High Point Pedestrian Bikeway, Greenway, and Trails Master Plan

Prepared for –

The City of High Point, North Carolina
Parks and Recreation Department

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1.1 Introduction

High Point’s opening statement on its public website is,

“Welcome to the City of High Point. The City’s mission is to serve as the catalyst for bringing together the community’s human, economic and civic resources to create the single most livable, safe and prosperous community in America.”

This is the basis from where the processes begin for planning the High Point Pedestrian, Bikeway, Greenway, and Trails Master Plan – from hereafter called the High Point Greenway Master Plan. A city choosing to start with its premise being a mission to serve is a tremendous place, but a city which chooses to become the catalyst for bringing together the community’s individual resources to create the single most livable, safe and prosperous community in America is a community far beyond any words can describe.

Making that city a reality is what the High Point Parks and Recreation Department has set out to accomplish by providing its share of the “community’s human, economic and civic resources” to fulfilling that opening website statement.

The purpose of the City of High Point Greenway Master Plan is to improve the quality and connectivity of High Point’s pedestrian environment by focusing on both on-road sidewalks and off-road greenway multi-modal facilities to create a safe, accessible, and functional pedestrian system that meets both pedestrian and bicyclist needs as well as well as others. The physical, social, and economic benefits of a walkable community are described throughout the Greenway Master Plan. This Greenway Master Plan is divided up into sections to provide the following:
1. Evaluate existing conditions, current programs, plans, and policies affecting the pedestrian environment. An existing facilities inventory and evaluation document has been independently completed by the City and incorporated into this Master Plan. A copy of this Existing Conditions Map is incorporated into Existing Conditions Section of this Master Plan.

2. Identify pedestrian routes, opportunities and challenges inherent in the existing pedestrian system.

3. Identify facility standards and provide design guidelines for new facilities and the retrofit of existing facilities.

4. Assign priorities in the Greenway Master Plan to assist the City with implementation and construction.

5. Identify potential funding sources to assist the City with Greenway construction.

The City of High Point is located in central North Carolina and is one member of the Piedmont Triad the other two members being Greensboro to the northeast and Winston-Salem to the northwest. The City of High Point lies along US 311 (Future I-74) between Interstates 85 and 40 West. The project study area for this Greenway Master Plan is the City of High Point City limits and Extra-Territorial Jurisdiction. The City is partially within four different North Carolina counties – Guilford, Randolph, Forsyth, and Davidson Counties. The map on the following page illustrates the project scope of this Master Plan.

On October 18, 2007, the High Point City Council adopted the 20 year Comprehensive Parks and Recreation Master Plan. This plan was the product of many hours of planning by the Parks and Recreation staff and the citizens of High Point. Using the Master Plan as a guide, identification of the critical of needs for the department will be done. A copy of the Executive Summary of High Point’s Master Plan can be found on our home page.

The intent of this Greenway Master Plan is to develop guidelines and recommendations that may be followed to create an integrated and cohesive City in functionality and aesthetic appearances. Although the plan identifies facility standards and provides design guidelines for new facilities and the retrofit of existing facilities, the City of High Point may choose to adopt Development Standards and Development Ordinance Regulations as a result of the master plan.

These previous two individual and separate planning acts by the City of High Point and the High Point Parks and
Recreation Department have set the stage for continued improvement and additions to the overall development of the City. This has lead to the initiation of the High Point Pedestrian, Bikeways, Greenways, and Trails Master Plan. This plan, like many other planning and land development methodologies, incorporates intensive public input and involvement. This plan has developed over several months of public advertisement processes and presentations, and has been refined to the documents within the following pages.

**Greenway Master Plan Vision**

The High Point greenway system will be an integral component of a local and regional transportation network that provides a variety of options for getting from place to place. The Greenway System will connect schools, places of employment, shopping opportunities, recreation centers, parks and other destinations, including those in other communities. By making non-motorized transportation an important part of a complete transportation program, greenways will play a pivotal role in improving air quality.

Protected green corridors will offer additional environmental benefits as well. These benefits include better water quality and better habitat for wildlife and native plants along the greenway stem itself and in nearby additional areas of open space supported by it. The greenway will also form an important element in the city’s and region’s recreation resources and facilities, both as a way to access them, as well as on its own, for hiking, biking and the contemplation of nature.

Growing and improving the greenway will require cooperation between public and private entities. It will be promoted through the design, acquisition and construction of the trail system as additional groups discover common interests in the greenway.
Master Plan Goals and Objectives

- **Provide a continuous trail system that coordinates with other modes of transportation to link a diverse citizenry to important community facilities.**
  - Where possible and appropriate, construct feeder trails from individual neighborhoods and housing developments to the greenway.
  - Consider potential user conflicts and people with disabilities when designing and constructing greenway facilities.
- **Implement environmental enhancement projects as a part of greenway design and construction.**
  - Provide for stream bank stabilization during and after greenway construction.
  - Use native vegetation along greenways for cost efficiency, habitat and public education.
  - Control non-native and invasive vegetation as part of this routine maintenance program.
- **Work with other governmental entities and the private sector to extend and improve the greenway system.**
  - Engage in joint greenway planning with other jurisdictions to ensure a coordinated regional greenway system.
  - Continue to work with private developers to acquire protected greenway corridors.
- **Mainstream the greenway planning and make it a routine part of land-use, transportation and recreation planning;**
  - Proactively leverage existing programs and funding opportunities to effectively and efficiently construct greenway facilities;
  - Seek grants and other support for greenway amenities like mapping and signage.
  - Brand the greenway as a positive for the community.
Master Plan Strategy

- Greenways, which are generally constructed along protected drainage ways, provide several benefits, including:
  - Preserving linear corridors of open space that can link together large, otherwise isolated, tracts of open space;
  - Fostering environmental diversity and preservation by providing for wildlife habitat, migration, breeding and nesting sites within the city;
  - Protecting floodways and floodplains from encroachment by urban development
  - Providing for an alternative means of transportation other than the automobile, thereby conserving energy and reducing transportation costs;
  - Allowing people to interact with nature while recreating, commuting and socializing; and
  - Increasing the marketability of nearby developments and the overall quality of life in High Point.
- Providing for close-to-home recreational opportunities, often linking residential neighborhoods with parks, schools and private recreation facilities;

Greenways:
- Provide multiple access points throughout the greenway network
- Provide ample signage throughout the network as well as in town
- Ensure all portions of the greenway are ADA compliant
2.1 Existing Conditions

History

The Parks Division of the High Point Parks and Recreation Department is responsible for maintaining the city's 37 parks and greenway system. In addition to these areas, the Parks Division also maintains approximately 180 traffic islands/medians, 2 City entrances, as well as numerous city buildings and the Downtown Central Business District. The total acreage maintained by the Parks Division is approximately 640 acres with 70 acres being athletic turf.

The map to the left shows the greenway system as it exists to date within the City of High Point. Greenways are linear parks of land either left in a natural state, or paved for multi-modal use, that provide an enjoyable course for walking, jogging, biking, and skating. Many greenways are built along the banks of rivers, streams, and lakes. High Point has over 9 miles of greenways and more are planned as the Bicentennial Greenway will connect High Point and Greensboro. The Parks Division goal is to build a future for High Point through recreation.

This map only shows a 2.75 mile portion complete from Armstrong Park northward toward Deep River Road and University Park. However, the sections that currently exist according to the High Point Parks Department website are: A) Armstrong Park to Carlisle Way - approximately 3 miles, B) 311 Bypass to Deep River Road - approximately 1/2 mile, and C) Gibson Park to Piedmont Center - approximately 6 miles. The greenway can be accessed at Armstrong Park, Kirkman Park School, McCain Park, the Little Red School House, Gibson Park, and Piedmont Parkway.
The Piedmont Environmental Center, in the northeastern section of the city, is also considered part of the overall greenway system. The nature preserve around the Center allow visitors to enjoy the natural experiences that exist in this part of the State of North Carolina. The Piedmont Environmental Center itself has an extensive trail system that the City can tie into making Piedmont Environmental Center’s and make part of its resources and incorporate the Center’s educational opportunities into part of the citizenry’s environmental experiences.

Current policy for use of the greenways partially includes:

- The use of unauthorized motor vehicles are prohibited the High Point greenway system.
- Hours of operation are from sunrise to sunset.
- Alcoholic beverages, drugs, and weapons are prohibited.
- Dogs must be kept on leashes at all times.
- Bikes must stay on trails to avoid damage to vegetation and wildlife habitat.
Existing High Point Area Bicycle Map

The bicycle facilities that the City currently has in place are depicted on the map on this page.

Benefits of any municipal greenway or pedestrian system are many. A few of the most common ones include:

Reductions in vehicular traffic:

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

Enhanced community environment, “livability” and quality of life:

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

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

Creates a community identity:

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

Attractive amenities for visitors:

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

Community Participation and Priorities

An important part of the planning process for any document of this kind is public participation. The opinions, concerns and involvement of the public are crucial elements in developing a pedestrian greenway plan which is consistent with the desires of the public. Public “buy-in” and support of the Greenway Master Plan is necessary for the Plan to be a useful amenity to the City - and no one knows the City of High Point better than its citizenry. A variety of methods were used to integrate the citizens of High Point into the analysis and design process for the Greenway Master Plan. The following elements were central to the public input process:
Formal public meetings

- A survey posting on the City website and mailings
- Mapping workshops

The first public meeting was held in the City of High Point on April 24, 2008. The second public meeting was held on June 26, 2008. In an effort to reach as many citizens as possible, the meetings were held several months apart with several notification points and processes in between. These meetings consisted of an overview of the Greenway Master Plan, the goals and objectives of the Master Plan, distribution of the public survey, and mapping workshops.

In addition to the public meetings, for the critical role of public participation input into the master planning process, surveys were sent out in a mass mailing. The mailings were intended to capture additional input that was not obtained with the public meetings. The surveys were sent out in several ways; included in citizens’ utility bills, presented on the City website, flyers in bike shops and athletic areas, etc. This effort was successful in gaining additional public opinion to move forward with the planning efforts. Completed surveys were returned either online or by mail to the City of High Point where they were reviewed and tabulated. The survey and complete tabulations are located in Appendix A. A summary of the survey highlights follows below.

**Frequent areas to walk in High Point**

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

- Neighborhoods
- Public Schools
Respondents indicated they walked along several residential and neighborhood streets. A large portion of respondents walk for recreation and exercise rather than for transportation. Respondents indicated they would walk more if there were pedestrian facilities, specifically if sidewalks and bridges were safer for pedestrians.

**Areas respondents feel safest:**

The locations survey respondents feel safest include areas where there are sidewalks and low traffic volumes, such as in neighborhoods. The streets in downtown High Point, where there are sidewalks, appear to be perceived as the safest by respondents. Other areas of comfort include parks and nearby towns. Areas where survey respondents feel safest include:

- Downtown High Point
- Areas with sidewalks
- Well-lit areas

**Main Deterrents to walking include:**

Results from the survey indicate there is support for pedestrian facilities in High Point. The survey results indicate that 63% of respondents felt the need for improved pedestrian facilities. They emphasize the condition of existing pedestrian facilities such as uneven pavement and sidewalks, sidewalks being used for parking and storing items such as garbage cans. Other deterrents to walking include: bridges with no pedestrian access, and inconsistencies in facilities (sidewalks dead-end). Main deterrents to walking and biking include:

- No sidewalks or bike lanes
- Railroad
- Cars/Traffic
- Lack of street lighting
- Dogs
- Uneven pavement/sidewalks
- Bridges
Areas respondents feel most unsafe:

The locations respondents felt most unsafe include roads where narrow, had no sidewalks or poorly maintained sidewalks, insufficient lighting, and areas where there is a high probability of vehicle-pedestrian conflict such as underpasses, bridges, and narrow roads with no shoulder. Some of the respondents did not feel unsafe anywhere, while others called out specific locations of concern. These include Pedestrian amenities include street lights, vehicle-pedestrian separation, traffic calming and sidewalk maintenance appear necessary. Areas where survey respondents felt most unsafe while walking include:

- Bridges
- Unlit areas
- Underpasses
3.1 The Proposed Greenway System

The City of High Point has begun preparations to begin the installation of this Master Plan by the prioritization of segments of the trail system. Project Steering Committee has prioritized these segments by critical responses during the community participation aspect of the plan, as well as by the foresight and cooperation of the High Point Parks and Recreation Department in collaboration with the Transportation and Planning Departments.

The priority established is as follows. (Maps are included in the appendix)

1. Deep River Road to Penny Road - 5,983 ft
2. Montlieu Elementary School to Washington Terrace Park / Penn Griffin School (2 connectors)
   a. Montlieu Elementary School to Washington Terrace Park - 3,446 ft
   b. Montlieu Elementary School to Penn Griffin School - 6,105 ft
3. Regency Parkway to Interstate 40 (Northwest Outfall) - 42,345 ft to planning boundary
   a. Beyond planning boundary - 8,656 ft
4. Armstrong Park West – 28,832 ft
5. City Lake Connector Piedmont Environmental Center (PEC) to City Lake Park - 5,219 ft
6. Richland Creek (Brentwood St. to Randleman Lake area) - 36,037 ft
7. Oak Hollow South to University Park
   a. Hartley to University Park - 17,246 ft
   b. Festival Park to University Park - 10,033 ft

8. West Loop Connector (Johnson Street to Armstrong Park West) - 30,956 ft

The maps on the following pages indicate the segments listed above and how they interconnect to the overall system. The full sized overall map inserted at the conclusion of this report will be more helpful for reading, understanding and assimilating the entire system as it relates to the City of High Point and the surrounding communities.

The Deep River Road to Penny Road segment of new system was identified as the number one priority for construction due to the overwhelming responses during the first two public presentations. In conjunction with these responses, the review and analysis of the planners and designers involved determined the critical need for improvements to this area.
4.1 Plans, Programs, Policies

Steps to Construct a Greenway or Multi-Use Trail

The following information is presented as a general guide to create a consistent and comprehensive greenway and trail system. This sequence should be used for the initial stages through to completion. The items included on the checklist are routine steps that are normally followed once a proposed trail construction project has been approved.

The first step is to perform a feasibility study, or preliminary engineering assessment, of the proposed project. Feasibility studies are an effective means of determining a more accurate scope of work, including possible construction impacts on historic structures or environmentally sensitive areas. It is desirable to perform the feasibility study early in the project development process.

In order to prepare construction plans for the proposed off-road facility, it is strongly recommended that a survey of topographic features including existing terrain, streams and man-made structures be conducted in order to produce accurate horizontal and vertical alignments. The survey should also note property ownership boundaries, existing rights of way as well as both above and below ground utilities.
The outline below is a simplification of a normal master planning process:

1. Feasibility study
2. Initial meeting and site visit
3. Gather data
   - Survey of proposed center line alignment should include a set of cross-sections taken at 50-foot and 100-foot increments (50-foot in critical areas).
   - Average Daily Traffic Counts (ADTs), for on-road sections of bikeway
   - Environmental information, if applicable, regarding coastal areas (Coastal Area Management Act), endangered species, archaeological sites and historic properties, Federal Emergency Management Agency (FEMA), fish and wildlife, wetlands, soils investigation, floodplain delineation, etc.
   - Right-of-way (ROW) or easement documentation must be done according to federal aid requirements
   - Preliminary plans
   - Pavement design
   - Preliminary estimate
4. Prepare project report, documentation of environmental information, and reimbursement agreement. This is the next major step in the process and should take 8-12 weeks to complete once the necessary information has been collected.
5. Approval of final plans & estimate
6. Funding Account Set Up
7. Notice to Proceed
8. Erosion Control Approval (Local Authority Compliance)
9. Bid Process
10. Construction
11. Inspection of Completed Project
12. Reimbursement
Conceptual Standards & Design Guidelines

This section is dedicated to describing the proposed standards and guidelines for planning and developing pedestrian bikeway, greenway and trail routes and facilities within the City of High Point. These guidelines will improve the City’s compliance with the Americans with Disabilities Act (ADA) and the North Carolina Department of Transportation (NCDOT) standards for pedestrian facilities. Conceptual standards are included for facilities and amenities, off-street routes, and intersection treatments. Cost estimates are also provided to help the City plan financial obligations necessary for installation and implementation.

The following are conceptual Greenway Master Plan standards included here as recommendations for the City of High Point. Some of the following recommendations are specifically expounded upon in the Section 4: Greenway Master Plan, while others are provided for their potential applicability. All are appropriate for the City of High Point. This section should act as a guide for the City for implementation and future development purposes, and be considered as a ready reference.

Riders need safe and convenient routes to get to and from transit. Riders will typically walk one-fourth to one-half mile (about a 5 to 10-minute walk for most people) to and from transit. Riders typically walk to a transit stop, board the bus or train, get off, and then walk to their final destination. Thus, the riders’ needs as pedestrians extend beyond the bus stop to and from the surrounding neighborhood. However, transit agencies usually assume responsibility only for their stops, stations, and parking lots, and not for sidewalks, crossings, or other pedestrian elements on nearby streets. As a result, pedestrians must often cross busy streets and cut through parking lots to get to the bus stop or train station.

Transit agencies need to cooperate with local transportation agencies to improve pedestrian access to transit. Building sidewalks will make bus stops and train stations more accessible. Safe and convenient crossings are also essential, especially for midblock bus stops. New stops and stations can be placed with pedestrian (and bicycle) access in mind.

Pedestrian facilities and amenities
The pedestrian facilities and amenities discussed in this section provide numerous elements which should be taken into consideration for the improvement of High Point’s pedestrian environment. Each element listed below will be discussed and will include an estimated cost for installation and implementation. Recommendations made in this section should be included in the adopted High Point Development ordinance in order to have a consistent application of guidelines throughout the City. With this inclusion, the Development Ordinance should include overall text changes that require new developments to install sidewalks along their property with public street frontages. The pedestrian facilities and amenities include:

- Sidewalks
- Landscaping
- Crosswalks
- Street Furniture
- Bridges
- Pedestrian Refuge Islands
- Intersection Signalization
- Limit utility conflicts
- Underpasses lights and signage

Off-Street Routes and Greenways

Off-street routes and greenway trails provide alternatives and diversity to the pedestrian experience and increase the recreational options within a community. Off-street routes and greenway trails can provide important connections and links between recreational and popular destinations. These routes are attractive not only to residents, but also to visitors.
Greenway trails are a viable option for connectors between destinations and neighborhoods. Their location away from any roadways significantly reduces or eliminates the threat of vehicle and pedestrian conflict. It is important to design greenway trails so they are safe and accessible for all users, as well as sufficiently lighted for public safety and well being. Greenway trails can be constructed from a variety of materials such as concrete, asphalt, wooden boardwalk, stone, gravel or woodchips. Concrete, asphalt and wooden boardwalks are most accessible for handicap accessible use. Stone, gravel, and woodchip trails can be used to diversify the greenway trail system and are more suitable for secondary routes. All primary routes should be constructed with a material that meets ADA regulations.

Just as surface material can vary, so can the width of a greenway trail. The minimum standard for a greenway trail is ten feet. In areas of high use, widths of twelve to fourteen feet are recommended.

The City should also develop standards for the type and placement of signage. Signs should be easily identified, of a specific standard, and located in conspicuous areas: at the beginning of the trail head and at regular intervals along it. Consistent signage that is easy to read is necessary to provide users with way finding tools which help them feel more comfortable and secure using the trail system. For example, signage can include distances and average times from points along the trail so each person can decide which trail in the system is best for them to take.

Lighting may be necessary along certain portions of a greenway if it is a primary corridor for pedestrians, through a neighborhood, or designated as public property for liability issues. Other amenities such as trash receptacles, benches, and restrooms should be incorporated into the greenway system.
Sidewalks:

Sidewalks are important public spaces in any community. Public sidewalks are located between the edge of a roadway and the edge of the public right-of-way (ROW). They not only provide a designated space for pedestrians to walk, they can also serve gathering and social purposes, often a place where community members interact.

The appropriate width of a sidewalk, bikeways, and greenways depends on their location and use. Wide pathways provide more space for a variety of activities and methods on transportation to take place. The minimum width of pathways of any kind, excluding curb and other obstructions such as signal poles, signage poles, parking meters, and street furniture, shall be at least five feet in residential areas. This is the minimum width necessary for two pedestrians to walk side by side or for two pedestrians to pass one another comfortably. Sidewalks should be wider in areas of heavy pedestrian traffic such as a commercial area, near schools, and along heavily used corridors. Eight to ten feet is the recommended sidewalk width for these heavy use areas.

A separation of four to eight feet is recommended between the back of a curb and sidewalk to increase safety and comfort of pedestrians. Often this separation consists of a planting strip with street trees and/or low maintenance vegetation such as groundcover or grass. Along NCDOT streets trees must be 10’ off the face of curb.

Sidewalks form the backbone of the pedestrian transportation network. According to the Institute of Transportation Engineers, Technical Council Committee 5A-5 (1998), sidewalks "reduce the incidence of pedestrian collisions, injuries, and deaths in residential areas and along two-lane roadways." Without sidewalks, public rights-of-way are inaccessible to all pedestrians, including people with disabilities. When sidewalks are not available, pedestrians must share the street with motorists, access to public transportation is restricted, and children might not have safe play areas.

Accessible pedestrian facilities should be considered part of every new public right-of-way project where pedestrians are permitted. Sidewalk installation and the linking of pedestrian routes to transportation stops and major corridors should always be a priority. The decision to install sidewalks should not be optional. "Sidewalks should be built and maintained in all urban areas, along non-freeway public highway rights-of-way, in commercial areas where the public is invited,

**Sidewalk Guidelines:**

- Ensure a minimum five foot sidewalk width in residential areas.
- Ensure a minimum eight foot sidewalk width in high use areas, commercial areas, and heavily used corridors.
- Ensure a four to eight foot separation between back of curb and sidewalk to increase safety and comfort of pedestrians.
- Comply with ADA regulations for all new sidewalks.
- A brushed concrete surface is the preferred treatment except in areas where decorative paving may be advantageous (commercial centers, downtown, etc.).
- Construct sidewalks on both sides of major and minor thoroughfares, collector streets, and secondary streets. See High Point Development Code.

**Estimated Costs:**

<table>
<thead>
<tr>
<th>Width</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>5’ wide Concrete sidewalks</td>
<td>$20/LF</td>
</tr>
<tr>
<td>Concrete Curb and Gutter (24”)</td>
<td>$15-$20/LF</td>
</tr>
</tbody>
</table>

*NCDOT 2008
and between all commercial transportation stops and public areas" (Institute of Transportation Engineers, Technical Council Committee 5A-5, 1998). This chapter examines the elements and characteristics of sidewalks that have the greatest impact on access. These characteristics include grade, cross-slope, and the design of specific elements such as curb ramps, driveway crossings, and intersections.

The effective width of the sidewalk is affected by pedestrian travel tendencies. The sidewalk area that pedestrians tend to avoid is referred to as the shy distance. Pedestrians tend to travel in the center of sidewalks to separate themselves from traffic and avoid street furniture, vertical obstructions, and other pedestrians entering and exiting buildings. Pedestrians avoid the edge of the sidewalk close to the street because it often contains utility poles, bus shelters, parking meters, sign poles, and other street furniture. Pedestrians also avoid traveling in the approximately 2 feet (0.610 m) of the sidewalk close to buildings to avoid retaining walls, street furniture, and fences. As shown in sketch to the left taking into account the shy distance, only the center 6 feet (1.830 m) of a 10-foot (3.050-m) sidewalk is available to pedestrians for travel. Thus, the effective width of a sidewalk, not the design width, constitutes the sidewalk area needed to accommodate anticipated levels of pedestrian traffic.

The widths of sidewalks not only affect pedestrian usability but also determine the types of access and other pedestrian elements that can be installed. For example, a 5-foot (1.525-m) sidewalk is probably wide enough to accommodate pedestrian traffic in a residential area, but a much wider sidewalk is needed to include amenities such as street furniture or newspaper stands. Design width is defined as the width specification the sidewalk was intended to meet; it extends from the curb or planting strip to any buildings or landscaping that form the opposite borders of the sidewalk. Minimum clearance width is defined as the narrowest point on a sidewalk. An inaccessible minimum clearance width is created when obstacles such as utility
poles protrude into the sidewalk and reduce the design width. A reduction in the design width could also create a minimum clearance width.

Although most guidelines require sidewalk design widths to be at least 5 feet (1.525 m) wide, higher design widths can accommodate more pedestrians and improve access. The AASHTO Green Book, the Oregon Department of Transportation guidebook, and other guidelines recommend wider design widths in areas with high volumes of pedestrians. The sidewalk width often depends on the type of street. In general, residential streets have narrower sidewalks than commercial streets.

Vertical clearance is defined as the minimum unobstructed vertical passage space required along a sidewalk. Vertical clearance is often limited by obstacles such as building overhangs, tree branches, signs, and awnings. The guidelines and recommendations that were reviewed for minimum allowable vertical clearance are included in Tables 4-2.1 through 4-2.4 at the end of this chapter. The majority of guidelines require a minimum of 6'6" (2.030 m) of unobstructed vertical passage space.

The American with Disabilities Act (ADA) is a landmark law that protects the civil rights of persons with disabilities. It prohibits discrimination on the basis of disability or employment, public accommodations, commercial facilities and telecommunications. To ensure access to the built environment the ADA requires the establishment of design criteria for the construction and alteration of facilities covered by the law. These requirements, which were developed by the Access Board, are known as the ADA Accessibility Guidelines (ADAAG).

ADAAG serves as the basis for standards used to enforce the design requirement of the ADA. These standards are maintained by the US Department of Transportation (DOT). It is these standards that the public is required to follow. Regulations issued from these agencies provide important information on using and applying the standards.

ADAAG states that circulation spaces such as corridors should have at least 6'6" (2.030 m) of head room. ADAAG further specifies that if the vertical clearance of an area next to a circulation route is less than 6'6" (2.030 m, elements that project into the circulation space must be protected by a barrier to warn people who are visually disabled or blind (ADAAG, U.S. Access Board, 1991). Characteristics of obstacles measured in the sidewalk assessment include height, amount of overhang over the supporting structure (if any), and minimum clearance width around the obstacle.
The following objects can make a sidewalk difficult for some users to traverse if they protrude into the pathway or reduce the vertical or horizontal clear space:

- Awnings
- Trash bags and cans
- Benches
- Parking meters
- Bike racks
- Planters
- Bollards
- Public telephones (mounted)
- Cafe tables and chairs
- Puddles
- Drinking fountains
- Signal control boxes
- Fire hydrants
- Sign poles
- Folding business signs
- Snow
- Grates
- Street vendors' carts
- Guy wires
- Street light poles
- Landscaping
- Street sculptures
- Mailboxes (public and private)
- Telephone booths
- Newspaper vending machines
- Utility poles and stabilizing wires

Surface is the material on which a person walks or wheels in the pedestrian environment. The type of surface often determines how difficult an area is to negotiate. For example, wood floors can be traversed without much difficulty by most people, while a gravel surface can be impossible for some people, especially wheelchair users, to cross. Sidewalk surfaces are generally concrete or asphalt but commonly include tile, stone, and brick. Although asphalt and concrete are the most common surfaces for walkways and greenways, many are designed using brick or cobblestones. Although these surfaces are decorative, they increase the amount of work required for mobility. In
addition, brick and cobblestone have inherent changes in level that are often tripping hazards. Alternatives to brick sidewalks include colored concrete stamped to look like brick, and asphalt or concrete paths with brick trim. Both alternatives preserve the decorative quality of brick but are easier for people with disabilities to negotiate.

Most guidelines for accessibility adhere to ADAAG, which defines accessible surfaces as firm, stable, and slip-resistant. Firm and stable surfaces resist deformation, especially by indentation or the movement of objects. For example, a firm and stable surface, such as concrete, resists indentation from the forces applied by a walking person's feet and reduces the rolling resistance experienced by a wheelchair (U.S. Access Board, 1994a). When a pedestrian or wheelchair user crosses a surface that is not firm or stable, energy that would otherwise cause forward motion deforms or displaces the surface instead.

All pathway users must obtain a certain amount of information from the environment to travel along sidewalks safely and efficiently. Most pedestrians obtain this essential information visually, by seeing such cues as intersections, traffic lights, street signs, and traffic movements. People with visual impairments also use cues in the environment to travel along sidewalks. For example, the sound of traffic, the slope of curb ramps, changes in surface texture, and a shadow from an overhead awning serve as primary indicators of an upcoming intersection for people with visual impairments.

Good design in the form of regularly aligned streets, simple crossing patterns and easy-to-understand city layouts is generally the best method to provide good orientation cues for pedestrians with visual impairments. However accessible information might be needed in some situations to supplement existing information. Locations where supplementary information is most beneficial include irregular intersections, open spaces such as plazas, raised intersections, and curb ramps with a slope less than 8.33 percent.

Visual, auditory, and tactile perceptual information is very useful in detecting cues and landmarks essential to wayfinding and is also important in detecting obstacles and hazards. Mobility is defined as "the act or ability to move from one's present position to one's desired position in another part of the environment safely, gracefully, and comfortably." Wayfinding is defined as "the process of navigating through an environment and traveling to places by relatively direct paths".

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High Point Pedestrian Bikeway, Greenway, and Trails Master Plan

4.1 Plans, Programs, Policies
The following are common types of accessible information added to sidewalk environments:

- Raised tactile surfaces used as detectable warnings
- Raised tactile surfaces used for wayfinding
- Materials with contrasting sound properties
- Grooves
- Contrasting colors for people with low vision
- Audible and tactile pedestrian signals

**Crosswalks:**

Marked crosswalks are an important part of the pedestrian environment because they delineate pedestrian zones across a roadway. A crosswalk is defined by the Institute of Transportation Engineers as “the portion of a roadway designated for pedestrians to use in crossing the street (1998)”. Crosswalks vary in regards to size, color, texture and visibility. It is necessary that all crosswalks be designed in accordance with the Federal Highway Administration’s Manual of Uniform Traffic Control Devices (MUTCD).

There are many types of crosswalks available for use ranging from simple white striped crosswalks to highly decorative crosswalks with pavement stenciling and alternative materials. It is recommended that crosswalks be striped with continental markings; high-visibility crosswalks as these are the most visible to motorists. In historic areas, such as the center of High Point, a more decorative crosswalk can be installed provided it meets ADA regulations and is not too bumpy or difficult for handicapped users. Crosswalks should be installed at all intersections where there is a traffic light or stop sign. Crosswalks should not be installed where sidewalks are not present or in locations where there is not appropriate ADA compliant accessibility on both sides of the street. All crosswalks should be at least eight feet (8’) wide and a minimum of ten feet (10’) wide in high use areas such as around schools and commercial areas.

**Crosswalk Guidelines:**

- Minimum 8’ wide. In high use areas such as near schools and at commercial centers minimum width should be 10’.
- Stripe crosswalks with continental markings except in historic downtown where decorative crosswalks are appropriate.
- Install crosswalks across the full width of a roadway.
- Locate ADA compliant ramps on both sides of the crosswalk.
- Develop and adopt a crosswalk policy and associated design guidelines.

**Estimated Costs:**

- Simple Crosswalk (signs and striping) $500-$1,500 each
- Decorative Crosswalk $5,000-$15,000 each
Pedestrian Refuge Islands

Pedestrian refuge islands are spaces designed within travel lanes to protect pedestrians from vehicular traffic by providing a safe place for pedestrians between traffic lanes. Pedestrian refuge islands are raised islands located in the center of a roadway. They are typically located at intersections or at mid-block crossing for pedestrians at needed locations. This allows a pedestrian to be concerned with one direction of traffic at a time and is particularly helpful for elderly, disabled, and young pedestrians, as these users often need more time to cross a roadway.

Pedestrian refuge islands not only provide safe crossings for pedestrians, they also can be used as a traffic calming device. Incorporating landscape elements or colored pavement into the design of an island makes it more visible to motorists. These enhancements also contribute to the character and overall friendliness of the pedestrian environment by way of utilization of increased vegetation and decorative elements. Pedestrian signalization, or traffic crossing push button attenuators, can be installed on either side.

Pedestrian Refuge Islands Guidelines:

- Implement pedestrian refuge islands on streets with multiple lanes or more and in areas of both high pedestrian activity and high traffic volumes.
- Use landscaping in the medians of pedestrian refuge islands to increase their visibility to motorists and help reduce speeds.
- Insure all sides of the crosswalk and pedestrian refuge island are ADA compliant.
- Insure all cross-walkways through pedestrian refuge islands are at minimum of 8’ in width to accommodate pedestrians, bicycles and wheelchairs.
- Install high visibility crosswalks through the pedestrian refuge islands.

Estimated Costs*:

| Pedestrian Refuge Island (signs and markings) | $7,500-$40,000 |
| Simple Crosswalk (signs and striping) | $500-$1,500 each |
| Decorative Crosswalk | $5,000-$15,000 each |
Pedestrian Signalization:

Pedestrian signals are an important element in the pedestrian environment where the environment interacts with vehicular movements. Typically pedestrian signals or push button attenuators indicating the need to allow pedestrians to cross roadways, are installed at intersections where there is a need to control pedestrian traffic. There are two types of pedestrian signals: 1) pedestrian sensors which usually consist of a button pedestrians can push to walk, and 2) automatic signals. Pedestrian sensors are useful in areas where pedestrians may experience a delay waiting for the light to turn red, and in areas where vehicular traffic signal movements have a short green light timing. A pedestrian sensor will increase the amount of time the light is green for vehicles and pedestrians.

Pedestrian signals consist of illuminated symbols, either the words “walk” and “don’t walk” or an image of a person walking, or a raised hand are used to direct pedestrian traffic. Countdown pedestrian signals are very effective because they display the amount of time a pedestrian has left to cross a street. This eliminates the ambiguity of knowing how long the pedestrian will have the right of way before vehicular traffic movements begin. It is also important to provide audio support at signalized intersections to assist visually impaired pedestrians. This increases the safety of all pedestrians.

Estimated Costs*:

<table>
<thead>
<tr>
<th>Pedestrian Signal</th>
<th>Cost Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>$40,000-$75,000</td>
<td></td>
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Pedestrian signals should be installed in the following locations:

- Areas of heavy pedestrian use, such as a central business district or a school district
- Intersections which have complex or multiple traffic patterns, or at intersections where it may not be clear to a pedestrian when it is safe to cross
- Intersections where there is poor visibility and it may be unclear to a pedestrian when it is safe to cross.
Prior to signal installation, it is important to fully evaluate each intersection for the proper application and type of signalization, and insure that all requirements and regulations have been satisfied.

**Landscaping:**

Incorporating vegetation into the pedestrian environment not only improves the visual quality of a community, but it can also function as traffic calming devices and safety improvement devices. The use of vegetation along street right-of-ways and in medians slows traffic down as it visually narrows the roadway. Vegetation along street rights-of-way acts as a separation between pedestrians and vehicles, reduces the scale of wide expanses of pavement and improves the overall comfort in the pedestrian environment.

Landscaping in the pedestrian environment typically is where adjoining public streets, consists of planting strips located between the constructed street curb and the sidewalk or between the sidewalk and the adjacent property line. Vegetation can also be located in center medians, as well as in curb extensions, such as indicated by the photograph at the left.

Increased usage of street trees and other plant materials soften the streetscape while vegetation improves the overall quality of a community’s environment. Additionally, street trees offset high temperatures retained by asphalt and concrete by providing shade in the summer months. Vegetation in the pedestrian environment can also help mitigate stormwater flow, as planted islands and strips help in collecting and filtering stormwater runoff produced by the built environment.

Street trees and other vegetation used in the pedestrian environment should not compromise the visibility of motorists and pedestrians. This can be done by using low shrubs or groundcover and canopy trees. It is important to insure that branches are kept above six feet and shrubs below three feet in height to allow motorists and pedestrians to see one another. The use of native, drought tolerant plant species can help offset maintenance costs as well as establish a street environment which is reflective of a particular region. In more urban areas, or locations where there is little room for vegetation, planters can be used to establish a separation between vehicles and pedestrians as well as improve the character of the street environment. This section should be incorporated into the adopted City of High Point Tree Ordinance.
Street Furniture:

Street furniture can serve many functions in the pedestrian environment. Sidewalks and streets not only provide for pedestrian and vehicular circulation, they also account for large amounts of public space. Sidewalks and street edges often function as social spaces where people gather, rest, chat, meet friends, and watch people pass by. Street furniture amenities such as benches, drinking fountains, bike racks and trash receptacles, provide a place for pedestrians to participate in these activities. Street furniture in the pedestrian environment improves the overall livability of a community and provides incentives for people to be active participants. If the pedestrian environment is comfortable and pleasant, it will become inviting to more people. Good-quality street furniture will demonstrate that the community values its public spaces.

The style of these elements should be consistent throughout the community. High Point Planning, Engineering and Public Works Departments should cohesively agree on a specific type, whether historical, period, contemporary, etc., of site furniture design for the overall Town as a whole and then specifications, such as brand and model numbers, can be adopted into the City of High Point Development Ordinance. This consistency will reinforce the overall character of the community and contribute to the overall identity of the place and help create a “Town Branding” or “Feel” within the City’s planning jurisdiction.

Street furnishings should be concentrated in areas with heavy pedestrian use such as business districts, downtowns, and institutional areas such as schools and libraries. By enhancing the street environment, a community not only demonstrates how much it values its public spaces, enhancement also encourages the use of public spaces.

All street furniture, including street lighting and signage standards, should be carefully located so it does not interfere with or obstruct the minimum required pedestrian paths. It is critical to insure all street furniture does not block curb ramps and store front entrances. Careful location of street furniture is important so it does not reduce vehicular sight lines or introduce trip hazards for visually impaired pedestrians.
Bridges:

- Provide sidewalks on both sides of all bridges when possible.
- Comply with ADA regulations for all sidewalks and ramps.
- Increase the width of a sidewalk if only one sidewalk is installed.
- Elevate walkways and sidewalks on bridges at least 6” above roadway for use separation.

Estimated Costs:
Costs vary and are dependent on the type and length of bridge.

Pedestrian Underpasses:

- Comply with ADA regulations for all sidewalks and ramps.
- Increase width of sidewalk if only one sidewalk is installed.
- Elevate walkways and sidewalks in underpasses at least 6” above roadway.
- Minimum vertical clearance to be 12 feet; minimum width to be 12 feet.
- Ramp grades should not exceed 5% slope.
- Install appropriate lighting to illuminate the underpass at night.

Estimated Costs:
Costs vary and are dependent on the type and length of the underpass.

Bridges:

Bridges provide pedestrian connections across barriers such as water bodies, highways, and railroads. Unfortunately, some bridges do not have a designated area for pedestrians, pedestrians and bicyclists are forced to share the travel lane with vehicles. Bridges often have narrower travel lanes than adjacent roadways and as a result problems of shared land usage and of pedestrian/bicycle safety issues are compounded further.

Walkways and sidewalks on bridges should be elevated above the roadway. Typically this elevation consists of the standard 6” high curb at the edge of the sidewalk. This grade separation increases the safety and comfort of pedestrians and reduces potential conflicts. Bridges should have pedestrian access on both sides, however if only one sidewalk is possible it should be wider to accommodate the larger joint volume of two-way pedestrians using the sidewalk. In this case, it is essential that there is a safe crossing on either side of the bridge, such as a high-visibility or continental crosswalk, allowing pedestrians to safely access the necessary side of the street. This crosswalk should be a safe distance from the bridge approach and have signage directing pedestrians to this specific location to cross the street in order to access the sidewalk.

Unfortunately, many existing bridges in High Point may not have sufficient room to incorporate pedestrian walkways and sidewalks. It should be stated in the City public development documents that all new bridges should be designed to meet ADA regulations and incorporate the above recommendations including sidewalks on both sides of vehicular travel lanes. It should be very clear in the wording of this text that pedestrian and bicycle movements should be protected by whatever means possible. The two photographs on this page indicate two possible methods of incorporating pedestrian safety into roadway and bridge designs.
Pedestrian Underpasses:

In High Point, the railroad tracks bisect the City and present challenges to pedestrian, bicycle, and vehicular connectivity. Pedestrian underpasses often provide connectivity for high traffic thoroughfares and railroad track. There is an existing pedestrian underpass under US 311 at approximately mile 2.5.

Any future underpasses should be carefully planned to be ADA compliant, as they cannot provide universal connectivity if they are not.

Underpasses in general are expensive when absolutely necessary. The design of an underpass affects its use and safety. Pedestrian underpasses should be designed so they feel open and accessible, and should have a minimum vertical clearance of ten feet and a minimum clear width of twelve feet.

Approaches to the underpass should be very visible for public viewing and easy to access. In order to be ADA compliant, ramp grades cannot exceed 8%, however it is recommended that ramp grades not exceed 5%, this is typical for any pedestrian access not necessarily underpasses alone. NCDOT standards must be adhered to for these conditions and should be used as a safe standard for design and reference.

Appropriate lighting is necessary in order to illuminate the underpass at night as well as in the daytime and increase the general safety of the area. Positive drainage can be a challenge for underpasses which are below street grade and efforts need to be made to ensure that stormwater does not remain in the underpass to increase safety for hazardous ice or water.

Access to transit stops located on surface streets

Choosing transit stops for buses, light rail, and bus rapid transit (BRT) is a complicated task, as each location must take into account three factors:

1. Passengers (stops must be near places where there's an expectation of riders)
2. Access (if a stop can't be located right where riders are, they must be able to get to the stop conveniently)
3. Traffic characteristics (buses can't always stop where riders want to be because of complex traffic patterns, especially at intersections)

Therefore, access to transit also involves selecting the right location for stops, especially for bus stops located on surface streets. The Transportation Research Board (TRB)'s Transit Cooperative Research Program (TCRP) Report 19: Guidelines for the Location and Design of Bus Stops provides information on locating and designing bus stops in various operating environments.

Since there is an element of risk in crossing busy streets, safety improvements must be made at transit stops. The safety of pedestrians can also be enhanced using a variety of transit operation improvements (such as consolidating, relocating or eliminating stops) usually implemented by the transit agency in cooperation with the road authority. Convenient access by passengers must remain at the forefront of all transit stop planning: simply eliminating stops because they are perceived as unsafe will not be satisfactory to riders who cannot walk very far.

When a transit stop is located midblock, a single crossing should be provided to serve both directions of bus travel. If a crosswalk is marked midblock, it should be behind the bus stop for several reasons:

- Pedestrians cross behind the bus, where they can see oncoming traffic (crossing in front of a bus blocks visibility).
- The bus driver can accelerate as soon as passengers have left the bus.
- Driver's cone of vision.

At intersections, far side stops are usually preferred for a variety of safety and operational reasons. One safety advantage is that pedestrians cross in back of the bus. Operationally, a far side stop often improves intersection capacity by allowing motor vehicles to make right turns even when the bus in loading and unloading. However, transit operators often must place stops nearside, for reasons such as a concentration of users at a nearside corner, or because the bus route makes a right turn at that intersection. In all cases, the safety and convenience of pedestrians must be a high priority.
5.1 Program Funding Sources:

Federal Aid Construction Funds – Several categories of federal aid construction funds — National Highway System (NHS) and Surface Transportation Program (STP) — or Congestion Mitigation and Air Quality (CMAQ) funds provide for the construction of pedestrian and bicycle transportation facilities. The primary source of funding for bicycle and pedestrian projects is STP Enhancement Funding.

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

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

Funding Categories for Bicycle and Pedestrian Projects

Bicycle facility projects are divided into two categories, which determine the types of funds that may be available. Independent projects are those which are not related to a scheduled highway project. Incidental projects are those related to a scheduled highway project. Local requests for small pedestrian projects, such as sidewalk links, should be directed to the relevant NCDOT Highway Division office. Click here to view or download a listing of division and district engineers.

Independent Projects – $6 million is annually set aside for the construction of bicycle improvements that are independent of scheduled highway projects in communities throughout the state. Eighty percent of these funds are from STP-Enhancement funds, while state funds provide the remaining 20 percent. Currently, $1.4 million is annually set aside for pedestrian hazard elimination projects in the 14 NCDOT highway divisions across the state; $200,000 is allocated to the Division of Bicycle and Pedestrian Transportation for projects such as training workshops, pedestrian safety and research projects, and other pedestrian needs statewide.
Incidental Projects – Bicycle accommodations such as bike lanes, widened paved shoulders and bicycle-safe bridge design are frequently included as incidental features of highway projects. In addition, bicycle-safe drainage grates are a standard feature of all highway construction. Most 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.

**The Bicycle and Pedestrian TIP Process**

Transportation projects in North Carolina progress through a standard process of planning, design and construction. Improvements for bicycling and walking may be included in the Transportation Improvement Program (TIP) as part of the construction of a highway project or, where no highway project is programmed, as an independent project. Bicycle and pedestrian projects follow essentially the same TIP process as do highway projects.

The Division of Bicycle and Pedestrian Transportation (DBPT) works with localities to create a four-year schedule of projects using the locality’s priority listing of needs along with the adopted project selection criteria. The DBPT compiles candidate bicycle projects to be considered for inclusion in the TIP from the following sources:

- The prioritized Local Transportation Improvement Program (LTIP) lists produced by the 17 Metropolitan Planning Organizations (MPOs), which have been derived from separate lists produced by communities comprising the MPO.
- Project requests that are made at the biennial TIP meetings or through written requests within 30 days of the meetings from the state’s small urban areas, counties, public and private entities, and citizens. Internal DBPT assessment of statewide bicycle and pedestrian project needs.

All project requests are documented and distinguished as independent or incidental (part of a highway project). Independent project requests are evaluated by DBPT using project selection criteria. A prioritized list of these projects is presented to the North Carolina Bicycle Committee. The Committee reviews the list, makes revisions and recommendations, and adopts a four-year schedule of projects. The adopted schedule is sent to the North Carolina Board of Transportation for approval and inclusion in the state’s TIP.
Inclusion of a bicycle or pedestrian project in the TIP does not guarantee that it will be implemented; rather, it means that it will receive further study and will be implemented if feasible. Incidental projects are considered in conjunction with the planning study for the given highway or bridge project and implemented, if feasible.

**The Transportation Improvement Program Process:**

**From Need to Bicycle Improvement**

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

Incidental projects — those where the bicycle request is an incidental feature of a planned highway improvement — are built with a mixture of state and federal funds as part of overall highway improvement. Independent bicycle projects — those which are separate from any other scheduled highway improvement — are paid for from funds allocated for that purpose by the North Carolina Board of Transportation.

Examples of bicycle projects already underway include signed bike routes, greenway/multi-use paths, roadways with widened outside lanes, widened paved shoulders, bicycle parking, replacement of hazardous drainage grates, mapping and signing projects, and producing bicycle route maps.

**Steps in the Process**

1. Recognizing a need for a bicycle improvement project. Somewhere in a local area there may be unsafe or difficult riding conditions for bicyclists that highlight a need for bicycle transportation improvements. Such improvements may be an on-road improvement such as
wide paved shoulders, an off-road bike path, bicycle parking, or printed materials such as maps or safety brochures.

2. The need is presented to the North Carolina Department of Transportation. If it is a citizen or private group such as a local bicycle club, there are several ways to present the need to transportation officials. First, a citizen or local club may present their request to appropriate local government officials—aldermen, town council members, county commissioners, local planning boards, Transportation Advisory Committees, or other group appropriate to that local area. These agencies may or may not choose to include the request in their transportation improvement plan to be presented to NC Department of Transportation at the biennial Transportation Improvement Program (TIP) meeting.

3. If an official of an agency desires to make a request at a division TIP meeting but is unable to attend on the date of the meeting, a written request may be submitted within 30 days of the scheduled TIP meeting. The request should be addressed to the Secretary of the North Carolina Department of Transportation. All requests will receive the same degree of consideration.

4. All bicycle requests are documented. Following the public TIP meetings, requests for bicycle transportation improvement projects will be organized and documented by the NCDOT Division of Bicycle and Pedestrian Transportation.

5. Some bicycle improvement projects are selected for construction. The Division of Bicycle and Pedestrian Transportation first evaluates and prioritizes all requests; then a summary of the project requests is presented to the NCDOT Bicycle Committee for its review. The Committee then forwards recommendations on the scheduling of some of the requested projects to the North Carolina Board of Transportation, which makes the final decision on projects to be included in the Transportation Improvement Program. Inclusion in the TIP Plan does not in any way guarantee that a requested project will be implemented. Rather, it means that the project will receive further study and will be implemented if feasible.

6. Projects listed in the TIP fall into two categories. Bicycle and pedestrian projects that can be incorporated into a planned and scheduled highway improvement are categorized as incidental projects. The bicycle or pedestrian element will be considered during the planning and design phases of the total project. Incidental projects are built with a combination of state and federal funds in the same manner as the larger highway project is constructed.
Projects not incorporated into a planned and scheduled highway improvement are categorized as independent projects. These projects are constructed using 80% federal and 20% state money.

7. Finally, some TIP projects are implemented. In the case of a scheduled incidental bicycle improvement, inclusion in the TIP means that the project will be considered in conjunction with the planning and environmental studies for the given highway project. If the bicycle component is judged to be feasible, it will be scheduled for construction.

8. Following inclusion in the TIP, each independent project will undergo a detailed planning study that includes the evaluation of the feasibility of the project as well as the actual project cost. Upon completion and acceptance by the NCDOT, the planning study will be submitted to the North Carolina Board of Transportation for final approval and funding. A project must successfully pass through each of these levels in order to be implemented. During any of the above phases of project development, it may be necessary to alter or eliminate a proposed improvement due to regulatory or design constraints or because of unanticipated costs.

9. TIP bicycle projects may take many forms. A number of bicycle improvement projects involve construction of on-road or off-road facilities: wide paved shoulders (4-ft. minimum width); specially striped lanes for bicycles (minimum 4-foot width); wide outside lanes (14-ft. minimum width) which permit a safer mix of bicycles and motor vehicles); greenway-type bicycle paths; railroad crossing improvements for bicycle safety; and the addition of bicycle-safe bridge railings. The Projects section of this website provides more information.

10. However, not all eligible bicycle improvements require a construction project. The following are examples of other acceptable projects: signing bicycle routes; producing maps and safety brochures for cyclists in local areas; replacing unsafe drainage grates; making spot improvements such as paving potholes or hazard marking of dangerous roadway features; and providing bicycle safety education materials for local areas.
Safety Education Programs

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

School Zone Safety Program

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

The school, school district, and safety committee can develop a safety plan which consists of the following:

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

Safe Routes to School Program

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

Safe Routes to School is a national and international movement to enable and encourage children, including those with disabilities, to walk and bicycle to school. SRTS programs are
comprehensive efforts that look at ways to make walking and bicycling to school a safer and more appealing transportation alternative, thus encouraging a healthy and active lifestyle from an early age.

The NCDOT Safe Routes to School Program is a federally funded program that was initiated by the passing of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. SAFETEA-LU established a national SRTS program to distribute funding and institutional support to implement SRTS programs in states and communities across the country.

SRTS programs facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. 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.

The North Carolina Department of Transportation (NCDOT) SRTS Program is offering select communities an opportunity to participate in the “Safe Routes to School National Course,” commonly referred to as the SRTS Community Workshop. This course was developed by the Pedestrian and Bicycle Information Center and is maintained by the National Center for Safe Routes to School. A SRTS Community Workshop is a great way to begin a Safe Routes to School program to promote transportation alternatives while improving the health of children and the community by making walking and bicycling to school safer, easier, and more enjoyable.

**Infrastructure Projects**

The Infrastructure Grant Reimbursement Program is under development. More details and the call for proposals will be coming in 2008. These grants will provide funding for engineering projects within two miles of a school serving grades K-8. The funding cap will be $250,000 per project proposal.
Non-Infrastructure Projects

Non-infrastructure grants will provide funds for education, encouragement, enforcement, and evaluation programs and activities. Any state, local or regional agency, tribal government, school or school district, or non-profit organization is eligible to apply. Funding requests may range from $10,000 to $50,000. $500,000 is set aside to fund Non-infrastructure projects.

SRTS Community Workshops

This one-day workshop is intended for audiences at an individual school or cluster of up to four schools within close proximity. It is designed to help communities develop sound programs, based on their unique situations, by providing information on best practices, useful strategies and resources to consider as they identify the next steps to take to improve conditions for students who wish to walk or bicycle to school while reinforcing positive behaviors.

These workshops are an important mechanism to generate interest and enthusiasm in SRTS within a community. The workshop is a vital tool that is used to bring the right people together to begin forming a team of potential partners who can provide resources, help build community support, and/or influence policies that will make walking and bicycling safer.

Pedestrian Safety Campaign

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

- Educate motorists that pedestrians and bicyclists are legitimate road users and they should expect them on or near roadways
- Educate pedestrians on how to minimize risks to their safety
Develop program materials which explain pedestrian facilities such as sidewalks, crosswalks, pedestrian refuge islands, etc., and their purpose and function

**Share the Road Initiative**

The North Carolina Department of Transportation (NCDOT) Division of Bicycle and Pedestrian Transportation is dedicated to educating the general public of pedestrian and bicycle rights and responsibilities. The Share the Road Initiative is an example of NCDOT’s efforts to educate motorists of the presence of pedestrians and bicyclists in traffic areas. Additionally, the Division of Bicycle and Pedestrian Transportation assisted in the development of the North Carolina Driver's Handbook which includes sections devoted to pedestrian and bicycle rights and responsibilities.

**North Carolina School Crossing Guard Training Program and Manual**

In 1998 NCDOT Division of Bicycle and Pedestrian Transportation developed a program to train law enforcement officers who in turn trained school crossing guards. The purpose of the course is to standardize procedures and instruction of school crossing guards, as well as educate children on how to cross streets safely. In 1999 the program was updated and is currently training law enforcement officers in 42 jurisdictions. Currently the City of High Point is not included on this list and should contact the Division of Bicycle and Pedestrian Transportation to participate in the program.

**National Walk a Child to School Program Initiative & Walk a Child to School in North Carolina**

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

- Encourage adults including teachers, parents, staff, community members to teach children safe pedestrian behavior
- Encourage adults to help children identify and use safe routes to school
- Remind everyone in the community of the health benefits of walking on a daily basis
Forty years ago, half of all U.S. school children walked to school. Today, according to the Centers for Disease Control, only an estimated 10 percent of children walk to school. In many communities as much as 30 percent of morning commuter traffic is generated by parents driving their children to school. These traffic habits and children’s lifestyle choices can have serious consequences. Traffic jams around our schools foul the air, waste fuel, and create safety problems for children. In addition, the U.S. Surgeon General recently reported that thirteen percent of children aged 6 to 11 years and 14 percent of adolescents aged 12 to 19 were overweight in 1999. This statistic has nearly tripled in the past two decades for adolescents.

In recent years, a growing number of communities in the nation are promoting school children walking to school, with groups from health professionals, Smart Growth advocates, traffic safety groups, local PTAs, and elected officials supporting these initiatives. Some states have passed legislation instituting "Safe Routes to Schools" programs to encourage schoolchildren to walk or bike to school. The primary emphasis of these programs is to provide children with an opportunity to walk or bike to school in a safe, secure environment.

To encourage North Carolina residents to walk to school, the State of North Carolina has its own initiative. Support from the NC Governor’s Highway Safety Program has helped make this a growing and successful program. To view a list of schools participating visit: www.ncdot.org/transit/bicycle/safety.programs_initiatives/walk2school_NC2001.html

Encouragement and Promotion

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

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

Maintaining an accessible, functional, and clean pedestrian environment is essential to a walkable community. Regular upkeep and maintenance insuring sidewalks, greenways and other pathways are clear of debris and other obstructions demonstrates a municipal commitment to a walkable environment. In order to meet the needs of maintenance and enforcement, the City of High Point should evaluate current maintenance policies to determine if they are adequate to include implement of the recommendations in this Greenway Master Plan.

**Incorporate Pedestrian Improvements Early in the NCDOT Planning Process**

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

**Identify Funding Sources**

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

**Education Programs and Events**

Pedestrian and bicycle education programs aimed at all residents of High Point regardless of age or ability encourage people to walk and bike safely. These types of programs can easily be organized through the Parks and Recreation Department and public school systems. For example, the Safe Routes to School Program is an excellent example for how a school program can educate children about safe pedestrian behaviors and pedestrian routes. The Parks and Recreation Department has the opportunity to team with schools, senior centers, and other groups to educate all residents about safe pedestrian behavior and routes.
Tourism and Local Events

Events such as “Walk-to-School” days and “Walk-for-Health” days can help spark interest, attract visitors, and bring the community together. Generating a “Walking Guide” or “Pedestrian Map” for the City of High Point, the greenway system, and the historic center could be distributed from the Parks and Recreation Department for aiding in the implementation of these recommendations.
6.1 Appendices

Proposed Greenway maps
Deep River Road to Penny Road

**PROJECT NAME**
Deep River Road to Penny Road

**APPROXIMATE LENGTH**
6,000 FT

**TOTAL COST**
$1,900,000.00
### Existing/Proposed

**Montlieu School to Washington Terrace-Penn Griffin School**

#### Project Name

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<tr>
<th>A. Montlieu School to Washington Terrace Park</th>
<th>APPROXIMATE LENGTH</th>
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#### DISCLAIMER

This map is provided as a public information resource and every reasonable effort has been made to assure the quality of the map. The City of High Point makes no warranty, expressed or implied, as to the accuracy, reliability, utility, or completeness of this information. The City of High Point makes no liability either for any errors, omissions, or inaccuracies in the information provided regardless of the cause of such or for any decision made, action taken, or action not taken by the user in reliance upon any maps or information provided herein.
Regency Parkway to Interstate 40 (Northwest Outfall)

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<th>APPROXIMATE LENGTH</th>
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Armstrong Park West

**PROJECT NAME**
Armstrong Park West

**APPROXIMATE LENGTH**
28,800 FEET / 5.45 MILES

**TOTAL COST**
$5,151,000.00
PROJECT NAME: Richland Creek

APPROXIMATE LENGTH: 36,000 FT

TOTAL COST: $13,257,000.00
Oak Hollow South to University Park

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<tr>
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<tr>
<td>B. Oak Hollow South - Festival Park to University Park</td>
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EXISTING/PROPOSED

BICYCLE PATHways

GREENWAY

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Map prepared by City of High Point Transportation Department 211 South Hamilton Street High Point, North Carolina 27260 August 2008
PROJECT NAME
West Loop Connector

APPROXIMATE LENGTH
31,000 ft

TOTAL COST
$7,322,500.00