidewalk would be added along River Birch Road that would connect that housing development with the Kistler Mill subdivision, Curtis Pond development and to the greenway. A short sidewalk connection can be made along McLelland, and neighborhood crosswalks should be placed on Center, McLelland, Cabarrus, and White Oaks Road. A flashing mid-block crossing signal or a pedestrian culvert should be placed on Rocky River Road.
- E. Countdown crosswalk signals should be installed at Catawba, McLelland, Center, Moore, and the Iredell intersections along Main Street.

6. Historic Mill Village Future Community



A. Paint 4"-8" stripes designating bike lanes on newly paved West Wilson Avenue, and create a sidewalk on remaining existing right of way or by obtaining an easement on residents' property from Glynwater Drive on West Wilson to Cabarrus Street on East Wilson. The five foot bicycle lane will narrow the travel lanes to eleven feet and slow traffic speeds creating no pressing need for a buffering planting strip adjacent to the sidewalk. With the average width on this road being 31 feet of asphalt and 5 total feet of



curb and gutter, many sections of this road can accommodate a bike lane with 3.5 – 4 feet of asphalt and an additional 1.5 feet in the gutter pan. Some sections of the road are narrower or wider, but decreasing the asphalt portion of the bike lane to 3 feet will still accommodate the bicyclist. At a point near US 21, the lane width may be too narrow to allow for a full three feet of asphalt in the bike lane. At this point, discontinue the bike lane, and install signs to “Share the Road.” The wide lane width should still accommodate the cyclist. This bike route will also connect to future potential bicycle routes through the Town. The sidewalk on Kelly and Alexander Streets can be extended to reach Wilson as well and the sidewalk on Alexander Street can be extended to reach the school connection mentioned in the McLelland portion of this plan.

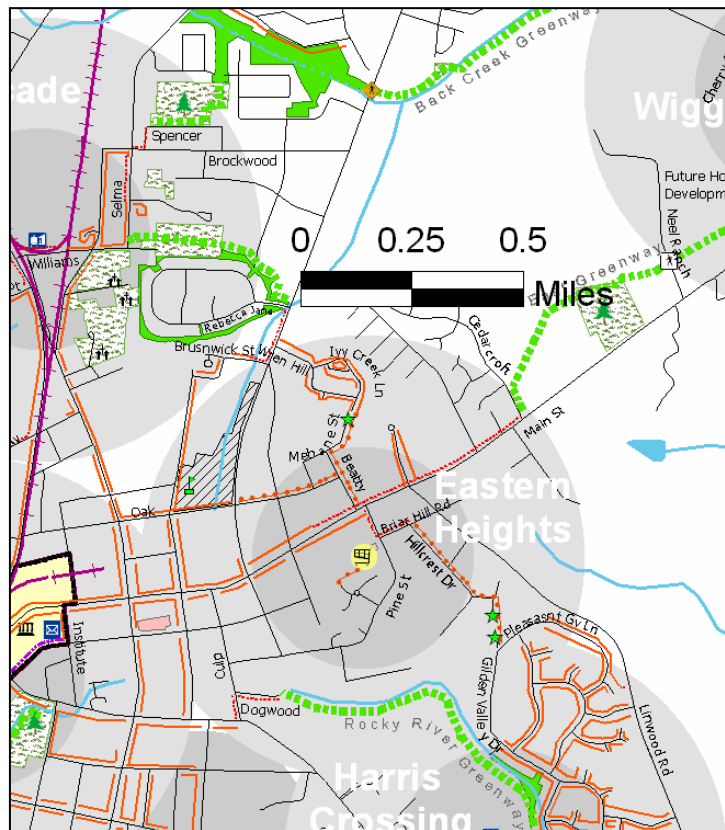
- B. Paint 4”-8” stripes designating bike lanes on East Wilson Avenue, Freeman and onto College before ending at Shearers. The 4.5’ – 5’ bicycle lane will narrow the travel lanes to eleven feet and slow traffic speeds creating no pressing need for a buffering planting strip adjacent to a 5’ sidewalk on remaining existing right of way. With the average width on this road being 33 feet of asphalt and 5 – 5.5 total feet of curb and gutter, this road can accommodate a bike lane with 3 feet on asphalt and an additional 1.5 feet in the gutter pan. A sidewalk would be placed on one side of each of these roads, including Harris, and extending up College to Main Street. The bike lane would serve as a much-needed buffer to walkers, a means to slow traffic in this historical neighborhood, and an extension of the bike route from West Wilson. (There are several portions of this road where on street parking is utilized. The choice may have to be made to keep the on street parking or to keep the bike lane proposal, but either one will serve as that buffer from traffic. If the painted lines that designate on street parking alternate to opposite ends of the street, it can serve as an additional traffic calmer.)
- C. Create Urban Street Design Standards on NC 115 (Main Street) from McLelland Street to Norman Drive. These may include wide sidewalks and planting strips, short block lengths, on-street parking, roadside storefronts with additional parking in the rear. This new street design could effectively extend downtown Mooresville to include Main Street from McLelland Avenue to Norman Drive, with development and land-use standards implemented with the pedestrian in mind. With the guidelines, encourage necessary businesses such as grocery, hardware, and general stores with a particular interest in how the old mill will be redeveloped.
- D. Invest in improvements to the ballfield and create park-like plazas in a corner of Moor Park (remove all the chain-linked fencing.) The cemetery that sits on Church St and the small triangular piece of land that sits on the railroad track between McLelland and Center could also be made into public leisure areas. These plazas could act as community gathering areas, passive recreation parks, or pedestrian corridors. The current state of Moor Park gives off a prison-like appearance that is not inviting.
- E. Extending the current downtown from the library to the Wilson area would include improving the current sidewalk and adding a new sidewalk to the Main Street, East Wilson, Church, and Catawba Street square. A 6’ – 12’ sidewalk, plus the eventual influx of store fronts similar to what appears on Main Street further north, will rejuvenate this part of town.



- F. Extend the sidewalk on Norman Drive to Lowrance with a wide walkway and a planting strip.
- G. Caldwell, Hillside, and Alexander Streets can be connected by a neighborhood road or walkway to greatly increase connectivity and walkability in this area.
- H. Connect the old mill development with the proposed Dye Creek Greenway with a greenway spur. It would reach from the mill site to the Memorial Park/Dye Creek by running along a creek tributary. A neighborhood crosswalk should be placed on College Street where the greenway will cross, although a converted culvert or underpass might also be an option as well.
- I. Countdown style crossing signals should be installed at Main Street and Wilson, Caldwell, Lowrance, and Norman.

7. Eastern Heights Community

A. Consider connecting Golden Valley Drive with Hillcrest Drive, which would connect the new development with the established residential area. It is far too common to see land developers using cul-de-sacs that do not allow for connectivity to neighboring existing or future developments. Incorporate connectivity requirements for vehicles, pedestrians, or both into city development policies. Hillcrest Drive's current paved area is too narrow to include a sidewalk without using additional right-of-way. Briar Hill Road has ample room for a sidewalk to Food Lion and Pine St. to Main St. If the neighborhoods are not connected by a road, but by a pedestrian path only, then a sidewalk might not be necessary on Hillcrest Drive.



Pedestrian route signs or a published map is a unique way of educating people of the route. Connecting the two neighborhoods together with a vehicular road might cause an increase of traffic that would make a sidewalk on Hillcrest more desirable.

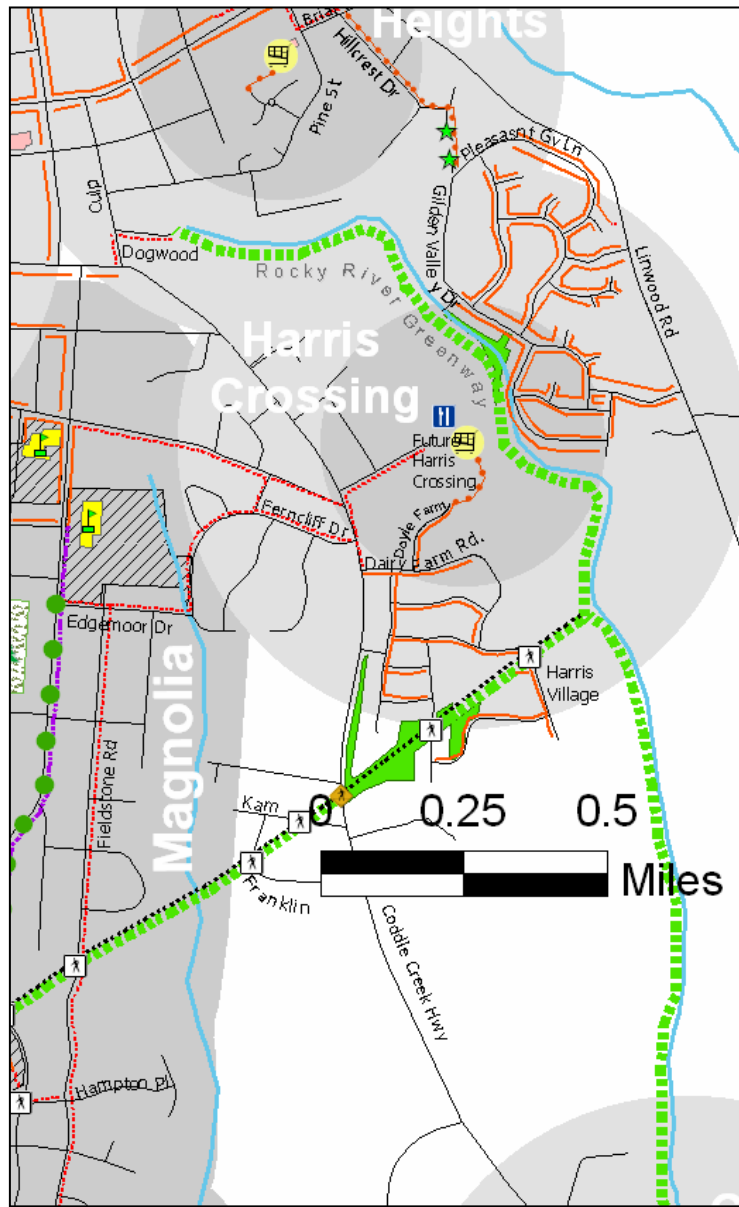
B. Consider connecting Mebane Street with Ivy Creek Lane, this will connect a new development with an existing neighborhood. A signed pedestrian route can be established on Mebane, Beatty, and Oak Street to the Elementary School with sidewalks a possibility in the future. Beatty is currently a dirt road. A short sidewalk that connects Wren Hill with



Brunswick Street along Park Ave. (NC 801) will further increase pedestrian connectivity by connecting to the greenway in the Cascade area.

- C. Install a 5' sidewalk along the north side of Main Street from the current sidewalk's terminus to where it would connect to the proposed greenway at Cedarcroft.
- D. Propose to both Food Lion and to the new duplexes adjacent to the shopping center to the south that they offer a pedestrian access point between their two properties. There is currently a gate that divides the two encircling the residential complex.

8. Harris Crossing Future Community



A. A greenway along and crossing Rocky River will connect this zone with the Harris Crossing Shopping Center, and offer a traffic-free route into downtown. Linwood Farms Homeowners' Association owns land there that could make such a connection possible. The greenway could be met by a sidewalk on Dogwood Street on the creek's north end.

B. Acquiring a pedestrian easement along the utility that spans from this area to the South Elementary School area would give a route for an extension of this pedestrian route to the school. Neighborhood and flashing crosswalks could be installed for safety.

C. A 5 foot wide sidewalk on Ferncliff Drive, Edgemoor Drive, and Coddle Creek Road will connect this pedestrian zone with the Magnolia area.

D. A connection from the proposed Harris Crossing with the Harris Village area would give residents a chance to shop there without using their cars.

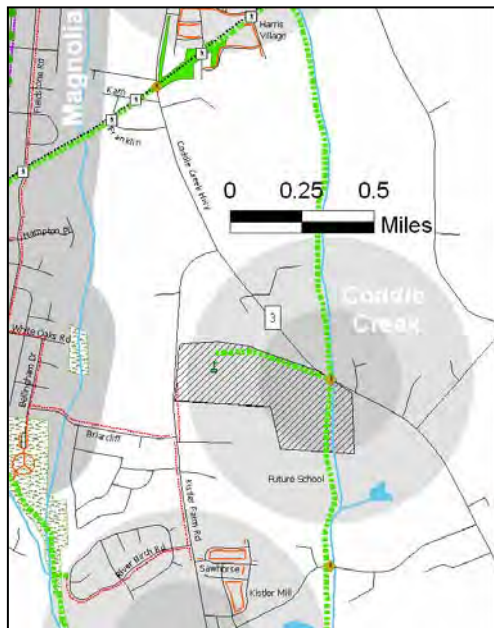


9. Magnolia Neighborhood

- A. Add a sidewalk that connects Mooreville Middle School with South Elementary School. It would run from Mooreville Middle School down Magnolia Street to Hampton Place just south of South Elementary School. There is space in the existing right of way to narrow the road and use the rest of the right-of-way for pedestrian facilities. Construct a wide sidewalk with an extra-wide planting strip that would allow for the planting of large trees (such as Magnolias) every 30 – 40 feet in open areas. Neighborhood crosswalks for this route would be helpful, but some studies show that there is no significant safety difference in neighborhoods with a stenciled crosswalk versus a crosswalk with only a sign.
- B. Add a sidewalk that connects Mooreville Middle School with Bellingham Park by way of Edgemoor Drive, Fieldstone Road, White Oaks Road, and Bellingham Drive.
- C. Add a sidewalk that Connects Mooreville High School and Middle School with the proposed sidewalk on Ferncliff Drive by way of Center Avenue.



10. Coddle Creek Future Neighborhood

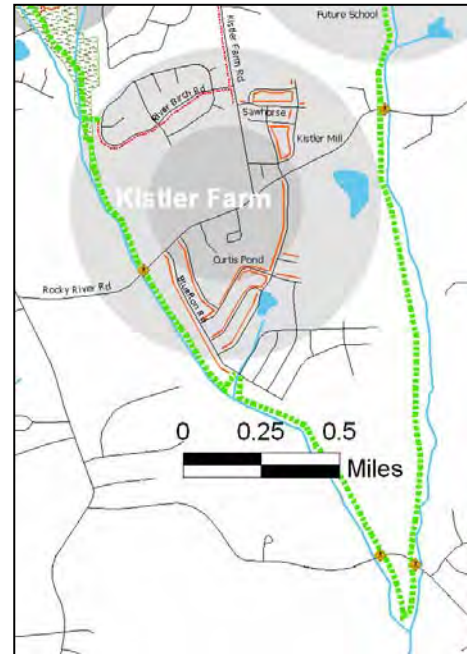


- A. A five foot wide sidewalk along Kistler Farm Road and Briarcliff from Mooreville Intermediate School to both Bellingham Drive will connect this school and this pedestrian zone with a neighborhood.
- B. A 10 foot wide greenway along Rocky River Creek will connect this school with the proposed school (and surrounding future neighborhoods) with the greenway in Harris Village. Extending this greenway south to the Iredell County line could also connect Iredell with proposed Cabarrus and Mecklenburg County greenways.

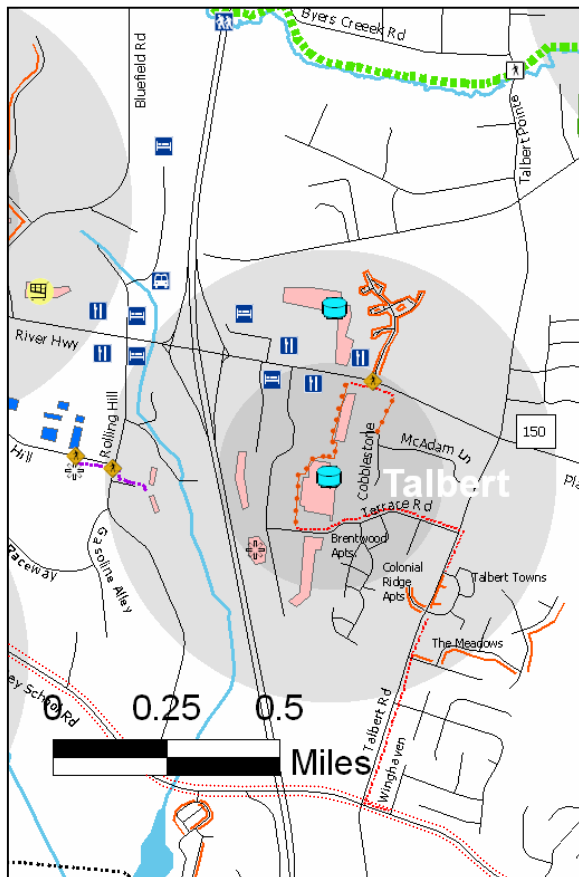


11. Kistler Farm Future Community

- A. The Dye Creek Greenway mentioned earlier will connect this area with several other pedestrian zones. Extending this greenway south to the Iredell County line could also connect Iredell with proposed Cabarrus and Mecklenburg County greenways.
- B. A five foot wide sidewalk from Briarcliff Road to Kistler Farm Road will provide a connection to the intermediate school, and a sidewalk along River Birch Road to the Dye Creek Greenway will provide access to many other pedestrian zones.
- C. Restricting commercial development in this area to a short strip along the corner of Rocky River and Kistler Farm Roads will ensure the compact style of development that accommodates the pedestrian.



12. Talbert Community



A. A sidewalk would begin at the corner of Talbert Road and Brawley School Road and proceed up the east side of Talbert Road by The Meadows subdivision and Colonial Ridge Apartments, briefly connecting with a sidewalk in front of Talbert Towns, turning west on Terrace Road to pass Brentwood Apartments before appearing between Goody's, Wal-Mart, and the movie theatre. Pedestrians can make their way across the storefronts to NC 150, where the sidewalk can continue to Brookhaven Condominiums. An added feature can be made by creating a connection from Cobblestone Road to NC 150 to allow access to the residents around McAdam Lane.

B. A flashing crosswalk or a lighted intersection with a countdown signal should be placed on NC 150 at Portstown Rd across from Brookhaven Condominiums, and route signs could also be placed along the walkway (and possibly sponsored by local businesses).

C. Development adjacent to an interstate interchange can be a traffic nightmare. In this

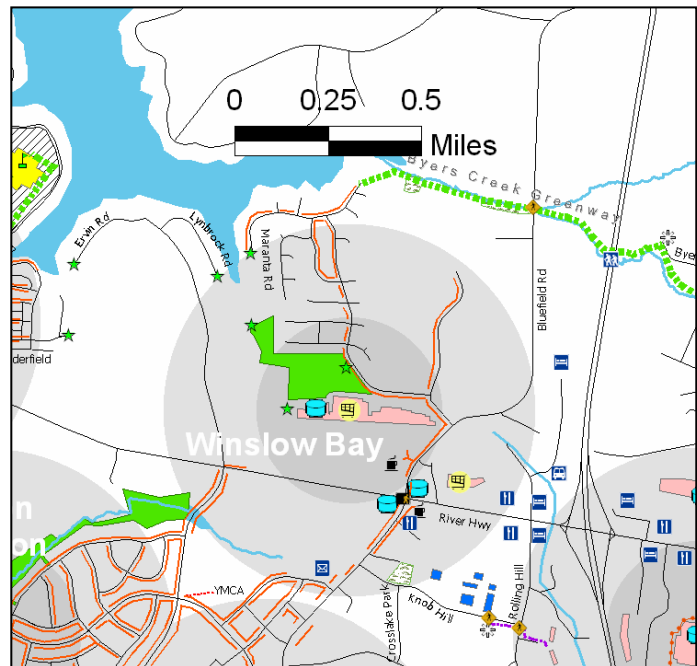


case, major development is already here, and spreading it further down NC 150 would cause more congestion in the coming years. Encourage denser development in this area, and discourage further commercial development down NC 150. A sidewalk policy should also be implemented along NC 150 that states that new development must offer an unobstructed and connecting six foot wide linear pedestrian path either significantly away from the roadside or with a minimum eight-foot wide treed planting strip (The planting of many types of large shade trees require a preferred width of at least eight feet.)

- D. Include a sidewalk from the North Carolina Racing Hall of Fame to the NASCAR shops and sites. This Speedway Walkway could possibly create more tourist opportunities. The sidewalk from the Hall of Fame to the shops should be extra wide and accommodating for family groups and the entire walkway should be carefully designed with the race shops to give the tourists a safe, comfortable, and exciting feeling. If done right, the walk between these attractions could be an attraction in itself.

13. Winslow Bay Community

- A. To further improve the connectivity of this area, consideration should be given to connect Borderfield Road to Ervin Road and Lynbrook Road to Maranta Road. This marked pedestrian route would link this entire pedestrian zone together. Sidewalks could be added when it becomes necessary, and simply designating this and other mentioned road extensions for pedestrians would be an alternative to vehicular roads. The need for these several road extensions to improve connectivity shows the need for a policy to prevent this lack of connectivity with new developments.



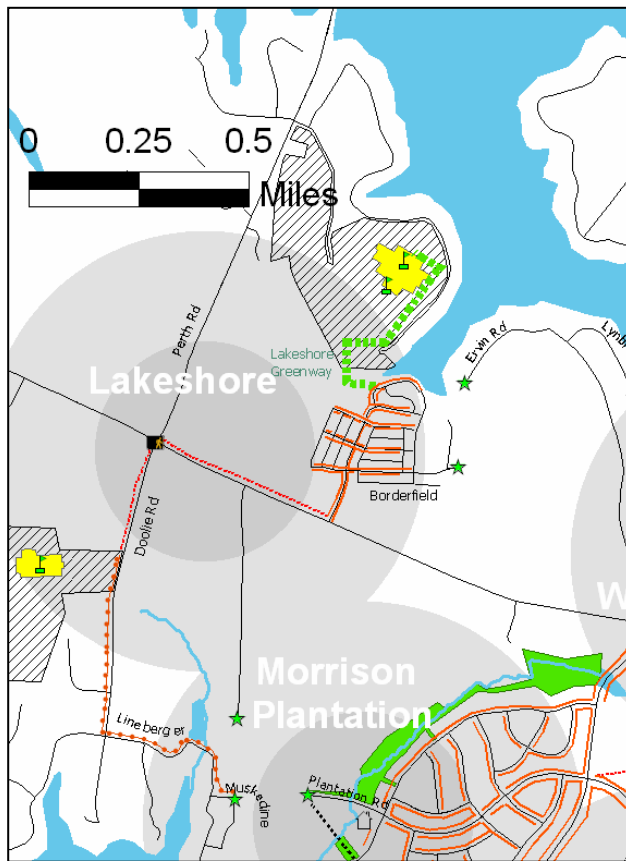
- B. The large new Target shopping center has a fence that blocks easy access from pedestrians that may be traveling from the neighborhood behind it. This disconnect shows the need for a policy to prevent these situations. The possibility exists to run a pedestrian route from Winslow Bay to the Target via Homeowners' Association land and new neighborhood roads that abut to the rear of the shopping center.
- C. The parking lot in front of the Target shopping center is an excellent example of how an off-street parking requirement ordinance can be non-beneficial to pedestrianism. Removing the ordinance, especially in the central dense development zone that is outlined in this plan will open the land up to be developed as the market sees fit. In time, as dense development is desired, a shopping area to the pedestrian scale can be incorporated with public



transportation and denser housing. Support building up this area, instead of allowing commercial development to continue further away on NC 150 or Williamson/Bluefield Road.

- D. A greenway from Maranta Road in the Winslow Bay housing area could follow Byers Creek under I-77 and connect with Byers Creek Road. This is a vital pedestrian link across the interstate barrier from northwest Mooresville to northeast and downtown Mooresville. It could also provide a walking route to and from the NASCAR Technical Institute and shops that are located on Byers Creek Road. The hotels, restaurants, and transit stop located on Gallery Center Drive might someday find it in their interest to connect to the trail with their own private connection. A culvert or underpass at Bluefield and an underpass at I-77 would provide safe crossing.

14. Lakeshore Future Community



A. A greenway should be developed jointly between Iredell County Schools and the housing development just south of the Lakeshore Elementary and Middle Schools. This is a simple connection between county land and Arvida Homes land, and would allow access to these schools without the need for more student bussing and the growing congestion resulting from parent drop-offs. It could be proposed that the new development on NC 150 and Doolie/Perth Road helps construct a sidewalk that connects this area to the high school.

B. With the addition of the multi-purpose path nearby and an increase in pedestrians crossing Doolie Road & NC 150, a countdown signal should be installed. (A possible option would be to paint a crosswalk through the middle of the intersection and allowing pedestrians to cross from the southwest corner to the northeast corner. All auto traffic in all directions would stop when for this signal, making it unnecessary for pedestrians to cross both Doolie/Perth Road and NC 150.)

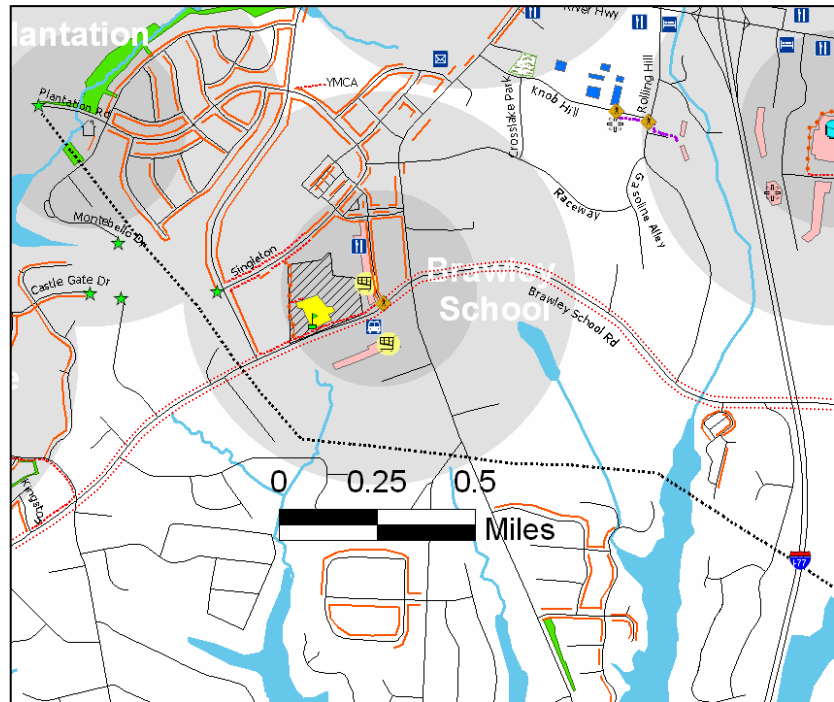
A safety study is advised for the addition of any crosswalk at this location.

- C. If commercial development on NC 150 occurs, restrict it to a ¼ mile length in this pedestrian zone, perhaps on the corner of Perth/Doolie and NC 150.



15. Brawley School Community

- A. Complete sidewalks in front of Brawley School and on Singleton. Also try to connect Singleton Road with the rear of Brawley School. This would help the students reach their school without needing to walk along a busy road. (Note: near the completion of this plan, details were made public about a possible new entrance to Brawley School on Singleton. Ensure pedestrian facilities with this proposal and suggest connecting Singleton with Castle's Gate Drive.)

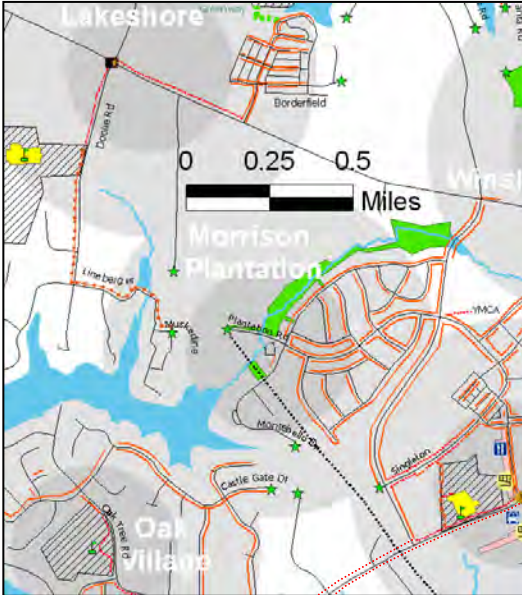


- B. Singleton should be connected to Castle's Gate Road with a pedestrian route or a vehicular road with sidewalks.
- C. Although a flashing midblock crosswalk along with a pedestrian island is in this list of recommended projects, it is advisable that a study be done to see if this is safe and necessary. The crosswalk would be located between the Harris Teeter and Brawley Middle School and connect the north side of the Brawley School Road with the shopping area on the south side of the street. The signalized intersection is 500 feet from the Harris Teeter entrance and almost 1500 feet from the school. Since many pedestrians will not walk that far out of their way, many would cross wherever they can. Rather than tempt pedestrians into crossing this area without a crosswalk, it might be an option to provide a safe crossing area.
- D. Brawley School Road is still a relatively quiet road in comparison to NC 150 that connects the Lake Norman area with downtown Mooresville. Many changes are planned for this road, and we suggest considering a policy helps this road escape the problems that have occurred with NC 150. Development in this zone should be contained at the corner of Brawley School and Williamson, keeping the flow of traffic from Brawley School to downtown Mooresville relatively free of congestion. *Any commercial development or road projects on Brawley School Road (including the proposed NCDOT road project) should be demanded by policy that buildings have minimal setbacks to fit with the streetscapes, the roadway include on-street parking with surface parking lots located behind the businesses, and improvement projects required to include wide planting strips, sidewalks, medians, bicycle lanes, and to be designed for low speed limits.* It is recommended that the Town work with NCDOT to incorporate these practices into the Brawley School Road widening project. It is



also recommended that the Town study the land use zoning adjacent to the interchange and roadway and make necessary zoning changes to ensure that the undesirable style of development does not happen on Brawley School Road as it has on NC 150.

16. Morrison Plantation Neighborhood



A. Plantation Road currently ends as it leaves the plantation after the clubhouse and the creek. Consideration should be given to extend the road and/or the sidewalk to connect to the neighborhoods on Muskedine and Lineberger so that students could walk from this massive housing development to the high school on Doolie Road. As of this time, Lineberger becomes a dirt road as it approaches Muskedine, so a marked pedestrian route would be adequate until it becomes necessary to add sidewalks.

B. Montebello Drive is also under construction as it leaves Morrison Plantation. Consideration should be given to extend the road and/or the sidewalk to connect to the proposed Castle's Gate Drive/Singleton. This connection would create a completely sidewalked route from Morrison

Plantation to the elementary school, and along with the previous project, could connect all of these to the high school.

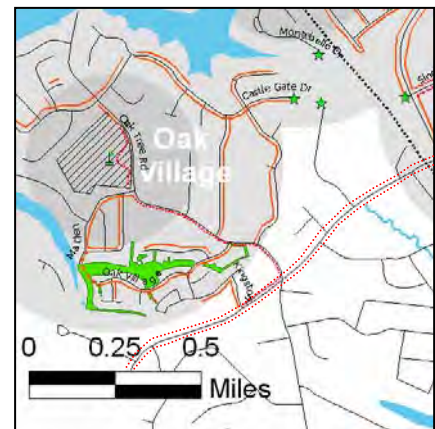
C. Work with Morrison Plantation and the YMCA to look at ways to better connect the walkways in the neighborhood to the facility. Currently, a large and intimidating parking lot exists that sits between the deeply set back facility and the sidewalk, and a clear pedestrian connection is needed between the building and the road.

D. A major utility line terminates along property owned by the Morrison Plantation Master Association. A public access right of way should be obtained along this line to ensure its future availability for a pedestrian trail from this zone to the Mount Mourne and Downtown Zones.

17. Oak Village Neighborhood

A. Continuing a sidewalk down Oak Tree Road from the elementary school to Brawley School Road and Kingston Road will serve as a collector pedestrian route to school from the neighboring houses.

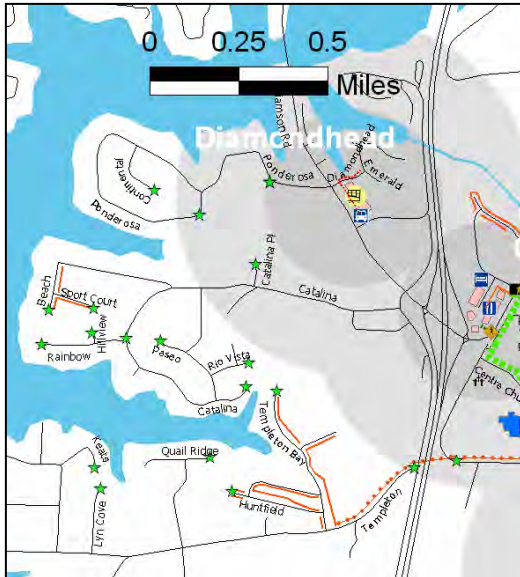
B. Minor connections will greatly increase the accessibility for many homes to the elementary school, like a pedestrian route connecting Oak Village to Matlen by way of





homeowners' association land, and connections to Morrison Plantation via Castle's Gate Dr.

18. Diamondhead Community



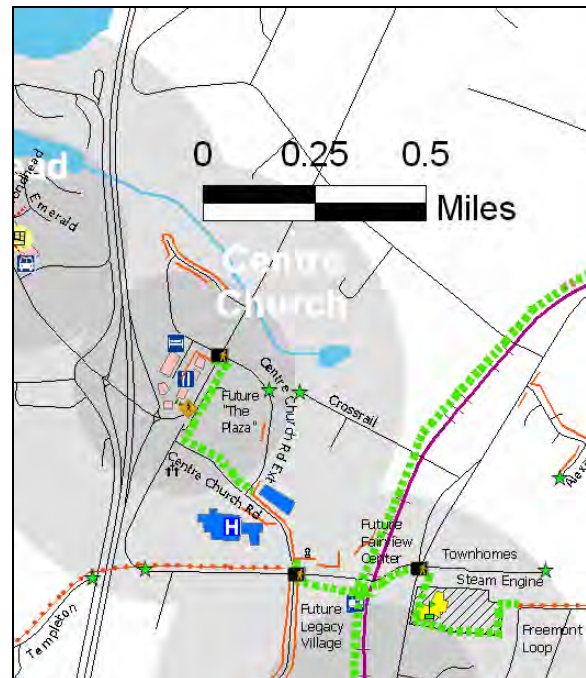
A. The Food Lion on Williamson is near the Diamondhead development next door, but has no sidewalk.

B. The residential roads southwest of Williamson Road would benefit with more pedestrian or vehicular/pedestrian connectivity. Review the following roads for connection possibilities: Ponderosa, Continental, Catalina, Catalina Place, Beach, Sport Court, Hillview, Rainbow, Paseo, Rio Vista, Templeton Bay, Huntfield, Quail Ridge, Keats, and Lyn Cove.

C. Encouraging commercial growth around the Food Lion Shopping Center, while discouraging it elsewhere along Williamson Road south of the Brawley School Road intersection should ensure a more compact and walkable pedestrian zone.

19. Centre Church Business Center

A. There are several restaurants on the corner of US 21 and I-77 that appear to be a major lunch stop for the employees at the Hospital/Lowe's area. Limited parking exists, and this could worsen when the Lowe's development is complete. A pleasant tree-lined urban pedestrian path with benches, tables, and water fountains reaching from NC 115 to this shopping plaza would be necessary to provide an alternate means for these workers to get to lunch. From the shopping plaza, the greenway could cross at the light on the corner of Centre Church Road extension and US 21 (install a countdown signal), then head south along an old service road along US 21 or along the road itself. An alternate route would send it through an existing opening between the shopping plaza and across US 21 at a special signaled pedestrian crossing. From there, the path would follow Centre Church Road by the church, across the road that was previously cut-off from vehicular traffic, and along existing sidewalks to the neighboring businesses. A

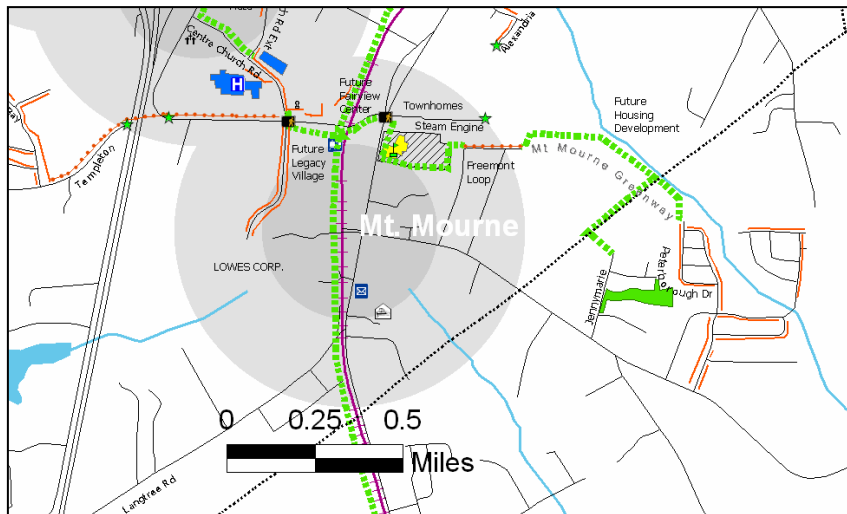




pleasant and shaded path is needed to make this walk attractive to professionals, and the new businesses in the area can be asked to finance it. Future businesses should be asked by policy to construct similar greenways that connect the area and that fit with this design.

- B. A pedestrian connection from Crossrail to Centre Church Road (recommended as a new roadway in the Mount Mourne Plan) would be beneficial to businesses. The Mount Mourne Plan also calls for a vehicular bridge across the interstate that connects Alcove Road with Fairview. Providing a wide and separated pedestrian path in the bridge's design and construction would be necessary for the users' comfort.
- C. Restricting nearby future commercial growth to Centre Church Road, Crossrail, Fairview and the already developed section of highway 21 would be beneficial to pedestrians.

20. Mt. Mourne Future Community



A. Mount Mourne Elementary School is located on a busy highway that will get busier in the impending years. An extensive network of paths must be planned to access this school from the planned residential areas behind it, without the need for the children to be bussed or driven to this school via US 21. A greenway can extend from the corner of Centre Church and Fairview, past the new commuter rail

station, to the school, out the rear of the school, possibly utilizing neighborhood roads on Freemont Loop and most likely crossing through a major planned residential development before ending at Peterborough Drive. Utility lines branching from this greenway can serve as a route for extensions to other neighboring neighborhoods. These paths can be joint efforts between the Town of Mooresville, Iredell County Schools, and developers.

- B. The Mount Mourne Master Plan creates a great opportunity for some dense commercial development along the rail corridor and NC 115, along with residential and park lands south of Langtree Road. Obtaining a public access easement along the major utility that begins in this zone would help long-term plans to connect Mount Mourne to Downtown Mooresville and Morrison Plantation with a type of multi-use trail that attracts users from outside of Iredell County.
- C. A pedestrian route or a vehicular/pedestrian road from Alexandria to Steam Engine would provide a safe route to the elementary school for the surrounding neighborhood.



7.2. GENERAL PROJECTS OVER THE ENTIRE STUDY AREA

The Town should seek to acquire easements as soon as possible for all the proposed off-road facilities. Also consider developing these paths in conjunction with sewer line maintenance and replacement, since most of the greenways border creeks, as do many sewer lines. New greenway corridors may also be established on sewer lines not mentioned in this plan. Public access easements on the utility lines that reach from Morrison Plantation to Downtown and down to the gas line from Mount Mourne to Harris Village should be acquired as soon as possible and not after extensive plans have been made to build the greenways. For environmental as well as recreational and pedestrian transportation reasons, it is highly recommended to acquire the land or easements to all the major creeks and utility corridors throughout the Mooresville area. These all serve as potential pedestrian travel corridors, and could connect Mooresville with neighboring towns. Any creek or utility not mentioned specifically in this plan as a potential project should not be excluded as such. These areas should be included in any land use ordinance dictating responsibility to developers town-wide to dedicate open space and construction costs. New development on these utility and creek parcels should be required by the policy stated in this plan to contribute to the dedication of land for pedestrian paths.

The CATS Commuter Rail service is proposed to end at either Mount Mourne, Downtown Mooresville, or at Williams Street if it extends into Iredell County. This potential service could bring many pedestrian opportunities to the region, and should be highly supported. One interesting idea is to work with CATS and Norfolk Southern to install a paved pedestrian and bicycle route along the rail line to connect the Mooresville area with Davidson and Charlotte. There are over 50 such “Rails with Trails” projects in the country today, and might be worth some consideration. This type of facility takes considerable safety precautions and sometimes extra right of way, but can provide a great long distance pedestrian corridor. Consider this type of facility as commuter rail plans move forward.

7.3. PRIORITIZATION OF PROJECTS

A project prioritization methodology is an important tool through which the Town can determine where to focus its efforts on the development of pedestrian facilities. A methodology was developed to objectively compare the attributes of proposed projects. This methodology is used to prioritize projects as part of this plan, and in the future, the Town can use the same methodology to reassess its priorities and consider new projects.

Prioritization Methodology

To compare the merits of each project, a scoring system is used to assign “points” to each proposed project. Points are assigned according to six specific criteria, as described below. Projects are assigned points in each category based on how well the project meets each criterion. A higher number of points indicates a “better” project.



The total number of points across all criteria indicates each project's final score. The maximum score for a project is 60 points, based on a scale of 1-10 points for each of the six criteria. All criteria are weighted equally.

Suggested criteria are based on three major elements: connectivity, safety, and ease of implementation. Two specific criteria are defined for each of these three areas, as described on the following page.

Connectivity

1. Enables improved access to major destinations, with particular emphasis on connections from areas with high concentrations of persons with limited transportation options (10 pts. maximum)
2. Closes gaps in existing facilities (10 pts. maximum)

Safety

3. Addresses specific obstacles to pedestrian mobility (10 pts. maximum)
4. Improves routes with high levels of vehicular traffic or provides alternate routes (10 pts. maximum)

Ease of Implementation

5. Project is supported by directly-affected residents and/or contained in a neighborhood plan (10 pts. maximum)
6. Project can be implemented without extensive right-of-way acquisition or intensive design features, such as structures (10 pts. maximum)

After all projects have been scored, priorities can be reconsidered based on the projected implementation costs. For example, if two projects have a similar score but one costs \$500,000 more to implement than the other, the less expensive project should have priority.

Application of Methodology

Each project was judged by the Consultant based on the criteria described above. Summary information is presented in the Implementation Plan in Section 9, and raw scores assigned to each project are detailed in **Appendix G**. Although this methodology is intended to objectively compare the qualities of individual projects, there is inherent subjectivity in assigned the number of points in each category. For categories 1-5 above, a score of "7" was used as a "base" or "average" score. Each project was assigned scores based on how well the project meets the stated criteria. For category 6, specific scores were assigned based on the type of facility being recommended. Major considerations used in scoring for each of the categories are described below.

Connectivity

1. *Access to major destinations from areas of need* – What is the level of importance of the destinations being served (i.e. school, government offices, grocery store)? What concentrations of special populations are being served (i.e. elderly, children, low-income, disabled)?
2. *Closes gaps in facilities* – What is the importance of the gap(s)? Does the connection allow you to reach an important destination?



Safety

3. *Addresses obstacles* – Does the facility address barriers such as busy / high traffic corridors? Does the facility provide mobility around specific obstacles such as dead-ends, creeks, or fences?
4. *Improves routes with high levels of vehicular traffic or provides alternate routes* – Does the project improve upon perceived dangers or a route? Does the project enable comfortable walking away from busy traffic? How many conflict points exist? Is there a high level of visibility along the route?

Ease of Implementation

5. *Support for project* – Have specific comments been received about the project through this planning process? Has the project also been identified through other related planning efforts?
6. *Lack of intensive design features* – Projects that have lesser requirements for implementation receive a higher score. The following general scale was used:

10 points = Very low implementation cost (e.g. signage only)

9 points = Standard sidewalk only

8 points = Sidewalk with signalized crosswalk

7 points = Sidewalk with more intensive design features, such as trees

5-6 points = Paths away from traffic (off-road, including bridges over creeks)

Grouping of Projects

To help identify the most beneficial projects as determined through this prioritization methodology, all projects receiving a score of “50” or higher (out of 60 possible points) are identified as “high priority” projects. All projects presented in this plan have merit and should be pursued; however, the identification of a subset of “high priority” projects will enable Town officials to focus their efforts on the early implementation of a few infrastructure projects that will make significant improvements to the pedestrian environment.

The Implementation Plan presented in Section 9 summarizes proposed infrastructure improvements related to “high priority projects” and “other projects”.

Reconsideration of Priorities

The projects included in this plan have been prioritized based on current conditions. However, conditions affecting these proposed projects are constantly changing – as time passes, new projects may be proposed, currently proposed projects may no longer be feasible, and completion of some projects may impact the viability of other projects. For these reasons, it is suggested that the Town of Mooresville, through a proposed bicycle / pedestrian advisory committee, update the prioritized project list every two years based on changing conditions. Projects may be added to or deleted from the overall list, and the prioritization of specific projects may change based on new developments, a change in public support, construction of connecting facilities or new destinations, or other factors potentially affecting project implementation. Funding opportunities for these projects are listed in **Appendix H**.



8.1. POLICY RECOMMENDATIONS

Land use policies of the last half of the 20th Century have probably done more to discourage pedestrian friendly accommodations than any other single force. The Town of Mooresville is beginning the process of updating its zoning and subdivision ordinances. This Pedestrian Plan is intended to recommend policies that should be considered by the Town as part of its comprehensive update of ordinances. The recommendations provided in this section are intended to create a more pedestrian-friendly environment in the Town's planning area.

Use of Pedestrian Oriented Development Zones as a Planning Tool

The concept of the "Pedestrian Oriented Development Zone" is emphasized throughout this Plan. As stated earlier, these zones are not intended to designate the only places where pedestrian infrastructure projects can occur (many projects are recommended outside of these zones as well); rather, these zones are intended to identify areas in which a strong emphasis should be placed on enabling pedestrian-friendly development patterns as growth occurs.

The Pedestrian Oriented Development Zones can be applied as an "overlay" district, similar to the existing Highway Corridor Overlay districts. As a planning tool, the Pedestrian Oriented Development Zone should be used to guide the locating of pedestrian-oriented developments (such as shopping, high-density residential, and public services). These types of developments should be strongly encouraged within Pedestrian Oriented Development Zones and strongly discouraged outside of Pedestrian Oriented Development Zones; likewise, development types that are not pedestrian-friendly by nature (such as most industrial sites, distribution centers, and some low-density residential uses) should not be allowed to locate within the designated zones. A list of "compatible" uses for the Pedestrian Oriented Development Zones should be compiled; if a proposed use is not compatible with the pedestrian orientation of the zone, it should not be allowed within the designated zones; likewise, "pedestrian compatible" uses should be strongly encouraged to occur within the designated zones only. Growth confined, more-or-less, to these zones will help to curb sprawl in Mooresville. In the same sense, mixed-use zoning should be more widely incorporated in the zoning ordinance both inside and out of these Pedestrian Oriented Development Zones to discourage large parcels of commercial or residential development that encourages more auto dependency.

Zoning in Pedestrian Oriented Development Zones should enable mixed commercial/residential development. Zoning outside of pedestrian zones should be modified so that urban sprawl and strip mall development is not encouraged, but so that new growth is guided toward the pedestrian zone. The Town should ensure that land use zoning changes comply with pedestrian zone mixed-use standards. The quarter mile center of each zone that is classified as a "Community" is best suited for high density commercial and residential development, while the outer quarter mile might be less dense. Zones that are classified as a "Business Center" will be a dense mix of office space and commercial development that serves the office staff. The only Business Center in this plan is located near a proposed commuter rail line and an interstate, making it more of a commuter area than a residential area. The quarter-mile center of each zone that is classified as a "Neighborhood" consists mostly of a centralized school or community center, while the outer quarter-mile would consist of the remaining residents in the zone.



Water resource protection must always be taken into consideration when designating high density areas inside these zones. In some cases, high density development alongside a waterway is not environmentally safe, and should be discouraged or mitigated. Furthermore, new infill developments should seek to create more pedestrian-friendly environments in areas currently occupied by low-density, automobile-oriented development. An example of such development would be the reduction in size of large, mostly unoccupied strip mall parking lots to provide ground space for new businesses.

General Policy Recommendations

Emphasis on Pedestrian Travel

The provision of transit, bicycle and pedestrian facilities shall be embraced by policy as a primary element in accommodating travel demand and relieving congestion in a travel corridor, before street widening projects are undertaken.

Locations of New Municipal Facilities

By policy, locations of new municipal facilities should first take into consideration pedestrian access.

- A policy statement should be made that the preferred method of transportation of children to Mooresville's schools is non-motorized. For the development of new schools, finding a school location inside of a developed or future residential development is preferred. If this is not feasible, design the school so that its main entrance faces away from thoroughfares or collectors and toward future or existing residential areas. Schools must encourage children to get themselves to school without the use of cars or buses.
- The locations of post offices, health departments, Social Security offices, parks, libraries, police stations, abuse care centers, courts, DMVs and other civic facilities should be in a location where pedestrian access is top priority. Simply placing these facilities near a sidewalk is not adequate, but placing these facilities on a sidewalk within a short walk to neighboring residents is ideal. In many cases, the users of these facilities are not able to or cannot afford to drive. In cases such as Social Security offices where there is typically one branch office, a central location is best. The town should have a policy to work with the county, the state, and the federal governments to make this possible.

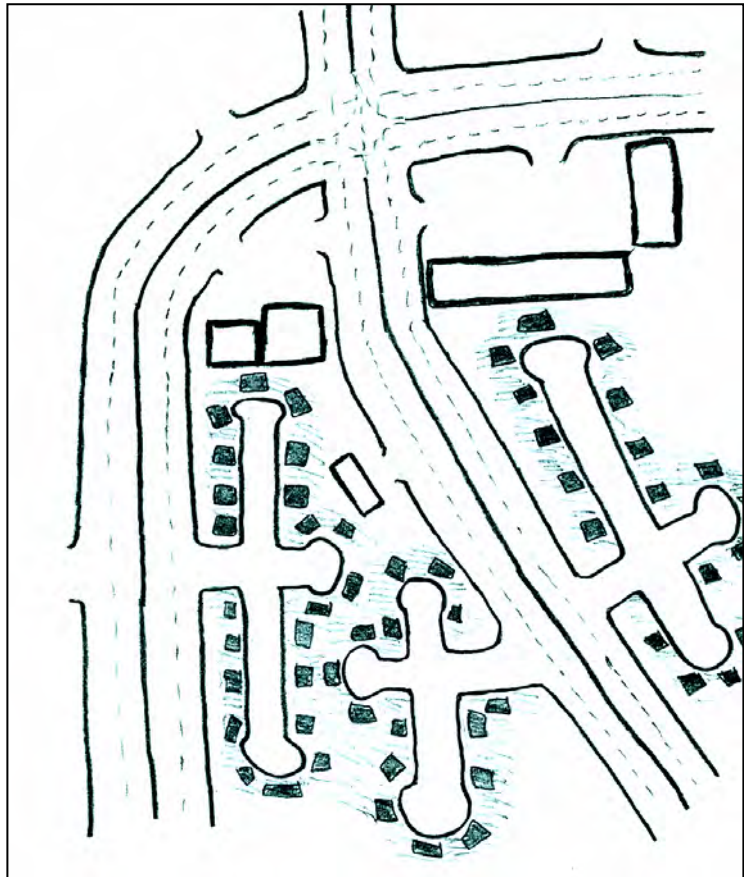
8.2. LOCAL ORDINANCE RECOMMENDATIONS

Requirements for Infrastructure Associated with New Developments

Requirements for new pedestrian infrastructure should be consistent throughout the Town's planning jurisdiction, not just in the designated Pedestrian Oriented Development Zones. These requirements should be strengthened for all areas of the planning area. Suggested guidelines are as follows (these requirements should apply to all new developments; not just those that are new subdivisions):



- New commercial development must be oriented to the pedestrian and include pedestrian walkways.
- New residential development must have a grid-like or interconnected curvilinear street pattern with block lengths no more than 660 feet in distance. These block separations may be vehicular roads or 10-12 foot wide non-motorized traffic connections.
- Cul-de-sacs will not be permitted unless geographic or other natural barriers exist that make connections unrealistic. A developer may create a cul-de-sac or a *close* if an acceptable bicycle and pedestrian connection is created with a 10-12 foot wide paved path that is built to standards set forth in this plan for Multi-Use Paths.
- Any new development where there is a pedestrian project mapped from the Comprehensive Pedestrian Plan must include that project to a functioning level according to guidelines. In most cases, exact alignment of the projects is not definite.
- New developments must connect to neighboring developments. Commercial areas must create a vehicular and/or pedestrian connection to adjacent residential communities and provide a future connection option for future developments. New residential communities must connect to existing residential and commercial developments, as well as provide connection possibilities to future adjacent developments. Exemptions may apply if there is a substantial natural or geographical barrier, or if there is an environmental concern with such a connection. New developments should be required to provide connections across natural



barriers if they are listed as projects in this plan. The Town may also determine that a connection across a natural barrier is necessary and worth the higher costs to developers.

This development style has a complete lack of pedestrian connectivity.



- All new commercial, residential, and mixed-use developments should provide sidewalks on both sides of the street, provide buffering from auto traffic and off-street parking lots, and provide trees that will shade sidewalks. Any frontage road to the development that has no current sidewalk must also receive sidewalks. These sidewalks should also be of adequate width according to the standards set in this plan for future pedestrian growth. Trees, utility poles, and street furniture shall not be placed where they may hinder the view from pedestrian crosswalks and intersections. In some cases, developments offer suitable walkway connections without the need to necessarily include sidewalks along frontage roads and thoroughfares. If the Town feels that suitable pedestrian linkages exist so that sidewalks along these roads are unnecessary, this requirement may be waived.
- New developments should include public rest rooms, public water fountains, public seating areas, and public green/open space. These features add vital necessities and aesthetics to Mooresville that will make the pedestrian trips enjoyable. Greenways that serve to connect key destinations may be developed as part of the open space requirement.
- When an existing sidewalk or pedestrian path is closed for construction or maintenance reasons on the walkway itself or on adjacent property, an adequate detour route should be established. Consider closing on-street parking or a lane of traffic as a temporary pedestrian route or establishing a temporary crosswalk to a walkway on the other side of the street.

Parking Ordinance

The current parking ordinance should be discarded or extensively modified to allow the market to dictate the amount of parking that is created and shared for commercial, residential, and civic development. Any reduction in the parking requirement could be used by existing developments to infill current parking lots with mixed-use development. Reduction or the exclusion of mandated parking requirements will be a primary method of combating the single most deterrent to pedestrians, **sprawl**.

"Sprawl" is the term used for the pattern of development that has occurred with the greater use of the automobile. The nearby Towns of Huntersville, Cornelius, and Davidson recently changed their Land Use Ordinances to reverse this trend, and have defined sprawl as possessing a number of unwanted qualities:

- Development that requires extensive areas of land further from a town center;
- Loss of farmland and other open spaces that define the character of a community;
- Zoning codes that mandate rigid separation of land uses;
- Expensive reliance on the automobile as the only viable transportation option and reducing an individuals' right to have options;
- Minimal pedestrian amenities;
- Expensive extensions of tax requirements for water, sewer and road systems to serve far-flung development;



- Houses arranged around cul-de-sacs rather than interconnected streets;
- Strip malls with extensive parking lots as opposed to traditional village centers; and
- Urban traffic volumes in non-urban settings as suburb-to-suburb commutes become more prevalent.

Giving developments the opportunity to determine the amount of parking they require will open the market to new ideas of shared parking and help encourage development that places a greater emphasis on pedestrian accessibility rather than strictly automobile accessibility. Decreasing the magnitude of parking lots and at the same time decreasing the necessity to drive to escalating distances will further alleviate sprawl.

There are several stipulations that would make the existing parking ordinance a more pedestrian-friendly ordinance. Since part of the goal is to reduce urban sprawl and thus the distance that pedestrians need to walk to get to their destinations, limiting the amount of surface area parking should be a part of any new ordinance. Require parking garages for high capacity lots, parking below and on top of structures, and parking to the rear of business store fronts and any residential developments. Lone parking structures should be built so that a structure could be built on top in the future. Any parking area should be visually pleasing or hidden from view from the road and from the destination area.

An effort should be made to allow for more shared parking opportunities in any future parking ordinances. It should be noted that parking spaces are used at different times for different uses, and could even be shared by businesses open at similar hours. A policy should also be created that makes provisions for safe walking environments once a person leaves their automobile. Sidewalks, paths, and even open green spaces can make for pedestrian-friendlier parking lots.

Adequate bicycle parking racks and pedestrian walkways and facilities should be included in any ordinance, and these facilities could be substituted for vehicular parking spaces by the developer. The bicycle racks must be the variety of rack that allows the user to lock the frame and one wheel to the rack using a standard U-shaped lock. Racks that force the user to lock the bike to only a wheel are inadequate. Covered bicycle parking is highly recommended, as weather can destroy a bicycle over time and make it difficult to load and unload the bicycle. Pedestrian walkways must be of the same standards that the proposed 10' Multi Use Trail or the 6-12' Improved Sidewalks.

Similar to the bicycle facilities, grocery stores and similar vendors around the world have been selling, renting, or loaning special carts that make it easy for shoppers to walk (or even bike, since many of these carts have bicycle hook-ups) from their residence to the store. Businesses in Pedestrian Oriented Development Zones that offer these may be eligible for a reduction in their parking requirement. *Whole Foods* grocery is an example of a business that uses this idea, and one such company that distributes these carts is Leggero, <http://www.leggero.com>.

Businesses within a quarter mile of a transit stop should also be eligible for a reduction in their parking requirement. This would help drive transit-oriented development. Similarly, businesses that sponsor car-share programs might be offered an opportunity to reduce their parking requirement. Each car shared creates the need for several less parking spaces.



In many cases, people drive because they can, and the best way to get many to choose to walk is to make it more attractive than using a car. Enjoying misconceiving “free” parking spaces is one reason that one might jump into an automobile for a short trip. Allowing the market to determine how much parking is available might eventually create parking that costs the user a fee once the area develops. This will pass the savings onto the pedestrian and itself lead to an increase in non-motorized trips.

Speed Limit on Residential Streets

The speed limit should be reduced to 20 mph on all residential and mixed-use commercial streets. Previous sections to this plan show that five times the number of people die when hit by a car going 30 miles per hour versus a car going 20 miles per hour. Speed limits in school zones during arrival and dismissal times should be no more than 15 mph. If possible, avoid placing pedestrian entrances to schools along North Carolina state roads as a 15 mph speed limit may not be permitted.

Streets are designed for a specific speed, and simply changing the speed limit does not alter driving habits unless there is significant enforcement. As new streets are rebuilt, or existing streets are improved, the opportunity exists to create an environment where the driver would rather drive at a speed that is safer near pedestrian activity areas. Consider creating a policy that includes incorporating low speed design into residential and high density commercial street design. As Mooresville develops the proposed Pedestrian Oriented Development Zones, streets should change to accommodate the pedestrian. Narrow lane widths, curvy alignments, alternating on-street parking, landscaping, short building setbacks, bicycle lanes, sidewalks, and other added features could eventually naturally decrease the comfortable driving speed. Posted speed limits on roads with higher design speeds would be necessary to deter speeding, particularly where pedestrians must share the roadway with cars. Residential streets with no sidewalks will become much safer and thus much more attractive to the pedestrian if the speed limit were to be reduced to 20 miles per hour.

Garbage Truck Ordinance

A University of Florida study in 2000 found that the amount of litter substantially increased after automated garbage and recycling trucks made their rounds on garbage pickup day. On some weeks, the amount of loose paper, packaging, bags, cups and other litter more than doubled after the trucks came through, the study found. The major conclusions found that the blame can be placed on citizens for not bagging loose and especially light material, automated trucks that frequently spill can contents, and uncovered roofs or open doors. Any truck that transports trash through Mooresville should be required by ordinance to keep all access bays fully shut and all rooftops covered when it does not interfere with actively collecting garbage. All non-recyclable trash placed in outside bins should be bagged to accommodate for newer automated trash collection trucks.

Acquisition of Easements for Pedestrian Projects

As the Town seeks to create sidewalk connections in areas that are already developed, the availability of right-of-way inevitably will be an obstacle. The Town should take steps to



formalize a policy regarding the construction of sidewalks or other pedestrian projects outside of the public right-of-way. Ideally, the Town should identify opportunities to reach agreements with property owners to provide a sidewalk or Multi Use Path easement as necessary for new projects without acquiring property. Easements for public access should be a standard addition for any new or re-contracted utility easements. For example, standard 10 foot wide utility right of ways should be modified to a 30 foot utility and public access shared right of way. In addition, an effort should be made to ensure that conservation easements purchased by developers should not restrict environmentally cognizant construction of a multi-purpose trail or public access for such a trail.

There are several means by which pedestrian facilities can acquire the financial and land resources needed to be completed. These include *Reservations*, *Dedications*, *Payment-in-Lieu*, *Impact Fees*, and the *Transfer of Development Rights*. These methods are defined on the following page.

Reservation:

Residential developments impacting public facility (school, park, greenway) are required to set aside land for a certain period of time so public agencies can purchase a specified area.

Dedication:

These are usually found in zoning or subdivision ordinances, whereby a piece of land from a development is given fee-simple to the public for a particular use, such as a park or greenway. Dedication requirements are almost always attached to residential development, but can be extended to commercial development as well. Local governments can require a dedication based on the need to provide more public recreation facilities due to the needs of the new residents coming with the development. If a planned residential or commercial development is located on a planned pedestrian project, an easement must be dedicated for the future greenway. The regulation should also clearly state the standards for size, topography, and accessibility. This information helps with consistency and legality of the dedication process. If the new development is not on a planned route, the developer shall make a payment-in-lieu of a dedication.

Payment-in-Lieu:

These payments are tied to dedication regulations. The developer pays a fee that represents the value of the site or the improvement that would have been dedicated or provided. Donations are required when affected by a planned park or greenway route, but those developments not affected still bear similar expenses. Payment-in-lieu fees are typically earmarked by its purpose, geographic area, and have a specific time limit. These fees can be used to pay the development costs of nearby pedestrian multi-purpose trails.

Impact Fees:

This is a one time fee imposed on new development. The intent of an impact fee is to shift the cost of providing public facilities (roads, sewers, parks, etc.) needed to serve new growth from the general tax base to the new development generating the demand for the new facilities. Tied to numbers of people (dwelling units, bedrooms) rather than land use, impact fees require state-granted enabling legislation to enact.



Transfer of Development Rights:

An arrangement that allows landowners to sell/transfer potential density of development of their property (sending area) to another location better suited to accommodate additional development (receiving area). Sending areas are typically those areas the County would like to see protected and conserved, open space, forests, watersheds, wetlands, historic landmarks. Receiving areas are places that have capacity to accommodate new development, such as pedestrian and transit oriented development, infill, etc.

Incentives:

There are a range of incentives that can be used to acquire and protect open spaces, like Density Bonuses, tax incentives, Conservation Subdivision Ordinances, Cluster Development, etc.

An example ordinance that uses some of these tactics is found in **Appendix I**.



9.1. PROPOSED INFRASTRUCTURE PROJECTS

The implementation of new and expanded pedestrian infrastructure projects is an important component of Mooresville's Pedestrian Plan. Infrastructure projects are classified as either an **incidental project** or an **independent project**.

Incidental projects are pedestrian enhancements that are implemented in conjunction with roadway projects, such as widening and maintenance projects. Because the list of upcoming roadway improvements is long and subject to change, these projects are not illustrated on the accompanying map of proposed pedestrian infrastructure projects. However, the Town of Mooresville Planning staff should review all plans for upcoming roadway improvements (performed by either the Town or NCDOT) to ensure that pedestrian (and bicycle) accommodations are included to the extent possible as part of these projects. In many cases, pedestrian accommodations can be constructed as part of the overall roadway project cost, avoiding the need for a separate pedestrian project later to retrofit the roadway facility. To ensure that no opportunities "fall through the cracks", the Town should implement a mechanism to ensure that pedestrian and bicycle considerations are made as part of all pending roadway expansion and maintenance projects.

Independent projects are pedestrian improvements that are implemented as a separate project, not in conjunction with any roadway improvements. These projects are intended to provide new or enhanced facilities in existing roadway corridors or along new rights-of-way (for off-road paths). The proposed infrastructure projects shown on the accompanying map and discussed in Section 7 are indicative of projects that will most likely be implemented as independent projects.

Designation of High Priority Projects

To help narrow the immediate focus for the Town in the implementation of pedestrian projects, a subset of "high priority projects" was defined based on the scores received by each project as part of the prioritization process described in Section 7. Projects receiving a score of at least 50 out of 60 points were designated as high priority projects. Focusing initially on this more limited list of infrastructure projects will enable the Town to implement the projects that will have the most benefit to pedestrians in the area, while building support for additional development of the pedestrian network.

Listings of proposed "high priority" and "non-high priority" pedestrian infrastructure projects, sorted by ranking, are included in Appendix G. Overall summaries of "high priority" and "non-high priority" projects are included under "Infrastructure Project Summaries" below.

Infrastructure Project Summaries

Exhibit 9-1 illustrates summary information for "high priority" and "non-high priority" projects, based on the type of pedestrian infrastructure project. Summary data for all projects is shown at the bottom of the table. This table represents a compilation of the individual project information contained in Appendix G. Note that although proposed sidewalks are illustrated on Brawley School Road on the project maps in Section 7, this project is not included in the cost estimates



below or project table in Appendix G because it should be included as part of the independent roadway widening project planned by NCDOT.

Exhibit 9-1: Infrastructure Project Summary Information

Project Type	Distance	Estimated Cost
HIGH PRIORITY PROJECTS		
Standard sidewalk	4.8 miles	\$3,766,500
“Improved” sidewalk	2.2 miles	\$2,350,000
Pedestrian paths away from traffic	11.0 miles	\$7,753,560
Signed pedestrian routes / connections	1.2 miles	to be determined ⁽¹⁾
Striped bicycle lane	1.8 miles	\$28,890
New or improved crosswalks (in addition to those planned as part of projects shown in other categories)	n/a	\$92,000
Subtotal High Priority Projects	21.0 miles	\$13,990,950
NON-HIGH PRIORITY PROJECTS		
Standard sidewalk	7.3 miles	\$5,764,500
“Improved” sidewalk	1.3 miles	\$1,346,000
Pedestrian paths away from traffic	13.7 miles	\$10,054,040
Signed pedestrian routes / connections	2.9 miles	to be determined ⁽¹⁾
Striped bicycle lane ⁽²⁾	n/a	n/a
New or improved crosswalks (in addition to those planned as part of projects shown in other categories)	n/a	\$293,000
Subtotal Non-High Priority Projects	25.2 miles	\$17,457,540
TOTAL (ALL PROJECTS)	46.2 miles	\$31,448,490

⁽¹⁾ Project costs are not shown because more detailed study is needed to determine the ultimate design of the facility; the design would determine costs.

⁽²⁾ Additional bicycle lane projects will be considered as part of Mooresville’s future Bicycle Plan.

Funding Opportunities

A combination of funding sources will be needed to construct the infrastructure projects summarized above. The Town of Mooresville should seek all viable funding opportunities for project implementation, including Federal and State monies where available. Special funding programs for specific types of projects (e.g. Safe Routes to School) should also be pursued. Private foundations should be thoroughly researched to identify possible funding options.

Although many funding sources potentially can provide revenues for project implementation, it is likely that local government funding will be a primary component (for matching federal / state funds and for implementation where other revenue streams are not available). Therefore, it is recommended that the Town establish a set aside amount in the annual Public Works budget for pedestrian infrastructure project implementation. An annual set aside would ensure that progress is made every year on constructing the specified projects, and would illustrate a commitment from the Town to improve walkability.



9.2. POLICY AND ORDINANCE REVISIONS

The recommended policy and ordinance revisions discussed in Section 8 should be fully considered as the Town of Mooresville updates its existing zoning ordinances. The Town is currently beginning a process to rewrite its planning ordinances, so it is an appropriate time to include pedestrian-oriented provisions in these documents. Incorporating the policy recommendations described in Section 8 in the Town's updated planning and zoning toolkit will play a major role in defining the future pedestrian environment of Mooresville.

9.3. ANCILLARY PROGRAMS

A variety of possible ancillary programs are described in Section 6. Some of these programs should be implemented in the near-term, while others should not be implemented without a more developed pedestrian facility network. Specific comments for each of the types of programs discussed in Section 6 are offered below.

Mapping and Signing Projects

Pedestrian route mapping and signing projects should be implemented in conjunction with the completion of new pedestrian facilities that comprise a route connecting major origins and destinations. It is inappropriate to develop maps and / or signage until the routes to be mapped and / or signed are developed to the extent that a route is fully usable and accessible.

Spot Improvement Programs

A Spot Improvement Program to repair, maintain, and enhance sidewalks, crosswalks, and other pedestrian facilities should be implemented as soon as possible. Many municipalities set aside a set level of funding for a Spot Improvement Program every year. It is suggested that Mooresville adopt a similar approach, including a set amount of funding in the Public Works budget every year for minor repairs and enhancements. Specific projects can be decided by suggestions received by the public. An annual budget of \$30,000 - \$50,000 for spot improvements would provide a starting point for enabling minor improvements around the town.

Maintenance Programs

Programs to clean litter, such as Adopt-a-Sidewalk, should be implemented immediately to maintain the attractiveness of Mooresville's sidewalks. This program would be especially beneficial in areas with high levels of pedestrian traffic, such as Mooresville's downtown. Trash receptacles could be provided as part of a Spot Improvement Program. These programs can be expanded as the pedestrian network grows.

Traffic Calming Initiatives

The traffic calming techniques discussed in Section 6 should be considered in conjunction with proposed roadway projects in Mooresville. These solutions can enhance safety for all roadway users, including pedestrians, bicyclists, and motorists. These solutions may be appropriate in Mooresville's residential neighborhoods such as the mill village area near downtown.



Transit Interface

Many of the policies and projects recommended in this plan are intended to create a strong pedestrian linkage to the future proposed commuter rail stations. An increased level of emphasis should be placed on these enhancements as commuter rail service moves closer to implementation. This plan could also create the framework for a viable multimodal transit system that includes future town-circulating mass transit.

Car Sharing Programs and Businesses

This type of program works best in conjunction with a strong mass transit network. Thus, car sharing should only be explored after initiation of commuter rail service to Mooresville.

Safety Education Programs

Safety education programs should be pursued in the near-term, working especially with the Mooresville and Iredell County school systems to identify opportunities for new programs within the schools. Safety programs are beneficial regardless of the extent of the pedestrian infrastructure network.

Enforcement Programs

The Town should strongly consider reductions in speed limits on residential roads in the near-term, because the safety benefits of reduced speeds are significant. The Foot Patrol program can be phased in as additional pedestrian-oriented development occurs in the designated Pedestrian Oriented Development zones.

Encouragement and Promotion Programs

Various encouragement and promotion programs are described in Section 6. These programs should be phased in over time. It is important that encouragement and promotion activities are on-going, rather than one-time efforts. Some programs, such as the "Urban Walker Program", are more appropriate after a more extensive pedestrian network has been developed. Other programs, such as "Walk to Work, Shop, and Play Day" can be implemented now.

High Priority Programs

Most of these programs depend on a strong pedestrian infrastructure to be in place. Until the Pedestrian Oriented Development Zones are phased into Mooresville's urban character, there are a limited number of high priority programs that could be implemented immediately. These high priority programs include all school safety programs, the litter reduction programs, the Twilight Walks senior program, a city-wide fitness program such as the Walking Challenge, the reduction of speed limits on residential roads, a police foot patrol in the downtown area, and community events such as Downtown street closings for pedestrian fairs, organized walks for charity, and a pedestrian/bicycle awareness week. The city should also begin aggressive marketing strategies and campaigns to educate the community on the importance and value in the pedestrian projects and ideas mentioned in this plan.



9.4. PEDESTRIAN COMMITTEE

A committee should be created that will oversee the implementation of this plan. The committee should be made up of stakeholders that will have the interest, knowledge, and ability to ensure that the proper steps are taken to find funding, change or create public policy, re-rank projects as necessary, and encourage the community to embrace foot travel. This committee may be combined with the implementation of bicycle and greenway plans if necessary.



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PUBLIC INPUT

Public Forum 1:

A variety of techniques was used to publicize the forum:

- The meeting was announced through a press release in the *Mooresville Tribune*, *Charlotte Observer*, and the Town of Mooresville website.
- Approximately 1,600 flyers were distributed to Mooresville Graded School District Open Houses, the Town Board of Commissioners and Planning Board, and local church/business bulletin boards.
- E-mail notices regarding the workshop were sent to the entire Town of Mooresville staff, local contact list, and to the Pedestrian Plan Steering Committee.
- A short notice of the workshop was also included on Town water bills for the month of September 2005.

Approximately 35 citizens attended the Forum. The written and verbal comments received at the forum are summarized below.

A. Written Comments Received at Forum

Twelve (12) comment sheets were submitted to Staff during the Forum. These comments are as follows:

- Comment 1 "Plan of maximum potential traffic on sidewalks. We cannot wait for more healthful options to travel around Mooresville".
- Comment 2 "Please come look for yourself the needs of our streets and the safety for our kids, East Wilson Avenue, Harris Street. Slow down, kids playing."
- Comment 3 "Neighborhoods close to the downtown need pedestrian access to downtown. Mill Village doesn't have sidewalks at all but is a densely populated neighborhood."
- Comment 4 "I would like the community to be more pedestrian and bicycle handy. While I can ride bikes close to home, except Highway 3 – which is way too dangerous for bike or pedestrian. The wave of the future is less car use more self propelled – like walk or bike."
- Comment 5 "We really need sidewalks on West Park Avenue, between North Main Street and Highway 150. This area has school children and senior citizens. It could be used for school access and access to the downtown area, where as now you must drive downtown to walk around. It would also benefit the Cascade Area. Please give seniors consideration to this street and the historic area."
- Comment 6 "Mill Village needs sidewalks, bike lanes, lower speed limits, and green trails along the creeks"
- Comment 7 "I would like to see Wilson Avenue (east) a 25 mph street. Greenways are great! The kids will be safer"



- Comment 8 “I would like to see a greenway connecting the new school, EMIS to an already existing sidewalk beginning around Stewart Ave. This would provide pedestrian access to not only the new school, but the new Main Street Park, Cedarcroft Village, the new subdivision being planned and the downtown area. I feel that connecting schools to neighborhoods via greenways and sidewalks would reap many benefits. Taxpayers would save money if more students can walk rather than ride the bus. Not to mention the health benefits for children and the positive impact on the quality of air we breathe! Mooresville needs this pedestrian plan.”
- Comment 9 “Lowrance Avenue needs traffic control. There are too many cars, going too fast, with no safe place to walk. Something needs to be done to make it less attractive to cut-through traffic – narrower lanes, speed humps, police presence. Being so close to downtown, sidewalks and bike lanes would be a big improvement.”
- Comment 10 “Some sidewalks in shopping areas, also in main thoroughfare ex. Cedarcroft Road Village.”
- Comment 11 “Traffic on Talbert Road and Terrace Drive is bad. People walk on the side of the road which is dangerous. Sidewalks are needed. You have 110 townhomes and now a huge apartment complex on Talbert. I live on the corner and my front yard is a cut-through for walkers and bikers.”
- Comment 12 “1. Stop signs on corners to slow down traffic. 2. 25 mph speed limit on E. Wilson and College St. to slow traffic. People speed these streets. 3. A bicycle lane for bikes and pedestrians, there are no sidewalks.”

In addition, attendees identified roadways that should be targeted for pedestrian improvements using a series of maps of the study area. Improvements were suggested on the following roadways:

Downtown / East of I-77

- North Main St. / Landis Highway (to East Mooresville Intermediate School)
- Cedarcroft Dr.;
- Carpenter Ave. (east of Magnolia St.);
- E. Center Ave. (east of Magnolia St.);
- S. Magnolia St.;
- Fieldstone Rd.;
- E. Wilson Ave., College St., and connecting streets;
- W. Wilson Ave.;
- W. Lowrance Ave.;
- Kelly St. / Alexander St.;
- W. Catawba Ave. (connecting to Church St.);
- W. Iredell Ave.;
- W. Moore Ave.;
- Patterson Ave.;
- Bell St., Lee St., and connecting streets;
- Talbert Rd. (south of Plaza Ave.);
- Terrace Rd.;



Final Report

Mooresville Comprehensive Pedestrian Plan

- Norman Station Blvd.;
- Brawley School Rd.; and
- Establish greenway on creek between Willow Valley Park and Liberty Park.

West of I-77

- Brawley School Rd.;
- Williamson Rd. (between Brawley School Rd. and Harbor Cove Ln.);
- Highway 150; and
- Connection between Lake Norman High School and Lake Shore Elementary / Middle Schools via Doolie Rd. and Perth Rd.

Mt. Mourne Area

- Area around Exit 33 (in general, connecting to the Hospital and proposed commuter rail station);
- Faith Rd. (connecting to proposed new residential developments); and
- Connection across I-77 at Fairview Rd.

B. Verbal Comments Received at Forum

Comment 13 "Sidewalk needed on NC 150 from Cherry Grove to new school."

Comment 14 "Need standards for existing development or re-development."

Comment 15 "Sidewalks needed on Langtree Road, I-77 to lake and I-77 to NC 115; and Knoxview Lane around to Kings Landing."

Comment 16 "Need sidewalk from Academy Street west."

Comment 17 "Need sidewalk on Kelly Street in areas where sidewalks do not currently exist."

Comment 18 "Cars speeding on College Street are a big problem – dangerous curves and parked cars along the street."

Comment 19 "Cut-through traffic on Wilson Street is a problem need more speed enforcement."

Comment 20 "Connectivity is our big issue – developers build links but they need to be connected."

Comment 21 "Talbot and Terrace Streets are cut-throughs to Walmart – lots of pedestrian activity."

Comment 22 "Consider making connection to new YMCA outside of Morrison Plantation."

C. Written Comments Received After the Forum

In addition to the written and verbal comments received during the first forum, staff from the Town of Mooresville received additional written and e-mail comments after the meeting. These comments are summarized below.

Comment 23 "I used to live in Cedar Croft and walked for exercise. Since Cedar Croft is a small neighborhood, I would walk out of the neighborhood and go toward town. There are NO sidewalks from Cedar Croft to right past



Brawley's Nursery. I was not the only one who walked and I continue to see children and adults walking in that area of town. Please consider putting sidewalks in this area."

- Comment 24 "Sidewalk suggestions – 1) the area on Highway 150 east from Morrison Plantation to Highway 115. This would allow residents from Morrison Plantation and other residential areas along Hwy 150 an area to walk safely and encourage walking and biking (include a bike path). Also include street lights in any project plans to allow for night walks and safety. 2) Hwy 115 from Davidson to Mooresville. This would encourage long walks and visits from town to town. 3) Rinehardt road area from Hwy 150 back to Hwy 115, due to the increase in residential traffic and children. 4) Both sides of Williamson Road (include a bike path). Adding a walking track somewhere in the city would also be helpful."

Public Forum 2:

The meeting was announced through a press release in the Mooresville Tribune, Charlotte Observer, and the Lake Norman Times. Flyers were distributed to the Town Board of Commissioners and Planning Board, and local church/business bulletin boards. In addition, e-mail notices regarding the workshop were sent to the entire Town of Mooresville staff, local contact list, and Pedestrian Plan Steering Committee. A short notice of the workshop was also included on Town water bills for the month of February.

Approximately 25 citizens attended the Forum. The written and verbal comments received are summarized below.

A. Written Comments Received at Forum

Three (3) comment sheets were submitted to Staff during the Forum. These comments are as follows:

- Comment 1 "(Make a) policy to require construction – not just dedication of land."
 Comment 2 "Great Stuff!"
 Comment 3 "Well done, comprehensive. Especially like inclusion of Greenways and 10' wide Multi-Use paths."

B. Verbal Comments Received at Forum

Participants made comments and asked questions during the "open house" portion of the forum, and also offered comments and questions during the question-and-answer session following the presentation.

Many of the questions asked by participants sought clarification on various elements of the plan, such as the locations of proposed sidewalks and greenways, implementation process, and policy recommendations. The vast majority of comments received were supportive of the planning effort and the findings as presented. A major focus of the



question-and-answer session was discussion related to the importance of pedestrian policies to guide future growth.

C. Written Comments Received After the Forum

In addition to the written and verbal comments received during the first forum, staff from the Town of Mooresville received additional written and e-mail comments after the meeting. These comments are summarized below.

Comment 4 “Are there any plans for sidewalks on East Center between the Senior High School and Iredell Avenue? There are a lot of dangerous drivers on that section and also many, many kids from both the high school and the middle school that use the section to walk home. It's been needed for years and I'm truly surprised that there isn't a sidewalk there already.”

Comment 5 Letter received offering detailed comments regarding issues such as the following:

- Need to “institutionalize” a review and update process for the plan;
- Need to identify the most beneficial projects for prioritization;
- Clarify the purpose of designation of “pedestrian zones”. High-priority projects may be located outside of the designated “zones”;
- Ensure use of recognized design standards for facilities;
- Ensure recognition of options for provision of bicycle facilities;
- Specific comments offered for planned roadway improvements in the Mount Mourne area;
- Clarify the application of the project prioritization algorithm; and
- Incorporate provision of street lighting improvements as a component of the plan.

Public Survey:

A “walkability checklist” prepared by the Pedestrian and Bicycle Information Center (www.pedbikeinfo.org) was included on the reverse side of the informational flyers distributed in advance of the first public forum. The intent of the checklist was to assist local citizens in thinking about their community with respect to access and walkability in a quantitative manner. Seven (7) checklists were received by the Town and the results are summarized below.

The rating scale for the checklist was 1 to 6, with a score of 6 being “excellent” and a score of 1 being “awful”.

Question 1 – Did you have room to walk?

Average score of 1.7 – comments included no sidewalks or paths; too much traffic; and traffic moving too fast.



Question 2 – Was it easy to cross streets?

Average score of 2.5 – comments included can't see far on hills; need striped crosswalks; and traffic moving too fast.

Question 3 – Did drivers behave well?

Average score of 2.1 – comments included drivers drove through signals or stop signs; drivers did not yield to pedestrians; and traffic moving too fast.

Question 4 – Was it easy to follow safety rules?

Average score of 2.3 – comments included inadequate shoulders to walk on facing traffic; difficult to cross where you could be seen by drivers; and difficult to cross with lights.

Question 5 – Was your walk pleasant?

Average score of 2.1 – comments on “unpleasant things” included scary dogs; dirty air due to exhaust; lots of trash present; and not well lighted.

Question 6 – How does your neighborhood stack up?

Average score of 12.2 – overall falls into the “needs a lot of work” category.



Final Report

Mooresville Comprehensive Pedestrian Plan

Meeting: Steering Committee Meeting #1
May 16, 2005
3:30PM – 5:00PM
Charles Mack Citizen Center

Attendees: Wanda McKenzie
 Don Bartell
 Christina Cadieu McElroy
 Roger Hyatt
 John Finan
 Robert Amon
 Commissioner Mitch Abraham
 Kendall Hillard (alternate)
 David Bender
 Chris Bauer
 Brock LaForty
 Kim Leight

Chris began with introductions and had everyone go around the room and discuss why they were interested in being involved with the pedestrian plan. Brock then handed out the scope of work and schedule for the project and gave a broad overview of the work that URS will be doing and the schedule. The project should be completed by January 2006. Brock went over the public involvement activities and highlighted the 2 public meetings, 2 newsletters, and the 4 steering committee meetings.

David Bender then discussed how the project was funded through NCDOT's grant program and the importance of this plan in the whole transportation improvement program. Brock then went through a quick PowerPoint presentation to show the committee the types of pedestrian issues and opportunities that can be addresses with the comprehensive pedestrian plan. The group then took a few minutes to do a walking tour of downtown to look at and discuss some examples of pedestrian issues, concerns, and design features.

The group then reconvened in the Citizen Center and Brock rolled out a map of the study area on the table. The committee began highlighting areas of concern and/or areas with a high amount of pedestrian activity. These areas tended to focus around downtown, schools, parks, Brawley School Road, Williamson Road, and NC 150. Chris added that the committee members should feel free to contact him with any further thoughts on other areas where there are pedestrian concerns/issues, their input is very important to the success of this project.

Chris wrapped up the meeting stating that he would be keeping the committee well informed on how things are progressing and Brock discussed that URS and the Town were beginning data collection activities next week.

The meeting ended at approximately 5:10 PM.



Meeting: Steering Committee Meeting # 2
August 9, 2005
3:30PM – 5:00PM
Charles Mack Citizen Center

Attendees: Mitch Abraham, Mooresville Town Commission
Miles Atkins, Resident
Chris Bauer, Town of Mooresville Planning Department
Don Bartell, Iredell Trans. Advisory Board, Chamber Trans. Comm.
Bill Clark, URS Corporation
John Finn, Town of Mooresville
Blair Israel, Centralina COG
Kim Leight, URS Corporation
Brett Wallace, URS Corporation
Kathryn Wellin, Charlotte Observer
Steve Young, Mooresville Graded School District

Chris Bauer began by introducing himself and asking the participants to identify themselves. Brett Wallace, URS then showed the committee a map of the existing sidewalks throughout the town of Mooresville, based on the field review exercise. He explained how the map shows where the planning area has continuity in its pedestrian corridors and where it has gaps. He continued to discuss how the next phase of work will be to ask the people of Mooresville to express their desired goals, priorities, and objectives of the pedestrian plan. He expressed that once these goals are understood; URS Corporation will proceed with a plan to help make Mooresville a town with appropriate pedestrian access. He stressed that this plan will be designed according to the specific needs of the town.

The Committee's suggestions for goals and priorities:

- Don Bartell and Chris Bauer agreed that the Asheville plan had many of the goals that the Town of Mooresville was considering.
- Create an education program on pedestrian issues.
- Incorporate the *Greenway Master Plan*.
- Encourage development patterns, long-term plans, and public policies that support pedestrian transportation.
- Consider multimodal connections to schools, transit, bike routes/paths, parks, destinations, public places, etc.
- Create a good mechanism for sidewalk and pedestrian route planning, not just piece by piece but with a connectivity plan.
- Create aesthetically pleasing and comfortable pedestrian routes (including landscaping, buffers, and convenience items such as water, signs, seating, lockers, bike racks, etc)
- Create an understanding and education of environmental, health, equitable distribution, and safety benefits and concerns of plan.
- Implement a program that addressees perceived and actual barriers to pedestrian travel i.e. "What will it take to get a citizen to walk?"

A draft of these goals will be presented at the upcoming public forum. Steve Young stressed for the importance of a realistic look as to how much pedestrian access (especially sidewalks) will



be used in a region where people choose to drive (particularly pertaining to school students being dropped-off by parents for school and activities). Don Bartell asked if there were any recommendations that URS could make prior to further study. Brett answered that the goals, objectives, and priorities of the people of Mooresville must first be defined.

There was some discussion among the committee regarding the logistics and material to be presented at the community forum.

- It will be an “open house” setting with no formal presentation. Displays will be set up and staff will be available to discuss issues and concerns one-and-one with citizens.
- The displays will include various stations of display boards containing project information.
- Many stations will encourage interaction with the public, allowing participants to illustrate needs, comment on draft goals, etc.

Committee comments and ideas include the following:

- Illustrating the land use descriptions, roads, and town features clearly on the maps (maybe some aeriels) that will be presented at the community workshop, plus adding photos or illustrations from a PowerPoint presentation that specifically show concepts.
- Offer a “Where do you live?” map for people to push a pin over their home and work.

Kim Leight, URS followed by showing an idea for a flyer that will advertise a public meeting scheduled for early September, possibly targeted for the week after Labor Day. An additional form can also be sent with the flyer that asks participants to survey and rank their walking experience in their neighborhood. It was offered as a suggestion that the flyer be simplified and that the survey form be printed on the back of the flyer.

Suggestions for distributing the newsletter included:

- Sending them out with (or incorporated into) the *Town Voice* newsletter that is mailed to local residents with the town’s water bills.
- Having the flyers available at upcoming school open houses.
- Publishing the flyer on the town’s web site.
- Posting it on community bulletin boards.
- Distributing it to churches for their bulletins.

Kim discussed the possibility of holding the community meeting in early October instead of Early September, to correlate with *International Walk to School Week* during October 3-7, 2005. Consensus from the Committee was that it is probably best to keep the public meeting in September to keep the planning process on schedule. Holding the forum in September also enables any *International Walk to School Week* events to serve as additional opportunities to make the community aware of pedestrian issues.

Brett closed by stating that Mooresville’s current standards for sidewalk construction of 5 foot sidewalks and 6 foot planting strip widths on both sides of the street was at or above par for the area. The next step is to determine what other policies are needed that are not in place now.



Chris closed the meeting by discussing the next steps in the process. Preparing for the public forum will be the next major project element. At the next steering committee meeting, feedback from the public forum will be discussed, as well as potential pedestrian projects in Mooresville.

The meeting ended at approximately 5:00 PM.



Meeting: Steering Committee Meeting #3
November 14, 2005
3:30PM – 5:00PM
Charles Mack Citizen Center

Attendees: Bob Amon, Town of Mooresville Planning Board
 Miles Atkins, Resident
 Don Bartell, Iredell Trans. Advisory Board, Chamber Trans. Comm.
 Chris Bauer, Town of Mooresville Planning Department
 David Bender, NCDOT – Div. of Bicycle and Pedestrian Transportation
 Andrea Buzzini, Resident
 Bill Clark, URS Corporation
 Kendall Hillard, Mooresville Police Department
 Blair Israel, Centralina COG
 Brett Wallace, URS Corporation
 Steve Young, Mooresville Graded School District

Chris Bauer began the meeting and asked attendees to introduce themselves. Brett Wallace then summarized the first public forum, referencing the “Public Forum Summary” that was distributed. Approximately 35 residents attended the forum, and provided significant comments regarding pedestrian needs in the area. Don Bartell suggested that the lack of walkability (as illustrated by the walkability survey) should be a point of focus when developing the plan and communicating the current conditions. Andrea Buzzini asked that information regarding the residential locations of forum attendees be included in the forum summary, illustrating the geographical distribution of those who attended the forum.

Brett then reviewed the pedestrian plan goals. The stated goals were developed based on the comments expressed by the steering committee members at the previous meeting. Blair Israel commented that Goal #4, “Promote livable communities by reducing pollution and encouraging healthy lifestyles”, is vague and should more be specific in defining the key point of the goal.

David Bender commented on the need to ensure that minority populations are specifically addressed in the goals. Following discussion by the group, the consensus was to ensure that “groups with the highest levels of need” (i.e. people with no other transportation options) are addressed in the goals. Such populations may include minorities, low-income residents, elderly citizens, etc. Projects should have a primary focus on connecting residents with the highest levels of need to basic services, such as county / city buildings, grocery shopping, etc. David also mentioned that a goal related to promotion of pedestrian initiatives should be tied into Goal #4 or #5. Such a goal would go beyond explaining the benefits of pedestrian travel, and would address the need for community partnerships, incentives and initiatives, and promotion of walking in general.

Bill Clark discussed the draft map illustrating potential projects. A “Proposed Pedestrian Project Summary” was distributed that outlined a number of potential projects in the Mooresville area. Discussion about particular project areas followed. Several general comments were made, including the following:



- Identify projects that would require additional right of way to implement;
- Identify projects that were included in the Greenway Plan;
- Include Langtree Road improvements (associated with new freeway interchange).

Blair asked about the final format of the project maps. David expressed concern with using 10' travel lanes in proposed cross-sections for pedestrian projects. He suggested maintaining a minimum of 11' lanes wherever possible. Blair commented on the need for land use policies and zoning ordinances that encourage pedestrian travel, and noted the need to ensure that any proposed policy language must have enough detail to be effective.

Discussion followed about the implementation plan. Brett explained that the implementation plan would include details on each project, including cost estimates and funding sources. The "Safe Routes to School" program was identified as a potential funding source for appropriate programs in Mooreville.

Brett briefly explained the proposed project prioritization criteria. David suggested using these criteria as a way to ensure that projects affecting areas with the biggest needs (i.e. connecting residents with limited transportation options to basic services) are appropriately considered in the prioritization process. Additional comments from steering committee members will be submitted in the coming weeks.

The meeting ended at approximately 5:15 PM.



Final Report

Mooresville Comprehensive Pedestrian Plan

Meeting: Steering Committee Meeting #4
April 19, 2006
3:30 PM – 5:00 PM
Charles Mack Citizen Center

Attendees: Bob Amon, Town of Mooresville Planning Board
 Don Bartell, Iredell Trans. Advisory Board, Chamber Trans. Comm.
 Chris Bauer, Town of Mooresville Planning Department
 Bill Clark, URS Corporation
 Blair Israel, Centralina COG
 Brett Wallace, URS Corporation
 Steve Young, Mooresville Graded School District

Chris Bauer began the meeting by informing the committee of the expected remaining schedule. He expects the plan to be presented for adoption by the Planning Board on May 11, 2006. From there, it will be sent to the Town Board early enough to allow the Board to become familiar enough with its contents to adopt it at their June 5th meeting. He asked that the members of the Steering Committee review the draft and have their comments to the Planning Team by May 11 so that all potential edits might be completed and a final plan be sent to the Town Board.

Brett and Bill distributed a draft copy of the plan to each present member of the steering committee. A copy was set aside to mail out to each member not present. Bill briefly summarized each section of the plan after stating that the recent trend in Mooresville to build out far from its core has created a need to design a plan that is based more on land-use policy than retrofitting infrastructure. In order for pedestrians to have the short, safe, and pleasurable routes that they require, the concept of the Pedestrian Oriented Development Zone was established. Bill defined this concept and its benefits then summarized the guidelines, programs, projects, and policies stated in the plan. Brett showed the Committee a copy of the Executive Summary, which summarizes the entire plan in a mini-booklet.

The overall reaction to the plan from the present committee members was positive, and the following suggestions were made:

- Print on both sides of the paper for the final plan to make it less intimidating and make a better example of resource conservation.
- Consider making photos and graphics larger.
- Consider giving businesses freedom of walkway options rather than just sidewalks along roadways.
- Place some language into the *Twenty's Plenty* speed limit change proposal to allow for the natural transition from a faster-speed road to a slower-speed road once the Pedestrian Oriented Development Zones are in place and functioning.
- Place a recommendation that an active Pedestrian Plan Committee see to it that the plan is implemented.

The meeting adjourned with Chris thanking the Steering Committee and the Planning Team for their time and work during this process. The meeting ended at approximately 5:00 PM.



Final Report

Mooresville Comprehensive Pedestrian Plan

Charlotte.com

Posted on Thu, Aug. 25, 2005

Where to put sidewalks?

Mooresville wants your input on improvements that will encourage walking

KATHRYN WELLIN
kwellin@charlotteobserver.com

Get out your walking shoes, Mooresville.

The town is making a new sidewalk plan, and it needs your input.

Officials want to know where to put new sidewalks, traffic safety features, trees and benches -- anything that will encourage walking.

The plan would extend past the town limits to all the areas where Mooresville expects it could run utilities in the near future. That includes unincorporated land south of town almost to the Mecklenburg county line, northeast of town near N.C. 801, parts of the N.C. 150 and Brawley School Road peninsulas and all of the Langtree peninsula.

Already, project consultants have identified three broad areas they think should be more pedestrian friendly:

- Downtown and its surrounding residential areas.
- The Brawley School Road/Williamson Road area.
- The Mount Mourne area around Interstate Exit 33.

Existing sidewalks are mostly in and around downtown and newer subdivisions. Starting about three years ago, all new subdivisions have been required to have sidewalks on both sides of the street. The sidewalk plan would address older neighborhoods and parts of town that could be connected to other areas by sidewalks.

When roads lack sidewalks, many people are afraid to walk places, planners say. Sidewalks can help connect neighborhoods, decrease air pollution by reducing reliance on cars and promote physical activity.

The town is holding an open house 5-7:30 p.m. Sept. 13 at the Charles Mack Citizen Center downtown. Town staff and the project consultants will explain the project and take suggestions.

A second forum is planned for November, and the plan should be complete by February.

But don't expect to see new sidewalks Feb. 1. The state Department of Transportation gave the town a matching grant to pay for the plan, but no money is earmarked yet to carry it out.

"The plan is a plan," said Mooresville Transportation Planner Chris Bauer. "It's a tool. It doesn't mean anything is going to get built."

But having a plan will give the town "more firepower" when applying for pedestrian-related grants, Bauer said.

The plan also can give the town leverage in pushing developers to build pedestrian-friendly developments, he said.

Some attention will be given to bicyclists and cycling in the pedestrian and transportation plans, but the town will keep trying for a state grant to develop a bicycle plan, Bauer said.

Open House

Mooresville is holding an open house from 5 to 7:30 p.m. Sept. 13 at the Charles Mack Citizen Center downtown where residents can talk about sidewalks. Town staff and the project consultants will explain the project and take suggestions.

Call Mooresville Transportation Planner Chris Bauer at (704) 663-2891.



Charlotte.com

Posted on Sun, Feb. 19, 2006

Like to walk? Have your say about plans for pedestrians

Ideas include sidewalks and off-road greenways; no funding source yet

KATHRYN THIER
kthier@charlotteobserver.com

In September, Mooresville planners asked residents how to make the town more pedestrian-friendly.

Now, they're asking residents to comment on a draft plan based in part on residents' original comments.

There will be an informal drop-in style public workshop, 5-7:30 p.m. Tuesday, with a presentation on the plan at 6 p.m. at the Charles Mack Citizen Center downtown.

Residents' input on the draft plan will be incorporated into the final plan.

If the Town Board approves that plan, it will help guide where to put sidewalks, although the grant for the plan doesn't provide the construction money. The sidewalks will be built over time as the town gets more grants or when there is new private development.

The pedestrian plan includes ideas for off-road paths/greenways, new policies for improvements and programs to encourage walking in the community.

The plan's scope stretches past the town limits and includes the Langtree peninsula and south of town to the Iredell County line. Consultants have identified three main areas for new sidewalks: the historic downtown, Brawley School Road/Williamson Road and Mount Mourne.

The N.C. Department of Transportation gave the town most of the money to pay to develop the plan.

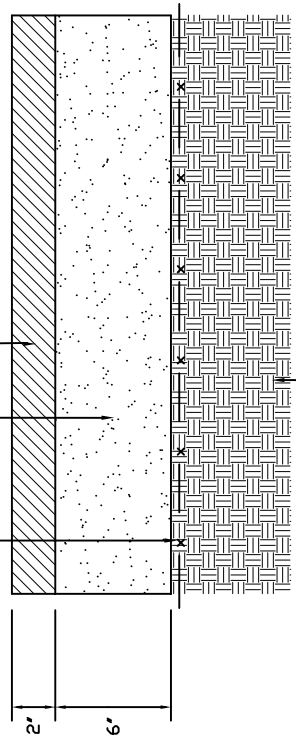
Want to Go?

Drop in between 5 and 7:30 p.m. Tuesday at the Charles Mack Citizen Center, 215 N. Main St., Mooresville. A presentation on the draft pedestrian plan will be held at 6 p.m. For information, contact Mooresville Transportation Planner Chris Bauer at (704) 663-2891 or cbauer@ci.mooresville

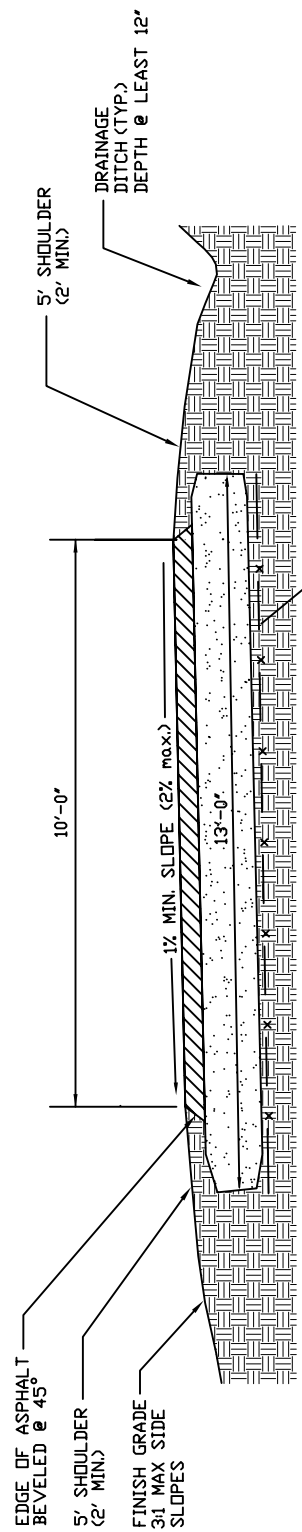
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GEOGRID UNDERLAYMENT UNDER
BASE COURSE PER SPECIFICATIONS


6" CRUSHED AGGREGATE
BASE COURSE
2" ASPHALT TRIAL
1-2 (TYP.)



TYPICAL ASPHALT SECTION



TYPICAL TRAIL SECTION

		JOB NO.
MECKLENBURG COUNTY PARK AND RECREATION DEPARTMENT		STD. NO. 10.31P
TYPICAL ASPHALT GREENWAY TRAIL		SHEET 1 OF 1
DATE: July, 2005		SCALE: NTS



SAMPLE COST ESTIMATES

Below are approximate unit costs for the types of pedestrian projects proposed in this plan, based on some example project costs that have been recently implemented, along with costs of other pedestrian projects.

Sidewalks

- \$15 per foot for curb and gutter (plus 10% for design and administration)
- \$30 per square yard sidewalk (plus 10% for design and administration)
- 5' sidewalk - Mooresville is spending \$119 - \$200 per foot (\$629,000 - \$1,056,000 per mile) for recent sidewalk projects. This figure includes design and administration.

Multiple Use Paths

- \$120 per linear asphalt foot (installation including grading, clearing, construction) 633,600 per mile + 10% administration and design = approximately \$700,000 per mile = \$132 per linear foot
- Mecklenburg County Parks and Recreation recently spent \$615,000 for 1.6 miles of a new portion of Mallard Creek Greenway.
- 10' Crushed Rock walkway: \$80,000 - \$120,000 per mile (with design and administration – add 10%)
- 10' Concrete walkway: \$300,000 - \$500,000 per mile (with design and administration – add 10%)
- 10' wide Pedestrian Bridge: \$1,200 per linear foot with design and administration costs.
- 10' paved asphalt path (with two-foot margins and associated improvements): \$100 - \$125 per foot (\$528,000 - \$660,000 per mile.) Add 10% for design and administration.
- Boardwalk: Historically \$200 / linear foot (\$1,056,000 / mile), lately has increased to \$225 - \$250 per linear foot.
- Parking lot: \$18 per square yard. (Parking lots for greenways can typically be shared with shopping areas, and more typically are not needed at all because they are neighborhood access points.)

Intersections

- Simple neighborhood crosswalks with signs and markings: \$500 - \$1,500
- Enhanced crosswalk with special stencils, raised platforms, or special signage: \$5,000
- Curb extensions: \$5,000 – \$25,000
- Raised crosswalks: \$2,000 – \$15,000
- Refuge island: \$10,000 – \$40,000
- In pavement illumination: \$25,000 – \$40,000 per crossing
- Pedestrian only traffic signal: \$40,000 - \$75,000
- Hawk signal: \$40,000
- Mid Block Flashing Crosswalk: \$20,000 for equipment and \$20,000 to install
- Crosswalk/Countdown signal: \$5,000 per intersection (this includes installation and an additional installed post)
- Culverts: \$3,500 - \$5,000
- Underpasses: \$3,000 - \$5,000 plus \$3,000 for turndowns



Bicycle Lanes

- Bicycle lane striping: \$15,000/mile with design and administration

Lighting, Landscaping, and Signage

- Lighting: Varies widely depending on type of light and location. Lighting an underpass could be \$2,000 - \$5,000 for 3 to 4 lights.
- Landscaping: Contractor installed foliage costs around \$400 - \$500 per tree and \$25 - \$50 per shrub.
- Marking a route with signs: \$2,000 per mile with design and administration
- Signs: \$250 – \$350 each



The legend on this page can be used for the project maps shown on Pages F-2 to F-21.

Legend

- Existing Sidewalks
- Mooresville Roads
- Streams and Lakes
- Railroads

Public Lands

- Town/County School Land
- Town of Mooresville Land
- Homeowners Associations
- Mooresville Downtown

Places of Interest

- Library
- Restaurants
- Grocery
- Commuter Train Station
- Coffee/Bakery
- Community Center
- City Hall
- Post Office
- Public Schools
- Park
- Cemetery
- Police Station
- Hotel
- CATS Bus Stop
- Drug/General Store
- Fire Station
- Entertainment
- Hospital
- Proposed 1/2 Mile Radius Pedestrian Oriented Development Zones
- Proposed 1/4 Mile Radius Pedestrian Oriented Development Zones

Mutiuse Facilities

- 10' Wide Paved Multi-Use Trail
- Alternate Multi-Use Trail Route
- Striped Bike Lane
- Planting Strip with Trees
- Pedestrian Easement with Utility
- Connection Possibilities

Proposed Sidewalks

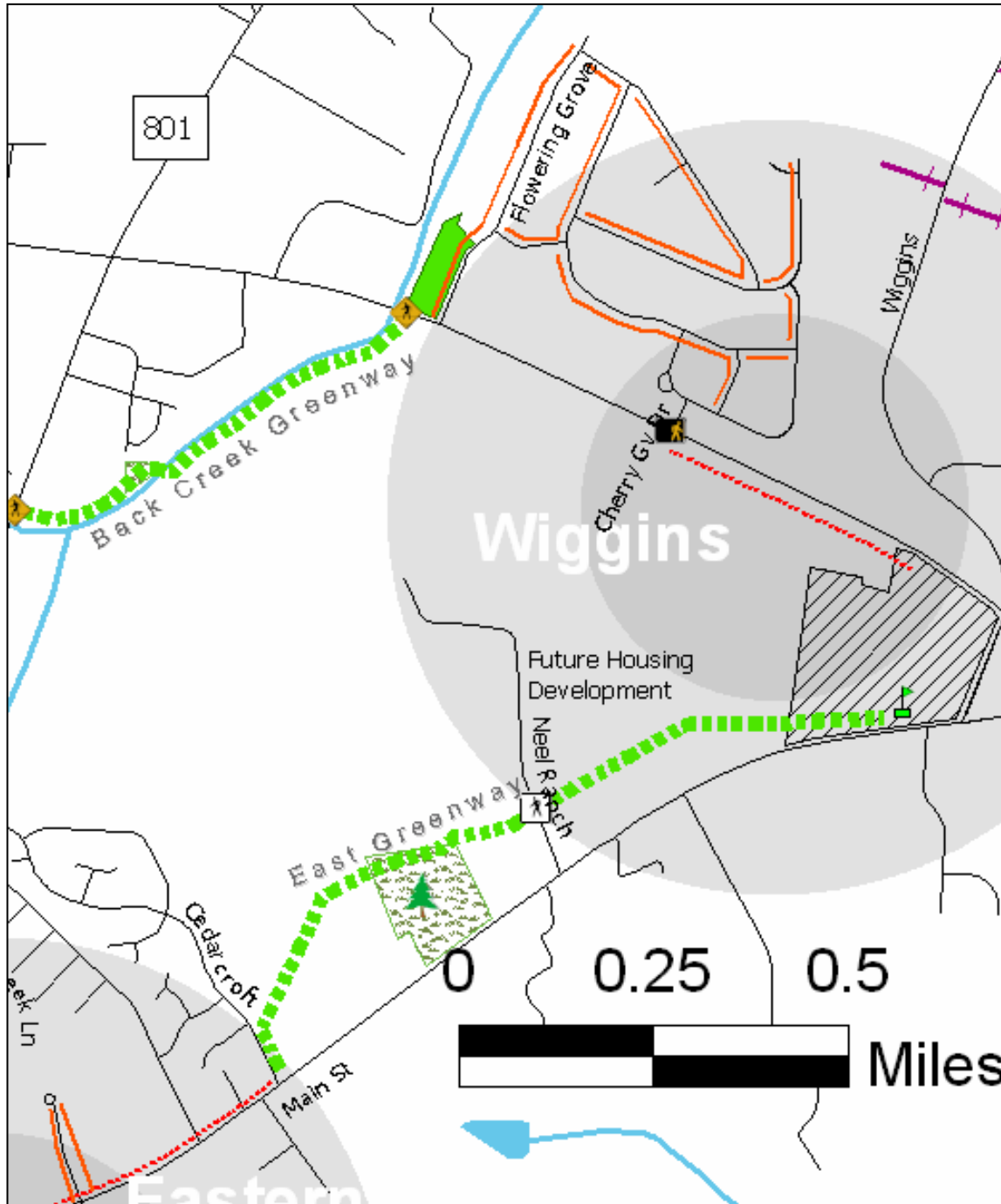
- 5' Wide Sidewalk
- 6 - 12' Wide Improved Sidewalk
- Signed Pedestrian Route

Road Crossings

- Countdown Crosswalk Signal
- Midblock Crosswalk, Culvert, or Underpass
- Neighborhood Crosswalk
- Underpass

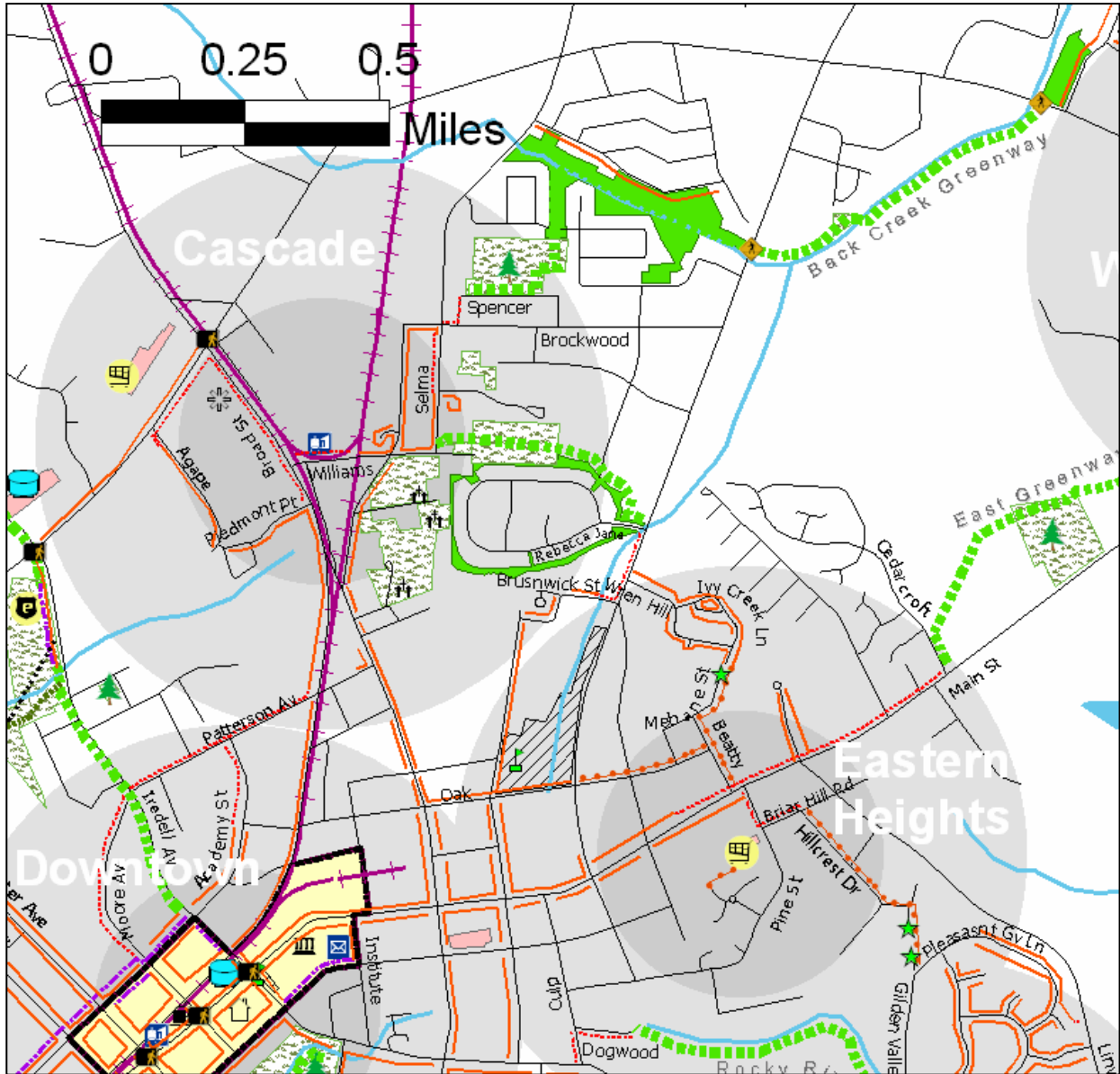


1. Wiggins Future Community



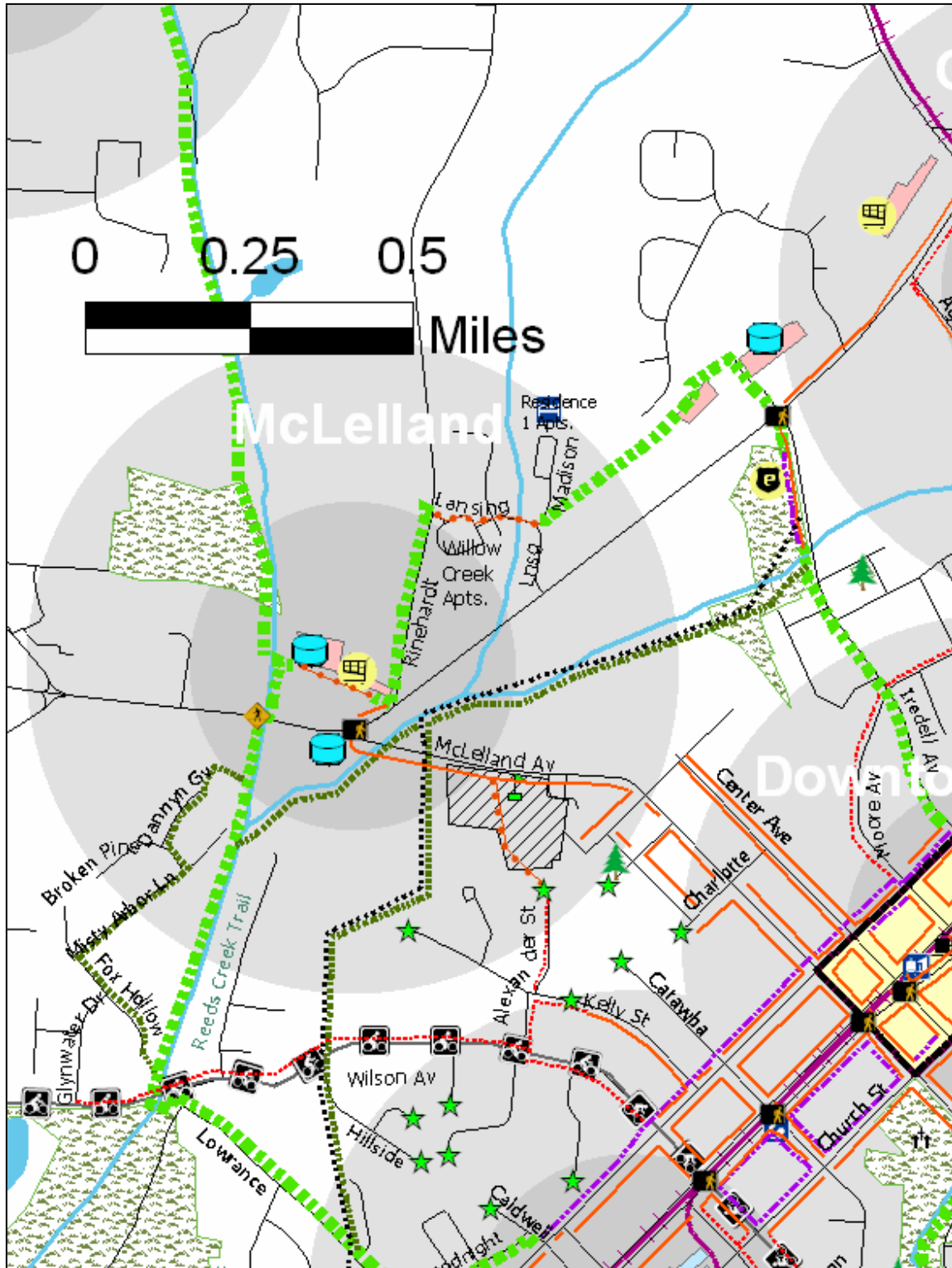


2. Cascade Future Community



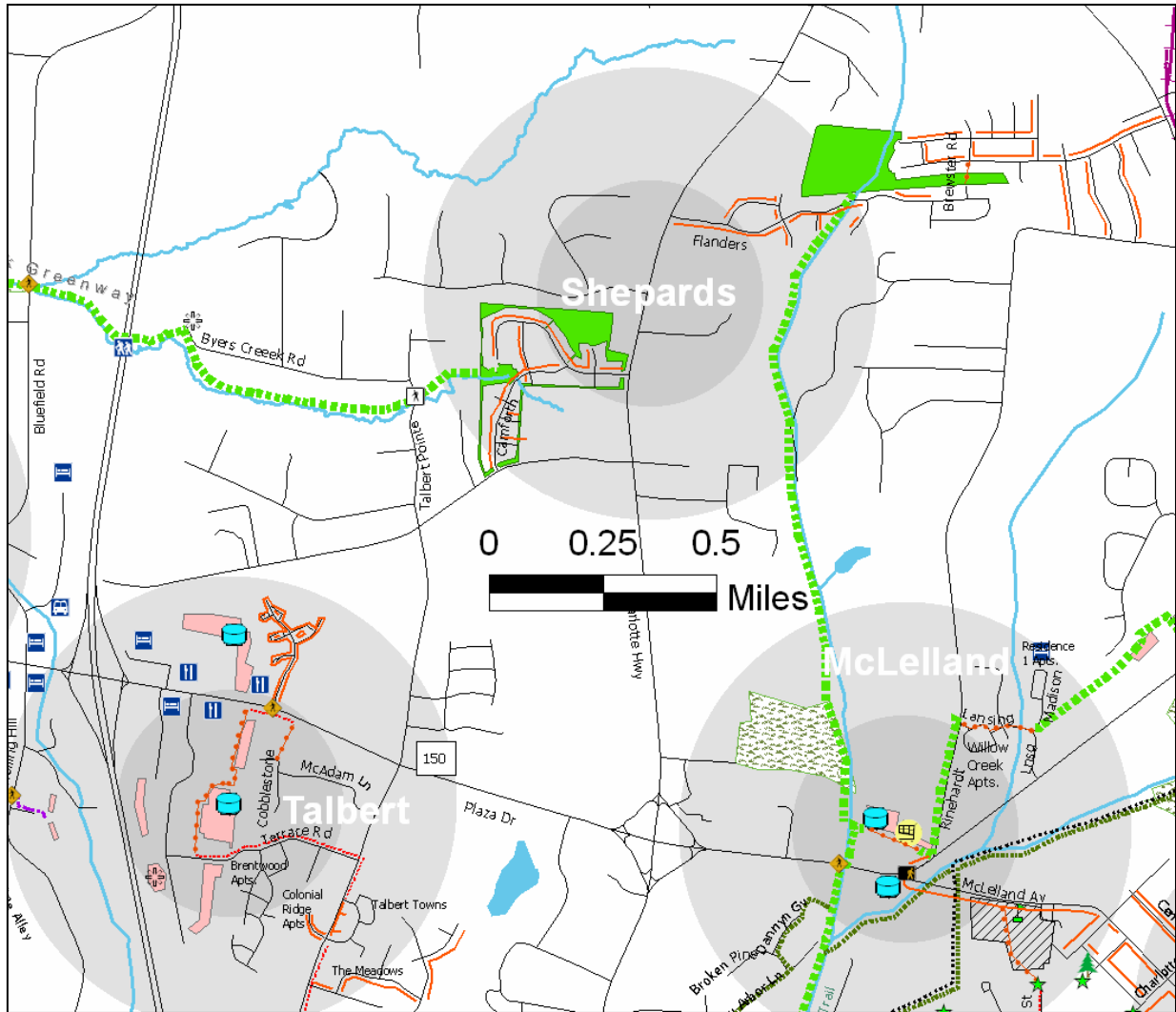


3. McLelland Community



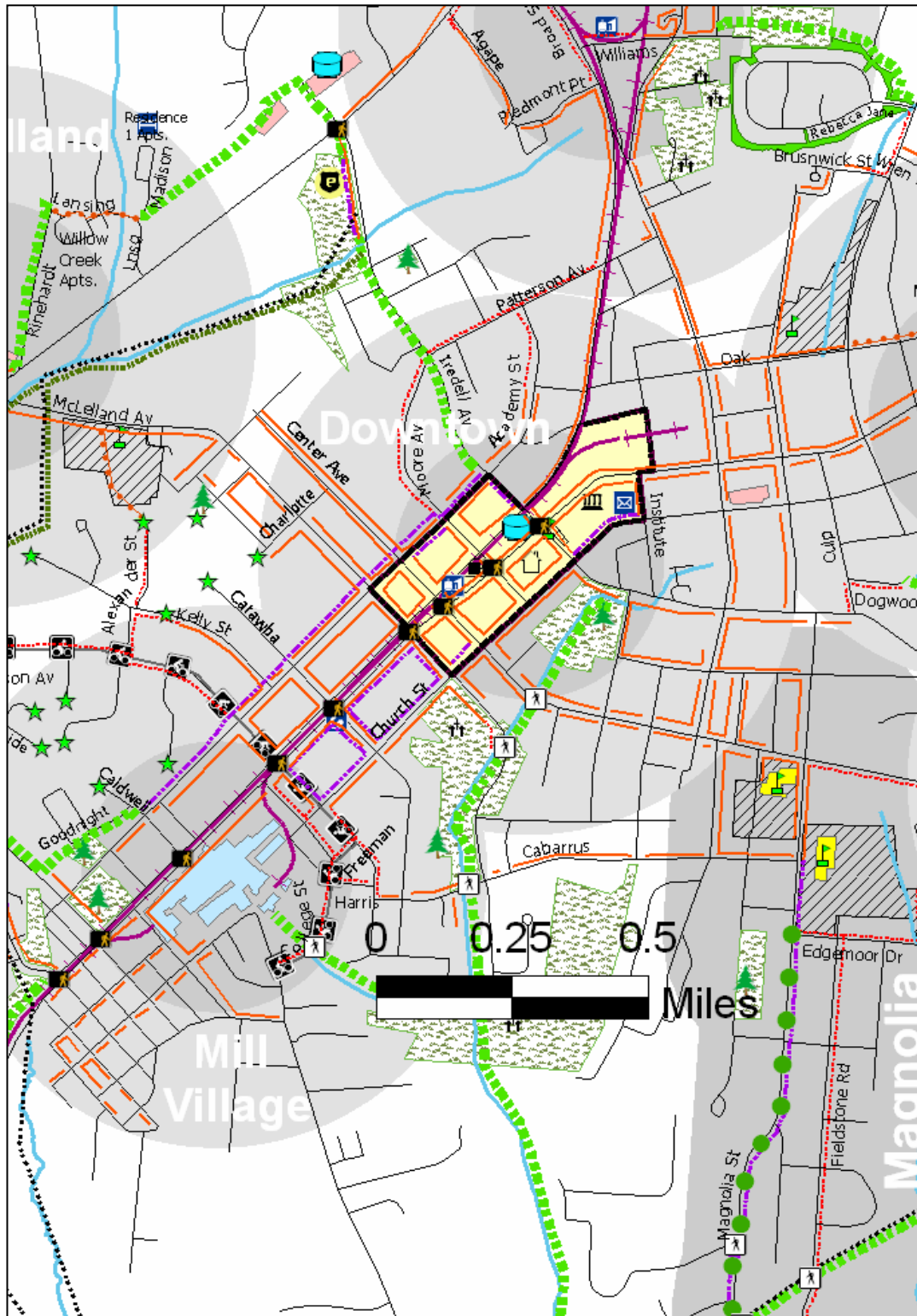


4. Shepards Future Community



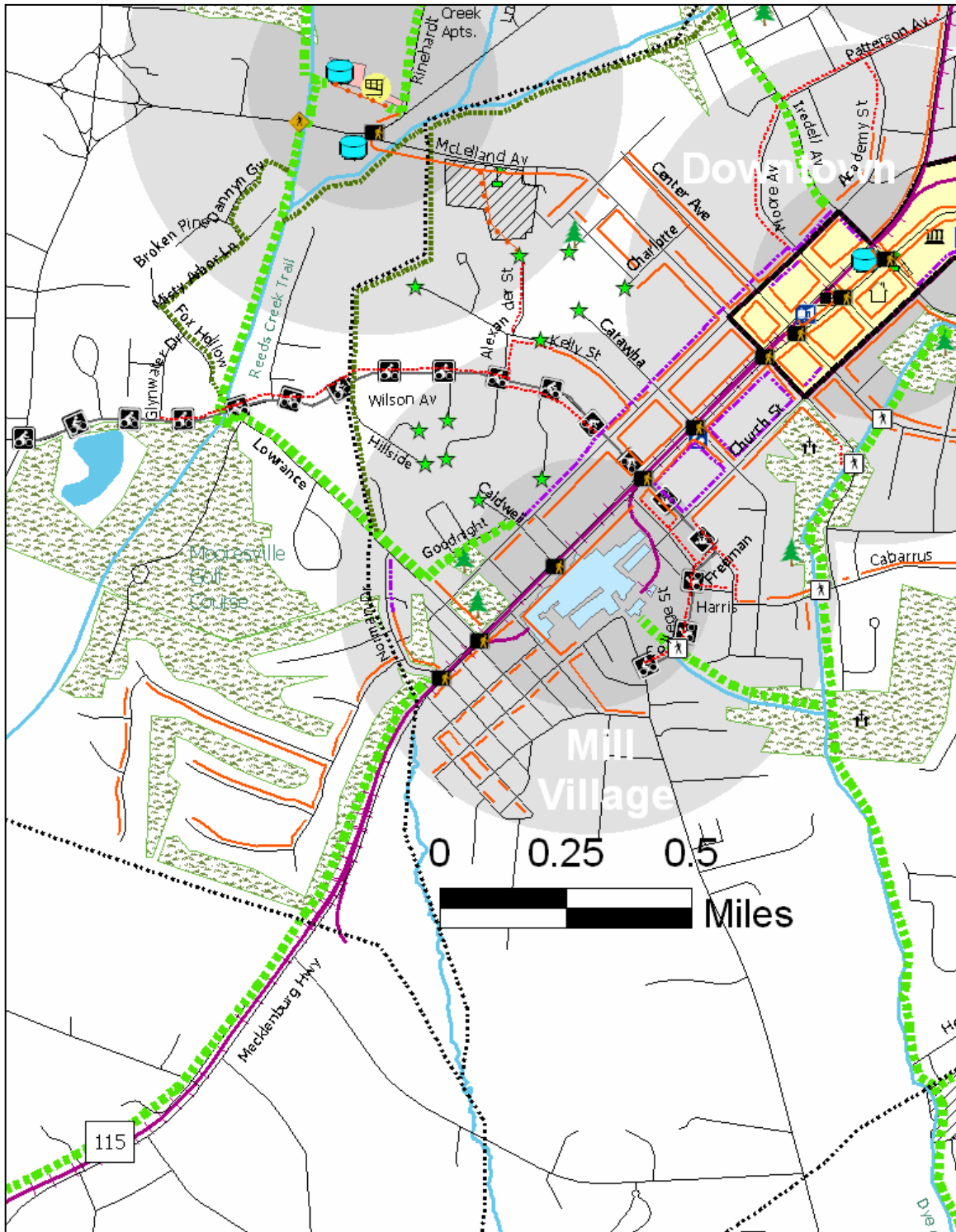


5. Downtown Mooresville Community



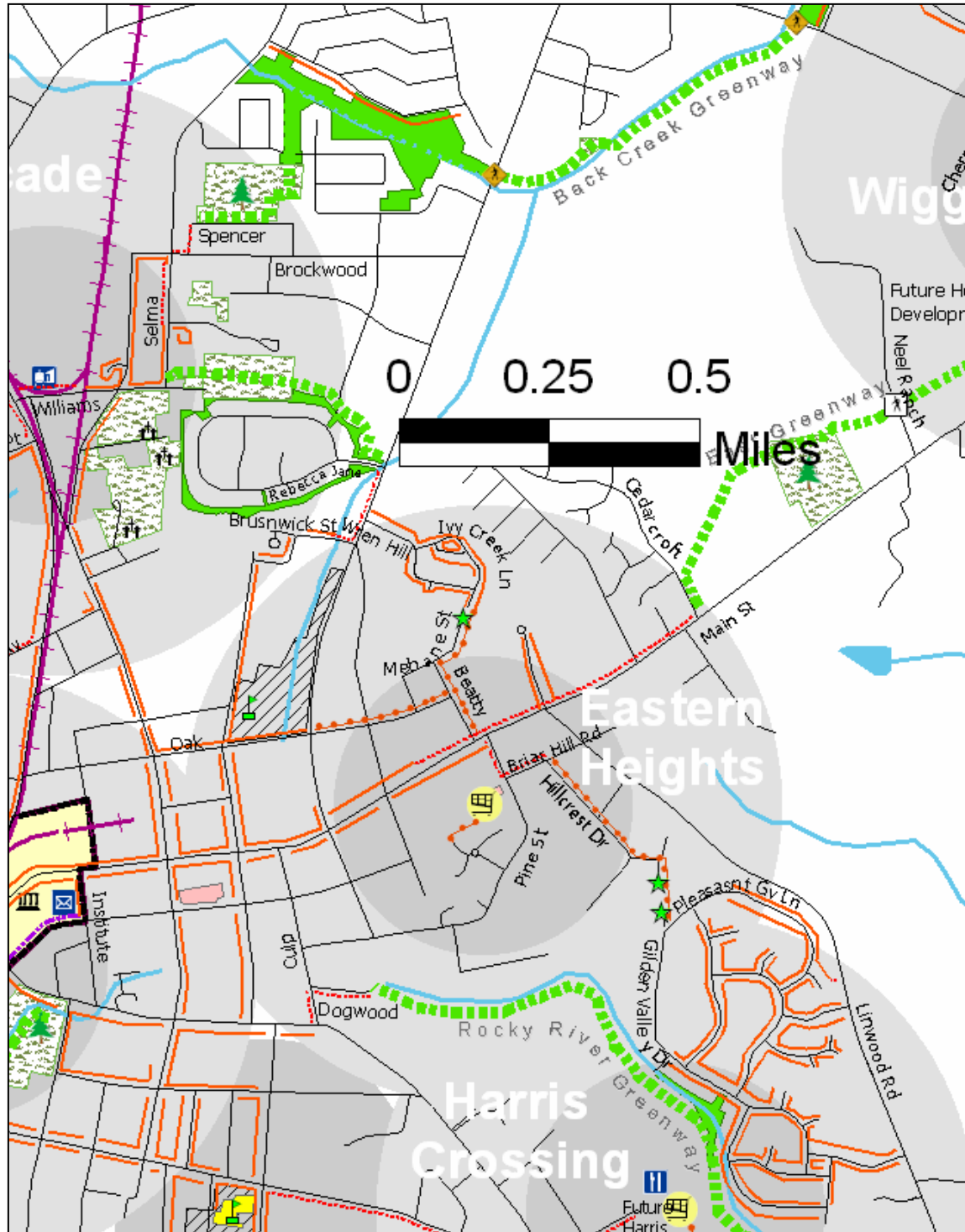


6. Historic Mill Village Future Community



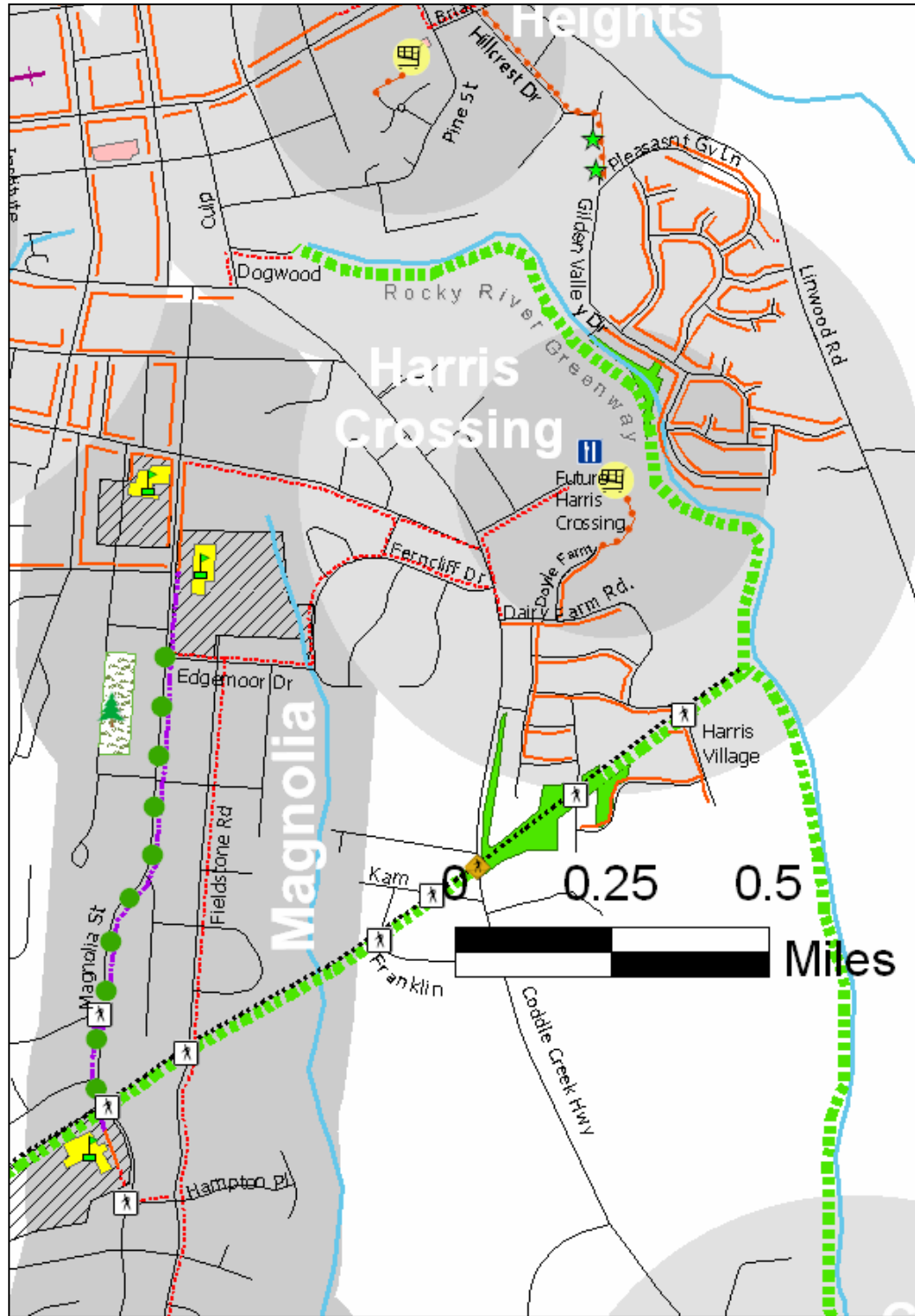


7. Eastern Heights Community



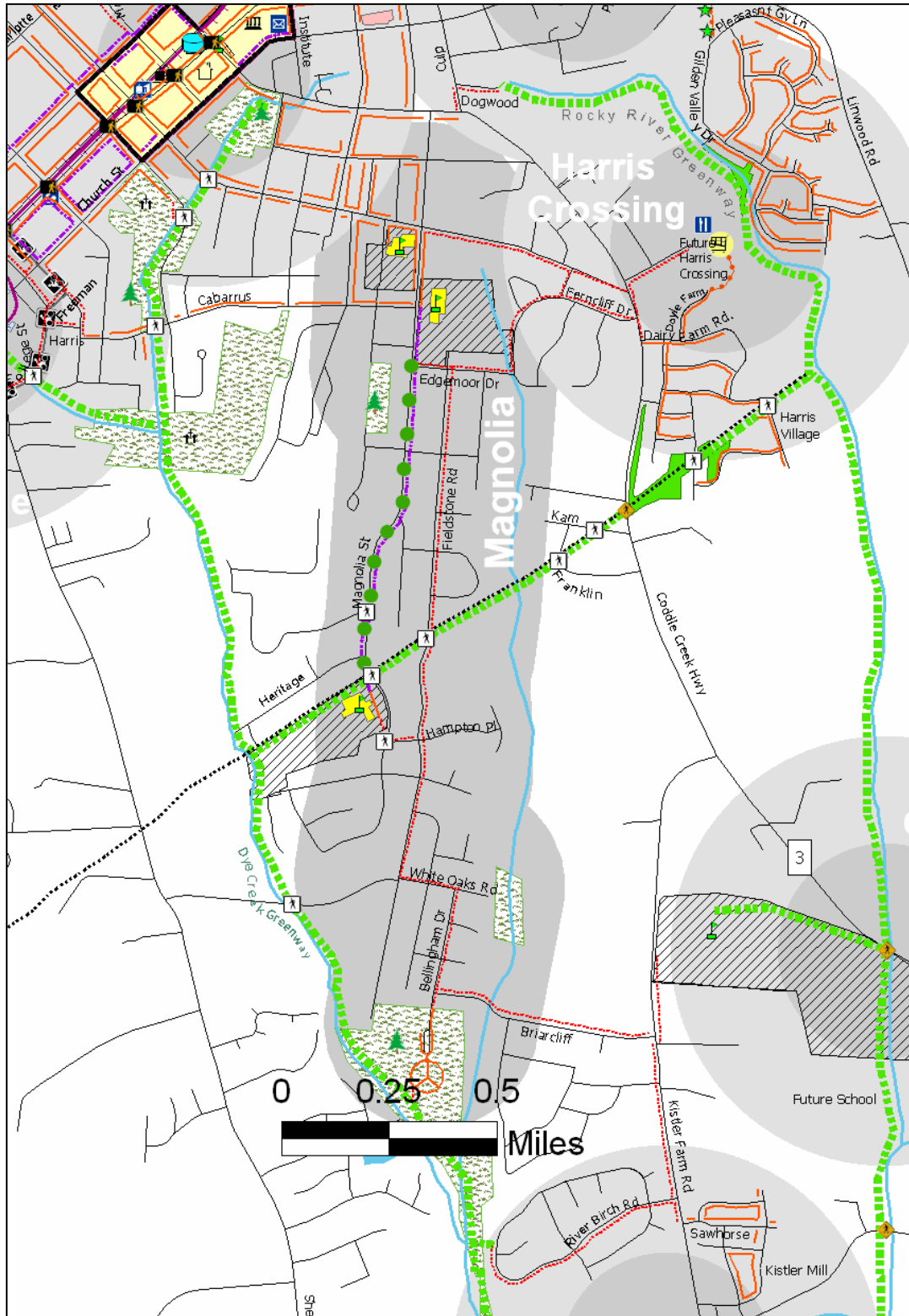


8. Harris Crossing Future Community



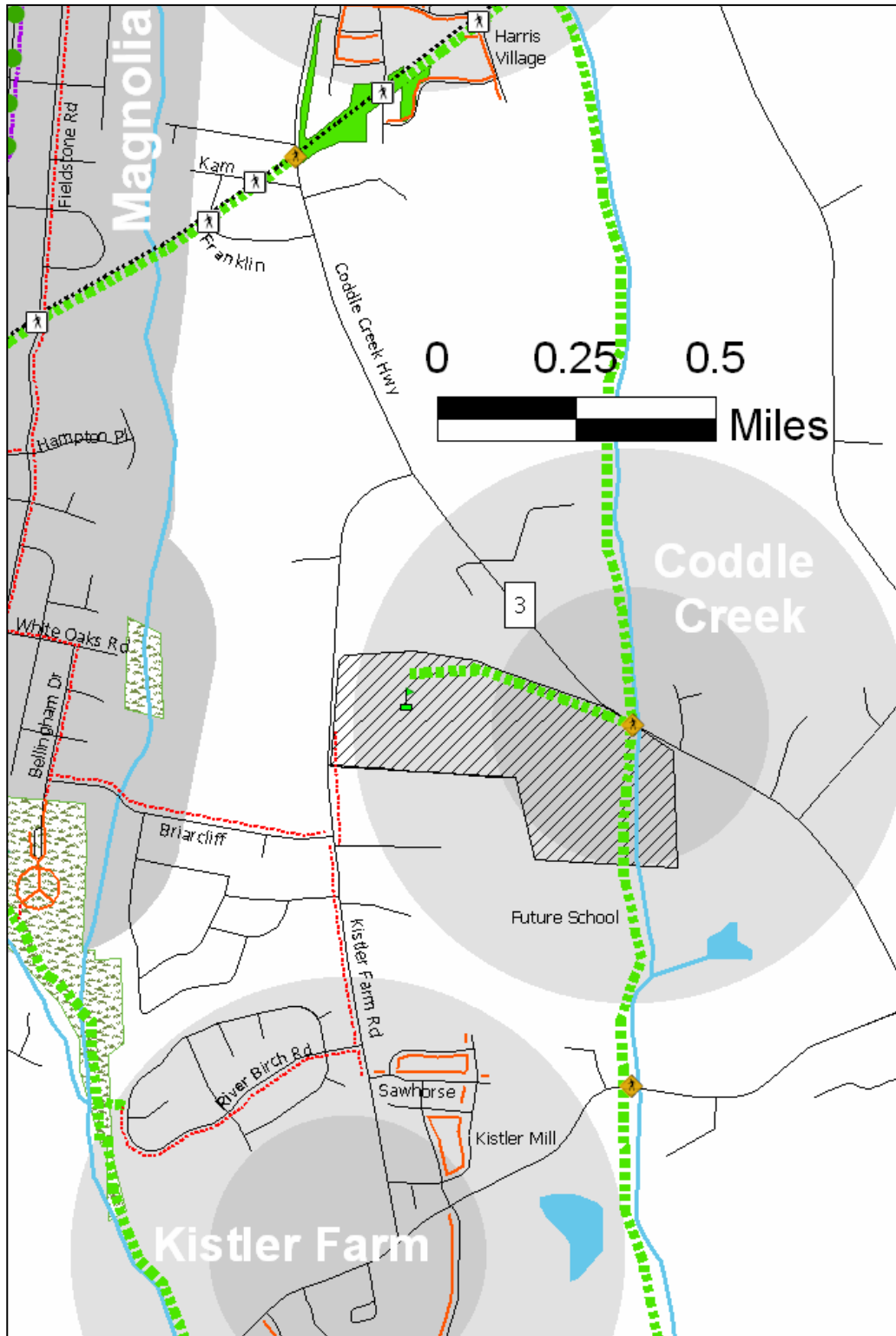


9. Magnolia Neighborhood



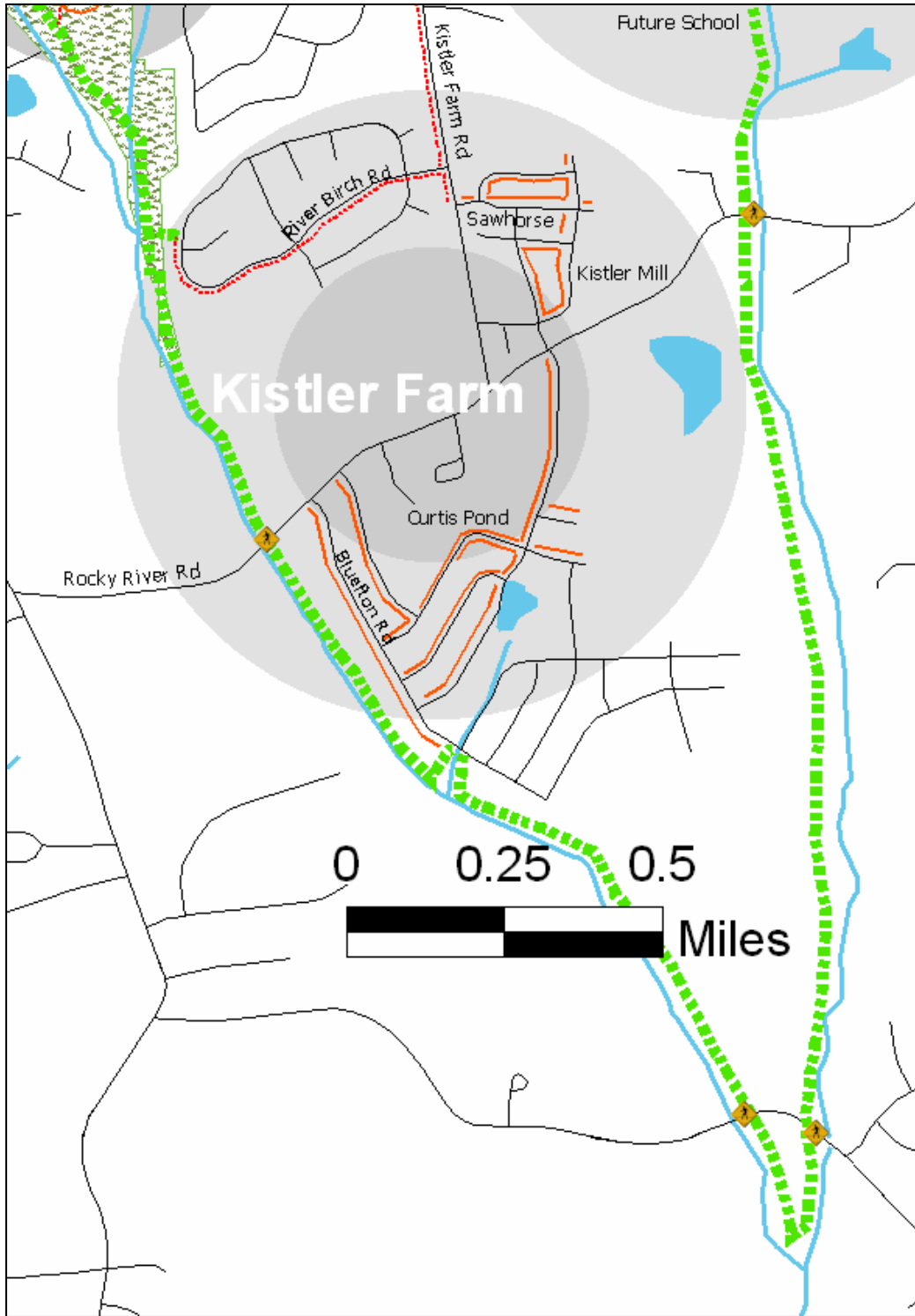


10. Coddle Creek Future Neighborhood



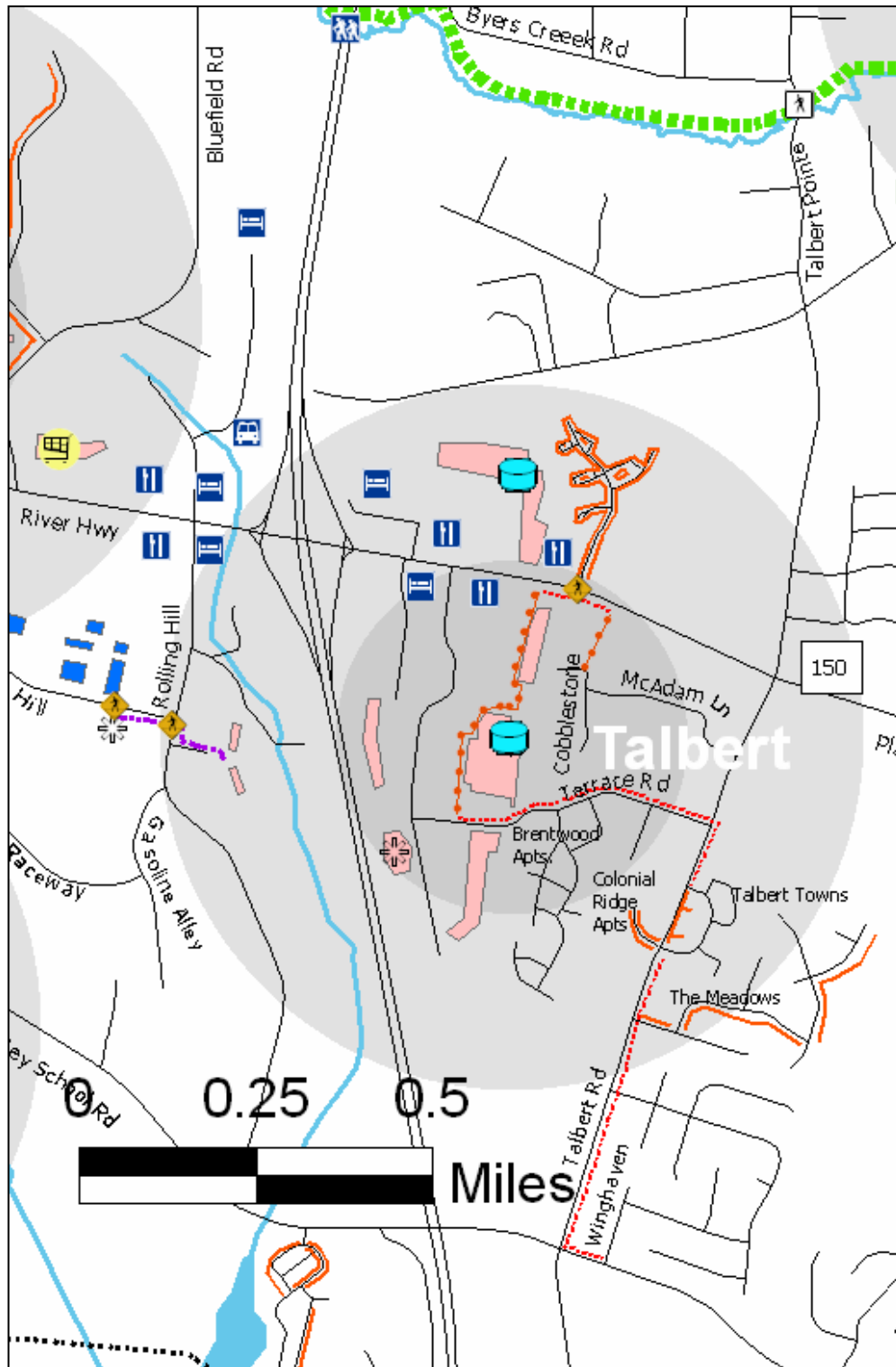


11. Kistler Farm Future Community



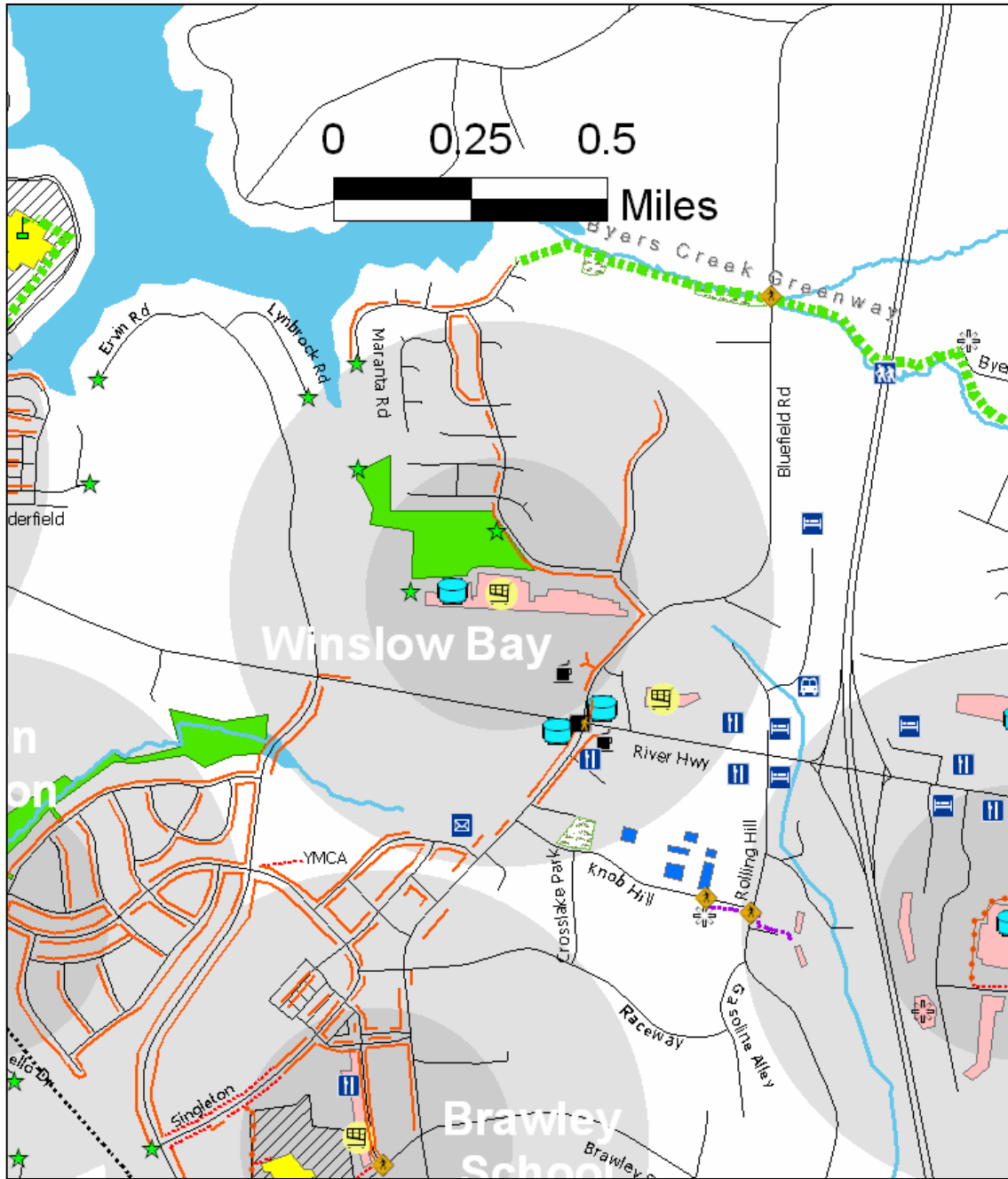


12. Talbert Community



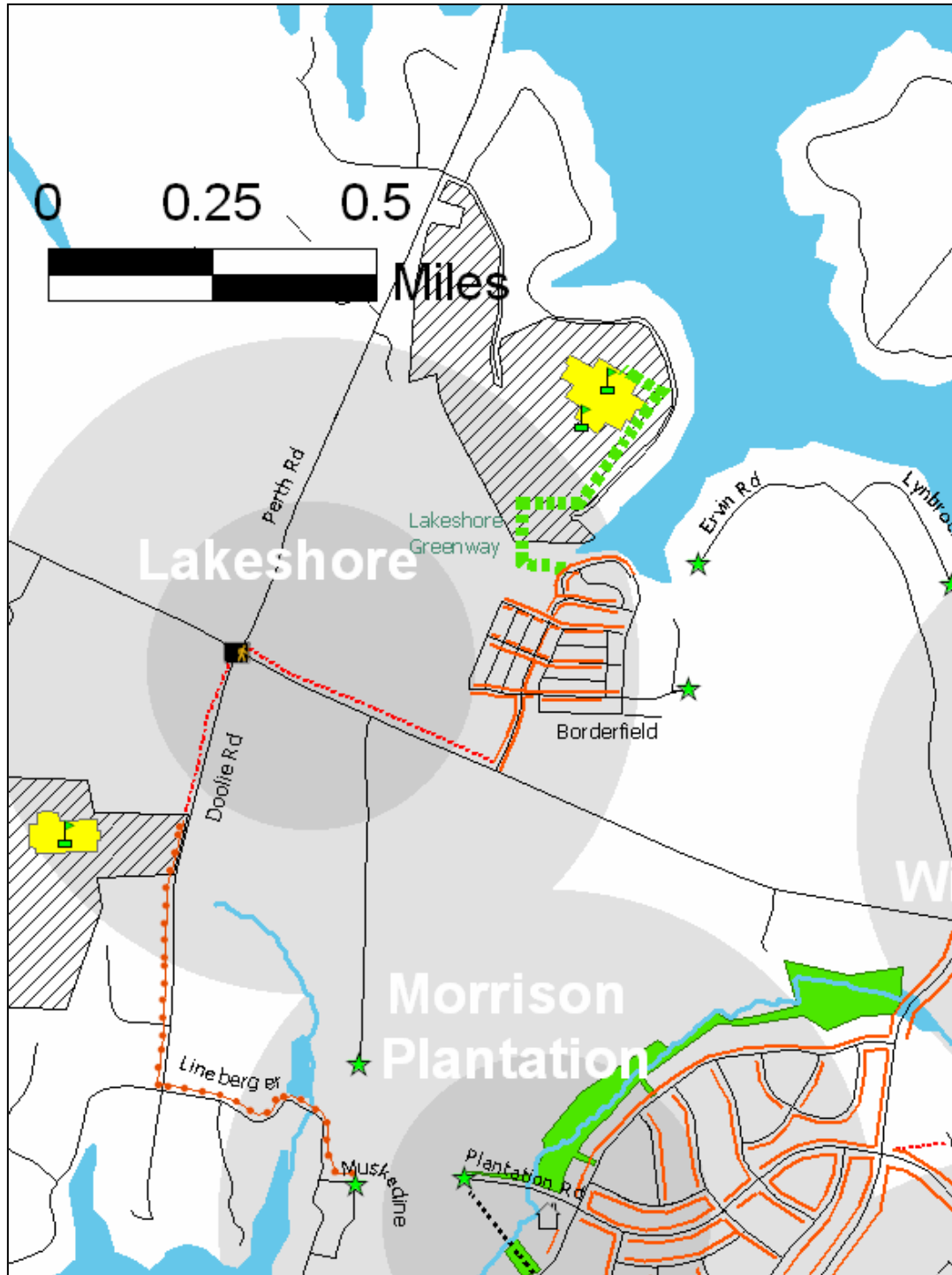


13. Winslow Bay Community



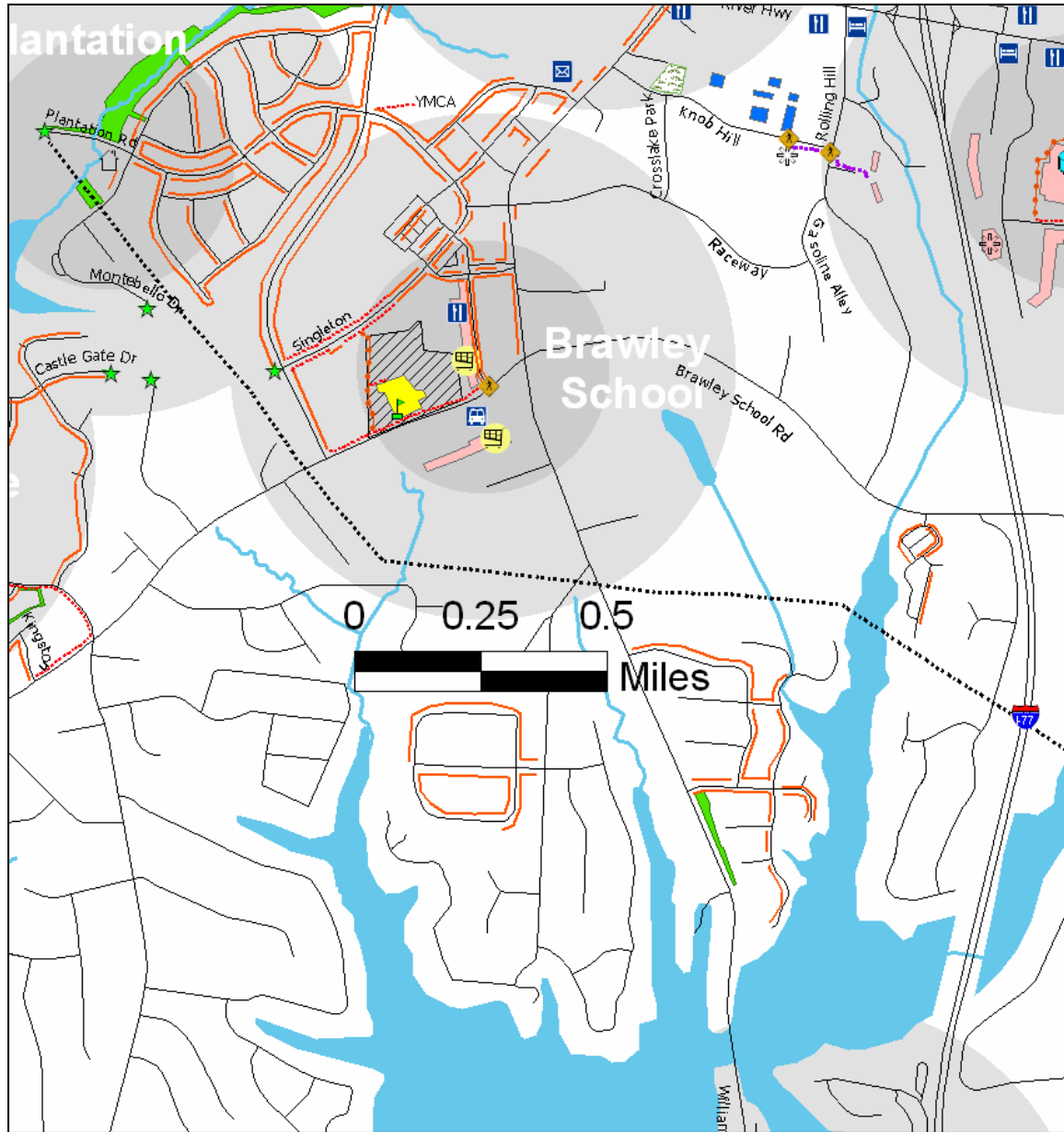


14. Lakeshore Future Community



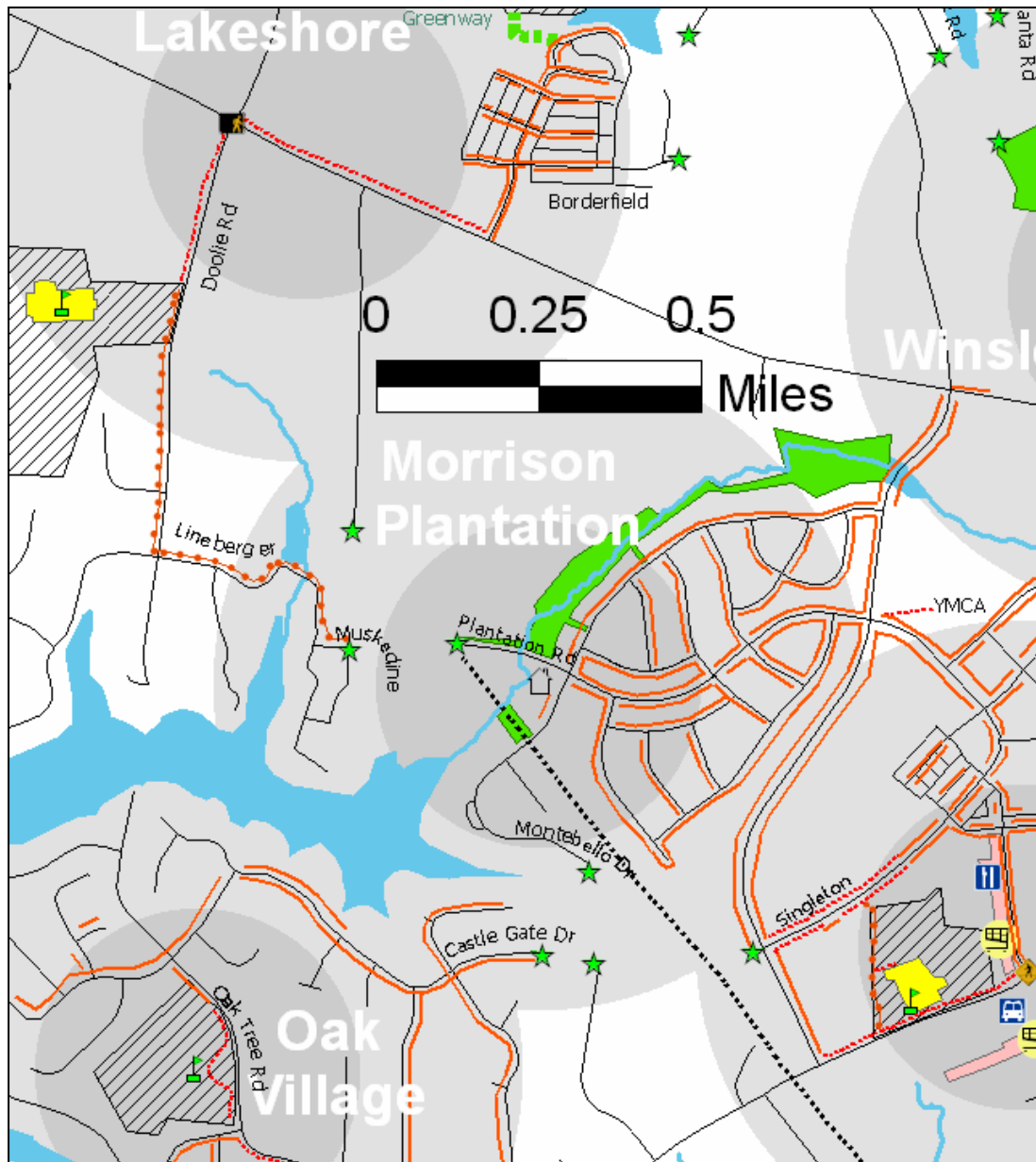


15. Brawley School Community



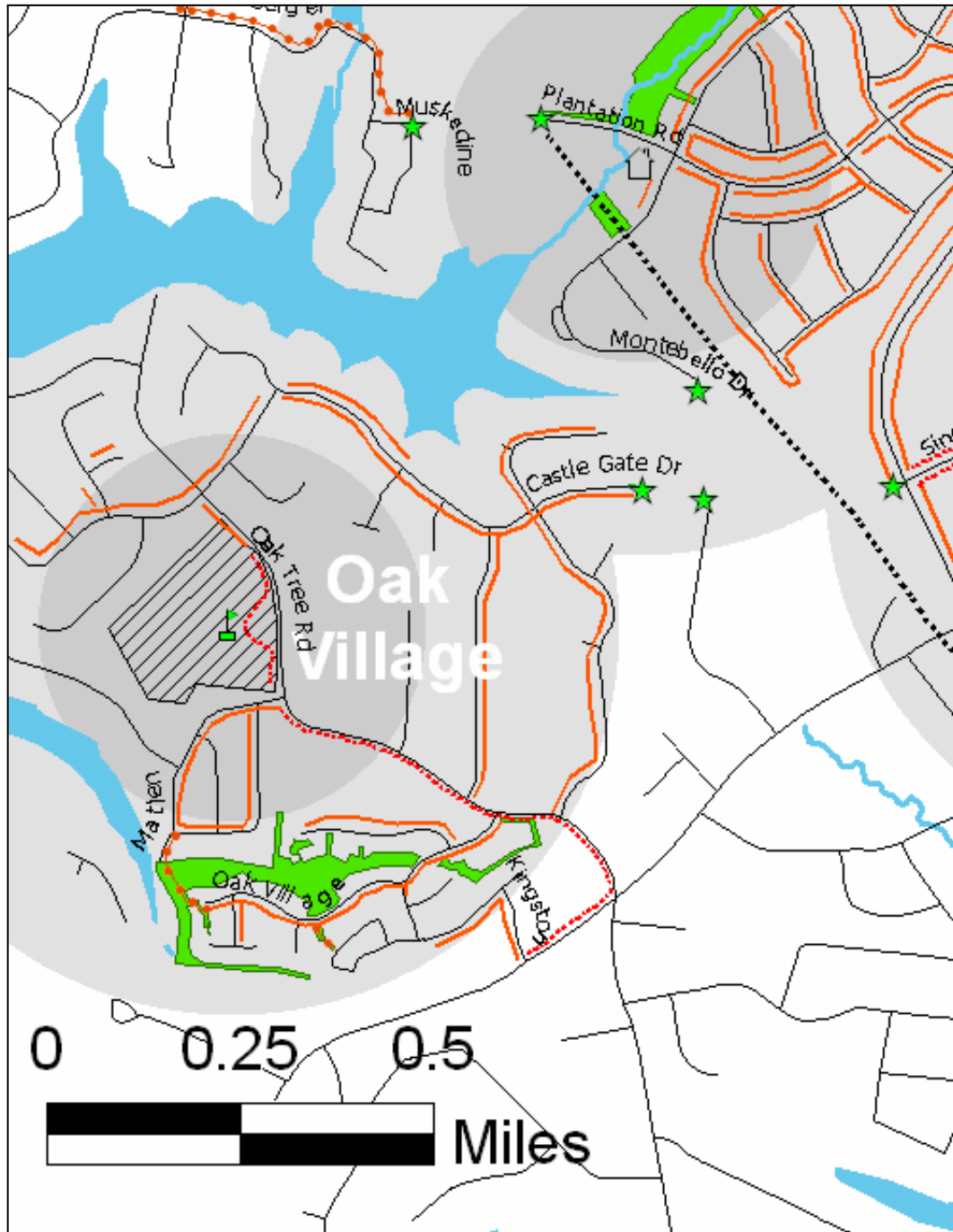


16. Morrison Plantation Neighborhood



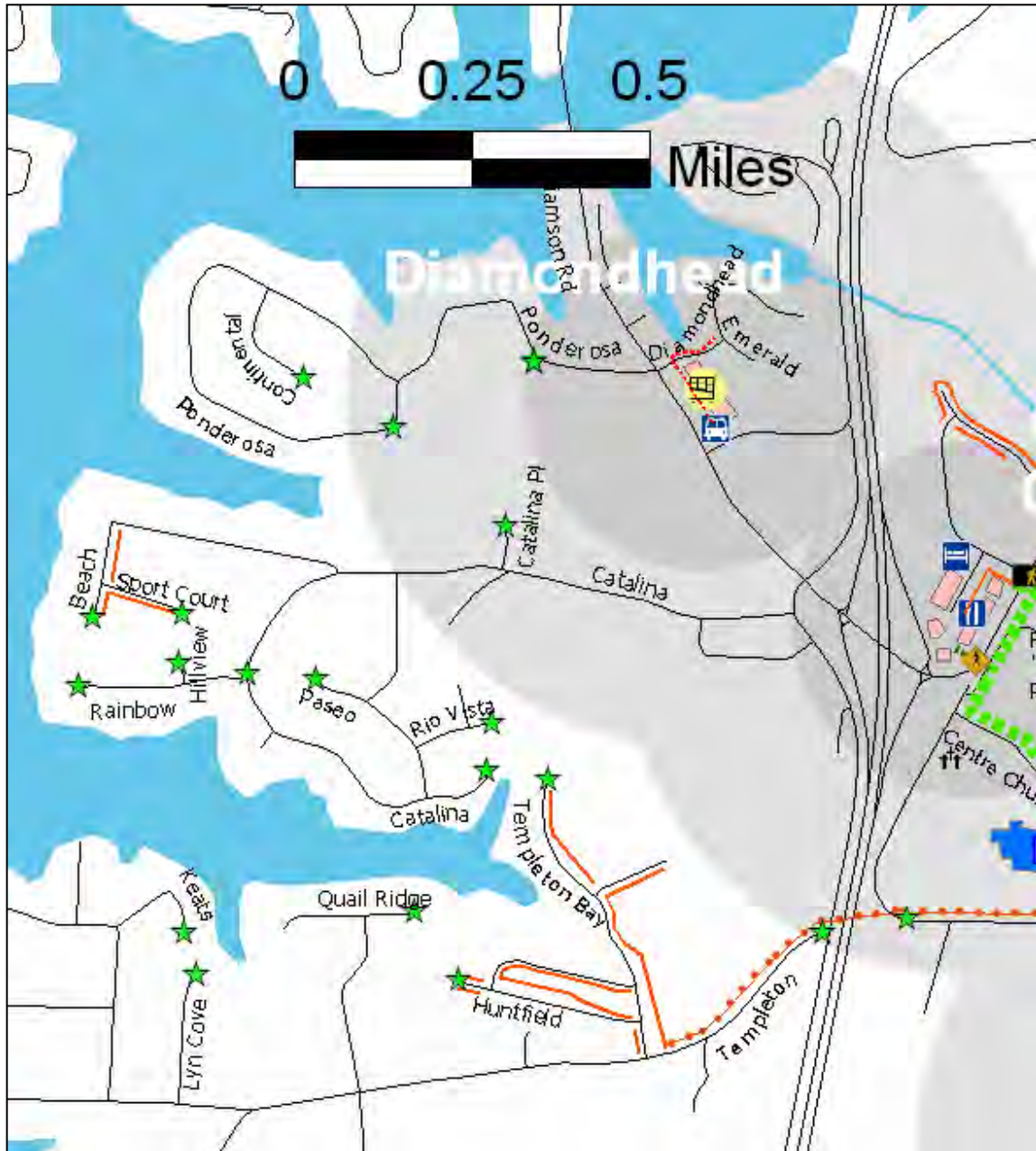


17. Oak Village Neighborhood



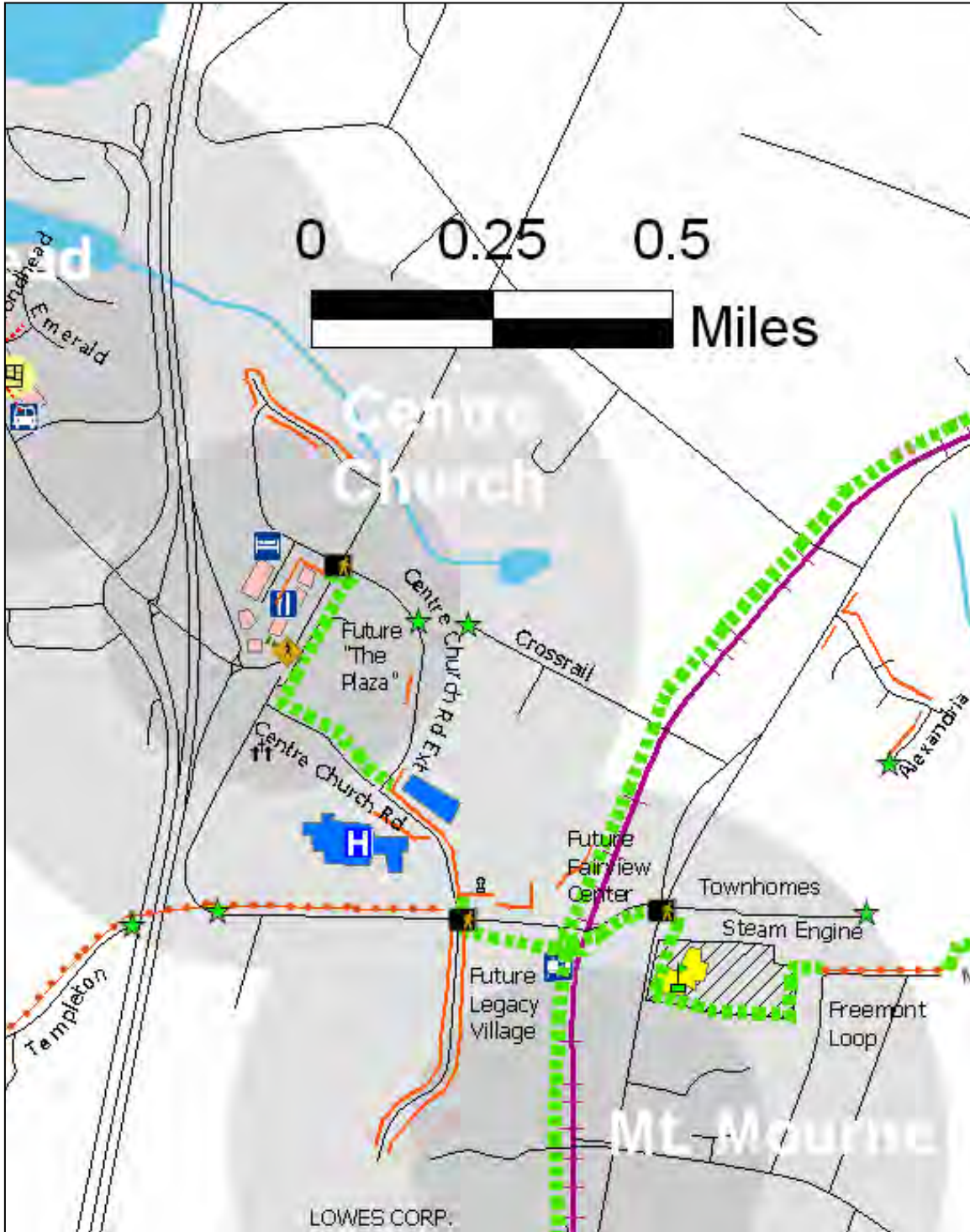


18. Diamondhead Community



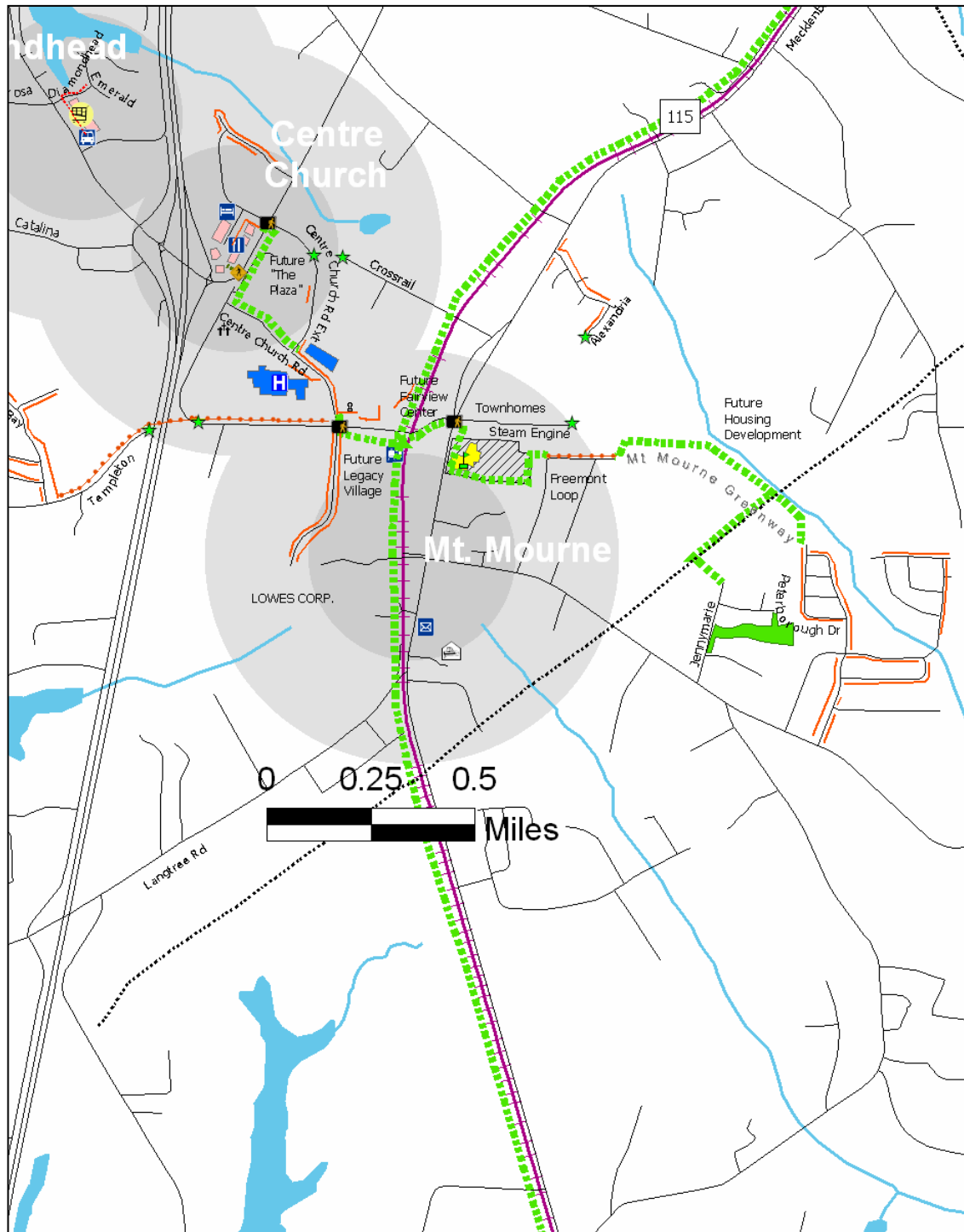


19. Centre Church Business Center





20. Mt. Mourne Future Community





Proposed Infrastructure Projects

Prog #	Project Description										Project Evaluation							
	Pedestrian Zone	Description of Improvement	Roadway / Location	From	To	Distance / #	Unit Cost	Estimated Project Cost	Estimated Project Cost	TOTAL Project Cost	Connectivity		Safety		Ability to Implement			
											Access to Major Destinations from Areas of Need (10 pts.)	Closes Gaps in Facilities (10 pts.)	Addresses Obstacles (10 pts.)	Improves Routes with High Vehicular Traffic or Provides Alternate Routes (10 pts.)	Support for Project (10 pts.)	Lack of Intensive Design Features (10 pts.)	Total Points	Ranking
1	Wiggins Future Community	5' Sidewalk	Hwy 150	Cherry Grove Dr	EMI School	1,860	150	279,000	319,000	8	8	8	9	8	7	48	9	
2	Wiggins Future Community	Mid Block Flashing Crosswalk	150 & E. M'ville Intermediate School			1	40,000	40,000										
3	Wiggins Future Community	10' Paved Multi-Use Path	Through Housing Development	Cedarcroft & Main	EMI School	5,440	132	718,080	720,000	9	9	7	10	8	7	50	7	Yes
4	Wiggins Future Community	Easement	Through Housing Development	Cedarcroft & Main	EMI School	4,180												
5	Wiggins Future Community	Neighborhood Crosswalk	Neel Ranch & East Greenway			1	1,000	1,000										
6	Cascade Future Community	10' Paved Multi-Use Path	Back Creek	Spencer	Flowering Grove/150	7,280	132	960,960	1,091,000	7	7	8	7	7	5	41	16	
7	Cascade Future Community	Easement	Back Creek / HOA Lands	150 & Flowering Gv	Rebecca Jane & 801	6,350												
8	Cascade Future Community	Mid Block Flashing Crosswalk, Underpass, or Culvert	150 & Flowering Grove			1	5,000	5,000										
9	Cascade Future Community	Mid Block Flashing Crosswalk, Underpass, or Culvert	Creek Tributary & 801			1	5,000	5,000										
10	Cascade Future Community	Pedestrian Bridge	Back Creek			1	120,000	120,000										
11	Cascade Future Community	10' Paved Multi-Use Path	Back Creek	Selma	801/Rebecca Jane	2,300	132	303,600	432,000	8	8	9	7	9	6	47	10	
12	Cascade Future Community	5' Sidewalk	Brunswick/801	Rebecca Jane	Brunswick & Back Creek	850	150	127,500										
13	Cascade Future Community	5' Sidewalk	Spencer/Brockwood/Selma	Ball Park	Apartments	980	150	147,000	227,000	8	7	7	5	8	9	44	13	
14	Cascade Future Community	5' Sidewalk	Williams	Broad St	RR	530	150	79,500										
15	Cascade Future Community	5' Sidewalk	Broad St/150/Agape	Sidewalk terminus on Agape	Piedmont Pt	2,600	150	390,000	395,000	9	9	9	8	7	8	50	7	Yes
16	Cascade Future Community	Crosswalk/Countdown Signal	150/Broad Street			1	5,000	5,000										
17	McLelland Community	10' Paved Multi-Use Path (Alt 1)	Lowrance, Reeds Creek, Rinehardt, Iredell	Lowrance	Iredell	15,630	132	2,063,160	2,228,000	10	10	10	10	9	5	54	3	Yes
18	McLelland Community	6-12' Improved Sidewalk (Alt 1)	Iredell	Hwy 150	Creek	770	200	154,000										
19	McLelland Community	Pedestrian Route Signage (Alt 1)	Big Lots/Lansing	Big Lots	Lansing	1,560	0.38	593										
20	McLelland Community	Easement (Alt 1)	Cut-Thru/Reeds Creek/150 Commercial			6,110												
21	McLelland Community	Crosswalk/Countdown Signal	Creek & 150 (1&2) or McClelland & 150 (3&4)			1	5,000	5,000										
22	McLelland Community	Crosswalk/Countdown Signal	150 & Iredell (1&2)			1	5,000	5,000										
23	McLelland Community	10' Paved Multi-Use Path (Alt 2)	Lowrance, Reeds Creek, Rinehardt, Iredell	Lowrance	Iredell	16,700	132	2,204,400	2,369,000									
24	McLelland Community	6-12' Improved Sidewalk (Alt 2)	Iredell			770	200	154,000										
25	McLelland Community	Pedestrian Route Signage (Alt 2)	Big Lots/Lansing			1,560	0.38	593										
26	McLelland Community	Easement (Alt 2)	Cut-Thrus/Reeds Creek/150 Commercial			4,340												
27	McLelland Community	10' Paved Multi-Use Path (Alt 3)	Lowrance, Reeds Creek, Iredell	Lowrance	Iredell	12,710	132	1,677,720	1,683,000									
28	McLelland Community	Easement (Alt 3)	Cut-Thru/Reeds Creek/Utility			7,600												
29	McLelland Community	10' Paved Multi-Use Path (Alt 4)	Lowrance, Utility, Iredell	Lowrance	Iredell	14,220	132	1,877,040	1,891,000									
30	McLelland Community	Easement (Alt 4)	Cut-Thru/Utility			8,360		8,360										
31	McLelland Community	Pedestrian Route Connection	McClelland Av to Alexander St	McClelland	Alexander St	1,010			131,000	8	8	8	9	7	7	47	10	
32	McLelland Community	Easement	School Property to Alexander St	School Property	Alexander St	200												
33	McLelland Community	5' Sidewalk	Alexander St	School Access	Kelly St	870	150	130,500										
34	Shepards Future Community	Pedestrian Route Connection	Brewster Road	Grayland	Flanders	280				7	7	9	7	7	5	42	15	
35	Shepards Future Community	10' Paved Multi-Use Path	Byers Creek	Wilborne Homeowners Ass.	Byers Creek Rd	4,440	132	586,080	588,000	7	7	7	6	7	6	40	17	
36	Shepards Future Community	Easement	Byers Creek	Wilborne Homeowners Ass.	Byers Creek Rd	4,440												
37	Shepards Future Community	Neighborhood Crosswalk or Culvert	Talbert Pointe and Byers Creek			1	1,000	1,000										
38	Shepards Future Community	10' Paved Multi-Use Path	Reeds Creek	Wilborne Homeowners Ass.	Reeds Creek Trail	7,700	132	1,016,400	1,017,000	8	8	8	8	9	7	48	9	
39	Shepards Future Community	Easement	Reeds Creek	Wilborne Homeowners Ass.	Reeds Creek Trail	6,650												
40	Downtown Community	6-12' Improved Sidewalk	Academy Street	Caldwell	Iredell	4,730	200	946,000	946,000	7	7	6	6	7	9	42	15	
41	Downtown Community	6-12' Improved Sidewalk	Iredell Ave	Academy	Broad	350	200	70,000	70,000	9	10	8	8	8	9	52	5	Yes
42	Downtown Community	6-12' Improved Sidewalk	Academy Street	Center Ave	Moore Ave	430	200	86,000	86,000	7	9	7	6	9	9	47	10	
43	Downtown Community	6-12' Improved Sidewalk	Church St	Iredell	Institute	810	200	162,000	162,000	9	9	7	7	9	9	50	7	Yes
44	Downtown Community	6-12' Improved Sidewalk	Church St	McClelland	Center Ave	290	200	58,000	58,000	8	9	7	8	9	9	50	7	Yes
45	Downtown Community	6-12' Improved Sidewalk	Main/Catawba/Church/McClelland	Main	McClelland	2,470	200	494,000	494,000	9	9	8	9	9	9	53	4	Yes
46	Downtown Community	5' Sidewalk	Moore/Patterson Ave	Academy	Broad	3,570	150	535,500	536,000	9	9	8	8	9	7	50	7	Yes
47	Downtown Community	5' Sidewalk	Academy Street	Patterson	Oak	780	150	117,000	117,000	8	8	7	8	8	9	48	9	
48	Downtown Community	10' Paved Multi-Use Path	Along Dye Creek	Liberty Park/Iredell	Bluffton Rd/Dye Creek Trib.	21,580	132	2,848,560	3,023,000	10	10	10	10	10	6	56	1	Yes
49	Downtown Community	Easement	Along Dye Creek minus city land	Liberty Park/Iredell	Bluffton Rd/Dye Creek Trib.	13,360												
50	Downtown Community	Pedestrian Bridge	Bellingham Park			1	120,000	120,000										
51	Downtown Community	Neighborhood Crosswalk	Center & Dye Creek			1	1,000	1,000										
52	Downtown Community	Neighborhood Crosswalk	McClelland & Dye Creek			1	1,000	1,000										
53	Downtown Community	Neighborhood Crosswalk	Cabarrus & Dye Creek			1	1,000	1,000										
54	Downtown Community	Neighborhood Crosswalk	White Oaks Rd & Dye Creek			1	1,000	1,000										
55	Downtown Community	Mid Block Flashing Crosswalk, Underpass, or Culvert	Rocky River Road & Dye Creek			1	5,000	5,000										
56	Downtown Community	5' Sidewalk	McClelland/Cemetery	Sidewalk Terminus	Proposed Greenway	300	150	45,000										
57	Downtown Community	Crosswalk/Countdown Signal	Main & Catawba			1	5,000	5,000	25,000	9	9	10	9	9	9	55	2	Yes
58	Downtown Community	Crosswalk/Countdown Signal	Main & McClelland			1	5,000	5,000										
59	Downtown Community	Crosswalk/Countdown Signal	Main & Center			1	5,000	5,000										
60	Downtown Community	Crosswalk/Countdown Signal	Main & Moore			1	5,000	5,000										
61	Downtown Community	Crosswalk/Countdown Signal	Main & Iredell			1	5,000	5,000										
62	Mill Village Future Community	6-12' Improved Sidewalk	Main/E Wilson/Church/Catawba	Main	Catawba	2,070	200	414,000	414,000	9	9	8	9	9	9	53	4	Yes
63	Mill Village Future Community	5' Sidewalk	Kelly/Alexander	W Wilson	Midblock Kelly	890	150	133,500	134,000	8	9	8	8	8	8	49	8	
64	Mill Village Future Community	5' Sidewalk	W Wilson	Glynwater	Academy	4,970	150	745,500	746,000	8	7	8	9	9	7	48	9	
65	Mill Village Future Community	Easement	W Wilson	Glynwater	Academy	4,970												
66	Mill Village Future Community	5' Sidewalk	College/Harris/Church/Wilson/Freeman	Main	Shearers	3,790	150	568,500	569,000	9	7	8	9	9	9	51	6	Yes
67	Mill Village Future Community	6-12' Improved Sidewalk	Norman	Lowrance	Sidewalk Terminus	560	200	112,000	112,000	7	7	6	6	7	9	42	15	
68	Mill Village Future Community	4-10' Planting Strip	Norman	Lowrance	Sidewalk Terminus	560												
69	Mill Village Future Community	10' Paved Multi-Use Path	Along Creek	Old Mill	Proposed Dye Creek Greenway	2,150	132	283,800	405,000	9	8	7	7	7	6	44	13	
70	Mill Village Future Community	Easement	Along Creek	Old Mill	Veterans? Park	1,350												
71	Mill Village Future Community	Pedestrian Bridge	Across Dye Creek			1	120,000	120,000										
72	Mill Village Future Community	Neighborhood Crosswalk	College & the creek, near Shearers			1	1,000	1,000										
73	Mill Village Future Community	Striped Bicycle Lane	W & E Wilson	Charlotte Hwy (21)	Shearers	9,630	3	28,890	29,000	9	8	8	9	10	9	53	4	Yes
74	Mill Village Future Community	Crosswalk/Countdown Signal	Main & Wilson			1	5,000	5,000	20,000	9	9	10	9	9	9	55	2	Yes
75	Mill Village Future Community	Crosswalk/Countdown Signal	Main & Caldwell			1	5,000	5,000										
76	Mill Village Future Community	Crosswalk/Countdown Signal	Main & Lowrance			1	5,000	5,000										
77	Mill Village Future Community	Crosswalk/Countdown Signal	Main & Norman			1	5,000	5,000										



Proposed Infrastructure Projects

Prog #	Pedestrian Zone	Project Description								Project Evaluation							
		Description of Improvement	Roadway / Location	From	To	Distance / #	Unit Cost	Estimated Project Cost	Estimated TOTAL Project Cost	Connectivity		Safety		Ability to Implement			
										Access to Major Destinations from Areas of Need (10 pts.)	Closes Gaps in Facilities (10 pts.)	Addresses Obstacles (10 pts.)	Improves Routes with High Vehicular Traffic or Provides Alternate Routes (10 pts.)	Support for Project (10 pts.)	Lack of Intensive Design Features (10 pts.)	Total Points	Ranking
78	60 Eastern Heights Community	5' Sidewalk	Pine St/Briar Hill Rd	Main St	Briar Hill Rd.	800	150	120,000	120,000	8	8	7	7	9	46	11	
79	61 Eastern Heights Community	5' Sidewalk	Main/Landis	Stewart/Beatty	Cedarcroft	2,780	150	417,000	417,000	8	8	7	9	9	50	7	Yes
80	62 Eastern Heights Community	Pedestrian Route Connection	Ivy Creek/Mebane/Beatty	Wren Hill	Main St	1,290			1,000	8	8	8	8	7	10	49	8
81	62 Eastern Heights Community	Pedestrian Route Signage	Oak	Park Rd (801)	Beatty	1,210	0.38	460									
82	63 Eastern Heights Community	Pedestrian Route Connection	Hilcrest Drive	Briar Hill Rd	Pleasant Grove Ln	1,980				7	8	9	8	7	10	49	8
83	70 Harris Crossing Future Community	10' Paved Multi-Use Path	Rocky River/Utility	Dogwood	South Elementary	14,820	132	1,956,240	2,361,000	9	9	9	9	7	5	48	9
84	70 Harris Crossing Future Community	Easement	Rocky River/Utility	Dogwood	South Elementary	14,820											
85	70 Harris Crossing Future Community	5' Sidewalk	Dogwood/Culp	Iredell	Rocky River	790	150	118,500									
86	70 Harris Crossing Future Community	Pedestrian Bridge	Linking Harris Crossing to Linwood Farms	Harris Crossing	Linwood Farms	1	120,000	120,000									
87	70 Harris Crossing Future Community	Pedestrian Bridge	Utility across stream			1	120,000	120,000									
88	70 Harris Crossing Future Community	Mid Block Flashing Crosswalk	Coddle Creek Hwy & Utility			1	40,000	40,000									
89	70 Harris Crossing Future Community	Neighborhood Crosswalk	Harris Farm in Harris Village & Utility			1	1,000	1,000									
90	70 Harris Crossing Future Community	Neighborhood Crosswalk	Forest Glen in Harris Village & Utility			1	1,000	1,000									
91	70 Harris Crossing Future Community	Neighborhood Crosswalk	Kam & Utility			1	1,000	1,000									
92	70 Harris Crossing Future Community	Neighborhood Crosswalk	Franklin & Utility			1	1,000	1,000									
93	70 Harris Crossing Future Community	Neighborhood Crosswalk	Fieldstone & Utility			1	1,000	1,000									
94	70 Harris Crossing Future Community	Neighborhood Crosswalk	Magnolia & Utility			1	1,000	1,000									
95	71 Harris Crossing Future Community	5' Sidewalk	Ferncliff Dr/Edgemoor Dr/Coddle Creek	Fieldstone	Dairy Farm Rd	3,300	150	495,000	495,000	8	8	8	8	7	9	48	9
96	80 Magnolia Neighborhood	6-12' Improved Sidewalk	Magnolia	Middle School	Elementary School	4,990	200	998,000	1,110,000	8	8	9	9	8	50	7	Yes
97	80 Magnolia Neighborhood	4-10' Planting Strip	Magnolia	Middle School	Elementary School	4,990											
98	80 Magnolia Neighborhood	Neighborhood Crosswalk	Magnolia & Heritage			1	1,000	1,000									
99	80 Magnolia Neighborhood	Neighborhood Crosswalk	Magnolia & Hampton			1	1,000	1,000									
100	80 Magnolia Neighborhood	Southern or Sweetbay Magnolia Saplings	In planting strip, every 30-40 ft in open areas	Middle School	Elementary School	50	30	1,500									
101	80 Magnolia Neighborhood	5' Sidewalk	Hampton	Elementary School	Fieldstone	720	150	108,000									
102	81 Magnolia Neighborhood	5' Sidewalk	Fieldstone	Edgemoor	Bellingham Park	9,060	150	1,359,000	1,359,000	7	7	7	7	7	9	44	13
103	82 Magnolia Neighborhood	5' Sidewalk	Center/Johnson	High School/Magnolia	Johnson and Ferncliff	2,170	150	325,500	326,000	8	8	8	8	7	9	48	9
104	90 Coddle Creek Future Neighborhood	5' Sidewalk	Kistler Farm Rd/Briarcliff	Mooreville Int School	Bellingham Dr.	3,850	150	577,500	578,000	8	8	7	9	9	50	7	Yes
105	91 Coddle Creek Future Neighborhood	10' Paved Multi-Use Path	Schools to Harris Village on Rocky to Dye Creek	Mooreville Int School	Harris Village	26,910	132	3,552,120	3,573,000	8	7	9	8	7	7	46	11
106	91 Coddle Creek Future Neighborhood	Easement	Schools to Harris Village on Rocky River	Mooreville Int School	Harris Village	7,260											
107	91 Coddle Creek Future Neighborhood	Mid Block Flashing Crosswalk, Underpass, or Culvert	Rocky River Creek and Highway 3			1	5,000	5,000									
108	91 Coddle Creek Future Neighborhood	Mid Block Flashing Crosswalk, Underpass, or Culvert	Rocky River Creek and Rocky River Road			1	5,000	5,000									
109	91 Coddle Creek Future Neighborhood	Mid Block Flashing Crosswalk, Underpass, or Culvert	Rocky River Creek and Johnson Dairy Road			1	5,000	5,000									
110	91 Coddle Creek Future Neighborhood	Mid Block Flashing Crosswalk, Underpass, or Culvert	Dye Creek and Johnson Dairy Road			1	5,000	5,000									
111	100 Kistler Farm Future Community	5' Sidewalk	Kistler Farm Rd	Briarcliff	Sawhorse	2,170	150	325,500	326,000	7	7	7	7	7	9	44	13
112	101 Kistler Farm Future Community	5' Sidewalk	River Birch Road	Greenway access	Kistler Farm Rd	2,890	150	433,500	434,000	7	7	7	7	7	9	44	13
113	120 Talbert Community	Pedestrian Route Connection	150 to Cobblestone	150	Cobblestone	440			861,000	9	9	9	8	8	50	7	Yes
114	120 Talbert Community	5' Sidewalk	150	Cobblestone	Shopping Center	550	150	82,500									
115	120 Talbert Community	Pedestrian Route Signage	Shopping Center Frontage	150	Terrace Rd	2,090	0.38	794									
116	120 Talbert Community	5' Sidewalk	Terrace/Talbert/Brawley School Road	Wal-Mart	Winghaven	5,150	150	772,500									
117	120 Talbert Community	Easement	150 to Cobblestone	150	Cobblestone	440											
118	120 Talbert Community	Crosswalk/Countdown Signal	Portstown & 150			1	5,000	5,000									
119	121 Talbert Community	6-12' Improved Sidewalk	Knob Hill, Rolling Hill, & Loma Hill Rd	NC Race Hall of Fame	NASCAR Shops	1,010	200	202,000	282,000	8	7	7	8	8	44	13	
120	121 Talbert Community	Mid Block Flashing Crosswalk	Knob Hill Rd in front of Hall of Fame			1	40,000	40,000									
121	121 Talbert Community	Mid Block Flashing Crosswalk	Knob Hill Rd and Rolling Hill Rd			1	40,000	40,000									
122	130 Winslow Bay Community	Crosswalk/Countdown Signal	Williamson & 150			1	5,000	5,000	5,000	8	8	8	9	7	9	49	8
123	131 Winslow Bay Community	10' Paved Multi-Use Path	Under I-77 Winslow Bay Area to Wilborne Area	Maranta Rd	Byers Creek Rd	4,660	132	615,120	629,000	8	8	9	8	7	6	46	11
124	131 Winslow Bay Community	Easement	Under I-77 Winslow Bay Area to Wilborne Area	Maranta Rd	Byers Creek Rd	3,310											
125	131 Winslow Bay Community	Pedestrian Underpass or Culvert	Byers Creek under I-77			1	8,000	8,000									
126	131 Winslow Bay Community	Mid Block Flashing Crosswalk, Underpass, or Culvert	Byers Creek and Bluefield Rd			1	5,000	5,000									
127	140 Lakeshore Future Community	10' Paved Multi-Use Path	Easement/Iredell County Land	Arvida Homes	Lakeshore Middle/Elem	2,770	132	365,640	366,000	8	8	10	8	9	7	50	7
128	140 Lakeshore Future Community	Easement	Arvida Land	Arvida Homes	Lakeshore Middle/Elem	550											
129	141 Lakeshore Future Community	5' Sidewalk	Doolie/150	Water Oak Drive	Lake Norman High	3,660	150	549,000	554,000	8	8	10	8	9	7	50	7
130	141 Lakeshore Future Community	Crosswalk/Countdown Signal	Doolie/Perth/150			1	5,000	5,000									
131	150 Brawley School Community	5' Sidewalk	Brawley School Rd	Morrison Plantation Rd	Town Center Rd	1,800	150	270,000	270,000	9	10	8	8	7	9	51	6
132	151 Brawley School Community	Pedestrian Route Connection	Brawley School grounds	Singleton	Brawley School Rd	1,120				10	10	10	10	7	8	55	2
133	151 Brawley School Community	Easement	Morrison Plantation	Singleton	Brawley School grounds	100											
134	152 Brawley School Community	Mid Block Flashing Crosswalk	Brawley School & Town Center			1	40,000	40,000	80,000	9	9	8	8	7	6	47	10
135	152 Brawley School Community	Pedestrian Refuge Island	Brawley School & Town Center			1	40,000	40,000									
136	160 Morrison Plantation Neighborhood	Pedestrian Route Signage	Doolie/Lineberger/Muskedine/Plantation	Lake Norman High	Mor. Pl. Comm Center	4,280	0.38	1,626	2,000	6	7	7	5	7	10	42	15
137	170 Oak Village Neighborhood	5' Sidewalk	Oak Tree, Brawley School	Lake Norman Elem.	Kingston	4,540	150	681,000	681,000	8	7	7	7	7	9	45	12
138	171 Oak Village Neighborhood	Pedestrian Route Connection	Matten to Oak Village	Matlen	Oak Village	740				8	8	9	8	7	8	48	9
139	171 Oak Village Neighborhood	Easements	Above corridors			900											
140	171 Oak Village Neighborhood	Pedestrian Route Connection (or 5' sw)	Whitehall to Springwood	Whitehall	Springwood	460											
141	180 Diamondhead Community	5' Sidewalk	Diamondhead	Emerald	Food Lion	980	150	147,000	147,000	8	8	7	7	7	9	46	11
142	190 Centre Church Business	10' Paved Multi-Use Path (Alt 1)	Center Church Rd/Hwy 21	Center Church Ext	Center Church Ext	2,210	132	291,720	297,000	9	8	8	9	7	8	49	8
143	190 Centre Church Business	Easement (Alt 1)	Center Church Rd/Hwy 21	Center Church Ext	Center Church Ext	2,210											
144	190 Centre Church Business	Crosswalk/Countdown Signal (Alt 1)	Hwy 21 at Center Church Rd			1	5,000	5,000									
145	190 Centre Church Business	Mid Block Flashing Crosswalk (Alt 2)	Hwy 21 at Restaurants			1	40,000	40,000	216,000								
146	190 Centre Church Business	10' Paved Multi-Use Path (Alt 2)	Center Church Rd/Hwy 21	Shopping Plaza	Center Church Ext	1,330	132	175,560									
147	190 Centre Church Business	Easement (Alt 2)	Center Church Rd/Hwy 21	Shopping Plaza	Center Church Ext	1,330											
148	191 Centre Church Business	Pedestrian Route Connection	Templeton/Fairview	Templeton Bay	Center Church Rd	3,810				6	8	9	9	10	5	47	10
149	200 Mt. Mourne Future Community	10' Paved Multi-Use Path	Fairview/Stream	Center Church Rd	Peterborough & Jennymarie	8,910	132	1,176,120	1,187,000	10	9	9	9	8	7	52	5
150	200 Mt. Mourne Future Community	Easement	Greenway easement minus school/utility			5,540											
151	200 Mt. Mourne Future Community	Pedestrian Route Signage	Freemont Loop north side			870	0.38	331									
152	200 Mt. Mourne Future Community	Crosswalk/Countdown Signal	Fairview & Center Church Rd			1	5,000	5,000									
153	200 Mt. Mourne Future Community	Crosswalk/Countdown Signal	Fairview & 115			1	5,000	5,000									



Proposed Infrastructure Projects

Prog #	Pedestrian Zone	Project Description								Project Evaluation						
										Connectivity		Safety		Ability to Implement		
										Access to Major Destinations from Areas of Need (10 pts.)	Closes Gaps in Facilities (10 pts.)	Addresses Obstacles (10 pts.)	Improves Routes with High Vehicular Traffic or Provides Alternate Routes (10 pts.)	Support for Project (10 pts.)	Lack of Intensive Design Features (10 pts.)	Total Points

Possible Road/Pedestrian Connections

1	Downtown Community	Neighborhood Road Connection & Easement	Charlotte Rd	Kelly St	Charlotte Rd Terminus	1,080												
2	Downtown Community	Neighborhood Road Connection & Easement	Catawba Ave	Alexander & Stevenson Rds	Catawba Ave Terminus	1,420												
3	Mill Village Future Community	Neighborhood Road Connection & Easement	Caldwell/Hillside/Alexander	Hillside & Alexander	Caldwell	890												
4	Eastern Heights Community	Neighborhood Road Connection	Ivy Creek Lane/Mebane St	Ivy Creek Lane	Mebane St	90												
5	Eastern Heights Community	Neighborhood Road Connection & Easement	Hillcrest Drive/Golden Valley Drive	Hillcrest Dr.	Golden Valley Dr.	270												
6	Winslow Bay Community	Neighborhood Road Connection & Easement	Lynbrock/Marantha Rd	Lynbrock terminus	Marantha terminus	2,190												
7	Winslow Bay Community	Neighborhood Road Connection & Easement	Borderfield/Ervin	Borderfield terminus	Ervin terminus	1,550												
8	Winslow Bay Community	Neighborhood Road Connection & Easement	Borderfield	Borderfield/Ervin	Lynbrock	1,880												
9	Winslow Bay Community	Pedestrian Route Connection	Along new roads, HOA Lands & shop frontage	Lakeshore Area	Winslow Bay Area	13,660												
10	Brawley School Community	Neighborhood Road Connection	Castlegate/Singleton	Castlegate Dr. term	Singleton terminus	1,860												
11	Morrison Plantation Neighborhood	Neighborhood Road Connection & Easement	Plantation Rd	Muskedine	Plantation	950												
12	Morrison Plantation Neighborhood	Neighborhood Road Connection & Easement	Montebello Dr.	Montebello Terminus	new Singleton	1,030												
13	Morrison Plantation Neighborhood	Pedestrian Route Connection	Montebello Dr.	Mor. Pl. Comm Center	Singleton	3,040												
14	Diamondhead Community	Neighborhood Road Connection & Easement	Continental to Ponderosa	Continental	Ponderosa	550												
15	Diamondhead Community	Neighborhood Road Connection & Easement	Ponderosa to Catalina Pl	Ponderosa	Catalina Pl	1,320												
16	Diamondhead Community	Neighborhood Road Connection & Easement	Ponderosa to new Catalina Pl	Ponderosa	new Catalina Pl	980												
17	Diamondhead Community	Neighborhood Road Connection & Easement	Beach to Rainbow	Beach	Rainbow	550												
18	Diamondhead Community	Neighborhood Road Connection & Easement	Sport Court to Hillview	Sport Court	Hillview	370												
19	Diamondhead Community	Neighborhood Road Connection & Easement	Catalina to Paseo	Catalina	Paseo	520												
20	Diamondhead Community	Neighborhood Road Connection & Easement	Catalina to Catalina	Catalina	Catalina	1,550												
21	Diamondhead Community	Neighborhood Road Connection & Easement	Catalina to Templeton Bay	Catalina	Templeton Bay	1,480												
22	Diamondhead Community	Neighborhood Road Connection & Easement	Rio Vista to new Templeton Bay	Rio Vista	new Templeton Bay	460												
23	Diamondhead Community	Neighborhood Road Connection & Easement	Keats to Lyn Cove	Keats	Lyn Cove	310												
24	Diamondhead Community	Neighborhood Road Connection & Easement	Quail Ridge to Huntfield	Quail Ridge	Huntfield	670												
25	Centre Church Business	Commercial Road Connection & Easement	Crossrail Terminus to Center Church Rd Ext.	Crossrail	Center Church Rd Ext	430												
26	Centre Church Business	Bridge/Road Connection	Templeton/Fairview	Templeton	Fairview	690												
27	Mt. Mourne Future Community	Neighborhood Road Connection & Easement	Alexandria	Alexandria	Steam Engine	1,150												
28	Mt. Mourne Future Community	Pedestrian Route Connection	Alexandria/Steam Engine	Alexandria	Steam Engine & 115	2,510												

Other Considerations

1	McLelland Community	Total Utility Easement	Utility Line	Iredell	W Rocky River - Mor Pl Utility	14,450												
2	Morrison Plantation Neighborhood	Easement	Utility	Morrison Plantation	Mt Mourne	26,890												
3	Mt. Mourne Future Community	Easement	Utility from Transco to Dye Creek/South Elem	Transco	Dye Creek/South Elem	20,090												
4	Magnolia Neighborhood	Easement	utility from south elementary to rocky river															
5	Eastern Heights Community	Pedestrian Route Connection	Duplex/Food Lion Fence			1												
6	Harris Crossing Future Community	Pedestrian Route Connection	Doyle Farm to Harris Crossing	Doyle Farm	Harris Crossing	600												
7	Brawley School Community	5' Sidewalk	Castlegate/Singleton - multiple sides	Castle Gate Dr. term	Singleton sw terminus	4,200	150	630,000										
8	Morrison Plantation Neighborhood	5' Sidewalk	YMCA Parking Lot	Plantation Ridge Road	YMCA	400	150	60,000										
9	Mt. Mourne Future Community	10' Paved Multi-Use Path	Rails with Trails along Commuter Line	Norman Street Downtown	Through Mt Mourne to Davidson													



FUNDING OPPORTUNITIES

A variety of funding sources are available for implementing the projects and programs recommended as part of this plan. Many sources have eligibility restrictions that limit their use to specific types of projects, but other sources can be used for a variety of projects. Brief descriptions of potential funding sources, along with the types of projects that are applicable, are provided below. Funding opportunities are categorized as follows:

- Federal Government Sources;
- State Government Sources;
- Local Government Sources;
- Private Sector Sources;
- Local Fundraising; and
- Foundations.

Federal Government Sources

Although most federal / state governmental funding sources are competitive in nature, these sources represent an important opportunity for funding large-scale projects. For more information on these funding programs as enabled under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), please refer to the SAFETEA-LU website at <http://www.fhwa.dot.gov/safetealu>.

- Federal Aid Construction Funds – Several categories of federal aid construction funds — National Highway System (NHS) and Surface Transportation Program (STP) — or Congestion Mitigation and Air Quality (CMAQ) funds provide for the construction of pedestrian and bicycle transportation facilities. The primary source of funding for bicycle and pedestrian projects is STP Enhancement Funding (source: NCDOT Division of Bicycle and Pedestrian Transportation). Mooresville has recently constructed three sidewalk projects using CMAQ funds. These Federal funds typically require a 20% local match.

Appropriate Projects: Sidewalk construction, pedestrian path / greenway construction

- Recreational Trails Program – The Recreational Trails Program provides funds to States to develop and maintain trails, including trails for non-motorized uses as well as motorized uses. These Federal funds typically require a 20% local match.

Appropriate Projects: Pedestrian path / greenway development (easement acquisition, construction, and maintenance); trail safety and environmental protection programs

- Safe Routes to School Program – This program is intended to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate the planning, development and implementation of projects that will improve safety, and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.



Funds are to be administered by State departments of transportation to provide financial assistance to State, local, and regional agencies, including non-profit organizations, that demonstrate the ability to meet the requirements of the program. North Carolina is receiving an apportionment of approximately \$2.4 million in FY 2006, and this figure is projected to increase over the course of the current Federal authorization bill until FY 2009.

Appropriate Projects: Eligible activities include the planning, design, and construction of projects that will substantially improve the ability of students to walk and bicycle to school. These include sidewalk improvements, traffic calming and speed reduction improvements, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, secure bike parking, and traffic diversion improvements in the vicinity of schools (within approximately 2 miles). Such projects may be carried out on any public road or any bicycle or pedestrian pathway or trail in the vicinity of schools.

Each State must set aside from its Safe Routes to School apportionment not less than 10 percent and not more than 30 percent of the funds for non-infrastructure-related activities to encourage walking and bicycling to school. These include public awareness campaigns and outreach to press and community leaders, traffic education and enforcement in the vicinity of schools, student sessions on bicycle and pedestrian safety, health, and environment, and training, volunteers, and managers of safe routes to school programs (source: <http://www.fhwa.dot.gov/safetealu/factsheets/saferoutes.htm>).

The North Carolina contact for the Safe Routes to School program is as follows:

Theresa (Terry) A. Canales, PE
Safe Routes to School Coordinator
Highway Administrator's Office
NC Dept of Transportation
Transportation Building
1536 Mail Service Center
Raleigh, NC 27699-1536
Phone: 919-733-7384 Fax: 919-733-9428
e-mail: tcanales@dot.state.nc.us

State Government Sources

- State Construction Funds – State roadway construction funds (not including the Highway Trust Fund for Urban Loops and Interchanges) may be used for the construction of sidewalks and bicycle accommodations that are a part of roadway improvement projects (source: NCDOT Division of Bicycle and Pedestrian Transportation).

Appropriate Projects: Sidewalk / pedestrian path construction

- Governor's Highway Safety Program (GHSP) – GHSP funding is provided through an annual program, upon approval of specific project requests, to undertake a variety of pedestrian and bicycle safety initiatives. Amounts of GHSP funds vary from year to year,



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according to the specific amounts requested (source: NCDOT Division of Bicycle and Pedestrian Transportation).

Appropriate Projects: Sidewalk / pedestrian path construction; safety programs

Local Government Sources

Local governments participate in funding pedestrian projects through dedicated funding sources as well as annual set-asides of departmental budgets. Mooresville has included the local match requirements for its recent CMAQ projects in its annual budgets. In the future, Mooresville should strive to identify a set amount of funding every year for pedestrian infrastructure improvements. This amount can be included as a line item in the Town's budget, to be applied toward projects identified in this plan.

Private Sector Sources

Perhaps the most important funding source for improvements to Mooresville's pedestrian infrastructure is private sector sources. Ensuring that pedestrian facilities are implemented in conjunction with future developments is important so that the Town does not have to go back and retrofit facilities later using government funding.

In addition, local companies may be interested in financially supporting pedestrian projects and programs. For example, Lowe's Corporation or other major local employers may support projects as part of their community giving programs or employee health programs. Recognition for contributions could be prominently displayed on signage along the sidewalk or path that was supported by private funds.

Local Fundraising

Local matching monies could be raised for projects by seeking private donations for specific projects. Several examples of these efforts are given below (information taken from the Pedestrian and Bicycle Information Center at <http://www.walkinginfo.org>).

- *In Ashtabula, Ohio the local trail organization raised one-third of the money they needed to buy the land for the trail, by forming a "300 Club." Three hundred acres were needed for the trail and they set a goal of finding 300 folks who would finance one acre each. The land price was \$400 an acre, and they found just over 100 people to buy an honorary acre, raising over \$40,000.*
- *In Jackson County, Oregon a "Yard Sale" was held. The Bear Creek Greenway Foundation sold symbolic "yards" of the trail and placed donor's names on permanent markers that are located at each trailhead. At \$40 a yard, they raised enough in private cash donations to help match their \$690,000 Transportation Enhancements program award for the 18-mile Bear Creek trail linking Medford, Talent, Phoenix and Ashland.*



- *Selling bricks for local sidewalk projects, especially those in historic areas or on downtown Main Streets, is increasingly common. Donor names are engraved in each brick, and a tremendous amount of publicity and community support is purchased along with basic construction materials. Portland, Oregon's downtown Pioneer Square is a good example of such a project.*
- *In Colorado Springs, the Rock Island Rail-Trail is being partly funded by the Rustic Hills Improvement Association, a group of local home-owners living adjacent to the trail. Also, ten miles of the trail was cleared of railroad ties by a local boy scout troop.*
- *A pivotal 40-acre section of the Ice Age Trail between the cities of Madison and Verona, Wisconsin, was acquired with the help of the Madison Area Youth Soccer Association. The soccer association agreed to a fifty year lease of 30 acres of the parcel for a soccer complex, providing a substantial part of the \$600,000 acquisition price.*

Foundations

A number of charitable foundations have provided funds for pedestrian projects, including infrastructure projects as well as safety programs. One of the largest of these foundations is the Robert Wood Johnson Foundation, which has a strong focus on projects that have a positive benefit on public health, such as walking. The Foundation Center (www.fdncenter.org) is an online resource that catalogs numerous foundations.



The following example is from Wake County's Subdivision Ordinance, which describes dedication requirements:

SECTION 3-4-14 CONTRIBUTION TO NEIGHBORHOOD RECREATION AREA

(A) **PURPOSE**

Residential development generates demands for recreation space and facilities, just as it generates demands for roads, utilities, and other community facilities. Whereas the County bears the responsibility for meeting most of the demand for regional recreation space and facilities, residential developments should themselves contribute something to providing at least the neighborhood recreation space their residents need. This Section is intended to ensure that each subdivision at least contributes toward providing recreation area that can be developed and used to meet the neighborhood recreational needs expected to be generated by the subdivision's future residents.

(B) **CONTRIBUTION REQUIRED; AMOUNT AND FORM**

A subdivision shall contribute to providing recreation area to meet the neighborhood recreational needs of its future residents. The minimum amount of recreation area deemed sufficient to meet the neighborhood recreational needs of a subdivision's residents, and thus required to meet this contribution requirement, shall be one thirty-fifth (1/35) acre of land per lot. A subdivider may meet this contribution requirement by (1) dedicating the required acreage of land for public recreational use, (2) reserving the required acreage of land for recreational use by subdivision residents, (3) paying the County funds equal to the value of the required acreage (to be used to acquire land for public recreational use), or (4) a combination of dedication, reservation, and payment - provided, however, that the form of contribution used shall be in accord with the requirements and limitations in Subsection (C) below. A potential subdivider is encouraged to use the pre-application conference with County staff to discuss and decide the appropriate form(s) of contribution to be used.

(C) **FORMS OF CONTRIBUTION - WHERE REQUIRED OR ALLOWED**

(1) **Dedication of Land**

Where the subdivision site contains land that could be used to establish, expand, or extend a public park, greenway, or other recreation area identified in an adopted County or municipal plan, the subdivision shall include dedication of such land for public recreational use, at least to the extent necessary to meet the minimum recreation area contribution requirement set forth in Subsection (B). Subdividers are encouraged to use Cluster or Open Space Subdivision regulations to dedicate any additional land on the site planned for public recreational use. Dedication of off-site land planned as public recreation area may also be used to meet the minimum contribution requirement, provided such land is located so as to be conveniently accessible to subdivision residents and has not been reserved



to meet the recreation area contribution requirement for another subdivision. *[Added "Open Space" 1/18/05 (OA 04/11)]*

(2) Reservation of Land

To the extent that the minimum recreation area contribution requirement set forth in Subsection (B) will not be met through dedication of land in accord with Paragraph (1) above, a subdivision may meet the requirement, in whole or in part, by reserving land within the subdivision site for recreational use by subdivision residents - but only if, and to the extent that, the County determines that doing so would contribute more to meeting the neighborhood recreational needs of subdivision residents than the County's use of funds paid in accord with Paragraph (3) below. Such determination shall be based on the following factors:

- (a) What types of recreation facilities subdivision residents will need, considered in the context of what public recreation areas and facilities exist or are planned in the vicinity;
- (b) Whether there is a planned or existing public recreation area in the vicinity that could be established, expanded, or extended so as to provide a site for the types of recreation facilities needed by subdivision residents;
- (c) How conveniently accessible any such planned or existing public recreation areas are to the subdivision;
- (d) Whether the proposed reserved recreation area would be suitable (in size, shape, and physical characteristics) as a site for the types of recreation facilities needed by subdivision residents; and
- (e) The extent to which the subdivision proposes to improve the proposed reserved recreation area with the types of recreation facilities needed by subdivision residents.

(3) Payment of Funds to County

To the extent that the minimum recreation area contribution requirement set forth in Subsection (B) will not be met through required dedication of land per Paragraph (1) above, a subdivision may meet the requirement, in whole or in part, by paying funds to the County for its use in acquiring public recreation area that can meet the neighborhood recreational needs of subdivision residents. The amount of the payment shall be equal to the value of the portion of required acreage (as set forth in Subsection (B)) that is proposed to be contributed via a payment, based on the average per-acre assessed land value of the parcel being subdivided (from the County tax rolls). The subdivider shall make the payment before approval of a record plat for the subdivision, provided, however, that payments may be phased in accord with the approved phasing of the subdivision.



(D) OWNERSHIP AND MAINTENANCE OF DEDICATED OR RESERVED RECREATION AREA

- (1) Land required to be dedicated as recreation area shall be conveyed to the County or other public agency or nonprofit organization that is organized for, capable of, and willing to accept responsibility for managing the recreation area to serve the neighborhood recreational needs of residents of the subdivision and other developments in the immediate area. Land required to be reserved as recreation area shall be conveyed to such organizations as listed above, or to a homeowners association, property owners association, or similar legal entity meeting the provisions of Section 3-3-17, or to any agency, organization, person, or other legal entity that is organized for, capable of, and willing to accept responsibility for managing the recreation area to serve the neighborhood recreational needs of residents of the subdivision - provided such conveyance is restricted to ensure continued recreational use and maintenance.
- (2) The owner of the recreation area shall be responsible for maintaining the recreation area so that it continues to effectively function to serve neighborhood recreational needs of residents of the subdivision and other developments in the immediate area, and any dedication or conveyance of an open space parcel shall provide for such responsibility. Where the recreation area is located within a Residential-40W, Residential-80W, Water Supply II Overlay, Watershed Critical Area Overlay, Watershed Management Area Overlay, Watershed Protected Area Overlay, or Watershed Protected Area Overlay-2 District, any undeveloped part of it shall be retained in a vegetated or natural state, and such retention shall be ensured by maintenance provisions filed with the Wake County Register of Deeds, either as part of recorded documentation providing for establishment of a homeowners association or similar legal entity that is to be responsible for maintenance and control of open space (as provided for in Section 3-3-17), or in a maintenance agreement recorded with the property deeds.
- (2) Each dedicated or reserved recreation area parcel shall be shown on all subdivision plans and on a record plat recorded with the Wake County Register of Deeds, with a notation of its area and its use to serve neighborhood recreational needs.

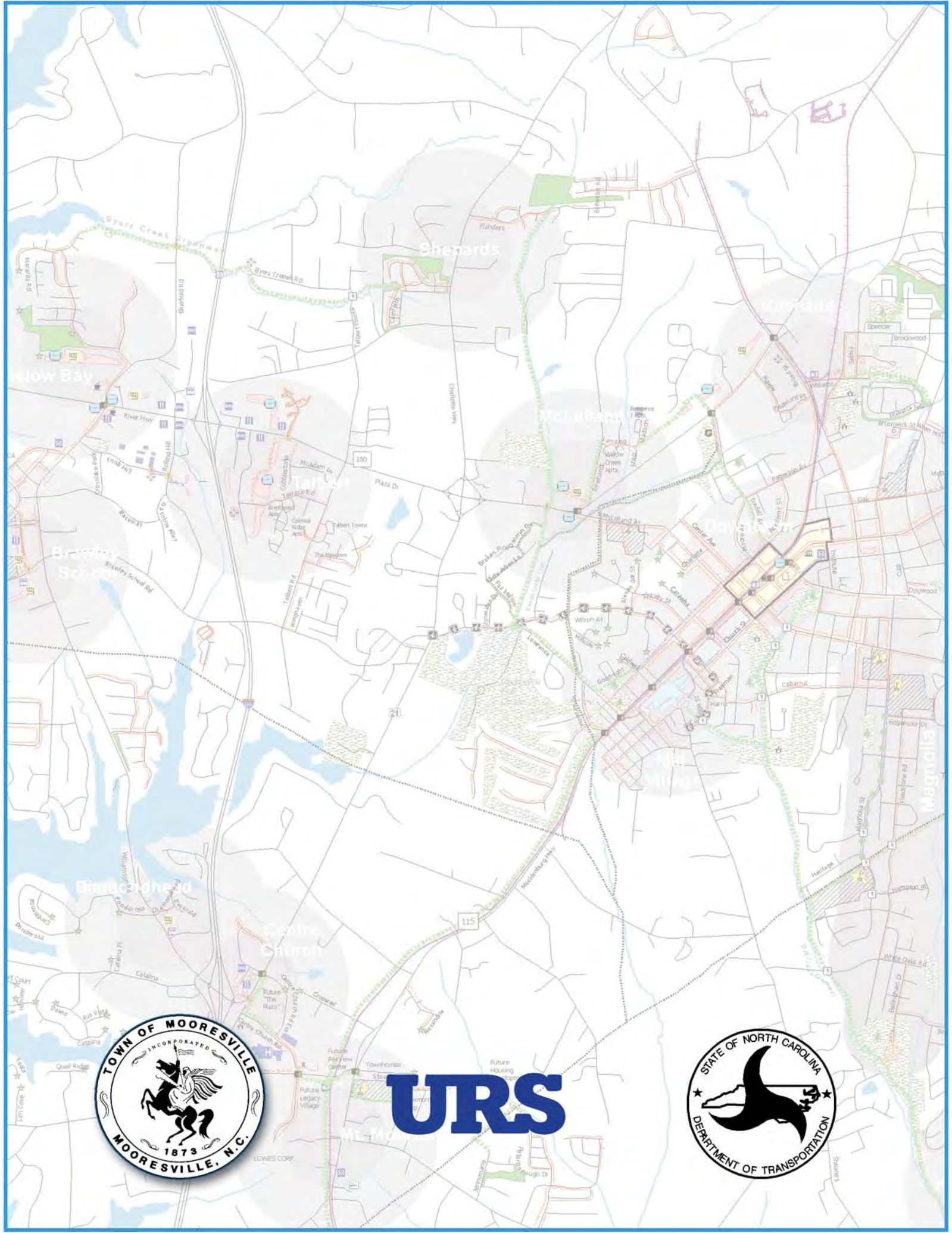
(E) COUNTY USE OF RECREATION AREA FUNDS

The County shall ensure that any funds a subdivision pays the County to meet the recreation area contribution requirement will be used only to acquire land for the establishment, expansion, or extension of public parks, greenways, or other recreation areas that will serve the neighborhood recreational needs of residents of the subdivision. It shall do so by assigning funds paid by a subdivision to an account that may be used only to acquire neighborhood recreation area in a defined geographic area that includes the subdivision and an area conveniently accessible to subdivision residents - that is, an area defined such that any subdividable parcel within it would generally be no more than approximately three (3) miles from any other parcel within it that could be developed as a public recreation area.



The County may transfer funds paid by one or more subdivisions to a municipality or make arrangements for the joint County/municipal expenditure of the funds where the County determines that such transfer or arrangements would better ensure the funds will be used to acquire public recreation area that will serve the neighborhood recreational needs of subdivision residents, as specified in the paragraph above.

[Section added 5/20/2002 (O-7-02)- effective 7/19/2002 except as to development pursuant to an application for preliminary plan, construction plat, record plat, or minor subdivision approval that was approved before 7/19/2002 or that was accepted as complete before 3/18/2002 and was still pending on 7/19/2002]



URS

