Town of Mars Hill
Pedestrian Plan

Adopted by the Mars Hill Board of Aldermen on July 10, 2007

Land-of-Sky Regional Council

This Pedestrian Plan for the Town of Mars Hill was prepared by Land-of-Sky Regional Council, working with the North Carolina Department of Transportation and the Town's Pedestrian Plan Advisory Committee. The North Carolina Department of Transportation, Division of Bicycle and Pedestrian Transportation provided the majority of funding for this plan.

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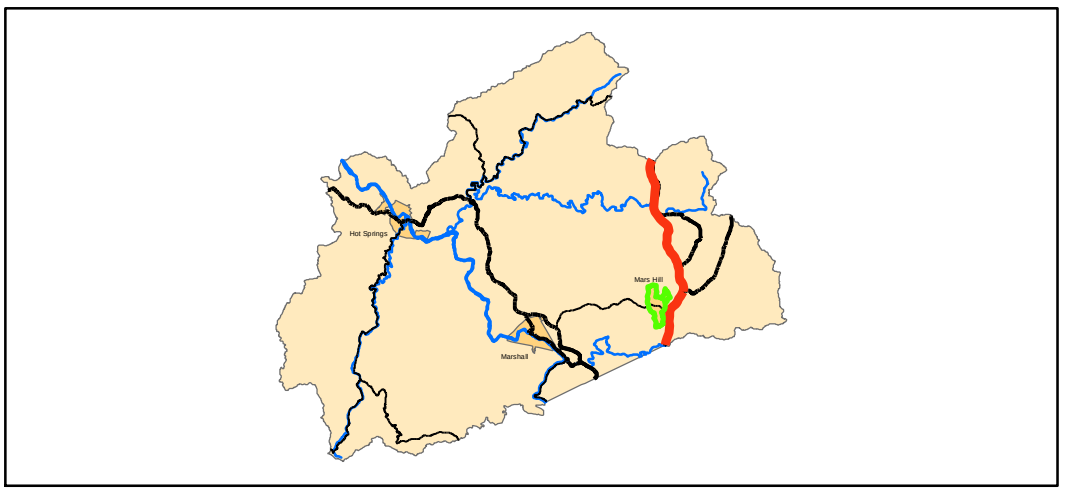
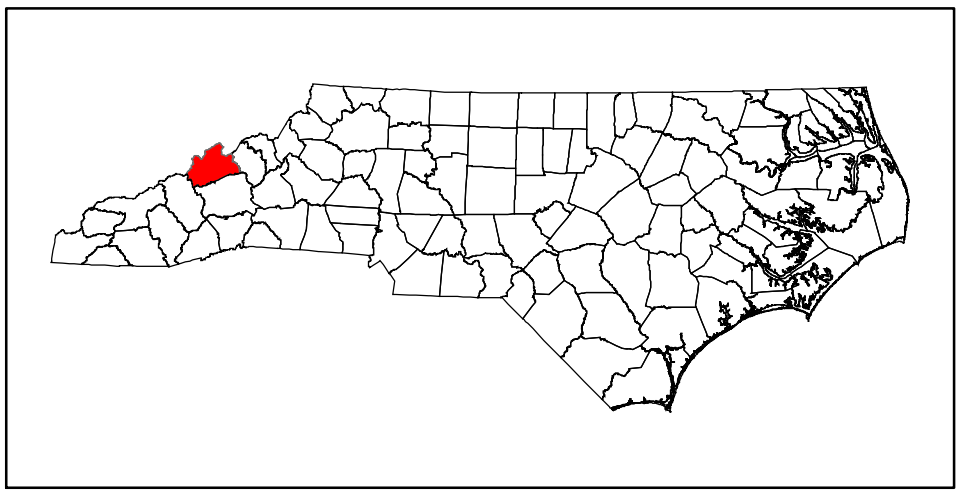
Madison County



North Carolina



Section 1: Introduction

1.1. Background

Mars Hill is a small, growing town in rural Madison County, in the mountains of western North Carolina. Map 8-1 shows the Town's location in the county and state. The Town's 2004 population was 1,904 (NC State Data Center), with approximately one-third of the population living in Mars Hill College dormitories. The population grew almost ten percent between 1990 and 2000, and it appears to be continuing to grow at a similar rate. This growth has caused worsening downtown congestion and parking scarcity. These things have encouraged more students and residents to walk and bicycle more for transportation. According to the 2000 Census, Mars Hill had the third highest percentage of pedestrian commuters among small NC communities. This designation came without an integrated sidewalk or bicycle network or much detailed planning for its development. This Plan is an attempt to put some thought and planning into the pedestrian network and facilities needed for the Town.

The Town of Mars Hill realizes the importance of having and developing a network of pedestrian infrastructure and facilities to serve its population and workforce. In 1996, the Town completed a Strategic Plan that recommended an increase in pedestrian and recreational facilities based upon a comprehensive community survey of 250 of the Town's residents and the findings of a Citizens Steering Committee and the Planning Board. Soon after completing the Strategic Plan, Mars Hill in cooperation with Handmade in America, conducted a Main Street Community Assessment that strongly suggested sidewalk and streetscape improvements for Main Street and NC 213. This resulted in the creation of a Mars Hill Community Development Committee and an Appearance Commission.

When it updated its Land Development Plan in 2001, the plan contained a number of recommendations related to pedestrian infrastructure. The "Transportation Issues" growth management objective states:

> "Work to utilize all forms of transportation in Mars Hill. Maximize the efficiency of existing roads through the update and review of the existing thoroughfare plan. Support all pedestrian travel options as legitimate transportation alternatives, which will reduce traffic congestion and parking problems in the town."

It further defines policies which direct the Town to examine pedestrian needs when designing and evaluating road construction projects, to consider traffic calming measures and to look at ways to reduce traffic congestion.

In late 2004, the Town applied for and received a planning grant of $16,000 from NC Department of Transportation (NCDOT) to fund this plan. The plan covers the entire Town. It examines current conditions and identifies future pedestrian and related facilities needs. The Town formed a steering committee in the fall of 2005 to oversee the planning project. Various interests are represented on the steering committee: Town

government; Town Planning Board; Mars Hill College; Parks and Recreation; senior adult community; Rural Transportation Planning Organization; and NC DOT.

1.2. Vision Statement

The Steering Committee discussed and developed a vision regarding pedestrians and pedestrian facilities in Mars Hill at their first meeting. This vision was affirmed at the April 25, 2006 public input meeting and through the survey results. Here is the vision:

> *Mars Hill is a pleasant, scenic place to walk around. Sidewalks and walkways link neighborhoods to each other and to downtown and many people of all ages walk and bicycle to get around town and to exercise. Mars Hill is a safe place for people to walk around; previously unsafe intersections or roadway sections have been improved with better crosswalks, signals or other traffic calming treatments. People living in the community feel welcome and safe walking on Mars Hill College campus. All new roads and road improvements include accommodations for pedestrians.*

1.3. History

Mars Hill is a town that is rich in history, character and people. It is located in the southern portion of Madison County in an area known for its rural character, beautiful mountain views, and proximity to Asheville, NC. Significant components of the local economy include education, tourism and recreation, retirees and agriculture.

The Town's history is inextricably linked with that of Mars Hill College, the oldest educational institution in Western North Carolina. It was founded by a small group of citizens in 1856 and was chartered by the North Carolina General Assembly as Mars Hill College in 1859. The College is located in the heart of downtown, adjacent to Main Street. Over 1,000 students attended classes on campus and close to 75% of the students live on campus and walk to their classes and other in-town destinations.

Mars Hill College entrance sign

In recent years Mars Hill has experienced a significant influx of retires relocating to the area. They often build new homes or purchase condominiums in retirement communities. A majority of these new residents live near downtown and have expressed strong support for enhanced pedestrian facilities in and near their communities. They want to be able to walk into town for business, shopping and recreation. They also hope to have a viable transportation option when they are no longer able to drive an automobile.

The downtown area of Mars Hill was built with sidewalks on the main streets. Mars Hill College has a network of sidewalks and walkways connecting campus buildings and facilities. Sidewalks connect downtown to the College in the downtown core area. Outside the core downtown and college areas, there are fewer sidewalks and the terrain becomes hillier.

Main Street in downtown Mars Hill, looking north from NC 213

Sidewalks have been built along a couple of the main residential streets – Mountain View, South Main – over the past five to ten years. In 2005, a new sidewalk was completed along NC 213, from downtown towards I-26, connecting the college and downtown to a large grocery store and other retail and restaurant establishments. Many people now use this section of sidewalk.

1.4. Goals and Objectives

The Pedestrian Plan Steering Committee outlined the following goals for this Pedestrian Plan at the beginning of the planning process:

- Identify high priority projects and those that are easy to accomplish;
- Identify various funding sources for pedestrian facilities planning, design and construction;
- Identify and make plans to address pedestrian safety issues;
- Identify pedestrian connections that will draw people towards services and businesses and encourage walking to/from these places; and
- Look at both short term and long term needs and desires.

1.5. Scope and Purpose of Plan

The geographic focus of this plan is the area within the Mars Hill town limits. Mars Hill has an extraterritorial planning jurisdiction (ETJ) that extends approximately one mile outside the town limits. The ETJ area is predominantly rural, with a hilly terrain and generally low traffic volumes. As new subdivisions are proposed and developed in the ETJ, pedestrian issues need to be considered and may be addressed through changes to the subdivision ordinance as a result of this plan.

The purpose of developing this plan is to give the Town and NC DOT a better understanding of pedestrian-related needs and priorities and to put the Town in a better position to apply for and receive funding to meet these needs. The Town also hopes to raise awareness about the health benefits of walking with this plan. The long-term results will be a more complete and safe town-wide pedestrian network of infrastructure, with many town residents, guests and students walking around for many of their trips.

Section 2: Current Conditions

2.1. Overview

Existing sidewalks in Mars Hill are mostly in good condition, with about 25% needing some repair. Not including sidewalks and walkways on the Mars Hill College Campus, the Town has almost three miles of sidewalks throughout town. A few of the main and more centrally located residential streets – Chestnut, North and South Main, Bailey and part of Mountain View – have sidewalks. The newest sidewalk sections are along Highway 213, connecting downtown to the Ingles grocery store and businesses in between and extending out from downtown on North and South Main Streets. Unfortunately, many of the residential areas of Mars Hill do not have sidewalks and the current network is highly fragmented. Existing sidewalks are shown on Map 8-2.

New sidewalk along NC 213, looking towards downtown.

Mars Hill College has four miles of sidewalks and walkways on campus. This integrated network of pathways provides access to educational and recreational facilities. To address pedestrian safety issues for students, the College, Town and NCDOT worked together to install crosswalks on NC 213 (2003) and median islands and lighting (2005).

Walkways on Mars Hill College Campus

Mars Hill also maintains a ½ mile walking trail along Gabriel Creek. The Gabriel Creek Educational Trail is very popular with the community and is used for outdoor educational programs by Mars Hill College and other local schools. It runs from Bailey Street to the field below the Elementary School. It was constructed in 1999 with funds from the state and the Pigeon River Fund and has exhibits on the effects of sedimentation and stormwater runoff on aquatic life. The Town plans to extend the trail into the elementary school property and hopefully beyond, following the creek to the north section of Bailey Street (see proposed trail extension on Map 8-3).

2.2. Community concerns, needs and priorities

The Town formed a steering committee in the fall of 2005 to oversee this Pedestrian Plan project. Various interests are represented on the steering committee – Town government, Town Planning Board, Mars Hill College, Madison County Parks and Recreation, senior adult community, Rural Transportation Planning Organization, and NC DOT – to provide perspectives and input from a variety of interests.

Town Communications – The Town has featured information and updates on the Plan and planning process in the quarterly Town Newsletter, which is mailed to all residents and property owners.

A few other means were utilized to gather community input for this plan:

a. A community-wide **pedestrian issues survey:**

   The Town conducted a survey in February, 2006 to gather input from citizens, college students and staff and businesses. The Town mailed surveys to all residents in early February, 2006 (approx. 550). An online version was available for the month of February (through March 3, 2006); the online survey was available to anyone, but primarily promoted through Mars Hill College. Ninety-five paper surveys and 81 online surveys were completed, for a total of 176. A summary of the survey results is included in Appendix A. Some highlights of the results:

   - Most people walk around their neighborhoods or around the college campus and downtown area.
   - The biggest barriers to walking/running are narrow roads with no or small shoulders and lack of sidewalks.
   - If safe walking routes were available, most people would walk from their home to downtown; half would walk to businesses on NC 213.
   - Availability of sidewalks/trails, personal safety and the speed of traffic are the most important factors that people consider when deciding whether to walk somewhere.

- Slower traffic, safer pedestrian crossings and more sidewalks/trails (and larger shoulders) that connect and create a system would make Mars Hill a more walkable place.

The survey results were presented at a public meeting on April 25, 2006, along with background information on the Pedestrian Plan and the planning process. Then attendees worked with large maps in small groups. One or two steering committee members sat at each of the four tables and explained the maps and asked the group a number of questions (see Appendix B). People were asked to write and mark up the maps with their ideas for sidewalks, trails and related amenities/facilities and with their safety or other concerns. They were also asked to prioritize the needs. The input received was consistent with the input received on the surveys and will be shown on the maps and in the list of priorities later in the plan.

b. **Youth Input**:

- Land-of-Sky Regional Council staff and the County Parks and Recreation Director spent some time with eighteen fifth graders at Mars Hill Elementary School on March 31, 2006. We asked them a number of questions and quizzed them on bicycle and pedestrian safety issues. All the children had bicycles and about half biked around their neighborhood. They mentioned rocky or bumpy roads and traffic as reasons they did not ride. The main places they walked were to the Community Center, school and the library, although only three students walked to school and two walked to the Community Center.

Mars Hill Elementary students showing hand signals

They offered some suggestions to make Mars Hill more walkable:

- Control stray dogs

- More sidewalks
- More crosswalks
- Bike lanes
- "Children playing" signs
- Mirrors posted at curves so pedestrians can see cars and vice versa

c. The **draft plan** was distributed to Steering Committee and Board of Aldermen members in March, 2007. Copies were also available at Town Hall for anyone else who wished to review the plan.

d. A **public meeting** was held to review the draft plan and priority projects on July 10, 2007. Land-of-Sky Regional Council staff presented a summary of the plan, the planning process, highlights from the community survey and input sessions, identified projects and needs and priority projects. Town Board members offered a few comments mainly for clarification, then expressed their support and voted to adopt the plan.

2.3. Pedestrian Friendliness of Local Transportation System

Mars Hill College has a fairly complete pedestrian network, with sidewalks, walkways and crosswalks. Most of downtown Mars Hill and the residential streets close to downtown have sidewalks and are "friendly" to pedestrians. The residential streets surrounding downtown that are not primary cut-through/traffic streets have low enough traffic volume that they are safe for pedestrians to walk in the streets. A few of the main streets outside the downtown area – North and South Main, Bruce Road, Bailey Street primarily – are narrow and windy, with little or no shoulders, and do not feel safe or inviting for pedestrians.

2.4. Current Usage / User Demographics

Mars Hill's population in July, 2004 was 1,904, up from 1,764 in 2000 (U.S. Census). The median age in 2000 was 22.6, due to all the college students (630 living in college dormitories). Compare this to a median age of 40 for Madison County. The largest segment of the population, though, was the 0-18 age group, making up 31.5% of the total. Families with children make up 20% of the population and one-third of all households contain older adults, aged 65 and over. Outside the college campus and nearby areas where there are primarily college students, people of all ages need to be accommodated with pedestrian facilities and amenities.

2.5. Inventory and Assessment of Existing Facilities

The Town keeps up with the maintenance of existing pedestrian facilities, either repairing places themselves or notifying NC DOT of the need for repairs, depending where

maintenance is needed. Every year, Town staff inventory maintenance needs, budget funds for maintenance and then perform the necessary work. The sidewalks along 213 and the sidewalks and crosswalks in the core downtown area are only a few years old and in good condition. Approximately eight years ago, sidewalks were replaced on two highly-traveled sections – along Bailey Street between downtown and Mars Hill Elementary School and a half-mile section along Mountain View.

Walkways throughout Mars Hill College appear to be in good condition. Some older sections around town, like along parts of Bailey Street and Mountain View, need spot repairs on a regular basis.

Section 3: Existing Plans, Programs and Policies

3.1. Relevant Local, Regional and State Plans and Guidelines

3.1.1. Local Plans and Guidelines

- *Land Development Plan* – this plan was completed in December 2001 and contains a number of recommendations related to the pedestrian infrastructure:

  - In Chapter 5, Objectives and Policies, under the heading "Public Safety:"

    "Work to improve pedestrian safety in the town through coordination with Mars Hill College and the North Carolina Department of Transportation. Maintain the current quality of police and fire protection in the community.
    5.1 The town shall examine the effectiveness of existing pedestrian crosswalks and encourage the development of additional crosswalks especially in the campus area.
    5.2 The town shall encourage the development of sidewalks and safety signage in heavily used pedestrian areas."

  - In Chapter 7, Plan Implementation, a number of amendments are recommended for the Town's Zoning Ordinance to foster a walkable community and a more pedestrian-friendly environment (pp. 127-128), including:
    - Require sidewalks where appropriate for all new residential and commercial construction. Where topography makes sidewalk installation difficult, consider extending shoulders for use by pedestrians or bicyclists.
    - Provide clear pedestrian walkways in parking lots and require parking to be located at the side or rear of new commercial developments.
    - Establish a mixed-use district.
    - Consider establishing a design code for big box retailers to ensure they fit in with the community and have a pedestrian-friendly design.
    - Use access management techniques to keep traffic flowing better on arterial roads (such as 213).
    - Examine shared parking arrangements.
    - Establish a greenways committee and plan how to link together streams, areas of historic interest and other places. Study how to connect the Bruce farm property to the college campus.

- *Mars Hill Transportation Plan* – this plan has been under development by NC DOT since about 2002. Over the past couple years, NC DOT has been transitioning to county-level Comprehensive Transportation Plans (CTPs) and phasing out plans for smaller towns and cities. The previous work will most likely be incorporated into a Madison County plan in the near future. The Land-of-Sky Rural Transportation Planning Organization (RPO) submits a prioritized list of transportation study needs to DOT each year. In October, the RPO revised their prioritized list and Madison County is now the number one priority. The RPO's request reads:

  > "An update to the 1966 Mars Hill Thoroughfare plan has been initiated by NCDOT, however, no work has been done on this project in the past few years. Marshall's Thoroughfare Plan dates back to 1970. Neither Hot Springs nor Madison County have Thoroughfare Plans or Comprehensive Transportation Plans. Madison County should be the 1st priority Transportation Study Need for Land-of-Sky RPO because work has already been done in Mars Hill but has not been completed and because all of the existing transportation plans in Madison County are decades old. Because no work has been done on the Mars Hill plan for some time, the Land-of-Sky RPO requests that a CTP be conducted for the entire county to ensure that up-to-date data is used for the Mars Hill portion of the plan."

- Mars Hill College has landscaping plans that will enhance the pedestrian environment, providing shade and attractive plants. The college is building a new building near the intersection of Athletic Street and NC 213. The Town plans to provide input on the access and walkway designs to ensure that pedestrian safety is incorporated into the design.

- Handmade in America's *Rural Main Street Project, Report on the Community Assessment* (1996) contains a couple recommendations on ways to reduce congestion and create a more pedestrian-friendly entrance and downtown. It recommends developing a sidewalk plan for Carl Eller Road (NC 213). It also recommends burying the power lines in the downtown area.

- *The Strategic Plan of Work of the Town of Mars Hill* (1995) – the recommendations from this plan were incorporated into the objectives written into the Land Use Plan and they were also a resource for the Community Assessment. Related objectives, under the "Transportation" section state: "C. Consider the development of an alternative transportation system that would serve to integrate all forms of alternative transportation, including bikeways, sidewalks, and greenways;" and "D. Prepare educational information concerning the location and use of bikeways, walkways and other alternative transportation methods."

3.1.2. Regional Plans and Guidelines

Regional transportation planning is coordinated by two organizations, working with the NC Department of Transportation. The French Broad River Metropolitan Planning Organization (MPO) covers the urbanized area of the region and includes parts of Buncombe and Haywood counties and all of Henderson County. The Land-of-Sky Rural Transportation Organization (RPO) covers the rural areas in the region, including all of Madison and Transylvania counties and parts of Buncombe and Haywood counties. The RPO, in cooperation with the MPO, plan to develop a regional Long Range Transportation Plan within the next five years based on recommendations from completed local Comprehensive Transportation Plans, including Madison County's, in addition to existing local pedestrian plans, including Mars Hill's.

Information on transportation plans, meetings and news may be found on the Land-of-Sky Rural Transportation Organization (RPO) web pages – www.landofsky.org/planning/p_ruraltrans.html – and the French Broad River Metropolitan Planning Organization (MPO) website – frenchbroadrivermpo.org.

3.1.3. State Plans and Guidelines

The State Transportation Improvement Program (STIP, 2006-2012) does not contain any pedestrian projects or facilities at this time for the Mars Hill area.

3.2. Current or Planned Programs and Initiatives

The *Rural Main Street Project Report on the Community Assessment* (1996) identified the need for a streetscape plan for downtown Mars Hill and a sidewalk plan for NC 213, which serves as a gateway to the town. As a result, an Appearance Commission was created to coordinate the development of these plans.

The Town's *Strategic Plan* (1995) recommended actions to make the Town safer for bicyclists and pedestrians. It recommended encouraging development of a system of greenways. It also recommended considering development of an alternative transportation system, including bikeways, greenways and sidewalks that would serve to integrate all forms of alternative transportation.

The County Parks and Recreation Department has been building trails at all County community centers and encouraging walking for exercise and health. They held a walking education program for seniors and walking contests for all ages in 2006.

The County Parks and Recreation Department has also raised funds and coordinated the development of a greenway along Gabriel Creek. It currently runs from Bailey Street north to the elementary school property. The school supports continuing the trail north through their property and connecting to the school.

3.3. Policies and Institutional Framework

3.3.1. Local Policies and Regulations

Mars Hill currently does not have any pedestrian-oriented requirements or policies within its local zoning or subdivision ordinances. It is considering a sidewalk construction requirement for its subdivision ordinance.

Mars Hill's Subdivision Regulations specify road standards for different types of roads. These standards require 45 feet of right-of-way on roads up to 12% grade and 60 feet of right-of-way on roads over 12% grade (maximum grade is 18%). The minimum paving width for all roads is 18 feet. Road shoulders must be three feet wide and seeded to prevent erosion, and have ditches dug 18 inches below the road grade. These standards do not facilitate walking along the shoulders and do not contain any mention of providing pedestrian facilities (sidewalks, wide shoulders or trails/greenways).

3.3.2. State Policies and Regulations

Under North Carolina law, pedestrians have the right of way at all intersections and driveways. However, pedestrians must act responsibly, using pedestrian signals where they are available. When crossing the road at any other point than a marked or unmarked crosswalk or when walking along or upon a highway, a pedestrian must yield the right of way to all vehicles on the roadway. It is a pedestrian's responsibility to look before starting across a highway and to watch for approaching motor vehicle traffic. On roadways where there is no sidewalk, pedestrians should always walk facing traffic.

Chapter 20 of the North Carolina General Statutes contains laws that relate to pedestrian travel and are part of the North Carolina Motor Vehicle Code. These laws are subject to change, so please check the North Carolina General Statutes website for new laws and proposed legislation affecting pedestrians: www.ncga.state.nc.us/Statutes/Statutes.html.

North Carolina Department of Transportation publishes an easy-to-read guide that explains the laws related to bicycles and pedestrians: *A Guide to the North Carolina Bicycle and Pedestrian Laws*. It is available online at: www.ncdot.org/transit/bicycle/laws/resources/lawsguidebook.html. The section regarding pedestrians is included in Appendix C.

Section 4: Existing Ancillary Facilities and Programs

4.1. Mapping projects

County staff, residents and Land-of-Sky Regional Council staff are developing a Madison County Recreational Facilities Map. The map identifies motorcycle routes, bicycle routes, hiking trails, and other recreational facilities, such as picnic areas, horseback riding areas, rafting outfitters, fishing access, playgrounds, campgrounds, golf courses, swimming pools, and more.

4.2. Signage projects

High visibility crosswalks and pedestrian signs have been placed along NC 213 where it passes through the college to improve safety and slow down traffic in this area. They have made the crossing areas safer, but students still cross at other points along the roadway.

High visibility crosswalk along NC 213

The Town does not have a standard for pedestrian or "way-finding" signs at this time. They are looking into standard downtown entrance signs that will be placed in North and South Main streets; these signs will also indicate that the area is "pedestrian friendly."

Along the Gabriel Creek greenway, signs tell visitors about the greenway and the plants and animals that live along the greenway.

4.3. Spot improvement and maintenance programs

The Town Manager and staff conduct annual assessments of repair, safety and improvement needs related to pedestrian facilities. They also allocate funds in each year's budget to address needs that have been identified.

4.4. Traffic calming initiatives

The Town, College and NC DOT worked together to install a few planted medians to go along with high visibility sidewalks along NC 213 through the College. The Town police also regularly monitor the main corridors for speeding and their presence acts as a deterrent to speeding. The Town is interested in trying additional traffic calming measures in places where speeding regularly occurs and areas where there is a high volume of pedestrian traffic. See Section 6.5 for specific recommendations.

4.5. Transit interface

Mars Hill has limited transit service currently. Madison County Transportation Service provides demand-response service to residents throughout Madison County, primarily serving those most in need of transportation services. In the past couple years, local discussions have focused on the desire to have transit service into Buncombe County and Asheville. Asheville Transit started service to and from Weaverville in 2005; one possibility would be to provide transportation from Mars Hill to Weaverville that connects with the Asheville Transit bus. This would provide a way for people to travel back and forth to both Weaverville and Asheville.

Green Transit, Ltd. is a new organization that plans to provide on-demand transportation around Madison County and between Madison County and surrounding areas. Green Transit is an earth-friendly, shared-ride regional transportation system which is membership based. It will serve four counties: Buncombe, Madison, Haywood, and Henderson, and the city of Asheville. It expects to begin operation in the spring of 2007. The system will provide shared-ride commuting to work, to the airports, and around the Asheville area, using biodiesel, electric and/or hybrid vehicles. They also plan to have "green tours" to transport tourists to the Arboretum and other destinations, and late-night service on Fridays and Saturdays. Green Transit launched its service in early August, 2007 – see www.greentransitnc.com for more details.

If people in Mars Hill begin using Green Transit services or if other transit services become available in Mars Hill, the Town should consider installing benches and signs at common pick-up and drop-off places. The Town may also need to work with DOT to add crosswalks near transit stops.

4.6. Safety education programs

Mars Hill Elementary school provides education to students on pedestrian and bus safety and related safety issues (e.g., using seat belts, responding to traffic). At the beginning of the school year, the school counselor teaches a lesson to all kindergarten and first grade students that includes how to safely cross the street, wait for the bus, get on and off the bus, and be safe on the bus. Safety issues are included in the curriculum for grades kindergarten through third grade and students create posters on safety issues in third grade.

The Town Newsletter regularly contains reports on pedestrian safety issues. Recently it has focused on safety issues around intersections, especially around the intersection of Main Street and NC213, where they have had some collisions and incidents.

Here are some safety tips for pedestrians promoted by the Washington State Department of Transportation (from http://www.wsdot.wa.gov/Walk/Safety_Tips.htm):

1. **Walk on sidewalks.** If sidewalks are not available, walk on the edge of the road or on the left shoulder of the road, facing the traffic flow. Use pedestrian bridges when they are available.
2. **Cross at marked crosswalks or intersections.** Pedestrians are most often hit by cars when they cross the road at places other than intersections.
3. **Look left, right, and left for traffic.** Stop at the curb and look left, right, and left again for traffic. Stopping at the curb signals drivers that you intend to cross. Always obey traffic signals.
4. **See and be seen.** Drivers need to see you to avoid you.
    - Stay out of the driver's blind spot.
    - Make eye contact with drivers when crossing busy streets.
    - Wear bright colors or reflective clothing if you are walking near traffic at night.
    - Carry a flashlight when walking in the dark.
    - Do not let kids play near traffic or cross the street by themselves.
    - In bad weather, take care that your umbrella or raincoat does not prevent approaching vehicles from seeing you.
5. **Watch your kids.** Small children should not cross streets by themselves or be allowed to play or walk near traffic. Kids cannot accurately judge vehicle distances and speeds and may make unpredictable movements.
6. **Drinking and walking?** Alcohol can impair the judgment and motor skills of pedestrians just as it does for drivers. Don't take alcohol risks with walking, just as you would not with driving. Take the bus, take a cab, or have a friend drive you home. Beware of the effects of prescription and non-prescription medications and drugs, too.
7. **Obey traffic signals**. At intersections where traffic is controlled by signals or a traffic officer, pedestrians must obey the signal and not cross against the stop signal unless specifically directed to go by a traffic officer.

4.7. Enforcement programs

Traffic laws are enforced by the Mars Hill Police Department. They are very responsive to needs as they arise. They also routinely check for speeding in areas where there is a history of speeding and accidents.

4.8. Encouragement and promotion

Safe Routes to School is a relatively new nation-wide initiative that is promoting the creation and designation of safe pedestrian and bicycle routes to and from schools. Terry Canales, past director of the NC Safe Routes to School Program (http://www.ncdot.org/programs/safeRoutes/), gave a presentation on the program to the RPO in June, 2006. County and town elected officials and staff who are RPO members were in attendance. The RPO has been providing updates to its members and the larger community through meetings and the RPO newsletters. The newsletters are distributed to a large mailing list including staff, elected officials, and residents in Madison County and are posted on the Land-of-Sky website (www.landofsky.org/planning/p_ruraltrans.html). At this point in time, none of the schools have requested workshops, which is the first step in applying for and receiving funds through this program. The RPO will continue to provide updates and encourage schools to take advantage of this program.

Other walking opportunities – Madison County installed a track at Mars Hill Elementary School to provide a safe place for walking and to encourage walking. The County also promotes walking at five sites located throughout the county; the one in Mars Hill is at Mars Hill Baptist Church, located at 67 North Main Street. They have a program to reward senior citizens – if they walk 20 miles, they get a pair of tennis shoes.

Section 5: Facility Standards and Guidelines

5.1. General pedestrian planning and design guidelines

Pedestrians include people of all ages and physical abilities. Pedestrian facilities should be built to accommodate and be accessible to people of all ages and abilities. Facilities should be planned and built to create a network, enabling people to walk from place to place safely and comfortably. Local officials have adopted design guidelines provided by the state for roadways and roadway cross-sections. Federal and state guidelines all require ADA (Americans with Disabilities Act) compliance.

A useful publication that was published by the Federal Highway administration (sponsored by U.S. Department of Transportation and written by Beneficial Designs, Inc. (1999)) is *Designing Sidewalks and Trails for Access – Part I of II: Review of Existing Guidelines and Practices*. FHWA recommends that this document be used when considering how best to accommodate persons with disabilities in public rights of way. It is available at: http://www.fhwa.dot.gov/environment/sidewalks/index.htm. Here are some overall thoughts from this publication:

> "The ADA was passed to prohibit discrimination against people with disabilities. Title II of the ADA requires public entities that build sidewalks and trails to provide program access to existing facilities and to design and construct new facilities and altered facilities to be readily accessible to individuals with disabilities. Title III of the ADA requires places of public accommodation to remove barriers to access when it is readily achievable to do so and to meet the requirements for new construction and alteration in the ADA Standards for Accessible Design. Designers and planners of outdoor facilities should apply applicable sections of the ADA Standards for Accessible Design or UFAS and employ good design principles to ensure that facilities are accessible to and usable by people with disabilities."

This publication also provides a number of guidelines. The following table contains the Federal Accessibility Guidelines for Accessible Routes.

Table 5.1: Federal Accessibility Guidelines for Accessible Routes

Source	Maximum Allowable Running Grade without Handrails	Maximum Grade with Handrails and Level Landings		Maximum Allowable Running Cross-Slope	Minimum Clearance Width	Maximum Allowable Vertical Change in Level	Minimum Allowable Vertical Clearance (Overhead)
	%	%	m	%	m	mm	m
ADA Standards for Accessible Design [1] (US DOJ, 1991)	5.0 [2]	8.33 [2]	9.1	2.0	0.915[3]	6[4]	2.030
UFAS (US DoD, et al., 1984)	5.0 [2]	8.33 [2]	9.1	2.0	0.915[3]	6[4]	2.030

[1] The ADA Standards for Accessible Design are identical in content to ADAAG Sections 1-10. However, the Design Standards are enforceable by the U.S. Department of Justice.

[2] The ADA Standards for Accessible Design require people to use the least slope possible on accessible routes.

[3] Minimum clearance width may be reduced to 0.815 m (32 in) at an obstruction for a maximum length of 0.610 m (24 in).

[4] Changes in level between 6 mm (.25 in) and 13 mm (.5 in) are permitted if beveled with a maximum slope of 50 percent.

Another term that is gaining popularity is "*Universal Design"* (also called *Inclusive Design*, *Accessible Design* or just *Accessibility*) which refers to facility designs that accommodate the widest range of potential users, including people with mobility and visual impairments (disabilities) and other special needs. Although Universal Design standards address the needs of people with disabilities, it is a comprehensive concept that can benefit all users. For example, people who are unusually short or tall, carrying packages or pushing a cart are not disabled, but their needs should be considered in facility design. Increased walkway widths, low-floor buses and smooth walking surfaces improve convenience for all travelers, not just those with mobility impairments. Curb ramps are important for people using handcarts, scooters, baby strollers and bicycles, as well as wheelchair users. Automatic door openers are another example of Universal Design features that can benefit many types of users. (Victoria Transport Policy Institute, www.vtpi.org/tdm/tdm69.htm).

There are many resources for pedestrian and related facilities design guidelines. Here are a few recommended resources:

The Pedestrian and Bicycle Information Center (PBIC), http://www.pedbikeinfo.org/. Established in 1999 with funding from the U.S. Department of Transportation, and now (as of July 2001), a Center within the UNC

Highway Safety Research Center. The mission of the Pedestrian and Bicycle Information Center is to improve the quality of life in communities through the increase of safe walking and bicycling as means of transportation and physical activity.

Portland Pedestrian Design Guide, City of Portland, Office of Transportation, Engineering and Development (1998), available at: http://www.portlandonline.com/shared/cfm/image.cfm?id=84048

Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation (1995), available at: http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/or_bicycle_ped_plan.pdf

Pedestrian & Streetscape Guide, Georgia Department of Transportation (2003-2006), available at: http://www.dot.state.ga.us/dot/plan-prog/planning/projects/bicycle/ped_facilities_guide/index.shtml

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach: A US DOT Policy Statement Integrating Bicycling and Walking into Transportation Infrastructure, available at: http://www.fhwa.dot.gov/environment/bikeped/Design.htm.

AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition, published by the American Association of State and Highway Transportation Officials (AASHTO). The guide provides guidance on the planning, design, and operation of pedestrian facilities along streets and highway, focusing on effective measures for accommodating pedestrians on public rights-of-way. It can be purchased from their online bookstore at: www.transportation.org. The website also contains information and resources on all forms of transportation.

The Institute of Transportation Engineers (ITE) is also a good resource for design standards for all types of transportation facilities and links to other resources. Their website is: www.ite.org.

5.2. Typical cross-sections and pedestrian design considerations

The main design considerations in the Town of Mars Hill, as well as in much of rural Western North Carolina, are the hilly terrain and often narrow transportation corridors that result from the terrain and historical development patterns. The older residential streets, and some main roads, are often narrow with homes are fairly close to the street.

Sidewalk considerations – Right-of-way and paving widths vary according to street type, depending on when the streets were built. Prior to 1998, the standard minimum right-of-way width for new streets built under the Subdivision Ordinance was 60 feet. In July 1998, the Subdivision Ordinance was amended to require a minimum 45 foot right-of-way on all types of streets that are less than or equal to 12% grade, and a 60 foot right-

of-way on streets over 12% grade. However, even with these right-of-way widths, it is often not feasible to build sidewalks due to the steepness of the land within the right-of-ways. Paving width was standardized to a minimum of 18 feet, for all types of roads in the July 1998 Subdivision Ordinance amendment. Before that, it ranged from 27 feet for cul-de-sacs to 49 feet for main roads.

NC DOT's Pedestrian Policy Guidelines, effective October 1, 2000 (included in Appendix D), outline their standard sidewalk section to be five feet wide for projects where NC DOT partners with a municipality to build a sidewalk. AASHTO also recommends a minimum sidewalk width of five feet. This should be considered a minimum width for future sidewalks in Mars Hill. A five-foot wide sidewalk allows for two people to pass each other, but is a little tight for two people to walk side-by-side. For wider roads and roads that carry a lot of traffic, wider sidewalks should be built. Also, in areas where there is a large amount of pedestrian activity – around/in the college campus and on Main Street – wider sidewalks, 8 to 12 feet wide, are needed. See Appendix F: *Traditional Neighborhood Development (TND) Guidelines* for examples of street cross sections that include sidewalks and planting strips.

In areas where a sidewalk can not be accommodated due to the terrain and narrowness of the road corridor, the Town should consider and work with NCDOT to install wide, paved shoulders where possible to provide a space for pedestrians (this will also provide space for bicyclists).

Off-road multi-use paths or greenways – Multi-use paths can provide pleasant and safe transportation and recreational routes for pedestrians and bicyclists. They are often preferred to sidewalks by parents with young children and young or inexperienced cyclists because they are away from roads and vehicles. It is important to design multi-use paths so they don't cross too many streets and provide a continuous network of off-road facilities that connect places, such as neighborhoods, schools, parks and shopping areas. The standard width for two-way multi-use paths is ten feet. They should be wider in areas with heavy use. Paths can have a variety of surfaces, depending on the level of use and location. For hard surface paths, concrete costs more to build than asphalt but typically lasts longer and has lower maintenance costs.

Crosswalks – Most people are familiar with crosswalks. Keys to an effective crosswalk are visibility and placement. To make them more visible, reflective paint or plastic stencil material may be used. Signs may be posted and lighting installed to highlight crosswalk locations. Median "refuges" may be installed to give pedestrians the ability to safely cross one lane at a time, with a safe place to wait in the middle of the road. New crosswalks were recently installed at the intersection of Main Street and NC 213 and median refuges were installed along NC 213 where it passes through Mars Hill College.

Crosswalk with a median refuge for pedestrians along NC 213

Roundabouts – More places are considering and installing neighborhood traffic circles and roundabouts to improve safety at intersections and to slow down traffic through the area. Although they may be a new road feature in western North Carolina and other parts of the U.S., they have been used in Great Britain and Europe for the past 40-50 years. Some U.S. cities have installed them recently and others have had them for a number of years. The Federal Highway Administration (FHWA) published a comprehensive guide to understanding, planning, designing and building roundabouts in 2000 (Roundabouts: An Informational Guide, FHWA-RD-00-67, June 2000; available at http://www.tfhrc.gov/safety/00068.htm). Below is a excerpt from the introduction that provides some background and may clear up some misconceptions about roundabouts.

> "Traffic circles have been part of the transportation system in the United States since 1905, when the Columbus Circle designed by William Phelps Eno opened in New York City. Subsequently, many large circles or rotaries were built in the United States. The prevailing designs enabled high-speed merging and weaving of vehicles. Priority was given to entering vehicles, facilitating high-speed entries. High crash experience and congestion in the circles led to rotaries falling out of favor in America after the mid-1950's.
>
> Internationally, the experience with traffic circles was equally negative, with many countries experiencing circles that locked up as traffic volumes increased. The modern roundabout was developed in the United Kingdom to rectify problems associated with these traffic circles. In 1966, the United Kingdom adopted a mandatory "give-way" rule at all circular intersections, which required entering traffic to give way, or yield, to circulating traffic. This rule prevented circular intersections from locking up, by not allowing vehicles to enter the intersection until there were sufficient gaps in circulating traffic. In addition, smaller circular intersections were proposed that required adequate horizontal curvature of vehicle paths to achieve slower entry and circulating speeds.
>
> These changes improved the safety characteristics of the circular intersections by reducing the number and particularly the severity of collisions. Thus, the resultant modern roundabout is significantly different from the older style traffic circle both in how it operates and in how it is designed. The modern roundabout represents a substantial improvement, in terms of operations and safety, when compared with older rotaries and traffic circles (1, 2, 3). Therefore, many

countries have adopted them as a common intersection form and some have developed extensive design guides and methods to evaluate the operational performance of modern roundabouts."

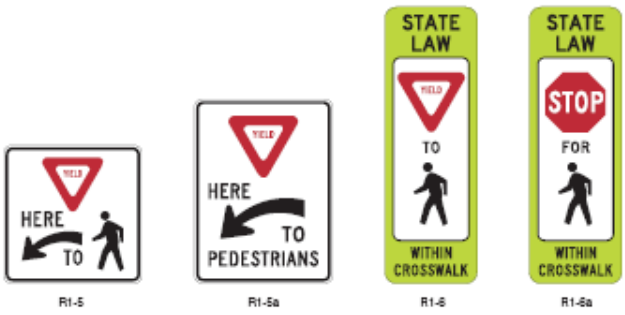
Streetscape improvements – Streetscape improvements can make the sidewalk and roadway more inviting and safe for pedestrians as well as making the area more attractive for all travelers. Streetscape improvements also help to slow down vehicles traveling through the area. Streetscape improvements take many forms: trees and other landscaping/planters; wider and/or more decorative sidewalks; lighting; benches; and other amenities.

Streetscape improvements along North Main Street in downtown Mars Hill

Pedestrian Signage – The Federal Highway Administration (FHWA) governs sign design and placement of traffic control signs installed within public rights-of-way. The *Manual on Uniform Traffic Control Devices (MUTCD)* is the reference document for specifications and guidelines (available at http://mutcd.fhwa.dot.gov/index.htm). The MUTCD encourages a conservative use of signs, only installing them when they fulfill and engineering or safety need. Signs need to be located in a consistent manner to be effective. Signs are only a part of the overall design considerations for pedestrian safety – signs by themselves are often ineffective in modifying driver behavior. Also, signs that have been proven to ineffective should be removed.

The following two figures are from the MUTCD, Chapter 2B, "Regulatory Signs" and show the various standard pedestrian-related signs.

Figure 2B-2. Unsignalized Pedestrian Crosswalk Signs



Another good resource for signs and pavement markings is FHWA's online Course on Bicycle and Pedestrian Transportation. It is available online at: http://safety.fhwa.dot.gov/ped_bike/univcourse/swtoc.htm.

Example of signs, crosswalks and bulb-outs from FHWA

5.3. Sample cost estimates for pedestrian and related facilities

Costs of construction materials change almost daily so the following estimates may be used for reference and estimation purposes but will need to be updated periodically. The estimates below were gathered from a few sources: Greenways Inc., URS Corp., NC DOT, City of Brevard's Pedestrian Plan (2006) and City of Asheville.

Item	Estimated Cost
Sidewalks (5ft. concrete)	$20-$40 per linear ft. depending on terrain
8 to 10 ft wide multi-purpose asphalt path	$35-$100 per linear ft. (asphalt plus sub-base) depending on the terrain
8 to 10 ft crushed stone walkway	$15 - $25 per linear ft.
6 to 8 ft wooden or recycled synthetic material boardwalk	$200 - $250 per linear ft.
Simple crosswalk (signs and pavement markings)	$200 - $250 per linear ft.
Enhanced crosswalk (special reflective stencil, colored & stamped asphalt, special signage)	$5000 - $7500
Raised crosswalk (speed table)	$5,000 - $15,000
Speed Hump (signage and pavement markings)	$1700 - $2000 per hump
Refuge Island	$10,000 - $40,000
Pedestrian Signal	$40,000 - $75,000
Pedestrian Signs	$250 - $350
Curb extension	$10,000 per corner
Curb & Gutter	$15 - $25 per linear ft.
Retaining Wall	$125 per linear foot
Engineering, Surveying, Administrative	15% of construction costs

Section 6: Pedestrian System Plan and Recommendations

6.1. System overview – current and future plans

Much of the core area of Mars Hill has adequate pedestrian facilities. However there are gaps in this area and gaps connecting to nearby residential areas that need to be filled. In addition, some areas need to be made safer for pedestrians. Important connections and safety issues, as well as other desired pedestrian facilities and amenities are listed in the tables in Section 6.5 below. Proposed sidewalks, greenways, crosswalks and other related facilities are also shown on Map 8-3 and 8-5.

6.2. Corridor identification

The core downtown area and college campus are important pedestrian areas. In addition to these areas, key pedestrian corridors are shown on Map 8-4 and include:

- North and South Main Streets;
- 213 through college and to Ingles;
- Mountain View, Bailey Street;
- The "Loop" – a popular walking route along Bailey Street to Bruce Road to North Main Street (it is marked on Maps 8-2, 8-3 and 8-4); and
- Anderson and Chestnut Streets.

These corridors are high priority areas for pedestrian improvements (where needed).

The steering committee and community identified a number of main origins and destinations for pedestrian travel/activity. These are:

- Mars Hill Elementary school
- Ingles (more people walking here because of sidewalk)
- Town Hall and businesses along Main Street
- Library
- Entire college campus is a pedestrian area
- Moore Auditorium

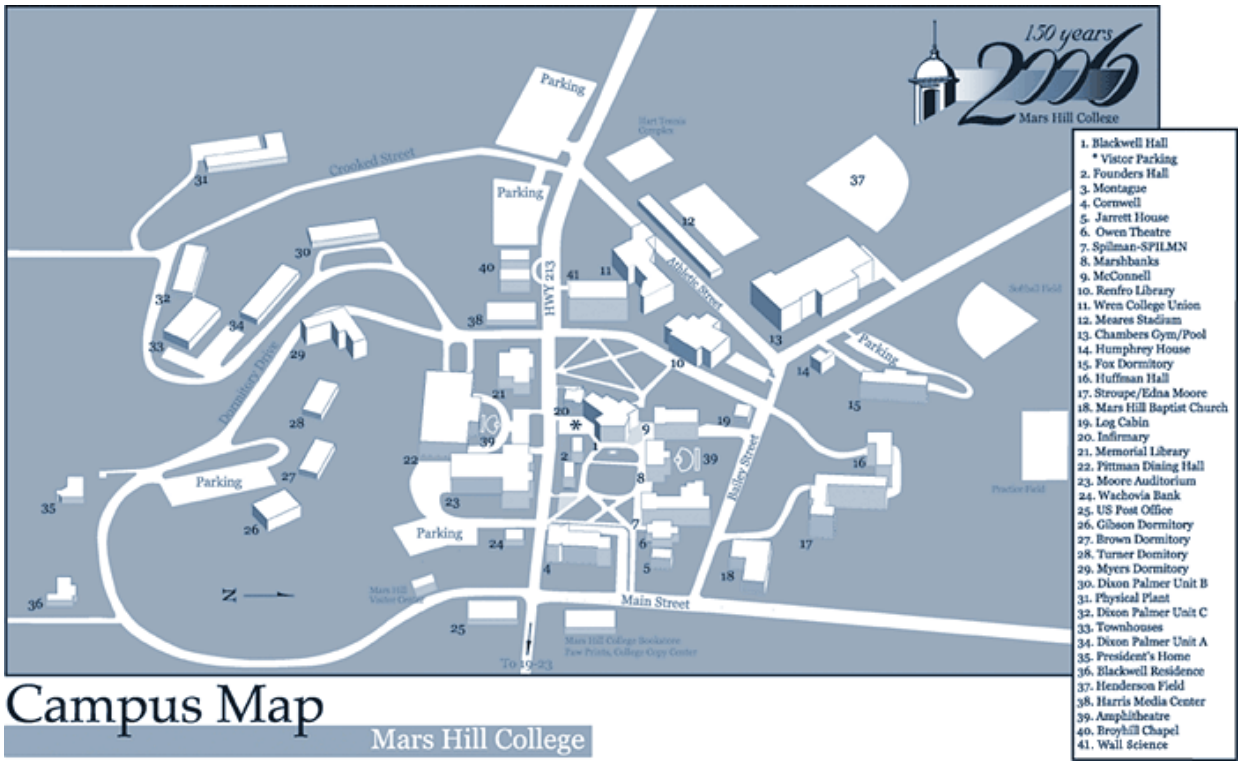
6.3. Opportunities

Opportunities for pedestrian system improvements exist where road improvements, new roads and subdivisions are planned and developed. They also exist whenever properties are developed or redeveloped. The Town has a good relationship with NCDOT and should continue to try and ensure adequate pedestrian facilities are provided with all upcoming road projects (note that there are none planned in the near future). If the Town amends its Zoning and Subdivision Ordinances to require sidewalks or walkways as part of all new development, this will gradually build a safer and more complete pedestrian network and environment throughout the Town.

The elementary school, the Safe Routes to School program, and the existing greenway along Gabriel's Creek offer opportunities to improve sidewalks and crossings and extend the greenway to create safe walking routes to and from school.

6.4. Special focus areas

Mars Hill College, with almost 1,000 students regularly on campus, is one focus area due to its large volume of pedestrian traffic/movement. The campus is adjacent to Main Street and it is an extension to the downtown part of Mars Hill. Another focus area is the core downtown area. This area has nice wide, brick and concrete sidewalks and crosswalks and is inviting to pedestrians. A third focus area is the NC 213 corridor from downtown to I-26. A new sidewalk lines one side of this road almost all the way to I-26. The Town, by building the sidewalk, is encouraging more walking along this corridor.



6.5. Potential projects and preferred treatments

The Steering Committee agreed upon the criteria listed below to prioritize projects. There was no attempt to apply different weights or levels of importance to the criteria.

- Potential for high use
- Low or reasonable cost to acquire easement/land and construct facility
- Currently a very dangerous section
- Segment provides a connection – between existing sidewalks/greenways or connection to a popular destination

- Segment is on a State DOT right-of-way

In the sections below a variety of pedestrian-related projects are listed. The Committee chose to use "A" to designate high priority, "B" for medium priority and "C" for low priority. They also chose to designate some for long range consideration (noted "Long term" on the list), but did not decide upon a timeframe for long range. All the projects should be re-evaluated every 3 to 5 years and priorities adjusted as appropriate, depending on new developments, changes in key origins/destinations, changes in traffic conditions, facilities that have been constructed, etc. All projects with a high priority ("A") are highlighted and have a proposed or recommended timeframe for completion. In the following tables, timeframes represent years as follows:

- Short = 1 to 2 years
- Medium = 3 to 5 years
- Long = more than 5 years
- Ongoing = the item is being monitored regularly and improvements are being made as identified/needed.

6.5.1. Proposed Sidewalk and Greenway (multi-purpose pathway) Projects

Road/Corridor	Section	Type of Facility	Comments/Justification	Priority	Proposed Timeframe
Anderson Street	from 213 to Mountain View	Sidewalk or greenway	Connector from Mountain View to 213; road narrow and windy, so best to look at greenway along creek, between properties	A	Short – Medium
Athletic Street	Finish the sidewalk by the football field	sidewalk	College's responsibility; new facilities going up – possibly use some funding from new stadium	A	Medium
Bailey Mountain	Up the mountain and on towards Sam's Gap	greenway	there is a trail up the mountain, but it needs maintenance	Long term	
Bailey Mountain to downtown	Alignment unclear	greenway	If Bailey Mountain develops into recreation destination, then this will become a higher priority	Long term	
Bailey Street	Extend north to Bruce Road	sidewalk	Part of "the loop;" may have to cross to other side of street	B	
Bruce Road	from North Main to the new elementary school entrance	sidewalk	Gabriel Creek greenway preferred to a sidewalk	C	
Cemetery		sidewalk	If part of 213 – Mountain View connector, then high priority; otherwise not	C	
Dormitory Road	From "the loop" to S. Main	On-road markings for walkway	Connects college to S. Main; section is not dangerous	C	
Gabriel Creek	north to Bruce Road	greenway	Could substitute for part of "the loop"	Long term	
Gabriel Creek	south to 213, near Athletic Street	greenway	Not enough room for greenway due to athletic fields	C	
Gabriel Creek connector	Greenway connection from creek around elementary school property to Bailey St.	Greenway	School in favor of this project; it would substitute for "the loop," with some promotion	A-B	Short
Hickory Drive	where it runs by the college outfield fence around the curve towards Microswitch	Greenway (along Banjo Branch to 213)	Not many people live there now, but the land is very developable between the creeks	C	
Little Mountain	from the Mars Hill College utility plant to Duck Drive and back to South Main Street	Greenway	Steep; not much potential use	C	

Road/Corridor	Section	Type of Facility	Comments/Justification	Priority	Proposed Timeframe
Mars Hill to Marshall	Alignment to be determined	greenway		Long term	
Mountain View	between Valley St. and Chestnut St. (connect to downtown)	sidewalk	Good connector and doable	A	Short
N. Main Street	N. Main to Hilltop, across creek to Valley St.	Sidewalk and greenway	The Town is currently talking to DOT about DOT providing funds for curb and gutter and the Town providing funds for the sidewalk.	B	
NC 213	from Athletic St. to and past Town limits	sidewalk		C	
Park Drive	Entire length of road	sidewalk	lots of people walk to the park but there is no sidewalk	C	
Rec Park	At the park and connecting the park to surrounding locations and neighborhoods; In the woods between Park Drive and South Main	greenway	Good for bicycling	C	
S. Main Street	down to Browns Ammons – sidewalk to Duck, greenway afterwards	Sidewalk and greenway	new housing off South Main increases need for sidewalks in this area	B	
Valley St.	B-K Center to Valley	Greenway	On-street greenway on Valley St. (low traffic volume)	B	

Comments regarding greenways/trails:

- Trails may be the best option for new facilities in many areas due to lower cost, existing terrain, narrow roads and for connections.
- Near the residential and the college areas
- Clearly marked/named/mapped trails (as opposed to just paths) would be nice.

6.5.2. Proposed Crosswalk Projects

Street	Intersection/Location	Type of Facility	Comments/Justification	Priority	Proposed Timeframe
Anderson Street	At NC 213	Crosswalk	Busy intersection	A	Short
Anderson Street	N. Main Street	crosswalk	A lot of pedestrian traffic; middle of downtown	A	Short

Street	Intersection/Location	Type of Facility	Comments/Justification	Priority	Proposed Timeframe
Bailey Street	Near college gym and Fox parking lot entrance	crosswalk	Need lighting and crosswalk near gym and parking area; high number of pedestrians	A-B	Short
N. Main Street	Bailey Street	crosswalk	Mid-block crossing; DOT does not support this	n/a	
N. Main Street	Chestnut Street	crosswalk	very dangerous road with 2 curves	B	
N. Main Street	From deli to church	crosswalk	people cross there regularly; mid-block crossing; DOT does not support this	n/a	
N. Main Street	Hill Top Street	crosswalk	very dangerous road with 2 curves	Long term	
NC 213	Evaluate placement of crosswalks along 213 through Mars Hill College*	crosswalk	move them to places where people cross and make them more visible (see notes)	B	
NC 213	near Ingles	crosswalk	Long term consideration	Long term	
NC 213	near the Wagon Wheel	crosswalk	Long term consideration	Long term	
Roy Edwards Lane	at the new hardware store	crosswalk	Connects two sidewalks	B-C	

Comments regarding crosswalks:

- Paint crosswalks at all/most intersections.
- Make all of Main Street between 213 and Bailey Street a giant, pedestrians-first crosswalk.
- There is a false sense of security with crosswalks; people may be as careful as when they cross where there is no crosswalk.
- When DOT made crosswalk improvements at the intersection of Main St. and NC 213, the Town Manager asked them to evaluate other crosswalks on Main Street and on NC 213.

* Mars Hill College area crosswalk comments:

- Where students actually cross – between Spilman and Cornwell, Cornwell and the sidewalk going towards the MHC sign, the Lion's Den and the entrance to the football stadium.
- Between Wall Science Building and Harris Media Center moved directly in front of the side walk leading to the front entrance of Wall.
- In the areas where students walk to campus from Fox, Stroup, Edna Moore and Huffman dorms.
- In front of the Broyhill Chapel and between Crooked Street and Athletic Street to easily access the parking lots. The crosswalks in place now are inconvenient.
- It would be helpful if there was a crosswalk with a blinking sign on Bailey Street from the dorms over to the main campus. Traffic flies down that street!

- NOTES – NC DOT installed the crosswalks and islands before consulting with the Town. Dan Lunsford, President of Mars Hill College, spoke with NCDOT about relocating the crosswalks recently. Steering committee members noted that more people are using the crosswalks than before, but that may be because it is the beginning of the school year.

6.5.3. Other Proposed Intersection Improvement Projects

Intersection/Location	Type of Facility	Comments/Justification	Priority	Proposed Timeframe
Chestnut Street and Anderson Street	Redesign intersection	This is a dangerous intersection; look at redesigning it	A	Short
N. Main Street and Chestnut Street	Round-about	This is a little confusing, but not that unsafe	C	
N. Main Street and Mountain View	improve intersection (round-about?)	Lots of children and traffic; hard to see both ways, especially north due to hill; hard to turn left onto N. Main	A	Medium
NC 213 and Athletic Street	traffic light or round-about	Dangerous intersection; hard to turn onto 213. This would help slow down traffic on 213. Need to accommodate a large variety of vehicles that come through here. Opportunity for changes because Mars Hill College is building a new building here (Ferguson Science).	A	Short
NC 213 and Main Street	• Pedestrian signals; • consider four-way stop signs	Dangerous intersection.	A	Ongoing

6.5.4. Proposed Spot Improvements or Maintenance Projects

Note – The Town is planning to undertake repair work on a number of miscellaneous areas in the Spring of 2007.

Intersection/Location	Type of Facility or Treatment	Suggested Improvement/Maintenance	Priority	Proposed Timeframe
Many intersections (need to list key ones)	Handicap-accessible improvements	A lot has been done this past year to improve accessibility on NC 213 and N. Main and on roads that were improved. There are still some specific locations that need improvement. This is a continuing concern.	B	
Bailey Street through Mars Hill College	Lighting along roadway		A	Ongoing
NC 213 through Mars Hill College	Lighting along roadway		A	Ongoing

Intersection/Location	Type of Facility or Treatment	Suggested Improvement/Maintenance	Priority	Proposed Timeframe
Bailey Street	Sidewalk	Needs repairs; crumbling in places; widen if possible	A	Spring 2007
Chestnut Street	Sidewalk	Don't allow cars to park on sidewalks – this is an ongoing enforcement issue	B	
S. Main Street	Sidewalk	Needs repairs above the assisted care facility	B	
Mountain View	Traffic calming		A	Short
Chestnut Street	Traffic calming (speed humps)	Town is planning to try some speed humps here by mid-2007 and use as a test location.	A	Short
N. Main Street and S. Main Street	Traffic calming / speed humps / speed limit	Install speed humps right before curves on the way down to slow down traffic. Consider changing speed limit to 20 mph up to new Town Hall. Note that traffic needs to be slowed down approaching downtown on BOTH North and South Main Street.	B	
Bruce Road	Traffic calming measures	Slow down traffic	B	
NC 213 through college	Traffic calming measures	Slow down traffic	B	
Main Street between retirement home and new Town Hall	Traffic calming measures, pedestrian right-of-way signs	Designate as a "high pedestrian zone" and need to slow traffic on hill as people are coming into town. Consider signs: "Welcome to Mars Hill, a pedestrian-friendly town"	A	Short
NC 213 between Main Street and chapel	Traffic calming measures, pedestrian right-of-way signs	Designate as a "high pedestrian zone"	A	Ongoing
NC 213 and Main Street	Traffic light timing	Timing could be improved for safety and to move traffic through intersection	Ongoing	Ongoing

6.5.5. Proposed Ancillary Facilities and Programs

Mapping and signing projects – The Steering Committee recommends designing and erecting signs near the entry points to the town, on NC 213 and North and South Main Street, that welcome people to Mars Hill and indicate that Mars Hill is a pedestrian-friendly town. These signs would be friendly in nature and would help raise awareness about the need to watch out for pedestrians and treat them with respect.

Safety education and enforcement initiatives – The Safe Routes to School program could benefit the Mars Hill area, especially because so many of the safety and mobility concerns relate to children. The program will fund infrastructure as well as education/enhancement/enforcement projects within a 2-mile radius of any K-8 school. This plan recommends that the Town encourage Mars Hill Elementary School to get involved in this program.

Spot improvement and maintenance programs – The Town is keeping up with spot improvements and maintenance annually and as needed. Staff conduct annual walk-abouts to inspect pedestrian facilities and budget funds each year for maintenance and repairs.

Transit interface initiatives – If/when the Green Transit program begins operation and if other regional transit options become available, the Town should consider designating bus stops in convenient locations downtown and along NC 213. It should also consider installing amenities such as benches and shelters at bus stop locations. The Town could ask local businesses to sponsor these amenities.

Other –

- *Brochure for downtown businesses* – the Town is currently working on this. It will include a walking guide and some safety tips for walking around downtown (e.g., please use the sidewalks, be careful at certain intersections, etc.).
- *Education to the development community* about the benefits of sidewalks, greenways and safe places to walk and evidence that people want and lots/homes in neighborhoods that have sidewalks and/or walkways. For example, the National Association Realtors and National Association of Home Builders Consumers Survey ranked trails as the 2nd most important amenity out eighteen choices. (2002 survey)

6.6. Pedestrian-friendly policy recommendations

This Plan recommends that the Town investigate ways to improve access management, especially in trouble spots in front of the Post Office). For existing businesses, the Town can discuss various options with property owners and request they make improvements. For new developments, the Town should evaluate access and design impacts related to access as part of the development review process.

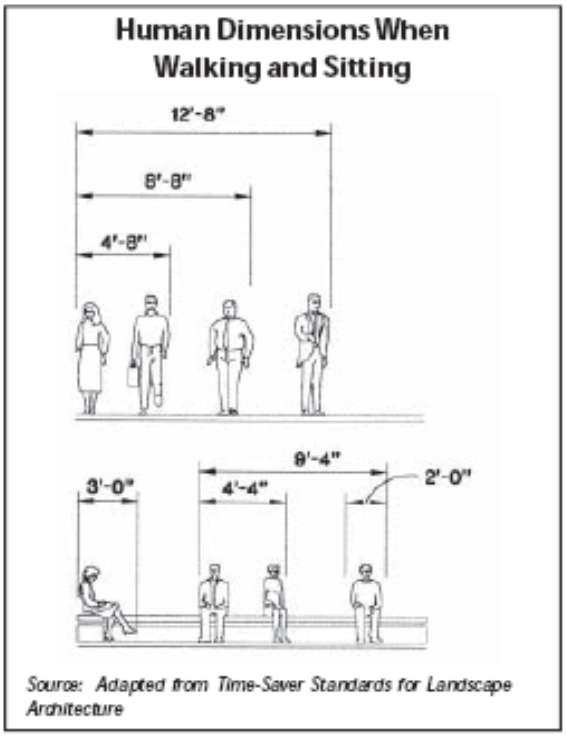
> **Access management** is the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. (from the Transportation Research Board, (www.trb.org)

(e.g.,

that

6.7. Pedestrian-friendly standards and guidelines recommendations

In general, sidewalk and walkway widths need to accommodate the volume of pedestrians expected to traverse the area. In areas of high pedestrian activity, like on the College campus, sidewalks should be ten to twelve feet wide or greater. Since downtown Mars Hill is a pedestrian area but fairly small, sidewalks should be at least six feet wide (greater where more pedestrians are expected or desired) to accommodate people passing each other and doors opening into the sidewalk area. For any sidewalk, a minimum of five feet is needed for pedestrian travel because that is the minimum width that allows two people to pass each other. Please refer to diagrams on this page and the next for spatial dimensions and needs – both are from Georgia DOT's *Pedestrian and Street Guide*, referenced below.



Source: Adapted from Time-Saver Standards for Landscape Architecture

There are a number of resources available containing best practices for designing pedestrian and related facilities and thus, creating walkable communities. A few good resources are:

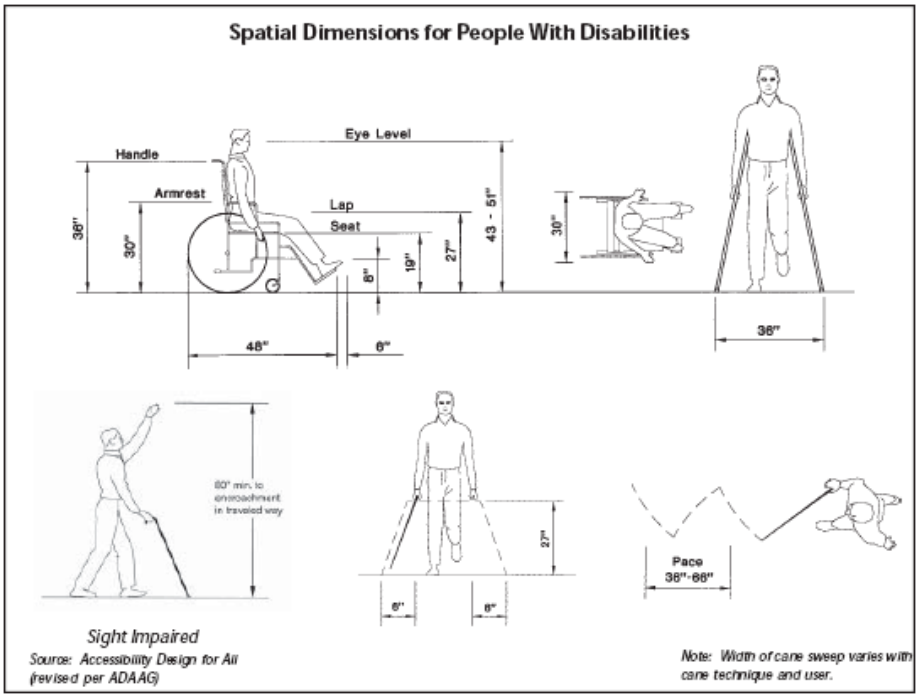
AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (1st edition, 2004), published by AASHTO (American Association of State Highway and Transportation Officials), provides guidance on the planning, design, and operation of pedestrian facilities along streets and highways. It specifically focuses on identifying effective measures for

accommodating pedestrians on public rights-of-way. It can be ordered through AASHTO's bookstore online at: http://www.transportation.org/.

Pedestrian and Streetscape Guide, sponsored by the Georgia Department of Transportation, contains a wealth of information and resources on designing pedestrian and streetscape facilities. Available at:
http://www.walkablecommunities.org/download/Georgia_ped_streetscape_guide.pdf

Florida DOT's produced "Walkable Communities: Twelve Steps for an Effective Program" in 1995. It is available at their website and included as Appendix E:
http://www.dot.state.fl.us/safety/ped_bike/brochures/pdf/12STEPS.PDF
The twelve steps are:

1. Provide continuously linked walkways.
2. Pedestrianize intersections – intersection design and mechanisms should be clear and understandable to all.
3. Americans with Disabilities Act (ADA) compliance with standards and guidelines.
4. Signal placement for optimum visibility.
5. Illumination – approaches to and all street corners should be well illuminated.
6. Simplify median crossings, utilizing raised medians.
7. School sites should have specific pedestrian access points.
8. Eliminate opportunities for automobiles backing up over walkways.
9. Access management best practices, including pedestrians having access ways independent from vehicle access to all commerce.
10. Auto-restricted zones and parking restricted zones to protect pedestrians in busy commercial centers/areas.



6.8. Funding recommendations

The Town should pursue all applicable funding sources for pedestrian projects. These are outlined in Section 7 and they include enhancement and other grants, state funding through the Transportation Improvement Plan (TIP), the Governor's Highway Safety Program, public-private partnerships, and others. The Town should also allocate a reasonable amount (depending on plans and priorities) from the Town budget for maintenance and to use as matching funds for grants and other funding sources.

6.9. Staffing / committee recommendations

There are no recommendations to change current staffing or create new committees. The Town will continue to ask for help from the Land-of-Sky Regional Council and Madison County with grant applications and from the Division of Community Assistance and Land-of-Sky Regional Council for ordinance review and revisions.

6.10. Local ordinance recommendations

The Town should consider the following revisions to their local zoning and/or subdivision regulations:

- Require sidewalks or greenways in new subdivisions which are useful for traversing the neighborhood and connecting with sidewalks/walkways adjacent to the subdivision. *These sections of the Subdivision Regulations would need to be revised: Section 66 (Final Plat Requirements) and Section 71.2 (Sidewalks).*
- Require sidewalks or greenways in all new developments and safe passageways between parking areas and buildings. *A new section in the Zoning Ordinance could be added to Article IV to define sidewalk/greenway requirements and Section 500 could be revised to address safe passageways between parking areas and buildings.*
- Where it is deemed not feasible to install a sidewalk or greenway due to terrain or other site-limiting factors, require an alternative design which accommodates safe pedestrian travel or a fee in lieu of a facility. *Language for these provisions could be added to Section 71.2 of the Subdivision Ordinance and the new section of the Zoning Ordinance which requires sidewalks (see preceding bullet).*
- Try to reduce the number of curb cuts (i.e., driveways) by encouraging shared access, shared parking and one curb cut per lot (two for corner lots). This may be accomplished through new incentives and/or revised zoning regulation. Fewer curb cuts mean few points of conflict and help reduce the number of collisions between vehicles and between vehicles and pedestrians. *Section 500 of the Zoning Ordinance which contains parking and access regulations could be revised to incorporate these recommendations.*

Section 7: Funding Strategies and Opportunities

7.1. Funding opportunities

7.1.1. Local Funding Options

Local financial support for pedestrian facilities is critical to developing a pedestrian network. Most grants require local matching funds, but more importantly, the local community needs to support the building of facilities and the importance of having a walkable community for projects to be successful. There are several ways to build local financial support and capacity.

a. **Capital Budget**. Many local governments plan for and appropriate funds through their Capital Improvement Plan, which is updated annually and identifies capital spending needs for various projects. Mars Hill has a Capital Improvement Plan and the Town will use the priorities and projects in this Pedestrian Plan as input to the Capital Improvement Plan.

b. **Operating Budget**. Some local governments do not have a Capital Improvement Plan and appropriate funds for pedestrian projects through their annual operating budget. Some local governments utilize both their operating budget and Capital Improvement Plan to fund these types of projects.

c. **Bond Referenda.** Mars Hill may consider raising funds for new sidewalks and greenways and for improvements to existing facilities, by placing a bond referendum on the local ballot of a general election. Since bonds rely on the support of the existing, voting population a well-planned and widespread education and awareness campaign highlighting the needs and the plans to address the needs is critical to the referendum's success.

d. **Powell Bill Revenues.** Powell Bill funds from the state may be used for construction and maintenance of sidewalks. In fiscal year 2006, the State allocated $39,479.57 from Powell Bill funds plus $20,404.58 from the Highway Trust Fund (total $59,884.15) as part of this "state street aid program" to Mars Hill. The Powell Bill is codified in N.C.G.S. 136-41.1 through N.C.G.S. 136-41.3. Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities that establish their eligibility and qualify as provided by G.S. 136-41.1 through 136-41.3. The general statutes require that a sum be allocated from the State Highway Fund to the qualifying municipalities equal to the revenue for the fiscal year by 1-3/4 cents on each taxed gallon of motor fuel. In addition, the municipalities also receive an appropriation from the State Highway Trust Fund as provided by the statutes. These funds are allocated to the qualified municipalities on or before October 1 of each year.

   N.C.G.S. 136-41.3 provides, in part: "the funds allocated to cities and towns under the provisions of G.S. 136-41.2 shall be expended by said cities and towns only for the

purpose of maintaining, repairing, constructing, reconstructing or widening of any street or public thoroughfare including bridges, drainage, curb and gutter, and other necessary appurtenances within the corporate limits of the municipality or for meeting the municipality's proportionate share of assessments levied for such purposes, or for the planning, construction and maintenance of bikeways located **within the rights-of-way** of public streets and highways, or for the planning, construction, and maintenance of sidewalks along public streets and highways."

e. **Local Utility rights-of-way and easements.** These rights-of-way, especially from sewer and water lines, can often be used for walking and/or bicycling trails. Greenways/trails often follow rivers and streams and so do sewer lines. Water lines are often adjacent to streets, as are sidewalks. In the Asheville metropolitan area, the local sewer authority, Metropolitan Sewerage District (MSD), has provided greenway development and pedestrian access as part of their sewer easements in areas where these interests have coincided.

f. **Fees-in-lieu of development.** If Mars Hill adopted a requirement that all new developments build sidewalks and/or greenways, it could consider charging a fee-in-lieu of sidewalk/greenway development to developments where it was not feasible or practical to build sidewalks or greenways. These fees could be put into a capital reserve fund that could be used to build pedestrian facilities in other places in town.

7.1.2. State Funding Options

a. **State Transportation Improvement Program (TIP).** The TIP is a prioritized list transportation construction projects that are programmed for state funding, through the NC Department of Transportation. Metropolitan and Rural Transportation Planning Organizations develop their regional lists of priority projects and the State adopts some of these projects into the TIP. Mars Hill is a member of the Land-of-Sky Rural Transportation Planning Organization and, through it, expresses its future construction priorities.

b. **State Roadway Construction Funds.** These funds can be used to fund sidewalk projects that are part of new road or road improvement projects. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds.

c. **The North Carolina Parks and Recreation Trust Fund (PARTF).** This trust fund provides grants to local governments for parks and greenway facilities. Grants may be used to purchase land and to develop facilities. Grants must be matched 100% will a combination of local dollars and in-kind donations. The maximum grant amount is $500,000. See www.partf.net for more information on this grant program.

d. **North Carolina Trails Programs – Recreational Trails Program and Adopt-a-Trail Program.** (see www.ils.unc.edu/parkproject/trails/grant.html for information on both of these programs)

- The **Recreational Trails Program (RTP)** is a federally funded program that is administered by the NC Department of Environment and Natural Resources (DENR). RTP is a $1.3 million 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 maximum grant amount is $50,000.
- The **Adopt-A-Trail Grant Program (AAT)** awards small grants (up to $5,000) to government agencies, nonprofit organizations and private trail groups for trails projects. The funds may be used for trail building, trail signage and facilities, trail maintenance, trail brochures and maps, and other related uses. This grant program requires no local match or in-kind services.

e. **North Carolina Clean Water Management Trust Fund.** North Carolina's Clean Water Management Trust Fund (CWMTF) was established by the General Assembly in 1996 (Article 18; Chapter 113A of the North Carolina General Statutes). CWMTF receives a direct appropriation from the General Assembly in order to issue grants to local governments, state agencies and conservation non-profits to help finance projects that specifically address water pollution problems. The 21-member, independent CWMTF Board of Trustees has full responsibility over the allocation of moneys from the Fund. CWMTF will fund projects that: (1) enhance or restore degraded waters; (2) protect unpolluted waters; and/or (3) contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits. See www.cwmtf.net for more information.

f. **Safe Routes to School program.** Safe Routes to School (SRTS) is a relatively new nation-wide initiative that is promoting the creation and designation of safe pedestrian and bicycle routes to and from schools. It is a federally-funded program that is administered by a state office. State programs now exist and will direct spending in each state. 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. SRTS programs consider infrastructure enhancements to provide a safe physical environment for bicycling and walking. These programs also emphasize non-infrastructure approaches to educate and encourage communities on how to safely take advantage of walking and bicycling opportunities in their neighborhoods. For more information, see http://www.ncdot.org/programs/safeRoutes/.

g. Governor's Highway Safety Program. This program provides funds to carry out various pedestrian and bicycle safety initiatives, including educational programs and materials.

7.1.3. Federal Funding Programs

a. The **Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)**. This federal transportation spending bill, enacted on August 10, 2005, authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009. It continues funding for enhancement projects such as sidewalks, bikeways, greenways and signage that was provided for in previous transportation bills (ISTEA and TEA-21).

   Funds allocated to the Surface Transportation Program (STP) can be used to construct sidewalks, pedestrian walkways and to create informational materials that promote safe walking. Each state must earmark at least 10% of their annual STP funds for transportation enhancement activities. These enhancement activities may include construction of pedestrian and bicycle facilities, projects that improve the safety of pedestrians/bicyclists, educational projects related to pedestrian safety, and more. For a complete list, see http://www.fhwa.dot.gov/environment/te/guidance.htm#eligible.

b. The **Community Development Block Grant Program (CDBG)**, administered by the U.S. Department of Housing and Urban Development (HUD), provides grants to communities to upgrade infrastructure and community facilities. The funds must be used for projects in lower income areas, as part of a neighborhood or area revitalization effort.

7.1.4. Public – Private Partnerships

Local businesses, organizations and individuals may provide support for and partner with Mars Hill and/or Madison County to develop and/or maintain pedestrian facilities. Some possibilities include:

- Donations of cash towards a specific segment of sidewalk or greenway;
- Donations of labor, services and/or materials to reduce the design, construction or maintenance costs of a facility;
- Participation in an "Adopt a trail/greenway" or similar program to help maintain pedestrian facilities;
- The granting of easements or donations of land for segment(s) of sidewalks or greenways;
- Sponsor programs for amenities, such as benches, shelters or landscaping.

7.2. Supporting policies/guidelines

The Town of Mars Hill has a recent Land Development Plan, adopted in 2001, that enables the Town to coordinate land development and transportation planning. Having a Land Development Plan also strengthens Enhancement and other grant applications and funding requests to NC DOT and to other potential funding agencies.

The Land Development Plan contains a number of recommendations which address pedestrian infrastructure:

- In Chapter 5, Objectives and Policies, under the heading "Public Safety:"

  "Work to improve pedestrian safety in the town through coordination with Mars Hill College and the North Carolina Department of Transportation. Maintain the current quality of police and fire protection in the community.

  5.1 The town shall examine the effectiveness of existing pedestrian crosswalks and encourage the development of additional crosswalks especially in the campus area.

  5.2 The town shall encourage the development of sidewalks and safety signage in heavily used pedestrian areas."

- In Chapter 7, Plan Implementation, a number of amendments are recommended for the Town's Zoning Ordinance to foster a walkable community and a more pedestrian-friendly environment (pp. 127-128), including:
  - Require sidewalks where appropriate for all new residential and commercial construction. Where topography makes sidewalk installation difficult, consider extending shoulders for use by pedestrians or bicyclists.
  - Provide clear pedestrian walkways in parking lots and require parking to be located at the side or rear of new commercial developments.
  - Establish a mixed-use district.
  - Consider establishing a design code for big box retailers to ensure they fit in with the community and have a pedestrian-friendly design.
  - Use access management techniques to keep traffic flowing better on arterial roads (such as 213).
  - Examine shared parking arrangements.
  - Establish a greenways committee and plan how to link together streams, areas of historic interest and other places. Study how to connect the Bruce farm property to the college campus.

Section 8: Maps and Illustrations

8.1. Location Map

Map 8-1 is an orientation map. It shows where Mars Hill is in relation to Madison County and the state of North Carolina. Mars Hill is located in the southeastern portion of Madison County and adjacent to a relatively new interstate highway (Future I-26; labeled US 19-23 on the maps and shown in red on the Madison County map). Western North Carolina is a mountainous area, with elevation ranging from 2,200 feet to over 6,500 feet. Mars Hill's elevation is 2,325 feet.

8.2. Existing Pedestrian Facilities Map

Map 8-2 shows all the existing sidewalks, greenways and crosswalks as well as the road system and key origins and destinations. It also shows the main rivers and streams.

8.3. Pedestrian Facilities Map

Map 8-3 shows all existing and proposed sidewalks, greenways and crosswalks as well as the road system and key origins and destinations. It also shows the main rivers and streams – these are often good locations for greenways.

8.4. Key Pedestrian Corridors Map

Map 8-4 shows the main corridors used by pedestrians, along with all the existing features shown in Map 8-2.

8.5. Safety Concerns Map

Map 8-5 shows areas that are unsafe for pedestrians and areas where safety should be improved. New crosswalks and signals are identified as well as suggested traffic calming measures like speed humps and round-abouts.

8.6. High Priority Projects Map

Map 8-6 highlights the highest priority projects recommended in this Plan. These projects are detailed in Section 9. The labels on the map match the priority code assigned to the project in Section 9. SG# identifies priority sidewalk and greenway projects, I# identifies priority intersection improvements and C# indicates priority crosswalk improvements. The highest priority sidewalk and greenway projects are:

1. (SG1) Anderson Street, from 213 to Mountain View
2. (SG2) Mountain View, between Valley St. and Chestnut St. (connect to downtown)
3. (SG3) Gabriel Creek greenway – connection to Bailey Street
4. (SG4) Athletic Street – finish sidewalk by football stadium

8.7. Downtown Pedestrian Facilities Map

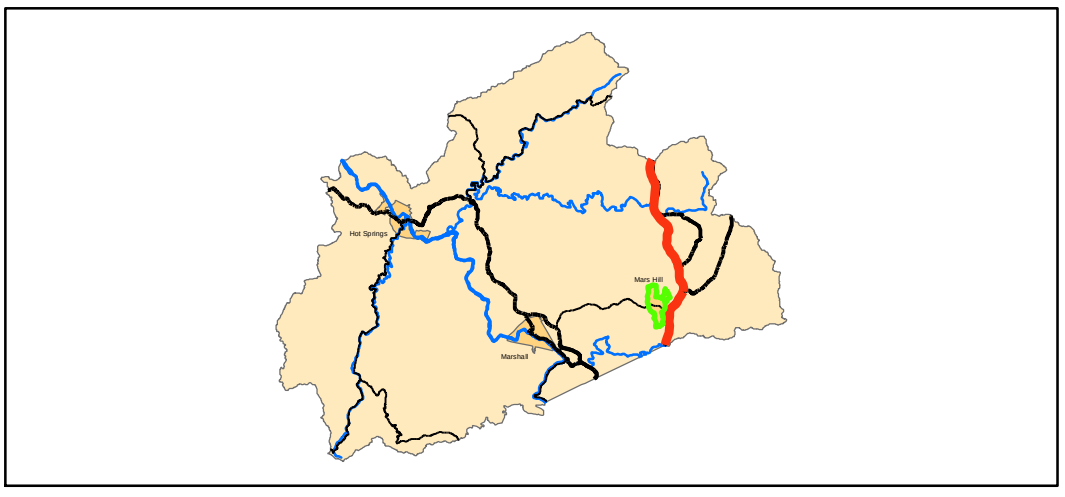
Map 8-7 shows the same information as Map 8-3, but just for the downtown and surrounding area.

8.8. Downtown Safety Concerns Map

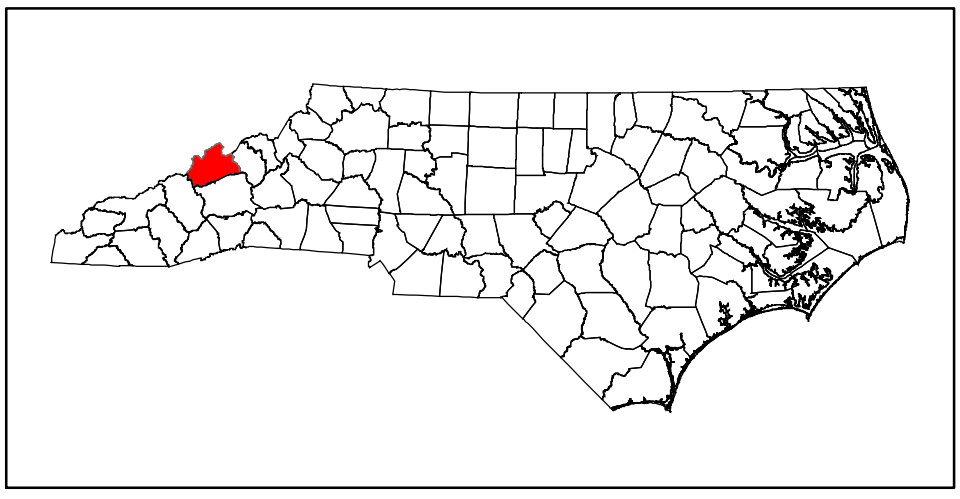
Map 8-8 shows the same information as Map 8-5, but just for the downtown and surrounding area.

Map 8-1 Mars Hill, NC

Madison County

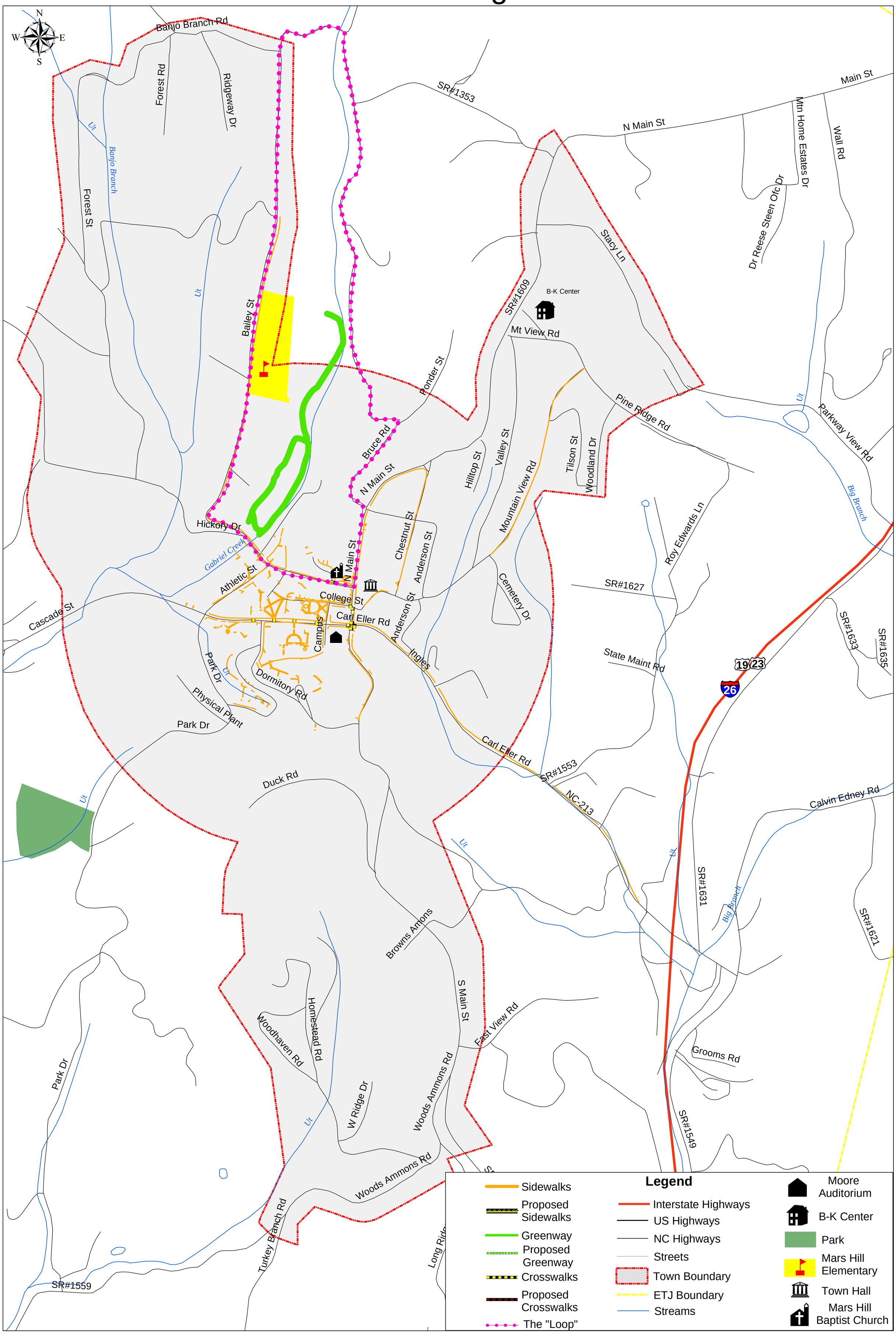


North Carolina



Map 8-2 Town of Mars Hill, NC

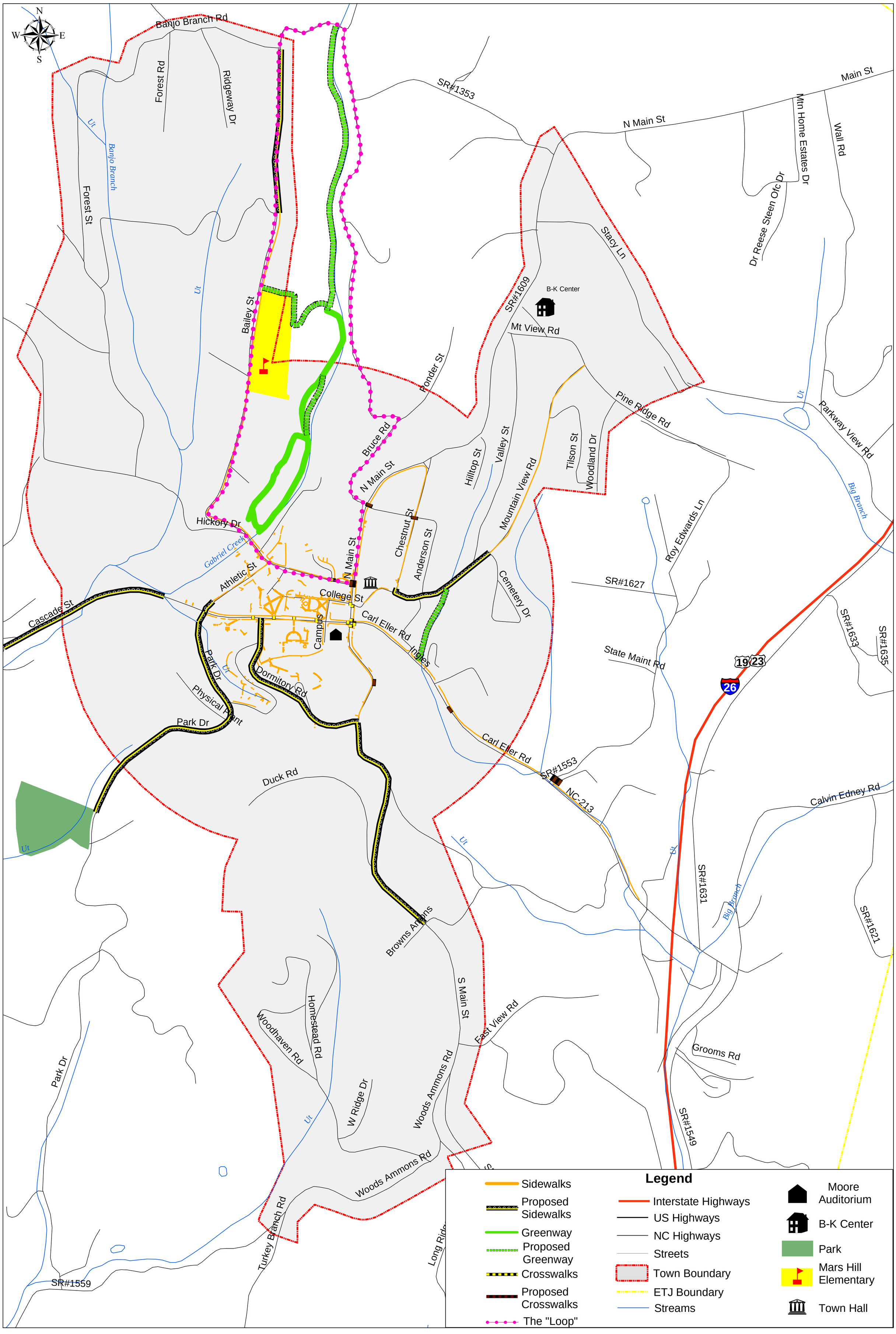
Existing Pedestrian Facilities



July 2007

Map 8-3 Town of Mars Hill, NC

Pedestrian Facilities



July 2007

Map 8-4 Town of Mars Hill, NC

Key Pedestrian Corridors

N
W
E
S

Banjo Branch Rd
Forest Rd
Ridgeway Dr
Ut
Banjo Branch
Forest St
SR#1353
Main St
N Main St
Mtn Home Estates Dr
Wall Rd
Dr Reese Steen Ofc Dr
Stacy Ln
SR#1609
B-K Center
Mt View Rd
Bailey St
Ponder St
Pine Ridge Rd
Parkway View Rd
Ut
Big Branch
Bruce Rd
N Main St
Hilltop St
Valley St
Mountain View Rd
Tilson St
Woodland Dr
Hickory Dr
Gabriel Creek
Chestnut St
Anderson St
Roy Edwards Ln
Athletic St
College St
Carl Eller Rd
Campus
Anderson St
Cemetery Dr
SR#1627
Cascade St
Park Dr
Dormitory Rd
Physical Plant
Park Dr
Ingles
State Maint Rd
SR#1633
SR#1635
19
23
26
Carl Eller Rd
SR#1553
NC-213
Calvin Edney Rd
Duck Rd
Ut
Ut
Ut
SR#1631
Big Branch
SR#1621
Browns Ammons
S Main St
Homestead Rd
Woodhaven Rd
East View Rd
Grooms Rd
Park Dr
W Ridge Dr
Woods Ammons Rd
SR#1549
Ut
Woods Ammons Rd
Turkey Branch Rd
Long Ridge
SR#1559

Legend

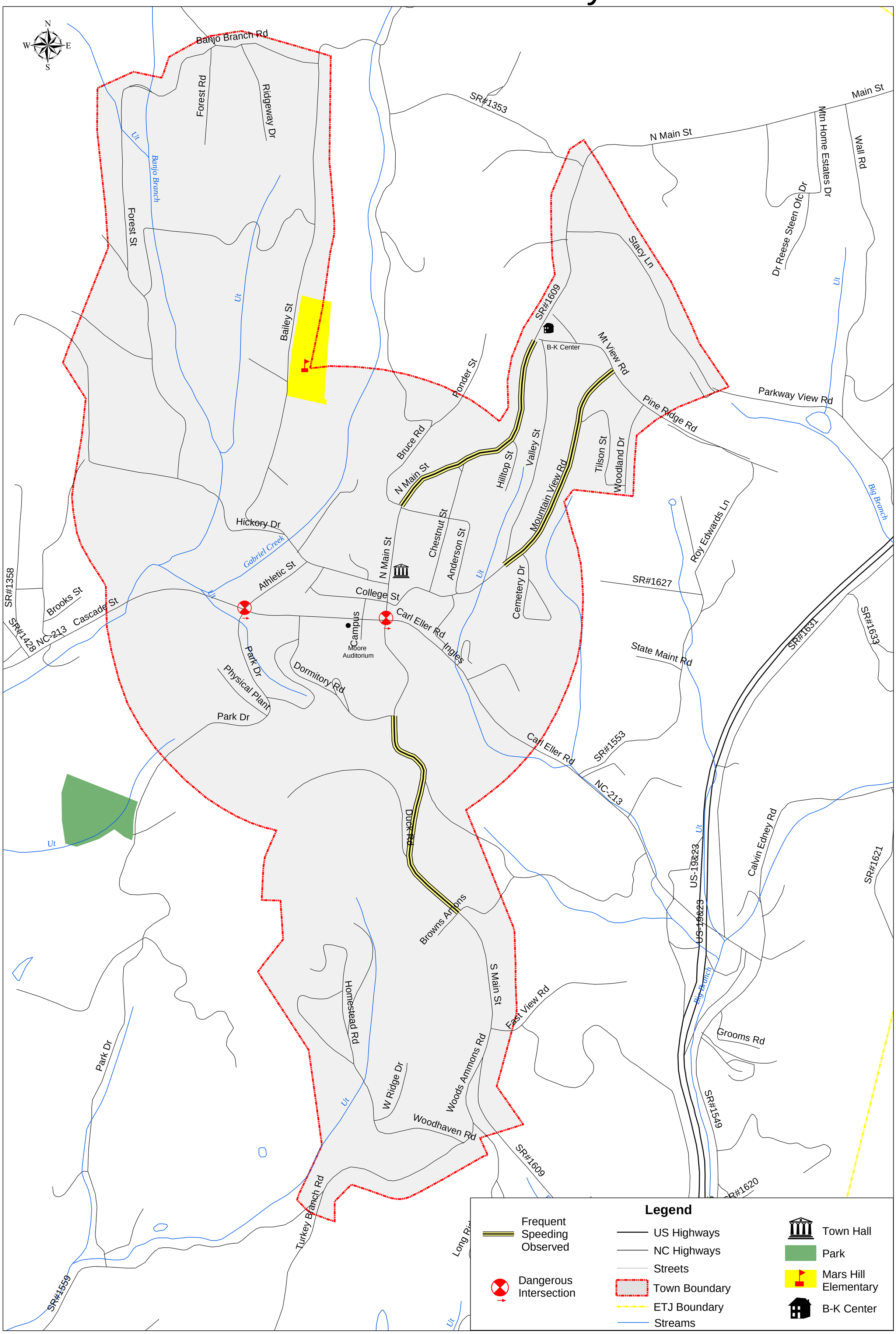
- Key Pedestrian Corridors
- Sidewalks
- Crosswalks
- Greenway
- The "Loop"
- Interstate Highways
- US Highways
- NC Highways
- Streets
- Town Boundary
- ETJ Boundary
- Streams
- Moore Auditorium
- B-K Center
- Park
- Mars Hill Elementary
- Town Hall

July 2007

0 650 1,300 2,600 3,900 5,200 Feet

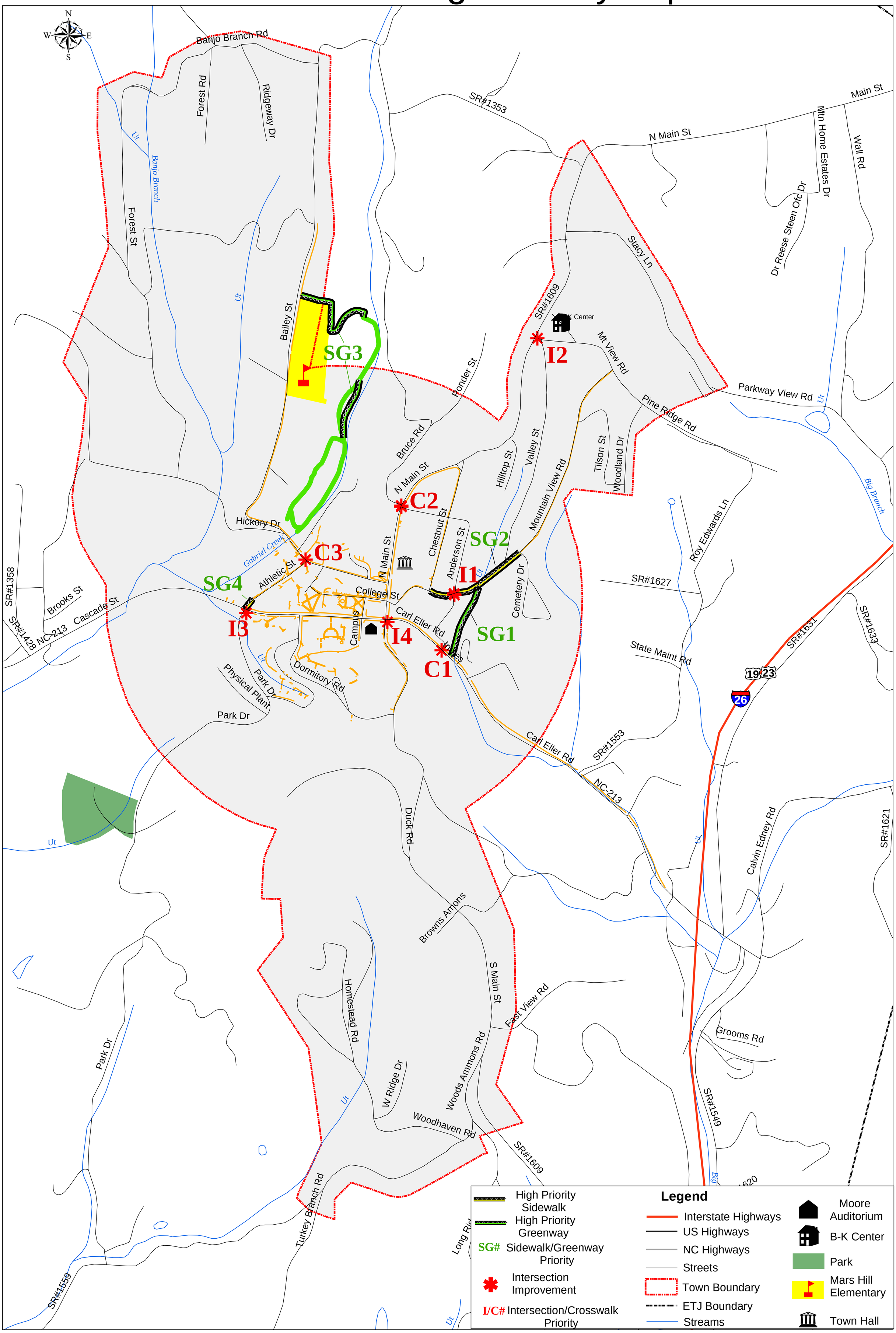
Map 8-5

Town of Mars Hill, NC
Safety Concerns



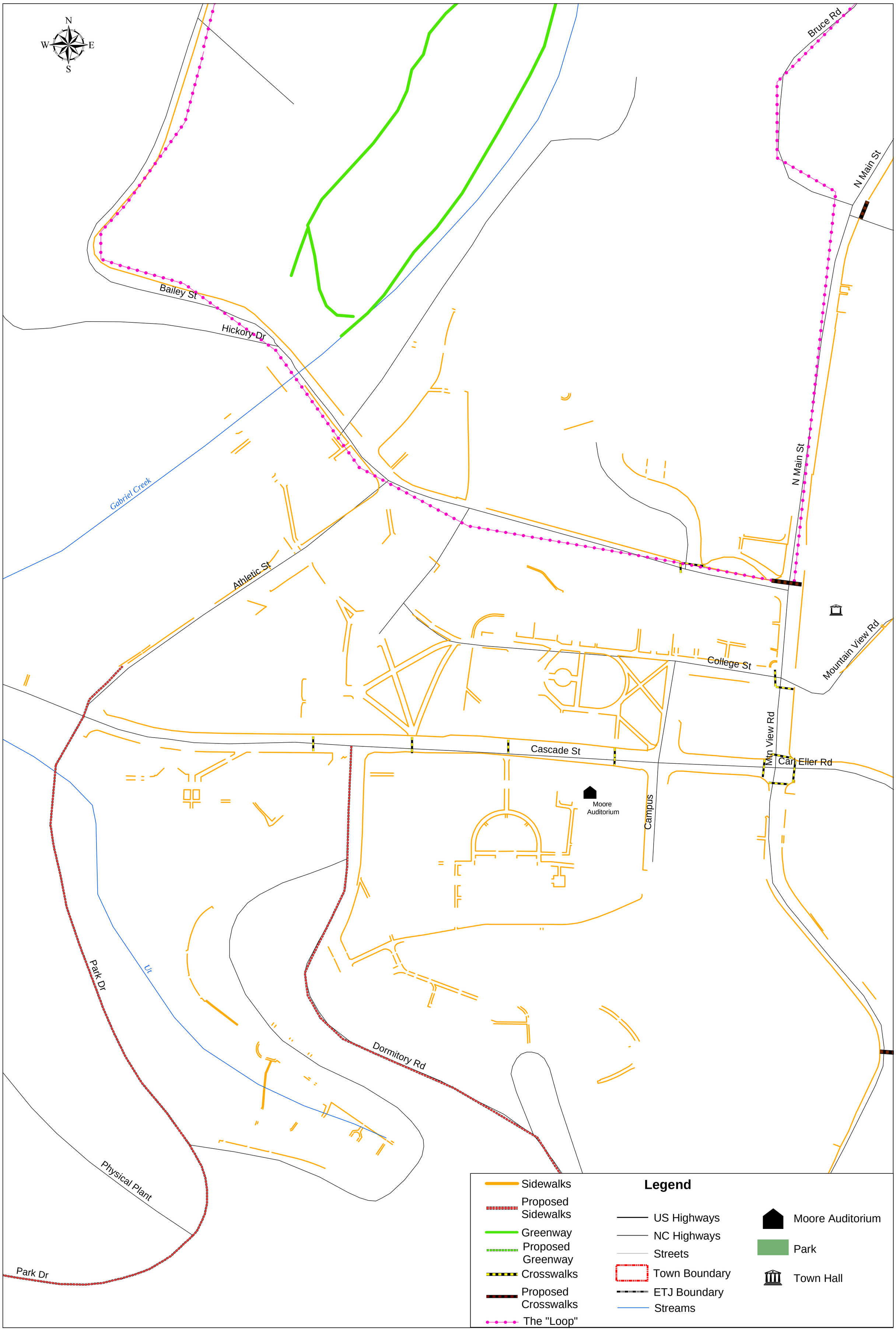
Map 8-6

Town of Mars Hill, NC
High Priority Improvements



Map 8-7

Town of Mars Hill, NC
Downtown Pedestrian Facilities

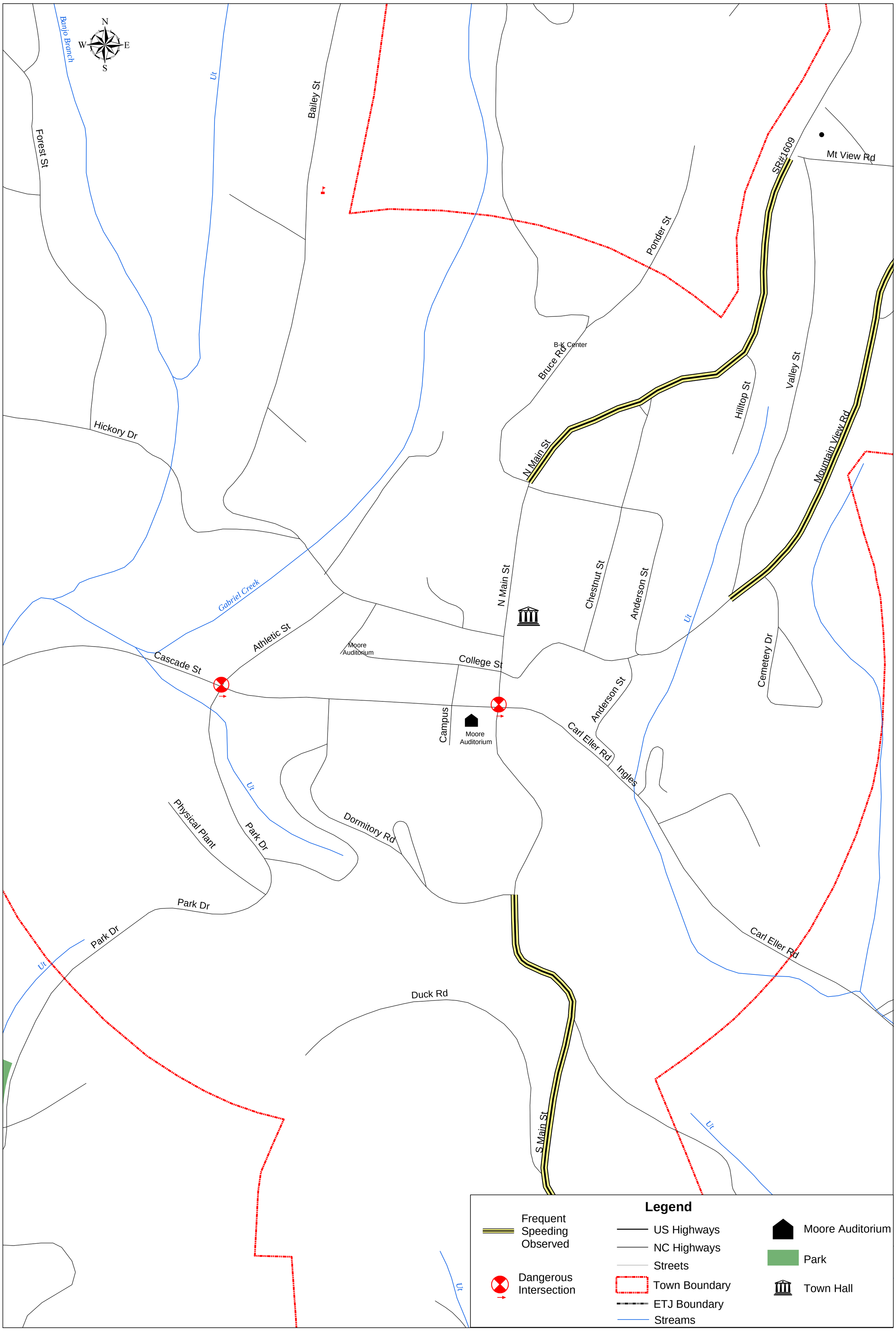


July 2007

Map 8-8

Town of Mars Hill, NC

Downtown Safety Concerns



March 2007

0 195 390 780 1,170 1,560 Feet

Section 9: Implementing the Plan

9.1. Plan approval / adoption process

The Mars Hill Pedestrian Plan Advisory Committee, who has overseen development of the plan, recommended that the plan be adopted by the Board of Aldermen in April, 2007. Copies of the plan were made available to the Planning Board, Board of Aldermen and the general public at this time. NCDOT has also been a part of the plan development process and the recommended draft plan was submitted to NCDOT for their review and ultimate approval. The Plan was presented to the Board of Aldermen at a public meeting on July 10, 2007 and the Board approved the plan at that meeting. NCDOT requested additional revisions, to improve readability and for clarification, and these were included in the final version of the plan.

9.2. Action Plans for High Priority Projects

The following sections contain the highest priority projects, listed by category or type of project. Projects are listed in priority order in each category. The high priority projects are shown on Map 8-6, with labels that match the labels in this section (e.g. SG1, I2, etc.). Spot improvements (outlined in Section 9.2.4) are not shown on the map.

9.2.1. Sidewalk and Greenway Construction Projects

SG1. Anderson Street, from 213 to Mountain View

- **Type of facility:** Greenway
- **Length:** approx. 900 feet
- **Estimated Construction Costs:** $35,000 (asphalt path); $21,000 (crushed stone)
- **Lead Agency:** Town
- **Right-of-way:** All private; one/two property owners
- **Notes:** This greenway will provide a connection from Mountain View to NC 213. The road is narrow and windy, so a greenway along creek, between properties, appears to be the best option This greenway, together with the sidewalk on Mountain View (2. below) and the intersection improvement at Chestnut and Anderson Streets, would be a good project to implement first. These pieces all relate to each other and it would bring people together and generate some excitement.
- **Next steps:** Talk to land owners and draft a preliminary design of the greenway path.

SG2. Mountain View, between Valley St. and Chestnut St. (connect to downtown)

- **Type of facility:** Sidewalk
- **Length:** approx. 1280 feet
- **Estimated Construction Costs:** $30,000
- **Lead Agency:** Town

- **Right-of-way:** Most/all private
- **Notes:** See notes for 1. above.
- **Next steps:** Talk to land owners and draft a preliminary alignment of sidewalk.

SG3. Gabriel Creek connector

- **Type of facility:** Greenway
- **Length:** approx. 1950 feet
- **Estimated Construction Costs:** $23,000
- **Lead Agency:** Town and County
- **Right-of-way:** Only a couple land owners plus school and college
- **Notes:** This greenway will provide a connection from the creek, around Mars Hill Elementary School property, to Bailey Street. The school is in favor of this project. It would substitute for "the loop" with some promotion.
- **Next steps:** Talk to land owners and draft a preliminary design of the greenway path(s). Also, pursue grant funding through the Parks and Recreation Trust Fund and/or Recreational Trails Program.

SG4. Athletic Street – finish sidewalk by the football field

- **Type of facility:** Sidewalk
- **Length:** 440 feet from existing sidewalk to NC 213 plus 300 feet from existing sidewalk to Bailey Street.
- **Estimated Construction Costs:** $17,000
- **Lead Agency:** Mars Hill College
- **Right-of-way:** Mars Hill College
- **Notes:** Place sidewalk next to Wren Building, opposite stadium. The college is building new stadium facilities and may have funds to apply to this related sidewalk project.
- **Next steps:** Talk to land owners and draft a preliminary alignment of sidewalk.

9.2.2. Crosswalk Projects

C1. Anderson Street at NC 213

- **Type of facility:** Crosswalk
- **Estimated Construction Costs:** $10,000
- **Lead Agency:** Town, with help from NC DOT
- **Notes:** Busy intersection.
- **Next steps:** Talk to NC DOT about design issues and funding.

C2. Anderson Street at North Main Street

- **Type of facility:** Crosswalk
- **Estimated Construction Costs:** $5,000
- **Lead Agency:** Town

- **Notes:** A lot of pedestrian traffic; in the middle of downtown. Also needs to be made handicap-accessible. Town thinks this is very doable.
- **Next steps:** Town scope out design and identify funding.

C3. Bailey Street, near college gym and Fox parking lot

- **Type of facility:** Crosswalk
- **Estimated Construction Costs:** $5,000
- **Lead Agency:** Mars Hill College and Town
- **Notes:** Need lighting and crosswalk near gym and parking area due to high number of pedestrians.
- **Next steps:** Identify funding source and choose lighting scheme (College)

9.2.3. Intersection Improvements

I1. Chestnut Street and Anderson Street

- **Type of improvement:** Redesign intersection
- **Estimated Construction Costs:** unknown until design is complete
- **Lead Agency:** Town
- **Notes:** Try and do this project in conjunction with the number 1. and 2. greenway and sidewalk projects above. This is a dangerous intersection and needs to be re-designed to be safer.
- **Next steps:** Consult with RPO staff and DOT for design and funding assistance.

I2. North Main Street and Mountain View

- **Type of improvement:** Improve intersection
- **Estimated Construction Costs:** unknown until design is complete
- **Lead Agency:** Town and NC DOT
- **Notes:** Lots of children and traffic. It is hard to see both ways, especially north due to a hill. It's difficult to turn left onto North Main.
- **Next steps:** Consult with RPO and DOT staff to evaluate alternative designs.

I3. NC 213 and Athletic Street

- **Type of improvement:** Traffic light or round-about
- **Estimated Construction Costs:** unknown until design is complete
- **Lead Agency:** Town, Mars Hill College and NC DOT
- **Notes:** This is a dangerous intersection and it is hard for vehicles to turn onto 213 from Athletic Street. There may be some opportunity to make changes here during the construction of the new Ferguson Science building (construction is scheduled for summer 2008).
- **Next steps:** Mars Hill College, the Town and NC DOT need to evaluate options for slowing down traffic and making the intersection safer for vehicles and pedestrians.

I4. NC 213 and Main Street

- **Type of improvement:** Pedestrian signals; consider four-way stop signs
- **Estimated Construction Costs:** unknown until design is complete
- **Lead Agency:** Town and NC DOT
- **Notes:** This is a dangerous intersection of two main roads, one a NC highway, and needs regular monitoring and consideration for improvements.
- **Next steps:** The Town and NC DOT have been working closely on this intersection. They need to continue to monitor it and track accidents and traffic violations, and keep improving the safety.

9.2.4. Spot Improvements

1. Bailey Street through Mars Hill College

- **Type of improvement:** Lighting along roadway
- **Estimated Cost:** $1,500 for each light fixture plus $1,000 for installation
- **Lead Agency:** Mars Hill College
- **Next steps:** Mars Hill College will talk to NC DOT about lighting options. Consider flashing lights to indicate when people are crossing or on-demand lighting at crosswalks.

2. NC 213 through Mars Hill College

- **Type of improvement:** Lighting of the crosswalks
- **Estimated Cost:** $1,500 for each light fixture plus $1,000 for installation
- **Lead Agency:** Mars Hill College
- **Notes:** Mars Hill College would like the crosswalks moved to intersection locations.
- **Next steps:** Mars Hill College will talk to NC DOT about lighting options. Consider flashing lights to indicate when people are crossing or on-demand lighting at crosswalks.

3. Bailey Street

- **Type of improvement:** Sidewalk repairs/maintenance
- **Estimated Cost:** approximately $6,000
- **Lead Agency:** Town
- **Notes:** Sidewalk is crumbling in places and should be widened if possible.
- **Next steps:** The Town plans to do this maintenance in Spring 2007.

4. Mountain View

- **Type of improvement:** Traffic calming
- **Estimated Cost:** $3,000 per speed hump (from Institute of Transportation Engineers (ITE))
- **Lead Agency:** Town
- **Next steps:** The Town plans to install speed humps here after evaluating the ones on Chestnut Street.

5. **Chestnut Street**
   - **Type of improvement:** Traffic calming (speed humps)
   - **Estimated Construction Costs:** $3,000 per speed hump
   - **Lead Agency:** Town
   - **Notes:** The Town is planning to try some speed humps here by mid-2007 and use this as a test location.
   - **Next steps:** Town has a contract to install the speed humps. It will be the first project in 2007.

6. **N. Main Street and S. Main Street**
   - **Type of improvement:** Traffic calming / speed humps / speed limit
   - **Estimated Construction Costs:** unknown until design is complete
   - **Lead Agency:** Town and NC DOT
   - **Notes:** Install speed humps right before curves on the way down to slow down traffic. Consider changing speed limit to 20 mph up to the new Town Hall. Note that traffic needs to be slowed down approaching downtown on BOTH North and South Main Street
   - **Next steps:** Evaluate options once traffic calming measures have been installed on Chestnut Street and Mountain View.

7. **Main Street between retirement home and new Town Hall**
   - **Type of improvement:** Pedestrian right-of-way signs
   - **Estimated Cost:** $250 per sign
   - **Lead Agency:** Town
   - **Notes:** This is a "high pedestrian zone" and traffic needs to be slowed as it approaches the core downtown area. Consider placing signs that say: "Welcome to Mars Hill, a pedestrian-friendly town"
   - **Next steps:** Design signs and identify funding to develop and install signs.

8. **NC 213 between Main Street and chapel**
   - **Type of improvement:** Traffic calming measures, pedestrian right-of-way signs
   - **Estimated Cost:** unknown until design is complete
   - **Lead Agency:** Town and NC DOT
   - **Notes:** This is a "high pedestrian zone" and traffic needs to be slowed as much as possible.
   - **Next steps:** The Town and DOT are regularly evaluating this area for safety improvements.

9. **NC 213 and Main Street**
   - **Type of improvement:** Traffic light timing
   - **Estimated Cost:** no cost to Town; service provided by NC DOT
   - **Lead Agency:** Town and NC DOT
   - **Notes:** Timing could be improved for safety and to move traffic through intersection.

- **Next steps:** The Town and DOT are regularly evaluating this area for safety improvements.

9.2.5. Policies and Guidelines

1. **Revise Zoning and Subdivision Ordinances to foster a more pedestrian-friendly environment**
   - **Type of improvement:** Ordinance revisions
   - **Estimated Cost:** minimal administrative cost
   - **Lead Agency:** Town of Mars Hill, Planning Board
   - **Notes:** See description of recommended revisions in Section 6.10
   - **Next steps:** Draft ordinance revisions and recommend that the Board of Aldermen approve them.

2. **Improve access management, especially in unsafe spots**
   - **Type of improvement:**
   - **Estimated Cost:** minimal administrative cost
   - **Lead Agency:** Town of Mars Hill
   - **Next steps:** Town staff should talk to business/property owners and request safety improvements to the access points. Consult with NC DOT as needed and appropriate.

3. **Develop and distribute downtown brochure with walking guide**
   - **Type of improvement:** Public education/awareness
   - **Estimated Cost:** $2,500 to design and develop brochure; additional funds to print and distribute brochure (approximately $1.00-$1.50 per brochure)
   - **Lead Agency:** Town of Mars Hill
   - **Next steps:** Work is in progress. Next steps are to complete the design of the brochure, identify funding source(s), and print and distribute the brochure.

Appendices

A. Pedestrian Issues Survey and Results

B. April 25, 2006 Public Input Session – Questions for Small Groups

C. *A Guide to North Carolina Bicycle and Pedestrian Laws – Part 2*

D. North Carolina Department of Transportation's Pedestrian Policy Guidelines (2001)

E. "Walkable Communities: Twelve Steps for an Effective Program" guide published by Florida Department of Transportation, Safety Office (1995)

F. "Traditional Neighborhood Development (TND) Guidelines," North Carolina Department of Transportation (2000)

G. "Walking – Levels of Quality" poster from Walkable Communities, Inc. (www.walkable.org)

Appendix A. Town of Mars Hill – Pedestrian Issues Survey RESULTS

The Town mailed surveys to all residents in early February, 2006 (approx. 550). An online version was available for the month of February (through March 3, 2006); the online survey was available to anyone, but primarily promoted through Mars Hill College. 95 paper surveys and 81 online surveys were completed, for a total of 176.

1. **I currently walk/run:** *(check all that apply) 173 total respondents*

	Responses	Percent	Only paper surveys
in my neighborhood	100	**57.8%**	**81%**
around the downtown/college area	125	**72.3%**	56%
to get to/from work or school	36	20.8%	13%
to shop or run errands	55	31.8%	33%
mainly for exercise	101	**58.4%**	**72%**
mainly to get from one place to another	63	36.4%	25%
I do NOT walk around town or my neighborhood	3	1.7%	3%

2. **What are the biggest barriers to walking/running in Mars Hill? (please mark "1" for your biggest barrier; "2" for the second one and "3" for your third biggest barrier)**

	Percent who chose values			
	"1"	"2"	"3"	Total
lack of sidewalks	**28.4**	21.0	11.1	**60.5%**
unsafe sidewalks	6.2	6.2	13.6	25.9%
unsafe crossings	20.4	15.4	11.7	47.5%
not enough crosswalks	10.5	8.6	11.7	30.9%
narrow roads with no or small shoulders	**36.4**	18.5	14.8	**69.8%**
other				

3. **If a safe walking route were available, would you walk from your home to:**

downtown?	Yes	**68.6%**	No	28.1%
work?	Yes	30.1	No	43.8
businesses on 213?	Yes	**49.7**	No	36.6
the elementary school?	Yes	32.0	No	42.5
the B-K Center?	Yes	19.0	No	44.4
_____	Yes	5.2	No	n/a

Appendix A. Town of Mars Hill – Pedestrian Issues Survey RESULTS

4. Which of the following factors are important in determining whether you will walk somewhere?

FACTOR	Very Important	Somewhat Important	Not important	Very OR Somewhat Important
Availability of sidewalks/trails	**77.0%**	13.3%	4.2%	**90.3%**
Availability of benches	4.2%	29.1%	50.3%	33.3%
Adequate street lighting	58.8%	21.8%	5.5%	**80.6%**
Personal safety	**77.0%**	10.3%	3.0%	**87.3%**
Painted crosswalks	32.1%	35.2%	15.8%	67.3%
Pedestrian signals at crosswalks	35.8%	29.1%	18.2%	64.8%
Speed of traffic	**67.3%**	20.0%	3.0%	**87.3%**
Handicap accessible sidewalks and trails	14.5%	29.7%	36.4%	44.2%

5. **Where do you currently walk or run where there is no sidewalk?** (please be specific)

Following are the places listed the most times, in order of how many times they were listed:

Bailey Street
North and South Main Street
Bruce Street
The Loop
Cemetery
Valley Street
Anderson Street
Mountain View

6. **Where would you like to see <u>new sidewalks</u>?**

Following are the places listed the most times, in order of how many times they were listed:

North and South Main Street (new housing off South Main increases need for sidewalks in this area)
Bailey Street
Bruce Street
Cemetery
Athletic Street

7. **Where would you like to see <u>trails</u>?**

- Up Bailey Mountain (there is one, but it needs maintenance) and on towards Sam's Gap
- Between downtown and Bailey Mountain.
- Along Gabriel Creek from the Mars Hill College utility plant to Duck Drive and back to South Main
- Wooded areas like Cascades - physical plant area of college - to rec center
- Up on the mountain behind the townhouses and where the Radio Tower is
- A network of trails connecting the Rec park with other locations.
- At the park and around the elementary school
- In the woods between Park Drive and South Main.
- Anywhere in the Bruce Road and "loop" area

- Bruce Road area - Banjo Branch - Forest St. extension
- Near the residential and the college areas
- It would be very cool to have a trail that connects Mars Hill and Marshall.
- Clearly marked/named/mapped trails (as opposed to just paths) would be nice.

8. Where would you like to see <u>crosswalks</u>?

Mars Hill College area:

- Where students actually cross – between Spillman and Cornwell, Cornwell and the sidewalk going towards the MHC sign, the Lion's Den and the entrance to the football stadium.
- Between Wall Science Building and Harris Media Center moved directly in front of the side walk leading to the front entrance of Wall.
- In the areas where students walk to campus from Fox, Stroup, Edna Moore and Huffman dorms.
- In front of the Broyhill Chapel and between Crooked Street and Athletic Street to easily access the parking lots. The cross walks in place now are inconvenient.
- It would be helpful if there was a crosswalk with a blinking sign on Bailey Street from the dorms over to the main campus. Traffic flies down that street!
- From parking lot to college gym/pool/field

Other areas around town:

- Strategic points along 213, near Ingles and Wagon Wheel
- Somewhere in the immediate area of Main Street Deli
- Make all of Main Street between 213 and Bailey Street a giant, pedestrians-first crosswalk.
- A pedestrian-controlled traffic signal (for walk, don't walk) at the intersection 213 where Ms. Rice was hit. It might be safer to put a pedestrian crosswalk in front of Wachovia/Asheville Savings where you don't have to worry about 4-way traffic or people going right on red.
- At intersection North Main and Chestnut, at intersection North Main and Hill Top Street, at intersection North Main and Bruce/Anderson (very dangerous downhill road with 2 curves)

9. What would make Mars Hill more walkable?

Slower traffic

- On 213, North Main Street, Bruce Road
- Slow down the large trucks (esp. logging trucks) on 213 through college
- Lower speed limits in high pedestrian areas or within city limits
- Enforce speed limits
- Designated high pedestrian zones and post pedestrian right-of-way signs, install speed humps or other traffic calming devices. Possible pedestrian zones: 213 between Main Street and chapel; Main Street between retirement home and fire station

Safer pedestrian crossings

- More signs with crosswalk laws
- Pedestrian signals (especially at 213 and Main Street)
- "No turn on red" at 213 and Main Street

- flashing lights at crosswalks
- more enforcement of speed limits and stopping at crosswalks
- crossing guards at peak times

More sidewalks and trails; larger shoulders

- sidewalks and trails that connect

More visibility (through signs, crosswalks, lighting) that this is a pedestrian community as drivers approach town.

Re-evaluate placement of crosswalks along 213 through college and educate students about their responsibility to cross at crosswalks.

More and better lighting – around town and at crosswalks

Attract more businesses Main Street or near the center of Town

Fix narrow and crumbling sidewalk along Bailey Street

10. Other issues or concerns about Mars Hill's pedestrian infrastructure:

- Speeding and speed of traffic – too fast generally, on both main roads and side streets
- Drivers do not respond to crosswalk signs on college campus
- Light timing at 213 and Main Street needs improvement
- Handicap/wheelchair accessibility
- Dogs that aren't fenced or tied down
- Everyone within a half mile of downtown should have safe walkway access to town and college campus

Please also provide the following information about yourself:

Do you LIVE in Mars Hill? Yes 75% No 25%

Do you WORK in Mars Hill? Yes 60% No 40%

Are you a STUDENT at Mars Hill College? Yes 23% No 77%

Your AGE: 0 Under 18; 22.5% age 18-24; 17.2% age 25-44;
17.8% age 45-54; 20.1% age 55-64; 21.9% age 65+

Your SEX: 41% Male 54% Female 5% male & female

Number of children (< 18 years old) in your household: (circle)

0	76%
1	9%
2	11%
3	3%
4+	1%

Appendix B. Public Input Session – Questions for Small Groups

Mars Hill Pedestrian Plan
Public Input Meeting
April 25, 2006 at 7:00 p.m. - Mars Hill Town Hall

Questions for Small Groups

Materials for small groups:

- Maps
- Summary of survey results
- Visual examples of pedestrian infrastructure/amenities
- Visual examples of traffic calming techniques
- Post-it notes (?), markers, pens/pencils, sticky dots

Role of facilitator:

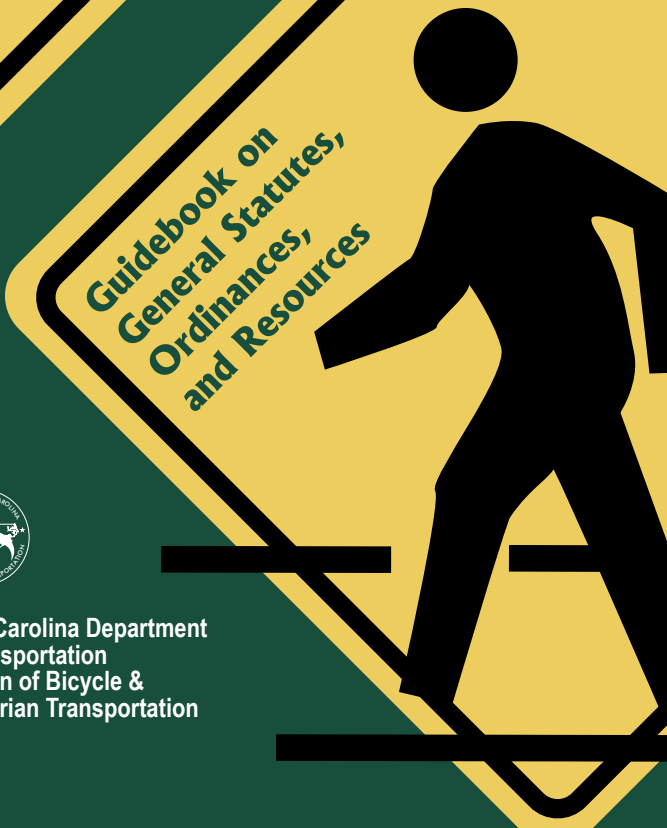
- Present materials and questions for small groups
- Take notes on discussion - record comments and ideas
- Keep conversation moving with this list of questions
- Answer participants' questions or refer to Linda if you don't know the answer
- Encourage participation from all attendees
- Other facilitator duties: offer leadership, be a referee if needed, be neutral, encourage participation from quiet attendees, reign in the overly talkative participant, limit side conversation/maintain focus, deal with overly disagreeable participants

Questions/Topics for Discussion:

- Show and explain map
- Present attendees with a list of Mars Hill streets mentioned most often in the surveys as needing improved pedestrian infrastructure.
    - Ask if there are any other areas that are popular for walking yet have no or unsafe sidewalks. Have we missed any problem areas? Are there gaps in pedestrian infrastructure that we haven't yet identified?
- Using the map, indicate and mark pedestrian generators.
- Using the map, indicate areas of sidewalk in need of maintenance.
- What type of sidewalk design would work best in the areas that need improvement or new sidewalks? (e.g. is there room for sidewalk plus planting strip? Would a multi-use path on a different location serve the need? Where are benches, lighting, landscaping or other amenities needed?
- Present visual examples of traffic calming techniques. Would any of these techniques help improve safety in the trouble spots from the survey list (or those listed at the meeting)?
- Ask participants to prioritize the pedestrian facilities needs that your group has discussed (including those from the surveys). Think about which areas are strategic for new/improved sidewalks or trails. Try to end the small group session with a prioritized list that can be presented to the larger group.
- Any other issues, such as safety, amenities, connectivity, that attendees want to add?

A Guide to North Carolina Bicycle and Pedestrian Laws

PART - 2



Guidebook on General Statutes, Ordinances, and Resources

North Carolina Department of Transportation
Division of Bicycle & Pedestrian Transportation

A Guide to
North Carolina Bicycle and Pedestrian Laws

Laws are subject to change by the North Carolina General Assembly. Printed in September 2004.

North Carolina Department of Transportation
Division of Bicycle & Pedestrian Transportation

Disclaimer

Every attempt has been made to provide complete and thorough information on the North Carolina laws pertaining to bicycles and pedestrians. Neither ITRE nor NCDOT can be held responsible for any exclusions, omissions nor deletions of relevant laws. If you have questions or concerns regarding North Carolina law pertaining to bicycles or pedestrians, you may wish to consult an attorney.

Produced by the Institute for Transportation Research and Education at North Carolina State University for the North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation.

Access an electronic version of this document at
http://www.ncdot.org/transit/bicycle/laws/resources/lawsguidebook.html.

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3500 copies of this guide were printed at a cost of $1.33 each.

△ printed on recycled paper

Table of Contents

Pedestrians and the Law

Organized by topic, this section discusses North Carolina laws affecting pedestrians. In this section, the number of the General Statute is shown at the end of each discussion. For the specific wording of the law, please refer to the sections called General Statutes (shown in numeric order) in this guide that relate to pedestrians: North Carolina Statutes Related to Pedestrians on page 53 and North Carolina Statutes Related to Both Bicyclists and Pedestrians on page 63.

Please note that under North Carolina law, operators of personal assistive mobility devices are defined as pedestrians, so these pedestrian laws apply. Please see the *Definitions* section under General Statutes on page 27 considered part of the law.

Pedestrians and Facilities

Signals

Pedestrians must obey special pedestrian-control signals as follows:

WALK - Pedestrians facing the signal can walk across the roadway in the direction of the signal, and motorists must yield the right-of-way.

DON'T WALK - Pedestrians cannot start to cross the roadway, but if they are partially across the highway they can complete their crossing or proceed to a safety island. [§20-172(b)]

On certain streets and highways, traffic islands or other spaces are set aside specifically as pedestrian refuges when pedestrians cannot completely cross the roadway on a single WALK signal. [§20-4.01 (39)]

When these special pedestrian-control signals are not provided, pedestrians must obey the regular traffic-control signals, such as traffic lights. [§20-172(c)]

At places without traffic-control signals, pedestrians should adhere to the rights and responsibilities described in Part 11 of Article 20-Pedestrians' Rights and Responsibilities, which includes §20-172 through §20-175. [§20-172(d)]

Walking Along the Road
When a sidewalk is available, pedestrians must use the sidewalk instead of walking on the roadway, which is defined as the part of the highway that is paved, graveled, or otherwise improved for vehicle travel. [§20-174 (d) and §20-4.01 (38)]

When sidewalks are not provided, pedestrians walking along or on the highway should, when practicable, walk on the extreme left of the roadway or shoulder facing traffic and must yield the right-of-way to traffic. [§20-174(d)]

Railroad Signals
Pedestrians cannot pass through, around, over, or under any railroad crossing gate or barrier that is closed or in operation. [§20-142.1]

Regarding Physical Impairment
Only persons that are wholly or partially blind can use a white cane (or white-tipped with red) on a street or other public space. [§20-175.1]

Electric Personal Assistive Mobility Devices
A person operating an electric personal assistive mobility device has all the rights and duties of a pedestrian. These devices may be operated on public highways with a posted speed of 25 miles per hour or less, on sidewalks, and on bicycle paths. Operators of these devices must yield the right-of-way to pedestrians and other human-powered devices. Municipalities may regulate the time, place, and manner of operating these devices but cannot prohibit their use. [§20-175.6]

Interactions with Others

Right-of-Way at Crosswalks
Pedestrians have the right-of-way at marked and unmarked crosswalks in residential and business areas except where there is a traffic or pedestrian signal. [§20-155(c) and [§20-173(a)]

Also, whenever any vehicle is stopped at an intersection crosswalk to permit a pedestrian to cross, any other motorist or bicyclist approaching from the rear is not permitted to overtake and pass the stopped vehicle. [§20-173(b)]

Between adjacent signalized intersections that are operational, pedestrians must not cross the roadway at any place except a marked crosswalk. [§20-174(c)]

Right Turn on Red
At intersections, motorists and bicyclists must yield the right-of-way to pedestrians and other traffic when making a right turn on red. [§20-158(b)(2)]

Yielding to Vehicles
When not using a marked or unmarked crosswalk at an intersection, pedestrians must yield the right-of-way when crossing the roadway. They must also yield the right-of-way when crossing the roadway and not using a pedestrian alternative, such as a pedestrian tunnel or bridge, that is provided for them. [§20-174(a) and (b)]

Yielding to Pedestrians Outside of Crosswalks and Intersections
Motorists and bicyclists must yield the right-of-way to pedestrians in several cases that do not involve crosswalks and intersections:

- Where there is a traffic signal emitting a steady red light, or flashing red light or flashing yellow light [§20-158(c)]
- Where there is a stop sign [§20-158(d)(1)]
- When a pedestrian is traveling on a sidewalk or driveway and is approaching a driveway, alley, building entrance, or private road. [§20-173(c)]

Regardless of right-of-way, motorists and bicyclists must exercise caution to avoid colliding with pedestrians on the roadway, and must sound a horn to warn pedestrians, when necessary. Vehicle operators must also exercise caution when observing any child or apparently incapacitated person in the roadway. [§20-174(e)]

Blind Pedestrians
Any wholly or partially blind pedestrian has the right-of-way at any crossing or intersection that is not officer- or signal-controlled so long as they are using a white cane (or white tipped with red) or a guide dog. When not using a cane or a guide dog or when using a motorized wheelchair (or similar vehicle not exceeding 1000 pounds gross weight), they retain all the privileges provided to other pedestrians. [§20-175.2, §20-175.3 and §20-175.5]

Audible Warning
Before starting, stopping or turning, motorists on a highway or public vehicular area must ensure that such movement is safe and must give a clearly audible signal by sounding the horn to warn any pedestrians that would be affected. [§20-154(a)]

Keeping the Roadway Clear
Pedestrians cannot impede the regular flow of traffic by willfully standing, sitting, or lying on the roadway. [§20-174.1]

Pedestrians are not permitted to be in the roadway, shoulder, or median of a highway to solicit business or loiter. Pedestrians can hitchhike (solicit rides) from the highway shoulder, but they cannot be on the roadway. [§20-175] However, hitchhiking or soliciting rides is forbidden on interstate or fully controlled-access highways, except in the case of an emergency. [GO-10 of the General Ordinances of the North Carolina Department of Transportation, Chapter 2 of the NCDOT Maintenance Manual]

DEPARTMENT OF TRANSPORTATION
PEDESTRIAN POLICY GUIDELINES
EFFECTIVE OCTOBER 1, 2000

These guidelines provide an updated procedure for implementing the Pedestrian Policy adopted by the Board of Transportation August 1993 and the Board of Transportation Resolution September 8, 2000. The resolution reaffirms the Department's commitment to improving conditions for bicycling and walking, and recognizes non-motorized modes of transportation as critical elements of the local, regional, and national transportation system. The resolution encourages North Carolina cities and towns to make bicycling and pedestrian improvements an integral part of their transportation planning and programming.

REQUIREMENTS FOR DOT FUNDING:

REPLACEMENT OF EXISTING SIDEWALKS:

The Department will pay 100% of the cost to replace an existing sidewalk that is removed to facilitate the widening of a road.

TIP INCIDENTAL PROJECTS:

DEFINED: Incidental pedestrian projects are defined as TIP projects where pedestrian facilities are included as part of the roadway project.

REQUIREMENTS:

1. The municipality and/or county notifies the Department in writing of its desire for the Department to incorporate pedestrian facilities into project planning and design. Notification states the party's commitment to participate in the cost of the facility as well as being responsible for all maintenance and liability. Responsibilities are defined by agreement. Execution is required prior to contract let.

   The municipality is responsible for evaluating the need for the facility (ie: generators, safety, continuity, integration, existing or projected traffic) and public involvement.

2. Written notification must be received by the **Project Final Field Inspection (FFI) date**. Notification should be sent to the Deputy Highway Administrator - Preconstruction with a copy to the Project Engineer and the Agreements Section of the Program Development Branch. Requests received after the project FFI date will be incorporated into the TIP project, if feasible, and only if the requesting party commits by agreement to pay 100% of the cost of the facility.

3. The Department will review the feasibility of including the facility in our project and will try to accommodate all requests where the Department has acquired appropriate right of way on curb and gutter sections and the facility can be installed in the current project berm width. The standard project section is a 10-ft berm (3.0-meter) that accommodates a 5-ft sidewalk. In accordance with

AASHTO standards, the Department will construct 5-ft sidewalks with wheelchair ramps. Betterment cost (ie: decorative pavers) will be a Municipal responsibility.

4. If the facility is not contained within the project berm width, the Municipality is responsible for providing the right of way and/or construction easements as well as utility relocations, at no cost to the Department. This provision is applicable to all pedestrian facilities including multi-use trails and greenways.

5. A cost sharing approach is used to demonstrate the Department's and the municipality's/county's commitment to pedestrian transportation (sidewalks, multi-use trails and greenways). The matching share is a sliding scale based on population as follows:

MUNICIPAL POPULATION	DOT PARTICIPATION	LOCAL PARTICIPATION
> 100,000	50%	50%
50,000 to 100,000	60%	40%
10,000 to 50,000	70%	30%
< 10,000	80%	20%

Note: The cost of bridges will not be included in the shared cost of the pedestrian installation if the Department is funding the installation under provision 6 - pedestrian facilities on bridges.

6. For bridges on streets with curb and gutter approaches, the Department will fund and construct sidewalks on both sides of the bridge facility if the bridge is less than 200 feet in length. If the bridge is greater than 200 feet in length, the Department will fund and construct a sidewalk on one side of the bridge structure. The bridge will also be studied to determine the costs and benefits of constructing sidewalks on both sides of the structure. If in the judgement of the Department sidewalks are justified, funding will be provided for installation. The above provision is also applicable to dual bridge structures. For dual bridges greater than 200 ft in length, a sidewalk will be constructed on the outside of one bridge structure. The bridges will also be studied to determine if sidewalks on the outside of both structures are justified.

7. FUNDING CAPS are no longer applicable.

8. This policy does not commit the Department to the installation of facilities in the Department's TIP projects where the pedestrian facility causes an unpractical design modification, is not in accordance with AASHTO standards, creates an unsafe situation, or in the judgement of the Department is not practical to program.

<u>INDEPENDENT PROJECTS</u>

DEFINED: The DOT has a separate category of funds for all independent pedestrian facility projects in North Carolina where installation is unrelated to a TIP roadway project. An independent pedestrian facility project will be administered in accordance with Enhancement Program Guidelines.

Walkable Communities

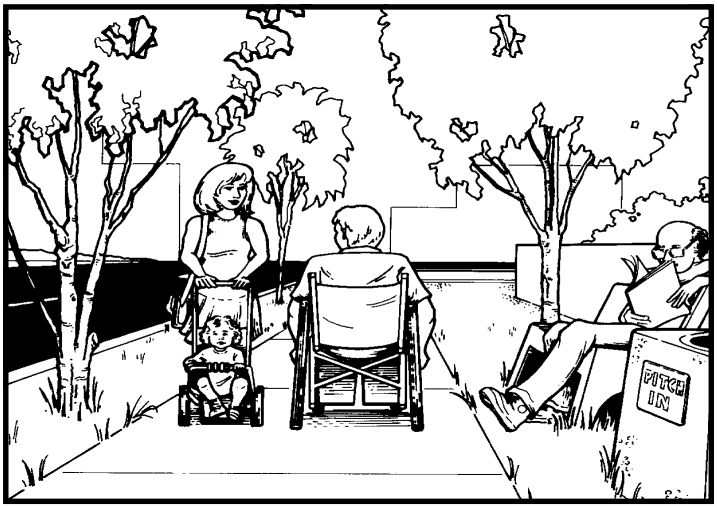
Florida Department of Transportation

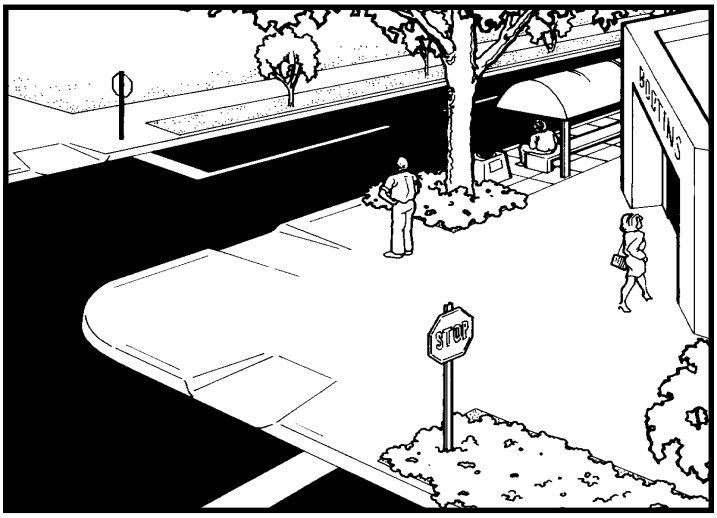
State Safety Office

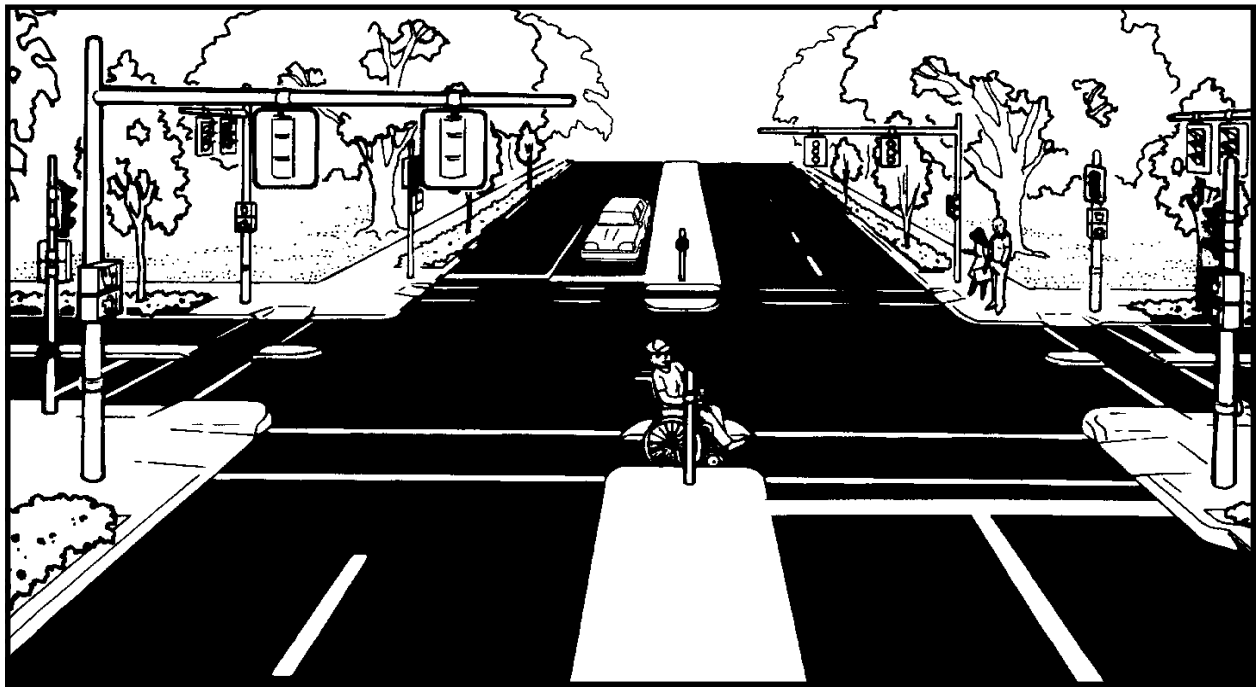
Pedestrian and Bicycle Program

April 1995

www.dot.state.fl.us/safety







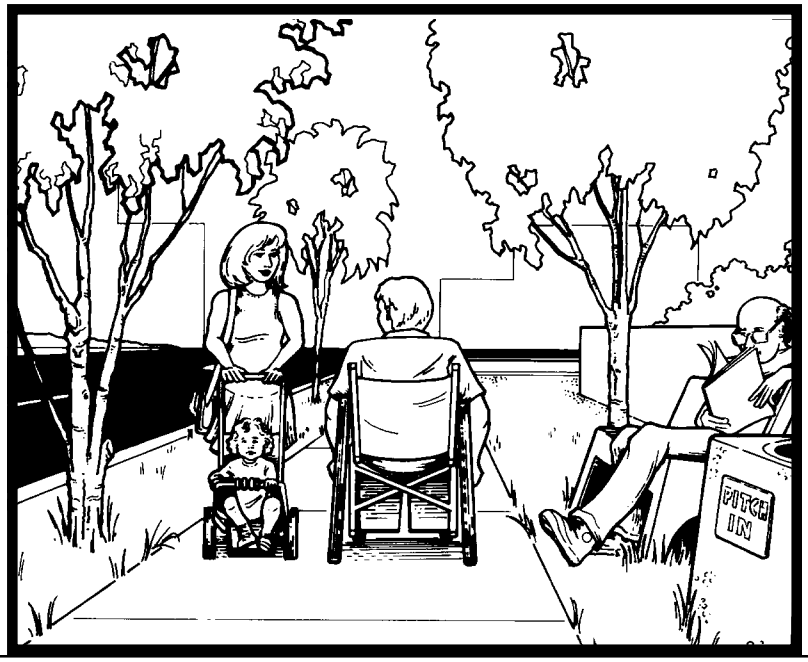
Twelve Steps for an Effective Program

Twelve Steps Toward Walkable Communities

A summary of key planning, zoning, engineering and development recommendations from the Florida Department of Transportation Pedestrian Facilities Planning and Design Training Course

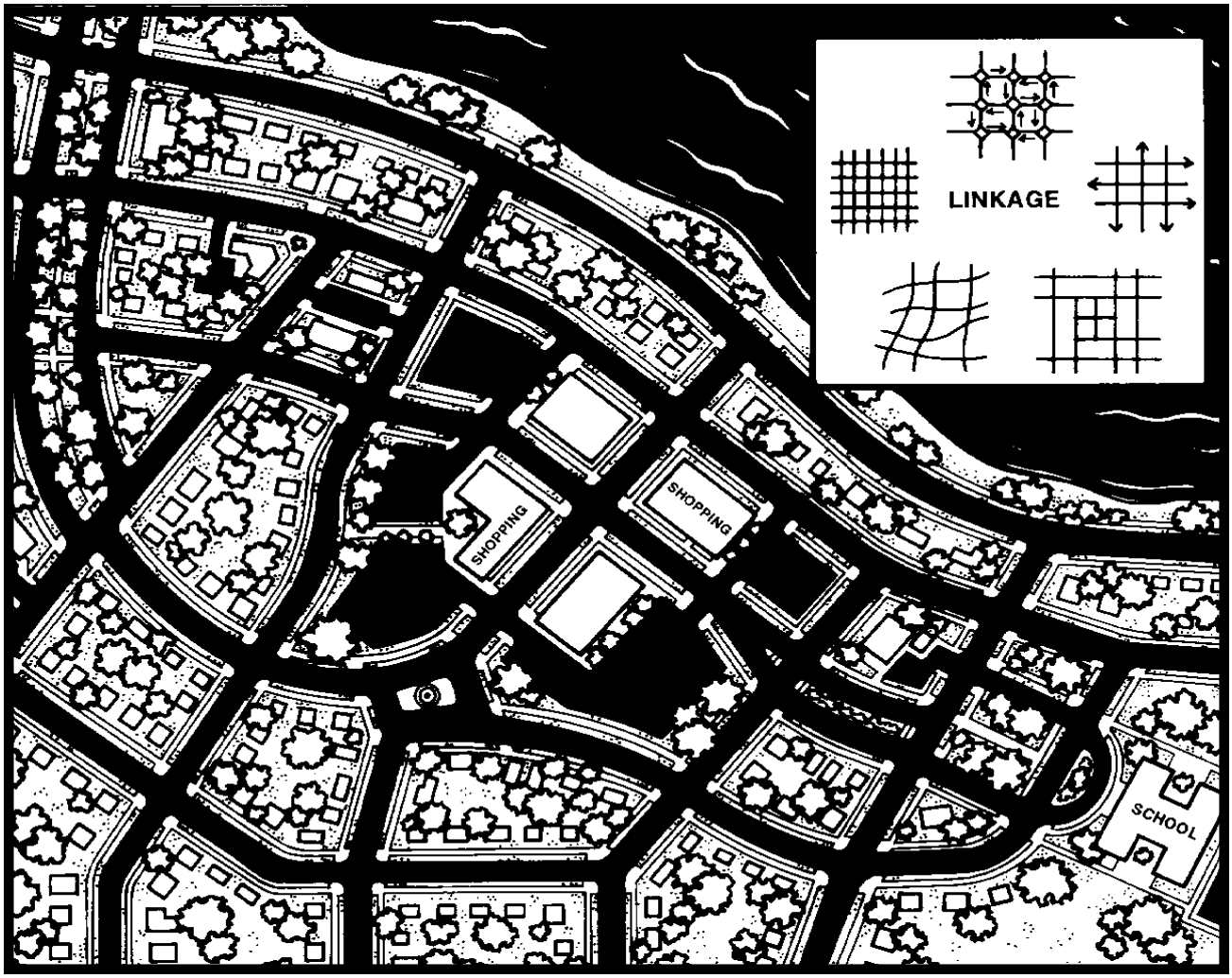
This document does not constitute a standard, but rather a guide for building our communities to give due consideration to pedestrians. Additional details are contained in the Florida Pedestrian Safety Plan, Transportation Research Board Report 294A and other documents. Please contact us for additional information.

Pedestrian Preamble: This community, in providing for trip making, grants pedestrians and motorists of all ages and abilities rights, privileges, safety, mobility and access. To increase walkability, land use should feature clusters of homes, parks, schools, shops and employment centers within a 1/2 mile (1 k) radius of one another. Intersections should not favor either motorist or pedestrian, but give equal service and support to both. Landscaping, site design and land use patterns should reward those choosing to make a trip by foot, transit or bike. Public transit, with stops and stations linked with walkways, should be available to complement and extend walking trips.

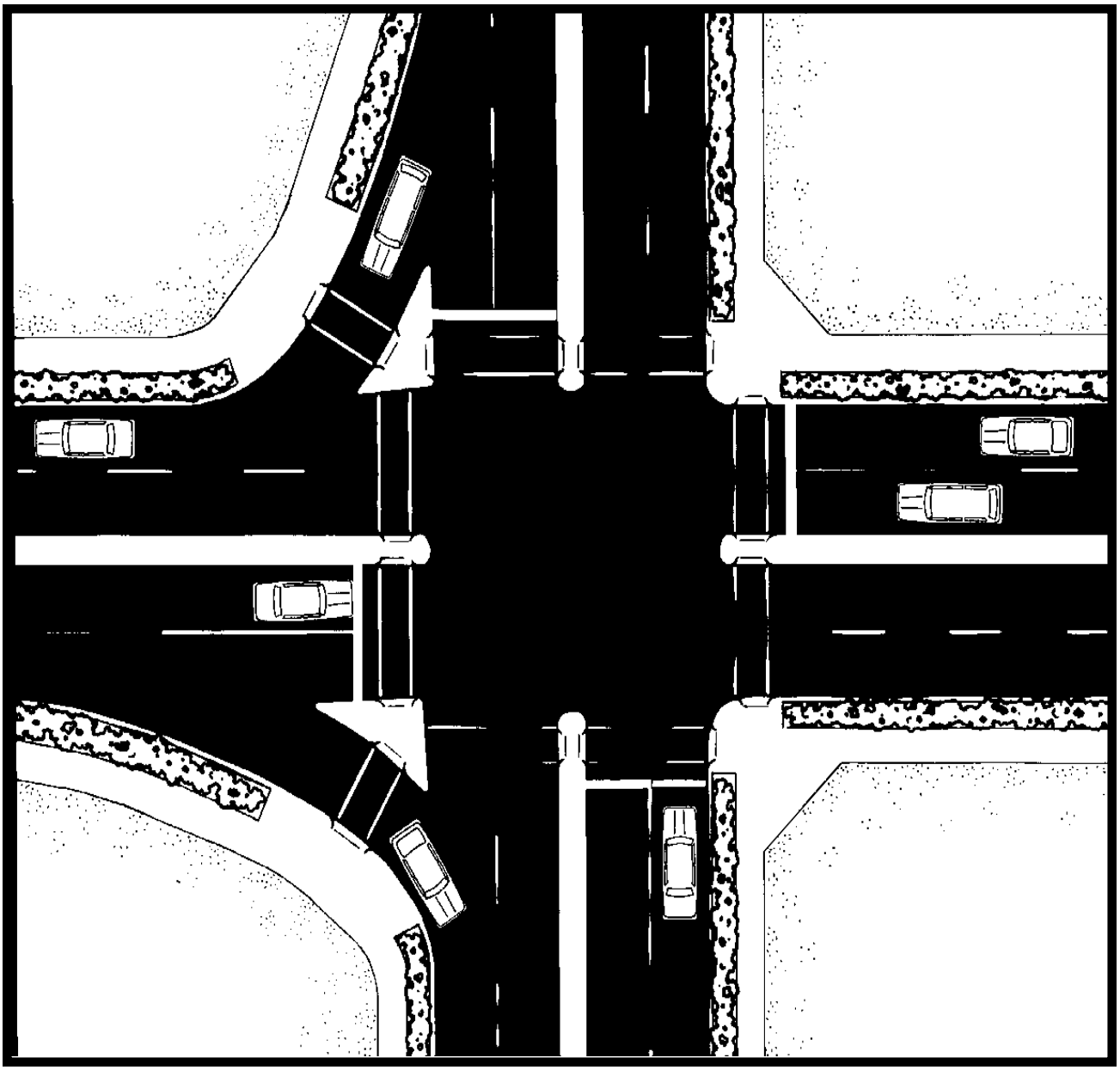


Produced and Distributed by: Florida Department of Transportation, Safety Office

1. Provide Continuously Linked Walkways To accommodate people walking, and many with disablities 5' (1.5 m) or greater width sidewalks or walkways with a separation from the roadway should be provided on both sides of all urban area roadways. A separation of 6 - 7' (1.8 -2.1 m) is recommended to meet proposed Americans with Disabilities Act Accessiblity Guidelines (ADAAG). TRB 284A recommends 7' (2.1 m) with trees. In residential neighborhoods, there should be sidewalks along streets and walkway easements where appropriate. At least 36" (1 m) of the walkway should be clear of obstructions. Consideration should be given to clear sight distances. The walkway environment should include landscaping and streetscaping features such as shade trees and plantings, trash receptacles, street vending machines, utility poles, lighting fixtures, benches, transit stop shelters, directions to places of interest and kiosks. Codes and regulations as well as implemention and enforcement practices should promote street furniture placement so they do not impede or complicate movement for pedestrians. Wide walkways should be constructed in high pedestrian activity generator areas, such as retail centers, government buildings, other employment centers and transit stops and stations. Successful downtowns, beach frontages and entertainment districts often find a 50/50 ratio of walking space to vehicle space ideal for maximum economic development. Special care should be taken in designing and constructing walkways in campus environments.

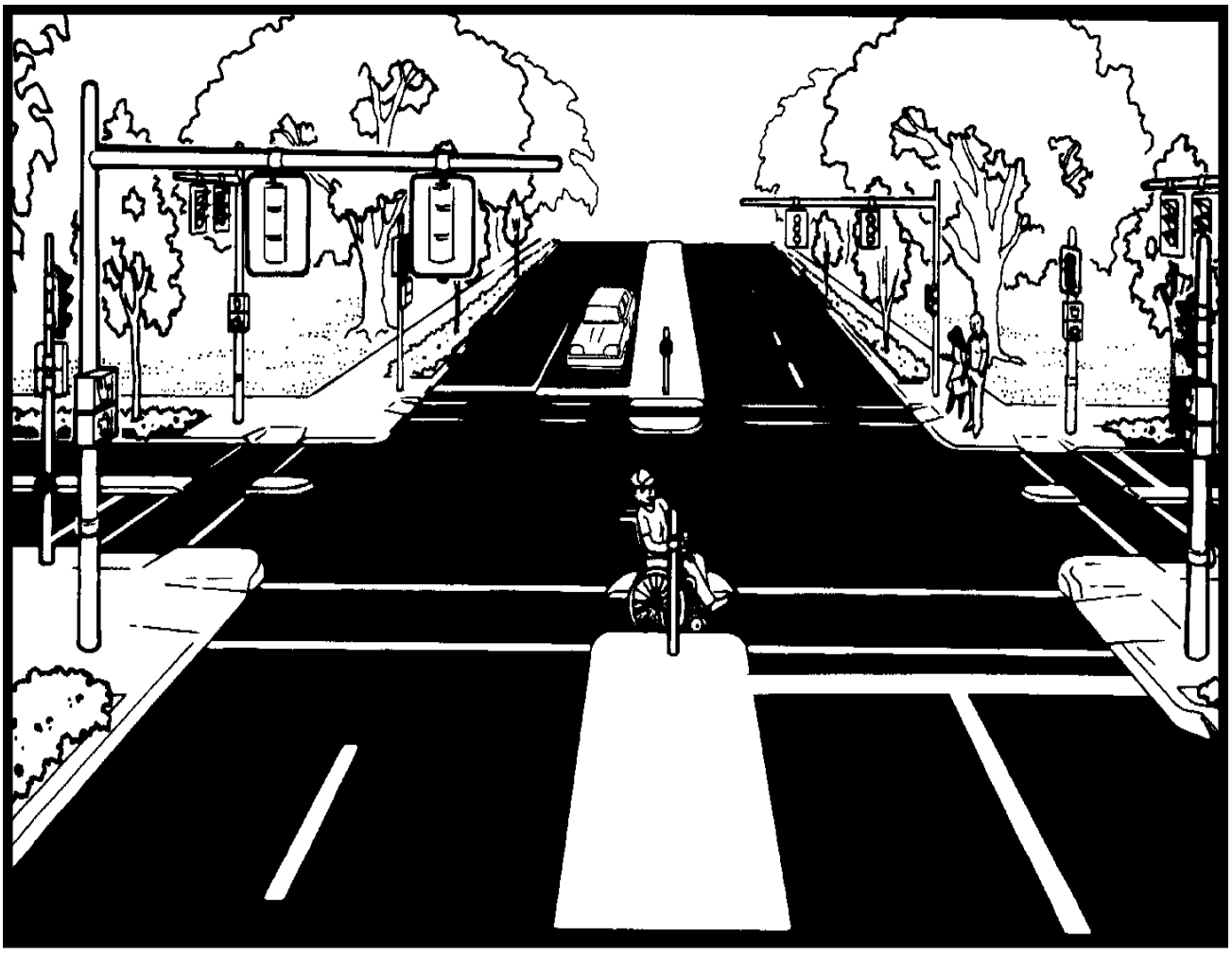


2. Pedestrianize Intersections To provide street crossings which accommodate the physical abilities of pedestrians, intersection design and mechanisms should be clear and understandable. The maximum crossing width should be 48' (14.4 m). Slip lanes, medians and bulbouts should be used effectively to reduce street crossing exposure, especially at complex intersections. Roadway geometry should dictate turning speeds of motorized vehicles to acceptable levels [below 20 mph (32 km/hr) on left turns, and below 10 mph(16 km/hr) on right turns]. Adequate sight triangles should be provided. Left turns should be minimized, if not eliminated, in downtowns and in other places of high volume pedestrian use. Pedestrian signalization, for a 3.5' (1 m) per second walking speed, should be provided.

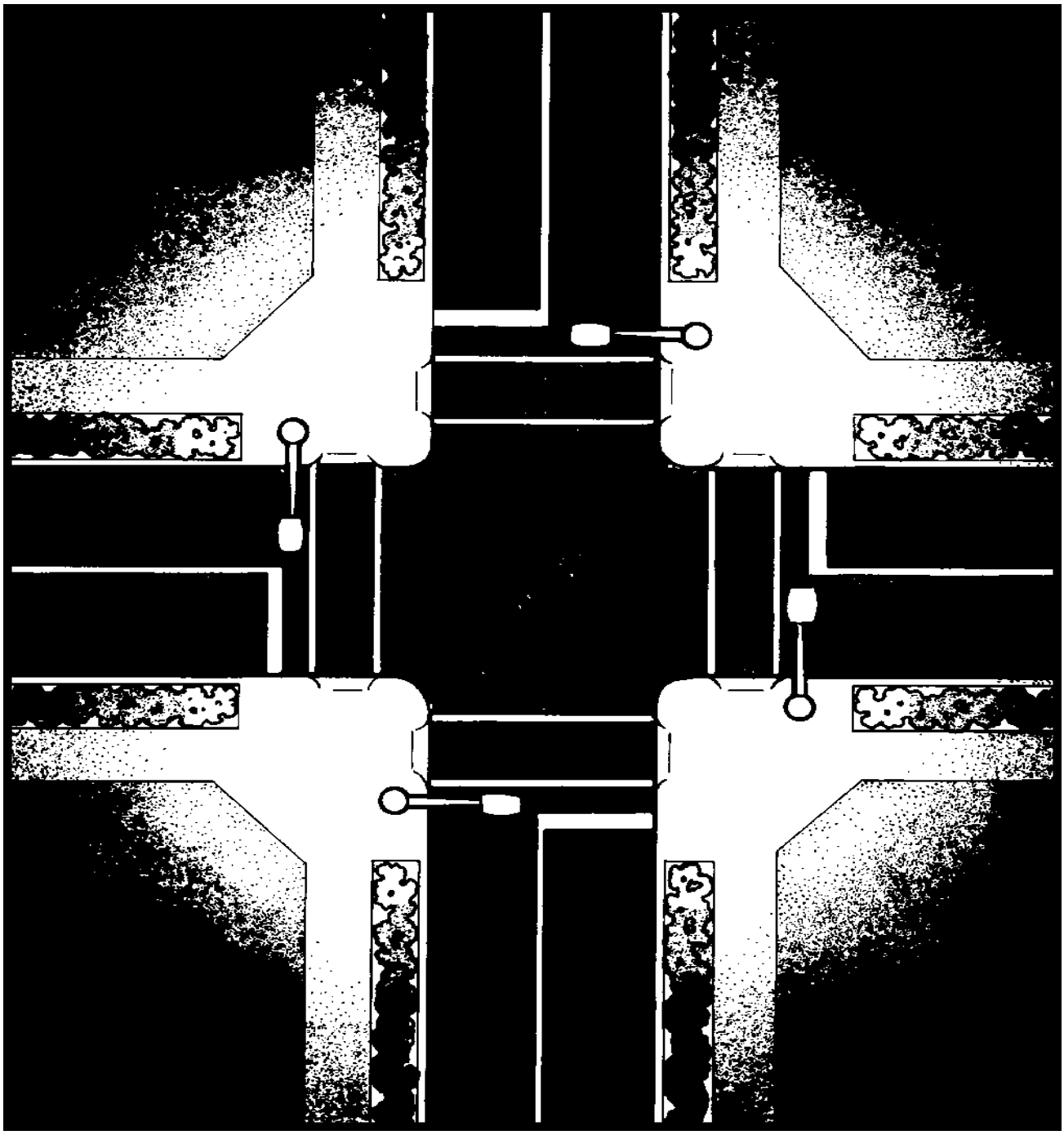


3. Americans with Disabilities Act (ADA) To aid in the independent mobility of people who cannot drive, special accommodations should be provided. References should be made to the ADAAG, Part 3 from the Architectural and Transportation Compliance Board. Two (2) curb ramps should be constructed on each street corner. One (1) curb ramp should be constructed at each side of marked mid-block crossings. Or, as an alternative treatment, the crosswalk area should be raised to curb height. When pedestrian demand signals are used independent call poles should be appropriately placed at the top of each ramp on all signalized intersections. All corners should have adequate sight triangles and sufficient depth for controller box, signal pole and other hardware to be located out of the walk zone. Audio/tactile pedestrian signal systems should be used in areas with large elder and disabled populations. Minimum walk speeds [3-3.5' (.9-1 m) per second], sidewalk cross slopes, grades, drainage inlets and minimum widths should be considered in constructing new and retrofitting existing walkways.

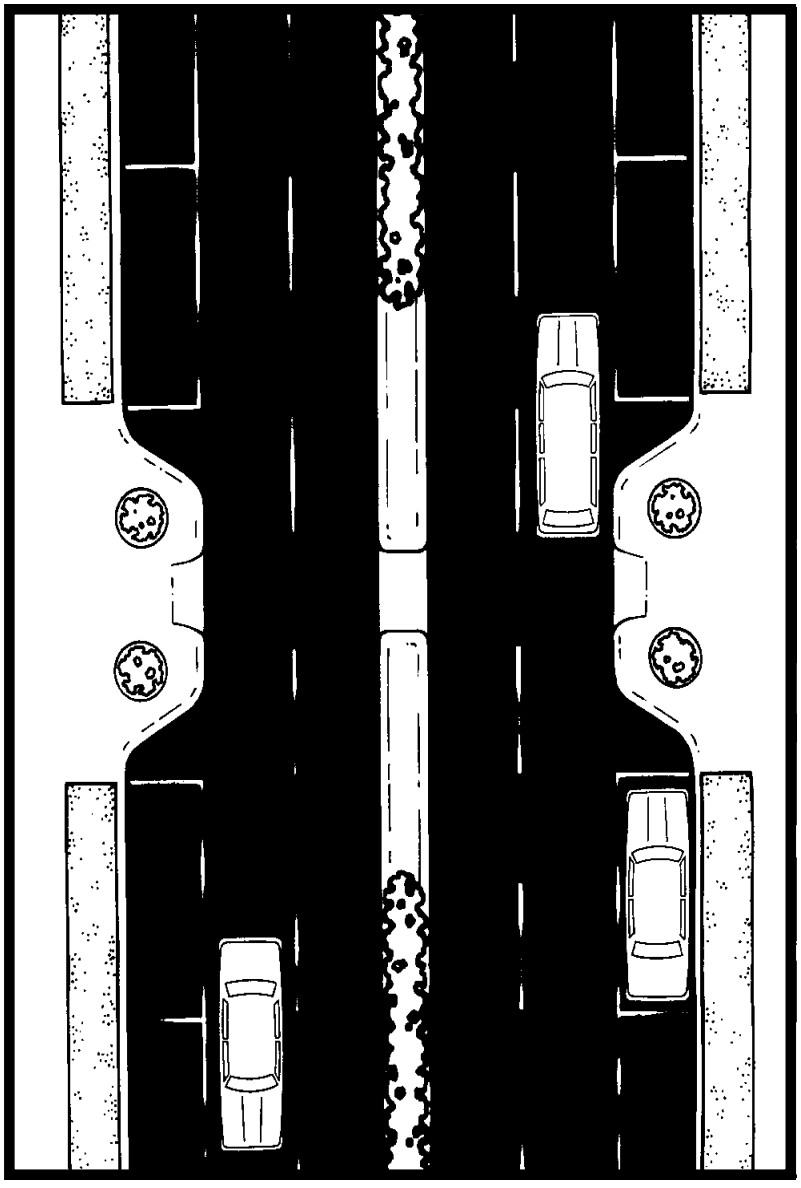
4. Signal Placement To forewarn both pedestrians and motorists of the hazard potential of left turns into crosswalks, signals should be placed for optimum visibility during critical movements. Box span, mast arm, and corner pole signal placements should be used. Diagonal span signals should not be used because they cause motorists to look up rather than in front and to the side and pedestrians cannot see them at some intersections. Corner pole signals with left turn arrows are recommended to keep the driver focused on the pedestrian entry and travel path, especially in dense urban commercial areas and near schools. If appropriate at mid-block crossings, controls should be placed on the median particularly where the ADAAG is relevant or large numbers of elderly pedestrians travel by foot.



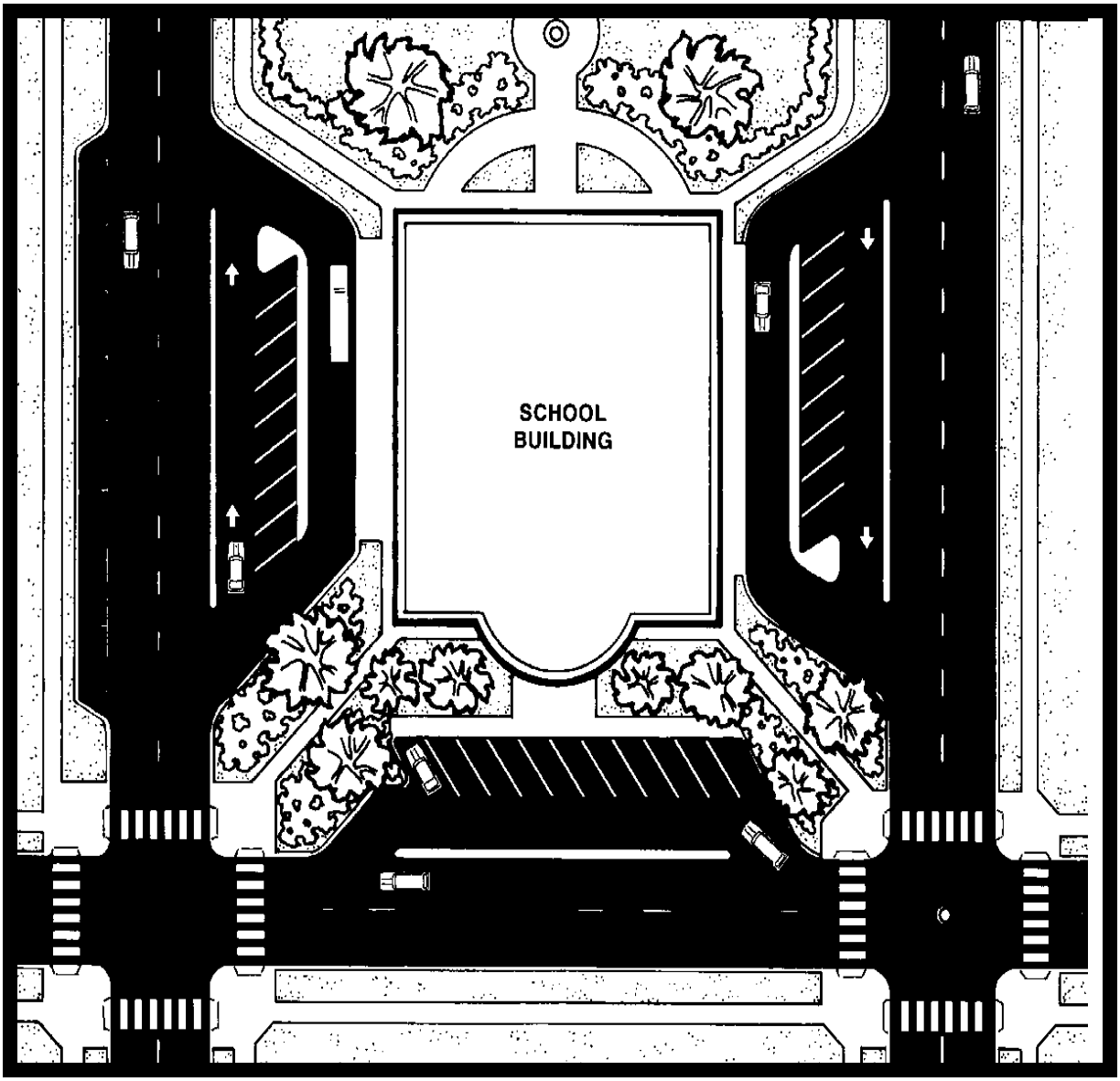
5. Illumination To provide clear visibility of pedestrians approaching intersection cross-walks at night, the approaches to and all street corners should be well illuminated. All intersection lighting should illuminate the crossing and waiting areas and/or create backlighting to make the pedestrian silhouette clearly visible on approach. All commercial, entertainment, school and other pedestrian traffic generating corridors and spaces should be well illuminated.



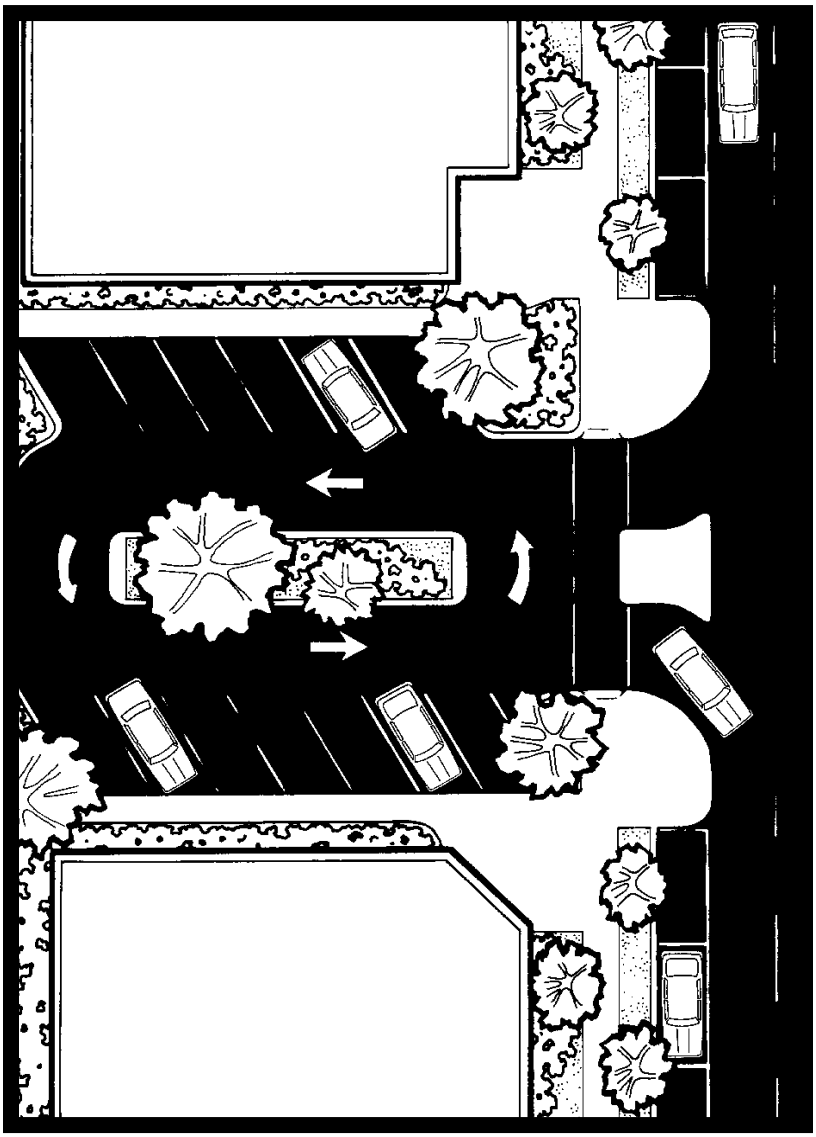
6. Simplify Median Crossings To allow pedestrians to cross roads with a sense of safety, raised medians should be constructed to provide refuge (remember to cut medians at crossing for compliance ADAAG). Modern roads often have signalized intersections spaced 1320' (.4 k) apart. All current 5 and 7 lane cross sections should be retrofitted with raised medians. Landscaped medians should be built in existing as well as new roadways in tourist zones, entertainment districts, school zones, residential neighborhoods and other high volume pedestrian areas.



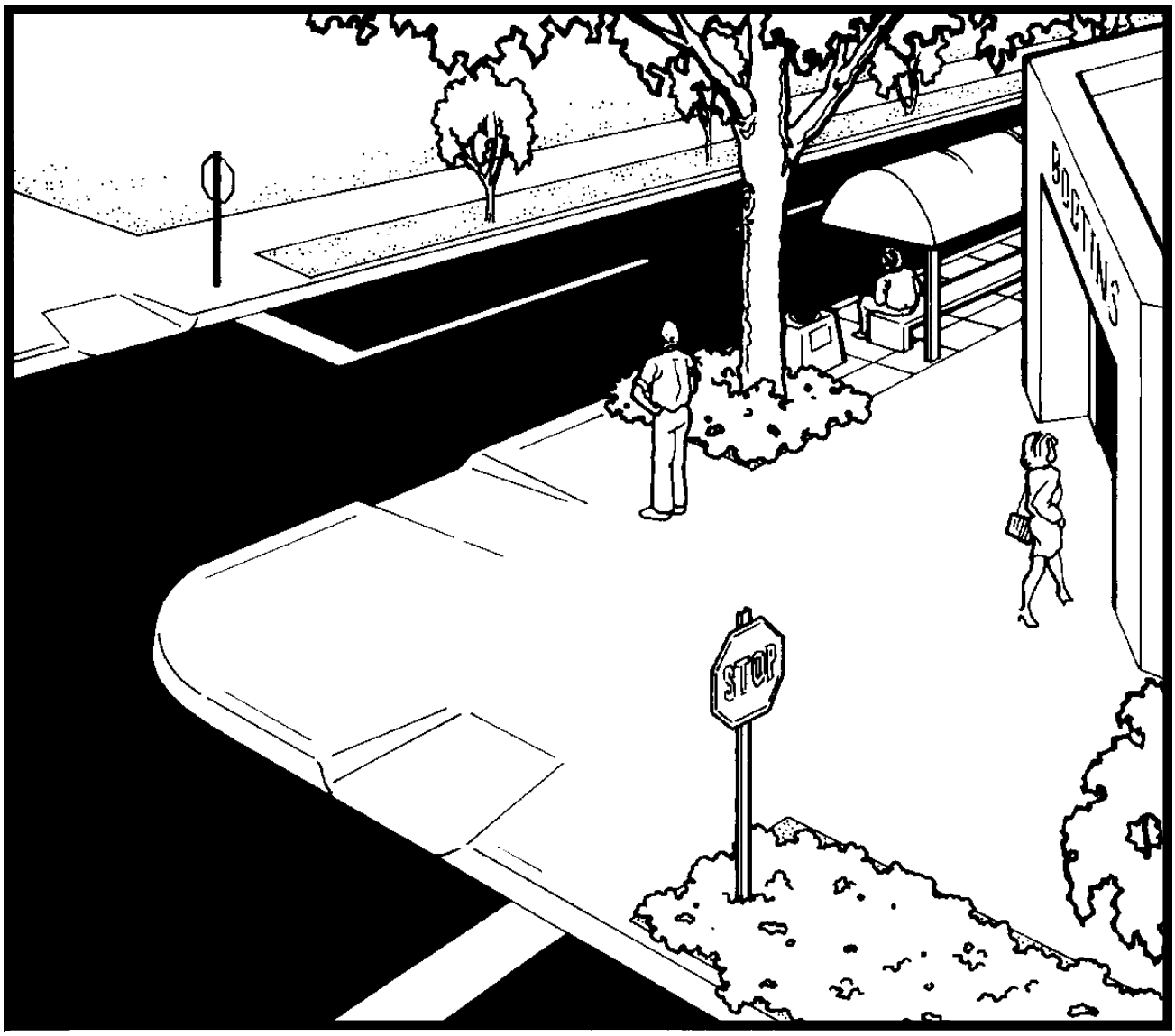
7. Schools To provide safe access for children on their approaches to schools, school sites should have specific pedestrian access points. Roadway geometry should minimize travel speeds to 15-20 mph (24-32 km/hr). Slowing or calming vehicle traffic may be accomplished with raised crossings, traffic diverters, roundabouts, on-street parking and other land use and engineering designs. School sites should have pedestrian access points which do not require crossing points with vehicles. The approaches to all schools should have curb and gutter sections except in unusual circumstances. Streetscaping should assure maximum sight distance on all access, crossings and intersections. School zone designations for speed limits should be an element of a comprehensive "circulation" plan which also includes crossing guard programs and identification of "safe routes" for bicyling and walking to school.



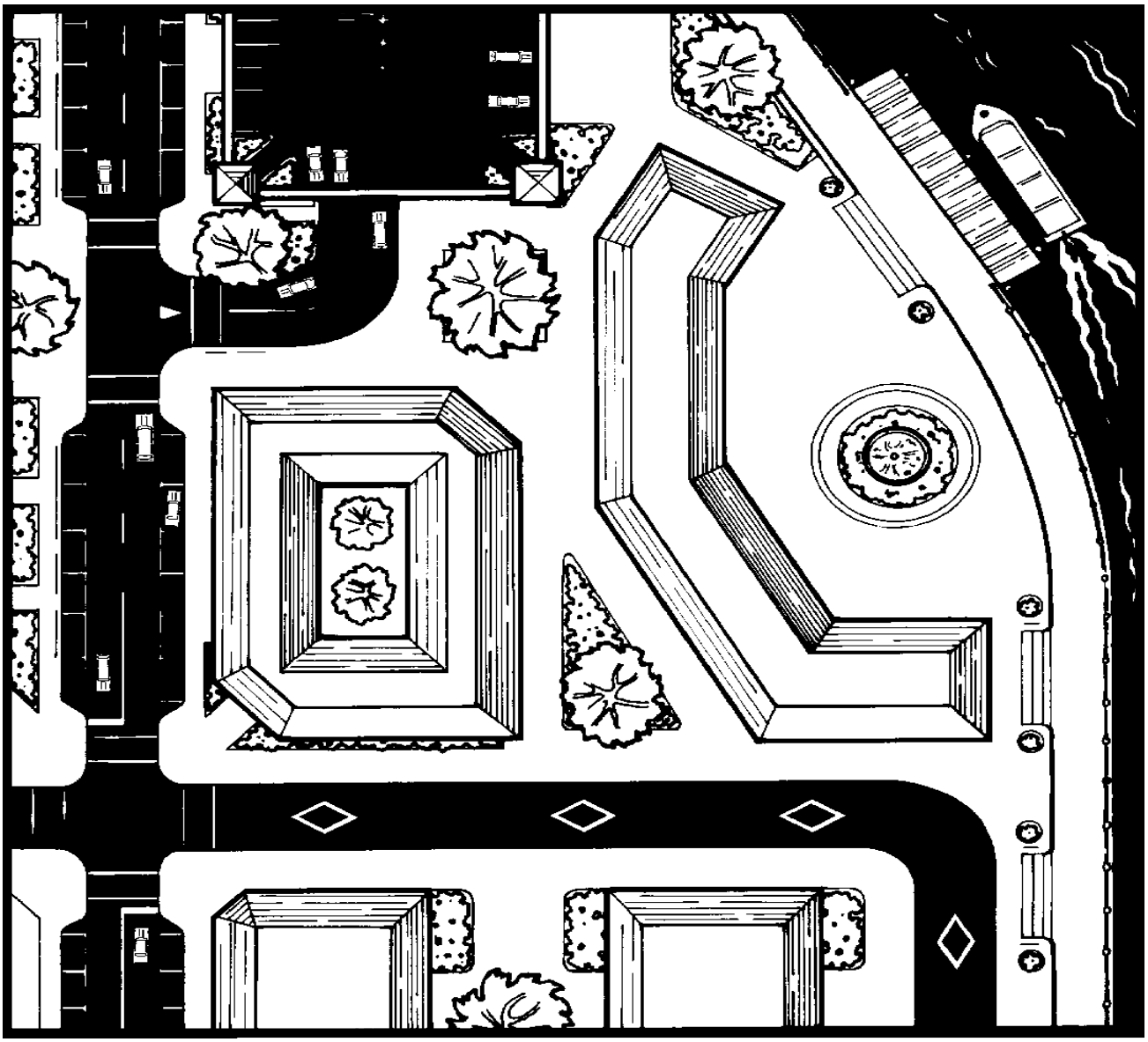
8. Eliminate Backing To eliminate the potential hazard of crashes occurring as motorists back out of parking spaces, site plans should minimize walking in vehicle spaces. Side lot, on-street and pocket parking should be included in zoning regulations to eliminate opportuni ties for backing over walkways. To reduce conflicts between pedestrians and vehicles in parking areas, center walkways in landscaped areas, "U" pattern dropoffs, and long throat driveways lined with sidewalks should be considered. Parking garages and lots should be given special design attention to protect pedestrians as they travel from automobiles to their destinations.



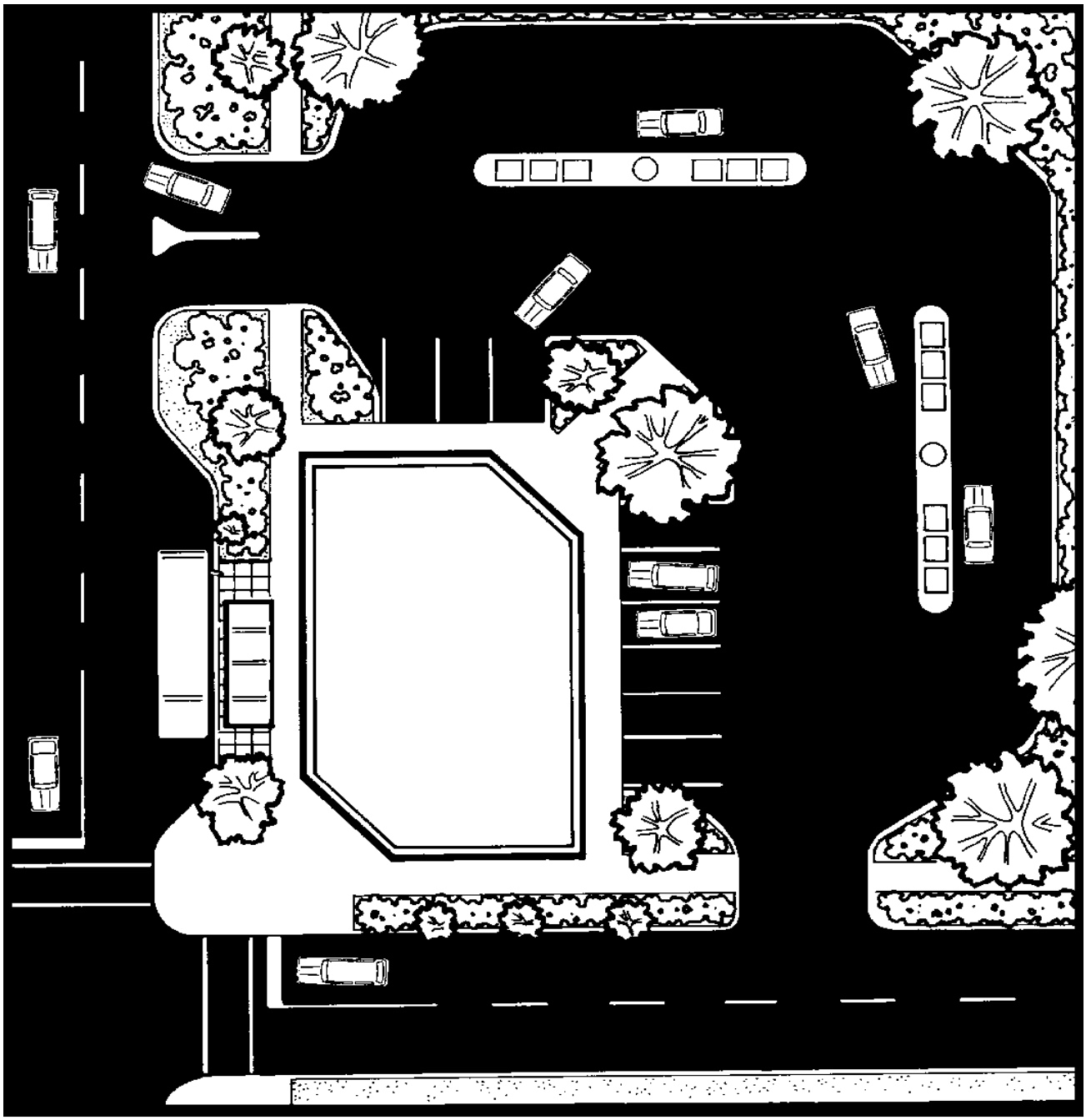
9. Access Management To provide safe pedestrian access to commercial developments, pedestrians should have access ways independent from vehicle access to all commerce. Left turns into unsignalized commercial access driveways should be minimized. Commercial developments should have shared driveways from main roads. Side street driveways should be at least 230' (70 m) from intersections. Commercial areas should have access ways into adjacent neighborhoods. Reduced building setback requirements should be used to encourage streetside window shopping and store front pedestrian street entries, with side lot and rear lot parking .



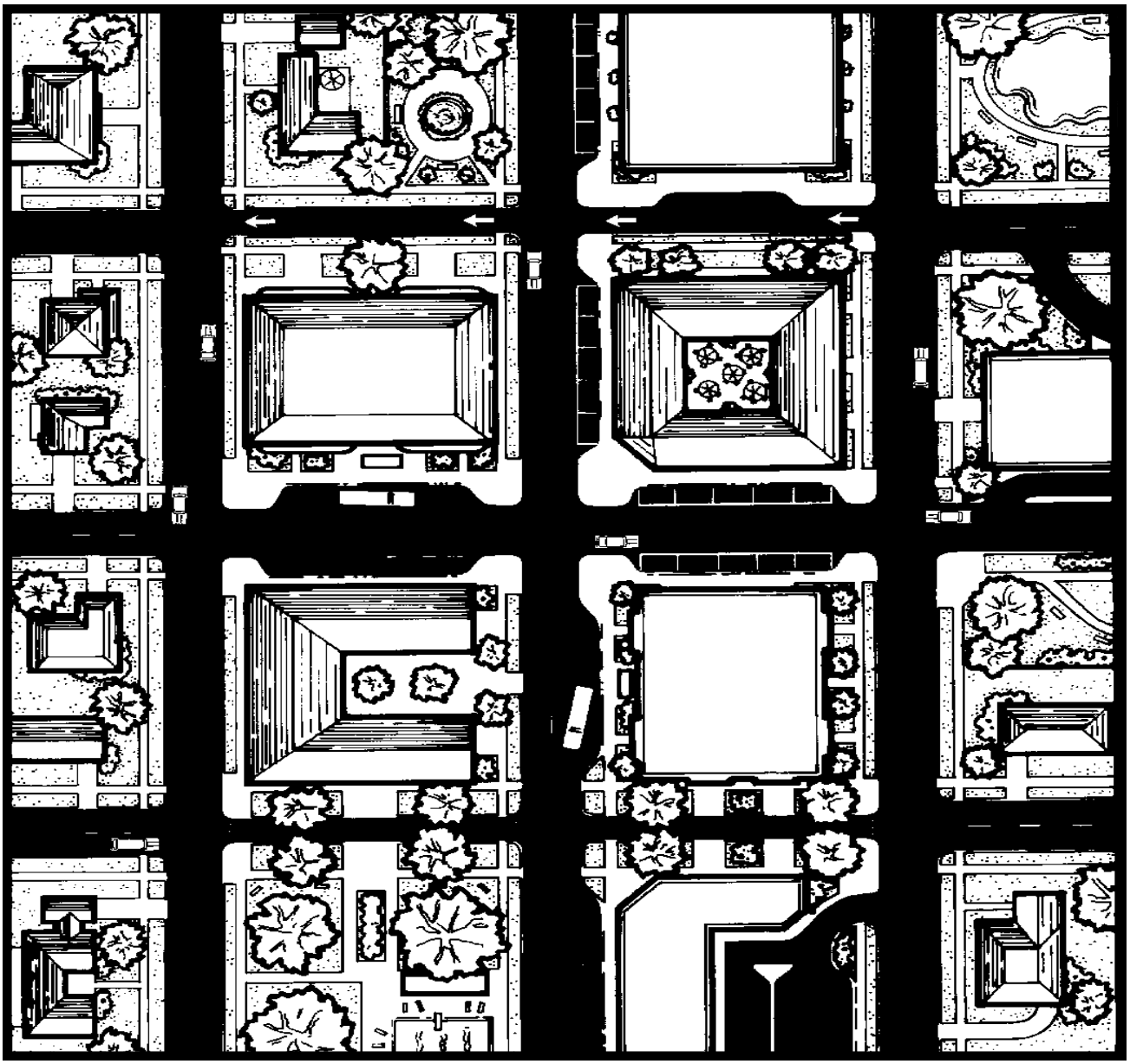
10. Auto-Restricted Zones (ARZs) and Parking Restricted Zones To protect pedestrians in busy commercial activity centers, vehicle traffic should be restricted to specific spaces or times of day/night. ARZs should be developed or managed in downtown transit and pedestrian corridors and malls, ocean walks, greenways, river corridors, and rails to trails conversions. Limited parking and true cost parking measures should be instituted in downtowns and other high traffic areas. Transportation Demand Management (TDM) programs should be considered to provide incentives for pedestrianization.



11. Combine Walking with Transit To increase travel distances for the pedestrian mode, access to and linkages with transit should be provided. One half mile (1 k) radius should be used for acceptable walking distances between trip origins and transit stops (5 to 10 minute walk). Transit should be convenient, inviting and efficient. As a general rule, bus stops should be at the "far-side" of intersections so the bus does not become a visual obstruction for motorists and disembarking passengers trying to cross the street. All transit stops should be easy to reach by walkways, and be provided with shaded, visible, comfortable sitting/ waiting space set back from the walkways. Planning and zoning should encourage development which enhances transit use and its access.



12. Walkable Scale Land Use Planning New and "in-fill" land use development should favor walking over driving. Traditional Neighborhood Design (TND), grid, Planned Mixed Unit Development (PMUD) roadway systems, Transit Oriented Development (TOD) designs, neighborhood schools, pocket parks and neighborhood stores should predominate land use codes, ordinances and regulations. Places to sit should be provided on retail blocks and along corridors where people walk throughout their communities. Businesses should front on side-walks with parking located alongside or behind stores. Shared use parking lots should be emphasized wherever possible.



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DIVISION OF HIGHWAYS
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

TRADITIONAL NEIGHBORHOOD DEVELOPMENT (TND) GUIDELINES

August 2000

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FIGURE 7: Trail Configuration
FIGURE 8: Alley Configuration

TRADITIONAL NEIGHBORHOOD DEVELOPMENT STREET DESIGN GUIDELINES

Neither the Administrative Review Criteria nor any other portion of these Guidelines are intended to authorize, regulate or prescribe land uses or to supercede development regulations. These criteria provide a tool to NCDOT personnel for reviewing Traditional Neighborhood Developments that fall within the definition and intent of these Guidelines. ***In areas where City or County governments have a site plan approval process for development plans, local officials shall review the proposed project prior to its submittal to NCDOT.*** *If the intent of the project is to request that the roadways within the subdivision be taken onto the state maintenance system, coordination between the developer, local government and DOT is strongly encouraged during the review and approval process.*

TND DEFINED: A Traditional Neighborhood Development (TND) is a human scale, walkable community with moderate to high residential densities and a mixed use core. Compared with conventional suburban developments, TNDs have a higher potential to increase modal split by encouraging and accommodating alternate transportation modes. TNDs also have a higher potential for capturing internal trips, thus reducing vehicle miles traveled.

A dense network of narrow streets with reduced curb radii is fundamental to TND design. This network serves to both slow and disperse vehicular traffic and provide a pedestrian friendly atmosphere. Such alternate guidelines are encouraged by NCDOT when the overall design ensures that non-vehicular travel is to be afforded every practical accommodation that does not adversely affect safety considerations. The overall function, comfort and safety of a multi-purpose or "shared" street are more important than its vehicular efficiency alone.

TNDs have a high proportion of interconnected streets, sidewalks and paths. Streets and rights-of ways are shared between vehicles (moving and parked), bicycles and pedestrians. The dense network of TND streets functions in an interdependent manner, providing continuous routes that enhance non-vehicular travel. Most TND streets are designed to minimize through traffic by the design of the street and the location of land uses. Streets are designed to only be as wide as needed to accommodate the usual vehicular mix for that street while providing adequate access for moving vans, garbage trucks, fire engines and school buses.

INTENT: That the development encourage walking and biking, enhance transit service opportunities, and improve traffic safety through promoting low speed, cautious driving while fully accommodating the needs of pedestrians and bicyclists.

That such developments should have the potential to reduce the number of external vehicle trips, and thus vehicle miles traveled, by 15% or more through provision of commercial, recreational and other resident-oriented destinations within a walkable community.

That traffic impacts, both on-site and off-site, should be minimized.

DESIGN GUIDELINES.

Relationship to NCDOT Standards – Where TND specific design guidelines have been established, these shall supercede any related design standards contained in "Subdivision Roads Minimum Construction Standards," as well as standards and guidelines for utilities, landscaping and similar considerations. In the absence of TND specific design guidelines, the existing standards, criteria, guidelines or policies shall be applied.

Design Speed – Design speed should closely match the street type, vehicle use and the proposed speed limit. The majority of street types are "streets" and "lanes," which provide direct access to housing and which have a desired upper limit of actual vehicle speeds of approximately 20 mph.

Street types and widths – Dimensions provided in the graphic examples are from curb face to curb face. The specific dimension of each street element is as follows:

Street Type	Lane	Parking	Bicycle*	Gutter	Median Gutter
Lane	8'	8'	na	1'	na
Street	9'	6'	na	2'	na
Avenue	11'	6'	6'	2'	1'
Main Street	11'	6'	6'	2'	1'/na
Boulevard	11'	6'	6'	2'	1'
Parkway	12'	na	na	2'/na	1'/na

* *bicycle lanes are optional if alternate routes to the same destination are provided*

Designers must recognize the implications of shared street space and an interconnected street network. The most frequent and numerous users of TND street networks are motorists, bicyclists and pedestrians. Use by oversized vehicles, such as delivery trucks, moving vans, school buses and fire trucks, is generally infrequent, particularly on residential streets and lanes. A street should be no wider than the minimum width needed to accommodate the usual vehicular mix desired for that street. On a properly designed TND street the occasional oversized vehicle may cross the centerline of a street when making a right turn.

A properly designed street network should provide at least two routes of access to any property within the TND. A high level of accessibility is offered to emergency vehicles by an interconnected TND network. The framework of main streets and avenues should provide appropriate service area routing for school buses and transit vehicles. Designers should coordinate with and involve all appropriate parties to ensure that oversized and emergency vehicles are accommodated while facilitating the needs of the most frequent users.

Stopping Sight Distances - Minimum stopping distances should conform to the design speed for the particular street and the stopping distances required for wet pavement conditions, as follows:

20 mph	125 feet
25 mph	150 feet
30 mph	200 feet

These sight distances should be provided by both vertical and horizontal alignment. Where grades vary from level conditions, stopping sight distances can be decreased for uphill grades and must be increased for downhill grades.

Vertical Curve Design – K values for vertical curve design should be consistent with design speed. Maximum centerline grades should also be consistent with design standards.

Centerline Radii – The criteria for minimum centerline radius for design speeds of 25 mph and less (no superelevation) are:

20 mph	90 feet
25 mph	175 feet

Curb Radii – For design speeds of 20 mph the criteria for curb radius is 15 feet. Some intersections on avenues, main streets and boulevards may require curb radius of up to 25 feet. With larger curb radii sidewalks may be set back 6 to 10 feet from curbs and on-street parking may be restricted 30 feet back from the intersection on each street.

Intersection sight triangles – The minimum sight triangle for stop conditions at street intersections shall be 70 feet along the major road right of way and 10 feet along the minor road right of way. The intersection sight triangle shall be permanent right of way. This may be reduced for lower design speeds on lanes and streets.

Curb construction. All curbed streets shall be built in accordance with NCDOT requirements for vertical curb and gutter construction. As noted under "Street types and widths" above, most gutters are anticipated to be 2 feet in width. Gutters for lanes and street medians are anticipated to be 1 feet.

Pavement Design - When the developer proposes to construct alleys, the facility should meet locally approved design criteria. Where alleys are to be unpaved, a minimum paved apron of at least 50 feet from edge of pavement shall be required at the tie in with any paved facility. Lanes, Streets, Boulevards, and Parkways shall meet the pavement design criteria established in the "Subdivision Roads Minimum Construction Standards."

Sidewalks and Pedestrians – Minimum width for a sidewalk is 5 feet. Sidewalks which directly abut curbing shall be a minimum of 6 feet. Sidewalks may need up to an additional 2 feet of width if they directly abut fences, walls and buildings. Within commercial areas and places with high pedestrian volumes, sidewalks should be sized and surfaced appropriately for anticipated pedestrian traffic volumes and to meet or exceed ADA guidelines.

Bicyclists – On lower volume streets bicyclists should be considered a normal part of the vehicle mix on the street. On higher volume streets bicyclists should be accommodated with 6 feet wide bike lanes, but separate routes for less experienced bicyclists may be considered as well. Routing bicyclists within and through TNDs may include signage and striping, including changing the color of the entire bike lane, as appropriate.

Transit – TND design should be inherently compatible with transit. Transit should be addressed wherever it is present and should be appropriately planned where it may not yet exist. Transit services are typically provided within core areas and along avenues, main streets and higher-capacity roads. Due to size and interconnected street pattern, residents often do not need to walk more than ¼ mile to the nearest transit stop.

On-street Parking – "Informal parking" refers to parking that is allowed along lanes and residential streets, but is not designated or marked as parking areas. On-street parking along major streets should be signed, marked or otherwise clearly designated.

Planting Strips and Street Trees – Planting strips, located between the curb and sidewalk parallel with the street, shall be 6 feet or more in width. Care should be used to ensure that larger planting strips do not push pedestrian crossing areas back from intersections by requiring a larger curb radius. On streets with design speeds of 20 mph or less, or on streets with on-street parking, small street trees may be planted within 3 feet of the back of curb and should generally be planted along the centerline of the planting strip. Within commercial areas and other sidewalks with high pedestrian volumes, grated tree wells may be used in lieu of planting strips. To maintain sight lines, trees and other objects should be restricted from corners for distances of 30 feet on all sides. Along all planting strips the area between 2 feet and 7 feet above ground shall be maintained as a clear zone to preserve sight lines and accommodate pedestrians.

Utilities – All utility installations within rights-of-way shall be consistent with NCDOT's current Utility Policy. For residential subdivision streets, herein defined as "lanes" and "streets," and residential collector streets, herein defined as "avenues" and "main streets," underground utilities may cross under or run longitudinally under the pavement, provided future utility stub-outs are installed prior to paving. For all other streets and highways, underground utilities may cross under but may not run longitudinally under the pavement, except in unusual situations approved by the Division Engineer.

For installations outside of rights-of-way, utilities (either above or underground) may be located in alleyways. If utilities are not to be placed in alleyways the developer should consider providing a 5 foot (minimum) utility easement behind the sidewalk.

Lighting – As a general rule, more and shorter lights are preferred to fewer, taller, high-intensity lights. The scale of lighting fixtures and the illumination provided must be appropriate for both pedestrian and vehicular movements.

Resolution of Conflicts – Whenever the reviewer, after due consideration of all relevant factors, determines that an irreconcilable conflict exists among vehicular and non-vehicular users of a TND street space, that conflict should be resolved in favor of the non-vehicular users, unless the public safety will truly be jeopardized by the decision.

ADMINISTRATIVE REVIEW CRITERIA.

CRITERIA PURPOSE. The criteria help outline a "classic" TND. The purpose of these criteria is to provide a guide to a District Engineer when determining whether a proposed development may thus be designed according to TND guidelines rather than conventional subdivision street standards. Failing to meet all of the criteria does not imply that a proposed development is not a TND. However, proposals not fitting the "classic" criteria may require additional review as is described in the "Review and Approval Process" section.

TND REVIEW CRITERIA FOR NCDOT DISTRICT ENGINEERS.

1. **SIZE**: A TND should be designed at a walkable scale – considered to be approximately a 5 to 10 minute walk from core to edge, or a ¼ to 1/3 mile maximum distance. All or most residential development must fall within this range. The proposed development should be a minimum of 40 acres and a maximum of 125 acres.

2. **COMPOSITION**: There is a discernable community center or core area. The proposed development must have a mixture of residential and non-residential land uses, with at least 10% of the developed area consisting of non-residential uses. Most non-residential uses are located within the community core area. Within the core area, a minimum of 15% of floor area must be devoted to commercial uses oriented towards TND residents. Elementary schools are an important community element. Public structures, such as schools, churches and civic buildings, and public open spaces, such as squares, parks, playgrounds and greenways, shall be integrated into the neighborhood pattern.

3. **DENSITY AND INTENSITY**: Residential densities, lot sizes and housing types may be varied, but the average gross density of the developed area should be at least 8 units per acre. Higher densities, often involving multi-family or attached dwelling units, are generally proposed in, adjacent to or within close proximity to the core area. Lower densities, usually detached single family dwellings, are generally located towards the edges.

   Non-residential development intensities should be sufficient to encourage and promote pedestrian access. Development intensities of non-residential buildings should generally be such that buildings emphasize street frontages, sidewalks and paths, and transit stops. Regardless, the intensity of non-residential development should be compatible with and reflective of surrounding residential development patterns.

4. **STREET PATTERN**: All or most streets within the proposed network must be part of a dense, interconnected pattern. TND streets should connect with adjacent street networks as much as possible. The degree of interconnectivity should be assessed by its ability to permit multiple routes, to diffuse traffic and to shorten walking distances. Most TND streets are designed to minimize through traffic. Streets are relatively narrow and often shaded by rows of trees. Alleys may be used to provide site access. Larger vehicular corridors are usually, although not exclusively, found within the core area and near the perimeter of the proposed development.

5. **BLOCK LENGTH**: All or most low speed, low volume streets should have short block lengths of between 250 and 500 feet. Exceptions may be needed due to topography, environmental protection, preservation of cultural resources, and similar considerations.

6. **RIGHTS-OF-WAY**: Within a TND, the right-of-way is an important design element of the public space or "streetscape." The right-of-way width should be the minimum needed to accommodate the street, median, planting strips, sidewalks, utilities, and maintenance considerations. The right-of-way width should be appropriate for adjacent land uses and building types. Planting strips between curb and sidewalk may be used to provide sufficient space for street trees. Use of alleys and other alternate access or easements for utilities and maintenance vehicles should be taken into account when determining sizes of rights-of-way.

7. **RELATIONSHIP OF BUILDINGS TO STREET**: Buildings are oriented toward the street. Buildings within the core area are placed close to the street. All lots and sites must have pedestrian connections and the core area must be fully accessible to pedestrians. Parking lots and garages rarely face the street. Off-street parking may be located to the side or behind buildings but not in front of buildings or in such a manner as to interfere with pedestrian access.

8. **SIDEWALKS**: To comply with the Americans with Disabilities Act, sidewalks are a minimum of 5 feet wide and should be wider in commercial or higher intensity areas, when directly abutting curbs without a planting strip or parked cars, or when adjacent to walls or other built elements which reduce usable width. Sidewalks should be on both sides of the street. Wherever possible, there should be a continuous pedestrian network adjacent to the streets. Curb cuts should be minimized to reduce conflicts with pedestrians.

9. **PEDESTRIAN STREET CROSSINGS**: Street crossings must not be longer than are actually necessary. The needs of pedestrians should be balanced with the needs of vehicular traffic. Mid-block crossings, bulb-outs, raised crosswalks and similar techniques are commonly used to accommodate pedestrians when appropriate for traffic conditions and site specific situations.

10. **ON-STREET PARKING**: Many streets have on-street parking. On-street parking is a common traffic calming element of a TND, in that it slows vehicular traffic while providing a buffer between street and sidewalk.

11. **CURB CUTS**. Curb cuts should be minimized to reduce effects on on-street parking, conflicts with pedestrians and cyclists, and interruptions of traffic flow.

12. **HIGHWAYS AND LARGE THROUGH CORRIDORS**: The proposed development cannot be penetrated by arterial highways, major collector roads and other corridors with peak hourly traffic flows of 1,200 vehicles, or average daily traffic volumes of 15,000 or more vehicles. Such corridors can only be located at the edge of a TND.

POLICIES.

- NCDOT will not accept alleys onto the state system. However, these features are encouraged as appropriate and desirable elements of a walkable community. Construction and maintenance of alleys will be the responsibility of the property owners' association or comparable individual, group or local government that has responsibility for other common assets.

- NCDOT, consistent with current policies, will not install street trees or median plantings or construct sidewalks or bike paths, nor will the Department maintain trees, plantings, sidewalks, bike paths or similar features within the right-of-way. However, these landscape features are recognized for their traffic calming, aesthetic and environmental benefits. Installation and construction of such features is the responsibility of the developer. Maintenance of such right-of-way features will be the responsibility of the property owners' association or comparable individual, group or local government that has responsibility for other common assets.

- Vertical curb and gutter construction is preferred throughout the entire development. Vertical curb and gutter construction is required within the community core, in all areas where densities are 6 units per acre or greater, and where sidewalks on both sides of the street are proposed. Alternative construction will be considered in low density areas, where sidewalks on one side of the street are proposed, or within water supply watersheds and similar environmentally sensitive areas, or preserved open space and natural areas.

APPLICATION REQUIREMENTS FOR TNDS. In addition to all materials noted in the "Application Requirements" section of "Subdivision Roads – Minimum Construction Standards," a developer must provide to the District Engineer a preliminary site plan and supplemental documents, as needed, for review and approval. The preliminary site plan must include the following additional information:

1. The use, approximate size, and location of all buildings and structures.
2. All proposed land uses and the densities of dwelling units.
3. Proposed on- and off-street parking and circulation plan showing the location and arrangement of parking zones or parking spaces, along with all driveways connecting with adjacent streets and highways.
4. The proposed location, use, improvements, ownership and manner of maintenance of common open space areas.
5. In the case of proposals which call for phased development, a schedule showing the time period proposed, the type and square feet of non-residential land uses, and the number of and density of dwelling units for each phase.

REVIEW AND APPROVAL PROCESS. A TND subdivision proposal should embody the elements of the "Intent" and "TND Defined" sections to the greatest extent possible. When a proposed TND subdivision plat is submitted to the District Engineer for review, the engineer will use the "TND Review Criteria for District Engineers" to determine if the proposed development may be reviewed according to the "TND Subdivision Street Design Guidelines."

If the proposed development meets all of the "Criteria," or if most "Criteria" are met and the Division Engineer finds that the design fulfills the "Intent" and "TND Defined" elements, the proposed subdivision plat and all associated information, including the District Engineer's comments on the plan, will be forwarded to the TND Committee for review. The TND Committee will also review appeals if the District Engineer and Developer cannot come to an understanding on the nature of the proposed development.

While the Committee will try to seek consensus whenever possible, decisions will be determined by simply majority vote. The TND Committee's determination is final.

During review of the proposed development by the TND Committee, the Committee will assess whether or not the proposal fulfills the intent and definitions established for these Guidelines, as well as how well the criteria are met. The Committee may find that some proposals which do not fully match all criteria may still be TNDs. These findings shall be based on meeting the intent and definition and providing the essential functions of a TND. All determinations shall be fully documented as to the reasons for approval or disapproval, and all determinations shall establish precedents for future development review.

If the proposed development is found to be a TND, the developer may choose for the project to be developed in compliance with the TND guidelines established by NCDOT. Upon submittal

for final subdivision plat review, the District Engineer will review the plans for compliance with TND guidelines as part of the regular subdivision review process.

The proposed TND subdivision must meet all applicable local and state requirements. Whenever a local government establishes a higher standard than the subdivision review criteria contained in these Guidelines, the subdivision must be designed according to the more restrictive local standards. This does not, however, imply that NCDOT is obligated to approve a design that is so restrictive as to create unsafe or difficult driving conditions. If any element of these Guidelines is more restrictive than local requirements, NCDOT will be as flexible and as open to local requirements and design context as possible. However, NCDOT is not authorized to approve any design that does not fulfill the "Intent" and "TND Defined" sections of these Guidelines.

Design guidelines established for TNDs will remain separate and apart from the standards for conventional subdivisions as defined in "Subdivision Roads – Minimum Construction Standards." TND and conventional development concepts shall not be combined within the same development.

TND COMMITTEE: The TND Committee will have one representative from each of the following:

- Chief Engineer's Office – Operations (committee chair)
- Chief Engineer's Office – Secondary Roads
- Roadway Design
- Traffic Engineering
- Bicycle & Pedestrian Division (program manager or planner)
- Public Transportation Division (planner or transportation consultant)
- Office of Planning & Environment (planner or landscape architect)

The reviewing Division Engineer, or their designee, will be part of the review and approval process for subdivision proposals. Persons with additional expertise, both from NCDOT and from other state agencies, may assist the Committee on an as-needed basis.

The Committee shall initiate its review of a proposed TND within two weeks of its submittal to the Committee and shall have a response within 30 calendar days. The Committee will meet on an as-needed basis. The Committee may, at the discretion of the chair, meet periodically to review and refine the Guidelines, Criteria, or other elements related to TNDs.

The Committee shall provide reference and educational materials to District Engineers related to TNDs. The Committee is responsible for maintaining and disseminating a list of available and appropriate resources to interested developers, other public agencies, local governments, and the public.

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4	D.R. Dupree P.O. Box 3165 Wilson, N.C. 27895 e-mail don_dupree@dot.state.nc.us	(252) 237-6164 (252) 234-6174 FAX
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7.	J.M. Mills, P.E. P.O. Box 14996 Greensboro, N.C. 27415-4996 e-mail mmills@dot.state.nc.us	(336) 334-3192 (336) 334-3637

8.	W.F. Rosser, P.E. P.O. Box 1067 Aberdeen, N.C. 28315 e-mail brosser@dot.state.nc.us	(910) 944-2344 (910) 944-5623 FAX
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11.	R.C. McCann, P.E. P.O. Box 250 North Wilkesboro, N.C. 28659 e-mail cmccann@dot.state.nc.us	(336) 667-9111 (336) 667-4549 FAX
12.	M.L. Holder, P.E. P.O. Box 47 Shelby, N.C. 28151-0047 e-mail mholder@dot.state.nc.us	(704) 480-5400 (704) 480-5401 FAX
13.	F.D. Martin, P.E. P.O. Box 3279 Asheville, N.C. 28802 e-mail dmartin@dot.state.nc.us	(828) 586-2141 (828) 251-6394 FAX
14.	R.G. Watson, P.E. P.O. Box 37 Sylva, N.C. 28779 e-mail rwatson@dot.state.nc.us	(828) 586-2141 (828) 586-4043 FAX

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	Gates, Pasquotank, Perquimans	
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	District 3- S.D. Baker	(252) 793-4568
	P.O. Box 928	(252) 793-2211 FAX
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	E-Mail sbaker@doh.dot.state.nc.us	
	Counties- Chowan, Hyde, Martin, Tyrrell	
	Washington	
2	**District l**- D.R. Taylor, P.E.	(252) 946-3689
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	E-Mail dannytaylor@doh.dot.state.nc.us	
	Counties- Beaufort, Pitt	
	District 2- A.C. Everett	(252) 514-4716
	209 South Glenburnie Road	(252) 514-4894 FAX
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	Counties- Carteret, Craven, Pamlico	
	District 3- R.E. Davenport, P.E.	(252) 527-0053
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E-Mail
Counties- Cherokee, Clay, Graham, Macon

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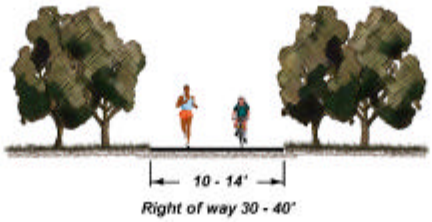
FIGURE 7



TRAIL

Purpose: Provides non-motorized access throughout the neighborhood.
[Note: Not to be accepted onto the state system]

Features

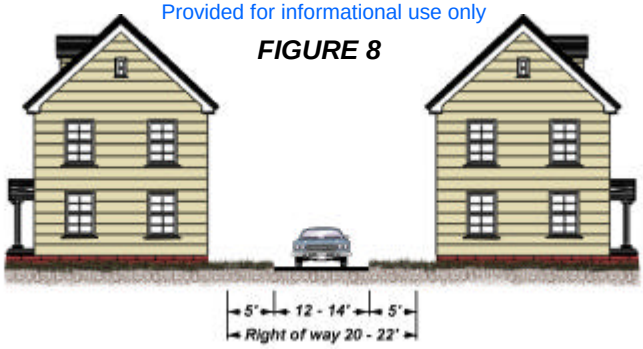
- Shade trees recommended
- Trail width 10—14'
- Stopping sight distance 125'
- Clear zone 3—6'

Building and Land Use

- Link to make connections between homes, parks, schools, and shopping districts

Provided for informational use only

FIGURE 8



Alleys

Purpose: Although part of the interconnected street system, alleys provide access to property but are not intended to accommodate through traffic. Alleys are often used by garbage trucks. In some areas alleys must accommodate dumpsters.
[Note: Not to be accepted onto the state system]

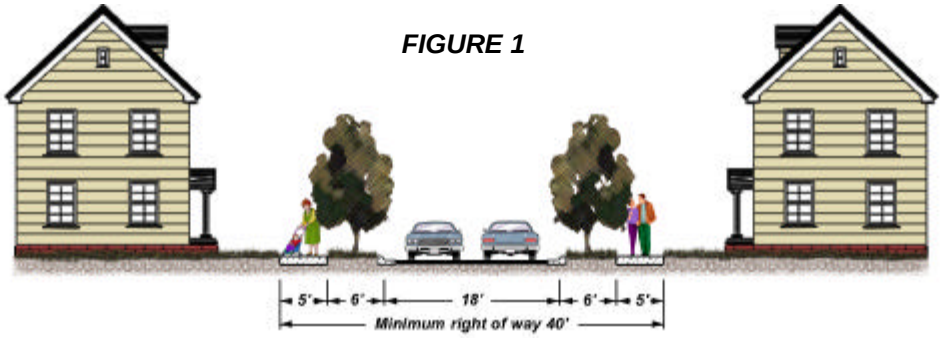
Features

- Requires 20' right of way (minimum)
- Utilities, either above or underground, may be located in alleyways to provide service connections to rear elevations
- Width 12' (minimum)
- Additional pavement at alleyway intersections is necessary to facilitate turns.

Building and Land Use

- Residential - primarily single family
- Provides rear access to garages

FIGURE 1



LANE

Purpose: Provides access to single-family homes.

Features

- Street width 18' with curb and gutter and informal parking designated on street
- Planting strips 6'
- Sidewalks 5' on each side
- Design speed 20 mph
- Posted speed 20 mph
- Requires a 40' right of way
- Drainage - curb and gutter

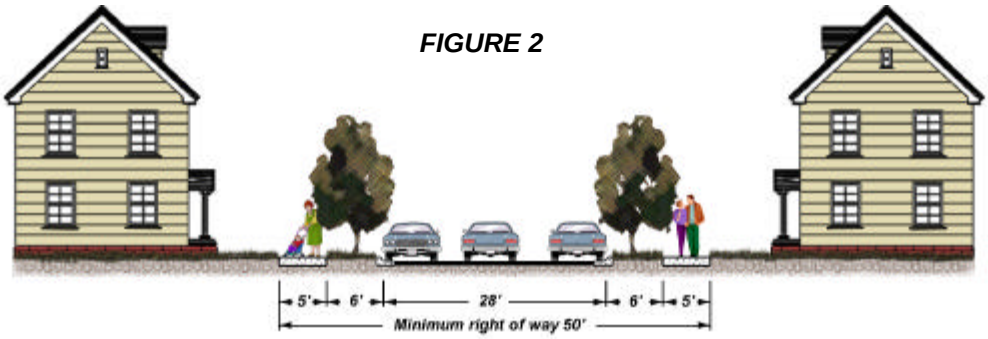
Features

- Generally two to six blocks long

Building and Land Use

- Residential - primarily single family homes

FIGURE 2



STREET

Purpose: Provides access to housing

Features

- Street width 28' with curb and gutter and informal parking
- Planting strips 6'
- Sidewalks 5' on each side
- Design speed 20 mph
- Posted speed 20 mph
- Requires a 50' right of way
- Drainage - curb and gutter

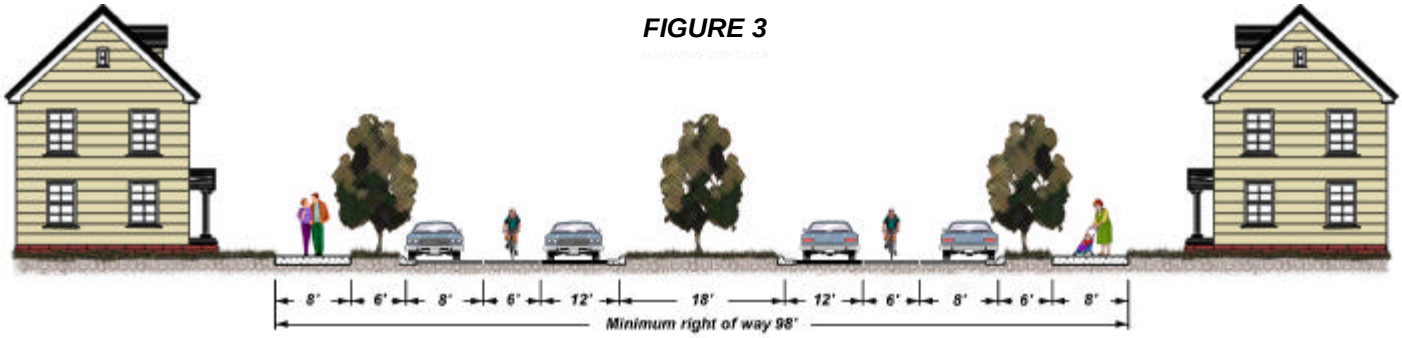
Features

- Generally two to six blocks long

Building and Land Use

- Residential - many residential types

FIGURE 3



AVENUE WITH PARKING

Purpose: Avenues are short distance, medium speed connectors between neighborhoods and core areas. As such, they are used in both residential and commercial areas, often terminating at prominent buildings or plazas. Avenues may also circulate around squares or neighborhood parks.

Features

- Street width 26’ on both sides of median with on-street parking, 18’ if no parking or curb and gutter
- Median width 18’ (minimum)
- Travel lanes 12’
- Maximum 2 travel lanes
- Bike lanes and planting strips 6’
- Sidewalks 8’ on each side
- Design speed 30 mph (maximum)

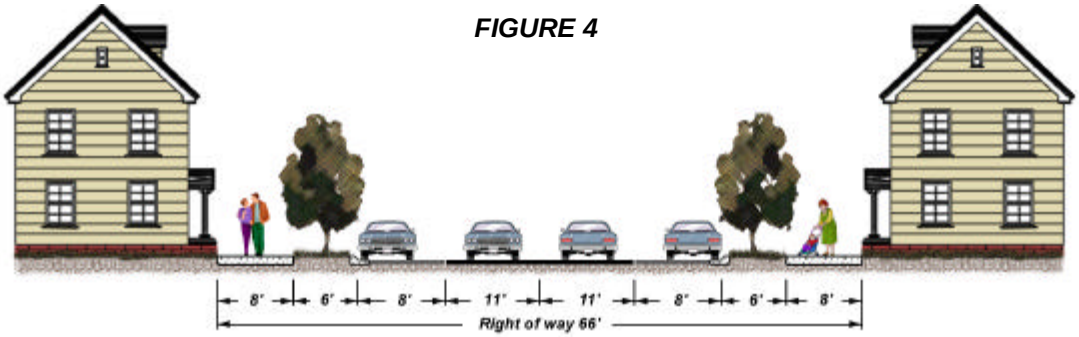
Features

- Posted speed 25 - 30 mph
- Requires a 98’ right of way
- Drainage - curb and gutter

Building and Land Use

- Mixed residential and commercial use

FIGURE 4



MAIN STREET WITHOUT MEDIAN

Purpose: Main streets provide low-speed access to neighborhood, commercial, and high density residential areas

Features

- Travel lanes 11’ with striped parking
- Maximum 2 travel lanes
- Planting wells 6’- landscaped median optional (minimum 18’)
- Sidewalks minimum of 8’ each side
- Design speed 25 mph (maximum)
- Posted speed 20 - 25 mph
- Requires a 66’ right of way

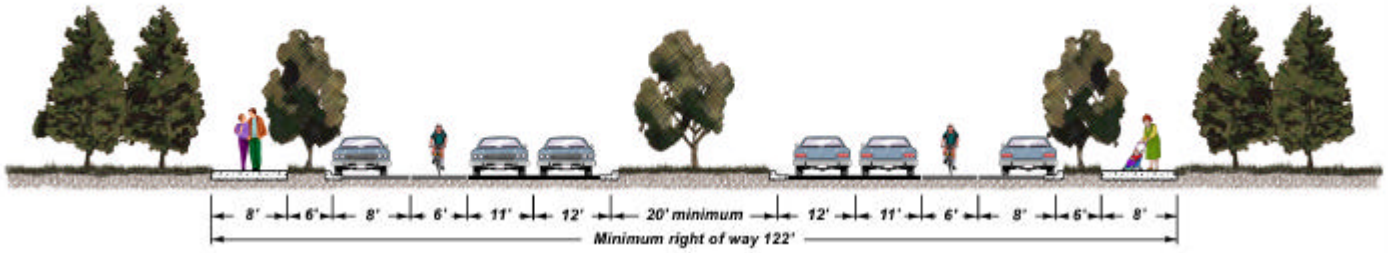
Features

- Drainage - curb and gutter
- Includes bulbouts at intersections and mid-block crossings
- Bike lanes optional but preferred (minimum 6’)

Building and Land Use

- Commercial and mixed use
- High density residential

FIGURE 5



BOULEVARD

Purpose: Provides multi-lane access to commercial and mixed-use buildings, and carries regional traffic.

Features

- Lanes 11' with striped parking and bike lanes
- Maximum 4 travel lanes
- Planting wells 6 - 11'
- Sidewalks 8' on each side
- Design speed 40 mph (maximum)
- Posted speed 30 - 35 mph

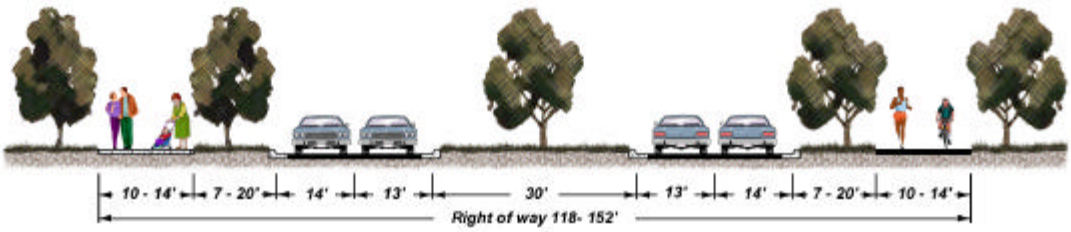
Features

- Requires a 122' right of way
- Drainage - curb and gutter

Building and Land Use

- Commercial and mixed use

FIGURE 6



PARKWAY

Purpose: Parkways bring people into town, or pass traffic through natural areas. Parkways are not designed for development. When the parkway enters town, it becomes a boulevard.

Features

- Travel lanes 11 - 12'
- Median width 30'
- Design speed 50 mph (maximum)
- Posted speed 45 mph (maximum)
- Requires a 118' right of way (minimum)
- Drainage - swales allowed, or curb and gutter
- Multi-use trails 10 - 14'
- Planting strips 7 - 20'
- Bike lane not adjacent to travel lane

Features

- 6' minimum paved shoulder on high-speed parkway (greater than 45 mph: typical section has shoulder with ditches)

Building and Land Use

- Parkways are designed to be on the edge of towns, nature preserves, or agricultural areas
- Multi-use trails may be on either or both sides

Appendix G.

from Walkable Communities, Inc. (www.walkable.org)