



CODES, POLICIES + PROGRAMS

Chapter Sections:

6.1 Code and Policy Analysis

6.2 Comprehensive Plan

6.3 Zoning and Local Codes

6.4 Mode Share, Health and Safety Concerns

6.5 Complete Streets Policy

6.6 Next Steps: Becoming a Bicycle Friendly Community

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6.1 Code and Policy Analysis

The purpose of this task is to evaluate existing federal, NCDOT and Durham policies, codes and ordinances to determine how these documents support bicycling. Existing land use policies, codes and other documents were reviewed to identify areas where conflicts exist or new concepts can be adopted. The analysis addresses engineering, education, encouragement and enforcement, with the intent of developing state-of-the-art practices, policies and codes. This chapter summarizes these findings and makes recommendations for the City/County on which local codes, ordinances and policies should be strengthened and which programs should be undertaken to better support bicycling. These items can be either integrated into the Bicycle Master Plan and included by reference in the Comprehensive Plan, or be specifically included in the Comprehensive Plan.

6.2 Comprehensive Plan

The Durham Comprehensive Plan was adopted in February, 2005. It contains significant references to bicycling throughout the document, including the elements for Transportation, Land Use and Parks & Recreation. A review of the document provides the following analysis and recommendations:

Chapter 8, Section 8.1: of the Transportation Element is a detailed bicycle and pedestrian element that provides the basis for the Comprehensive Bicycle Master Plan. It is carefully written and includes a wide range of important references to bicycling. However, there are a number of key issues that could be strengthened as part of the Comprehensive Bicycle Transportation planning process. A core issue is that the Transportation Element does not include specific mode share or safety goals. This is an important opportunity to provide a primary benchmark for the City's quality of life. In addition, health and physical activity are not addressed, and this is important in light of the national obesity epidemic and the prominence of the health industry in the Research Triangle area. A demographic that is not addressed in the plan is people working at home, which represents a rapidly growing sector of transportation in the region, and can have a significant effect on walking and bicycling.

Recommendation: Include a mode share and safety goal, based on the USDOT national goal of doubling the amount of walking and bicycling in the U.S. and improving safety by 10%.

Recommendation: Include health and physical activity as a priority element in the Comprehensive Plan, with a goal of having all Durham residents meet or exceed the U.S. Surgeon General’s recommendations for daily physical activity.

Recommendation: Include working from home as a planning element, specifically to address the potential changes in bicycle and pedestrian transportation that can result from more people working at home.

Additional notes and recommendations from the review of the Durham Comprehensive Plan are noted below:

Chapter 4: Community Character and Design

This section provides good references to important topics including Context Sensitive Design, Community Protection Through Environmental Design (CPTED), Public Art and Design Overlay Districts. Bicycle facilities should be a part of these concepts, and facility color schemes, design features, signage and furnishings should be coordinated with the design review process. Specific suggestions include:

4.2.4 Attractive and efficient parking: Add bicycle parking, recommend adopting as an ordinance

4.3.1 Context Sensitive Design: Good section, bikeways should be part of this approach

4.3.1c Scenic Byways: Include bicycle touring routes along scenic roads where appropriate

4.4 Roadway Image: Include “Complete Streets” policy approach that integrates bicycle and pedestrian facilities into all roadway, transit and public works projects. This should address sections *4.4.1b Tier Streetscape Standards*, *4.4.1c Sidewalk Requirements*, *4.4.1e Pedestrian Mobility* (expand this section to include bicyclist mobility) and *4.5.2 Transit-Oriented Parking* (include intermodal connections for pedestrians and bicyclists – such as bike stations /rental / repair locations, bicycle lockers, bike racks, transit shelters and amenities).

Recommendation: Durham has an important opportunity to adopt a “Complete Streets” policy approach that integrates bicycle and pedestrian facilities into all roadway, transit and public works projects. This type of policy has been adopted by numerous communities throughout the U.S. Model policy language is provided by the NCDOT (based on North Carolina statutes) and the US Department of Transportation design guidelines.

Chapter 7: Conservation and Environment Element

This element presents an opportunity to capitalize on the energy savings, fossil fuel reductions and air quality benefits that can be attributed to bicycle transportation. Specific sections to be addressed include:

7.1.1a Environmental Indicators: The number of trips made by bicyclists is a fundamental benchmark of the quality of the City’s environment. Durham should participate annually in the National Bicycle and Pedestrian Documentation Project to standardize a bicycle traffic count program (www.altaplanning.com).

7.1.4a Greenhouse Gas Emissions: Include bicycle transportation in the Local Action Plan.

7.1.5f Energy Conservation: Quantify the number of gallons of gasoline saved by bicycling in Durham

7.2.2 Open Space Planning: Excellent section with important emphasis on creating an interconnected system of Greenways and Open Spaces.

Chapter 8: Transportation Element

Section 8.1 is generally oriented to linear facilities such as bike lanes and routes. Additional facility types that need to be considered include: high crash locations, intersection improvements, traffic signal actuation, bicycle parking, bike stations / rental shops, and intermodal / transit connections. Specific sections to be addressed include:

8.1.6 Land Use Transportation Integration includes important sections where bicycling can be included, specifically:

8.1.6.1 Neighborhood Traffic Calming (include bicycle-friendly designs in traffic calming standards)

8.1.6.a Compact Neighborhoods (excellent section with appropriate references to bicycling)

8.1.6.g Parking Requirements (include bicycle parking)

8.1.6.h Park and Ride (include “Park & Ride” locations to connect bikeways and the transit system)

8.1.6.i TDM Programs (include programs to encourage and promote bicycling)

8.1.6.n Proposed New Section: Bicycle Friendly Communities (BFC) Program – Durham will participate in the League of American Bicyclists BFC Program with a goal of earning official designation within the next 5 years. The program provides a useful set of benchmarks for implementing a comprehensive bicycle program.

Chapter 10: Parks and Recreation

This chapter has a direct connection to bicycling, especially in terms of promoting physical activity, bicycle touring, mountain biking and shared-use paths. Specific notes include:

10.1 Level of Service Standards: Include having a bicycle facility within 1 mile of all residences in Durham.

10.1.3f Trails and Greenways: Very good section; include on-road bike routes and MTB trails

10.1.6 Public Outreach / Community Education: Include physical activity promotion, support of bicycle clubs, National Bike Month events, Share-the-Road safety programs, community bike programs, summer bike camps, etc.

Chapter 11: Schools

This element of the Comprehensive Plan takes on new significance with the growth of the national Safe Routes to Schools (SR2S) Program. Including opportunities for children to walk or bicycle to school (or to the school bus, or during the day at school) is a key issue for the Comprehensive Bicycle Transportation Plan. Important references in the Comprehensive Plan language include:

Shared Data: include mode share data for the number of children who walk, bike, ride the bus or are driven to school as part of the annual data collected for school transportation.

Siting of Schools: in addition to the other criteria described, include the potential for children to walk or bike to school as a priority factor in school site location and design criteria.

Chapter 12. Public Safety

This element is primarily oriented towards police and fire safety. Consider expanding the chapter to include “Public Health and Safety” to provide an appropriate role for issues ranging from cardiovascular disease prevention, increased physical activity and reductions in traffic injuries and fatalities.

Chapter 15. Capital Improvements Element

This section provides the basis for advancing projects for funding in Durham. Since bicycle facility projects have significant environmental, health and transportation benefits, they could receive additional priority in the Capital Improvement Program development process. Specific sections include:

Level of Service Standards: Modify transportation benchmark to include level of service for all modes of travel, including bicycling.

CIP Policy: include a ‘green bonus’ for projects which address multiple benefits with minimal negative impacts.

Chapter 16: Intergovernmental Coordination

This element includes the Bicycle and Pedestrian Advisory Commission, a significant component of a successful bicycle program. It is recommended the Commission include health, school district, environmental and maintenance / operations agency representatives to ensure program support across all functional areas.

6.3 Zoning and Local Codes

Durham has adopted zoning ordinances, subdivision regulations and design guidelines that address bicyclists, pedestrians and trails. In general, these are good ordinances, but they tend to be oriented primarily to off-street pathways and sidewalks, with less emphasis on utilitarian, on-street facilities for bicyclists.

Recommendation: Modify the local ordinances to provide a balanced approach to both on and off-street bicycling, and support facilities, including a more detailed guideline for bicycle parking and amenities at large work sites.

A review of the key Durham ordinances and codes related to bicycling is provided in the following sections.

6.3.1 Unified Development Ordinance (UDO)

Durham recently adopted a new Unified Development Ordinance. This new set of codes is *the first major overhaul of Durham’s development regulations in more than 30 years. The UDO has replaced the previous Zoning and Subdivision Ordinances and works in tandem with the newly adopted Comprehensive Plan to strengthen Durham’s development regulations. It was adopted by the City Council and Board of Commissioners on December 5, 2005 with an effective date of January 1, 2006.*

Article 1: Purpose and Intent

This section is important because it sets the tone for planning and development in Durham. Health and safety are significant issues for bicycling – and they are explicitly mentioned in the first paragraph of the new UDO under purpose and intent as follows:

“1.2.1 It is the purpose of this Ordinance to promote the health, safety and general welfare of the residents of Durham City and County.”

Section 1.2.2 adds to this intent with a statement that the codes and ordinances are designed to :

“1.2.2.G. Minimize congestion in the streets and reduce reliance on automobiles by providing options for walking, bicycling, and transit use;”

Article 2: Review Authority

This section includes important references to the existing Durham Bicycle and Pedestrian Advisory Commission (DBPAC). The DBPAC is defined by the following section of the UDO:

Sec. 2.8 Other Advisory Bodies: A variety of other commenting or advisory bodies approved by a governing body may participate in development review under this Ordinance, including, but not limited to:

- A. The Durham Open Space and Trails Commission;*
- B. The Durham Environmental Affairs Board;*
- C. The Durham City/County Appearance Commission; and*
- D. The Durham Bicycle and Pedestrian Advisory Commission*

The UDO includes this commission as a voting member of the Development Review Board as follows:

The Development Review Board: The Development Review Board is the technical planning agency for the City of Durham and Durham County and is responsible for site plan and subdivision review in accordance with the provisions of this Ordinance.

According to Section 2.6.3.a.1, a member of the Bicycle and Pedestrian Advisory Commission is a voting member of the DRB.

This level of review is a significant role that provides the opportunity to integrate bicycling and pedestrian facilities into development projects. In addition to the DRB, the DBPAC should also work to integrate the Comprehensive Bicycle Transportation Plan through consultation, training and cooperation with the following review organizations listed in the UDO:

- Durham County Board of Commissioners*
- Durham City Council*
- The Joint City-County Planning Committee (JCCPC)*
- The Durham Planning Commission*
- The Board of Adjustment*
- The Durham Historic Preservation Commission (HPC)*
- Design District Review Team (DDRT)*

Article 3: Applications and Permits

This is a very important section for ensuring that bicycling and walking are fully integrated into the development review process. Key sections include Traffic Impact Analysis, Development Review Criteria, and Subdivision Review Criteria. It is recommended that these sections be modified as follows:

Sec. 3.3 Traffic Impact Analysis (TIA)

Add a new section to the section 3.3.1a to define the term “Traffic.” This may seem like a minor semantic issue, but it is significant because of the number of times this term appears throughout the code, and because it is not currently defined in the UDO. For the purposes of the UDO, it is recommended that the following be used as the definition of traffic:

3.3.1a “Pedestrians, motor vehicles, bicycles and other conveyances either singly or together using any highway, street or public right-of-way for purposes of travel.”

This section should be cross referenced with Article 16: Definitions. The language is based on a combination of the Uniform Vehicle Code (UVC), the national model code which forms a basis for most state codes, and the North Carolina General Statutes. The NC Statutes do not include a definition of the term traffic, but they do define a bicycle as a vehicle. The UVC includes a broad definition of traffic, but does not explicitly mention bicycles. The text of these two sections of code are provided below:

Uniform Vehicle Code § 1-207 Traffic

Pedestrians, ridden or herded animals, vehicles, streetcars and other conveyances either singly or together while using any highway for purposes of travel.

NC General Statutes, Chapter 20, §.20.4.01 (49) Vehicle. – Every device in, upon, or by which any person or property is or may be transported or drawn upon a highway, excepting devices moved by human power or used exclusively upon fixed rails or tracks; provided, that for the purposes of this Chapter bicycles shall be deemed vehicles and every rider of a bicycle upon a highway shall be subject to the provisions of this Chapter applicable to the driver of a vehicle except those which by their nature can have no application. This term shall not include a device which is designed for and intended to be used as a means of transportation for a person with a mobility impairment, or who uses the device for mobility enhancement, is suitable for use both inside and outside a building, including on sidewalks, and is limited by design to 15 miles per hour when the device is being operated by a person with a mobility impairment, or who uses the device for mobility enhancement. This term shall not include an electric personal assistive mobility device as defined in G.S. 20-4.01(7a).

In addition to defining the term ‘traffic,’ bicycling and walking should also be integrated into the requirements for traffic impact studies in the following sections:

3.3.2 Exemptions: add projects which exceed the 150 vehicles per hour (vph) threshold but which can document that travel demand above the threshold will be accommodated by walking, bicycling and transit.

3.3.5 Requirements: add item 3.3.5.4 – The TIA will be multi-modal and will address the needs of all modes of transportation, including walking, bicycling, transit and automobiles. The level of service methods used for analysis will include motor vehicle, transit, bicycle and pedestrian level of service as performance measures, where applicable.

Sec. 3.6 Subdivision Review

The subdivision review process provides an important opportunity to ensure that bicycle facilities are part of new developments. The following modifications are proposed in bold:

*3.7.5 .C Site Plan Review, Item 5: Pedestrian and **Bicyclist** Circulation: location of sidewalks and other pedestrian ways including dimensions and surfacing, along streets and other locations; provision of crosswalks. **Bicyclist facilities including wide curb lanes, paved shoulders, bike lanes, intersection improvements, bicycle parking, transit connections and other improvements.***

3.9.8 Criteria for Approval of Major and Minor Special Use Permits: This is a very good section, and already includes language which will help support the Comprehensive Bicycle Transportation Plan. The text currently states the following:

1. Circulation

Number and location of access points to the property and the proposed structures and uses, with particular reference to automotive, bicycle, mass transit and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe.

Article 5: Use Regulations

This section includes important references to home occupations and accessory apartments, both of which are important elements of affordable, walkable/bikeable neighborhoods. Accessory Dwellings are referenced in Section 5.4.2 and Home Occupations are in Section 5.4.4.

One suggestion for modification is the section on school siting. This section is important for the development of Safe Routes to Schools (SR2S) programs, and for ensuring that pedestrian and bicyclist accessibility is part of the schools site decision process. The following modification is recommended in bold:

5.1 J. Schools: Elementary, Middle, or High Schools shall be permitted in accordance with the use table in Sec. 5.1, Use Table, subject to the following:

- 1. Following the initial approval of schools through the special use permit process, expansions of up to 20% of the area originally approved through the special use permit process pursuant to Sec. 3.9, Special Use Permit, may be approved administratively.*
- 2. Administrative approvals of expansions of schools shall not waive any conditions of approval of the special use permit.*
- 3. Schools site plans shall be designed to ensure that children have the choice to walk or bike to school where appropriate.**

Article 6: District Intensity Standards

Land development intensity is a critical factor for ensuring that the scale and vitality of neighborhoods supports walking and bicycling. In general, the current UDO sections support cycling, and the following minor modifications are suggested:

6.1 Purpose: add: **6.1 G: Compact land uses support alternative transportation, including walking, bicycling and mass transit by locating uses closer to each other and preserving open space.**

6.2.4 Conservation Subdivisions: very good section, with significant opportunities for greenways and trails. Perhaps consider including a bonus for subdivisions which also conserve energy and fossil fuels – potentially a “LEED” site plan certification for green transportation.

6.8 Infill Development: good section, important for increasing intensity without creating new infrastructure demands.

6.9 Nonresidential Development in Residential Districts: important opportunity to provide convenience stores and other neighborhood commercial uses so that people don’t have to drive a car for every daily trip.

6.11 Special Districts: add the following to *section I* of *6.11.4, University and College District (UC)* “Walkways... **and Bicyclist Facilities including wide curb lanes, bike lanes, intersection improvements, bicycle parking and other related improvements.**” Include the same text in *6.11.5 Commercial Center (CC)* and *6.11.7 Mixed Use (MU)*, *6.11.3 Planned Development Residential (PDR)*.

Article 7: Design Standards

This section deals primarily with housing design types and open space design, but does not include typical sections for streets and public rights of way, which probably are better suited for inclusion in Article 12. At a minimum, a general statement should be included with the following text: Sidewalks, bikeways and shared use trails and paths will be designed in accordance with the AASHTO Bicycle and Pedestrian Guidelines, NCDOT guidelines, the City of Durham Comprehensive Plan and related documents.

7.2 Open Space: This section supports bicycling with its current language, which states that, “Useable open space includes: All-weather walking paths, bicycle trails, benches, picnic tables, shelters, gazebos, prepared play areas, play equipment.”

7.2.5 Useable Open Space Design

A. General - Useable open space areas, other than walking paths and bicycle trails, shall have at least one side with street frontage of at least 50 feet in

length, and shall be accessible to residential development by sidewalks, pursuant to Article 12, Infrastructure and Public Improvement.

B. Urban Tier - Useable open space shall be located so that 95% of the residential units in the subdivision or development are within a 1,300-foot walking distance of an accessible, useable open space.

C. Suburban Tier - Useable open space shall be located so that 95% of the residential units in the subdivision or development are within a 2,600-foot walking distance of an accessible, usable open space.

7.8 General Performance Standards: This section should include performance standards for non-motorized travel as item **7.8.8. Goal-based Performance Standards** (such as mode share for example), as long as the performance measures are supported by available data.

Article 8. Environmental Protection

Bicycling can play a significant role in reducing fossil fuel consumption and improving air quality, and this should be included in the Environmental section of the UDO as follows, in bold:

8.1 I: To improve air quality by reducing the heat island effect; **and by reducing pollution and fossil fuel used for transportation by encouraging walking, bicycling and transit.**

Article 9: Landscaping and Buffering

This section includes an excellent tree protection program, which could be extended to include medians and landscape strips adjacent to roadways to benefit bicyclists and pedestrians.

Article 10: Off-Street Parking and Loading

This is a good section, which begins with the following two sections related to bicycling:

10.1 Purpose: "The purpose of this section is to reduce hazards to public safety and ensure efficient traffic flow by establishing standards for motorized vehicle parking, for bicycle parking, and for loading areas."

10.2.2 Facilities Required: A. "Off-street parking facilities for motorized vehicles and bicycles shall be provided for all uses located outside of the Downtown Tier."

The following section (10.3.1) will help support infill development within the downtown tier by reducing the need for new projects to add off-street parking. One modification is noted below in bold:

10.3.1 Required Motorized Vehicle Parking

C. Downtown Tier: No minimum parking shall be required. Parking shall

not exceed the minimum number required by the base use. Exceptions to this requirement may be granted by the Development Review Board if the additional parking does not negatively impact the pedestrian flow of the area and the following additional findings supporting the decision are made:

- 1. There is demonstrated need for additional parking;*
- 2. The applicant is employing traffic demand management techniques to minimize parking; **add: including providing bicycle parking***
- 3. Efforts have been made to minimize significant tree cutting; and*
- 4. The ability to share parking with nearby development has been evaluated.*

The new Durham Bicycle Parking ordinance has been well researched as is consistent with similar ordinances in other communities. It is provided below as a reference for the level of detail which can be applied to other aspects of bicycle facilities to be integrated from the Comprehensive Bicycle Transportation Plan into the UDO.

10.3.3 Minimum Required Bicycle Parking

A. Multifamily residential uses shall provide bicycle parking at the rate of one bicycle parking space for every 20 motorized vehicle spaces; however, no more than 100 total bicycle parking spaces shall be required for any single development.

B. Nonresidential uses with an off-street parking requirement for motorized vehicles of at least 15 spaces and not more than 40 spaces shall provide a minimum of two bicycle parking spaces.

C. Nonresidential uses with an off-street parking requirement greater than 40 spaces shall provide bicycle parking spaces equal to 10% of the total number of spaces required up to 100 spaces.

D. Uses within the Downtown Tier that provide parking for motorized vehicles shall also provide parking for bicycles.

10.3.4 Conversion of Motorized Spaces to Bicycle Parking

During the site plan approval process, the Development Review Board may allow a new or a pre-existing development to convert up to 5% of its motorized vehicle spaces to non-required additional bicycle parking, as long as the spaces are conveniently located near a building entrance. Converted parking spaces shall yield at least six bicycle parking spaces per motorized vehicle space.

10.4.4 Design Standards for Bicycle Parking

A. Bicycle parking may be located in any parking area or in other locations that are easily accessible and do not impede pedestrian or motorized vehicle movement into or around the site. Designating space for bicycle parking within buildings is a preferred option when feasible.

B. Requirements for bicycle parking in other areas may be met by:

- 1. A bicycle storage room, bicycle lockers, or bicycle racks within a building;*
- 2. Bicycle racks or lockers in a parking structure, underneath an awning or marquee, or near a main building; or*
- 3. Bicycle racks on the public right-of-way with approval from the City or State and where such racks do not conflict with pedestrian use.*

C. When a percentage of the required motorized vehicle spaces are provided in a structure, an equal percentage of the required bicycle spaces shall be located inside that structure, unless other accessible, covered bicycle parking is located elsewhere on the site.

D. Where bicycle parking facilities are not clearly visible to approaching cyclists, signs shall be posted to direct cyclists to the facilities.

E. Facilities shall provide at least a 30 inch clearance from the centerline of each adjacent bicycle and at least 24 inches from walls or other obstructions.

F. An aisle or other space shall be provided for bicycles to enter and leave the facility. The aisle shall have a width of at least four feet to the front or the rear of a standard six-foot bicycle parked in the facility.

G. Each bicycle parking space shall be sufficient to accommodate a bicycle at least six feet in length and two feet wide. Overhead clearance shall be at least seven feet.

H. Bicycle parking spaces shall be clearly marked as such and shall be separated from motorized vehicle parking by some form of physical barrier designed to protect a bicycle from being hit by a motorized vehicle.

I. Each bicycle parking space shall be provided with some form of stable frame permanently anchored to a foundation to which a bicycle frame and both wheels may be conveniently secured using either a chain and padlock or a U-lock. The frame shall support a bicycle in a stable position without damage to frame, wheels, or components. The rack known as an “inverted U-rack” is the preferred type.

J. Outdoor bicycle parking facilities shall be surfaced in the same manner as the motorized vehicle parking area and shall be equally level and accessible to the street.

K. Lighting and other security design features shall be provided in bicycle parking facilities equivalent to that provided in the facilities for motorized vehicles.

L. Bicycle parking should be located no further from the building’s main entrance than the closest motorized vehicle parking space, excluding parking for persons with disabilities. Exceptions to this standard may be approved by the Development Review Board, considering site constraints and the availability of structured and/or enclosed parking for vehicles and bicycles. Uses with several major entrances shall locate a portion of the required bicycle parking at each entrance.

The following section (10.5.2) allows for creative use of alternative planning techniques. One modification is noted below in bold:

10.5.2 Factors Considered in Alternative Parking Plans

C. Transportation Demand Management (TDM)

2. *TDM Activities:* Modify this section to include item E: **“Bike to Work programs and other encouragement activities to promote the concept of people bicycling or walking for utilitarian travel.”**

Article 12: Infrastructure and Public Improvements

This article may include the most important sections for integrating bicycling into Durham’s planning and development process. The current text is oriented primarily to pedestrians and off-street bicycling (such as the rail-trail projects supported in 12.6), and could be strengthened by a more comprehensive approach to bicycle transportation that includes on-street, off-street and intersection improvements. The following sections are noted for proposed modifications:

12.3.1 Street Layout: Within any proposed development, the proposed street layout shall be coordinated with the existing and planned street system of the surrounding area, with respect to location, alignment, and cross-section. Street design shall satisfy the minimum requirements of the City Public Works Director or NCDOT, or applicable designees. The following street standards may be modified or varied by the approving authority in order to accommodate unique conditions. Add: All streets will be planned and designed to accommodate all modes of transportation, including motor vehicles, bicycling, walking and transit.

Note: ‘Typical’ sections for each functional class of road and street should be included in this section, based on the Design Guidelines developed in the Comprehensive Bicycle Transportation Plan and other sections of the UDO.

12.3.1 C: Intersections: Add: **Intersections will be designed to be ADA compliant, with safe crossings provided for pedestrians and bicyclists in accordance with NCDOT, MUTCD, AASHTO and other applicable guidelines.**

The following Section (*12.4 Pedestrian and Bicycle Mobility*) explicitly deals with pedestrians and bicyclists. Minor modifications are suggested for this section as follows:

12.4.1 General

A. Sidewalk, walkway, on-road improvements, and trail systems sufficient to serve both existing and projected pedestrian and cyclist needs shall be labeled on all site and subdivision plans. Such systems shall be designed to connect with all elements within the development, adjacent areas, and transit stops and may include sidewalks along public or private streets, wide outside travel lanes, bike lanes on roadways, and walkways and

trails in alternative locations as appropriate. Design, location, dimensions, dedications, easements, and reservations shall conform to applicable City and County policies and plans for sidewalks, bicycle routes, and trails.

*B. Walkways, **bikeways** and trails shall be designed to maximize the safety of users and the security of adjoining properties with respect to location, visibility, and landscaping.*

12.4.2 Sidewalk Requirement

Unless the approving authority approves an alternate walkway, a conventional sidewalk shall be provided along streets within the right-of-way as shown in the table below unless the approving authority determines that the cost of providing the required sidewalks is disproportionate to the cost of the proposed development. In such cases a portion of the required sidewalk may be required or the requirement may be waived, at the discretion of the approving authority. Further adjustments to this location, if required, may be allowed by the Public Works Director, or designee during construction.

Add: **12.4.2 B: Bikeway Requirement**, based on the national “Complete Streets” policy model:

Bicycle facilities shall be established in accordance with the Durham Comprehensive Bicycle Transportation Plan in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- 1. **Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.***
- 2. **The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.***
- 3. **Where sparsity of population or other factors indicate an absence of need. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day.***

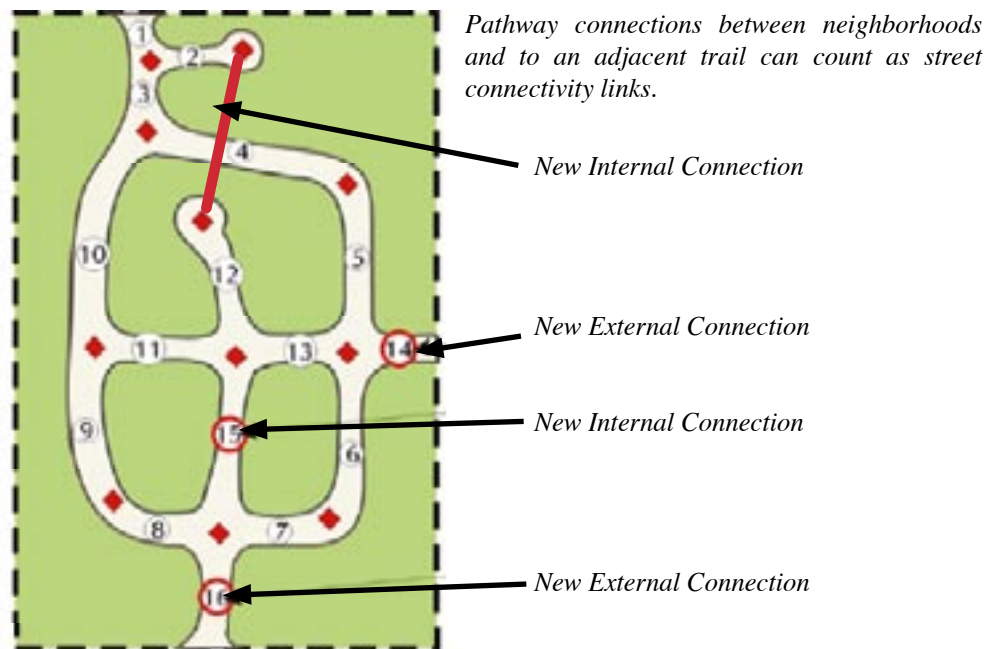
Article 13: Additional Requirements for Subdivisions

Section 13.1.6, *Street Connectivity Requirements*, is potentially very important at the local neighborhood level, since connectivity is a key factor in ensuring that people can walk or bike between neighborhoods, cul-de-sacs and communities. The following modification is proposed for this section in bold:

13.1.6 An interconnected street system is necessary in order to promote orderly and safe development by ensuring that streets function in an interdependent manner, provide adequate access for emergency and service vehicles, enhance access by ensuring connected transportation routes, **provide access for people walking and bicycling between neighborhoods** and provide continuous and comprehensible traffic routes.

A. *Connectivity Defined:* Add the following: **a pathway between neighborhoods for walking, bicycling and emergency access shall be counted as a link.**

Modify the connectivity graphics as shown below to encourage neighborhood connections.



Article 16: Definitions

Sec. 16.3 Defined Terms: Modify the following per the changes made in bold:

Modify: *Street, Public:* An area for vehicular, transit, **pedestrian and bicyclist** traffic that is dedicated to or maintained by a public agency.

New Definition: **Traffic:** “**Pedestrians, motor vehicles, bicycles and other conveyances either singly or together using any highway, street or public right-of-way for purposes of travel.**”

6.3.2 Durham Zoning Ordinance (2005)

Technically, the new Durham Unified Development Ordinance (UDO 2006) supersedes the pre-existing Zoning and Subdivision Ordinances and provides improved consistency with the Comprehensive Plan. A review of the former ordinances is provided below to highlight areas where potential policy recommendations have resulted in improved conditions for bicycling, and areas where modifications to previous sections could still be updated and included in the UDO. Durham's former zoning and subdivision ordinances have a solid base of support for bicycling. The potential for mixed-use development, special overlay districts and significant mention of greenways, trail and sidewalk demonstrate support for non-motorized travel. Specific sections and suggested improvements include:

1.1.2 Purpose:

Modify item 'e' to state: **“to manage congestion, ensure traffic safety and provide mobility for all modes of transportation, including motor vehicles, transit, walking and bicycling.”** Add item “r”: **“ensure public health and quality of life.”**

1.2.1 It is the purpose of this Ordinance to promote the health, safety and general welfare of the residents of Durham City and County.

1.2.2 G. Minimize congestion in the streets and reduce reliance on automobiles by providing options for walking, bicycling, and transit use; **<NOTE: These changes were made in the UDO>**

Section 4.A.1 Zoning District descriptions: consider adding more mixed use zoning within districts, such a convenience stores within residential zones to encourage more short distance trips by bicycling and walking. This is referred to in Section 5.8 TOD-CN, the transit-oriented development – compact neighborhood overlay district. **<NOTE: These changes were made in the UDO>**

Section 4.B.2.10 Traffic Impact Analysis

Consider including a statement such as **“the traffic analysis will include all modes of travel, including walking, bicycling and transit.”**

Section 7.22 Home Occupations / Accessory Dwellings

With continued growth in people working at home, and with affordable housing linked to compact land use, it is important that these concepts are included in the zoning district descriptions. This will allow more people to live and work in compact neighborhoods, which will result in more walking and bicycling if the streets and trails are well designed. **<NOTE: These changes were made in the UDO>**

Section 5 – Overlay Districts

The greenway and trail system could be considered as a new overlay district; this could facilitate both system management and development.

Section 8 – Performance Standards for all Development

Consider adding a section as follows: **“Land development and roadway design will support walkable and bicycle-friendly communities to encourage active lifestyles, environmental conservation and quality of life. Based on the national Trails for All Americans study, all residential areas will be within a 15 minute walk of a trail or bikeway.”**

Section 8.2.25 Preservation of Rail Corridors supports this performance standard with potential rail banked, rail-trail and rail-with-trail corridors. These trail types should be explicitly defined.

Section 9 – Standards for Parking, Loading, Sidewalk and Trash Handling Facilities: This section needs a better name, so that pedestrian and bicyclist are considered more appropriately. Suggestion: **Parking and Streetscape Facilities**. **<NOTE: These changes were made in the UDO>**

The section on Sidewalk Requirements is very good. Minor adjustments are recommended as noted in bold text in the reproduced copy of the existing text below:

Parking and Streetscape Facility Standards

9.8 Streetscape and Parking Requirements

9.8.1 Pedestrian, Bicyclist and Trail Facilities

*Sidewalk, walkway, on-road improvements, and trail systems sufficient to serve both existing and projected pedestrian and bicyclists needs shall be reflected in all site and subdivision plans. Such systems may include ~~either~~ conventional sidewalks along street rights-of-way, wide outside travel lanes, **paved shoulders** or bike lanes on roadways, **and/or** walkways and trails in alternative locations as appropriate. **Support facilities may include bicycle parking, signal improvements, safe crossings, benches, lighting and other streetscape elements.** Design, location, dimensions, dedications, easements, and reservations, shall conform to applicable City and/or County Urban Growth Area policies and plans for sidewalks, bicycle facilities ~~routes~~, and trails.*

1. Location: Unless an alternate walkway is approved, conventional sidewalks within the Urban Growth Area shall be located as follows:

- a. On both sides of major and minor thoroughfares (as defined by the adopted Thoroughfare Plan) except on freeways;*
- b. On one side of collector streets and nonresidential streets with existing or projected traffic of 2,000 or more vehicles per day;*
- c. On one side of residential streets of all types that are not cul-de-sacs.*
- d. On one or both sides of local streets in nonresidential areas where review indicates that sidewalks are, or will be, needed to accommodate pedestrian traffic.*

2. *If a conflict exists between these standards and the provisions of the Subdivision Ordinance, than the stricter requirements shall apply. When the approving body determines that the construction of a conventional sidewalk or alternative walkway is unfeasible due to special circumstances, including but not limited to: impending road widening, significant street trees, severe roadside conditions, or limited pedestrian volumes; the approving body may require either: (1) payment in lieu of sidewalk construction; or (2) a combination of sidewalk and/or alternative walkways and/or payment in lieu funds. In general, sidewalks shall be 5 feet in width and shall be constructed of concrete. Alternate dimensions and materials may be approved by the City Engineering Department.*

3. All sidewalks and street crossings shall be designed in compliance with the Americans with Disabilities Act (ADA), the Manual of Uniform Traffic Control Devices, AASHTO Guidelines and other appropriate guidelines.

9.1.8.1 B <new subsection, former item 9.1.8.1.3>

*Either wide outside travel lanes, **paved shoulders** or bicycle lanes, as determined by the City Public Works Department or the North Carolina Department of Transportation, shall be a part of any road improvements made on roadways which are indicated as bicycle routes facilities on either the City's Durham Urban Trails and Greenways ~~Master~~ Plan, the City of **Durham Bicycle Master Plan** or the Metropolitan Planning Organization's Regional Bicycle Plan.*

In addition to linear bikeways, new and modified traffic signals, roadway crossings, trailheads, transit stops and other improvements will be designed to be accessible to bicyclists.

All bicycle facilities shall be designed in compliance with the AASHTO Guidelines for the Development of Bicyclist Facilities, the Manual of Uniform Traffic Control Devices, NCDOT design guidelines, and the City of Durham Bicycle Master Plan.

At worksites with more than 50 employees, lockers and showers will be provided for people who walk or bike to work, or during the workday.

9.4.2 Minimum Required Bicycle Parking Spaces

Multi-family residential uses shall provide bicycle parking at the rate of 1 bicycle parking space for each 20 motorized vehicle spaces but no more than 50 total bicycle parking spaces are required for any single development.

Non-residential uses with an off-street parking requirement for motorized vehicles of at least 15 spaces and not more than 40 spaces shall provide a minimum of 2 bicycle parking spaces. Non-residential uses with an off-street parking requirement greater than 40 spaces shall provide bicycle parking spaces equal to 5% of the total number of spaces required up to 100 spaces.

Bicycle parking shall be located in secure, visible areas, sheltered from rain if possible. At long-term parking locations (transit stations, parking garages, park & ride lots, university campuses, etc.) bicycle lockers or secured areas should be provided in addition to racks. Short term bicycle parking should also be included as a routine element in streetscape design for all commercial, institutional and mixed-use streetscapes. All schools shall provide secure bicycle parking for a minimum of 10% of the student / faculty population.

<NOTE: These changes were made in the UDO>

6.4 Mode Share, Health and Safety Goals

To truly be a national leader in alternative transportation policy, Durham will need to set clear goals and benchmarks for achieving them. In 1993, the National Bicycling and Walking Study set a goal for the United States to “double the amount of bicycling and walking, and increase the safety of these modes by 10%.” Numerous communities have adopted versions of this combined mode share and safety goal. A decade later, Durham County experienced an 11.2% decline in walking and bicycling, as shown in Table 6.1 from the U.S. Census.

As part of the effort to reverse this trend, potential goals for Durham could include:

1. Increase bicycling and pedestrian mode share to 5% of all trips by 2010.
2. Improve pedestrian and bicyclist safety by 10% by 2010.
3. Ensure that all residents meet or exceed the U.S. Surgeon General’s recommendations for daily physical activity, including at least 30 minutes of exercise 5 days a week.

Measuring these goals can be accomplished by routine travel surveys, systematic data collection and annual reporting on objectives derived from these goals.

Table 6.1 CENSUS TRANSPORTATION PLANNING PACKAGE (CTPP 2000)

Selected Characteristics (Universe: All Workers)	1990		2000		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
Workers 16 years or over	129,263	100	166,050	100	36,787	28.5
Sex						
Male	67,819	52.5	88,375	53.2	20,556	30.3
Female	61,444	47.5	77,670	46.8	16,226	26.4
Mode to work						
Drove alone	100,938	78.1	133,205	80.2	32,267	32
2-person carpool	15,729	12.2	16,580	10	851	5.4
3-or-more-person carpool	3,696	2.9	5,745	3.5	2,049	55.4
Bus or trolley bus	2,114	1.6	3,000	1.8	886	41.9
All other transit	35	0	34	0	-1	-2.9
Bicycle or walked	3,728	2.9	3,310	2	-418	-11.2
Taxicab, motorcycle, or other mode	1,152	0.9	1,125	0.7	-27	-2.3
Worked at home	1,871	1.4	3,050	1.8	1,179	63
Travel time to work (Universe = Workers who did not work at home)						
Less than 5	2,224	1.7	2,345	1.4	121	5.4
5 to 9	10,796	8.5	10,480	6.4	-316	-2.9
10 to 14	19,934	15.6	19,470	11.9	-464	-2.3
15 to 19	26,367	20.7	27,980	17.2	1,613	6.1
20 to 29	33,508	26.3	39,470	24.2	5,962	17.8
30 to 44	23,888	18.8	39,560	24.3	15,672	65.6
45- 59	6,887	5.4	14,195	8.7	7,308	106.1
60 or more	3,788	3	9,500	5.8	5,712	150.8
Mean travel time (minutes)	21.5	(X)	26.5	(X)	5	(X)
Median travel time (minutes)	20.9	(X)	20.8	(X)	-0.1	(X)

Source: <http://ctpp.transportation.org/part2/37063.htm>
 Geographic Area: Durham County, North Carolina
 Selected Characteristics By Place Of Work, 1990 And 2000

6.5 Complete Streets Policy

There is a growing national trend towards integrating bicycling, walking and transit as a routine element in highway and transit projects. This movement has developed under the name of “Complete Streets,” which is defined by the Complete the Streets Coalition as follows:

“COMPLETE STREETS are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street.”

Source: <http://www.completethestreets.org/>

While the Durham Comprehensive plan and UDO address non-motorized transportation in a number of important ways, Complete Streets could be a new framework for integrating the Comprehensive Bicycle Transportation Plan into a more systematic approach for implementation. A number of similar cities, including Columbia, MO; Santa Barbara, CA; Ft. Collins, CO and others have taken this approach to non-motorized transportation policy. One interesting example is the DuPage County Healthy Roads initiative, which links public health with roadway improvements for pedestrians and bicyclists. Since Durham is called the “City of Medicine,” this could be an appropriate model for creating a healthy infrastructure system. A review of Complete Streets policies from throughout the U.S. is provided in the appendix of this report.

6.6 Next Steps: Becoming a Bicycle Friendly Community

The League of American Bicyclists (LAB) promotes the national Bicycle Friendly Communities (BFC) Program. Awards are given bi-annually to Bronze, Silver, Gold and Platinum level BFC’s. The program application includes a detailed review of all aspects of a comprehensive bicycling program: engineering, education, enforcement and encouragement. The application can be used as a set of benchmarks for measuring Durham’s program against the most successful communities in the U.S. This has proven to be a powerful tool for communities such as Portland, OR – which formed a Mayor’s “GO PLATINUM” committee after it was designated as a Gold BFC, with a goal of improving all required program areas in order to achieve Platinum status within two years. If Durham wants to be among the best communities in the nation for bicycling, the BFC program can provide a basis for reaching that goal.

6.7 The Three E’s: Education, Enforcement, and Encouragement Programs

Once safe facilities are in place, continued support for greenway, pedestrian, and bicycle networks is built through programs that focus on the three E’s of planning: Education, Enforcement, and Encouragement. These categories are the foundation used in evaluating applications for the national Bicycle Friendly Communities (BFC) Program. In North Carolina, Carrboro and Cary have both been designated as “Bronze level” BFC communities. If Durham wants to become a great place for bicycling and walking it should strive to implement programs that other BFC communities have completed. The key to success is not just to provide these kinds of programs but to provide them in a scale and quantity that reaches the community population.

6.7.1 Education

Safety Materials and Devices

Currently, Durham has a variety of existing safety programs where literature, such

as Durham’s “Basic Bike Commuting: A Guide for Getting Started”, is distributed. Events, such as Bike to Work Fridays, have been used to attract both current and new cyclists, in attempts to reach a wider audience of people.

Durham should build on these existing programs by continuing to develop a variety of safety materials and distribute them widely throughout the community. These materials can focus on safe behaviors, rules, and responsibilities. Information may include important pedestrian and bicycle laws, 5 to 10 keys to safe pedestrian and bicycle travel, safe motor vehicle operation around pedestrians and bicyclists, and general facility rules and regulations. This safety information can be distributed through brochures, newsletters, newspapers, and other print media that can be inserted into routine mailings. It can also be posted on municipal websites and shown on local cable access television.

Several examples of safety materials have already been developed. The North Carolina Driver’s Handbook has an entire section devoted to bicycles, bicyclists’ rights and responsibilities, and how motorists should behave. Programs to promote bicycle and pedestrian safety should be included in high school driver education classes. (*Resource: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/share.html*). The Town of Cary, NC has produced a digital bicycling video that can be used as a model. (*Resource: <http://www.townofcary.org/depts/dsdept/P&Z/bicycleplan/bicycleplanoverview.htm>*). The StreetSmart public awareness campaign in the Washington, DC region is another example of a Public Service Agency educating residents about pedestrian and bicycle safety.

Durham should also build on programs that distribute safety devices throughout the community. For example, nearby Guilford County is involved in the distribution of safety materials and devices through the Helmet Promotion Program. This program is funded by NCDOT’s federal safety funds, which were used to purchase bicycle helmets for distribution at local bicycle safety events in communities across the state. (*Resource: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/helmets_promotions.html*)

Share the Road Initiative

The Division of Bicycle and Pedestrian Transportation has been a leader in educating both cyclists and motorists about their rights and responsibilities in sharing roadway space. In 1982, the Division undertook its first statewide safety campaign on the theme, Bicycles Are Vehicles. The thrust of this campaign was to increase awareness among motorists that bicycles have an equal right to use the state’s highways while educating bicyclists of the need to ride responsibly as vehicle operators. To alert motorists to the presence of bicyclists in certain heavy traffic areas, the Division worked with others within the NCDOT to create a “Share the Road” sign, a yellow/green diamond warning sign with a bicycle schematic and a plaque below with the words “Share the Road.” These signs were first produced and erected along roadways in 1987. The sign was later adopted as part of the Manual on Uniform Traffic Control Devices that is used throughout the country. Durham should increase the usage of these signs, in accordance with MUTCD standards, particularly on low

volume rural roadways that become bike routes before they receive new shoulders. *Note: Some cycling advocates feel that the “Share the Road” signs are misleading to novice cyclists that mistake the signs for route markers. This presents yet another opportunity for increased rider education.*

Training

Internal Planning & Design Training

Agency staff and members of local planning and review boards should receive training on integrating bicycling and walking into all projects. Internal training will be essential to institutionalizing pedestrian and bicycle issues into the everyday operations of the transportation, planning, and parks and recreation departments in Durham. This training should cover all aspects of the transportation and development process, including planning, design, development review, construction, and maintenance. This type of ‘inreach’ can be in the form of brown bag lunches, professional certification programs and special sessions or conferences.

LCI Training / Bike ED

The League of American Bicyclists has a national Bicyclist Education (Bike ED) program that includes certified League Cycling Instructors (LCI’s) who can offer local bicycle skills training courses. Durham and the local bicycle advocacy community should provide information about LCI training and the Bike ED program.

North Carolina School Crossing Guard Training Program

As traffic continues to increase on North Carolina’s streets and highways, concern has grown over the safety of our children as they walk and bike to and from school. At the same time, health agencies, alarmed at the increase in obesity and inactivity among children, are encouraging parents and communities to get their children walking and biking to school. In response, the Division of Bicycle and Pedestrian Transportation funded a study on pedestrian issues, including school zone safety, and decided to establish a consistent training program for law enforcement officers responsible for school crossing guards. According to the office of the North Carolina Attorney General, school crossing guards may be considered traffic control officers when proper training is provided as specified in GS 20-114.1. (*Resource: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/crossing.html*)

Events

Bike Rodeos / Safety Town

The City and County of Durham should continue to work with local bicycle and pedestrian advocacy groups and law enforcement agencies to provide bicycle safety training to area children. Bicycling rodeos, training sessions, and other educational activities should be promoted so that safety skills can be taught on an ongoing basis.

Teaching

Basics of Bicycling Curriculum.

This elementary school-level course was developed in 1990 by the North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation and the Bicycle Federation of America (now the National Center for Bicycling and Walking). More than half of the 120 school systems across North Carolina have used the program, which currently reaches approximately 60,000 fourth and fifth graders annually. This complete curriculum package includes a clearly written and easy-to-use Instructor's Guide. A video provides an overview and tips on teaching the program as well as two instructional modules for the students. The Guide offers step-by-step instructions so that interested adults of differing cycling abilities can teach the course, using outside resources where necessary to augment their own skills. (Resource: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/curriculum.html)

Bike Repair Video

Having a bicycle in good repair is an important part of bike safety. Yet every year, a large percentage of bike crashes are caused by mechanical problems and poor maintenance. For this reason, the NCDOT funded the production of a bicycle repair video in collaboration with the North Carolina 4-H program. The video, which can function as a stand-alone education tool, coordinates with the 4-H Cooperative Curriculum entitled Bicycle Adventures for children aged 11 to 15. Don't Get Stuck: FIX IT! Bike Repair Video. Common problems, such as a flat tire, brakes that don't work, or a missing or broken part, make a bike unrideable and unsafe. This 38-minute video is designed to stand alone or be used by an adult to help a child learn to make 10 basic bicycle repairs. All the tools, parts, and equipment needed to make the repairs are listed in each section. Information on properly fitting a helmet and sizing a bike are also included. Most importantly, the repairs that are best left to an experienced mechanic are discussed.

Resource: http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/video.html).

Interactive Tours

An educational component to Durham's bicycle network could be added by developing historical, cultural, and environmental themes for the facilities, particularly on the off-road trails. The American Tobacco Trail, for example, could elaborate more on its history through enhanced interpretive signage. This idea can be adapted to create biking tours throughout the City and County, using signage, to identify the events, architecture, and habitats that make the Durham unique. These tours should be simple to navigate and should stand alone as an amenity. However, brochures can be used to supplement signage with more detailed information and a map of the tour. Other ideas to supplement the signage could be organized "talks" or lectures by local experts, similar to the Durham's Historical Walking Tour.

6.7.2 Enforcement

Targeted Enforcement

Based on crash data analysis and observed patterns of behavior, law enforcement can use targeted enforcement to focus on key issues such as motorists speeding, parking on sidewalks and in bike lanes, and failing to pass cyclists safely. Unsafe bicycle behaviors can also be targeted. An effective strategy is to conduct targeted enforcement in areas with high numbers of reported bicycle crashes. Durham's public input surveys should also be used to understand the concerns of area residents. The goal is for bicyclists and motorists to recognize and respect each others rights on the roadway.

Police on Bikes

Durham already has Police Bike Patrols in the Downtown area. Increased use of police on bikes is a significant benefit for community policing and quality of life. This idea should be coordinated with and extended to include enforcement within the college campuses.

Trail Patrol

To maintain proper use of Durham's trail facilities, volunteers could be used to patrol the trails, particularly on the most popular trails and on days of heavy use. The volunteer patrol can report any suspicious or unlawful activity, as well as answer any questions a trail user may have.

Enforcement Hotline

When users of the bicycle network witness unlawful activities, they should have a simple way of reporting the issue to police. A hotline should be created, which would compliment the Police on Bikes and Trail Patrol Programs, for people to call in and talk to a live operator or to leave a voice mail message about the activity they witnessed. Accidents can also be reported to this hotline. Accident locations can then be mapped to prioritize and support necessary facility improvements.

Traffic Laws and Ordinances

Updating bicycle traffic laws is a significant step in developing a sufficient enforcement program. Successful ordinances give specific guidelines to be followed by each type of traveler, including both bicyclists and motorists. New traffic laws should be in agreement with current North Carolina state traffic laws and should clarify the means by which the roadway will be shared by all users. The resulting policies should be purposefully enforced. See the beginning of this chapter for suggested policy revisions.

Share the Road Campaign

In addition to posting "Share the Road" signage, as discussed previously under Education, a multi-media campaign can use print, radio, video and web resources to educate bicyclists, motorists and pedestrians how to share the road safely.

6.7.3 Encouragement

Events

Awareness Days

A specific day or time of the year can be devoted to a theme to raise awareness and celebrate issues relating to that theme. Durham already participates in the “Smart Commute Challenge”, where participants try an alternative mode of transportation and are entitled to discounts all over town for the duration of the event. Other annual events should be recognized and publicized in the Durham community. Advertising the idea to the greater Durham area and combining the event with other promotions, contests, and educational programs, will help to make the event a success.

National Bike Month Promotion

The League of American Bicyclists annually proclaims May as National Bike month. Events can include proclamations, marketing campaigns, commuter contests and worksite events.

Bicycle to Work Day/International Car Free Day

Designating one day a year for people to bicycle and walk to work can help advance TDM programs, promote active living and raise awareness for environmental issues. A community leaders’ commute ride, bicyclist breakfasts, public service announcements and other events can take place on Bicycle to Work Day. Bicycle to Work Day can be at the end of an entire week or month of bicycle promotional activities, including fitness expos, group activities, bicycling races and rides, etc.

Annual / Regular Commuter Events

A commuter contest can have people bicycling, walking, using transit and driving over a 2 mile trip to see who gets there first; a cycling ‘treasure hunt’ could be held to demonstrate all the destinations people can get to by bike. The last Friday of every month is currently the day for the Durham Bicyclist Breakfast at various downtown locations and is an excellent example of this type of activity.

Bicycling for Health Events

Throughout the United States, there has been an increasing awareness of the need to incorporate physical activity into daily routines. This plan has been oriented to promote fitness throughout Durham by improving facilities for pedestrian and bicycle transportation. Durham should take advantage of being the “City of Medicine” and build up their partnerships with local health care organizations to promote active transportation in the region. Through these partnerships, these organizations should organize community bicycling and walking for health events. These can include group rides and walks, races and runs, a downtown festival, or other activities that celebrate and promote personal fitness. A number of activities could be organized together and advertised as “Durham Fitness Weekend”.

Facility Improvements/Advancements

Safe Routes to Schools (SRTS)

The Safe Routes to School program is a nationwide program that funds projects to encourage children to walk and bike to school, and to supply safe means for them to travel. The goal of the program is to influence traffic and pollution concerns through the promotion of alternate means of travel to and from school. North Carolina has received funding for projects that are within two miles of an elementary or middle school. These programs combine bicycle and pedestrian facility improvements in the areas around schools with pedestrian and bicycle safety education and encouragement programs to increase the number of students walking and bicycling to school. The 2005 SAFETEA-LU federal transportation bill has apportioned \$2.36 million in funding for Safe Routes to Schools Programs in North Carolina in Fiscal Year 2006. In addition, the new NCDOT Safe Routes to School Program Coordinator will be able to provide advice for the new programs in Durham.

Some of the main tools in creating safe routes to school include teaching children in the classroom about bicycle skills and encouraging health and fitness. As well, mapping the safest routes and organizing an escort program with parent volunteers addresses safety concerns along children's routes. Developing safe streets includes providing room for bicyclists on the road or on multi-use paths, through clearly delineated bike lanes, traffic controls and crossing guards. It is important to educate motorists and bicyclists about traffic rules. Local police departments can be helpful in enforcing safe traffic interactions and increasing community awareness around schools. Decreasing traffic volumes and speed, as well as simply re-striping crosswalks can significantly contribute to safer routes for Durham's school children.

Better participation between the City and County of Durham and Durham Public Schools in creating safe routes to and from school will aid this process. It is especially important to provide crosswalks, adequate sidewalks and bike lanes within two miles of a school. It is also important to recognize the need for elementary school children to ride on the sidewalk, separated from traffic, on their way to and from school. www.saferoutestoschools.org and www.pedpower.org/saferoutestoschool.htm

Walk a Child to School in North Carolina

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 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. A growing number of community groups throughout the nation, such as health professionals,

Smart Growth advocates, traffic safety groups, local PTAs, and elected officials, are promoting walking to school 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. In North Carolina, Walk a Child to School Programs have gained a foothold and are growing each year. To date, more than 5,000 students in 12 communities in the state have participated.

Durham Public Bicycle Map

The 1991 Durham bike map should be updated and subsequently distributed widely throughout the community, through municipal governments, schools, advocacy groups, and other organizations throughout Durham. Maps should be made available at parks and recreation centers, libraries, municipal buildings, the transit center, on transit buses, and at tourism information centers. The map should be updated every 3 to 5 years to reflect the bicycle and greenway improvements that will be implemented through this Plan.

Signed Bicycle Routes

During the first year after the Durham Comprehensive Bicycle Transportation Plan is adopted, Durham should complete a bike route sign plan and post signs on the recommended bicycle routes. As a part of the bike route sign plan, the City and County should make spot improvements to difficult locations, such as complex intersections, turning lanes, narrow shoulders, etc. so that the routes are safe for the general public to use when the signs are posted. The bike route signs will encourage more people to bicycle between their neighborhoods and Downtown Durham by showing them the most convenient routes to use.

Special University-Based Programs

The City and County of Durham should work with local colleges and universities, such as Duke and NCCU, to develop a comprehensive network of campus bicycle routes that are connected with bicycle facilities in the surrounding areas. Integration with colleges and universities will allow greenway and bike facilities to cater to one of the network’s largest user groups.

Bicycle and Transit Wayfinding Plan

The City and County of Durham should develop wayfinding signs that are oriented to pedestrians, bicyclists, and transit users. Within the first two years after this Plan is adopted, Durham should develop a wayfinding plan to achieve the following objectives:

- Show bicyclists at the train station how to find the local signed bicycle routes
- Show bicyclists how to get from Duke and NCCU to key destinations in the Downtown Area
- Show bicycle-on-bus users how to find nearby signed bicycle routes
- Show bicyclists on signed bicycle routes how to find nearby bus stops
- Show new bus users where bus routes go (posting bus system maps at major bus stops)

Durham could combine the Bicycle and Transit wayfinding signs with pedestrian routes as well. These signs help provide useful information and add artistic character to the Downtown streetscape. Durham bicycle maps could also be distributed at signed kiosks for improved informational purposes.

Incentives

LEED (Leadership in Energy and Environmental Design) and High Performance Guidelines: Encouragement for bicycle friendly design

Both the “High Performance Guidelines: Triangle Region Public Facilities”, and the “LEED-NC Version 2.2 Reference Guide” have sections encouraging alternative means of transportation. These two documents were developed to encourage the design and construction of energy-efficient and environmentally sound practices in the development of buildings and landscapes. These two systems certify and reward developments that meet these high standards through a point system for achieving a myriad of goals in design and construction.

The High Performance Guidelines, Section 2.5, ‘Alternative Transportation’ rewards developments for placement near an existing or planned greenway or bikeway. Points are awarded for the provision of secure bike racks and shower facilities for 5% or more of the building’s future occupants. The construction of on-site bike paths, sidewalks and other connectors that make the site bicycle-friendly also contribute points to the overall certification.

LEED-NC Version 2.2, Sustainable Sites section, Credit 4.1, ‘Alternative Transportation’ also intends to reduce the impact of automobile use through the encouragement of biking. LEED’s requirements for obtaining this point credit are similar to the High Performance Guidelines. However, it is specified that secure bike racks and storage for 5% of the buildings users must be within 200 yards of the building entrance. Shower and changing facilities are additionally required for 0.5% of the full-time occupants, also within 200 yards of the building entrance. To obtain this credit LEED-NC requires that residential buildings provide secure bike racks and storage for 15% of the building’s residents.

Resources:

High Performance Guidelines: Triangle Region Public Facilities (Published by: Triangle J Council of Governments)

Leadership in Energy and Environmental Design for New Construction (LEED-NC) Version 2.2 Reference Guide (Published by: U.S. Green Building Council)

Energy / Fuel Savings Program

Durham could run an ongoing competition to see how much fossil fuels can be saved by people bicycling and walking as part of a regional energy savings program.

Active Living by Design

As this plan recommends, Durham can and should be a leader in promoting physical activity, including bicycling and walking. Sound planning and design

and thoughtful implementation of the network will aid Durham in becoming an active and physically fit community. Active Living by Design is a national program initiated by a partnership between the Robert Wood's Foundation and the University of North Carolina School for Public Health. This program is currently funding 25 community partnerships to establish innovative approaches to increase physical activity through community design, public policies and communications strategies. <http://www.activelivingbydesign.org/>

Youth Activities

A variety of youth activities can be created utilizing the facilities and amenities in Durham. Durham should be a place where every child has an opportunity to learn how to ride a bicycle. This can include a variety of youth programs including a Bike Camp (where kids spend a week or two cycling in the community), Recycle-a-Bicycle (where youth learn mechanical skills building bikes from recycled parts) and Learn-to-Bike programs in conjunction with local YMCA, Boys/Girls Clubs, Scouting and other programs.

Helmet Promotions

Giveaways and reduced-cost bicycle helmet programs are among the most common bicycle promotions. These programs are important, especially when their message is part of a balanced approach to learning the rules of the road and safe cycling techniques. http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/helmets_helmet.html

Free Bikes

Copenhagen, Denmark pioneered the concept of a city-wide fleet of free public bicycles. Free bikes can be a source of revenue by selling advertising on them, and they can be secured by electronic deposit systems. There are also a variety of low-tech versions of this idea, such as using recycled bicycles. Bicycle advocacy organizations Austin, Texas, have developed a similar system called “Yellow Bikes”, where the bicycles that are part of the free system are painted bright yellow for easy identification. <http://www.ibike.org/encouragement/freebike-usa.htm#usa>

“Share the Road” License Plate

Bicycle enthusiasts across North Carolina can now show their support for bicycle and highway safety by purchasing a new specialized license plate. The plate, which features the “Share the Road” traffic sign, was approved by the NC General Assembly. Orders can be placed by filling out an application and forwarding it to the Division of Motor Vehicles. http://www.ncdot.org/transit/bicycle/safety/programs_initiatives/SharetheRoadPlate.html



*North Carolina's new
“Share the Road”
License Plate*



Durham BPAC's "Biker's Breakfast" on Bike to Work Day in May of 2006 in Durham



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