Town of Hildebran

Comprehensive Pedestrian Master Plan

Division of Bicycle & Pedestrian Transportation

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Prepared for the Town of Hildebran

October 12, 2010

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EXECUTIVE SUMMARY

VISION STATEMENT

"To promote and create an attractive and comprehensive network of pedestrian facilities through improved on-street and off-street pedestrian paths that are safe, accessible, equitable, and efficient. It is the Town of Hildebran's continuing goal to provide affordable and maintainable facilities, as it strives to benefit and enrich the quality of life of its residents"

Pedestrian facilities can contribute to and reinforce the character and history of a town. *Photo Credit: D. Burden*

With the help of a $20,000 Bicycle and Pedestrian Planning Grant Initiative from the North Carolina Department of Transportation (NCDOT), the Town of Hildebran is making their vision a reality by developing a Comprehensive Pedestrian Master Plan. Through the help of a steering committee comprised of community members and local business owners the Pedestrian Plan began to take shape. Three Public meetings were also held to gain valuable public input from the Hildebran community members as well as multiple community and committee meetings.

DEMOGRAPHICS

The Town of Hildebran is located in Burke County, North Carolina just between the larger cities of Hickory and Morganton, NC along the Norfolk Southern railway, I-40 and US Hwy 70 corridors. The project study area consists of the Town of Hildebran town limits with possible connections to regional destinations.

Hildebran, like many other western North Carolina towns, is rural in nature and has a rich history in textiles and furniture manufacturing. This area is experiencing moderate growth which will impact Hildebran's population, traffic, and need for public facilities. The 2000 US Census Bureau reports that Hildebran is home to 1,472 people. By 2010 Hildebran is projected to exceed 1,841 people experiencing a 20% growth rate over 10 years. Due to this projected increase, a clear and defined pedestrian environment should be developed simultaneously with growth to safely connect residents to destinations and points of interest. Walking is the primary mode of transportation for some portions of the population as 6% of the Hildebran population falls below the poverty level.

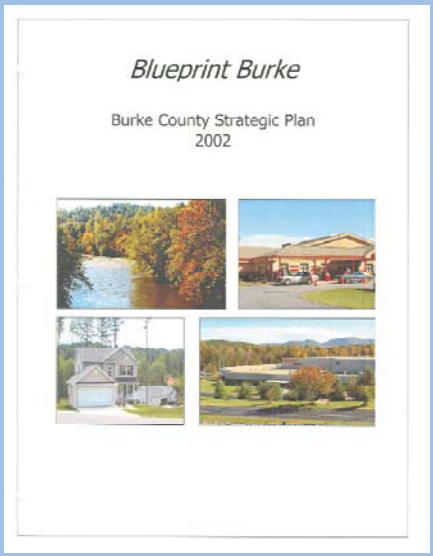
Walking is the primary mode of transportation for some portions of the population. It is important to provide safe and efficient facilities for these user groups as well as for those who walk for recreational purposes. Those who rely heavily on walking as their main mode of transportation include the elderly, poverty stricken and children.

Children and adolescents aged 18 years and younger account for 22.6% and 18 and older account for 77.4% of the Town's current population. It is important to provide safe and efficient facilities for these user groups as well as for those who walk for recreational and fitness purposes.

The Town of Hildebran's Comprehensive Pedestrian Master Plan will help guide the improvement and development of pedestrian facilities and provide networks to help meet the future needs and desires of community residents and visitors, and is intended to reflect the Town's character as a quaint Western North Carolina community. *A map of the study area can be found in Chapter 8 of this document. Detailed demographic information can also be found in the appendix of this document.*

Hildebran Age Distribution	Percent
Under 5 Years	6.4
5-17 Years	16.2
18 Years and Older	77.4

Source of 2000 US Census



EXISTING PLANS/ POLICIES

Hildebran's Comprehensive Pedestrian Master Plan is meant to compliment previous planning efforts and provide additional information to help expand existing pedestrian facilities. The Town of Hildebran and Burke County have a variety of ongoing plans, programs, and policies which affect the safety and appearance of the pedestrian environment. These tools deal with open space development and pedestrian connectivity and address the goals of growth, development, zoning, transportation and the revitalization of downtown Hildebran. The following public documents directly effect the future of Hildebran's pedestrian system.

- North Carolina State Transportation Improvement Program Plan (July 2007)
- 2035 Greater Hickory Urban Area Long Range Transportation Plan
- Burke County Strategic Plan , Blueprint Burke
- Burke County Comprehensive Parks and Recreation Master Plan
- Royal Oaks Park Master Plan
- Hildebran's Zoning Ordinance
- Downtown Hildebran Streetscape Master Plan
- Hildebran Comprehensive Plan

Refer to Chapter 3 of the Pedestrian Plan for a more detailed description of all the existing plans and policies listed above.

The Town and citizens of Hildebran support the move towards a more pedestrian-friendly community. This is apparent in the Hildebran Comprehensive Plan and the Downtown Hildebran Streetscape Master Plan, where there is a desire for pedestrian-friendly commercial areas, pedestrian scale buildings, and new sidewalks. A commitment to implementing this is also recognizable through the established zoning ordinances to help insure that the Town grows in a positive direction and will offer pedestrians once again an environment where walking is more commonplace. Furthermore, the Pedestrian Master Plan will provide conceptual facility standards and general design guidelines for future development, as well as conceptual retrofits of current facilities in need of improvement or repair. The Plan provides recommendations regarding new facilities and programs, as well as guidance in project prioritization. Finally, basic cost estimates are provided as well as potential funding sources for pedestrian related projects.

EXISTING NETWORK

The existing pedestrian system in Hildebran is comprised of inconsistent sidewalks and no greenways or other multi use trails except those that exist at Hildebran Elementary school in the form of walking tracks. Currently, the area around Town hall and the Senior Center is the most pedestrian-friendly area in Hildebran. Sidewalks are present throughout this section of the Town; however, portions in front of Town Hall are in disrepair or lack adequate width to meet today's ADA standards and should be addressed addressed as part of a maintenance program. Clusters of commercial uses including the Food Lion and Family Dollar stores are within close proximity to the core downtown area and can be accessed via a partial sidewalk network that contains gaps and missing sidewalk segments. Crosswalks and pedestrian signalization are also absent as are traffic calming devices in areas of high use and high traffic speed.

Outside the central core of Hildebran, the rural nature becomes more evident. Links between neighborhoods are mostly in the form of roadways with narrow shoulders and no sidewalks or "cow paths" across fields and behind stores. Some of the residential areas in Hildebran are within walking distance of the commercial areas, but the lack of sidewalks, crosswalks, and other safety measures impede and discourage pedestrian travel. The absence of a greenway connection to public facilities is also evident. Refer to the Town of Hildebran Existing Conditions Map on p.17 of the Pedestrian Plan for an illustration of the existing sidewalks and apparent disconnet between popular destinations.

According to the Town of Hildebran Downtown Streetscape Master Plan, the community's major retail areas are located on South Center Street and US 70 Hwy. Some of these retail centers and stores are not sufficiently connected to one another via sidewalks or crosswalks and most are not connected to areas of residential housing. Commercial areas should receive a higher intensity of pedestrian facilities such as wide sidewalks, crosswalks, pedestrian signalization, and other necessary amenities to protect and safeguard pedestrians in these areas. Additionally, routes to these areas need to be incorporated into the pedestrian plan for interconnectivity.

PUBLIC INVOLVEMENT

An important part of the planning process is public participation. The opinions, concerns and involvement of the public is a crucial element in developing a pedestrian plan which is consistent with the desires of the public. Public "buy-in" and support of the Pedestrian Master Plan is necessary for the Plan to be a useful amenity to the Town and no one knows the Town of Hildebran better than its citizens. A variety of methods were used to integrate the public and citizens of Hildebran into the analysis and design process for the Pedestrian Master Plan including the following:

- Formal public meetings
- Informal Public Meetings
- Mapping workshops
- Surveys

A total of 146 surveys were returned, representing roughly 9.9% of the total population. Survey results indicate that 88% of respondents felt the need for improved pedestrian facilities. Other concerns include inconsistencies in facilities such as dead-end sidewalks and unsafe areas. The areas where most respondents frequently walk are those which currently have pedestrian amenities, such as sidewalks, or are located away from vehicular traffic such as parks or schools. A large portion of respondents walk for recreation and exercise; however, some indicated that they walk for transportation. This was also observed during the inventory and analysis of existing conditions. Respondents indicated they would walk more if there were pedestrian facilities, specifically if sidewalks were safer for pedestrians and if there were better lighting for safety reasons or slower traffic speeds. The locations respondents felt most unsafe were roads where there are either no sidewalks or insufficient lighting and areas where there is a high probability of vehicle-pedestrian conflict such as narrow busy roadways with little or no shoulder.

PEDESTRIAN PROJECT RECOMMENDATIONS

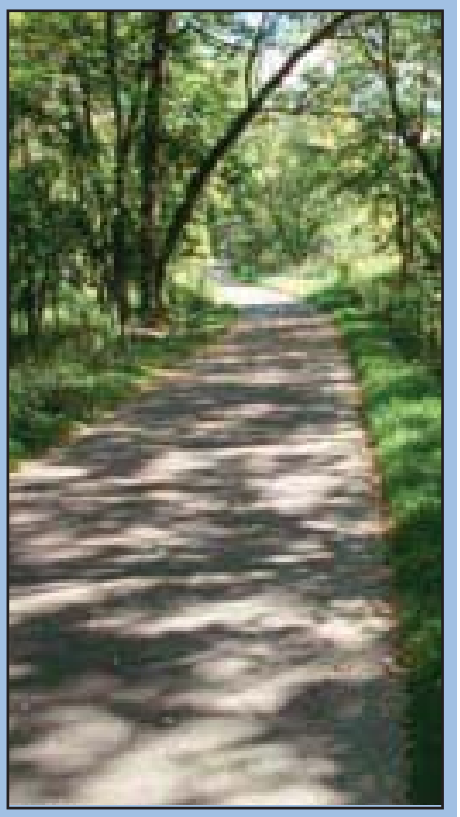
The Pedestrian System Master Plan developed herein identifies existing corridors in immediate need of improvement as well as locations in need of spot improvements. These two groups of applications have been classified as Short Term Recommendations and Long Term Recommendations and are discussed in further detail on the following page.

Short Term Improvements

- ***Traffic Calming:*** Construct a decorative crosswalk at the Municipal Complex and a 5' wide sidewalk along the east side of S. Center Street from US Hwy 70 to Main Street.
- ***Sidewalk Construction:*** Construct a 5' sidewalk along the north side of Main Avenue from Fourth Avenue SE to First Street SE.
- ***Sidewalk Construction::*** Construct a 5' sidewalk along US Hwy 70 from S. Center Street intersection to East Burke Pharmacy.
- ***Sidewalk Construction:*** Construct a 5' sidewalk along Second Street SE to connect two segments along the remainder of the street.
- ***Intersection Improvements:*** Improve safety at S. Center Street and Main Avenue by creating a 4-way stop and curb extensions.
- ***Intersection Improvements:*** Improve Safety by constructing a new 5' wide concrete sidewalk along S. Center Street to provide access to north side of Main Avenue and the addition of ADA ramps and highly visible striped crosswalks on all legs of the intersection.
- ***Sidewalk Construction:*** Construct a 5' sidewalk along Third Avenue SE from S. Center Street to Main Avenue
- ***Sidewalk/ Greenway Trail Construction:*** Construct a combination of 5' concrete sidewalk and 10' asphalt trail along the eastern side of First Street SE corridor from Main Avenue to S. Center Street.
- ***Bridge Widening:*** Replace or widen bridge over railroad to accommodate pedestrians along N. Center Street
- ***Intersection Improvements:*** Addition of 3 ADA ramps and 2 highly visible crosswalks at intersection of First Street SW and US Hwy 70 intersection.
- ***Sidewalk Construction:*** Construct a minimum 5' wide concrete sidewalk along Main Avenue from southwestern Town Limits to Third Street SW.
- *Roundabout Construction:* Construct a Round-A-Bout at the intersection of US Hwy 70 and S. Center Street as a traffic calming measure.
- ***Speed Reduction:*** Reduce travel speeds to 35 mph on US Hwy 70 as motorists enter Town from the east gateway
- ***Speed Reduction:*** Reduce travel speeds to 25 mph on Wilson Road from N. Center Street to Tenth Street NE.
- ***Sidewalk Construction:*** Construct a 5' sidewalk along the west side of N. Center Street from US Hwy 70 to Wilson Road

Long Term Improvements

- ***Roundabout Construction:*** Construct a roundabout at S. Center Street and Main Street Intersection
- ***Sidewalk Construction:*** As funding becomes available construct, at minimum, 5' wide concrete sidewalks along Wilson Road from N. Center Street to Tenth Street NE.
- ***Greenway Trail Construction:*** Construct a new 10' wide asphalt greenway trail along Clarence Towery Circle from Wilson Road to Cline Park Drive.
- ***Sidewalk/ Greenway Trail Construction***: Construct a combination of 5' wide concrete sidewalk and new 10' wide asphalt greenway trail along the First Avenue SW corridor from Hawthorn Drive to First Street SW.
- ***Sidewalk Construction:*** Construct a minimum 5' wide concrete sidewalk along Main Avenue from Second Street SE to US Hwy 70
- ***Sidewalk Construction:*** Construct a minimum 5' wide concrete sidewalk along US Hwy 70 from Main Avenue to I-40 Access Road
- ***Sidewalk Construction:*** Construct a minimum 5' wide concrete sidewalk along Fourth Avenue SW from Main Avenue to S. Center Street.
- ***Sidewalk Construction:*** Construct a minimum 5' wide concrete sidewalk along US Hwy 70A around the CVS Pharmacy
- ***Greenway Trail Construction:*** Construct at minimum a 10' wide asphalt greenway trail paralleling US Hwy 70 and the Norfolk Southern rail line from Third Street NE to Tenth Street NE.
- ***Sidewalk Construction:*** Construct at minimum a 5' wide concrete sidewalk along the western side of Tenth Street NE from Main Avenue Drive to Norfolk Southern Railroad/ US Hwy 70.
- ***Sidewalk Construction:*** Construct at minimum a 5' wide concrete sidewalk along the western side of Third Street SW from Main Avenue E. to I-40 Access Road.
- ***Sidewalk Construction:*** Construct at minimum a 5' wide concrete sidewalk along the northern side of First Avenue NE from N. Center Street to Third Street NE.
- ***Sidewalk Construction:*** Construct at minimum a 5' wide concrete sidewalk along the northeastern side of Second Street SW from Second Avenue SW to Main Avenue.
- ***Sidewalk Construction:*** Construct at minimum a 5' wide concrete sidewalk along Hawthorn Drive
- ***Greenway Trail Construction:*** Construct at minimum a 10' wide asphalt greenway trail extension from proposed greenway trail segment along northern Cline Park Drive to Norfolk Southern Railroad
- ***Greenway Trail Construction:*** Construct at minimum a 10' wide asphalt greenway trail from Wilson Road to connect with other trail segments along Cline Park Drive.
- ***Sidewalk Construction:*** Construct at minimum a 5' wide concrete sidewalk along eastern side of Third Street NE from Street Place NE to Cline Park Drive.



GENERAL DESIGN GUIDELINES

Major Corridors:

-Planted medians where turning lanes are not necessary.
-Locate sidewalks min. 5' in width on both sides of the roadway with planted separation min. 5' in width (NCDOT only requires 3' width).
-Use crosswalks, pedestrian refuge islands when necessary, with pedestrian signalization at all crossings.
-Incorporate NCDOT Standards where appropriate.

Downtown Streets:

-Utilize ROW to bury utilities in immediate Downtown area.
-Plant trees in planting strips or planters.
-Install decorative paving between plantings.
-Use groundcover/plantings under trees to reduce maintenance.

Subdivisions:

-Road Diet: Where appropriate, reduce travel lanes to 11' or 10' wide (applies only to existing subdivisions).
-Sidewalks with a minimum 5' wide on one side of the street.
-Provide a min. 5' wide planted separation between sidewalk and roadway (NCDOT only requires 3' width).
-Incorporate NCDOT Standards where appropriate.

Proposed standards and guidelines for planning and developing pedestrian routes and facilities within the Town of Hildebran are provided for future development guidance when implementing these recommended improvements as well as additional improvements not listed within this document. These guidelines will improve the Town's compliance with the Americans with Disabilities Act (ADA) and the North Carolina Department of Transportation (NCDOT) standards for pedestrian facilities. This chapter should act as guidelines for the Town

Pedestrian Refuge Island with at-grade crosswalk-Photo credit: www.saferoutes.org

Crosswalk with continental striping. Photo credit: www.smmirror.com

for implementation and future development purposes, and be considered as a resource to be referred to frequently. These guidelines and recommendations made in Chapter 5 should be included in the adopted Hildebran Zoning Ordinance in order to have a consistent application of guidelines throughout the Town. With this inclusion, the Zoning code should include overall text changes that require new developments to install sidewalks along their property with public street frontages to include pedestrian facilities and amenities as determined by the Town. Each element listed below is discussed:

- Sidewalks
- Planting Strips
- Paths/Greenways
- Wide Sidewalks/ Sidepaths
- Medians
- Crosswalks
- Pedestrian Symbols
- Curb Ramps/Curb Extensions
- Lighting
- Signage
- School Zone Treatments
- Pedestrian Overpasses/Underpasses/Transit Stops/Bridges
- Traffic Calming Techniques

Refer to Chapter 5 for further description of these facilities and costs associated with each.

EDUCATION AND ENCOURAGEMENT PROGRAMS

Following the design and implementation process, it is imperative that education about pedestrian and bicyclist facilities as well as safety continue to be addressed. This may be done through advocacy groups, pedestrian citizen committees, schools and the media. This will ensure that new challenges are addressed and that opportunities are identified and capitalized. Below are just a few of the educational programs that address pedestrian and bicycle safety. *Funding sources are also available for both safety education and pedestrian facility construction. More information on funding sources can be found in section 7.3.*

School Zone Safety Program
Safe Routes to School Program (SRTS)
Pedestrian Safety Campaign
Share the Road Initiative
North Carolina School Crossing Guard Training Program and Manual
National Walk a Child to School Program
Walk a Child to School in North Carolina

Summary

Pedestrian and bicycle issues are increasingly gaining notice and many public agencies, special interest groups, and municipalities are moving to integrate pedestrians and bicyclists into their comprehensive transportation systems. The Town of Hildebran Comprehensive Pedestrian Master Plan is an example of this growing awareness and provides an opportunity for the Town to plan for the future needs of its own present and future residents. A dedication to providing facilities and amenities for active lifestyles and access to destinations will positively contribute to the mental and physical health of residents as well as their overall quality of life. Pedestrian facilities not only make it easier and safer for people to walk to destinations or for recreation, these facilities also make life more enjoyable and pleasant. By investing in the proper planning now, the Town of Hildebran can implement the improvement projects and new pedestrian facilities recommended in this Master Plan in a cost efficient and timely manner.

INTRODUCTION

1.1 PROJECT INTRODUCTION

The Town of Hildebran Comprehensive Pedestrian Master Plan was made possible through a $20,000 Bicycle and Pedestrian Planning Grant Initiative from the North Carolina Department of Transportation (NCDOT). The purpose of this Pedestrian Master Plan is to improve the accessibility, connectivity, safety, and overall functionality of the pedestrian environment within the Town of Hildebran. A dedication to providing facilities and amenities for active lifestyles and access to destinations will positively contribute to the mental and physical health of residents as well as their overall quality of life. Pedestrian facilities not only make it easier and safer for people to walk to destinations or for recreation, these facilities also make life more enjoyable and pleasant.

Pedestrian and bicycle issues are increasingly gaining notice and many public agencies, special interest groups, and municipalities are moving to integrate pedestrians and bicyclists into their comprehensive transportation systems. The Town of Hildebran Comprehensive Pedestrian Master Plan is an example of this growing awareness and provides an opportunity for the Town to plan for the future needs of its present and future residents.

The Town of Hildebran is located in Burke County, North Carolina, along the Norfolk Southern railway corridor leading to the Blue Ridge Mountains. Hildebran, like many other Western North Carolina towns, is rural in nature and has a rich history in the textiles and furniture manufacturing industries. This Pedestrian Master Plan will help guide the improvement and development of pedestrian facilities and provide networks to help meet the future needs and desires of community residents and visitors. By planning now, the Town of Hildebran can implement the improvement projects and new pedestrian facilities recommended in this Plan in a cost efficient and timely manner. The Plan is meant to compliment previous planning efforts and provide additional information to help expand existing pedestrian facilities.

The Plan further provides conceptual facility standards and general design guidelines for future development, as well as conceptual retrofits of current facilities in need of improvement or repair. The Plan also provides recommendations regarding new facilities and programs, as well as guidance in project prioritization. Finally, basic cost estimates are provided as well as potential funding sources for pedestrian related projects.

1.2 VISION STATEMENT

The Town of Hildebran's Comprehensive Pedestrian Master Plan is intended to reflect the Town's character as a quaint Western North Carolina community. Hildebran continues to successfully balance it's progressive nature while preserving it's historic charm.

"To promote and create an attractive and comprehensive network of pedestrian facilities through improved on-street and off-street pedestrian paths that are safe, accessible, equitable, and efficient. It is the Town of Hildebran's continuing goal to provide affordable and maintainable facilities, as it strives to benefit and enrich the quality of life of its residents"

Lack of Pedestrian Facilities in Residential Neighborhood

Existing Sidewalks in Downtown Hildebran

1.3 SCOPE AND PURPOSE

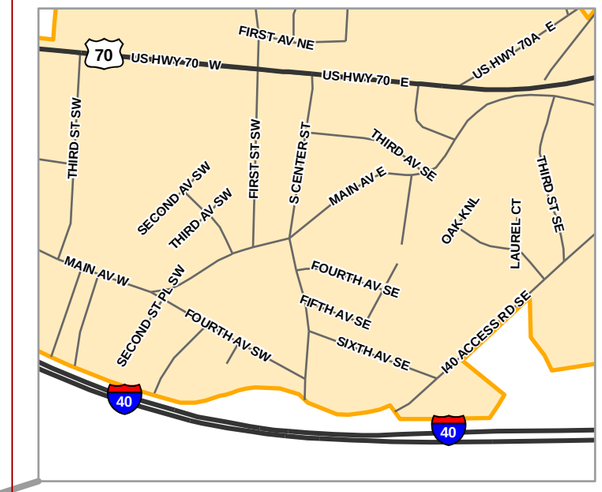
The purpose of Hildebran's Comprehensive Pedestrian Master Plan is to improve the quality and connectivity of the Town's pedestrian environment by focusing on both on-street sidewalks and off-street pedestrian paths to create a safe, accessible, and functional pedestrian system that meets bicyclists needs as well. The physical, social, and economic benefits of a walkable community are described throughout the Pedestrian Master Plan. This document is divided up into sections to provide the following:

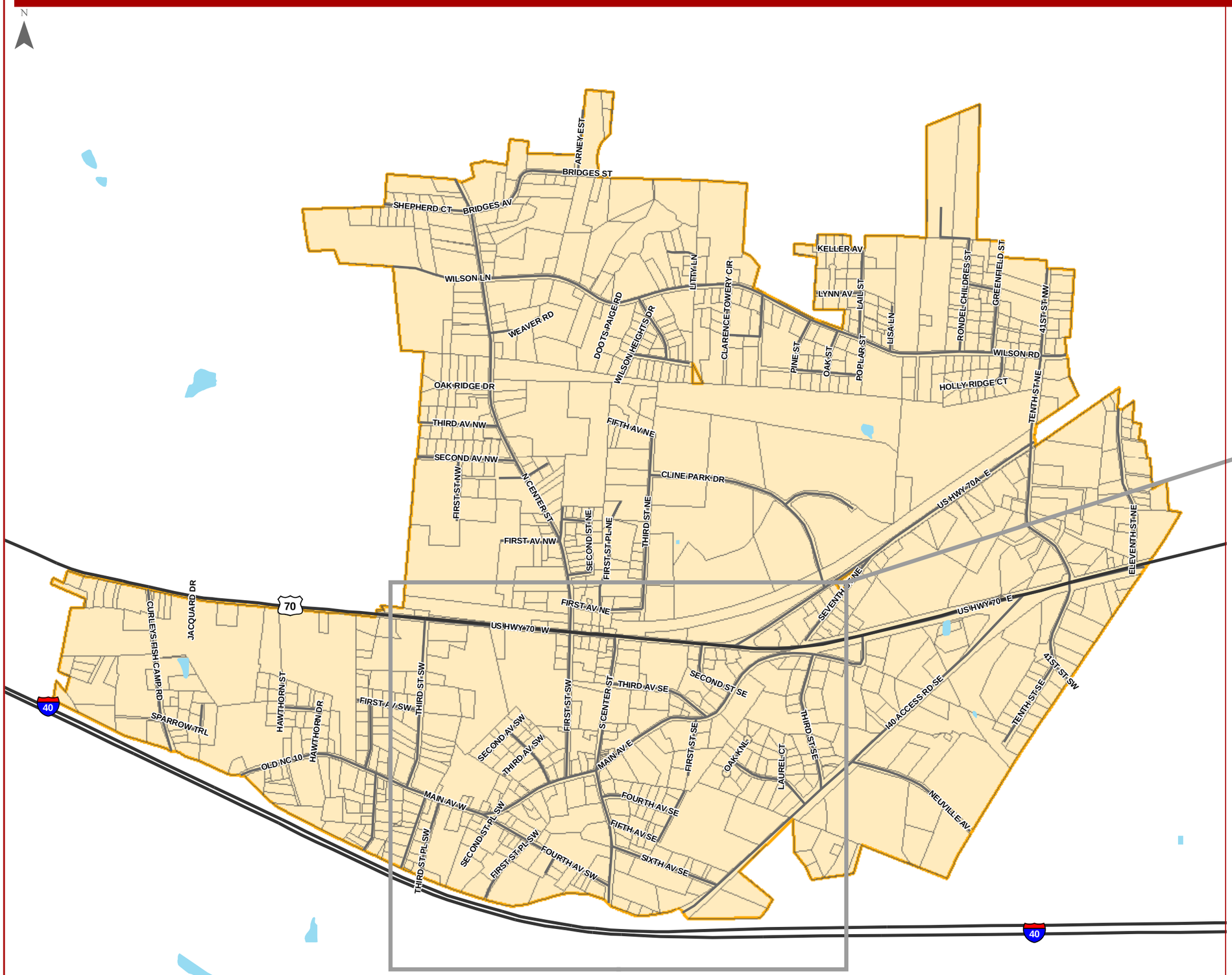
- **Existing Conditions:** evaluate any current programs, plans, and policies affecting the pedestrian environment. An existing conditions inventory and evaluation has also been conducted and incorporated into this Master Plan. A copy of this Map is incorporated into Chapter 2, p17.
- **Pedestrian routes, Barriers and Constraints**
- **Pedestrian facility standards and design guidelines**
- **Priorities**
- **Funding sources**
- **Project, Policy and Program Evaluation/Recommendations**

The Town of Hildebran is located between the cities of Hickory and Morganton North Carolina to the east and west respectively, along the I-40 Hwy and NC 70 Hwy corridors. The project study area consists of the Town of Hildebran town limits. The map on the following page illustrates the project scope of this Master Plan. The intent of this Pedestrian Master Plan is not to provide specific development design standards for the Town of Hildebran, but to develop guidelines and recommendations that may be followed to create an integrated and cohesive town in functionality and aesthetic appearances.

Hildebran, NC

Site Map





Hildebran Town Limits

Streets

Streams and Lakes

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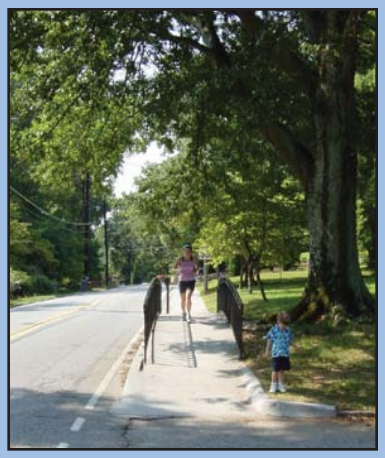
0 600 1,200 2,400 Feet

1 inch = 1,200 feet

1.4 HISTORY and BENEFITS OF PEDESTRIAN FACILITIES



Pedestrians using sidewalk for exercise. Photo Credit: D. Crites

Sidewalks provide a designated place for pedestrians to walk to their destinations. Photo Credit: D. Burden

With increased pedestrian facilities and amenities, the Town of Hildebran will gain many physical, social, and economic benefits for the Town as well as its community residents and visitors. For example, benefits of pedestrian facilities and pedestrian-friendly communities include:

Physical:

- Reduced automobile air and noise pollution
- Improved health of community residents
- Improved safety and accessibility

Social:

- Enhanced community environment, "livability" and quality of life
- Increased community interaction
- Increased community identity

Economic:

- Improved amenities for visitors
- Reduced vehicular traffic
- Enhanced economic potential
- Improved connectivity
- Increased accessibility

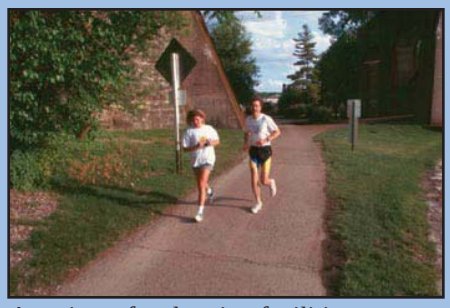
Reduced air and noise pollution: Walking uses calories, not fossil fuels. Motor vehicle fossil fuel emissions create a substantial amount of air pollution and 60% of the pollution created occurs in the first few minutes of vehicular movement according to the web site: walkinginfo.org. The link above can also be found at the Pedestrian and Bicycle Information Center. The quality of the physical environment greatly contributes to the quality of life and health of residents. When air and noise pollution is low, the emotional and physical health of residents is heightened.

Improved health of community residents: Contaminated air quality, as well as inactivity and sedentary lifestyles, are becoming more and more common in our society. Regular physical activity can reduce the risk of heart disease, stroke, hypertension, cholesterol, and diabetes among other diseases. Regular exercise can also contribute to overall mental health by reducing anxiety and depression.

Walking is one form of exercise that not only allows people to reach their desired destination, but also improves health and quality of life. Many experts believe that increasing active transportation such as walking, cycling, running and skating is the most practical and effective way to improve public fitness. One major study concluded, "...regular walking and cycling are the only realistic way that the population as a whole can get the daily half hour of moderate exercise which is the minimum level needed to keep reasonably fit..." (Physical Activity Task Force, 1995).

Sidewalks provide a place to meet and interact with fellow community members. *Photo Credit: D. Burden*

Pedestrian facilities can contribute to and reinforce the character and history of a town. *Photo Credit: D. Burden*



A variety of pedestrian facilities are attractive amenities to residents and visitors. *Photo Credit: D. Burden*

Supporting pedestrians and bicyclists reduces the amount of vehicular traffic. *Photo Credit: R. Huegerich*

Enhanced community environment, "livability" and quality of life: The ability to reach a destination through walking rather than driving a motor vehicle has many social benefits for a community. Pedestrian facilities contribute to and encourage building social ties among members of the community. Walkable communities, including both sidewalks and greenways, provide facilities which increase the amount of face to face interaction among community members. Additionally, walkable communities encourage increased time dedicated to exercise and recreation and visibility within communities. Increased visibility in turn increases safety. These benefits all contribute to the overall quality of life for residents as well as the "livability" of a place.

Increased community interaction: Residents living and working in walkable communities interact at a much higher rate due to their incidental contact with other residents. This interaction and visibility enhances the overall sense of community as well as the safety of an area. Pedestrian facilities that link destinations such as retail centers, parks, greenways, and schools also encourage interaction within a community.

Increased community identity: Pedestrian facilities can be incorporated in a manner that reflect a particular history or geographic region of a community. Materials used for sidewalks, crosswalks, and pedestrian lighting can reinforce a community's identity. Additionally, street trees can be native to the community and contribute to the overall identity of the community. Residents can take pride in how their community looks, but also in their safe and accessible pedestrian system.

Attractive amenities for visitors: Visitors are attracted to places that are easy and safe to get around. By providing a variety of pedestrian facilities such as formalized routes, greenways, multi-use paths, wide sidewalks, and vehicle separation, a community can diversify the pedestrian experience and satisfy the needs of all visitors and residents.

Reduced vehicular traffic: Pedestrians require very little space in comparison to vehicles. Walking is a viable means of transportation over short distances and reduces the volume of traffic in addition to the need for infrastructure such as parking spaces and extra lanes. Reducing vehicular traffic increases the safety of the streets for pedestrians and bicyclists.

The Town of Hildebran has completed sufficient planning and is taking proper steps to achieve the benefits described above. The Town has many partners and advocates throughout the planning process including NCDOT, the Western Piedmont Council of Governments (WPCOG), and many town staff, local organizations and citizen initiatives groups. Documents that describe previous planning efforts will be discussed in further detail in Chapter-3, Current Plans, Programs, and Policies.

1.5 GOALS AND OBJECTIVES

GOALS

The goals of this Master Plan are to make the Town of Hildebran a safer and more accessible pedestrian environment while also improving its aesthetic and historical characteristics and assets. The goals of this Comprehensive Pedestrian Master Plan are based on the social, environmental, and economic benefits of walkable communities. The objectives below were developed by the Steering Committee with the help of planning consultants from Withers & Ravenel and NCDOT. It is not the intent of this Pedestrian Master Plan to develop Standards and Design Guidelines for the Town of Hildebran; however, this Master Plan will guide and direct these development policies as needed. These goals and objectives will guide the development and implementation of this Master Plan.

In an effort to achieve the goal of creating a more walkable and pedestrian friendly community, objectives of the Hildebran Pedestrian Master Plan include the following:

OBJECTIVES

- Develop an attractive and comprehensive network of pedestrian facilities that are affordable and maintainable.
- Implement the Downtown Master Plan
- Develop an attractive and comprehensive network of pedestrian facilities that are affordable and maintainable.
- Identify gaps within the existing pedestrian system, as well as develop possible updated guidelines for new development.
- Provide solutions for safe crossings and sidewalk connections at schools, commercial centers, parks and recreation facilities, and at major barriers including underpasses and major thoroughfares.
- Provide methods for the Town to increase public awareness of pedestrian routes through means such as maps and mileage.
- Provide methods to improve safe accessibility for people of all ages and abilities.
- Enable the Town to ensure that existing and new pedestrian facilities such as street crossings, sidewalks, etc., are safe and meet minimum ADA standards.
- Implement traffic calming measures and pedestrian facilities in conjunction with roadway expansion projects, particularly in areas near schools and neighborhoods.
- Provide ways to enhance vehicle and pedestrian separation with the use of planting strips.

EXISTING CONDITIONS

Gateway into downtown area

Commercial and Retail area along US 70

Pedestrian Facilities at Hildebran Town Hall

Pedestrain Movement at a Cruise In Festival

2.1 OVERVIEW

The Town of Hildebran is located in Burke County, North Carolina and sits at the foothills of the Blue Ridge Mountains. The natural environment and scenic topography in and around Hildebran provides both aesthetic character and outdoor recreational opportunities to residents as well as visitors. The Town was settled in close proximity to the Catawba River and incorporated in 1899 and was later influenced by the extension of rail to the mountains in the late 1800's. The textile mills and furniture industriy played a large role in shaping the Town. Today, Hildebran is still home to the textile and manufacturing sectors as well as the service care industry, but its rich history is evident at the core of Hildebran where houses, original mill buildings and the train depot are still standing from the late 19th Century. There is a small commercial business district in the center of Town along US 70 Hwy as well as clusters of retail along South Center Street near the I-40 interchange.

The current area around the original Hildebran Elementary School, now the current Town Hall Complex, is the most pedestrian-friendly area in all of Hildrbran due to its central location and the many municipal offices and business in close proximity. Sidewalks are present throughout this section of Hildebran; however, many are in disrepair or lack adequate width to meet today's ADA standards. Historically, residents of Hildebran relied on walking daily as a means of transportation and interaction within their community. Clusters of commercial uses including the Korner Kafe, Food Lion, Family Dollar and other various shops are within close proximity to the core downtown area and can be accessed via a partial sidewalk network that contains gaps in sidewalk segments, creating an unconnected system.

Outside the central core of Hildebran, the rural nature becomes more evident. Housing density in neighborhoods just outside the Town Limits radiate from the core in a trend that is representative of practical small town growth. However, on the contrary, newer subdivisions are not organized around a grid street system, typical of present-day sprawl growth. Very few newer subdivisions contain sidewalks or other pedestrian facilities. Links between these neighborhoods are mostly in the form of roadways with narrow shoulders and no sidewalks. As a result, these neighborhoods are isolated from one another and there is no safe alternative to vehicular travel. Some of the residential areas in Hildebran are within walking distance of commercial areas, but the lack of sidewalks, crosswalks, and other safety measures along busy thoroughfares impede and discourage pedestrian travel. The absence of a greenway connection to public facilities is also evident.

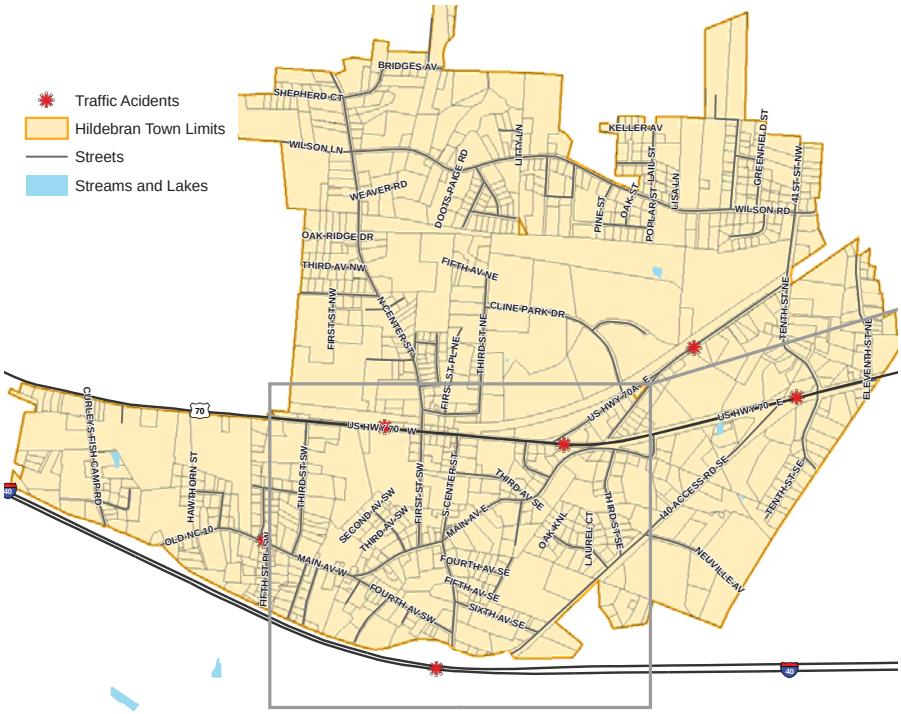
Large tracts of agricultural farmland extend from the Town limits alongside narrow road shoulders, inhibiting pedestrian travel both locally and regionally. Hildebran's crash data is provided below as a result of the flaws in the current pedestrian system.

Reported Pedalcyclist and Pedestrian Crashes in the City of Hildebran, North Carolina

For the Reporting Period of January 1, 1990 to September 30, 2008

On Road	Miles	Dir	From Road	Toward Road	Crash Severity	Date of the Crash	Time of the Crash	Crash Type
US 70	0.1	E	SR 1671	SR 1890	Fatal (Killed)	9/5/1991	9:20 PM	Pedestrian
US 70	0.038	E	SR 1007	SR 1761	Fatal (Killed)	12/23/1992	7:25 PM	Pedestrian
SR 1761	0.019	E	SR 1845	SR 1864	C-Injury (Possible)	12/5/1998	12:10 PM	Pedalcyclist
US 70	0.1	W	SR 1628	SR 1771	B-Injury (Evident)	11/8/2002	7:38 PM	Pedestrian
SR 1007	0.5	E	US 70	SR 1635	Fatal (Killed)	12/27/2003	10:29 PM	Pedestrian
I-40	0.032	W	SR 1002	SR 1761	C-Injury (Possible)	8/2/2008	5:00 PM	Pedestrian

Fortunately, the Town and citizens of Hildebran support the move towards a more pedestrian-friendly community. This is apparent in the 2007 Hildebran Downtown Master Plan, where the desire for pedestrian-friendly commercial areas, pedestrian scale buildings, and new sidewalks were noted. A commitment to implementing the Master Plan recommendations will help insure that the Town grows in a positive direction and will offer pedestrians once again an environment where walking is more commonplace. Other documents also outline and emphasize the re-institution of pedestrian facilities including the Downtown Streetscape Master Plan, the Hildebran Comprehensive Plan and Hildebran Zoning Ordinance.



2.2 COMMUNITY DEMOGRAPHICS

The Town of Hildebran is currently experiencing an increase in its population base. The official population of Hildebran as of the 2000 US Census is 1,472. By 2010 Hildebran is projected to exceed 1,841, experiencing an approximate 20% growth rate over 10 years. This increase in population will affect the pedestrian environment. A clear and defined pedestrian environment should be developed simultaneously with this growth in order to safely connect residents to destinations and points of interest.

Walking is the primary mode of transportation for some portions of the aforementioned population. It is important to provide safe and efficient facilities for this user group as well as for those who walk for recreational and fitness purposes. Some people who rely heavily on walking include children, the elderly, and households that own one vehicle or no vehicle at all.

Income and Poverty Status:

Of the Town's 626 occupied housing units, 6% fall below the poverty level. It is probable that those who fall below the poverty level have the least access to vehicles on a regular basis, and must rely on alternate modes of transportation. (According to the U.S. Census, the mean travel time to work for all Hildebran residents is just over eight-teen (18) minutes)

Children and adolescents:

Children and many adolescents do not have the ability to drive themselves and therefore rely on others for transportation. Children and adolescents 18 years of age or younger account for 22.6% of the Town's current population. Safe, accessible, and efficient pedestrian facilities are essential to this portion of the population especially when destinations such as public parks, the library, and other destinations are not in immediate proximity to most residential neighborhoods. Pedestrian facilities allow for children and adolescents to walk to their destinations and it is essential that these facilities be safe for all who participate. Crosswalks, pedestrian refuge islands, and pedestrian signalization can help these user groups cross streets more safely.

The elderly and people with disabilities:

Many people, including some elderly individuals, have disabilities that preclude driving. Twenty-nine percent (29%) of the population is considered to be on disabled status, meaning they have a non-institutionalized disability (whether physical or mental) that precludes them from driving. This population group also may rely heavily on others to get them where they need to go. Persons 65 and older account for 17.6% of the Hildebran population. Safe and accessible pedestrian facilities connecting destinations are necessary so this portion of the population feels safe and able to walk. Pedestrian facilities which are fully ADA compliant are essential for all communities. Crosswalks, pedestrian refuge islands, and pedestrian signalization can help these user groups cross streets more safely.

2.3 COMMUNITY PARTICIPATION AND PRIORITIES

An important part of the planning process is public participation. The opinions, concerns and involvement of the public is a crucial element in developing a pedestrian plan which is consistent with the desires of the public. Public "buy-in" and support of the Pedestrian Master Plan is necessary for the Plan to be a useful amenity to the Town and no one knows the Town of Hildebran better than its citizens. A variety of methods were used to integrate the citizens of Hildebran into the analysis and design process for the Pedestrian Master Plan. The following elements were central to the public input process:

Source of 2000 US Census

- Formal public meetings
- Surveys
- Mapping workshops
- Informal Public Meetings
- Interaction at Community Festivals
- Pool Party

Public Meetings

The first public meeting was held at Hildebran Town Hall in concert with the Hildebran Senior Center Chili Cook-Off on the 26th of March 2009 from 5-8 pm. Nine (9) people were in attendance. Two additional "public" meetings were held to garner more support and feedback from the community. Withers & Ravenel staff attended the Hildebran Cruise-In Festival on Saturday April 18, 2009 to talk with locals and visitors alike to get their perspective on the pedestrian network in Hildebran. Over 200 spectators, residents, musicians, and out of towners attended the Cruise-In and assisted in gaining valuable insight on the current and proposed pedestrian system.

1st Steering Committee Meeting

An additional pizza and pool party sponsored by the Town was also held to give the public one last opportunity to provide feedback and to reach a younger demographic. An announcement and brief overview of the plan was presented from 6-7 pm on Thursday July 30, 2009 at the Hildebran-Icard pool over pizza and drinks in an effort attract parents and children for a free dinner and education session via a power point presentation on the Master Plan's progress to date. (Attendance at this meeting was less than expected; however, attendance overall was good for a Town of Hildebran's size).

Public Survey

The public survey questionnaires were distributed through a variety of methods to reach as much of the public as possible. The survey consisted of a one page (front and back) handout with 20 questions including multiple choice, Yes or No, and open-ended questions. The most common and successful method of distribution occurred through face to face

Hildebran Pedestrian Plan Public Meeting

interaction. This method yielded a high return on surveys; however, other methods proved to be useful as well including:

- Email
- School Homework Assignment
- Microsoft Word doc. format on the Town website
- Leaving surveys behind with local business owners
- Distribution at public meetings

Hard copy surveys were distributed at public meetings and through the assistance of local business owners. One hundred and forty-six (146) total surveys were returned by the deadline, representing 9.9% of Hildebran's total population. Results of the complete survey can be found in the Appendix, located at the end of this document.

Survey respondents indicated that the lack of sidewalks and pedestrian separation inhibits walking

Frequent areas to walk in Hildebran: The areas where most respondents frequently walk are those which currently have pedestrian amenities, such as sidewalks, or are located away from vehicular traffic such as parks, greenways, or schools. Although the majority of residents drive to these places, they often walk once they arrive. Frequent destinations in Hildebran by walking or biking include:

- Neighborhoods
- Library/Pool
- Around Town
- "The Loop" around B&B & Town Hall
- Park in Longview
- Baseball Fields/Icard Elementary

Respondents indicated they walked along several residential and neighborhood streets. A large portion of respondents walk for recreation and exercise; however, some indicated that they walk for transportation. This was also observed during the inventory and analysis of existing conditions Respondents indicated they would walk more if there were pedestrian facilities, specifically if sidewalks were safer for pedestrians and if there were better lighting for safety reasons. Other frequent walking or biking destinations mentioned in the survey include:

- Town Hall
- CVS
- Gym
- Post Office
- Food Lion
- Bojangles

Even with proper separation from vehicles, sidewalks need to be free of obstructions for ADA accessibility

Main Deterrents from walking: Results from the survey indicate there is support for pedestrian facilities in Hildebran. The survey results indicate that 88% of respondents felt the need for improved pedestrian facilities. They emphasized the condition of existing pedestrian facilities such as uneven pavement and sidewalks being used for parking and storing items such as garbage cans as being deterrents. Other deterrents include: steep slopes lack of facilities, heavy traffic and inconsistent lighting. Main deterrents from walking and biking include:

- Lack of Lighting
- Gaps in Sidewalk
- Stray Dogs
- Inadequate sidewalk widths
- Unsafe separation from cars
- Obstructions in sidewalks
- Uneven pavement/sidewalks
- Absence of Crosswalks

Residential Areas without Sidewalks

Areas respondents feel most unsafe: The locations respondents felt most unsafe were roads where there are either no sidewalks or sidewalks in poor condition, places with insufficient lighting and areas where there is a high probability of vehicle-pedestrian conflict such as busy parking lots and roads with no shoulder. Some of the respondents did not feel unsafe anywhere, while others called out specific locations of concern. These include areas along Main Street, Center Sreet and areas where there is poor lighting. Existing pedestrian amenities include some street lights and minor vehicle-pedestrian separation on certain roadways. Sidewalk maintenance appears necessary in many areas of the Town limits. Areas where survey respondents felt most unsafe while walking include:

- Where no Sidewalks exist
- Dark side roads and pathways
- Hardees
- Main Street

Areas respondents feel safest: The locations survey respondents feel safest include areas where there are sidewalks and low traffic volumes or low speed limits, such as in neighborhoods and in the downtown core. The streets in downtown Hildebran, where there are lights, appear to be perceived as the safest by most respondents. Other areas of comfort include parks and schools. Areas where survey respondents feel safest include:

- "Their Neighborhood"
- Park
- Town Hall
- Open/Populated Areas
- School
- Well lighted areas

2.4 HILDEBRAN TRANSPORTATION SYSTEM

Hildebran's transportation system is composed of major thoroughfares, connectors, and neighborhood streets. The I-40 Hwy interchange is located just south of the downtown and is easily accessible by vehicle. Major thoroughfares handle most of the vehicular traffic in Hildebran, as they provide connectivity in and out of the Town, as well as between destinations such as commercial areas and schools.

Important NCDOT thoroughfares within Hildebran include:

- US 70 Hwy
- Center Street
- Old NC 10 Hwy
- I-40 Hwy
- Main Street

Center Street and US 70 Hwy are the two major NCDOT classified thoroughfares within the Town of Hildebran. They intersect creating a cruciform pattern. The other arterial and collector streets move traffic in and around the Town handling other north/south and east/west traffic. Most of the connector streets in Hildebran have outdated pedestrian facilities or sidewalks in need of repair. Most streets that provide sidewalks and crosswalks do so inconsistently.

Proposed Gateway Sign on South Center Street looking North (main gateway into downtown Hildebran)

Center Street and Town Hall Entrance

Inadequate Separation Between Pedestrians and Vehicular Traffic Makes for Hazardous Conditions.

South Center Street at the I-40 Hwy interchange is considered to be one of the "gateways" into the Town of Hildebran. It is a two (2) lane thoroughfare from the I-40 interchange to US 70 Hwy, with future conceptual plans to expand to one (1) travel lane in either direction and a center turn lane from the I-40 interchange to State Road 1779. North of SR 1779 to US 70 Hwy, it would narrow and become a two lane roadway with one travel lane in each direction. Center Street provides north - south access and dissects the downtown. It is a heavily traveled thoroughfare for automobiles traveling from I-40 Hwy to US 70 Hwy. According to 2005 data, the Average Daily Traffic (ADT) numbers for this roadway between the I-40 Interchange and US 70 Hwy is 7,700. Further north of the railroad and US 70 Hwy, Center Street is home to 5,200 automobiles daily. According to public opinion most motorists travel faster than the posted speed of 35 mph. Some of the comments documented in the surveys call for marked or signalized crosswalks to help alleviate pedestrians crossing at peak hours.

US 70 Hwy is also considered a "gateway" or entrance into the Town of Hildebran from Hickory to east and points further west. US 70 Hwy dissects the downtown into halves, creating a Northern and Southern portion. US 70 Hwy is a 35 mph two (2) lane undivided highway in Town (25 mph during school hours) with one (1) travel lane in each direction, providing regional connectivity in addition to locations in and around Hildebran including small commercial areas and neighborhoods.

2005 ADT traffic data for US 70 Hwy totals 7,700 automobiles west of Center Street and 9,600 east of Center Street. US 70 Hwy is home to small restaurants, shops, stores and offices. Although the posted speed limit is 35 mph along US 70 Hwy within Town Limits, many motorists and truck operators travel well above that, creating dangerous and hazardous walking/biking conditions.

Main Avenue is a two lane, 35 mph residential roadway that provides a partial loop system around the southeast and south west portions of town. Main Avenue intersects with US 70 Hwy and Center Street. Mt. Hebron Lutheran Church is located on Main Avenue East; however, development along this road is mostly low density residential. The Hildebran Park Site is also located along Main Avenue East and is scheduled for construction in early - mid 2011. Currently there are no crosswalks or signalization for pedestrians. Sidewalks exist along the majority of Main Avenue but are on the road shoulder, with little or no separation from traffic.

Sidewalks with Planting Strip along South Center Street

Existing Downtown's Lack of Sidewalks and Proximity to Hwy. 70 Makes it Undesirable for Pedestrian Traffic.

2.5 HILDEBRAN PEDESTRIAN SYSTEM

The existing pedestrian system in Hildebran consists of inconsistent sidewalks and no greenways or other multi-use trails except those that exist in neighboring towns and parks. Currently, there is little connectivity throughout the entire Town; the area around Town Hall and the Senior Center is the most pedestrian-friendly area in Hildebran. Most sidewalks within downtown are located at the top of curb without separation between sidewalk and roadway and few if any ADA accessible handicap ramps are present. Pedestrian signalization is absent as are many traffic calming devices in areas of high use and high speeds. There are approximately 16,148 LF of existing sidewalk, most of which is 5' wide; 4 striped crosswalks; no pedestrian signals or multi-use paths; and 6 ADA compliant ramps within the Hildebran study area.

However, the future of Hildebran's pedestrian environment is brighter due to new plans and policies set forth in the Downtown Hildebran Streetscape Master Plan, and efforts put forth from the Greater Hickory Metropolitan Planning Organization (MPO), Unifour Rural Planning Organization (RPO), Western Piedmont Council of Governments (WPCOG) Transportation Plan and other planning documents. The map on p. 17 illustrates existing sidewalks, crosswalks and additional existing facilities.

There are numerous challenges and opportunities inherent in Hildebran's pedestrian environment. By meeting the challenges facing the safety and accessibility of the pedestrian environment, the Town can ensure a better future for residents as well as attract visitors to its walkable Town. The bullet points below and on the next page represent a summary of these challenges.

Pedestrian Facilities Challenges:

- Sidewalks are inconsistent and lack ADA accessibility in some locations.
- There is a lack of crosswalks and pedestrian signalization in certain areas.
- Busy thoroughfares with high design speeds and narrow road shoulders create unsafe conditions for pedestrians.
- There is a lack of connectivity between neighborhoods due to insufficient pedestrian facilities.
- Most shoulders on roads do not have adequate space for pedestrians.

It is also important to recognize the positive and promising condition of Hildebran's pedestrian environment and policies. A commitment to improving the pedestrian environment includes identifying opportunities. Below is a brief listing of possible opportunities present in Hildebran.

Overgrown Plants on sidewalks in downtown Hildebran provide Insufficient widths for ADA access

The absence of sidewalks along this Commercial strip on Hwy 70 creates dangerous conditions for Pedestrians

No crosswalks on Hwy 70 does not allow safe passage for children and parents accross multiple travel lanes

Pedestrian Facilities Opportunities:

- The heart of Hildebran currently has sidewalks in place and a street network conducive to pedestrian circulation.

- The Hildebran Comprehensive Plan recommends requiring sidewalks on street frontage for all new development where possible.

- There is wide public and governmental support for pedestrian facilities.

- There has been proactive planning resulting in increased pedestrian facilities for the Town of Hildebran through the Envision Hildebran Comprehensive Plan document and the downtown Master Plan and other planning documents.

- There is a rich history and commitment to improving the quality of life for Hildebran residents, both existing and future.

2.6 EXISTING CONDITIONS and ANALYSIS

The public input survey respondents corroborated their commitment to improved walkability and to improve the pedestrian environment through the effort put forth in previous planning documents. Fortunately, the Town of Hildebran has more pedestrian facilities planned for future development and growth than currently exist. According to the Hildebran Downtown Master Plan and the Hildebran Comprehensive Plan, facilities are to be constructed in all areas of new development and those existing areas identified as priorities.

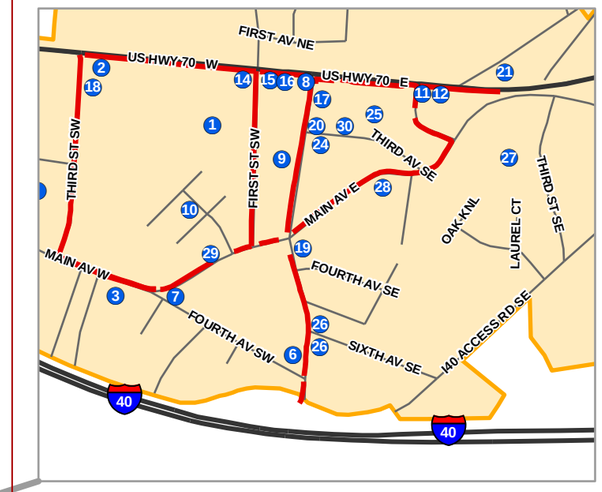
The existing condition for some of the Town's facilities is a challenge to overcome. Most roadways do not have pedestrian amenities and there are few facilities that meet ADA compliance guidelines as well. The center of Town is connected through existing sidewalks, however they are in fair to poor condition and do not consistently meet ADA regulations. Most of the major roads which provide connectivity throughout the Town have little to no pedestrian facilities.

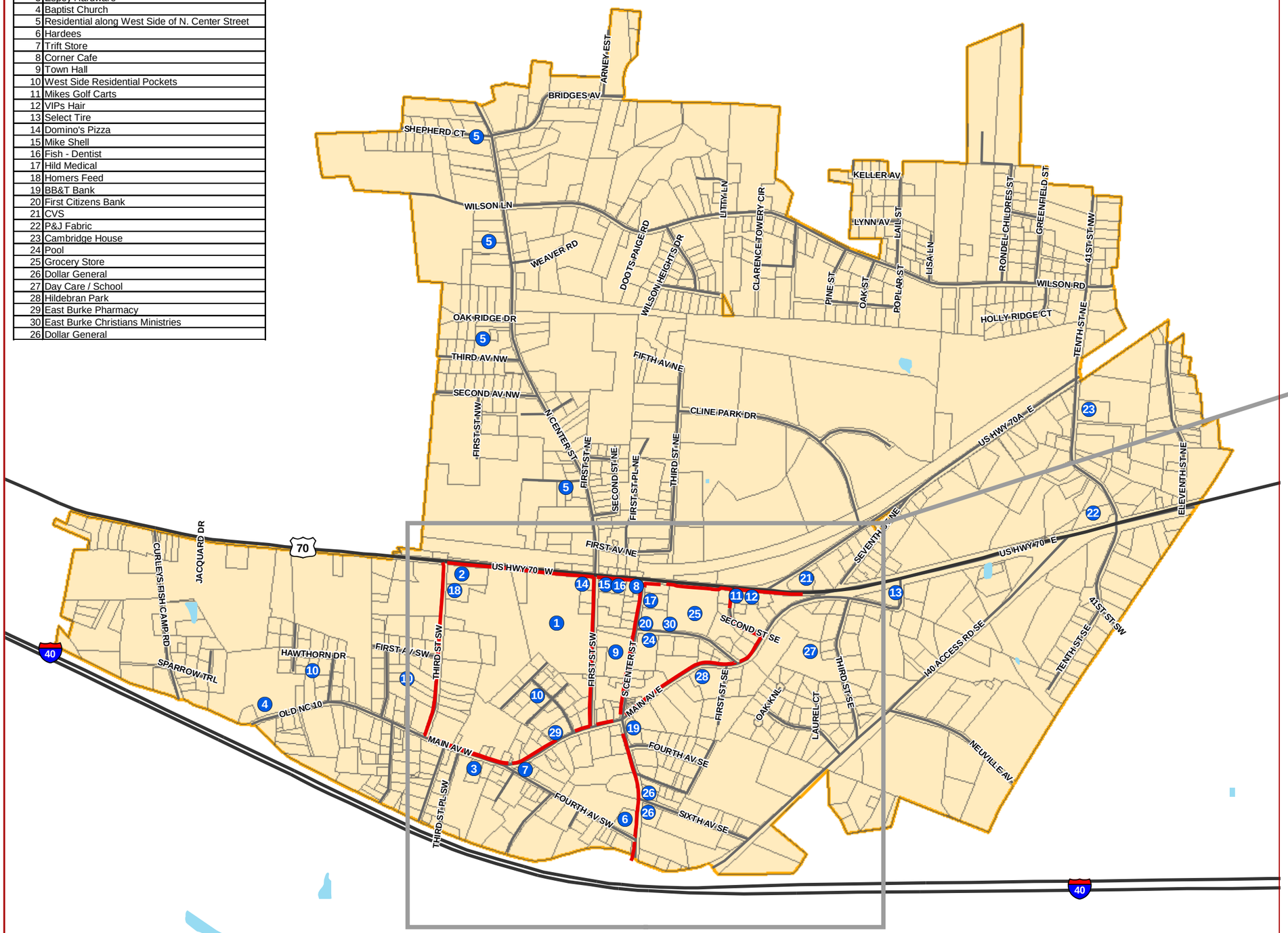
According to the Hildebran Downtown Master Plan, the community's major retail areas are located on South Center Street and US 70 Hwy. Some of these retail centers and stores are not sufficiently connected to each other via sidewalks or crosswalks and most are not connected to areas of residential housing. Commercial areas should receive a higher intensity of pedestrian facilities such as wide sidewalks, crosswalks, pedestrian signalization, and other necessary amenities to protect and safeguard pedestrians in these areas. Additionally, routes to these areas need to be incorporated into the pedestrian plan for interconnectivity.

Existing Destinations	
Label	Name
1	School
2	B & B
3	Espey Hardware
4	Baptist Church
5	Residential along West Side of N. Center Street
6	Hardees
7	Trift Store
8	Corner Cafe
9	Town Hall
10	West Side Residential Pockets
11	Mikes Golf Carts
12	VIPs Hair
13	Select Tire
14	Domino's Pizza
15	Mike Shell
16	Fish - Dentist
17	Hild Medical
18	Homers Feed
19	BB&T Bank
20	First Citizens Bank
21	CVS
22	P&J Fabric
23	Cambridge House
24	Pool
25	Grocery Store
26	Dollar General
27	Day Care / School
28	Hildebran Park
29	East Burke Pharmacy
30	East Burke Christians Ministries
26	Dollar General

Hildebran, NC

Existing Conditions





Sidewalks

Destinations

Hildebran Town Limits

Streets

Streams and Lakes

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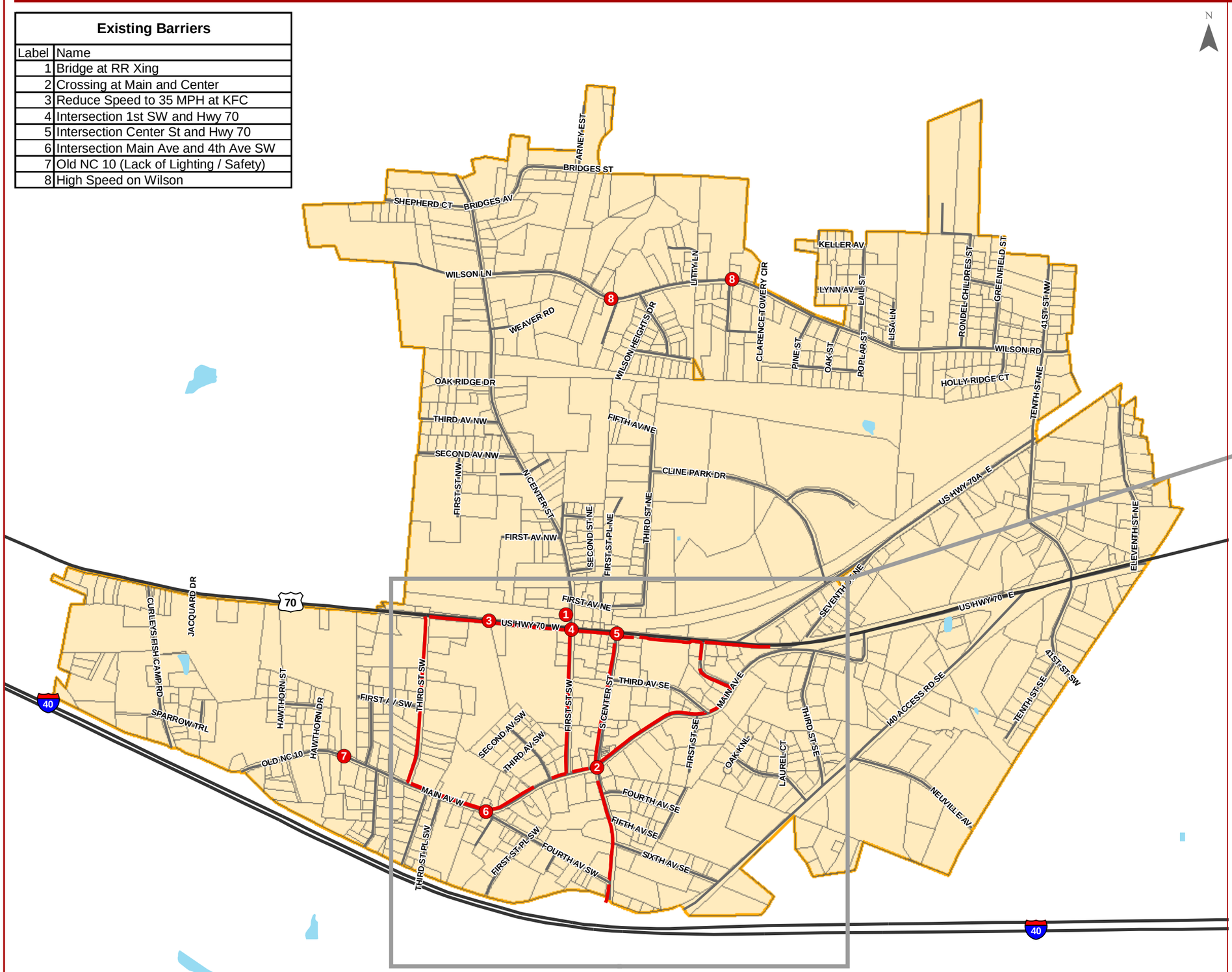
111 MacKenan Drive Cary, North Carolina
telephone: 919.469.3340 www.withersravenel.com

0 600 1,200 2,400 Feet

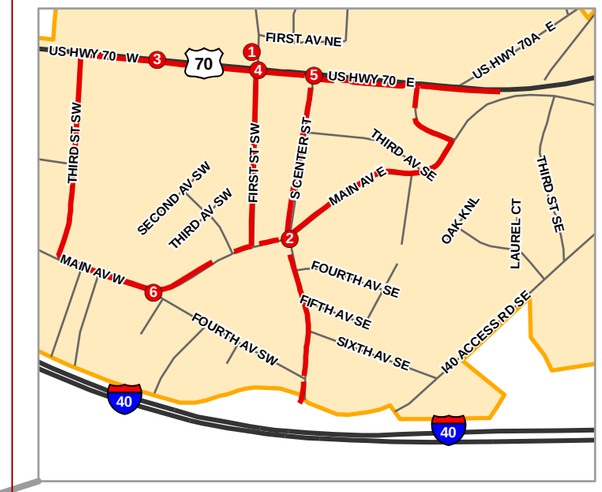
1 inch = 1,200 feet

Existing Barriers	
Label	Name
1	Bridge at RR Xing
2	Crossing at Main and Center
3	Reduce Speed to 35 MPH at KFC
4	Intersection 1st SW and Hwy 70
5	Intersection Center St and Hwy 70
6	Intersection Main Ave and 4th Ave SW
7	Old NC 10 (Lack of Lighting / Safety)
8	High Speed on Wilson



Hildebran, NC

Existing Barriers and Constraints



Sidewalks

Barriers_old

Hildebran Town Limits

Streets

Streams and Lakes

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

New Improvments in Downtown Create Opportunities for Improving the Pedestrian Environment

Local Citizens Give Input During A Public Meeting at Town Hall.

Improvement of existing facilities and the installation of new facilities, is of great importance due to the population growth in the last decade, As expressed by existing residents, walkability is a necessary essential component for a high quality of life and overall livability. Areas in immediate need of improvement, which are incorporated into the larger Pedestrian Master Plan include:

PEDESTRIAN CORRIDORS

- US 70 Hwy
- South Center Street
- First Avenue
- Main Avenue

SPOT IMPROVEMENTS

- Trail Network
- Intersection Improvements
- Sidewalk repair
- Crosswalks
- ADA Compliance
- Connect missing segments

CURRENT PLANS, PROGRAMS, POLICIES

Lack of Sidewalks make walking between destinations Undesirable.

The RailRoad Corridor is a great opportunity for Greenway Trails or other Multi-Modal Paths.

3.1 OVERVIEW

The Town of Hildebran and Burke County have a variety of ongoing plans, which effect the safety and appearance of the pedestrian environment. These tools deal with open space development and pedestrian connectivity, address the goals of development and growth, zoning, transportation issues and challenges, and the revitalization of Hildebran. The only known and organized pedestrian program is the Hildebran Elementary School's annual participation in the National Walk to School day.

The following public documents directly effect the future of Hildebran's pedestrian system.

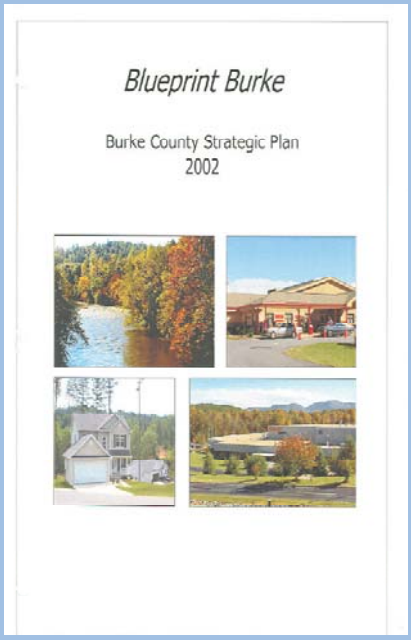
- North Carolina State Transportation Improvement Program Plan (July 2007)
- 2035 Greater Hickory Urban Area Long Range Transportation Plan
- Burke County Strategic Plan
- Burke County Comprehensive Parks & Recreation Master Plan
- Royal Oaks Park Master Plan
- Hildebran's Zoning Ordinance
- Downtown Hildebran Streetscape Master Plan
- Hildebran Comprehensive Plan

3.2 State Transportation Improvement Program (TIP)

The purpose of the State TIP is to improve the quality and interconnectivity of thoroughfares within the state. The TIP recommends and prioritizes projects based on need and cost. With the addition of these improvements and roadways comes the possible addition of sidewalks, planting strips, and road shoulders, all of which add to a safer pedestrian environment. The only proposed project in the State TIP that will impact the Pedestrian Plan is the future widening/replacement of the bridge on N. Center Street crossing over the Norfolk Southern Rail Line. Recommendations for the Pedestrian Plan in conjunction with this planned project are outlined later in the document; however, development of this bridge is slated to begin in early 2012.

3.3 2035 Greater Hickory Urban Area Long Range Transportation Plan

The Long Range Transportation plan, developed by the Greater Hickory Urban Area Metropolitan Planning Organization (GHUAMPO) in cooperation with the Western Piedmont Council of Governments (WPCOG) and the Western Piedmont Regional Transit Authority (WPRTA), was adopted March 24, 2010. This planning tool outlines transportation projects for roadways, bridges, rail and bicycle and pedestrian facilities. Many plans are currently under development. Although municipalities are conducting the proper planning studies, they often struggle to secure the necessary funding for many improvements. No improvements recommened in this



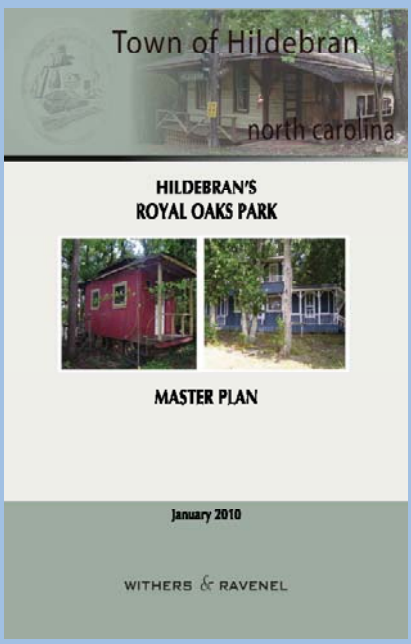
plan directly impact the study area for the Hildebran Comprehensive Pedestrian Master Plan. This planning document will serve as a guide for future connection opportunities within Burke County and the Greater Hickory Urban area as funding becomes available.

3.4 Blueprint Burke, Burke County Strategic Plan

Blueprint Burke is a planning document that is a result of various stakeholders' efforts including Burke County Commissioners, Burke County Planning Board, Blueprint Burke Committee, Western Piedmont Council of Governments (WPCOG) and additional involved advisors and citizens in an effort to develop a plan for smart growth throughout the region. The plan touches on improvements and planning for roads, schools, infrastructure, economic development and open space for recreation and conservation. This is of significant importance for the pedestrian plan, as it will preserve natural woodlands for greenway trail development. The action plan recommendations begin to explore partnerships and grant funding sources that will help highlight historic or culturally significant sites, preserve scenic views and implement the findings of the Burke County Comprehensive Parks and Recreation Master Plan.

3.5 Burke County Comprehensive Parks & Recreation Master Plan

Burke County's Comprehensive Parks & Recreation Master Plan (adopted May 2, 2000) provided information regarding existing facilities and recommendations for future facilities in an effort to meet the recreational needs of the Burke County residents. Recommendations by the year 2020 included the addition of new baseball/softball fields, soccer fields, recreation centers, volleyball courts, picnic shelters, swimming pools and playgrounds but failed to mention much on greenway trail development. Very few trails are proposed throughout the more populated regions of the County, and none for the Town of Hildebran that would impact this planning document. However, the plan does suggest that individual municipalities take responsibility for providing recreational facilites to assist in releiving the burdens on the County's recreation department. Hildebran has taken it upon themselves to act on this recommendation in developing this document and others to assist in developing much needed recreational facilities for its residents.



3.6 Royal Oaks Park Master Plan

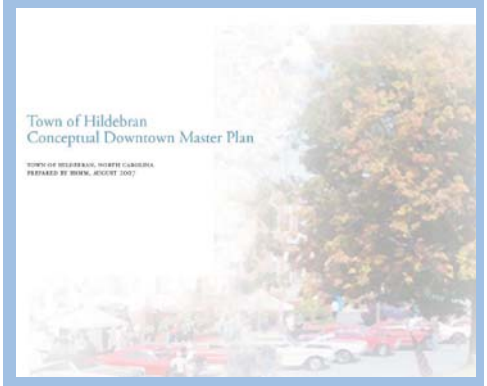
The Royal Oaks Park Master Plan begins to follow the recommendations set forth in Blueprint Burke document throught the design/development of Town owned and operated parks. The Royal Oaks Park Master Plan is a planning document that begins to analyze the recreational opportunities for a future park located at the corner of 1st Street SE and E. Main Street in Hildebran. By assessing environmental features, soils,

vegetation and recreational needs the Town and Withers & Ravenel were able to develop a park program that would meet the growing recreational needs of the community. Royal Oaks Park plans to incorporate 1/2 mile of paved walking trails that tie into the downtown sidewalk network, a 9 hole disc golf course, splash pad, horseshoe pits, fitness stations, picnic shelters,

bocce ball court, a playground, restroom, wildlife kiosks and educational and informational signage highlighting the culturally significant Train Depot located on site. The Town adopted the Master Plan on January 25, 2010 and received PARTF grant funding in July 2010 to help fund the first Town owned park.

3.7 Hildebran Zoning Ordinance

The Town has done a good job of creating a Zoning ordinance that encourages the development of pedestrian facilities and provides guidelines for landscaping and sidewalks for new development. Hildebran Zoning Ordinance Article IIX, 8.8, F Pedestrian Design and Article XIII, 13.8, Landscaping Requirements. Hildebran Subdivision Ordinance Article XIII, 13.8, 80.3 Access to Parks, Schools, etc. specifically reference pedestrian-friendly portions of the oridinance that enhance the street and sidewalk environments.



3.8 Downtown Hildebran Streetscape Master Plan

The Streetscape Master Plan previously developed by HSMM (adopted August, 2007) provides conceptual guidelines and graphics regarding crosswalks, sidewalks, planting strips, street trees and other pedestrian amenities needed to create the ideal pedestrian environment. There is some overlap in information with the Hildebran Comprehensive Plan. The recommendations outlined in the Streetscape Master Plan call for similar interconnectivity and redevelopment/adaptive reuse of buildings in downtown to conserve open space and create a lively urban core. Many of the same recommendations for sidewalks, crosswalks, ADA ramps and separation from vehicles are expressed in both the downtown master plan and the Pedestrian Master Plan.

3.9 Hildebran Comprehensive Plan

This comprehensive planning document, adopted February 18, 1997, begins to set the groundwork for all other planning studies to date. This comprehensive land development plan addresses land uses, demographics, housing, employment, education, transportation and economic development issues and opportunities. The plan goes even further to address goals and objectives for the long term including continued investment in the downtown Central Business District, accomodating spaces for the automobile and the pedestrian as well as "expand[ing] the sidewalk plan for better pedestrian access from neighborhoods to shopping areas." (Envision Hildebran, p. 31, Central Business District (CBD) Action Strategies)

State and federal policies:

NCDOT Pedestrian Policy Guidelines:
http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/doh/preconstruct/altern//value/manuals/ppm/ppm28/ppm28-1.pdf

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

NCDOT Complete Streets Policy:
http://www.bytrain.org/fra/general/ncdot_streets_policy.pdf

NCDOT Board of Transportation Resolution for Bicycling and Walking:
http://www.ncdot.org/transit/bicycle/laws/laws_resolution.html

NCDOT's Traditional Neighborhood Development Street Design Guidelines:
http://www.ncdot.org/doh/preconstruct/altern/value/manuals/tnd.pdf

These guidelines are available for proposed TND developments and permits localities and developers to design certain roadways according to TND guidelines rather than the conventional subdivision street standards. The guidelines recognize that in TND developments, mixed uses are encouraged and pedestrians and bicyclists are accommodated on multi-mode/shared streets.

United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations (March 2010):
http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm

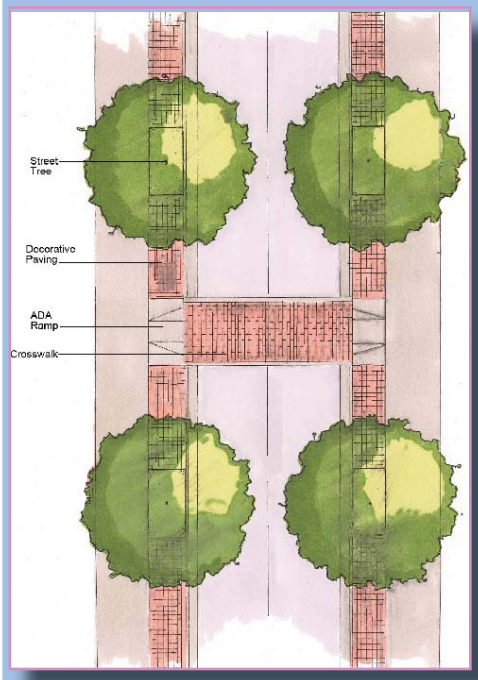
FHWA Policy for Mainstreaming Nonmotorized Transportation (FHWA Guidance – Bicycling and Pedestrian Provision of Federal Transportation Legislation):
http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm

PEDESTRIAN SYSTEM PLAN

4.1 OVERVIEW

This proposed Pedestrian System Master Plan Chapter is based on the original vision statement, project goals, public input from the residents, and the existing plans, programs, and policies already in place which shape and impact the pedestrian system. Chapters 4 through 6 provide direction in the development and implementation of the specifics of this Pedestrian Master Plan as well as additional guidelines and resources to aid in future planning and development. The organization of the physical pedestrian system plan is based on the following street type classifications: Major Corridors, Downtown Streets, Existing Subdivisions, and New Subdivisions. The map on the following page provides an illustration of each type. In all cases, it is mandatory to provide for emergency vehicle access to streets and buildings.

The new Pedestrian System Master Plan developed herein identifies existing corridors in immediate need of improvement as well as locations in need of spot improvements. These two groups of applications have been classified as **"Short Term"** or necessary Phase I priorities. Additionally, the Pedestrian System Master Plan includes corridors in need of future improvement that have been classified as **"Long Term"** priority development projects. The Short term and Spot Improvements are listed and discussed on this and following pages. Long term projects follow in



Decorative paving between plantings.

GENERAL DESIGN GUIDELINES

- ***Major Corridors***:
  - -Use planted medians where turning lanes are not necessary.
  - -Locate sidewalks min. 5' in width on both sides of the roadway with planted separation min. 5' in width (NCDOT only requires 3' width).
  - -Use crosswalks, pedestrian refuge islands when necessary, and pedestrian signalization at all crossings.
  - -Incorporate NCDOT Standards where appropriate.
- ***Downtown Streets***:
  - -Utilize ROW to bury utilities in immediate Downtown area.
  - -Plant trees in planting strips or planters.
  - -Install decorative paving between plantings.
  - -Use groundcover/plantings under trees to reduce maintenance
- ***Subdivisions***:
  - -Road Diet: Where appropriate, reduce travel lanes to 11' or 10' wide (applies only to existing subdivisions).
  - -Provide sidewalks with a minimum 5' wide on one side of the street.
  - -Provide a min. 5' wide planted separation between sidewalk and roadway (NCDOT only requires 3' width).
  - -Incorporate NCDOT Standards where appropriate.

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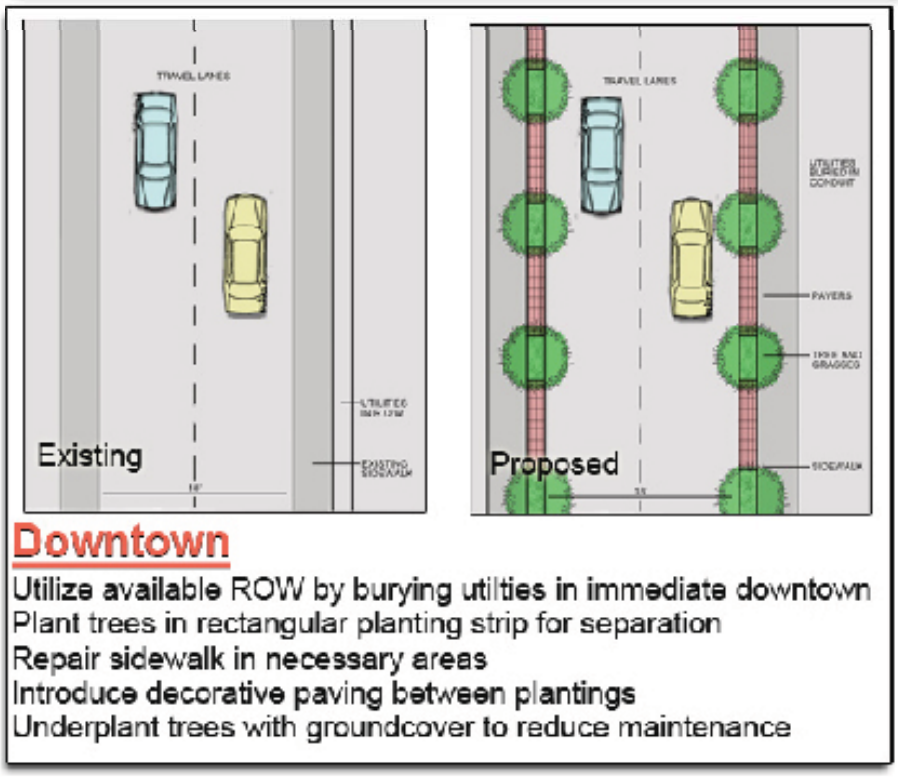
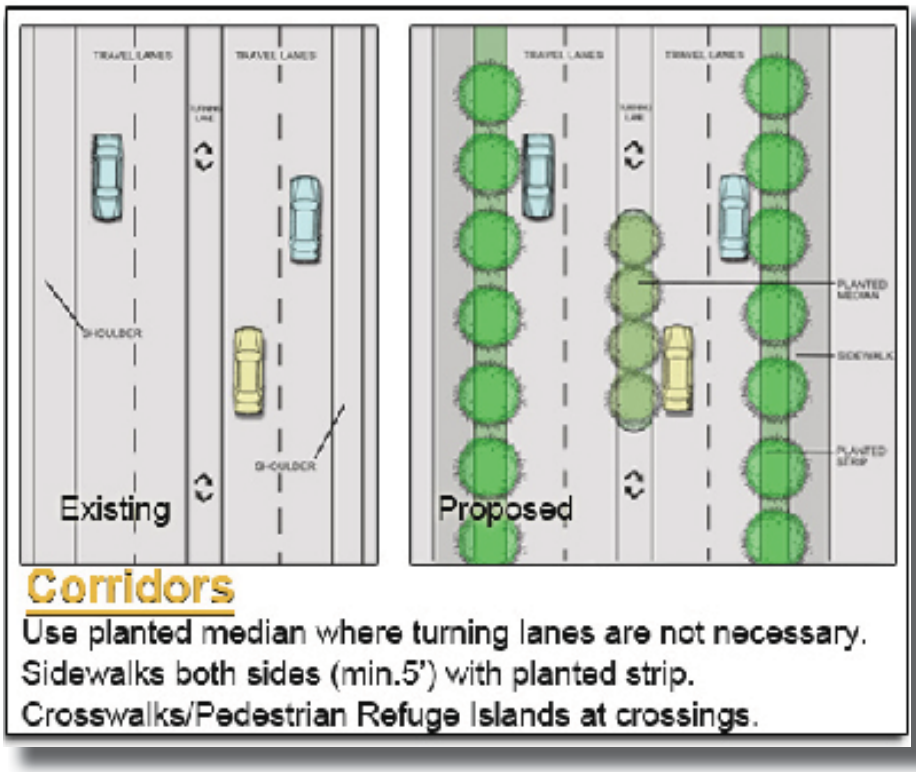
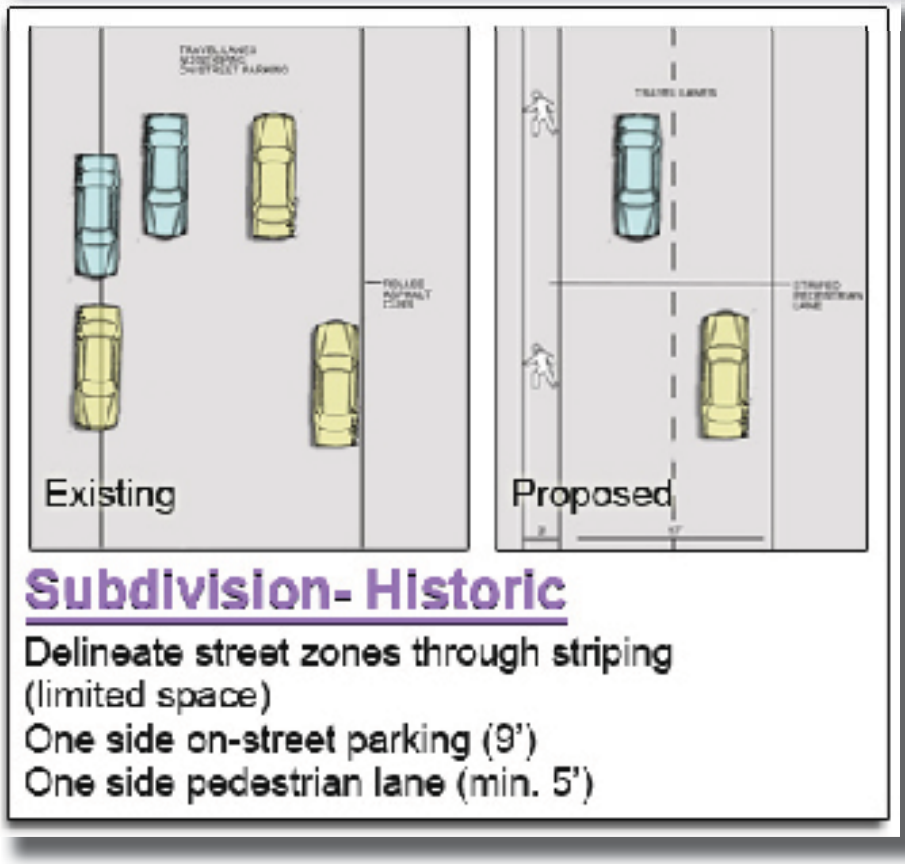
Typical Profile A- Downtown



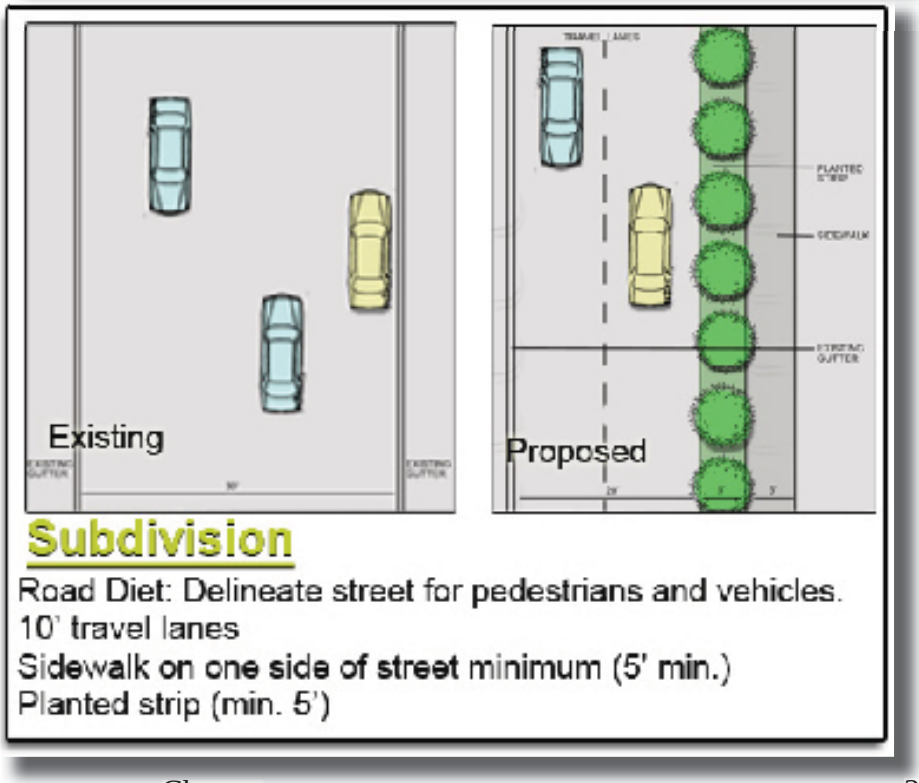
Typical Profile B- Corridors



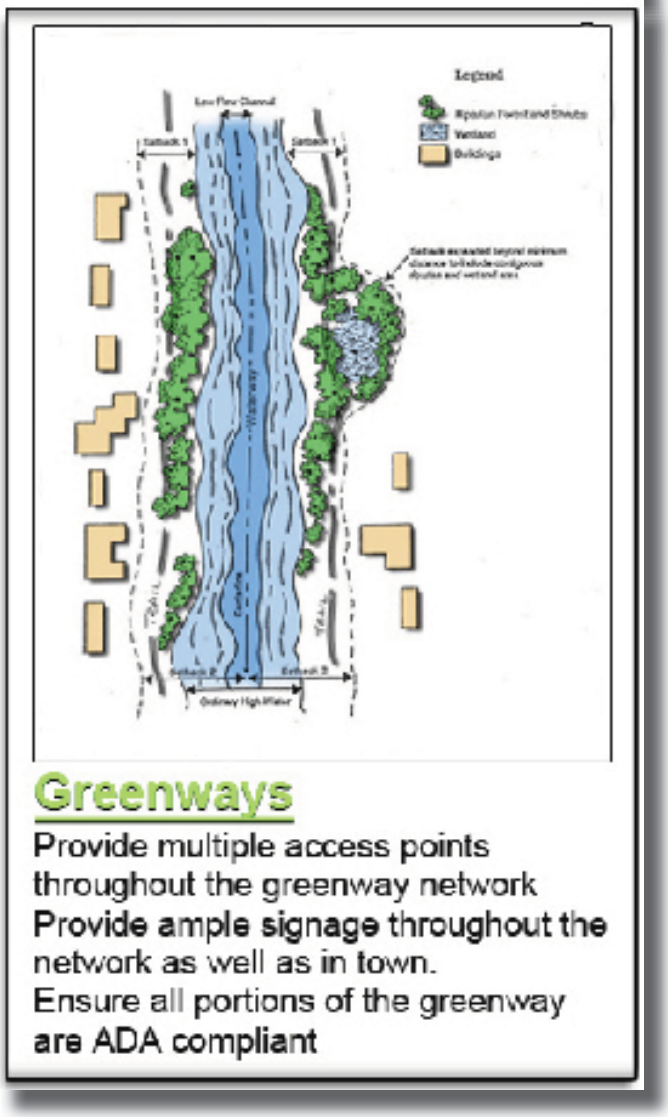
Typical Profile C- Subdivision/ Historic



Typical Profile D- Subdivision



Typical Profile E- Greenways



Greenway paths should be minimum 10’ wide to accommodate both Pedestrians and Bicyclists

4.2 MAJOR PEDESTRIAN CORRIDOR IMPROVEMENTS

Short term improvement projects will improve connectivity and pedestrian access along roadways which are currently utilized by pedestrians. These corridors provide connectivity to destinations such as schools, commercial areas, neighborhoods, and downtown. It is recommended that these corridors receive first priority for improvement projects due to their ability to immediately impact the existing pedestrian infrastructure and their access to various destinations. When undertaken, these projects will achieve critical connectivity throughout the Town of Hildebran.

SHORT TERM IMPROVEMENTS

As funding becomes available, the areas identified in this section should become priorities for the Town. These areas were identified during site visits, but mostly through the public input process, and previous planning efforts. Since these areas were brought forth by public input, these "spot improvements" should be recognized as particularly hazardous areas most frequented by residents. These improvement areas are focused on intersections and remedying the gaps in sidewalks to create a contiguous system. The prioritization of the Short Term and Long Term Projects was a determined through a combination of cost and immediate need. Immediate need was determined to be in areas that were in most immediate need of improvements either based on safety concern or highest frequency of use.

Traffic Calming Improvements: Incorporate traffic calming techniques on S. Center Street at the municipal complex and Main Avenue intersection to make the mid block crossing to the Hildebran Icard library and pool safer for pedestrians and a 4-way stop at the intersection safer for pedestrian circulation. Recommendations include better pedestrian crossing signage, stamped asphalt or concrete crosswalk and possible curb extensions and increased landscaping to notify motorists that they are entering a pedestrian oriented environment.

Sidewalk Construction: Connect missing segments of concrete sidewalk and fill gaps in existing sidewalk network, specifically along Main Avenue West, US Hwy 70 E, Second Street SE and S. Center Street. Construction would include five (5) foot concrete sidewalks, ADA ramps and high visibility crosswalks.

Sidewalk Construction: Construct new five (5) foot wide concrete sidewalk along northern side of Third Avenue SE to create a loop system connecting to existing sidewalk on Main Avenue East and S. Center Street. The addition of a high visibility crosswalk and ADA ramps would also be included in this project.

Sidewalk/ Greenway Trail Construction: Construct new five (5) foot wide concrete sidewalk along existing lengths of First Street SE with an additional ten (10) foot wide Greenway Trail connecting the two sidewalk segments to create continuous access from Main Avenue E to S. Center Street.

Bridge Widening: Widen or replace bridge per NCDOT's Transportation Improvement Plan (TIP) in order to create pedestrian access. The bridge is proposed to begin development in 2012 as listed in the Division 13 priority list for Burke County.

Intersection Improvements: Installation of a highly visible striped crosswalk, pedestrian signal heads and ADA ramps at the intersection of First Street SW and US Hwy 70 to safely move pedestrians towards the center of Town. If this were to be a signalized intersection in the future, then signalized pedestrian heads and highly visible crosswalks should be considered.

Sidewalk Construction: Construct new five (5) foot wide concrete sidewalk along the nothern side of Old NC 10/Main Avenue to tie into existing sidewalk further east on Main Avenue. The addition of sidewalk in this location will require a crosswalk at Main Avenue and Third Street SW and will provide pedestrian access from the southwestern boundary of town limits into the heart of Hildebran. Lighting improvements should also be considered and coordinated during sidewalk construction.

Roundabout Construction: Construction of a roundabout at the intersection of S. Center Street and US Hwy 70 would slow high traffic speeds and regulate traffic volume during busy periods. With the addition of other recommendations outlined in this Plan and previous plans adopted by the Town, this area of Town could become a highly attractive and desirable pedestrian center once again. If a roundabout is not constructed and the intersection is or will be converted to a signalized intersection, then signalized pedestrian heads and highly visible crosswalks should be considered.

Speed Reduction: Reduce speed on US Hwy 70 to 35 mph beginning at address 311 US Hwy 70 Hildebran, NC 28637, currently the Kentucky Fried Chicken, as motorists enter the Town from the east gateway.

Speed Reduction: Reduce speed on Wilson Road from N. Center Street to Tenth Street NE from 45 mph to 25 mph to create a safer environment for cyclists, walkers and joggers. Changing topography and higher than posted travel speeds make this area dangerous for pedestrian use.

Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk along the western side of N. Center Street from the bridge to Wilson Road to provide continuous pedestrian access from residential areas into downtown Hildebran.

LONG TERM IMPROVEMENTS

The Pedestrian Master Plan also includes corridors in need of future improvement herein noted as Long Term Improvements. Following the Short Term Spot Improvement projects, roadway corridors on the Long Term improvements list should be improved and enhanced as recommended when funding becomes available. These future corridors offer roadways with a finer degree of interconnectivity and pedestrian linkages throughout Hildebran and are not in as immediate need of improvement as the Major Pedestrian Corridors listed previously. Long Term projects are not as much a safety hazard as areas noted by public opinion such as those classified as short term improvement projects.
A map illustrating the locations of all Short and Long Term Improvements is located on p. 33

Intersection Improvements: Construct a roundabout at the intersection of Main Street and S. Center Street to replace the 4-way stop proposed in the previous Short Term Improvements Section. This will serve as a traffic calming device and a more attractive gateway into the downtown area for motorists traveling from I-40. There are right of way issues associated with this improvement, so easements would need to be acquired prior to planning and construction. This project would also compliment the md-block crosswalk at the municipal complex by slowing vehicle speeds through the S. Center Street corridor. If a roundabout is not constructed, and it must be converted to a signalized intersection, then signalized pedestrian heads and highly visible crosswalks are recommended.

Sidewalk Construction: Construct new five (5) foot wide concrete sidewalk along southern side of Wilson Road from N. Center Street to Tenth Street NE. Providing sidewalk in this location will tie into sidewalk along N. Center Street that is proposed in the Short Term Improvements section, providing access into downtown Hildebran from outlying residential areas. Sidewalk, coupled with reduced design speeds also proposed in the Major Improvements section, will provide pedestrians a safe and adequate facility.

Greenway Trail Construction: Construct a new ten (10) foot wide asphalt Greenway Trail along Clarence Towery Circle beginning at Wilson Road and continuing to Cline Park Drive. This facility will provide safe, off-street access for pedestrians while giving Hildebran residents the opportunity to experience nature. Right of Way will need to be aquired or easements from Duke power will need to be granted.

Greenway Trail/ Sidewalk Construction: Construct a new ten (10) foot wide asphalt Greenway Trail to provide pedestrian access from Hawthorn Drive to Fourth Street SW. Beginning at Fourth Street SW a new five (5) foot concrete sidewalk will follow First Avenue SW until Third Street SW at which point an additional new ten (10) foot asphalt

trail segment is proposed to provide access to First Street SW where it will tie into the existing Town sidewalk network. Right of Way will need to be aquired or easements will need to be granted.

Sidewalk Construction: Construct a five (5) foot wide concrete sidewalk on Main Avenue from the existing sidewalk at Second Street SE to the US Hwy 70 intersection and connecting into the existing sidewalk across from the CVS Pharmacy, located at the US Hwy 70 and US Hwy 70A split. The addition of sidewalk in this location will complete sidewalk along the entire length of Main Avenue within town limits.

Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk beginning at Main Avenue (tying in to proposed sidewalk to the west) and terminating at the intersection of US Hwy 70 and I-40 Access Road.

Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk along Fourth Avenue SW from Main Avenue to S. Center Street. The construction of this sidewalk segment will create a looped system that will connect to existing sidewalks on S. Center Street and Main Avenue, providing safer corridors for pedestrians traveling to and from neighborhoods, banks, commercial centers and into downtown.

Sidewalk Construction: Construct a new five (5) foot concrete sidewalk along US Hwy 70A around the CVS Parmacy, located at the US Hwy 70 and US Hwy 70A split, to provide access for pedestrians from outlying residential neighborhoods an opportunity to safely travel to their local pharmacy by foot or bicycle.

Greenway Trail Construction: Construct a new ten (10) foot wide asphalt Greenway Trail offset from the Norfolk Southern Right-of-Way line bordering US Hwy 70 from Third Street NE to Tenth Street NE. The location and proximity of the Greenway trail to the rail-line could provide opportunities for cultural, historical and educational characteristics about Hildebran. Right of way or easements will need to be granted. Often times aquiring easements for greenway trails paralleling railroad lines can be difficult. Discussions should begin early on for planning and development of this segment.

Sidewalk Construction: Construct a new five (5) foot concrete sidewalk along Tenth Street NE connecting the Greenway Trail mentioned above to the proposed sidewalk along the southern edge of Wilson Road. The addition of this sidewalk would create a closed looped system from N. Center Street to Wilson Road to Tenth Street incorporating off-street trails and on-street sidewalk facilities.

Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk along Third Street SE from Main Avenue to I-40 Access Road. This sidewalk will provide connection to mostly residential uses and churches.

Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk along First Avenue NE to provide a connection point between N. Center Street and Third Street NE/Greenway Trail.

Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk along Second Street SW, connecting a segment of the Greenway Trail system to Main Avenue and the existing sidewalk along the northwest side of Main Avenue.

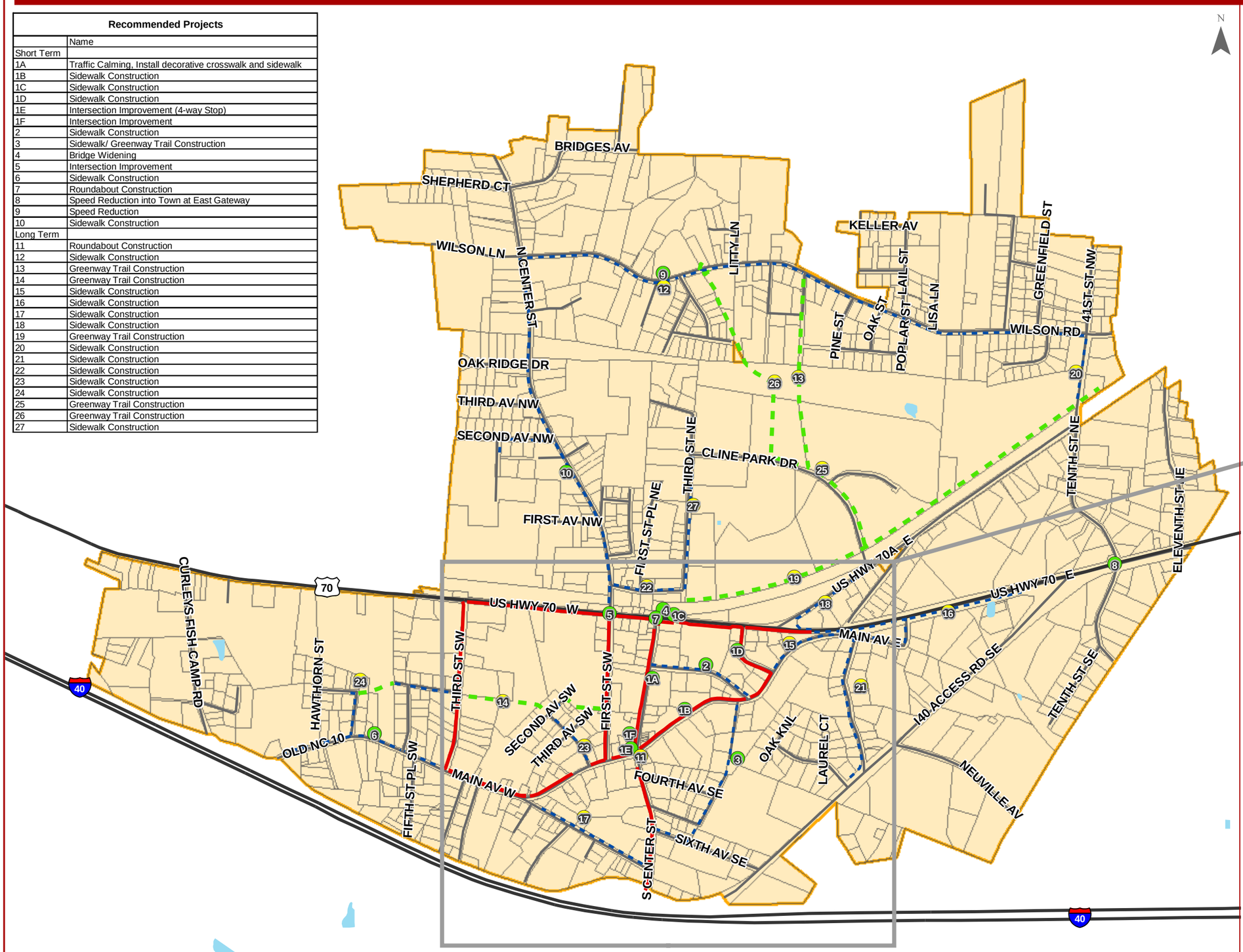
Sidewalk Construction: Construct a new five (5) foot wide concrete sidewalk along the eastern side of Hawthorn Drive to provide further connection to Main Avenue from outlying residential neighborhoods. commercial centers and into downtown.

Greenway Trail Construction: Construct a new ten (10) foot wide asphalt Greenway Trail from the midpoint of Cline Park Drive to the proposed Greenway Trail segment mirroring the Norfolk Southern Rail Line. This Trail segment will connect to the previously proposed segment beginning at Wilson Road and ending at Cline Park Drive.

Greenway Trail Construction: Construct a new ten (10) foot wide asphalt Greenway Trail from Wilson Road to connect with the two additional Greenway Trail segments along Cline Park Drive.

Sidewalk Construction: Construct a new five (5) foot concrete sidewalk along Third Street NE from First Street Place NE to Cline Park Drive. This final and strategic connection point will provide both off-street and on street access to the Trails network and to downtown Hildebran.

Recommended Projects	
	Name
Short Term	
1A	Traffic Calming, Install decorative crosswalk and sidewalk
1B	Sidewalk Construction
1C	Sidewalk Construction
1D	Sidewalk Construction
1E	Intersection Improvement (4-way Stop)
1F	Intersection Improvement
2	Sidewalk Construction
3	Sidewalk/ Greenway Trail Construction
4	Bridge Widening
5	Intersection Improvement
6	Sidewalk Construction
7	Roundabout Construction
8	Speed Reduction into Town at East Gateway
9	Speed Reduction
10	Sidewalk Construction
Long Term	
11	Roundabout Construction
12	Sidewalk Construction
13	Greenway Trail Construction
14	Greenway Trail Construction
15	Sidewalk Construction
16	Sidewalk Construction
17	Sidewalk Construction
18	Sidewalk Construction
19	Greenway Trail Construction
20	Sidewalk Construction
21	Sidewalk Construction
22	Sidewalk Construction
23	Sidewalk Construction
24	Sidewalk Construction
25	Greenway Trail Construction
26	Greenway Trail Construction
27	Sidewalk Construction



Hildebran, NC

Proposed Pedestrian System Improvements

- Existing Sidewalks
- Short Term Improvements
- Long Term Improvements
- Proposed Sidewalks
- Greenway (existing or proposed)
- Hildebran Town Limits
- Streets
- Streams and Lakes

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0 600 1,200 2,400 Feet

1 inch = 1,200 feet

FACILITY STANDARDS & DESIGN GUIDELINES

5.1 OVERVIEW

The Division of Bicycle and Pedestrian Transportation (DBPT) of the North Carolina Department of Transportation (NCDOT) created the following pedestrian guidelines to assist municipalities in planning and engineering a safe and comfortable walking environment for pedestrians. The guidelines presented are in accordance with standards set by the American Association of State Highway Transportation Officials (AASHTO), the Manual for Uniform Traffic Control Devices (MUTCD) and the Americans with Disabilities Act (ADA).

5.2 SIDEWALKS

Neighborhood Street with Planting Strip
Photo credit: www.pedbikeimages.org

Sidewalks are extremely important public right of-way components often times adjacent to, but separate from automobile traffic. In many ways, they act as the seam between private residences, stores, businesses, and the street. Sidewalks are spaces where children play, neighbors meet and talk, shoppers meander casually, parents push strollers, and commuters walk to transit stops or directly to work. Because of the social importance of these spaces, great attention should be paid to retrofit and renovate areas with disconnected, dangerous, or otherwise malfunctioning sidewalks.

The Federal Highway Administration (FHWA) defines sidewalks as "walkways that are parallel to a street or highway" and walkways as generally being "pedestrian paths, including plazas and courtyards."

Sidewalk 5 feet in width

Sidewalk Widths

DBPT recommends a minimum travel path width of 5 ft. for a sidewalk or walkway, in accordance with the American Association of State and Highway Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), and the Institute of Transportation Engineers (ITE). A sidewalk width of 5 feet is considered ample room for two people to walk abreast or for two pedestrians to pass each other.

Often downtown areas, near schools, transit stops, or other areas of high pedestrian activity call for much wider sidewalks. Sidewalks are typically built with curb and gutter sections. The Division recommends that areas with significant pedestrian traffic should feature eight- to ten-feet wide sidewalk. Where sidewalks align with the edge of an angled or 90-degree parking lot, a minimum of 30 inches of parked car overhang obstructing the sidewalk shall be taken into account in order to maintain the minimum travel path width.

AASHTO recommends the construction of sidewalks on all city or town 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 or suburban areas might adequately serve its pedestrians with a sidewalk on only one side. Under certain low-traffic, low-density situations, a wide paved shoulder can serve as an adequate pedestrian path.

It is important to note the potential for conflict between pedestrians and bicyclists on paved shoulder. Both bicyclists and pedestrians must exercise caution in order to avoid potential crashes on paved shoulders.

Construction Materials and Methods

Improvements for new, retrofitted, and repair to sidewalks throughout the municipality should be constructed using the following methods and materials:

Materials — Sidewalks should be constructed of Portland Cement Concrete (PCC) with a 14-day flexural strength that is not less than 3,000 pounds per square inch (psi).

Subgrade Preparation — Subgrade should be thoroughly compacted and finished to a smooth, firm surface, and should be moist at the time the concrete is placed.

Subgrade Compaction — Except in areas where it is impractical to use standard type rollers, compaction should be by means of vibratory hand compactors.

Final Finish — Surface finish for sidewalks should be completed by brushing (with brooms) or by another approved method to provide a uniform non-skid surface.

Inspections and Performance — Sidewalk forms should be inspected by municipal staff prior to the placement of concrete. Concrete that does not meet minimum mixture and strength standards or settles after placement should be removed and replaced by the installer.

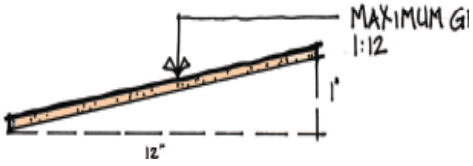
Alternative Materials Usage — Use of materials for sidewalks other than concrete and the construction methods used therewith must be approved by the city or town engineer or designated representative on a case by case basis. There are some successful examples where other materials such as asphalt, crushed stone, granite fines, or other slip resistant material have

been used. Concrete is preferred surface, providing the longest service life and requiring the least maintenance.

Grade

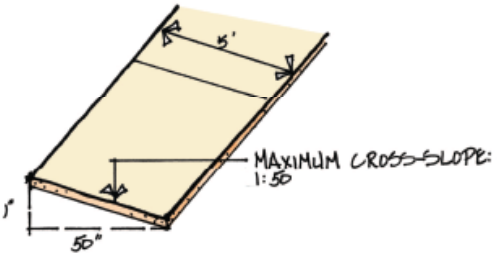
AASHTO recommends the folowing grades for sidewalks: Continuous sidewalk grades should not exceed 5% (1:20). However, in areas where the existing topography or the adjacent street cause grades of more than 5%, sidewalk grades of up to 8.33% (1:12) may be used for a rise of no more than 2.5 feet, provided that level landings (grades less than 0.5%) are provided at the end of such grades and are at least 5 feet long.

In cases where grades greater than 8.33% (1:12) must be negotiated, switchbacks or other approved ramping techniques must be provided and will conform to ADA requirements. Additional right-of-way and/or easements necessary to accommodate these features will be obtained by the applicant and legally dedicated to the city or town.



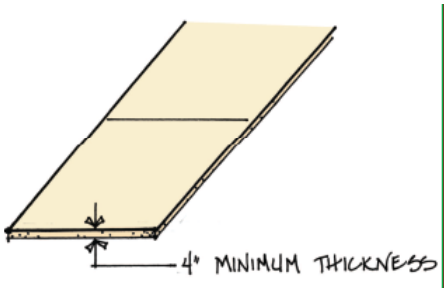
Cross-Slope

Sidewalks and walkways should be designed such that grades and cross slopes are minimized to allow those with mobility impairments to negotiate with greater ease. The maximum allowable cross-slope for sidewalks is 2% (1:50). At driveways, curb cuts, and both marked and unmarked crosswalks, the maximum allowable cross-slope must be maintained for a minimum width of 3 feet. Cross-slope should be oriented toward the adjacent roadway and sufficient to provide storm water runoff without creating standing water on the walkway.



Sidewalk Thickness

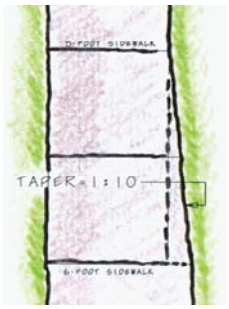
A minimum thickness (or depth) of 4 inches of concrete is required for all new sidewalks except as noted. To accommodate the additional loading caused by pedestrian density or by vehicles crossing a sidewalk, a thickness of 6 inches is required where sidewalks intersect at wheelchair/crosswalk ramps,



and at driveways that use a ramp or apron-type access to cross the sidewalk from the adjacent public street.

Transitions

Wheelchair ramp and driveway transitions to or crossing sidewalks must conform to current ADA requirements.

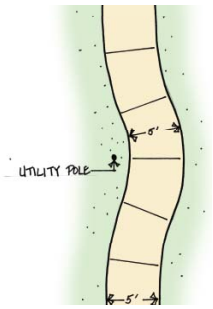


Tapers

Transitional tapers to and from sidewalks of different widths are to be at a maximum rate of 1-foot of width per 10 feet of length (1:10) except as approved by the city or town.

Sidewalk Alignment

Sidewalks should parallel the roadway. Typical exceptions include:



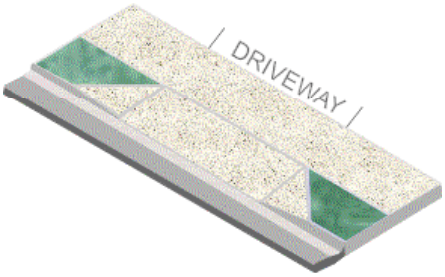
Horizontal Curve Sections on Roadways — In situations where a roadway curves at an angle greater than 60 degrees (and where right-of-way permits), the designer is permitted to adjust the curve of the sidewalk to more easily accommodate pedestrians.

Presence of Natural and Manmade Features — The 5-foot minimum width of the travel path must be free of obstructions. The designer is permitted to alter the sidewalk path to avoid significant obstructions including but not limited to: transformers, utilities and utility poles, fire hydrants, and traffic signal hardware. Sidewalk path exceptions should be evaluated and approved on a case-by-case basis by the city or town. Care should also be used to ensure that the travel path does not interfere with the integrity of trees or of historic features.

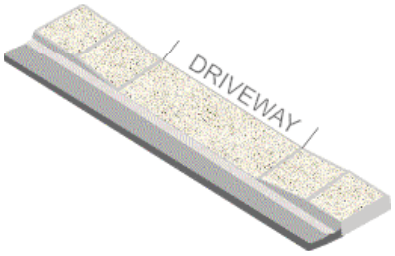
Meanders — Sidewalk meandering is strongly discouraged. People generally prefer to walk in a straight line, particularly when walking for utilitarian purposes. Meanders must meet minimum ADA requirements unless otherwise approved by the municipality.

ADA: Dealing with Cross-Slope from Driveways

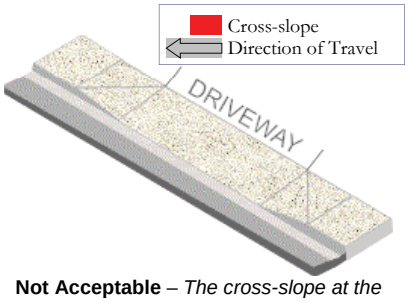
The figures at right indicate the preferred (top), conditionally acceptable (middle), and unacceptable (bottom) design solutions for new driveways as they interface with sidewalks. The intent is to make wheelchair travel safe along the sidewalk without directing the user into traffic through angled (cross) slope designs. Cross-slope on sidewalks should not exceed 2%, preferably not 1.5% where possible.



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



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



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

Sidewalk Buffers

Buffer zones between pedestrian paths and vehicular traffic provide a sense of security to those on foot or in wheelchairs and give the path a comfortable scale and clear definition. Buffers can also provide other benefits to pedestrians depending on the type used. Buffer zones may either be paved, providing space between the pedestrian and traffic, or they may involve a planting strip with trees and shrubs, but is not recommended for high-traffic pedestrian areas. Much like the sidewalk itself, the form and topography of a buffer may vary greatly. AASHTO recommends a buffer width of two to four feet for local or collector streets, and a buffer width of five to six feet for arterial or major streets, whether for a paved buffer zone or a planting strip.

Sidewalk buffer along Cameron Village Shopping Center in Raleigh

5.3 PLANTING STRIPS

Continuous zones of landscape, located between the sidewalk and the street curb or the edge of road pavement, perform a multitude of essential tasks. Planting strips contribute to the walkability of a street by providing shade. In addition to providing shade, street trees - along with turf and other plantings - help reduce urban temperatures, improve water quality, lower stormwater management costs, and add beauty to the street for the pedestrian, the driver, and the adjacent land use. The recommended planting width to permit healthy tree growth is 4 to 10 feet measured from the back of curb. Planting strips, or tree lawns, are the preferred means of providing a buffer, but are not feasible or appropriate in all pedestrian situations.

The width of the planting strip shall increase with a greater plant density and potential as the intensity of development increases. This separation from motorized traffic decreases road noise while increasing a pedestrian's sense of security and comfort. Added benefits of this separation include space for signage, utilities (fire hydrants), and vegetation.

PAVED BUFFER ZONES

In some situations, continuous planting strips are not feasible, particularly where there is a high degree of foot traffic between the sidewalk and the street. As such, these planting strips are typically used in downtown or commercial areas. In these cases, a paved buffer zone should be provided between the travel path of the sidewalk and the curb. Though a constant width is preferred for this buffer zone, the width may vary as long as the buffer does not interrupt the pedestrian travel path. Items located in the buffer zone can include street furniture, planters, trees planted with tree grates, streetlights, street signs, fire hydrants, etc. Such items are placed in the buffer zones so as not to restrict pedestrian flow in the travel path.

Sidewalk with a paved buffer zone and planting zone


Buffer paving option and Tree Pits
Photo credit: www.gatech.edu

Street tree plantings in tree pits (with grates and guards) have historically proven to work successfully within these buffer zones. They regulate micro-climate, create a desirable sense of enclosure, promote a local ecological identity and connection to place, and can act as a pleasant integration of nature into an urban environment. For healthy trees, attention should be given to amending the soil and providing drainage within the tree pits. In the event that a paved or vegetative buffer zone is not possible, a row of parked cars or a bike lane can be used to create this buffer.

Buffer Paving Options

A different type of paving from the sidewalk paving could be considered for the buffer zone for various reasons. Textured pavements -- pavers or pervious pavement -- can be used to add significant aesthetic value and help define a unique place. Using pervious materials for parking, sidewalk furniture areas, and frontage zones could reduce environmental concerns. A change in paving type can help distinguish the pedestrian buffer zone from the pedestrian travel path. Sand-set pavers are recommended in the buffer zone for ease of utility maintenance. In designing sidewalk buffers, it is important to provide adequate clearance from potential obstructions.

Type	Sidewalk Width	Planting Strips/ Buffer	
		With Street Tree	No Street Tree
Local residential	5 ft.	4 - 6 ft.	3 - 5 ft.
Thoroughfares/ Collectors	6 - 8 ft.	6 – 10 ft.	5 - 6 ft.
Downtown or business districts	*10 - 15 ft.	n/a	n/a

* Planting strip or tree pit would be located within sidewalk width.

Additional Considerations

Though the buffers described above each provide some sort of physical barrier from moving vehicular traffic, it is vital for pedestrians on the sidewalk to have a clear view of drivers and vice-versa. This is a particularly important consideration in designing and maintaining planting strips. It is important to eliminate both high and low contact points with tree branches, mast-arm signs, overhanging edges of amenities or furniture. In addition, it is necessary to provide two feet of clear space from store fronts to accommodate shy distance from walls and the opening and closing of doors.

Pedestrian sidewalk on bridge with separation.
Photo credit: www.fhwa.dot.gov

5.4 PATHS/GREENWAYS

Multi-Use Paths

Multi-use paths are paved road-like facilities designed to be used by pedestrians and bicyclists as well as others, including those on roller blade, skateboards and other alternative modes of transportation. Paths can be paved or unpaved, can be along creeks or streams, and can be designed to accommodate a variety of path users.

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.

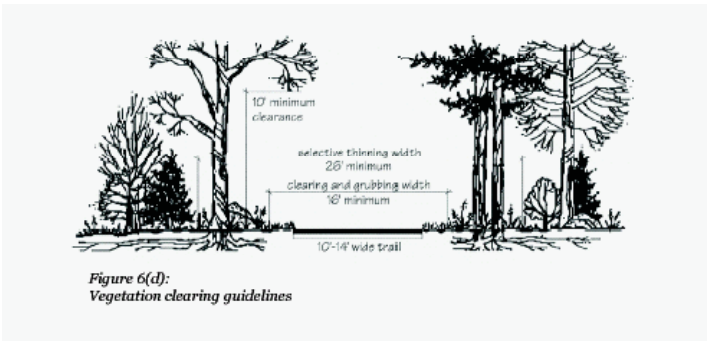
Design Criteria

Multi-use paths shall be designed with clearance requirements, minimum radii, stopping sight distance requirements, and other criteria — similar to the criteria for roadway design. High standards should be observed when designing these paths.

Multiple-use paths shall 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 path where shoulders cannot be provided because of stream crossings or other elevated grade issues should have protection such as rails, fences, or hedges.

Paths of 12'-14' in width are preferred for areas where high volumes of users are expected. If it is not possible to increase the width, including a divider line down the center for bi-directional traffic can be helpful as a means of increasing safety for path users. Width of a path may be reduced to 8 feet, depending upon physical, environmental or right-of-way constraints and topography.

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.



Vegetation clearing guidelines for path

Vertical and Horizontal Clearance

Selective thinning of vegetation along a path increases sight lines and distances and enhances the safety of the path user. This practice includes removal of underbrush and limbs to create open pockets within a forest canopy, but does not include the removal of the forest canopy itself. A total of 8 to 10 feet of vertical clearance should be provided.

Pavement Types

Each path is unique in terms of its location, design, environment, and intended use. For each segment of the path, care should be given to selecting the most appropriate pavement type, considering cost-effectiveness, environmental benefit, and aesthetics.

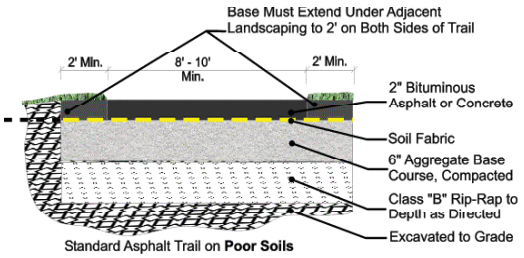
Typical pavement design for a paved, off-road, multi-use paths and greenway paths should be based upon the specific loading and soil conditions for each project. These paths should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles. Pavement types may vary between conventional or pervious concrete, asphalt, crusher fines, dirt or boardwalk.

Paved Greenway Trail
Photo credit: D.Burden

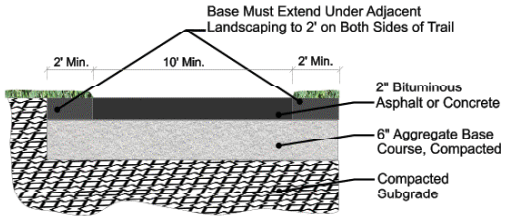
Conventional Concrete – In areas prone to frequent flooding, it is recommended that concrete be used because of its excellent durability. Concrete surfaces are capable of holding up well against the erosive action of water, root intrusion and subgrade deficiencies such as soft soils. Of all surface types, it is the strongest and has the lowest maintenance requirement, if it is properly installed. Installation of concrete is the most costly of all surface types, but, when properly installed, requires less periodic maintenance than asphalt or crusher fines. It is recommended to install 4-inch thickness on compacted 4-inch aggregate base course.

Pervious Concrete – This form of concrete is a recent invention which allows storm water to percolate to the ground surface, reducing pollutants included in the stormwater runoff. Pervious concrete contains superior traction, unfavorable to rollerblading and skateboarding and includes a higher installation cost.

Asphalt – Asphalt is a flexible pavement and can be installed on virtually any slope. Asphalt is smooth, joint free and softer than concrete, preferred by runners, rollerbladers, cyclists, handicap users, and parents pushing baby buggies. In most cases, construction costs significantly less. Standard installation calls for a minimum of 2-inch I-2 asphalt thickness with 4-inch aggregate base course. Installation of a geotextile fabric beneath a layer of aggregate base course (ABC) can help to maintain the edge of a path. Asphalt pavement is also helpful in supporting a path in poor soils. Asphalt pavement can last up to 20 years with periodic maintenance. One important concern for asphalt paths is the deterioration of path edges. It is important to provide a 2' wide graded shoulder to prevent path edges from crumbling.



Standard Asphalt Trail on **Poor Soils**



Standard Asphalt Trail

Crusher Fines – Excellent for running paths, as well as walking, mountain bike and equestrian use. Can be constructed to meet ADA requirements. Paths must be smoothed out and graded several times per year. Crusher fines consist of small, irregular and angular particles of rock, crushed into an interlocking tight matrix requiring additional maintenance efforts.

Dirt – Bare dirt paths are recommended for hiking trails, mountain bike tracks, and equestrian uses. It is important to grade swells on steep slopes to avoid erosion.

Photo credit: D. Burden

Boardwalk – A structure made of wooden planks constructed for pedestrians or cyclists along beaches or through wetlands, coastal dunes and other sensitive environments.

Environmental Issues

Environmental protection should be a priority with the planning and construction of a path. Path design, construction type, and construction schedule should all reflect environmental considerations. For example, a path 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 its tendency to float when flooded.

Greenway paths improve water quality by establishing buffers along creeks and streams. These buffers provide habitat for a diversity of plant and animal species. They serve as natural filters, trapping pollutants from urban runoff, eroding areas and agricultural lands. Stream buffers also reduce the severity of flooding by releasing storm water more gradually, giving the water time to evaporate, or percolate into the ground and recharge aquifers, or be absorbed and transpired by plants. In addition, paths provide more transportation choices for people who wish to walk or bicycle. By doing so, they help to decrease dependence upon automobiles and thus contribute to improved air quality. All proposed paths and other improvements should be designed, constructed and maintained with their ecological value in mind. Any disturbance of natural features should be kept to a minimum and conform to all jurisdictional environmental policy and ordinances.

The protection of streams by easement and the creation of paths along this greenway easement can help to ensure that no dumping occurs in the waterway, as users of this facility would report dumping to authorities. There is a need to help preserve these resources by ensuring that there is sufficient space between the greenway path and the waterway, by avoiding building adjacent to trees, and by avoiding constructing on rock features, such as escarpments.

A water fountain located next to a bench provides a functional rest area.

Photo credit: A. Lux

Path Amenities and Accessibility

Though paths should be thought of as roadways for geometric and operational design purposes, they require much more consideration for amenities than do roadways. Shade and rest areas with benches and water sources should be designed along multi-use paths. Where possible, vistas should be preserved. Wayfinding signs (e.g., how far to the library or the next rest area, or directions to restrooms) are important for non-motorized users.

Path amenities should be just as accessible as the paths themselves. Periodic rest areas off to the side of accessible paths are important features as well, and should be level and placed after a long ascent.

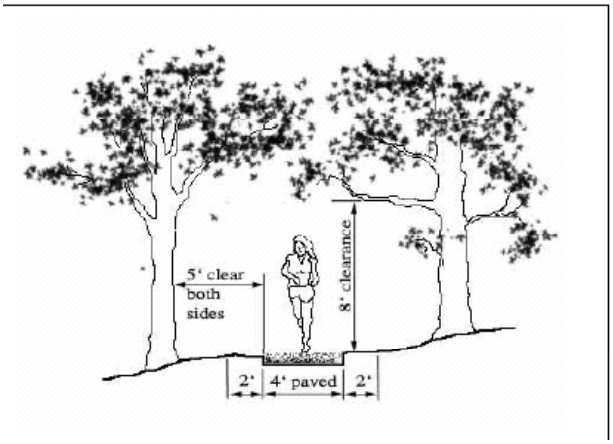
5.5 SIDEPATH/WIDE SIDEWALK

Sidepaths/Wide Sidewalks

A sidepath is essentially a multi-use path that is oriented alongside a road. The AASHTO bike guide and North Carolina Design Guidelines strongly caution those communities contemplating the construction of a sidepath (or wide sidewalk) facility to investigate various elements of the roadway corridor environment and right-of-way before committing to its construction. Sidepaths should only be constructed along corridors with relatively few intersections and driveways to reduce conflict points.

Foot Path

In environmentally sensitive areas, such as stream banks and lowlands, a 4 ft. wide soft surface should be used (crusher fines recommended), with 2 ft.improved shoulders. Maintain a vertical clearance minimum of 8 ft. All paths should be maintained with a 5 ft. cleared area from the edge of the path on each side. Pitch paths to drain with a 2% minimum grade. Paving materials may vary in specific locations.



5.6 MEDIANS

Medians are barriers in the center portion of a street or roadway. Medians allow for less interaction between cars and bicycle and pedestrians, and make more opportunities for bicycle lanes. A center turn lane can be converted into a raised or lowered median thus increasing motorist safety. Travel lanes may be narrowed to accommodate the placement of a median. Raised or lowered medians should provide ample cues for people with visual impairments to identify the boundary between the crossing island and the roadway. According to AASHTO guidelines, the length of a median should be a least 20 feet.

Raised Intersection
Photo credit: www.trans.ci.portland.or.us

A continuous median can present several problems when used inappropriately. If all left-turn opportunities are removed, there runs a possibility for increased traffic speeds and unsafe U-turns at intersections. Additionally, the space occupied may be taking up room that could be used for bike lanes or other treatments discussed in this chapter. An alternative to the continuous median is to create a segmented median with left turn opportunities.

Sensitivity to large vehicles (buses, trucks and fire equipment) dictates some elements of the median design, curb style, and placement. Median-controlled roadways reduce the number of turning conflicts and are generally preferred for both pedestrians and cyclists over a two-way, left-turn lane (TWLTL) roadway.

Landscaping

Medians provide opportunities for landscaping that in turn can change the character of the street and help to slow traffic. Landscaping should not obstruct the visibility between motorists and pedestrians.

Median Pedestrian Refuge Islands

When used in conjunction with mid-block or intersection crossings, medians can be used as a crossing island to provide a place of refuge for pedestrians. Pedestrian refuge islands should be designed along roadways with fewer lanes and pedestrian signals that will allow the pedestrian enough time to cross the street.

Median pedestrian refuge islands should be provided as a place of refuge for pedestrians crossing busy or wide roadways at either mid-block locations or intersections. Median crossings should be at least 6 feet wide in order to accommodate more than one pedestrian, while a width of 8 feet (where feasible) should be provided for bicycles, wheelchairs, and groups of pedestrians.

The graphic below indicates the design and markings associated with refuge islands. Note that pavement markings delineate the approach to the islands and that the islands are “split” to allow for a level platform for wheelchair use. Median crossings should possess a minimum of a 4 foot square level landing to provide a rest point for wheelchair users. In cases where there are wide roads and high traffic volumes, a push-button pedestrian signal may be mounted in the refuge area to allow pedestrians to split their trip into two halves as they cross the street. Note that the crosswalk on the right side of the diagram is configured at a skewed angle

as it crosses the median. This allows pedestrians to have a better angle of sight as they approach and cross each side of the street. In all cases, a minimum 10-foot travel lane is maintained for pedestrians.

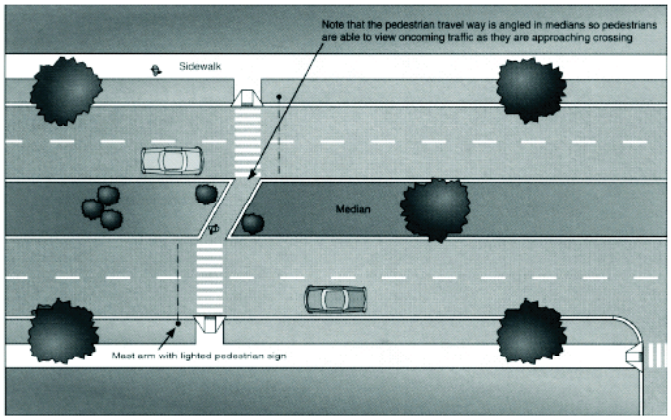


Figure (l):
A lowered median can be used to filter stormwater and provide a refuge for pedestrians crossing a roadway[3].

5.7 MARKED CROSSWALKS

Crosswalk ith decorative paving Photo credit: Dan Burden

A marked crosswalk designates a pedestrian right-of-way across a street. It is often installed at controlled intersections or at key locations along the street (a.k.a. mid-block crossings). A study should be completed prior to placing crosswalks to determine the need and the best type and location of that crosswalk. NCDOT typically requires pedestrian facilities (sidewalks) on both sides of the roadway when placing crosswalks.

North Carolina state law permits crossing at all intersections whether the intersection is marked with a crosswalk or not. Every attempt should be made to install crossings in places where pedestrians are most likely to cross. A well-designed traffic calming location is not effective if pedestrians are using other unmodified and potentially dangerous locations to cross the street.

Marked pedestrian crosswalks may be used under the following conditions: 1) At locations with stop signs or traffic signals, 2) At non-signalized street crossing locations in designated school zones, and 3) At non-signalized locations where engineering judgment dictates that the use of specifically designated crosswalks are desirable.

There is a variety of form, pattern, and materials to choose from when creating a marked crosswalk. It is important however to provide crosswalks that are not slippery, are free of tripping hazards, or are otherwise not difficult to maneuver by any person including those with physical mobility or vision impairments.

Although marked crosswalks provide strong visual clues to motorists that pedestrians are present, it is important to consider the use of these elements in conjunction with other traffic calming devices to fully recognize low traffic speeds and enhance pedestrian safety.

Width

Marked crosswalks should not be less than six feet in width. In downtown areas or other locations of high pedestrian traffic, a width of ten feet or greater should be considered. An engineering study may need to be performed to determine the appropriate width of a crosswalk at a given location.

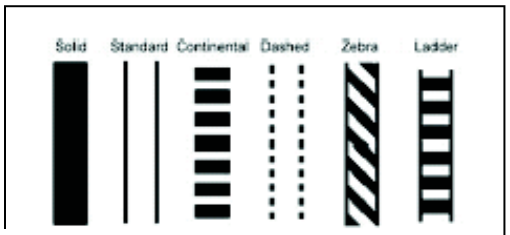


Illustration of all the variety of patterns possible in designating a crosswalk

Paint

Reflective paint is inexpensive but is considered more slippery than other devices such as inlay tape or thermoplastic. A variety of patterns may be employed as detailed in the figure above. Crosswalk markings should be white, per MUTCD. Crosswalk markings should extend the full length of the crossings. Crosswalk lines of 10-12 inches of width are the recommended minimum. Curb ramps and other sloped areas should be fully contained within the markings.


Raised intersection with decorative pavement.

Pavement Treatment

A variety of colors or textures may be used to designate crossings. These materials should be smooth, skid-resistant, and visible. Although attractive materials such as inlaid stone or certain types of brick may provide character and aesthetic value, the crosswalk can become slippery. Also, as it degrades from use or if it is improperly installed, it may become a hazard for the mobility or vision impaired.


Raised Crosswalk

Raised Crosswalk

In areas with a high volume of pedestrian traffic, particularly at mid-block crossings, a crosswalk can be raised to create both a physical impediment for automobiles and a reinforced visual clue to the motorist. Raised crosswalks are typical on two-lane streets with a speed limit of less than 35 mph. In conjunction with raised crosswalks, it is necessary to use detectable truncated dome warnings at the curb lines. Visible pavement markings are necessary for the roadway approach slopes.

Mid-Block Crossings

Mid-block crossings can help pedestrian access by supplementing crossing options. Mid-block crossings may be used in areas where there are substantial pedestrian generators or where intersections along a roadway are spaced far apart. Mid-block crossings pose special problems for many state and local departments of transportation, since pedestrians will often choose to cross at the location that is the most convenient for them to do so, not necessarily where it is the safest. As a result, engineers and planners have developed guidelines for mid-block crossings.

Below are some general guidelines on 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.
- Install 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.
- Provide a safe crossing point 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.

NOTE:
Roadway crossings greater than sixt (60) feet in width should provide a pedestrian refuge island or median combined with curb extensions.

NCDOT Policy on Mid-Block Crossings (uncontrolled):
http://www.ncdot.org/doh/PRECONSTRUCT/traffic/teppl/Topics/C-36/C-36_pr.pdf

Advance Stop Bars

Vehicle and pedestrian visibility is increased by placing a vehicle advance stop bar 4 to 10 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings. In certain situations, a larger setback of the advance stop bar may be required. Advance stop bars are 1–2 feet wide and they extend across all approach lanes at intersections. The time and distance created allows a buffer in which the pedestrian and motorist can interpret each other's intentions.

Advance stop bar
Source: Pedestrian and Bicycle Information Center Image Library

Pedestrian Signals

Traffic signals assign the right of way to motorists and pedestrians and produce openings in traffic flow, allowing pedestrians time to cross the street. When used in conjunction with pedestrian friendly design, proper signalization should allow for an adequate amount of time for an individual to cross the street. The suggested amount of pedestrian travel speed recommended in the Manual on Uniform Traffic Control Devices (MUTCD) is 4ft/sec. However, a longer crossing time may be necessary to accommodate the walking speed of the elderly or children. Therefore it is suggested that a lower speed of 3.5ft/sec be used whenever there are adequate numbers of elderly and children using an area.

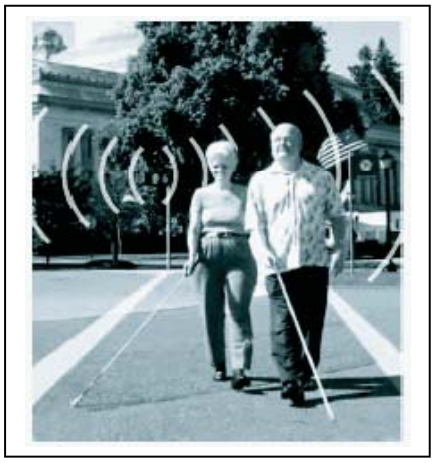
Engineering, as well as urban design judgment, must be used when determining the location of traffic signals and the accompanying timing intervals. Although warrants for pedestrian signal timing have been produced by the MUTCD, each site must be analyzed for factors including new facility and amenity construction (i.e. a popular new park or museum) to allow for potential future pedestrian traffic volume. In addition, creating better access to existing places may in fact generate a higher pedestrian volume.

5.8 TYPES OF PEDESTRIAN SYMBOLS

International Pedestrian Symbols - According to the MUTCD, international pedestrian signal indication should be used at traffic signals whenever warranted. As opposed to early signalization that featured "WALK" and "DON'T WALK", international pedestrian signal symbols should be used on all new traffic signal installations. Existing "WALK" and "DON'T WALK" signals should be replaced with international symbols when they reach the end of their useful life. Symbols should be of adequate size, and clearly visible to make crossing safe for all pedestrians.

Countdown signals - Countdown signals are pedestrian signals that show how many seconds the pedestrian has remaining to cross the street. The countdown can begin at the beginning of the WALK phase, perhaps flashing white or yellow, or at the beginning of the clearance, or DON'T WALK phase, flashing yellow as it counts down. North Carolina state policy dictates to use only the countdown pedestrian signal types.

Audible signals - Audible cues can be used to pulse along with a countdown signal. The signals are used for visually and audibly impaired individuals. Consideration should be paid to the noise impact on the surrounding neighborhoods when deciding to use audible signals.


Audible Pedestrian Signal

Pedestrian signal timings - The timing of these or other pedestrian signals needs to be adapted to a given situation. There are three types of signal timing generally used: concurrent, exclusive, and leading pedestrian interval (LPI). The strengths and weaknesses of each will be discussed with an emphasis on when they are best employed.


Pedestrian Signalization
Photo credit: www.pedbikeimages.org

Concurrent signal timing refers to a situation where motorists running parallel to the crosswalk are allowed to turn into and through the crosswalk, left or right, after yielding to pedestrians. This condition is not considered as safe as some of the latter options; however, this type of signal crossing generally allows for more pedestrian crossing opportunities and less wait time. In addition, traffic is allowed to flow a bit more freely. Concurrent signal timing is best used where lower volume turning movements exist.

Where there are high-volume turning situations that conflict with pedestrian movements, the exclusive pedestrian interval is the preferred solution. The exclusive pedestrian interval stops traffic in all directions. In order to keep traffic flowing regularly, there is often a greater pedestrian wait time associated with this system.

A proven enhancement that prevents many of the conflicts addressed under either of the former methods is Leading Pedestrian Signal (LPI). An LPI works in conjunction with a concurrent signal timing system and simply gives the pedestrian a few seconds head start on the parallel traffic. An advance walk signal is received prior to a green light for motorists. This creates a situation where the pedestrian can better see traffic, and more importantly, the motorists can see and properly yield to pedestrians. As with the exclusive pedestrian interval, an audible cue will need to accompany the WALK signal for the visually impaired.

The use of infrared or microwave pedestrian detectors has increased in many cities worldwide. Theses devices replace the traditional push-button system. Although still experimental, they appear to be improving pedestrian signal compliance as well as reducing the number of pedestrian and vehicle conflicts. Perhaps the best use of these devices is when they are employed to extend crossing time for slower moving pedestrians. Whether these devices are used or the traditional push-button system is employed, it is best to provide instant feedback to pedestrians regarding the length of their wait. This is thought to increase and improve pedestrian signal compliance.

Passive pedestrian detection equipment is becoming more common, and can be recommended in high-volume locations where many pedestrians are crossing a five-lane (or greater) street cross-section.

Right Turn on Red Restrictions

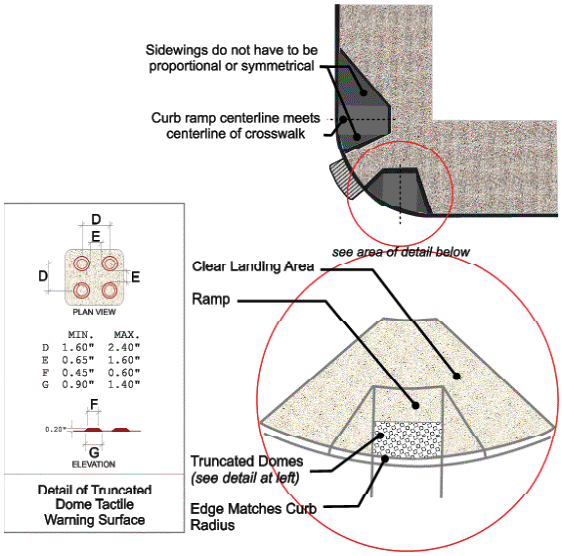
Introduced in the 1970's as a fuel saving technique, the Right Turn on Red (RTOR) law is thought to have had a detrimental effect on pedestrians. The issue is not the law itself but rather the relaxed enforcement of certain caveats within the law such as coming to a complete stop and yielding to pedestrians. Often motorists will either nudge into a crosswalk to check for oncoming traffic without looking for pedestrians or slow, but not stop, for the red-light while making the turn. There is legitimate concern that eliminating an RTOR will only increase the number of right-turn-on-green conflicts where all of the drivers who would normally have turned on red, now are anxious to turn on green. Consider elimination on case by case basis and only where there are usually high pedestrian volumes.

A low cost sign that restricts right-hand turns at a red light.
Source: Pedestrian and Bicycle Information Center

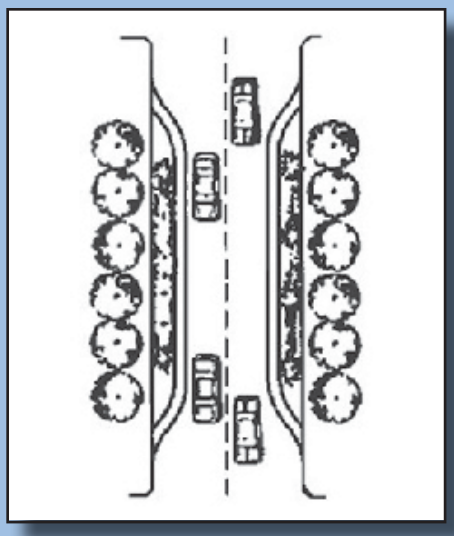
5.9 CURB RAMPS/CURB EXTENSIONS

Curb ramps are critical features that provide access between the sidewalk and roadway for wheelchair users, people using walkers, crutches, or handcarts, people pushing bicycles or strollers, and pedestrians with mobility or other physical impairments. In accordance with the 1973 Federal Rehabilitation Act and to comply with the 1990 Federal ADA requirements, curb ramps must be installed at all intersections and mid-block locations where pedestrian crossings exist. In addition, these

federal regulations require that all new constructed or altered roadways include curb ramps. Although the federally prescribed maximum slope for a curb ramp is 1:12 or 8.33% and the side flares (or "sidewings" as listed in the graphic) of the curb ramp must not exceed a maximum slope of 1:10 or 10.0%, it is recommended that much less steep slopes be used whenever possible. It is also recommended that two separate curb ramps be provided at each intersection. The minimum width for the curb ramp is four feet. With only one large curb ramp serving the entire corner, there is not safe connectivity for the pedestrian. Dangerous conditions exist when the single, large curb ramp inadvertently directs a pedestrian into the center of the intersection, or in front of an unsuspecting, turning vehicle. To provide a tactile warning to the visually impaired, raised truncated domes with a color contrast to the background material (typically concrete) should be used. Two separate curb ramps, one for each crosswalk, should be provided at each corner of an intersection.



For additional information on curb ramps see the Federal Highway Administration and Designing Sidewalks and Trails for Access, Parts I and II, by the Federal Highway Administration.



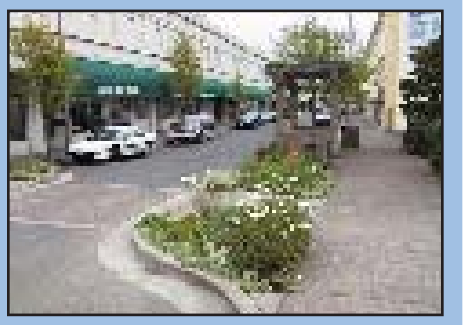
Choker with curb extensions.
Photo credit: Making Streets that Work

Curb Extensions ("Bulb Outs," "Chokers," "Neckdowns") and Curb Radii

A curb extension, or bulb out, is an extension of the sidewalk into the parking lane of a street. Because these curb extensions physically narrow the roadway, a pedestrian's crossing distance and consequently the time spent in the street is reduced. In addition, curb extensions may encourage motorists to drive slower by narrowing the travel lane and reducing vehicular speeds during turning movements at intersections. Curb extensions can be placed either at mid-block crossings or at intersections. Curb extensions at midblock locations are known as "chokers." Curb extensions at intersections can also be referred to as "neckdowns."

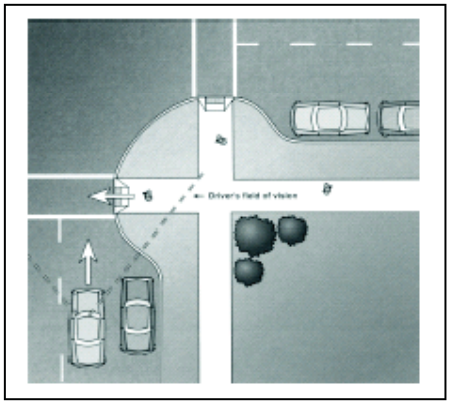
Sightlines and pedestrian visibility are reduced when motor vehicle parking encroaches too close to corners creating a dangerous situation for pedestrians. When placed at an intersection, curb extensions preclude vehicle parking too close to a crosswalk. Also, curb extensions at intersections can greatly reduce turning speed, especially if curb radii are

Choker in a Mixed Use Area
Photo credit: Michael Cynecki



Curb Extension with Vegetation
Photo credit: www.greatstreets.org

set as tight as possible. Finally, curb extensions also reduce travel speeds when used in mid-block crossings because of the reduced street width. Curb extensions should only be used where there is an existing on-street parking lane and should never encroach into travel lanes, bike lanes, or shoulders. The below table illustrates the relationship between posted speeds and the curb (often called "corner") radius. Motorists will travel more slowly around corners with smaller curb radii even without the use of curb extensions.



By reducing a pedestrian's crossing with a bulb out, less time is spent in the roadway, and pedestrian vehicle conflicts are reduced.

Curb Radii

Posted Speed Limit (mph)	Minimum Curb Radius (Feet)
Residential Street, 15-25 mph	5
Residential Street, 25-35 mph	10
Collector Street, 30-45 mph	20

5.10 LIGHTING

Proper lighting in terms of quality, placement, and sufficiency can greatly enhance a nighttime urban experience as well as create a safe environment for motorists and pedestrians. Two-thirds of all pedestrian fatalities occur during low-light conditions. Attention should be paid to lighting walkways and crossings, so that there is sufficient ambience for motorists to see pedestrians. Pedestrian lighting should be considered for areas of higher pedestrian volume, including downtown and key intersections. Lighting in commercial areas should be provided on both sides of the street.

In most cases, roadway street lighting can be designed to illuminate the sidewalk area as well. The visibility needs of both pedestrian and motorist should be considered. In commercial or downtown areas and other areas of high pedestrian volumes, the addition of lower level, pedestrian-scale lighting to streetlights with emphasis on crossings and intersections may be employed to generate a desired ambiance. Lighting for sidewalks and off-street paths should be provided where considerable pedestrian traffic is expected at night, where there is insufficient available light from the surrounding area, and at all designated road crossings.

Each lighting situation is unique and must be considered on a case-by-case basis. Average maintained horizontal illumination levels of 5 lux (0.5 foot candles) to 22 lux (2 foot candles) should be considered. Sometimes, higher levels are advisable in special areas where security problems might exist. Light poles should generally be 12 to 15 ft. high for lighting pedestrian areas. Luminaries and poles should be at a scale appropriate for pedestrian use.

Source: Pedestrian and Bicycle Information Center

Light fixtures, as well as other on-street facilities, like street furniture, can add a great deal in terms of street aesthetics and reinforce community identity. It is recommended that the community adopt a particular style of street lighting fixture appropriate for the municipality's identity and coordinate this choice with stylistic choices in other street facilities.

Sophisticated lighting needs to be directional and focused upon the street. A flat lens light is the best choice in lighting the street. Fixtures that produce glare should be avoided, as they produce diffused light, and sometimes make visibility difficult. The pedestrian-level lighting that is preferred includes mercury vapor, metal halide, or incandescent. Although low-pressure sodium lights may be energy-efficient, they are less desirable due to the color distortion they create. High-pressure sodium lights are preferable, as they create less color distortion.

Lighting should be sufficient so that pedestrians can see cars, and cars can see pedestrians. However, overlighting of an area can produce an environment that is unattractive to pedestrians, and the resulting glare becomes an environmental issue.

It is important to note that every effort should be made to address and prevent light pollution. Also known as photo pollution, light pollution is "excess or obtrusive light created by humans." Whenever urban improvements are made where lighting is addressed, a qualified lighting expert should be consulted early in the process. This individual should not only create a safe and attractive ambiance, but will do so with the minimum of fixtures, an awareness of the importance of minimizing photo pollution, and with a focus on minimizing future energy use. A thoughtful plan of how and where to light will reap benefits not only in potential reduced infrastructure cost, but future energy costs as well.

5.11 SIGNAGE

Signage can be an effective tool to alert drivers to reduce speeds and allow pedestrians to exercise extra caution. It is important not to cause "clutter" when using a variety of signage. This can cause complacency and noncompliance with signs in general. Signs, and the sign text, should be large enough to be seen from a distance. It is imperative that all signs be properly located so as not to obstruct the pedestrian and visibility triangles of motorists.

Signage is governed by the MUTCD, which provides specifications on the design and placement of signage on the right-of-way. There are three types of signage: 1) Wayfinding signage 2) Regulatory and 3) Warning signs. Maintenance of signage is as important as walkway maintenance. Clean, graffiti free, and relevant signage enhances guidance, recognition, and safety for pedestrians.

Wayfinding or guide signs give notice of traffic laws or regulations that pedestrians, cyclists, and motorists are required by law to follow. Wayfinding signage should orient and communicate in a clear, concise and functional manner. It should enhance pedestrian circulation and direct visitors and residents to important destinations. In doing so, the goal is to increase the comfort of visitors and residents while helping to convey a local identity. Regulations should also address the orientation, height, size, and sometimes even style of signage to comply with a desired local aesthetic.

It is recommended that municipalities adopt consistent and descriptive graphics to identify pedestrian routes. This signage system would assure pedestrians that they are safe and will not encounter gaps in facilities along these routes. A map should be incorporated into each route illustrating the entire pedestrian system and their location. Bus stops, destinations, and mileage should also be identified on the signs.

Regulatory and Warning Signs

Regulatory signs give notice of traffic laws or regulations that pedestrians, cyclists and motorists are required by law to follow. Warning signs call attention to unexpected conditions on, or adjacent to, a roadway, bike or pedestrian facility that can be potentially hazardous to users.

Pedestrian-related signage serves primarily to notify motorists and others of the presence of pedestrians. The intended effect is to cause motorists drive more cautiously and reduce their speeds, thereby improving the safety for pedestrians in the given area.

Signs can be used in a variety of places, including at crosswalks, at intersections, in-street, and near schools. National standards for sign placement and use can be found in the Manual for Uniform Traffic Control Devices (MUTCD). The MUTCD provides guidance for warning signs which can be used at both crosswalks, or along the roadway. The following are some recommended signs which municipalities should consider installing. For more signs and more detailed guidelines for sign installation and use, the municipality should consult the MUTCD. Some common types of signs include:

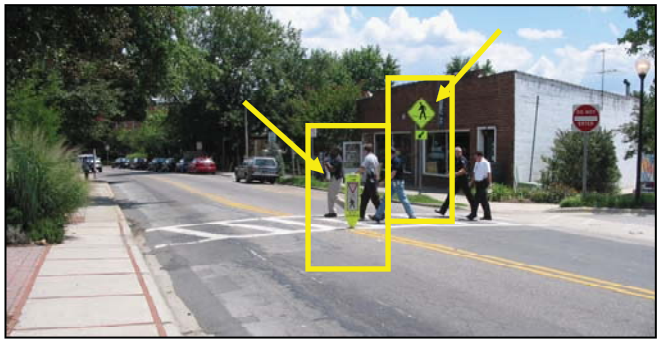


Figure 6-1. An example of two types of signs used to notify motorists of a pedestrian crossing.

The first sign is usually installed within the street to warn motorists to yield to pedestrians in a crosswalk. The "school" sign (MUTCD S4-3) is added to the in-street sign for placement near a school. The second and third signs are commonly used pedestrian warning signs, while the fourth and fifth signs notify motorists of specific instances to watch for pedestrians. The fourth sign, "Turning Traffic", is usually placed at intersections to warn motorists that are turning right or left to yield to pedestrians in crosswalks. The sign at the far right is an examples of typical wayfinding signage to help direct cyclists at major decision points along a route.

W11-15 sign is shown as a vertical rectangular yellow sign with a black border. It shows a black symbol of a left-facing bicycle above a black symbol of a left-facing walking person. A fluorescent yellow-green background color may be used for this sign or plaque. The background color of the plaque should match the color of the warning sign that it supplements.

W11-15P sign is shown mounted directly below W11-15. W16-15P is shown as a horizontal rectangular yellow plaque with a black border. It shows the words "TRAIL X-ING" in black on two lines. A fluorescent yellow-green background color may be used for this sign or plaque. The background color of the plaque should match the color of the warning sign that it supplements.

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

1. Larger signs may be used when appropriate.
2. Dimensions are shown in millimeters followed by inches in parentheses and are shown as width x height.
3. First dimension in millimeters; dimensions in parentheses are in inches.
4. All information in table taken directly from MUTCD.

5.12 SCHOOL ZONE TREATMENTS AND SCHOOL ROUTE PLAN MAP

Section 7 of the MUTCD is entirely devoted to "Traffic Controls for School Areas" and is the dominant guidance available to municipalities for installing signs and markings in school zones. The section provides valuable additional guidance for school crossing treatments that can be utilized for the planning and design of schools that should be considered when making safety improvements.

Street Trees

Street trees enhance the landscape for pedestrians, creating an attractive and comfortable environment for walking. Street trees also act as a traffic calming device, encouraging drivers to drive more slowly. In addition, a large line of leafy street trees can absorb engine noise, providing enough of a buffer to block street traffic noise from reaching private yards and homes. Trees also improve air quality by consuming carbon dioxide and emitting oxygen. Street trees may also increase real estate values by increasing curb appeals of homes.

Source: Pedestrian and Bicycle Information Center

Street trees and other plantings provide comfort, a sense of place, and a more natural and inviting setting for pedestrians.

Planting requirements - All street trees should be selected according to the standards described in the American Standard for Nursery Stock of the American Nursery and Landscape Association. Trees should be installed and maintained according to the International Society of Arboriculture (ISA) guidelines. A landscape architect should be consulted to select the proper tree and planting technique.

Visibility - Street trees should never be allowed to obscure the line of sight between pedestrians and drivers. A clear view should be maintained between 30" and 72" above street. This area must be free of limbs and foliage for safe cross visibility. Other plantings should also follow this rule within 50 ft. proximity of street corners and other designated crossing points. In order to maintain visibility, provide shade, and a comfortable pedestrian corridor, street trees should primarily be vase shaped, columnar, or oval in form (habit) with large spreading crowns.

Roots - Avoid trees with aggressively invasive roots adjacent to pavement or buildings.

Size - Large trees (growing over 35 ft. in height at maturity) are preferred as street trees except near overhead utility lines. Small trees (growing less than 35 feet in height at maturity) should be used in areas directly adjacent to or under utility lines.

Spacing –Typically, large trees should be spaced approximately 40 – 50 feet on center when planted in a line, and small trees spaced at approximately 30 ft. The spacing of street trees in a planting strip will depend upon the size of the tree and upon the demand for sidewalk furniture and parking.

Tree Pits and Tree Grates - Street trees should generally be located in open planting strips. However, tree pits with tree grates may be a practical, although expensive, alternative in very high pedestrian traffic areas. Tree grates should generally not encroach upon the travel path. For optimal pedestrian safety and comfort, all tree grates used should meet the ADA standards for "accessible pathway".

Maintenance - Trees and landscaping require ongoing maintenance. Local municipalities typically take responsibility for maintenance of these amenities, although there are instances where local community groups have provided funding and volunteers for maintenance. In order to reduce the amount of maintenance necessary, it is helpful to use native plant material that is already adapted to the local soil and climate. Growth pattern and space for maturation, particularly with larger tree plantings, are important to avoid cracking sidewalks and causing a pedestrian obstruction.

Vanguard Company, accessed November, 2005
(http://www.vanguardonline.com/downloads.asp)

City of Durham Public Works "Reference Guide for Development," Table of Minimum Design Requirements for Public and Private Residential Streets. Rev. October, 2003. Page 154. (http://www.ci.durham.nc.us/departments/works/handbook/reference_guide.pdf)

Pedestrian underpass with metal railing for pedestrian safety and separation.
Photo credit: ITE Pedestrian Bicycle Council

5.13 PEDESTRIAN OVERPASS/UNDERPASS TRANSIT STOP TREATMENTS/BRIDGES

Pedestrian overpasses and underpasses efficiently allow for pedestrian movement across busy thoroughfares. These types of facilities typically feature very high construction costs. These facilities are problematic in many regards and should only be considered when no other solution is expected to be effective. Research shows that pedestrians will avoid using such a facility if they perceive the ability to cross at grade as taking about the same amount of time. ADA requirements for stairs, ramps, and elevators often require the construction of an enormous structure that is visually disruptive.

Attempting to separate pedestrians from the street is often problematic. As shown here, given the opportunity, many choose to cross at street level.

Overpasses and underpasses should only be considered with rail lines, high volume traffic areas such as freeways, and other high volume arteries. In addition, they should be considered only for crossing arterials with greater than 20,000 vehicle trips per day and speeds 35 - 40 mph and over. Minimum widths for these structures should follow the guidelines for sidewalk width. Underpasses should have a daytime illuminance minimum of 10 fc achievable through artificial and/or natural light provided through an open gap to sky between the two sets of highway lanes, and a night time level of 4 foot-candle. In underpasses, where vertical clearance allows, the pedestrian walkway should be separated from the roadway by more than a standard curb height. Consider acoustics measures within underpasses to reduce noise impacts to pedestrians and bicyclists.

Transit Stop Treatments

To accommodate as many users as possible, a transit system must include well-planned routes and safe, accessible stops. Bus stops should be designed to accommodate the appropriate number of users and should be highly visible to pedestrians and motorists. Bus or other transit stops should be located in places that are most suitable for passengers. For example, stops should be provided near higher density residential areas, commercial or business areas, and schools, and connected to these areas by sidewalk.

Pedestrian-friendly bus stop

As with any human scale design element discussed, safety is an important factor to consider when locating bus stops. In the case of a bus stop, special attention should be paid to the number of lanes and direction of traffic when deciding to locate a stop on the near or far side of an intersection. Also special consideration must be paid to the wheelchair lifts in terms of how and where the mobility impaired will exit and enter the bus. It is good practice to construct a transit stop just beyond an intersection, which encourages riders to cross the intersection behind the bus and in full view of approaching motorists. The location also should be set back enough from the roadway to buffer users from traffic without impeding pedestrian activity.

Safety and comfort at a bus stop is determined by the amenities offered to users. Bus stop signage including route information, shelter with seating, trash cans, and bicycle parking encourage transit use. Pedestrian-level lighting improves the visibility of pedestrians to motorists and increases the level of safety for users. At a minimum, marked crosswalks (especially at mid-block stops), curb ramps, and proper sidewalk widths should be considered.

Bridges

Provisions should be made to include a walking facility as a part of vehicular bridges, if there is an indication that pedestrians would use the facility. It is important to consider the needs of pedestrians when planning for a bridge replacement or the construction of a new bridge. Sidewalks on bridges should be a minimum of 5.5 feet wide, with a minimum handrail height of 42.''

Source: Pedestrian Bicycle Information Center Image Library

Chicane with a center island and curb extensions
Photo credit: Dan Burden

5.14 TRAFFIC CALMING TECHNIQUES

Traffic Calming Devices (TCDs) are physical measures in street design that cue drivers to slow down. The effectiveness of TCDs does not depend upon a driver's compliance with traffic signs and signals, or police enforcement, though they may be used effectively in conjunction with them. In coordinated combinations, TCDs reduce speeds, alert drivers to pedestrians, and reduce the severity of collisions. TCDs listed below are generally recommended for consideration on a project-by-project basis. These include traffic circles, roundabouts, speed humps, speed tables, textured pavements and curb extensions (bulbouts). Curb extensions are discussed in detail earlier in this section.

Nieghborhood Traffic Circle in a Residential Area
Photo credit: www.alexandria.gov

Neighborhood Traffic Circles - a small, raised circular island positioned in the center of an intersection, designed to slow traffic by requiring traffic to maneuver around the island.

Roundabout –circular intersection with raised circular islands in the center, with "yield on entry" and deflecting islands on all approaches designed to slow traffic. Traffic proceeds in a counterclockwise direction. Roudabouts are highly engineered to accommodate specific traffic types, volumes and speeds.

Typical Modern Roundabout
Source: Reid Middleton, Inc.

Speed Humps - raised sections of a roadway. They are similar to a speed bump in their application, but a speed hump is wider and has a sloping side taper so they are easy to navigate at slower speeds. They are placed across residential streets to control chronic speeding problems where other methods of slowing traffic have not been effective. They are designed to calm traffic in residential areas, particularly near parks and schools. The physical impact on passing vehicles is less severe at slower speeds than at higher speeds. Studies indicate that speed humps reduce speeds by approximately six miles per hour. A standard speed hump has a length of approximately 22 feet and a height of 3 and 5/8 inches at its center.

Speed Tables – flat-topped speed humps typically long enough for the entire wheelbase of a passenger car to rest on the flat section. They often constructed with brick or other textured materials on the flat section.

Speed Hump
Source: PBIC Image Gallery

Speed Table
Source: PBIC Image Gallery

Textured pavements - stamped pavement or alternate paving materials to create an uneven surface for vehicles and pedestrians to traverse. Textured street pavement provides a visual and tactile cue for both drivers that they are driving in an area of high pedestrian usage. Similarly, they cue pedestrians that they are entering a vehicular zone, and are a particularly effective treatment to warn visually impaired pedestrians. Textured street pavements should be used in areas of substantial pedestrian activity and where noise is not a major concern.

Rapid Flashing Beacon (RFB)

Curb Extensions –rounded extensions of the curb which slow vehicles by alerting drivers to potential pedestrians, visually tightening the vehicular path, and physically reduces turning radii, thereby encouraging a decrease in vehicle speeds. Curb extensions also increase safety for pedestrians by shortening the road crossing distance. Curb extensions are covered in more detail earlier in this section.

Rapid Flashing Beacon –The Rapid Flashing Beacon is a traffic calming and safety device for pedestrians at uncontrolled crossings. It notifies motorists of approaching crosswalks, ADA ramps, speed tables, etc. in an effort to slow vehicle speeds in pedestrian areas. State and Federal approval is required in order to implement the Rapid Flashing Beacon. Additional information on RFB and other FHWA pedestrian facilities are located in the Pedestrian Facilies User Guide provided in the links below.

http://drusilla.hsrc.unc.edu/cms/downloads/PedFacility_UserGuide2002.pdf

http://safety.fhwa.dot.gov/ped_bike/docs/designsafety.pdf

http://www.walkinginfo.org/pedsafe/

http://www.fhwa.dot.gov/environment/sidewalks/index.htm and http://www.fhwa.dot.gov/environment/sidewalk2/

5.15 TEMPORARY WORK

Temporary work should be accessible. Where construction blocks a public sidewalk for more than a short time, an alternate accessible route should be provided that is cane-detectable. Sidewalk barriers should be continuous and cane-detectable as well. Temporary events and facilities should also meet accessibility criteria.

ANCILLARY FACILITIES AND PROGRAMS

6.1 ADDITIONAL SIGNAGE AND MAPPING

Interpretative Signage.
Photo credit: www.aucklandcity.govt.nz

Wayfinding systems are a means for any municipality to increase directional clarity, visibility, and mobility within their jurisdiction, helping corporate and private individuals as well as visitors maneuver about their municipality with ease and certainty. Continuity of color, shape, size, and text aid in providing clarity within the town. The Town of Hildebran should engage a design professional for their assistance in developing these standards. There are many publications to research this topic prior to engaging any outside professional. The following types of signs are part of a town's wayfinding system.

Directional Signage OR Pedestrian Related Signage

Directional, referred to as **Pedestrian Related Signage** in the previous section, signage is effective in alerting motorists to reduced speeds and encourage pedestrians to exercise caution in certain conflict areas. It is important to not cause "visual clutter" when using a variety of signage. Signs and their text should be large enough to be seen from a viewing distance of around 50'. It is imperative that all signs are properly located so they do not obstruct pedestrians and visibility triangles of motorists. All signage for motorists and pedestrians must meet Department of Transportation and MUTCD signage standards.

Interpretative Signage

Interpretative signage is an effective means of displaying information other than traffic rules and regulations. Visually consistent signage about the history of Hildebran and the larger region can help guide visitors to important sites, destinations, or to share interesting information. These signs may be effective in encouraging people to experience a particular place or engage in an activity such as visiting the historic areas of Hildebran. This concept could be expanded to develop a self-guided walking tour of historic downtown and neighborhoods. The greenway system would also benefit from interpretative signage.

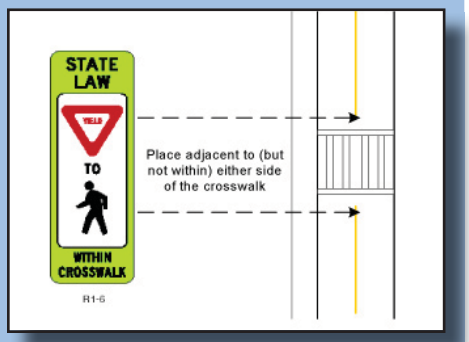
Sign Placement

Signs should be located in prominent locations so they can be easily viewed. It is important to ensure they do not interfere with pedestrian and vehicular movement. For example, signs should not be placed within a sidewalk or reduce the clearance of a sidewalk to less than five feet.

Pedestrian Corridor Mapping

It is recommended that the Town of Hildebran adopt consistent illustrative graphics to identify pedestrian routes in Hildebran. Destinations such as schools, greenways, and the commercial development on South Center Street should be identified so pedestrians are aware of distances and locations of these areas.

6.2 SCHOOL AREAS



Safe interconnectivity to schools from surrounding neighborhoods is a high priority and concern for everyone in any community. Safety programs should be developed and implemented at all schools within Hildebran's planning jurisdiction. It is recommended that the Town of Hildebran adopt a "Safe Routes to School" program to promote and support students walking and bicycling to school. This is a federal program to encourage and enable children to walk and bike to school safely and hopefully increase an opportunity to incorporate exercise into the children's daily schedule. These routes are usually patrolled by bicycle police officers. The National Center for Safe Routes to School is available to assist communities in developing and implementing programs and strategies to create successful results. http://www.saferoutesinfo.org/

Safe Routes to School Programs help to reduce traffic congestion and traffic speeds around schools which allow children to experience a greater sense of independence and personal responsibility, as well as encourage them to learn important traffic safety skills. Schools should work with their communities to develop routes for children to take to and from school. These routes should include those with adult crossing guards, stop signs, traffic signals, and traffic calming measures. Involvement with the local police force is highly encouraged.

In addition to the **School Zone Treatments** outlined in the previous section, the following safety standards should be implemented at all school locations:

- Install sidewalks within a half mile radius of all schools
- Incorporate traffic calming measures such as decorative pavement and those discussed in Section 5 within a half mile radius of all schools
- Incorporate signage to alert motorists that they are in a school zone. Signs placed in the median or the middle of the street are effective
- Adopt a Safe Routes to School Program in all elementary and middle schools
- Provide educational programs or sessions on pedestrian and bicycle safety at all schools

School Speed Sign
Photo credit: ITE Pedestrian Bicycle Council

School Crossing Guard
Photo credit: Dan Burden

6.3 SAFETY EDUCATION PROGRAMS

Pedestrian safety and health programs can help target problem areas and educate the residents of Hildebran about safety and accessibility issues. Below is a description of safety and health programs which should be implemented in the Town of Hildebran planning jurisdiction.

School Zone Safety Program

Creating a School Zone Safety Program provides information to students, parents, and community members of the safe routes to school and safe pedestrian behavior. It will also help identify areas in need of additional attention such as problem areas or locations in need of traffic calming devices. The School Zone Safety Program can be done in conjunction with a Safe Routes to School Program. The school, school district, and safety committee can develop a safety plan which consists of the following:

- Develop a school route plan
- Evaluate and configure the school site
- Consider other safety elements
- Distribute and maintain the plan

Safe Routes to School Program

Safe Routes to School (SRTS) is a program focused on encouraging and enabling children to walk and bike to school safely. The program assists in the facilitation of planning, developing and implementing projects that improve safety for pedestrians and bicyclists and helps make these an appealing mode of transportation for children and adults alike. SRTS encourages infrastructure improvements, education programs, and funding to provide safe and comfortable pedestrian environments and instill active lifestyles at an early age.

Pedestrian Safety Campaign

The Pedestrian Safety Campaign is available to municipalities and communities within North Carolina. States and communities are eligible to receive a free Pedestrian Safety Campaign Planner from the Federal Highway Administration which is a tool kit for municipalities to customize and apply within their communities. The materials provided in the Campaign Planner are available in multiple medias: television, radio, cinema, and print advertising. A Step by Step Guide is also available to assist in implementing the campaign at the local level. The purposes of the campaign are as follows:

- Educate motorists that pedestrians and bicyclists are legitimate road users and they should expect them on or near roadways.

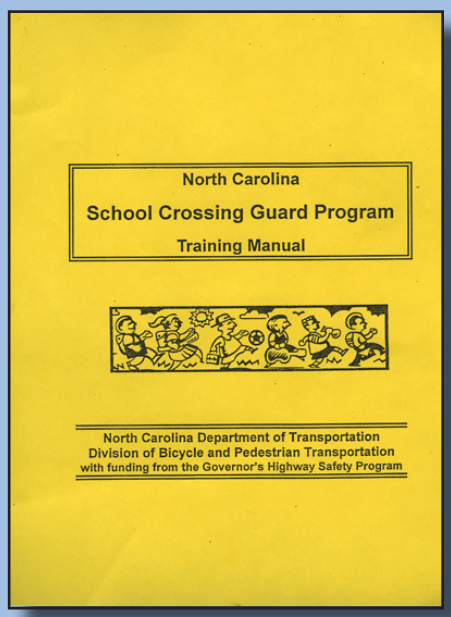
North Carolina DOT Share the Road warning sign

- Educate pedestrians on how to minimize risks to their safety
- Develop program materials which explain pedestrian facilities such as sidewalks, crosswalks, pedestrian refuge islands, etc., and their purpose and function

For more information please visit:
http://safety.fhwa.dot.gov/local_rural/pedcampaign/

The Division of Bicycle and Pedestrian Transportation assisted in the development of the North Carolina Driver's Handbook which includes sections devoted to pedestrian and bicycle rights and responsibilities.

For more information please refer to:
http://www.ncdot.gov/bikeped/lawspolicies/laws/



North Carolina School Crossing Guard Training Program and Manual

In 1998 NCDOT Division of Bicycle and Pedestrian Transportation developed a program to train law enforcement officers who in turn trained school crossing guards. The purpose of the course is to standardize procedures and instruction of school crossing guards, as well as educate children on how to cross streets safely. As of 2010, the local law enforcement department has not been trained in this course. The department should contact the Division of Bicycle and Pedestrian Tranportation regarding this program.

For the NC School Crossing Guard Training Manual and more information please visit:
http://www.ncdot.org/bikeped/about/training/school_crossing_guard/

National Walk a Child to School Program

Together the Partnership for a Walkable America, the US Department of Transportation, and the Pedestrian & Bicycle Information Center sponsor the National Walk a Child to School Program. The purpose of the program is to increase the number of children who walk to school. The NCDOT Division of Bicycle and Pedestrian Transportation supports this program. Typically the program is held in October with the following objectives:

- Encourage adults including teachers, parents, staff, community members to teach children safe pedestrian behavior
- Encourage adults to help children identify and use safe routes to school
- Remind everyone in the community of the health benefits of walking on a daily basis

For more information please visit: http://www.walktoschool.org/

School Crossing Guard. *Photo credit: Dan Burden*

Walk to School Day Event *Photo credit: Dan Burden*

6.4 ENCOURAGEMENT AND PROMOTION

The Town of Hildebran is committed to improving the pedestrian environment and overall walkability of the Town. This section deals with how the Town and its residents can encourage and promote walking as a viable mode of transportation as well as improving community interaction.

Education about pedestrian facilities and routes are an important component of the Town of Hildebran Pedestrian Master Plan's success. Following the design and implementation process, it is imperative that education about pedestrian and bicyclist facilities as well as safety continue to be addressed. This may be done through advocacy groups, pedestrian citizen committees, schools and the media. This will ensure that new challenges are addressed and that opportunities are identified and capitalized.

Maintenance Policies and Enforcement

Maintaining an accessible, functional, and clean pedestrian environment is essential to a walkable community. Regular upkeep and maintenance insuring sidewalks, greenways and other pathways are clear of debris and other obstructions demonstrates a municipal commitment to a walkable environment. In order to meet the needs of maintenance and enforcement, the Town of Hildebran should evaluate current maintenance policies to determine if they are adequate to include implementation of the recommendations in this Pedestrian Master Plan. Perhaps more stringent code enforcement would help community members adhere to regular maintenance of sidewalks and pathways along private residential and commercial frontages. Improved monitoring and enforcement of posted speeds by law enforcement officials, specifically along US Hwy 70, could add significant safety and value to the pedestrian environment.

Incorporate Pedestrian Improvements Early in the NCDOT Planning Process

To insure pedestrian improvements are accepted, they must be incorporated early in the NCDOT planning process for streets under consideration. Promoting pedestrian facilities and their ongoing maintenance into the forefront of roadway design increases the possibility that they will be included in annual improvements. It is very difficult and costly to attempt to incorporate pedestrian facilities into a roadway improvement project after it has been accepted for NCDOT maintenance.

Identify Funding Sources

Identifying sources of funding which support pedestrian facilities and their construction helps ease the burden of expensive pedestrian facility projects. There are a variety of funding programs and sources from the Federal, State, and local level. For a complete list of funding sources please see Section 7.3.

Education Programs and Events

Pedestrian and bicycle education programs should be aimed at all residents of Hildebran regardless of age or ability encourage people to walk and bike safely. These types of programs can easily be organized through the Burke County Parks and Recreation Department, public school systems or various community groups such as the "Young at Heart" group. For example, the Safe Routes to School Program is an excellent example for how a school program can educate children about safe pedestrian behaviors and pedestrian routes. The Town has the opportunity to team with schools, senior centers, and other groups to educate all residents about safe pedestrian behavior and routes.

Tourism and Local Events

Events such as "Walk-to-School" days and "Walk-for-Health" days can help spark interest, attract visitors, and bring the community together.

Children Walking and Biking to School. *Photo credit: Dan Burden*

PROJECT DEVELOPMENT AND COSTS

7.1 PRIORITIES

Priorities for implementation of the Pedestrian Master Plan are included in the Short Term Improvements category. These areas represent the most heavily used pedestrian corridors and those which provide links between destinations such as schools and commercial areas. The prioritization of the Short Term and Long Term Projects was determined through a combination of cost and immediate need. Immediate need was determined to be in areas that were in most immediate need of improvements either based on safety concern or highest frequency of use. The priorities within these two categories are outlined below:

Short Term - Phase 1 (2011-2015)

Project Type	Project Description
Traffic Calming	Construct a decorative crosswalk at the municipal complex and a 5' wide sidewalk on the eastern side of S. Center Street from US Hwy 70 to Main Street.
Sidewalk Construction	Construct minimum 5' wide concret sidewalk along north side of Main Avenue between Fourth Avenue SE and First Street SE
Sidewalk Construction	Construct minimim 5' wide concrete sidewalk along US Hwy 70 between S. Center Street and East Burke Pharmacy
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along Second Street SE
Intersection Improvements	Improve pedestrian safety at the intersection by considering a 4-way stop with curb extensions/curb radii reductions to reduce vehicle speeds.

Intersection Improvements	Improve ADA access, approaches to the intersection and general pedestrian safety by constructing new minimum 5' wide concrete sidewalk along S. Center Street to provide unimpeded access to north side of Main Avenue. The addition of ADA ramps and highly visible striped crosswalks on all legs of the intersection will also be necessary.
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along Third Avenue SE between S. Center Street and Main Avenue
Sidewalk/ Greenway Trail Construction	Construct minimum 5' wide concrete sidewalk along both portions of existing First Street SE and construct a 10' wide asphalt trail to connect the two segments
Bridge Widening	Widen or replace the bridge crossing over Railroad to accomodate pedestrians on N. Center Street
Intersection Improvements	Addition of 3 ADA ramps and 3 crosswalks at intersection of First Street SW and US Hwy 70
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along Main Avenue from Southwestern Town Limits to Third Street SW
Roundabout Construction	Construct a Roundabout at the intersection of US Hwy 70 and S. Center Street
Speed Reduction	Reduce travel speeds to 35mph on US Hwy 70 as you enter Town from east gateway/KFC
Speed Reduction	**Reduce travel speeds to 25 mph on Wilson Road from N. Center Street to Tenth Street NE**
Sidewalk Construction	Construct at minimum 5' wide concrete sidewalk along the west side of N. Center Street from US Hwy 70 to Wilson Road

Long Term - Phase 2 (2016-2025)

Roundabout Construction	Construct a Roundabout at the intersection of Main Avenue and S. Center Street
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along Wilson Road from N. Center Street to Tenth Street NE
Greenway Trail Construction	Construct a 10' wide asphalt Greenway Trail along Clarence Towery Circle to Cline Park Drive
Sidewalk / Greenway Trail Construction	Construct a combination of 5' wide concrete sidewalk and 10' wide asphalt trail following the First Avenue SW corridor
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk on Main Avenue from Second Street SE to US Hwy 70
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along US Hwy 70 from Main Avenue to I-40 Access Road
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along Fourth Avenue SW from Main Avenue to S. Center Street
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk on US Hwy 70 around the CVS Pharmacy
Greenway Trail Construction	Construct a 10' wide asphalt Greenway Trail offset from the Norfolk Southern Rail line, parallelling US Hwy 70 between Third Street NE and Tenth Street NE
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along western side of Tenth Street NE from Main Avenue Drive NW to Norfolk Southern Railroad/ US Hwy 70
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along western side of Third Street SW from Main Avenue E to I-40 Access Road

Sidewalk Construction	Construct minimum 5' concrete sidewalk along northern side of First Avenue NE from S. Center Street to Third Street NE
Sidewalk Construction	Construct a minimum 5' wide concrete sdewalk along the northeastern side of Second Street SW from Second Avenue SW to Main Avenue
Sidewalk Construction	Construct minimum 5' wide conrete sidewalk along Hawthorn Drive from Old NC 10/Main Avenue to First Avenue SW
Greenway Trail Construction	Continue second segment/extension of 10' wide asphalt greenway Trail along northeastern side of Cline Park Drive from midpoint of Cline Park Drive to the railroad.
Greenway Trail Construction	Construct minimum 10' wide asphalt greenway trail from Wilson Road to connect to Trail at Cline Park Drive
Sidewalk Construction	Construct minimum 5' wide concrete sidewalk along eastern side of Third Street NE from First Avenue NE to Cline park Drive

Following the improvements above, the Long Term Projects should take place as soon as funding sources or capital expenditures become available. These corridors will provide a finer degree of connectivity throughout Hildebran and are not in immediate need of improvement.

7.2 COSTS

The Pedestrian Master Plan provides numerous recommendations for the integration and locations for pedestrian facilities. Below is a list of sample costs for recommended pedestrian facilities. Other factors and cost fluctuations can increase actual costs. These estimates were compiled using average recent bid prices and "RS Means Site work & Landscape Cost Data" and are intended to serve only as a rough guide.

Item	Cost
Sidewalks (5' wide concrete)	*$33.75 per linear yard*
Concrete Curb and Gutter	*$15-$20 per linear foot*
Standard Handicap Ramp	*$300-$1200*
Simple Crosswalk (Signs and Pavement markings)	*$150+/crosswalk*
Decorative Crosswalk	*$5,000-$15,000 each*
Pedestrian Refuge Island (Signage and Markings)	*$7,500-$40,000 each*
Pedestrian Signal	*$2,400-$6,500 each*
Pedestrian Sign	*$150 each*
Speed Hump (Signage and Markings)	*$1,000-$1,500 each*
Curb Extensions	*$5,000-$25,000 per corner*
Chokers	*$10,000-$30,000*
Raised Intersections	*$35,000-$80,000*
Roundabouts	*$50,000-$550,000*
Chicane	*$20,000-$40,000*

The following list provides suggestions to reduce the total costs of pedestrian facilities:

- Include pedestrian facilities such as sidewalks in all road construction projects (water/sewer lines, underground utility projects, roadway widening, etc.).
- Combine pedestrian facility projects. Rather than constructing sidewalks along one side of a street, combine it with several other smaller sidewalk projects to help reduce costs.
- Combine pedestrian facility projects with other compatible uses, such as School Bonds.
- Advanced land and right of way acquisition can help disperse the total costs of pedestrian facility projects. Growth and development trends indicate where future pedestrian facilities may be necessary.
- Utilize funding sources such as Tax Incremental Financing Bonds to offset costs through incremental payment.

Below is a list of sample costs for recommended facilities for greenways and off-road trails. These estimates were compiled using average recent bid prices and "RS Means Site work & Landscape Cost Data" and are intended to serve only as a rough guide as other factors and cost fluctuations can increase actual costs

Item	Cost*
Boardwalk	*$200-$250 per linear foot*
Information Sign	*$150 each*
Simple Crosswalk (Signs and Pavement markings	*$150+/crosswalk*
Decorative Crosswalk	*$5,000-$15,000 each*
Pedestrian Refuge Island (Signage and Markings)	*$7,500-$40,000 each*
Pedestrian Signal	*$2,400-$6,500 each*
Multi-Purpose Path (8-10' wide asphalt) Clearing, Grading and Drainage	*$133 per linear foot*
Benches	*$800 - $1,000 each*
Trash Receptacles	*$800-$1,500 each*
Restrooms	*$40,000 each*

The following list provides suggestions to reduce the total construction costs for greenways and off-road trails:

- Upon investigation, collecting *Impact Fees* from developers can help pay for improvements and necessary facilities to serve new growth. These fees are charged to all new development and alleviate the burden on existing residents to pay for new growth. These fees can be used for greenways and obtaining the land necessary to serve a growing community.
- *In-Lieu-Of Fees* allow a developer to pay up front the cost of greenways rather than construct the section within their development. This allows a municipality to use the funds for the appropriation of optimum land for conservation and greenway as well as park development rather than accepting less than optimum parcels that meet the minimum standards for greenways.
- *Volunteers* have the potential to significantly contribute to the maintenance and development of greenways. The Parks and Recreation Department can organize a volunteer work day for participants, as well as encourage other groups such as scouts, churches, and schools to contribute to fund-raising and maintenance. This not only alleviates the burden of maintenance and fund-raising, it can also increase the awareness of the greenway system and bring the community together.

7.3 FUNDING

Pedestrian projects like the Hildebran Pedestrian Master Plan are eligible for funding from many of the major Federal-aid highway, transit, safety, State, and private programs. This section will focus on potential funding sources for the implementation of the Hildebran Pedestrian Master Plan.

Local, state, federal, and private funding is available to support the planning, construction, right of way acquisition and maintenance of bicycle and pedestrian facilities. Available funding sources are related to a variety of purposes including transportation, water quality, hazard mitigation, recreation, air quality, wildlife protection, community health, and economic development. This appendix identifies a list of some of the bicycle and pedestrian facility funding opportunities available through federal, state, nonprofit and corporate sources. An important key to obtaining funding is for local governments to have adopted plans for greenway, bicycle, pedestrian or trail systems in place prior to making an application for funding.

FUNDING ALLOCATED BY STATE AGENCIES

Funding Opportunities Through NCDOT:

Bicycle and Pedestrian Independent Projects Funded Through the Transportation Improvement Program (TIP):
In North Carolina, the Department of Transportation, Division of Bicycle and Pedestrian Transportation (DBPT) manages the Transportation Improvement Program (TIP) selection process for bicycle and pedestrian projects.

Projects programmed into the TIP are independent projects – those which are not related to a scheduled highway project. Incidental projects – those related to a scheduled highway project – are handled through other funding sources described in this section.

The division has an annual budget of $6 million. Eighty percent of these funds are from STP-Enhancement funds , while the State Highway Trust provides the remaining 20 percent of the funding.

Each year, the DBPT regularly sets aside a total of $200,000 of TIP funding for the department to fund projects such as training workshops, pedestrian safety and research projects, and other pedestrian needs statewide. Those interested in learning about training workshops, research and other opportunities should contact the DBPT for information.

A total of $5.3 million dollars of TIP funding is available for funding various bicycle and pedestrian independent projects, including the construction of multi-use trails, the striping of bicycle lanes, and the construction of paved shoulders, among other facilities. Prospective applicants are encouraged to contact the DBPT regarding funding assistance for bicycle and pedestrian projects. For a detailed description of the TIP project selection process, visit: http://www.ncdot.gov/bikeped/funding/. Another $500,000 of the division's funding is available for miscellaneous projects.

Incidental Projects

Bicycle and pedestrian accommodations such as bike lanes, widened paved shoulders, sidewalks and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most bicycle and pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of National Highway System funds and State Highway Trust Funds.

Sidewalk Program

Each year, a total of $1.4 million in STP-Enhancement funding is set aside for sidewalk construction, maintenance and repair. Each of the 14 highway divisions across the state allocates $100,000 annually from each division's budget for this purpose. Funding decisions are made by the district engineer. Prospective applicants are encouraged to contact their district engineer for information on how to apply for funding.

Governor's Highway Safety Program (GHSP)

The mission of the GHSP is to promote highway safety awareness and reduce the number of traffic crashes in the state of North Carolina through the planning and execution of safety programs. GHSP funding is provided through an annual program, upon approval of specific project requests. Amounts of GHSP funds vary from year to year, according to the specific amounts requested. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis. Evidence of reductions in crashes, injuries, and fatalities is required. For information on applying for GHSP funding, visit: www.ncdot.org/programs/ghsp/.

Funding Available Through North Carolina Metropolitan Planning Organizations (MPOs)

MPOs in North Carolina which are located in air quality nonattainment or maintenance areas have the authority to program Congestion Mitigation Air Quality (CMAQ) funds. CMAQ funding is intended for projects that reduce transportation related emissions. Some NC MPOs have chosen to use the CMAQ funding for bicycle and pedestrian projects. Local governments in air quality nonattainment or maintenance area should

contact their MPO for information on CMAQ funding opportunities for bicycle and pedestrian facilities.

Bicycle and Pedestrian Planning Grant Initiative, managed by NCDOT, DBPT

To encourage the development of comprehensive local bicycle plans and pedestrian plans, the NCDOT Division of Bicycle and Pedestrian Transportation (DBPT) and the Transportation Planning Branch (TPB) have created a matching grant program to fund plan development. This program was initiated through a special allocation of funding approved by the North Carolina General Assembly in 2003 along with federal funds earmarked specifically for bicycle and pedestrian planning by the TPB. For more information, visit http://www.ncdot.gov/bikeped/planning/default.html

Safe Routes to School Program

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

The state of North Carolina has been allocated $15 million in Safe Routes to School funding for fiscal years 2005 through 2009 for infrastructure or non-infrastructure projects. All proposed projects must relate to increasing walking or biking to and from an elementary or middle school. An example of a non-infrastructure project is an education or encouragement program to improve rates of walking and biking to school. An example of an infrastructure project is construction of sidewalks around a school. Infrastructure improvements under this program must be made within 2 miles of an elementary or middle school. The state requires the completion of a competitive application to apply for funding. For more information, contact Ed Johnson, Safe Routes to School Coordinator for the NCDOT Division of Transportation Mobility and Safety Program (919)-329-8497.

Ed Johnson, ASLA, RLA
SRTS Coordinator
NCDOT, Division of Transportation Mobility and Safety Traffic Management Unit
1561 Mail Service Center
Raleigh, NC 27699-1561
Email: erjohnson2@ncdot.gov
Direct 919.329.8497 Branch 919.773.2800

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

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

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources. Since 1965, the LWCF program has built a permanent park legacy for present and future generations. In North Carolina alone, the LWCF program has provided more than $63 million in matching grants to protect land and support more than 800 state and local park projects. More than 37,000 acres have been acquired with LWCF assistance to establish a park legacy in our state. For more information, visit: http://ils.unc.edu/parkproject/lwcf/home1.html

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

Recreational Trails Program

The Recreational Trails Program (RTP) is a grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. This program's intent is to meet the trail and trail-related recreational needs identified by the Statewide Comprehensive Outdoor Recreation Plan. Grant applicants must be able contribute 20% of the project cost with cash or in-kind contributions. The program is managed by the State Trails Program, which is a section of the N.C. Division of Parks and Recreation.

The grant application is available and instruction handbook is available through the State Trails Program website at http://www.fhwa.dot.gov/environment/rectrails/. Applications are due during the month of February. For more information, call (919) 715-8699.

North Carolina Parks and Recreation Trust Fund (PARTF)

The fund was established in 1994 by the North Carolina General Assembly and is administered by the Parks and Recreation Authority. Through this program, several million dollars each year are available to local governments to fund the acquisition, development and renovation of recreational areas. Applicable projects require a 50/50 match from the local government. Grants for a maximum of $500,000 are awarded yearly to county governments or incorporated municipalities. The fund is fueled by money from the state's portion of the real estate deed transfer tax for property sold in North Carolina.

The trust fund is allocated three ways:

- 65 percent to the state parks through the N.C. Division of Parks and Recreation.
- 30 percent as dollar-for dollar matching grants to local governments for park and recreation purposes.
- 5 percent for the Coastal and Estuarine Water Access Program.

For information on how to apply, visit:: www.partf.net/learn.html

Powell Bill Program

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by statute. This program is a state grant to municipalities for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Funding for this program is collected from fuel taxes. Amount of funds are based on population and mileage of town-maintained streets. For more information, visit http://www.ncdot.org/programs/Powell_Bill/.

Clean Water Management Trust Fund

This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection. At the end of each fiscal year, 6.5 percent of the unreserved credit balance in North Carolina's General Fund, or a minimum of $30 million, is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems. CWMTF funds may be used to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits. The fund has provided funding for land acquisition of numerous greenway projects featuring trails, both paved and unpaved. For a history of awarded grants in North Carolina and more information about this fund and applications, visit www.cwmtf.net/.

Natural Heritage Trust Fund

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

North Carolina Conservation Tax Credit Program

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

Urban and Community Forestry Assistance Program

This program offers small grants that can be used to plant urban trees, establish a community arboretum, or other programs that promote tree canopy in urban areas. The program operates as a cooperative partnership between the NC Division of Forest Resources and the USDA Forest Service, Southern Region. To qualify for this program, a community must pledge to develop a street-tree inventory, a municipal tree ordinance, a

tree commission, and an urban forestry-management plan. All of these can be funded through the program. For more information, contact the NC Division of Forest Resources. For more information and a grant application, contact the NC Division of Forest Resources and/or visit http://www.dfr.state.nc.us/urban/urban_grantprogram.htm.

Ecosystem Enhancement Program

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

Conservation Reserve Enhancement Program (CREP)

This program is a joint effort of the North Carolina Division of Soil and Water Conservation, the NC Clean Water Management Trust Fund, the Ecosystem Enhancement Program (EEP), and the Farm Service Agency - United States Department of Agriculture (USDA) to address water quality problems of the Neuse, Tar-Pamlico and Chowan river basins as well as the Jordan Lake watershed area.

CREP is a voluntary program that seeks to protect land along watercourses that is currently in agricultural production. The objectives of the program include: installing 100,000 acres of forested riparian buffers, grassed filter strips and wetlands; reducing the impacts of sediment and nutrients within the targeted area; and providing substantial ecological benefits for many wildlife species that are declining in part as a result of habitat loss. Program funding will combine the Federal Conservation Reserve Program (CRP) funding with State funding from the Clean Water Management Trust Fund, Agriculture Cost Share Program, and North Carolina Wetlands Restoration Program.

The program is managed by the NC Division of Soil and Water Conservation. For more information, visit www.enr.state.nc.us/dswc/pages/crep.html

Agriculture Cost Share Program

Established in 1984, this program assists farmers with the cost of installing best management practices (BMPs) that benefit water quality. The program covers as much as 75 percent of the costs to implement BMPs. The NC Division of Soil and Water Conservation within the NC Department of Environment and Natural

Resources administers this program through local Soil and Water Conservation Districts (SWCD). For more information, visit www.enr.state.nc.us/DSWC/pages/agcostshareprogram.html or call 919-733-2302.

Water Resources Development Grant Program

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

Small Cities Community Development Block Grants

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

North Carolina Health and Wellness Trust Fund

The NC Health and Wellness Trust Fund was created by the General Assembly as one of 3 entities to invest North Carolina's portion of the Tobacco Master Settlement Agreement. HWTF receives one-fourth of the state's tobacco settlement funds, which are paid in annual installments over a 25-year period.

Fit Together, a partnership of the NC Health and Wellness Trust Fund (HWTF) and Blue Cross and Blue Shield of North Carolina (BCBSNC) announces the establishment of Fit Community, a designation and grant program that recognizes and rewards North Carolina communities' efforts to support physical

activity and healthy eating initiatives, as well as tobacco-free school environments. Fit Community is one component of the jointly sponsored Fit Together initiative, a statewide prevention campaign designed to raise awareness about obesity and to equip individuals, families and communities with the tools they need to address this important issue.

All North Carolina municipalities and counties are eligible to apply for a Fit Community designation, which will be awarded to those that have excelled in supporting the following:

- physical activity in the community, schools, and workplaces
- healthy eating in the community, schools, and workplaces
- tobacco use prevention efforts in schools

Designations will be valid for two years, and designated communities may have the opportunity to reapply for subsequent two-year extensions. The

benefits of being a Fit Community include:
• heightened statewide attention that can help bolster local community development and/or economic investment initiatives (highway signage and a plaque for the Mayor's or County Commission Chair's office will be provided)
• reinvigoration of a community's sense of civic pride (each Fit Community will serve as a model for other communities that are trying to achieve similar goals)
• use of the Fit Community designation logo for promotional and communication purposes. The application for Fit Community designation is available on the
Fit Together Web site: www.FitTogetherNC.org/FitCommunity.aspx.

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

The North Carolina Division of Forest Resources
Urban and Community Forestry Grant can provide funding for a variety of projects that will help toward planning and establishing street trees as well as trees for urban open space. See: http://www.dfr.state.nc.us/urban/urban_ideas.htm

Funding Allocated by Federal Agencies

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

The Community Development Block Grant (HUD-CDBG)
The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate income areas. Several communities have

used HUD funds to develop greenways, including the Boulding Branch Greenway in High Point, North Carolina. Grants from this program range from $50,000 to $200,000 and are either made to municipalities or non-profits. There is no formal application process. For more information, visit: www.hud.gov/offices/cpd/communitydevelopment/programs/.

USDA Rural Business Enterprise Grants

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

Rivers Trails and Conservation Assistance Program (RTCA)

The Rivers, Trails, and Conservation Assistance Program, also known as the Rivers & Trails Program or RTCA, is the community assistance arm of the National Park Service. RTCA staff provide technical assistance to community groups and local, State, and federal government agencies so they can conserve rivers, preserve open space, and develop trails and greenways. The RTCA program implements the natural resource conservation and outdoor recreation mission of the National Park Service in communities across America

Although the program does not provide funding for projects, it does provide valuable on-the-ground technical assistance, from strategic consultation and partnership development to serving as liaison with other government agencies. Communities must apply for assistance. For more information, visit: www.nps.gov/ncrc/programs/rtca/ or call Chris Abbett, Program Leader, at 404-562-3175 ext. 522.

Public Lands Highways Discretionary Fund

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

Local Funding Sources

Municipalities often plan for the funding of pedestrian facilities or improvements through development of Capital Improvement Programs (CIP). In Raleigh, for example, the greenways system has been developed over many years through a dedicated source of annual funding that has ranged from $100,000 to $500,000, administered through the Recreation

and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the following: capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each of these categories are described below.

Capital Reserve Fund

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

Capital Project Ordinances

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

Municipal Service District

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

Tax increment financing

Tax increment financing is a tool to use future gains in taxes to finance the current improvements that will create those gains. When a public project, such as the construction of a greenway, is carried out, there is an increase in the value of surrounding real estate. Oftentimes, new investment in the area follows such a project. This increase sit value and investment creates more taxable property, which increases tax revenues. These increased revenues can be referred to as the “tax increment.” Tax Increment Financing dedicates that increased revenue to finance debt issued to pay for the project. TIF is designed to channel funding toward improvements in distressed or underdeveloped areas where development would not otherwise occur. TIF creates funding for public projects that may otherwise be unaffordable to localities. The large majority of states have enabling legislation for tax increment financing.

Installment Purchase Financing

As an alternative to debt financing of capital improvements, communities

can execute installment/ lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when up-front funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.

Taxes

Many communities have raised money through self-imposed increases in taxes and bonds. For example, Pinellas County residents in Florida voted to adopt a one-cent sales tax increase, which provided an additional $5 million for the development of the overwhelmingly popular Pinellas Trail. Sales taxes have also been used in Allegheny County, Pennsylvania, and in Boulder, Colorado to fund open space projects. A gas tax is another method used by some municipalities to fund public improvements. A number of taxes provide direct or indirect funding for the operations of local governments. Some of them are:

Sales Tax

In North Carolina, the state has authorized a sales tax at the state and county levels. Local governments that choose to exercise the local option sales tax (all counties currently do), use the tax revenues to provide funding for a wide variety of projects and activities. Any increase in the sales tax, even if applying to a single county, must gain approval of the state legislature. In 1998, Mecklenburg County was granted authority to institute a one-half cent sales tax increase for mass transit.

Property Tax

Property taxes generally support a significant portion of a municipality's activities. However, the revenues from property taxes can also be used to pay debt service on general obligation bonds issued to finance greenway system acquisitions. Because of limits imposed on tax rates, use of property taxes to fund greenways could limit the municipality's ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

Excise Taxes

Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for promotion of tourism, and the gas tax that generates revenues for transportation related activities.

Occupancy Tax

The NC General Assembly may grant towns the authority to levy occupancy tax on hotel and motel rooms. The act granting the taxing authority limits the use of the proceeds, usually for tourism-promotion purposes.

Fees

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

Stormwater Utility Fees

Greenway sections may be purchased with stormwater fees, if the property in question is used to mitigate floodwater or filter pollutants.

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

Streetscape Utility Fees

Streetscape Utility Fees could help support streetscape maintenance of the area between the curb and the property line through a flat monthly fee per residential dwelling unit. Discounts would be available for senior and disabled citizens. Non-residential customers would be charged a per foot fee based on the length of frontage on streetscape improvements. This amount could be capped for non-residential customers with extremely large amounts of street frontage. The revenues raised from Streetscape Utility fees would be limited by ordinance to maintenance (or construction and maintenance) activities in support of the streetscape.

Impact Fees

Developers can be required to provide greenway impact fees through local enabling legislation. Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth ("growth pays its own way"). Greenway impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional needs of a growing community. These charges are set in a fee schedule applied uniformly to all new development. Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an appropriate impact fee amount can include: lot size, number of occupants, and types of subdivision improvements. If Holly Springs is interested in pursuing open space impact fees, it will require enabling legislation to authorize the collection of the fees.

Exactions

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

In-Lieu-Of Fees

As an alternative to requiring developers to dedicate on-site greenway sections that would serve their development, some communities provide a choice of paying a front-end charge for off-site protection of pieces of the larger system. Payment is generally a condition of development approval and recovers the cost of the off-site land acquisition or the development's proportionate share of the cost of a regional facility serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication but falls a bit short of qualitative interests.

Bonds and Loans

Bonds have been a very popular way for communities across the country to finance their pedestrian and greenway projects. A number of bond options are listed below. Contracting with a private consultant to assist with this program may be advisable. Since bonds rely on the support of the voting population, an education and awareness program should be implemented

prior to any vote. Billings, Montana used the issuance of a bond in the amount of $599,000 to provide the matching funds for several of their TEA-21 enhancement dollars. Austin, Texas has also used bond issues to fund a portion of their bicycle and trail system.

Revenue Bonds

Revenue bonds are bonds that are secured by a pledge of the revenues from a certain local government activity. The entity issuing bonds, pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment). Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are generally more expensive than general obligation bonds.

General Obligation Bonds

Cities, counties, and service districts generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs
of land acquisition and greenway development and make funds available for immediate purchases and projects. Voter approval is required.

Special Assessment Bonds

Special assessment bonds are secured by a lien on the property that benefits by the improvements funded with the special assessment bond proceeds. Debt service payments on these bonds are funded through annual assessments to the property owners in the assessment area.

State Revolving Fund (SRF) Loans

Initially funded with federal and state money, and continued by funds generated by repayment of earlier loans, State Revolving Funds (SRFs) provide low interest loans for local governments to fund water pollution control and water supply related projects including many watershed management activities. These loans
typically require a revenue pledge, like a revenue bond, but carry a below market interest rate and limited term for debt repayment (20 years).

Other Local Options

Facility Maintenance Districts

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

The municipality can manage maintenance responsibilities either through its own staff or through private contractors.

Partnerships

Another method of funding pedestrian systems and greenways is to partner with public agencies and private companies and organizations. Partnerships engender a spirit of cooperation, civic pride and community participation. The key to the involvement of private partners is to make a compelling argument for their participation. Major employers and developers should be identified and provided with a "Benefits of Walking"-type handout for themselves and their employees. Very specific routes that make critical connections to place of business would be targeted for private partners' monetary support following a successful master planning effort. Potential partners include major employers which are located along or accessible to pedestrian facilities such as multi-use paths or greenways. Name recognition for corporate partnerships would be accomplished through signage trail heads or interpretive signage along greenway systems. Utilities often make good partners and many trails now share corridors with them. Money raised from providing an easement to utilities can help defray the costs of maintenance. It is important to have a lawyer review the legal agreement and verify ownership of the subsurface, surface or air rights in order to enter into an agreement.

Local Trail Sponsors

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

Volunteer Work

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

Private Foundations and Organizations

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

Land for Tomorrow Campaign

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

The Trust for Public Land

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the Trust for Public Land is the only national nonprofit working exclusively to protect land for human enjoyment and well being. TPL helps conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. TPL's legal and real estate specialists work with landowners, government agencies, and community groups to:

- Create urban parks, gardens, greenways, and riverways
- Build livable communities by setting aside open space in the path of growth
- Conserve land for watershed protection, scenic beauty, and close-to home recreation safeguard the character of communities by preserving historic landmarks and landscapes.

The following are TPL's Conservation Services:

- Conservation Vision: TPL helps agencies and communities define conservation priorities, identify lands to be protected, and plan networks of conserved land that meet public need.
- Conservation Finance: TPL helps agencies and communities identify and

raise funds for conservation from federal, state, local, and philanthropic sources.

• Conservation Transactions: TPL helps structure, negotiate, and complete land transactions that create parks, playgrounds, and protected natural areas.

• Research & Education: TPL acquires and shares knowledge of conservation issues and techniques to improve the practice of conservation and promote its public benefits.

Since 1972, TPL has worked with willing landowners, community groups, and national, state, and local agencies to complete more than 3,000 land conservation projects in 46 states, protecting more than 2 million acres. Since 1994, TPL has helped states and communities craft and pass over 330 ballot measures, generating almost $25 billion in new conservation-related funding. For more information, visit http://www.tpl.org/.

Z. Smith Reynolds Foundation

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

North Carolina Community Foundation

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

National Trails Fund

In 1998, the American Hiking Society created the National Trails Fund, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. Each year, 73 million people enjoy foot trails, yet many of our favorite trails need major repairs due to a $200 million in badly needed maintenance. National Trails Fund grants give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. For 2005, American Hiking distributed over $40,000 in grants thanks to the generous

support of Cascade Designs and L.L.Bean, the program's Charter Sponsors. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project.

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

The Safe, Accountable, Flexible, Efficient, Transporation Equity Act (SAFETEA-LU)

SAFETEA-LU is the primary source of Federal funding for pedestrian and bicycle transportation projects. SAFETEA-LU is divided into sections which provide funding for greenways, sidewalks, and pedestrian corridors. The sections which apply to the recommendations provided in the Yadkinville Pedestrian Master Plan include:

Surface Transporation Program (STP) Funds

These funds may be used for the construction of pedestrian facilities such as walkways and non-construction projects such as route maps, brochures, and public service announcements which deal with safety. In order for the projects to be eligible they must be related to pedestrian transportation and be part of a Long Range Transportation Plan.

National Recreational Trails Fund Act (NRTFA)

These funds may be used for the development of non-motorized and motorized trails. Typically these funds are spent on the acquisition of easements, trail development, construction and maintenance.

State Construction Funds

Funds from North Carolina roadway construction may be used for the construction of sidewalks which are part of roadway improvement projects. NCDOT will pay one hundred percent of the costs required to replace sidewalks which are removed due to the widening of a roadway.

American Greenways DuPont Awards

These are small grants that range from $250-$2,000 which are used to stimulate the planning, design, and development of greenways. These funds may be used for a variety of purposes such as mapping, ecological assessments, surveying, brochures, interpretative signs and displays, and trail construction.

8.1 RECOMMENDATIONS

The projects and policy recommendations included herein begin to prioritize tasks in the implementation process, which is further discussed in section 9.0. As funding becomes available, the Town should refer to this Plan in order to determine what their budget and needs can sustain based on priorities; however, the Town should begin implementing certain policies and programs before construction even begins.

Short term improvement projects will improve connectivity and pedestrian access along roadways which are currently utilized by pedestrians. These corridors provide connectivity to destinations such as schools, commercial areas, neighborhoods, and downtown. It is recommended that these corridors receive first priority for improvement projects due to their ability to immediately impact the existing pedestrian infrastructure and their access to various destinations. When undertaken, these projects will achieve critical connectivity throughout the Town of Hildebran.

The prioritization of the Short Term and Long Term Projects was determined through a combination of cost and immediate need. Immediate need was determined to be in areas that were in most immediate need of improvements either based on safety concerns or highest frequency of use. Although this Plan largely recommends the implementation of sidewalk and greenway projects, the Town should begin creating more awareness about walking and pedestrian-friendly environments. They can begin advocating for a healthier and more pedestrian friendly community by executing the following tasks:

1. Create a Pedestrian Safety Campaign. The Pedestrian Safety Campaign is available to municipalities and communities within North Carolina. A Step by Step Guide is also available to assist in implementing the campaign at the local level. The purposes of the campaign are as follows:
    - Educate motorists that pedestrians and bicyclists are legitimate road users and they should expect them on or near roadways.
    - Educate pedestrians on how to minimize risks to their safety
    - Develop program materials which explain pedestrian facilities such as sidewalks, crosswalks, pedestrian refuge islands, etc., and their purpose and function

For more information please visit:
http://safety.fhwa.dot.gov/local_rural/pedcampaign/

2. Adopt a "Safe Routes to School" program to promote and support students walking and bicycling to school.

3. Create School Zone Safety Program that can be done in conjunction with a Safe Routes to School Program. The school, school district, and safety committee can develop a safety plan which consists of the following:
    - Develop a school route plan
    - Evaluate and configure the school site
    - Reconfigure student/Bus drop-off/pick up
    - Distribute and maintain the plan

4. Enroll Burke County Sherriff Officials in the School Guard Training Program. In 1998 NCDOT Division of Bicycle and Pedestrian Transportation developed a program to train law enforcement officers who in turn trained school crossing guards. The purpose of the course is to standardize procedures and instruction of school crossing guards, as well as educate children on how to cross streets safely. The department should contact the Division of Bicycle and Pedestrian Tranportation regarding this program. For the NC School Crossing Guard Training Manual and more information please visit: *http://www.ncdot.org/bikeped/about/training/school_crossing_guard/*

5. Continue to participate in the National Walk to School Day

6. Update the Hildebran Zoning Ordinance to include the design guidelines outlined in section 5 of this plan and provided below.

    - The zoning code should include text changes that require new developments to install sidewalks and street trees along the properties with public street frontages or fees in lieu to provide implementation of sidewalks in areas of greater need within the Town and/or greenway set asides.

    - Incorporate pedestrian connectivity through new parking lots and require a maximum number of parking spaces.

    - Compliment Envision Hildebran by encouraging pedestrian friendly residential and commercial developments.

7. Adopt consistent illustrative graphics to identify pedestrian routes in Hildebran. Destinations such as schools, greenways, and the commercial development on South Center Street should be identified so pedestrians are aware of distances and locations of these areas.

The Town of Hildebran should engage a design professional for their assistance in developing these standards. Directional, Interperetive and Greenway signage should be consistent and located in prominent areas so they can be easily viewed. It is important to ensure they do not interfere with pedestrian and vehicular movement. For example, signs should not be placed within a sidewalk or reduce the clearance of a sidewalk to less than five feet.

8. Improved lighting should be installed around the Municipal Complex to encourage safer walking conditions at night and in the early morning hours. It was also noted that Main Avenue/Old NC-10 needs improved lighting. The installation of light fixtures in this area should be addressed when sidewalk construction begins along Main Avenue/Old NC-10.

A list of recommended Short Term and Long Term projects is contained within the next couple of pages. In order to meet the needs of future sidewalks, maintenance and code enforcement should be addressed. The Town of Hildebran should evaluate current maintenance policies to determine if they are adequate to include implementation of the recommendations in this Pedestrian Master Plan. Continual upkeep of existing sidewalks in disrepair or with significant vegetative barriers should be incorporated into the improved maintenance program as well. Perhaps more stringent code enforcement would also help community members adhere to regular maintenance of sidewalks and pathways along private residential and commercial frontages.

We believe the construction of sidewalks on both sides of busier thoroughfares is something that the Town will need revisit in the future when discussing updates to the Pedestrian Plan, which is recommended and discussed in the Implementation Section, but feel that providing sidewalks on at least one side of the street for all busy thoroughfares will have a more significant impact than providing sidewalks on both sides of the street in fewer locations, with the exception of S. Center Street. This recommendation could be included in the long term recommendations section when the plan is updated if this is something the Town feels strongly about when they initiate the update.

Incorporate pedestrian improvements early in the NCDOT Planning Process.
To insure pedestrian improvements are accepted, they must be incorporated early in the NCDOT planning process for streets under consideration. for TIP projects Promoting pedestrian facilities and their ongoing maintenance into the forefront of roadway design increases the possibility that they will be included in annual improvements. It is very difficult and costly to attempt to incorporate pedestrian facilities into a roadway improvement project after it has been accepted for NCDOT maintenance.

Table A

* **Prime SRTS grant project candidates**

		SHORT TERM IMPROVEMENTS					
Rank	**Location**	**From**	**To**	**Distance**	**Estimated Cost**	**Federal and State Funding Sources (for more information and additional funding sources please refer to Chapter 7, section 7.3)**	**Project Constraints**
1	**Sidewalk Construction: Connect missing segments of concrete sidewalk and fill gaps in existing sidewalk network:**						
1a	Traffic Calming: Install decorative crosswalk at the municipal complex and a sidewalk along the eastern side of S. Center Street on the pool/library frontage from US Hwy 70 to Main Street	US Hwy 70	Pool/Library	1,615 LF	SWK $ 18,169 CRSWLK $ 5,000	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require NCDOT approval
1b	Sidewalk Construction: Construct minimum 5' wide concrete sidewalk along north side of Main Avenue from Fourth Avenue SE to First Street SE to connect to segments of existing sidewalk	Fourth Avenue SE	First Street SE	500 LF	$5,625	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Some topography and right of way constraints may require the acquisition of additional right-of-way to construct a sidewalk and planting median/side ditch since no curb and gutter exists.
1c	Sidewalk Construction: Improve or construct new minimum 5' wide concrete sidewalk along south side of US Hwy 70 from S. Center Street to East Burke Pharmacy	S. Center Street	East Burke Pharmacy	100 LF	$1,125	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists. Will require NCDOT approval.
1d	Sidewalk Construction: Construct new minimum 5' wide concrete sidewalk along Second Street SE to create a complete sidewalk system and connect two segments	n/a	n/a	200 LF	$2,250	NCDOT TIP Funding, NCDOT Incidental Projects Funding, NCDOT Incidental Project Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants,	May require additional right-of-way acquisition to construct a sidewalk and side ditch since no curb and gutter exists.
1e	Intersection Improvements:/(4-way stop): Improve pedestrian safety at the intersection of S. Center Street and Main Avenue by considering a 4-way stop with curb extensions/curb radii reductions to reduce vehicle speeds.	n/a	n/a	n/a	$20,000 - $100,000	NCDOT TIP Funding, NCDOT Incidental Projects Funding, Powell Bill Program, Urban and USDA Rural Business Enterprise Grants	Will require NDOT approval
***1f**	Intersection Improvements: Improve ADA access, approaches to the intersection and general pedestrian safety by constructing new minimum 5' wide concrete sidewalk along S. Center Street to provide unimpeded access to north side of Main Avenue. The addition of ADA ramps and highly visible striped crosswalks on all legs of the intersection will also be necessary.	Fourth Avenue SE	Main Avenue	250 LF	$8,212	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, Powell Bill Program, Urban and Community Forestry Assistance Program, USDA Rural Business Enterprise Grants	Will require NDOT approval
***2**	Sidewalk Construction: Construct new minimum 5' wide concrete sidewalk along Third Avenue SE. A highly visible crosswalk will also be necessary at this location due to the future park location.	S. Center Street	Main Avenue	2,500 LF	$28,275	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	May require additional right-of-way acquisition to construct a sidewalk and side ditch since no curb and gutter exists.
***3**	Sidewalk/ Greenway Trail Construction: Construct minimum 5' wide concrete sidewalk along both portions of existing First Street SE and connect them with a 10' wide Greenway Trail	Main Avenue	S. Center Street	3,200 LF SWK 1,200 LF GWT	$195,600	Safe Routes to School Infrastructure Grant PARTF Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, LWCF, NC Adopt-a-Trail Grant Program, Recreational Trails Program, CWMTF grant, CDBG Grants, HUD-CDBG, USDA Rural Business Enterprise Grants	May require easement acquisition from individial property owner for greenway trail connection.
4	Bridge Widening: Widen or replace bridge crossing over Railroad to accommodate pedestrians	US Hwy 70	First Avenue NE	100 LF		State (TIP) Funding	Will require NCDOT approval
***5**	Intersection Improvements: Addition of 3 ADA ramps and 2 highly visible striped crosswalks and pedestrian signal heads at intersection of First Street SW and US Hwy 70	n/a	n/a	n/a	$3,900	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require NDOT approval for relocation of advance stop bar, possible cur radii issues with possible truck traffic and installation of pedestrian signal heads.
6	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along Main Avenue; includes one highly visible striped crosswalk.	Southwestern Town Limits	Third Street SW	4,200 LF	$47,400	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
7	Roundabout Construction: Construct a Roundabout as a traffic calming measure at the Intersection of US Hwy 70 and S. Center Street	n/a	n/a	n/a	$50,000-$550,000	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	May require easement acquisition from Norfolk Southern Railroad and small right of way acquisition from individual business owners. Will require NCDOT approval
8	Speed Reduction: Reduce travel speeds to 35 mph on US Hwy 70 as you enter Town from east gateway	KFC located at 311 US Hwy 70	Main Avenue	n/a	n/a	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require NCDOT approval and public education to notify motorists of reduced speeds.
9	Speed Reduction: Reduce travel speeds to 25 mph on Wilson Road	N. Center Street	Tenth Street NE	n/a	n/a	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	May require NCDOT approval and public education to notify motorists of reduced speeds.
***10**	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along the west side of N. Center Street	US Hwy 70	Wilson Road	8,500 LF	$95,625	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Demolition of existing asphalt/concrete would be required as well as the recommnedation and installation of curb and gutter if possible. Will require approval from NCDOT.

* **Prime SRTS grant project candidates**

		LONG TERM IMPROVEMENTS					
Rank	**Location**	**From**	**To**	**Distance**	**Estimated Cost**	**Federal and State Funding Sources (for more information and additional funding sources please refer to Chapter 7, section 7.3)**	**Project Constraints**
11	Roundabout Construction: Construct a roundabout as an improved and more aesthetically pleasing traffic calming measure, compared to a 4-way stop, at the intersection of S. Center Street and Main Street.	n/a	n/a	n/a	$50,000-$550,000	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Right-of-way obstacle with the parcel located on the southwest corner of the intersection. Will require approval of NCDOT.
12	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along Wilson Road	N. Center Street	Tenth Street NE	14,000 LF	$157,500	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be acquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
13	Greenway Trail Construction: Construct a new 10' wide asphalt Greenway Trail along Clarence Towery Circle extended to Cline Park Drive.	Wilson Road	Cline Park Drive	4,500 LF	$598,500	Safe Routes to School Infrastructure Grant PARTF Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, LWCF, NC Adopt-a-Trail Grant Program, Recreational Trails Program, CWMTF grant, CDBG Grants, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require easement acquisition from individual land owners and possible easement acquisition from Duke Energy.
14	Greenway Trail/ Sidewalk Construction: Construct a combination of alternating 5' wide concrete sidewalk and 10' wide asphalt trail per the conceptual alignment illustrated on the map following the First Avenue SW corridor.	Hawthorn Drive	First Street SW	1,500 LF SWK 4,500 LF GWT	$615,375	Safe Routes to School Infrastructure Grant PARTF Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, LWCF, NC Adopt-a-Trail Grant Program, Recreational Trails Program, CWMTF grant, CDBG Grants, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require easement Acquisition from individual land owners and possible easement acquisition from Duke Energ for greenway trail. Right-of-way will need to be acquired with the construction of side ditches and sidewalks as long as no curb and gutter exists
***15**	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along Main Avenue	Second Street SE	US Hwy 70	6,000LF	$67,500	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be acquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists. Will require approval from NCDOT.
16	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along US Hwy 70	Main Avenue	I-40 Access Roads	3,000 LF	$33,750	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists. Will require approval of NCDOT.
17	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk on Fourth Avenue SW	Main Avenue	S. Center Street	3,500 LF	$39,375	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
18	Sidewalk Construction: Construct at Minimum a 5' wide concrete sidewalk along US Hwy 70A around the CVS locateted at the US Hwy 70 and US Hwy 70 split)	n/a	n/a	2,600 LF	$29,250	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists. Will require approval of NCDOT.
19	Greenway Trail Construction: Construct a new 10' wide asphalt greenway trail offset from the Norfolk Southern Rail line running parallel to US Hwy 70.	Third Street NE	Tenth Street NE	10,500 LF	1.4 Million	Safe Routes to School Infrastructure Grant PARTF Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, LWCF, NC Adopt-a-Trail Grant Program, Recreational Trails Program, CWMTF grant, CDBG Grants, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require easement Acquisition from Norfolk Southern Railroad for greenway trail.
20	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along the western side of Tenth Street NE.	Main Avenue Drive NW	Norfolk Southern Railroad/ US Hwy 70	2,000 LF	$22,500	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
***21**	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along the western side of Third Street SE.	Main Avenue E	I-40 Access Road	4,000 LF	$45,000	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
22	Sidewalk Construction: Construct at minimum a 5' wide sidewalk along the northern side of First Avenue NE.	N. Center Street	Third Street NE	1,500 LF	$16,875	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
23	Sidewalk Construction: Construct at minimum a 5' wide sidewalk along the northeastern side of Second Street SW.	Second Avenue SW	Main Avenue	1,500 LF	$16,875	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
24	Sidewalk Construction: Construct at minimum a 5' sidewalk along Hawthorn Drive to connect to proposed Greenway Trail extension from First Avenue SW	Old NC 10/ Main Avenue	First Avenue SW	1,000 LF	$11,250	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.
25	Greenway Trail Construction: Continue second segment/extension of 10' wide asphalt Greenway Trail along northeastern side of Cline Park Drive	Mid-point of Cline Park Drive	Norfolk Southern Railroad	2,000 LF	$266,000	Safe Routes to School Infrastructure Grant PARTF Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, LWCF, NC Adopt-a-Trail Grant Program, Recreational Trails Program, CWMTF grant, CDBG Grants, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be acquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists. Possible easement acquisition from Norfolk Southern Railroad may also be required.
26	Greenway Trail Construction: Construct at minimum a 10' wide asphalt Greenway Trail from Wilson Road to connect to Trail at Cline Park Drive.	Wilson Road	Cline Park Drive	6,000 LF	$798,000	Safe Routes to School Infrastructure Grant PARTF Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, LWCF, NC Adopt-a-Trail Grant Program, Recreational Trails Program, CWMTF grant, CDBG Grants, HUD-CDBG, USDA Rural Business Enterprise Grants	Will require easement acquisition from individual land owners and possible easement acquisition from Duke Energy.
27	Sidewalk Construction: Construct at minimum a 5' wide concrete sidewalk along eastern side of Third Street NE.	First Street Place NE	Cline Park Drive	3,500 LF	$39,375	Safe Routes to School Infrastructure Grant, NCDOT TIP Funding, NCDOT Incidental Projects Funding, CMAQ fund, Powell Bill Program, HUD-CDBG, USDA Rural Business Enterprise Grants	Additional Right-of-way will need to be aquired to construct a sidewalk with planting median/side ditch since no curb and gutter exists.

9.1 IMPLEMENTATION

Certain key action steps must adhered to in order for the plan to be of particular value as a planning tool to the Town of Hildebran. The implementation of the recommendations and suggestions outlined in the plan must follow an order of prioritization, similar to the prioritization table at the end of the previous chapter. Town staff should be aware of the recommnedations and pursue implementation of the prioritized projects with regular maintenance or improvement efforts.

The Town will need to identify allies and partners when trying to achieve the goals set forth in the plan as well as funding sources to help offset construction and design costs. Some potential partners include:

- NCDOT
- Burke County Government
- Burke County Chamber of Commerce
- Burke Partnership for Economic Development
- Burke County Sherriff's Department
- Western Piedmont Council of Governments
- Kleen Tech Inc.
- Jeffco Enterprises
- Bauer Industries

Please review the table below and refer to it often to help guide the implementation of plan.

Performance measures should be evaluated after implemenation of the first few projects is completed to determine how much progress is being made towards creating a more pedestrian friendly environment for the Town of Hildebran. The performance results should be analyzed and the Plan updated every few years to reflect the growing needs of residents and to establish new goals for future implementation projects.

* These tasks can be completed simultaneously

Table B

	Action Item	Lead Agency	Details	Time Frame	Page reference	
	Present Pedestrian Plan to Town Council	Withers & Ravenel	Withers & Ravenel will present the plan Town Council for adoption at the October 25, 2010 Council Meeting	Short Term 2010	n/a	
	Approve the Plan	NCDOT DBPT, NCDOT Division 13	The approval of the plan will assist the Town when incorporating TIP projects in the next STIP.	Short Term 2010	n/a	
	Adopt the Plan	Town of Hildebran Town Council	The adoption of the Plan makes it a legitimate planning document and illustrates that the Town has undergone a successful and publicly supported planning process. The adoption of the plan will assist when future funding procurement becomes a priority	Short Term 2010	n/a	
*	Incorporate recommendations from the plan into updated zoning ordinance.	Town Planner, Town Administrator, Town Council	The recommendations highlighted in the plan will serve as an update to the current zoning ordinance and propose basic policy suggestions for future development.	Short Term 2010-2011	iii, p.21, p.96	
*	Create Pedestrian safety campaign	Town Planner, Town Administrator	By creating a pedestrian safety campaign, pedestrian safety education can be taught to children, community groups and adults to create excitement regarding the recommendations outlined in the plan. This group will be the voice of advocacy driving the implementation of improvements listed earlier in the document.	Short Term 2011	p.64-69, p.96 Chapter 6	
*	Develop a SRTS program	Town Planner	Adopt a “Safe Routes to School” program to promote and support students walking and bicycling to school. A safe routes to school program will increase the Town's/School's chances of receiving grant money to fund the construction and implementation of sidewalks, crosswalks, etc.	Short Term 2011-2012	p.64-69, p.78, p.96 Chapter 6	
*	Train Burke County Sherriff's Department at School Zone Crossings	Burke County Sherriff's Department	The purpose of the course is to standardize procedures and instruction of school crossing guards, as well as educate children on how to cross streets safely. The department should contact the Division of Bicycle and Pedestrian Transportation regarding this program.	Short Term 2011-2012	p.66, p. 96	
*	Create a school zone safety program/Participate in National Walk to School Day	Town Administrator , Mayor Hildebran Elementary Principal/Teachers, Burke County School System	Create School Zone Safety Program that can be done in conjunction with a Safe Routes to School Program. The school, school district, and safety committee can develop a safety plan which consists of the following: • Develop a school route plan • Evaluate and configure the school site • Reconfigure student/Bus drop-off/pick up • Distribute and maintain the plan	Short Term 2011	p.64-69	
*	Identify and secure funding based on the list in the project recommendations table	Town Administrator, Town Planner, Consultant	Determine what funding cycles are currently available by reviewing the grants list in the recommended improvements table and create a strategic action plan with achievable goals. The Town is encouraged to contact NCDOT Highway Division 13 and District 1 offices as well as the Greater Hickory MPO regarding any future funding and project programming opportunities. Other avenues for funding are also available and need to be assessed based on the community's needs and wants: bond referendum, fundraising etc.	Short Term 2011	vi, p.70-73, p.98-100	
	Dedicate funding and complete top priority projects	Town Administrator, Town Planner, Town Council	Review the plan to determine if the top 5 recommended projects are still the most important and re-prioritize if necessary. Dedicate the necessary funding and ensure completion of at least 5 of the top priority projects by 2013.	Medium 2015	p.101	

	Coordinate with NCDOT Division 13 on top priority projects to ensure that they get included with all planned TIP projects	Town Planner	Continually coordinate with NCDOT Division 13 and review current plans and projects to ensure that TIP projects include approved and adopted recommendations.	Short Term 2013	p.97, p.101	
	Continue to refer to the plan and provide and update every 5-10 years	Town Planner, Town Administrator	Members of the Pedestrian Safety Campaign and the SRTS program should meet with the Town Council and staff on a bi monthly or quarterly basis to reassess prioritization of projects and update if necessary.	Medium 2015	p.101	
	Develop a long term funding strategy with set asides for pedestrian improvements in the annual budget such as a sidewalk or greenway trail grant match reserve fund.	Town Administrator, mayor and Town Council	To ensure that projects are implemented in the overall system, Powell Bill and Capital funds should be set aside every year for sidewalk repair/construction in conjunction with roadway projects. Small set asides can be used as matching grant funds for other funding sources.	Long Term 2015-2020	p.101	
	Continue to look at forming partnerships with new or established businesses	Mayor, Town Administrator, Burke Partnership for Economic Development	Advocacy groups and Corporate sponsors can assist in offsetting the costs of sidewalk construction with incentives for their employees to exercise, thus offsetting healthcare costs.	Short Term 2011	p.101	
*	Coordinate with Isothermal to ensure that all planning efforts are incorporated regionally	Town Planner, Isothermal Planning and Development Commission	Review and update plans to ensure that connectivity and consistency is present in policy and regional initiatives regarding pedestrian safety. This is especially important when updating or developing county, region-wide and statewide transportation plans.	Short Term 2011	p.97	
*	Strengthen overall maintenance program	Town Administrator, Maintenance/Public Works, Town Planner	A Town staff member should be designated as the main contact for the maintenance of pedestrian facilities. This staff member should coordinate with other agencies and departments to establish a maintenance agreement or plan that is most feasible for continued repair and improvements.	Short Term 2011-2012	p.97	

HILDEBRAN'S COMPREHENSIVE PEDESTRIAN MASTER PLAN

SURVEY/QUESTIONNAIRE

The Town of Hildebran is initiating a comprehensive pedestrian planning process to help make Hildebran a more livable and walk-able Town that is safer for pedestrians. This project is funded through a North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation Grant. We would like for you to share your thoughts and opinions about how the pedestrian environment in Hildebran can be enhanced to improve safety, create a more enjoyable community and provide more connectivity to various destinations within the Town and surrounding region.

Please take a few minutes to fill out this questionnaire. Questionnaires must be returned by Friday, April 9th, 2009 to Hildebran Town Hall located @ 202 South Center Street, East Burke Senior Center or the office at Hildebran Elementary School. . Additional comments can be written in the space provided or on an attached piece of paper. The results of this survey and additional information about the Comprehensive Pedestrian Plan will be announced at future public meetings and on the Town website.

1. Where do you frequently walk in Hildebran?

_____

_____

a. What park, greenway, boardwalk, sidewalk, path or public open space did you most recently use?

_____

b. How did you get there?

_____

2. List the most frequent destinations in Hildebran where you walk or bike …

_____

_____

3. The main deterrents or barriers to walking and biking to destinations include… *(check all that apply)*
   - o Gaps in sidewalk or missing segments
   - o Uneven or broken surfaces
   - o Unsafe separation from vehicles
   - o Lack of lighting
   - o Absence of marked crosswalks
   - o Inadequate sidewalk width
   - o Tree branches, Trash-cans, or other obstructions
   - o Stray dogs
   - o Other_____

4. Areas I feel most uncomfortable while walking and biking include…

_____

_____

5. Areas I feel most comfortable while walking and biking include…

_____

_____

6. I would walk and bike more places in Hildebran if…

_____

_____

7. Do you have access to walking facilities from your home?
   a) Yes ___ b) No___ From work? a) Yes ___ b) No___

9. If you have children, how do they get to school?
   a) Car ___ b) Bus___ c) Walk___ d) Bike ____

10. Is there a safe route for your children to walk or bike to school? a) Yes ___ b) No___
    If no- If there was a safe route, would you let your children walk or bike to school? a) Yes ___ b) No___

11. Would you use greenways if they were available? a) Yes ___ b) No___

12. How do you get to work?
    a) Car ___ b) Bus___ c) Walk___ d) Bike ____

13. Would you bike or walk to work if you could?
    a) Yes ___ b) No___ c) Maybe___

14. Getting around Hildebran by car is easy and safe.
    a) Agree ___ b) Disagree___ c) No Opinion___

15. Getting around Hildebran on foot is easy and safe.
    a) Agree ___ b) Disagree___ c) No Opinion___

16. Generally speaking, I feel safe and comfortable walking to and from places in Hildebran.
    a) Agree ___ b) Disagree___ c) No Opinion ___

17. Hildebran needs improved pedestrian facilities (trails, greenways, multi-use trails).
    a) Agree ___ b) Disagree___ c) No Opinion___

18. Hildebran should promote and expand pedestrian connections.
    a) Agree ___ b) Disagree___ c) No Opinion___

19. New and Future development in and around Hildebran should be incorporated into the Town's public pedestrian system.
    a) Agree ___ b) Disagree___ c) No Opinion___

HILDEBRAN'S COMPREHENSIVE PEDESTRIAN MASTER PLAN

SURVEY/QUESTIONNAIRE

The Town of Hildebran is initiating a comprehensive pedestrian planning process to help make Hildebran a more livable and walk-able Town that is safer for pedestrians. This project is funded through a North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation Grant. We would like for you to share your thoughts and opinions about how the pedestrian environment in Hildebran can be enhanced to improve safety, create a more enjoyable community and provide more connectivity to various destinations within the Town and surrounding region.

Please take a few minutes to fill out this questionnaire. Questionnaires must be returned by Friday, April 9th, 2009 to Hildebran Town Hall located @ 202 South Center Street, East Burke Senior Center or the office at Hildebran Elementary School. . Additional comments can be written in the space provided or on an attached piece of paper. The results of this survey and additional information about the Comprehensive Pedestrian Plan will be announced at future public meetings and on the Town website.

1. Where do you frequently walk in Hildebran?

Between B&B Food around block and then to North Center St. (1)
Town Hall to BB&T, Town Hall to Food Lion, Town Hall to Dominos (1)
Around old school to NC 10 behind Hildebran Elem. around Korner Café (1)
Walk around the Hildebran school to the baseball fields up to the front of the pizza place back to the school (2)
In my development-Creekside Lane & Oak Knoll within Miller Creek (1)
70 to B&B around block by Town Hall (1)
Around the big block-Old #10, down by B&B, up by Town Hall (1)
Around the school, up past B&B, in front of Espey's, in front of Town Hall (the loop) (1)
To the Town Hall and pool in summer time to the car shows and to swim (1)
Park in Longview turn see side I-40 Longview exit (1)
Walk from CVS to the main street of Hildebran, down to B&B grocery and around the old school house (1)
Beside HUMC, down to Hwy 70, up to Espey's Hardware and back to HUMC
Main block by HES, Espey, Town Hall, etc. (1)
Hildebran First Baptist Church parking lot (1)
Henry River Park-do not like to walk near cars driving (1)

At/around my home (6)
Down my street (1)
Rd. behind my house (1)
Long driveway at home (1)
Trail @ home (1)
Around my neighborhood (6)
Around the block (5)
Around the sidewalks and roads near our apartment (1)
Around my block-Hawthorne Ridge (1)
Sidewalks and roads near home (1)

On my street with no sidewalks (1)

Reep Park (1)
Reed park (1)

Icard school track (1)
Icard Elem. (1)

Pool (1)
Park beside the pool (4)
Hildebran pool (1)
Swimming pool park (1)

Main Street (2)
Main Ave. (1)

Longview Track (2)
Longview (1)
Longview Park (1)
Walking track (2)

Elementary School (3)
Near Hildebran Elementary (1)
Car rider line @ elem. school (1)
Hildebran Elementary (along Hwy 70) (1)

Baseball Field (3)
Ball fields (1)
Football field at Hildebran Elem. (1)
Around the football field (1)
HES ball fields (1)
Around the ball fields behind the elem. school (1)
Around the baseball field at Hildebran school (2)

Gym (2)
In gym (1)

Warlick Church Rd. (1)
Curley's Fish Camp Rd. (2)
Around by B&B (6)
Center of Town (1)
School (10)
4th Ave. (1)
Old NC 10 to ball fields (1)
Few places (1)
Huffman Rd. (1)
Around town (2)
Park at the school (1)
Store on Old NC 10 (1)
Park (3)
Church (1)
Halls (1)
Klen Tech (2)
Main rds. through Hildebran (1)
Rondel Childres St. (1)
Library (6)
Food Lion (3)
In front of the Hildebran Town Hall (1)
70 (1)
Old high school (1)
Sidewalk (7)
Around the police station (2)
Grandmother's house (1)
Old NC 10 (1)
Don't live near a safe area to walk in Hildebran (1)
Cubbard Express (1)
Around the big block-Old #10, down by B&B, up by Town Hall (1)
Most of the areas that have sidewalks (1)
Bank→Library (1)
Track @ park (1)
Old NC 10 to Family Dollar (1)
Penelope Church (1)
Everyday (1)

a. What park, greenway, boardwalk, sidewalk, path or public open space did you most recently use?

Reep Park (7)
Reed Park (1)

Longview Walking Track (6)
Longview (3)
Longview Park (4)

In front of/beside school (6)
Sidewalk close to HES (1)
Sidewalk around school block (2)
Sidewalk in front of Hildebran Elem. (1)

Baseball park (by the school) (1) Sidewalk in front of elem. school (1)

Henry Fork/River Park (10) Henry Ford Park (1)
Henry Fork River Park (soccer field park) (2)

Main Ave. (2) Main St. (1)

Baseball Fields (3) Baseball field's park (1)

Pool (4) Small park beside Hildebran pool (1)
Hildebran pool (1) Park behind/beside pool (6)

Icard walk circle (1) Icard school walking track (1)

North Center St. (1) Sidewalk to BB&T from Town Hall (1)
Sidewalk (14) Library (5)
Public Open Space (2) Town Hall (3)
Park (1) Greenway and bike trail in Morganton (2)
Catawba Greenway (1) South Center St. (1)
Bakers Mtn. (4) Basketball Ct. @ park on hill behind library (1)
Around town (1) All around Hildebran on sidewalks (3)
Hildebran 3rd St. Sidewalk (1) Sidewalks in front of community building (1)
Around B&B/B&B sidewalk (2) Old high school (1)
Valdese (2) Children's Park (Valdese) (1)
Road (1) Sidewalk from Korner Café to Hardees (1)
Bill's Repair to Espeys (1) Through Hildebran along Route 70 (1)
Hwy. 70 by Dominos (1) Cubbard Express (1)
Old Hildebran HS (1) Sidewalk from the pizza place back to the school (2)
Gym (1) Hildebran gym (1)
Greenway (1) Soccer field in Hickory (1)
Park at the school (1) Hildebran Park (1)
Along Hwy 70 (1) Old NC 10 (1)
Hibernian block (1) Blue Ridge Pkwy (1)
South Fork Park (1) Football fields (1)
Rhodhiss Park (3) Neighborhood-Shepherd Ct. (1)
Warlick's Park (1) Around town-school up to pool (1)
YMCA-Catawba Valley (1) Post Office (1)
Food Lion (1) **Jacobfork park (1)**
Sidewalk beside old gym (1) **Glen Hilton Park (1)**
Rondel Childres Development (1)
All that are available in Hildebran- need a walking path/park (1)

b. How did you get there?

From Home (1) Car (104)
Walk, live on Main Ave. West (1) Walk (28)
Bicycle (2) My mom takes me (1)
Live there (2) Driveway at the front of the school (1)
Cross the road from my house (1)

Additional comments: Would bike if better sidewalks (1)

2. List the most frequent destinations in Hildebran where you walk or bike …

My street (1) Around the block (3) Rd. behind my home (1) My development/neighborhood (6)
Hawthorne Ridge (1) Woodland Hills (1) Friends house (1) Long driveway at home (2)
Neighbor's house (1) Neighborhood-Shepherd Ct. (1)

Pool (4) Hildebran pool (2) Community pool (1)

All over (1) Around town (2) Few back streets (1) Sidewalks in Town (3)
Sidewalk in city limits (1) Around the block (1) Around the block (town) (1)

Icard school track (1) Icard elem. (2)

School (14) Baseball Fields (6) Elementary School (6) HES (1)
Hildebran School (1) Hildebran elem. school baseball fields (1) Car rider line @ school (1)
Hildebran Elem. school (4) Football Fields (2) Ball fields behind elem. School (1)
Around school-Hildebran (1) School around baseball fields (1)

Library (6) Town Hall (6) Post Office (3) CVS (3)
Drug store (2) Food Lion (5) Grocery Store (4) Store (2)
Exxon (2) Texaco (1) Bojangles (3) Dominos (2)
Happy Day (1) Hardees (3) B&B Conv. Store (5) Curley's (2)
Espey's Hardware (3) BB&T (1) Bank→Library (1) Park (6)
Gym (5) High school gym (1) Main Street (2) 70 (1)
Old NC 10 (2) Basketball Ct. (1) Uptown (1) School parking lot (1)
Work (1) Walking trail (1) Warlick's Park (1) HFBC (1)
Track @ Park (1) Klen Tech (2) Car Show (1) Circling playing fields (1)
From school road to class (1) Hildebran First Baptist Church parking lot (1)
Halls all the way to the end of the building (1) Main block by HES, Espey, Town Hall, etc. (1)
Around the big block-Old #10, down by B&B, up by Town Hall (1)
Down Food Lion sidewalk, up in front of old school, in behind Dominos and elementary school (1)
Start at Epsey Hardware, go around Hildebran, past BB&T, Bill's Repair, up by B&B, back to Epsey (1)
Start at my house, walk all around Hildebran-past Espey, past B&B, school, Food Lion, Bill's Repair (1)
By Town Hall, down by the hardware store, cut thru to B&B and up by the elem. school (1)
To Town Hall, around the block in front of Hildebran Lutheran Church down by Bill's Repair Shop and around (1)
Beside HUMC, down to Hwy 70, up to Espey's Hardware and back to HUMC (1)

3. The main deterrents or barriers to walking and biking to destinations include… *(check all that apply)*

- o Gaps in sidewalk or missing segments (72)
- o Uneven or broken surfaces (52)
- o Unsafe separation from vehicles (75)
- o Lack of lighting (76)
- o Absence of marked crosswalks (50)
- o Inadequate sidewalk width (38)
- o Tree branches, Trash-cans, or other obstructions (31)
- o Stray dogs (48)
- o Other:
  - No concrete walk on N. Center Street (1)
  - Need more sidewalks (3)
  - No sidewalk across from home (1)
  - No sidewalks (5)
  - No sidewalk on Old NC 10 (1)

Lack of sidewalks (1)
No sidewalks where we want to go (1)
Unpaved sections-mud (1)
No sidewalk on side road to Hardee's (1)
Fairly good streets in this neighborhood (Rondel Childres Development) but we need sidewalks (1)
Too far (1)
I live in the country (1)
Gravel on sidewalk (2)
Weeds (1)
Sidewalks not edged or maintained (1)
Shrubs and trees over grown (in front of Espey's and town hall, storage units (1)
Traffic too fast (2)
Drivers who cannot drive (1)
Too much traffic around the baseball field (not safe, cars go too fast) (1)
Crossing for school zones (1)
No school zone painted on the road to let people know (1)
No caution lights for school hours before and after school (1)
Unsafe separation from vehicles for biking (2)
Not enough area in Hildebran to walk or bike (1)
Specific bike trails (1)
We need a walking track with a playground (1)
No problem walking except behind the old school, where houses are not kept up and you are afraid to walk that way(1)
Need more parking (1)
DK (1)
No way to walk from home to Hildebran-Shoupes Grove Rd. (2)
Checked, but left blank (3)

4. Areas I feel most uncomfortable while walking and biking include…

Main Street (3)
Behind School (1)
Area behind elem. school (1)
Dark Pathways/Areas(11)
Open-well lit areas (1)
No lights (5)
Dealing with traffic (1)
Intersection at Corner Café (1)
Roads in front of Food Lion (1)
Away from the highway (1)
No crosswalks (3)
Across bridge (1)
Old Brittian Rd. (1)
Old NC 10 (2)
Old NC 10 to Hildebran (1)
Wilson Rd. (1)
Near the road (1)
N. Center St. (2)
Brige Ave. to Hildebran pool (2)
B&B Hill (1)
Down hill beside B&B (1)
Woodland Hills (1)
Bojangles (1)
Intersection of Main Ave. & Center St. (1)
Not around HES (1)
Behind the old school, the road between old school and baseball fields (1)
Rd. by B&B-not enough lighting (2)
Around block in evening or early morning before light (1)
No sidewalks (5)
On the road (1)
Across the road @ stop light @ 70 (1)
Corner of Center St. & Hwy 70 (1)
Hwy 10-speed of traffic (1)
Along sidewalk near Dominos (1)
Access rd. by Hardees in Hildebran (1)
A lot of traffic around (2)
Crossing the intersection at Dominos Pizza (1)
In front of Food Lion (b/c of traffic) (1)
Rd. from Hwy 70 @ gas station to Espeys (1)
Intersection at Tommes & the tattoo place (1)
Rd. to Hardee's and in front of Tattoo shop (1)
Side roads/Side roads in Hildebran (3)
Around past Espey's turn down to B&B (1)
Sidewalk from Epsey Hardware to B&B (2)
Between Espey and Sheriff office (1)
Hardees (2)

Bank (2)
Any biking is unsafe (1)
By/around the baseball fields (3)
Stray Dogs (2)
At the park (1)
My neighborhood/yard (1)
Hildebran (1)
DK (1)
None (8)
Food Lion (1)
No bikes (1)
Back streets where fields are (1)
Sidewalk before getting to library-blind spot (1)
Populated parks-not in wooded areas-areas that are patrolled (1)
Areas with no houses or businesses (1)
Troutman has a great walkway (1)
Anywhere in Longview (2)
In front of Ele. Hildebran School down to the store (1)
Around baseball field too much traffic on the road, people drive too fast (1)
Outside of my neighborhood or a park; don't like walking on major roads (1)
Side roads around the school like where the ball field is (1)
Area where you turn R off S. Center St. beside Sheriff's office-that road and the road beside (1)
Past CVS to KFC & back around by the store and Hardee's (2)
Strip down from Food Lion to CVS to KFC
Crossing bridge near fire department & crossing over at the same stoplight from the bridge to the sidewalk (1)

5. Areas I feel most comfortable while walking and biking include…

Sidewalks on 70 & S. Center (1)
Along sidewalk near Dominos (1)
On the sidewalk I-70 (2)
Sidewalk in front of elem. school (3)
Sidewalks (2)
Walking area (2)
Longview walking track (2)
Icard School Track (1)
Parks (4)
In front of Hildebran school (1)
Elementary School (4)
School (15)
Baseball fields (1)
Ball fields (1)
Old Town Hall (1)
Old School (2)
Hwy. 70 in front of B&B (1)
B&B block (1)
B&B foods (1)
Old high school (1)
In Longview (1)
CVS (1)
Pool (1)
Well Lit/Lighted areas (10)
Around block in daylight (1)
Areas with businesses and houses (1)
Main Ave. (2)
My street which is a dead end (1)
Rd. behind my home (1)
Open Areas (3)
City limits (1)
All areas/Everywhere (2)
DK (1)
Where sidewalks are wide & separated from road by planting strips (1)
Sidewalk on NC 10 (2)
Block around the town with sidewalks (1)
Front of HES along 70 (1)
Roads with less traffic (on sidewalks) (2)
Front of HES (1)
Sidewalk with enough distance from passing cars (1)
Henry River Fork Park (2)
Reep Park (1)
Near Hildebran Elementary School (1)
Around by school to light (1)
Down past school (1)
Between the old school and ball fields (1)
Basketball Ct. (1)
Town Hall (5)
Around the big block-Old #10, down by B&B, up by Town Hall (1)
Behind B&B (1)
Hildebran Elem. to B&B (2)
Up beside B&B (1)
Off school campus areas (1)
Around the old Jr. High School and behind it (1)
Library (2)
Hawthorne Ridge (1)
Lighted areas that are safe (2)
Safe looking (1)
More populated areas (3)
Main St. (3)
More residential areas (1)
My yard/neighborhood (6)
Off the road (1)
Through town (1)
Most all (1)
Quiet areas with little or no vehicular traffic (1)

None (1)
Hickory City Park near Henry River I-40 access Rd. (1)
Walking tracks (1)
Korner Kafe to B&B to Espey because of nice, new sidewalk and gives up and down hill walking
Down sidewalks on Main St., by the pool and back up by the school (1)
Down by the pool & back up past the school (1)

6. I would walk and bike more places in Hildebran if…

More sidewalks (25)
Adequate sidewalks (1)
All have sidewalks (1)
Wider sidewalks (2)
Walkways all connected (1)
Somewhere to walk or bike (2)
More bike trails (1)
Better walking facilities (track) (1)
Smooth Surfaces (2)
Greenway (2)
Better walkways (1)
More walkways (1)
More parks or access areas (1)
Better parks (1)
Park with trees (1)
No places to ride bikes for kids (1)
More parks (1)
More destinations (1)
More lighting (19)
Felt safer (2)
Society was a little safer (1)
It was a safe area (1)
More crosswalks (4)
No cars were allowed (1)
Safer crossing bridge near fire dept. (1)
Could get there safely (1)
I could get to them (1)
I just walk in my development (1)
Time (5)
DK (1)
Sidewalks were on N. Center St. (1)
Sidewalk access from home to Hildebran (1)
Wider sidewalks and more paved areas (2)
More sidewalks in neighborhoods (1)
Sidewalks on both sides, not just one side (2)
Place to walk or ride, not close to road (8)
Was a walking track (3)
Better drives and sidewalks (2)
Park to walk in or a pathway (1)
There was a track at the school (1)
There was a greenway-not walking besides main roads (1)
Walkway with a barrier or wide separation between cars (1)
Designated areas (4)
More access to parks, trails, paths (1)
Level places to ride bikes with son (1)
There were more available (1)
Sidewalks maintained to a standard of safety (1)
Fun/Better destinations (2)
Track or path with lights that felt safe (1)
More places that were safe (6)
It was safer (3)
Police presence was greater (1)
Crosswalks activated with flow of traffic (1)
Traffic would slow down for pedestrians (1)
Stoplight in front of police station, CVS (1)
I/My child was older (2)
Lived closer in town (1)
Fine where I walk, its part of my everyday life (2)
I wanted to (2)
Had a walking track with a playground so the kids and I could exercise at the same time (1)
Areas that have sidewalks are great. Houses behind the old school need improvement. Where we wait in line for car riders (1)
With all the crimes happening in various places-would feel safer with other people to walk with (1)
It were promoted more with people walking-I don't see that many people walking and wouldn't feel comfortable walking around alone (1)

7. Do you have access to walking facilities from your home?

a) Yes (55) b) No (81)

8. Do you have access to walking facilities from work?

a) Yes (31) b) No (66)

9. If you have children, how do they get to school?

a) Car (104) b) Bus (40) c) Walk (2) d) Bike ____

10. Is there a safe route for your children to walk or bike to school? a) Yes (8) b) No (130)
If no- If there was a safe route, would you let your children walk or bike to school? a) Yes (21) b) No (97) c) Maybe (6)

11. Would you use greenways if they were available? a) Yes (129) b) No (8)

Additional Comments: Don't know…what is a greenway? (1)
? (5)

12. How do you get to work?
a) Car (140) b) Bus___ c) Walk (1) d) Bike ____

13. Would you bike or walk to work if you could?
a) Yes (48) b) No (58) c) Maybe (38)

Additional Comments: My work is too far (9)

14. Getting around Hildebran by car is easy and safe.
a) Agree (131) b) Disagree (8) c) No Opinion (9)

15. Getting around Hildebran on foot is easy and safe.
a) Agree (56) b) Disagree (44) c) No Opinion (48)

Additional Comments: Depends upon specific sections of Town (3)
Sometimes (1)
Agrees and Disagrees (2)
Agree in most cases without children (1)

16. Generally speaking, I feel safe and comfortable walking to and from places in Hildebran.
a) Agree (89) b) Disagree (29) c) No Opinion (31)

Additional Comments: I feel safe, but I don't feel safe enough for children (1)
Agrees and Disagrees (2)
Sometimes (1)

17. Hildebran needs improved pedestrian facilities (trails, greenways, multi-use trails).
a) Agree (129) b) Disagree (3) c) No Opinion (14)

Additional Comments: "Hildebran needs improved…." and sidewalks
Maybe (1)
A park for general use would be great (1)

18. Hildebran should promote and expand pedestrian connections.
a) Agree (134) b) Disagree (2) c) No Opinion (9)

Additional Comments: "Hildebran should promote…" and sidewalks.
Maybe (1)

19. New and Future development in and around Hildebran should be incorporated into the Town's public pedestrian system.
a) Agree (137) b) Disagree___ c) No Opinion (8)

Addl. Comments: Ordinance may need to require sidewalks at new commercial development and large subdivisions. (1)
I think a safety patrol at school (an adult) would help parents and children feel safer. Also, a light at CVS might help safety (1)
This depends on how and what will be needed to make it happen (1)
I think greenways (lighted) and sidewalks (with lights) are a great idea (1)
The Town's history for maintaining what sidewalk areas they currently have does not speak well of the Town's desire to provide long term maintenance for a more expensive project (1)
We could always use improvement in the future, but I think Hildebran has done a great job with the walkways and sidewalks (1)

U.S. Census Bureau
American FactFinder

FACT SHEET

Hildebran town, North Carolina

View a Fact Sheet for a **race, ethnic, or ancestry group**

Census 2000 Demographic Profile Highlights:

General Characteristics - show more >>	Number	Percent	U.S.		
Total population	1,472			map	brief
Male	679	46.1	49.1%	map	brief
Female	793	53.9	50.9%	map	brief
Median age (years)	38.5	(X)	35.3	map	brief
Under 5 years	94	6.4	6.8%	map	
18 years and over	1,140	77.4	74.3%		
65 years and over	259	17.6	12.4%	map	brief
One race	1,463	99.4	97.6%		
White	1,365	92.7	75.1%	map	brief
Black or African American	17	1.2	12.3%	map	brief
American Indian and Alaska Native	8	0.5	0.9%	map	brief
Asian	65	4.4	3.6%	map	brief
Native Hawaiian and Other Pacific Islander	0	0.0	0.1%	map	brief
Some other race	8	0.5	5.5%	map	
Two or more races	9	0.6	2.4%	map	brief
Hispanic or Latino (of any race)	10	0.7	12.5%	map	brief
Household population	1,436	97.6	97.2%	map	brief
Group quarters population	36	2.4	2.8%	map	
Average household size	2.41	(X)	2.59	map	brief
Average family size	2.88	(X)	3.14	map	
Total housing units	626			map	
Occupied housing units	597	95.4	91.0%		brief
Owner-occupied housing units	413	69.2	66.2%	map	
Renter-occupied housing units	184	30.8	33.8%	map	brief
Vacant housing units	29	4.6	9.0%	map	

Social Characteristics - show more >>	Number	Percent	U.S.		
Population 25 years and over	1,020				
High school graduate or higher	697	68.3	80.4%	map	brief
Bachelor's degree or higher	131	12.8	24.4%	map	
Civilian veterans (civilian population 18 years and over)	138	12.2	12.7%	map	brief
Disability status (population 5 years and over)	403	29.0	19.3%	map	brief
Foreign born	48	3.2	11.1%	map	brief
Male, Now married, except separated (population 15 years and over)	341	63.9	56.7%		brief
Female, Now married, except separated (population 15 years and over)	342	52.3	52.1%		brief
Speak a language other than English at home (population 5 years and over)	93	6.7	17.9%	map	brief

Economic Characteristics - show more >>	Number	Percent	U.S.		
In labor force (population 16 years and over)	804	68.5	63.9%		brief
Mean travel time to work in minutes (workers 16 years and over)	18.2	(X)	25.5	map	brief
Median household income in 1999 (dollars)	34,028	(X)	41,994	map	
Median family income in 1999 (dollars)	43,542	(X)	50,046	map	
Per capita income in 1999 (dollars)	15,835	(X)	21,587	map	
Families below poverty level	24	6.0	9.2%	map	brief
Individuals below poverty level	127	8.6	12.4%	map	

Housing Characteristics - show more >>	Number	Percent	U.S.		
Single-family owner-occupied homes	320				brief

Median value (dollars)	83,100	(X)	119,600	map	brief
Median of selected monthly owner costs	(X)	(X)			brief
With a mortgage (dollars)	864	(X)	1,088	map	
Not mortgaged (dollars)	200	(X)	295		

(X) Not applicable.
Source: U.S. Census Bureau, Summary File 1 (SF 1) and Summary File 3 (SF 3)

Sample Sidewalk Project Cost Estimate

SRTS Infrastructure Cost Estimate
Prepared by:

General Earthwork	Unit Cost	Line Item Units	Line Item Cost
Basic Excavation	3.50/cubic yard	750 cubic yards	2,625.00
Silt Fence/Tree Fence	3.50/l.f.	11,537 l.f.	40,380.00
Materials			
Concrete Sidewalk (11,537l.f. x 5' width)	25.00/sq. yd.	6,410 sq. yd.	160,237.00
Wheelchair ramp (double)	1,000.00 each	4	4,000.00
Wheelchair ramp (single)	700.00 each	32	22,400.00
Signage	6.00/sq. ft.	54 sq. ft.	324.00
Thermoplastic 24" stripes	7.50/l.f.	166 l.f.	1245.00
Thermoplastic 8" stripes	2.20/l.f.	968 l.f.	2,130.00
Thermoplastic lettering	25.00/letter	36 letters (at crosswalks)	900.00
Seed/Mulch	2,500.00/acre	1.00 acres	2,500.00
Extending drainage pipes 18" (@ driveways)	23.00/l.f.	48 l.f.	1,100.00
Bike Racks (@ school)	500.00 each	2	1,000.00
		Subtotal	**238,841.00**
Miscellaneous			
Preliminary Design/Engineering	10% of total cost		23,884.10
Mobilization	5% of total cost		11,942.05
Contigency	10% of total cost		23,884.10
		Total Cost Estimate	298,551.25

The information provided in this report is a good faith estimate based on recent construction costs encountered by the landscape architect.

I certify that I have reviewed and approved the cost estimate above