PEDESTRIAN NETWORK PLAN Chapter 3

3.1 Overview

A new pedestrian network plan for the City of Graham has been developed based on an examination of the existing conditions (Chapter 2) and an understanding of the community's vision and goals for an improved pedestrian network (Chapter 1). A review of the methodology and prioritization process used to create the Pedestrian Network Plan is provided below, followed by descriptions of the individual network components: Pedestrian corridors, sidewalk improvements, intersection improvements, and greenways.

3.2 Pedestrian Network Methodology

A variety of information sources were consulted during the development of the Pedestrian Network, including previous plans and studies, the consultants' fieldwork, public input, and noted pedestrian trip attractors. See Figure 3.1 below for a complete list of information inputs.

Figure 3.1 - List of Information Inputs for the Graham Pedestrian Network

- Locations of existing facilities, gaps in those facilities, and/or ROW
- Locations of the existing arterial roads into Graham
- Locations of important trip attractors (schools, parks, shopping areas, Downtown, etc)
- Locations of major street intersections and crossings
- Locations of safety concern (high pedestrian and auto traffic and inadequate facilities)
- Opportunities for greenway development including open space, available land, and easements
- Public comments made during community workshops and surveys
- Recommendations from representatives of the Steering Committee
- Field observations made in Spring - Fall 2005
- Projects and recommendations from Transportation Plan Update, Growth Management Plan, and Recreation and Parks Plan
- Recreational and transportation routing

Several concepts were developed as guides for the network development process. These concepts represented the interests expressed by the client, the steering committee, and the public. They also help achieve the goals articulated in other local planning documents. Some of the concepts that guided the development of the network included:

1) Residents and visitors, of all different capabilities, should be able to walk safely in Graham.

2) There should be adequate pedestrian access and connectivity to Downtown, schools, shopping areas, surrounding areas, and across I-40/85.

3) Pedestrian facilities should be developed along arterial streets where no sidewalk exists or where sidewalk gaps exist.

4) Crossings should be designed or retrofitted to improve the safety of pedestrians.

5) Off-road trails, or greenways, should be proposed and developed to take advantage of open space and hydrological resources, creating a nature recreation experience for pedestrians, and connected into the sidewalk pedestrian environment.

3.2.1 Prioritization Process

Using the information inputs and guiding concepts, a draft pedestrian network map was developed. All recommended sidewalks were then prioritized based on the pedestrian potential factors listed in Figure 3.2[1]. Intersections and greenways are prioritized by different means described later. The fifteen factors used for this Pedestrian Master Plan were customized for the City of Graham by selecting and weighting the factors according to public input, steering committee input, and the guiding concepts noted above.

Figure 3.2 - Pedestrian Potential Factors

- Elementary School Proximity -1/2 mile radius
- Middle School Proximity -1/2 mile radius
- High School Proximity –1/2 mile radius
- Direct Access to or from a School.
- Parks, Recreation Centers, and Playgrounds Proximity -1/2 mile radius
- Direct Access to/from Programmed Greenways – Based on the City of Graham Comprehensive Recreation and Parks Master Plan
- Direct Access to/from Proposed Greenways – Based on the City of Graham Comprehensive Recreation and Parks Master Plan
- Direct Access to/from High Density Residential – Based on the City of Graham Zoning for Multifamily Residential (R-MF)
- Direct Access to/from Future Development – Based on the City of Graham Growth Management Plan's Traditional Neighborhood Development (TND) and Village Center (VC) areas
- Direct Access to/from Central Business - Based on the City of Graham Zoning (B-1)
- Direct Access to/from General Business - Based on the City of Graham Zoning (B-2)
- Direct Access to/from Neighborhood Business - Based on the City of Graham Zoning (B-3)
- Commercial Corridor – Main (Hwy 87), Elm, and Harden (Hwy 54)
- Point of Interest Proximity (1/2 mile radius) – Includes Graham Historical Museum and Graham Public Library
- Regional and Citywide Connections - Includes links in and out of Graham & across 40/85
- Connections to/from Downtown - Based on the City of Graham Growth Management Plan's Town Center (TC) and Neighborhood Center (NC) areas
- Connectivity to Existing Sidewalks – Based on sidewalk GIS layers created by Greenways Incorporated

See Appendix B: Prioritization Index for the list of proposed projects and their priority ranking.

3.3 The Network

The Pedestrian Network consists of sidewalks, intersections, and greenways that should be improved or developed to create a system of safe and convenient pedestrian facilities throughout the City. The network includes on-road pedestrian facilities (sidewalks, intersection and crosswalk improvements) and off-road facilities (greenways). The newly proposed network includes **40** miles of pedestrian sidewalks, **1.2** miles of sidewalk improvements, **25** intersection improvements, and **24** miles of greenways, all shown in Map 2. It is anticipated that the network will be completed in phases congruent with the project priority index noted above. However, the network segments should be developed when there is opportunity, regardless of the order. Successful development of the City of Graham's Pedestrian Network will require a long-term, cooperative effort between the City of Graham, the North Carolina Department of Transportation, Alamance County, Burlington-Graham MPO, and other local and state agencies. Regional connectivity should also be considered during future development of the sidewalk and greenway network, especially with the City of Burlington and the MST (Mountains-to-Sea Trail).

All pedestrian corridor projects undertaken by the City of Graham should aim to meet the highest standards possible. At a minimum, the corridors should possess curb cuts with ramps at all driveways and intersections. Within each identified corridor, intersections should have marked crosswalks, and major intersections should have pedestrian crossing signals. Sidewalks should be constructed on both sides of the street along thoroughfares and residential collectors. Wider sidewalks, with curb cuts and improved surface conditions will correct sidewalks that currently do not satisfy the guidelines set forth by the Americans With Disabilities Act of 1991. Traffic calming measures, such as curb extensions, traffic circles, medians, and pedestrian islands should be used to create a more hospitable environment for pedestrians in neighborhoods and in dense pedestrian districts. Finally, opportunities should be taken to incorporate pedestrian facilities into all municipal and State roadway construction and widening projects, even if the route is not designated as a pedestrian corridor within this plan.

The four main types of pedestrian projects mentioned above have been identified for the City of Graham and are outlined below. They include Sidewalks, Sidewalk Improvements, Intersection Improvement Projects, and Greenway Corridors. Design guidelines in Chapter 6 provide detailed information regarding proper placement and facility treatments. Appendix D provides lengths and cost estimates for each segment.

3.3.1 Sidewalks

Sidewalk projects are proposed road segments requiring sidewalk to provide adequate pedestrian connections across the City of Graham. The pedestrian sidewalk network connects trip attractors, especially Downtown, schools, future development areas, commercial areas, and allows a pedestrian to access all areas of the City. The aforementioned Priority Index (Appendix B) distinguishes short-term, medium-term, and long-term pedestrian corridor projects. The top priority/short-term pedestrian sidewalk projects are summarized in Figure 3.3. It should be noted that each recommended corridor has its obstacles. For example, Main Street stretches

under an I-40/85 bridge. Providing safe pedestrian facilities across on-off ramps will require cooperation and work with the NCDOT to provide a design solution.

Figure 3.3 – Top Priority / Short-Term Projects

Primary Pedestrian Corridors	From	To
Elm	Flanigan	Parker
Town Branch	Elm	Teer
Main	Rogers	Robin
Melville	Robin	Harden
Trollinger	Elm	Town Branch
Elm	Oneida	Boone
Main	Robin	Pine
Pine	Home	Maple
Marshall	Parker	Harden
Market	Main	Marshall
Harden (Hwy 54)	Pine	Melville
Pine	Goley	State Road 54
Main	Thompson	Rogers
Gilbreath	Ivey	Ray
Robin	Main	Apple
Harden (Hwy 54)	Ivey	Pine
Parker	Melville	Dead End
Goley	Johnson	Pine
Ray	Gilbreath	Cul-de-sac
Maple	Gant	Ward
Ward	Maple	Banks
Harden (Hwy 54)	Cooper	Ivey
Ivey	Main	Gilbreath
Rogers	Thompson	Main
Poplar	North	Elm

Town Branch Rd., a top priority project.

Pedestrian on Parker St., a top priority project.

3.3.2 Sidewalk Improvement Projects

While it is important to add to the current network with the pedestrian corridors above, some existing sidewalks within Graham need improvements because of deteriorating conditions and/or narrow width. A maintenance program, described in Chapter 5, will be critical to keeping all existing and future sidewalks in good, safe condition. The two significant sidewalk improvement projects are: 1) N. Main St. from Providence to Albright and 2) Maple from N. Main to Ward. Sidewalks along both these stretches are older and have seen deterioration and in many locations, are too narrow.

N. Main St. has a sidewalk buffer but sidewalks are narrow and deteriorating in places.

3.3.3 Intersection Improvement Projects

Numerous problematic intersections have been identified in the City of Graham. Intersection Improvement Projects range from repainting crosswalks to modifying underpasses along I-40/85. Correcting dangerous crossings of all magnitudes will encourage pedestrian travel and connect isolated areas safely. Twenty-five intersections have been identified as significant problem spots through field research, steering committee suggestions and public input. This list of intersections does not include all of the many necessary crosswalk improvements along the proposed corridors cited above. At a minimum, painted crosswalks and curb ramps should be provided at all intersections when sidewalks are present. The intersections listed below require more than this minimum provision at each intersection leg (unless otherwise stated) to become safe, accessible, and convenient for pedestrians. Recommended improvements are provided for each:

Immediate Downtown:

- ***N. Main and Court Square***
  Landscaped pedestrian refuge island
  Re-stripe crosswalks to continental design

- ***E. Elm and Court Square***
  Landscaped pedestrian refuge island
  Re-stripe crosswalks to continental design

- ***S. Main and Court Square***
  Landscaped pedestrian refuge island
  Re-stripe crosswalks to continental design

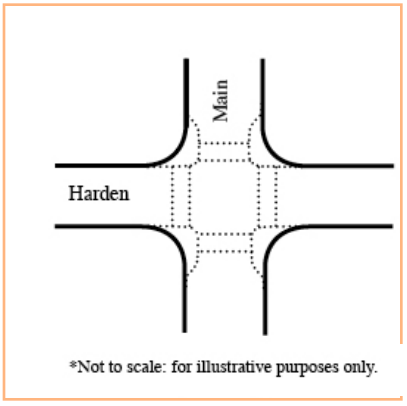
- ***W. Elm and Court Square***
  Landscaped pedestrian refuge island
  Re-stripe crosswalks to continental design

- ***Harden and Maple***
  Pedestrian signal
  Re-stripe crosswalks to continental design

- ***Main and Harden***
  Re-stripe crosswalks to continental design
  Pedestrian countdown signal
  Curb bulb-outs on Main (see diagram)

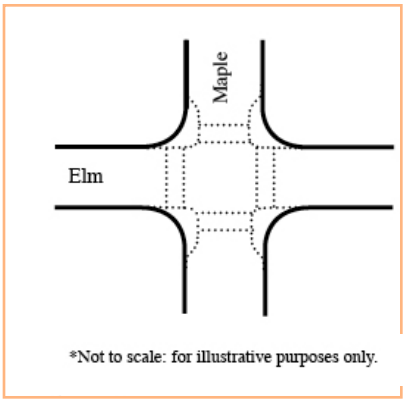
- ***Marshall and Harden***
  Re-stripe crosswalks to continental design

Figure 3.4 – Improvements to Main & Harden



- ***Elm and Maple***
  Re-stripe crosswalks to continental design
  Pedestrian countdown signal
  Pedestrian refuge island on west side of intersection
  Curb bulb-outs on Maple and east side of Elm (see diagram)

Figure 3.5 – Improvements to Elm & Maple



- ***Elm and Marshall***
  Re-stripe crosswalks to continental design
  Curb Ramps (underway as of Summer 2006)
  Relocate signs and utilities from corner

- ***Pine and Maple***
  Crosswalks and crosswalk re-stripe to continental design
  Pedestrian signal
  Curb ramps (some existing)

- ***Main and Pine***
  Crosswalk re-stripe to continental design
  Pedestrian countdown signal
  Curb ramps on eastern corners (underway as of summer 2006)
  Curb ramps on western corners (should be modified to one per crosswalk, rather than one per corner, as is currently provided)

- ***Pine and Marshall***
  Re-stripe crosswalks to continental design
  Curb Ramps (underway as of Summer 2006)

Potential School Route:

- ***Elm and Trollinger***
  Crosswalks
  Pedestrian countdown signal
  School Zone/Pedestrian X-ing signs on Elm

- ***Elm and Albright*** (Uncontrolled Intersection)
  Crosswalks
  Advanced warning signage
  School Zone/Pedestrian X-ing signs on Elm

- ***Elm and Town Branch*** (Uncontrolled Intersection)
  Crosswalks
  Advanced warning signage
  School Zone/Pedestrian X-ing signs on Elm
  Pedestrian refuge island on Town Branch side of intersection (landscaping potential)

'Yield to Pedestrian in Crosswalk' sign on Town Branch side of intersection

- ***Elm and Harden***
  Crosswalks and crosswalk re-stripe to continental design
  Curb ramps (only one is existing)
  Pedestrian countdown signal
  Pedestrian refuge island on east side of intersection (landscaping potential)
  'Yield to Pedestrian in Crosswalk' signage on north and east side of intersection
  Advance stop line on north side of intersection

- ***Pine and 54 (Harden)***
  Crosswalks
  Pedestrian countdown signal
  School Zone/Pedestrian X-ing signs on 54 (Harden)
  Pedestrian refuge island on northeast side of intersection (landscaping potential)

Pine & Harden, an intersection improvement project. This area sees pedestrian traffic from Graham Middle School.

- ***Main and Ivey***
  Crosswalks and crosswalk re-stripe to continental design
  Pedestrian countdown signal

Citywide:

- ***Main and Crescent***
  Crosswalks
  Pedestrian countdown signal

- ***Main and I-40/85***
  Needs further study, see Section 5.5

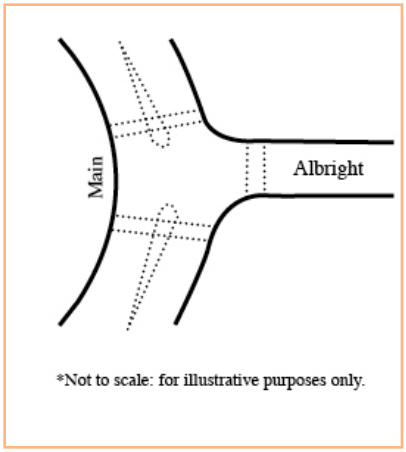
- ***Maple and I-40/85***
  Provide space for 5' pedestrian walkway when bridge is replaced

- ***Main and Gilbreath***
  Re-stripe crosswalks to continental design
  Pedestrian countdown signals

Main and I-40, another intersection improvement project. This area sees a heavy amount of pedestrian traffic through commercial areas as indicated by the

- ***Main and Albright***
  Crosswalks
  Curb ramps
  Pedestrian refuge islands on Main (see diagram)
  Pedestrian X-ing signs on Main
  'Yield to Pedestrian in Crosswalk' signs on refuge island median

Figure 3.6 – Improvements to Main & Albright



- ***Main and Hill/Maple/Guthrie***
  Crosswalks
  Curb ramps at Guthrie and Main
  Pedestrian signals across Main

- ***Main and Parker***
  Crosswalks
  Curb ramps
  Pedestrian signal across Main

- ***Washington and Providence***
  Crosswalks
  Curb ramps
  Pedestrian signal
  Pedestrian refuge island on east side of intersection
  'Yield to Pedestrian in Crosswalk' on east side of intersection
  Relocate commercial signs on corners

3.3.4 Greenway Corridors

Greenway corridor projects include off-road pedestrian facilities, typically taking advantage of linear stream corridors, easements, and other tracts of open space. Greenways can provide excellent alternative transportation and recreation options through a more natural setting and also serve an environmental purpose, to protect forests and enhance water quality. The focus of these corridors will be to provide access and connectivity between residential and recreational pedestrian environments. These corridors were chosen because they were recommended in the Recreation and Parks Service's Comprehensive Plan and due to the availability of linear, undeveloped open space. Negotiations with landowners will be necessary to acquire greenway right-of-way along some portions of the Haw River, Big Alamance Creek, and Little Alamance Creek. Otherwise, the City of Graham can capitalize on sewer easements and open space along portions of these waterways.

It has been recently decided that the Haw River Greenway will become part of the MST (Mountains-to-Sea Trail). The City and Recreation and Parks Department should maintain close involvement with the MST effort to ensure that the Haw River Greenway indeed becomes a viable portion of this cross-state greenway system. Involvement with that project ensures

access to important information such as acquisition strategies, signage, marketing, and potential funding sources. A toolbox of acquisition strategies is detailed in Chapter 5.

The greenways listed in Figure 7 are in order of priority based on a combination of need and opportunity.

Figure 3.7 – Greenway Corridors

- The Haw River Greenway (MST Trail)
- Bill Cooke Park Perimeter Trail
- N. Graham Elementary and Graham High School connection to Bill Cooke Park (Mountain Bike Trail)
- The Little Alamance Creek Greenway
- Corridor from Main St. to Ray St. (Board of Education site and future Village Center) (Follows easement of County Home Branch, sewer, and I-40)
- The Big Alamance Creek Greenway

3.3.5 Further Recommendations

Building on the network description provided above, Chapter 4 describes program and policy recommendations that support this Plan. Implementation steps are summarized in Chapter 5. Chapter 6 encompasses pedestrian facility treatments and design guidelines. Together, these chapters provide a complete picture of the nature and design of the new pedestrian network.

(Footnotes)

[1] Similar factors are used for exemplary alternative transportation plans across the country, such as the Portland Pedestrian Master Plan and the Multimodal Corridor Assessment for the Boulder Transportation Master Plan.

Downtown Graham