Bicycling & Walking in North Carolina

A LONG-RANGE TRANSPORTATION PLAN

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

DIVISION OF BICYCLE AND
PEDESTRIAN TRANSPORTATION

NOVEMBER 1996

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The NC DOT appreciates all others, within the Department, from local governments, from other agencies, and citizens, who have offered their comments and suggestions. Collectively, all have helped produce this comprehensive and far-reaching plan which helps guarantee that North Carolina's transportation future will be complete with transportation options for all residents and visitors.

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PEDESTRIAN TRANSPORTATION

PREPARED IN COLLABORATION WITH
THE UNIVERSITY OF NORTH CAROLINA
HIGHWAY SAFETY RESEARCH CENTER

NOVEMBER 1996

In May, 1997, subsequent to the adoption of this plan, the ***Office*** *of Bicycle and Pedestrian Transportation became the* ***Division*** *of Bicycle and Pedestrian Transportation.*

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RESOLUTION TO ADOPT

Bicycling and Walking in North Carolina
A Long-Range Transportation Plan

WHEREAS, bicycling and walking are an integral part of life in North Carolina; and

WHEREAS, bicycling and walking are among the earliest forms of transportation, remaining important today; and

WHEREAS, the NCDOT has incorporated programming for bicycling since 1974 and for walking since 1992 as part of its multi-modal transportation planning; and

WHEREAS, the NCDOT has become a leader nationally in providing for non-motorized transportation; and

WHEREAS, the NCDOT, through sound planning and programming, through the efficient and effective use of available funds, through partnerships with local and regional governments, and through involvement of citizens at all levels, has developed a comprehensive approach to providing for bicycling and walking which makes North Carolina a safer and more convenient place for bicyclists and pedestrians; and

WHEREAS, the Office of Bicycle and Pedestrian Transportation has developed a comprehensive, long-range plan.

NOW, THEREFORE, BE IT RESOLVED;

That the North Carolina Board of Transportation adopts the long-range transportation plan, Bicycling and Walking in North Carolina, as a vision for the future.

Adopted, this first day of November 1996, by the Board of Transportation.

Garland Garrett Jr.

Secretary of Transportation

Executive Summary

The North Carolina Department of Transportation recognizes the importance of bicycling and walking to communities, residents, and visitors throughout the state. The NC DOT Office of Bicycle and Pedestrian Transportation has developed a long-range Bicycle and Pedestrian Plan for North Carolina that provides a comprehensive framework for improving bicycle and pedestrian transportation over the next 20 years.

Mission

NC DOT currently provides for bicycle and pedestrian needs by constructing quality facilities and providing effective educational, promotional, and safety programs. North Carolina has a foundation on which to build as it prepares for the 21st century. Implementation of the long-range plan will be crucial to fulfilling the mission of the NC DOT Office of Bicycle and Pedestrian Transportation.

The mission of the Office of Bicycle and Pedestrian Transportation is to decrease bicyclist and pedestrian injuries and fatalities on North Carolina's streets, highways, and other public rights-of-way by improving these corridors and the travel environment for safe bicycle and pedestrian use, thus promoting increased bicycling and walking.

Goals and Focus Areas

Five goals and 21 focus areas comprise the plan's framework for action. These initiatives expand upon the bicycling and walking provisions of the Statewide Transportation Plan for North Carolina and are consistent with national goals and legislation. Partnerships between NC DOT and other agencies, localities, and the public that are necessary to fulfill the Goals are explored in the plan. The many comments and suggestions received during the 45-day public review period both improved and affirmed the direction of the plan.

Goal 1

Provide the bicycle and pedestrian facilities necessary to support the mobility needs and economic vitality of communities throughout North Carolina.

Focus Areas:

- Provide for quality independent projects and schedule more local bicycle and pedestrian transportation improvements in the State Transportation Improvement Program
- Provide for more incidental bicycle and pedestrian improvements by ensuring that the various units within the NC DOT consider bicyclists and pedestrians
- Develop continuous corridors for safe bicycle travel in areas of high demand for bicycle transportation, particularly in the coastal areas
- Expand, maintain, and improve the system of statewide Bicycling Highways
- Map and sign bicycle routes in all counties and major urban areas
- Develop and fund projects that improve transit access for bicyclists and pedestrians
- Identify, preserve, and develop abandoned rail corridors for bicycle and pedestrian transportation

Goal 2

Provide a comprehensive program of education and enforcement strategies that will improve the safety of all bicyclists and pedestrians.

Focus Areas:

- Implement the Basics of Bicycling curriculum in all elementary schools throughout North Carolina
- Increase helmet usage by bicyclists of all ages
- Develop and implement school-based pedestrian safety curricula and programs
- Develop, publish, and maintain a clearinghouse of bicycle, pedestrian, and motorist safety materials targeting at-risk ages and groups
- Encourage law enforcement agencies to enforce laws impacting bicycle and pedestrian safety

Goal 3

Institutionalize bicycle and walking considerations to enhance current transportation practices at the state, regional, county, and local level.

Focus Areas:

- Provide ongoing training and information exchange for state and local staff and officials
- Assess and incorporate federal, state, and local legislation, regulations, ordinances, and policies concerning bicyclists and pedestrians
- Advocate the establishment of bicycle and pedestrian citizen committees to promote the development of local plans and programs

Goal 4

Identify and promote new and innovative ways to advance bicycle and pedestrian safety and enjoyment through research and needs assessment.

Focus Areas:

- Conduct research to identify pedestrian and bicyclist safety needs to guide countermeasure and program development
- Periodically evaluate the effectiveness of bicycle and pedestrian facility and safety education programming
- Implement and evaluate innovative programming procedures, training techniques, and facility treatments

Goal 5

Encourage bicycling and walking as viable transportation options.

Focus Areas:

- Sponsor statewide promotions and events, and encourage local activities aimed at increasing awareness of bicycling and walking opportunities
- Improve tourism opportunities for non-motorized travel throughout North Carolina
- Develop, implement and promote bicycle/pedestrian commuter incentive programs at the state, regional, county, and local level

Vision for the Future

A better future is envisioned for each area of concern addressed by the five Goals: an expanded and safer transportation system for bicyclists and pedestrians; safer walking, bicycling, and driving behaviors; comprehensive bicycle and pedestrian plans and programs at all levels of government, with active citizen involvement; innovative and effective bicycle and pedestrian facilities and programs; and increased bicycling and walking throughout North Carolina. Collectively, fulfillment of all the Goals will ensure that:

All citizens of North Carolina and visitors to the state will be able to walk and bicycle safely and conveniently to their desired destinations, with reasonable access to all roadways.

Introduction 1

Why a Long-Range Plan?

"We feel that pedestrian and bicycle friendly cities are the wave of the future. . . People long to feel connected in their communities, where they can say 'hello' to their neighbor and breathe fresh air."

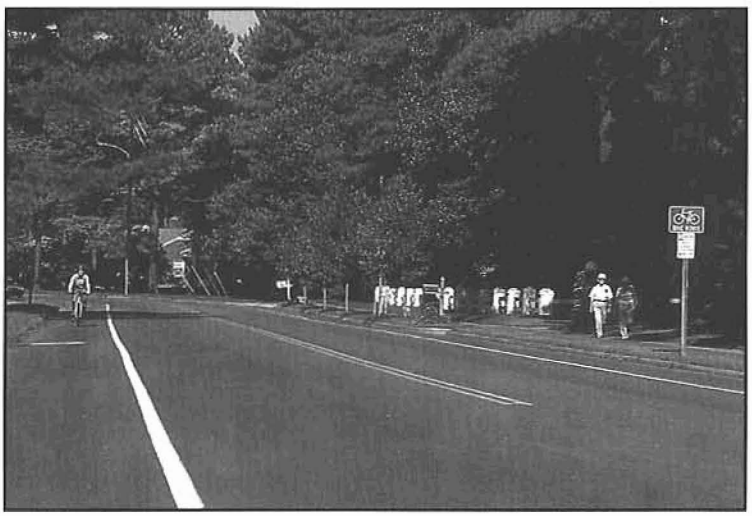
"It would be truly wonderful if our children had more opportunity to ride bicycles and walk with confidence and safety."

"Members of the community will walk more, perhaps, if there are walkways. Your plan will help to foster physical activity, and that will be a good thing for the community in many ways."

-from the public comments received

The North Carolina Department of Transportation (NC DOT) recognizes the importance of bicycling and walking and seeks to provide a supportive environment, both physically and institutionally, for these non-motorized modes of transportation. From the mountains to the sea, North Carolina's attractive and varied geography, moderate climate, bicycle routes, and shared roadway accommodations provide opportunities and options for commuting, touring, and recreational bicyclists. And, although historically a municipal rather than state responsibility, in 1992 the DOT began to join with localities in making improvements to the

Bike lanes and sidewalks along this two-lane street provide good access for bicyclists and pedestrians



pedestrian environment, thus setting in motion the expansion of opportunities for the walking public as well.

According to the 1990 *Nationwide Personal Transportation Survey*[1], seven percent of all trips are made by walking, and less than one percent by bicycling. While these figures may be relatively low, they are also somewhat misleading. In dense downtown urban areas as much as 50 percent of trips are by walking, and almost every trip—no matter by what mode—has a walking component. Virtually everyone is a pedestrian at some point during each trip.

In areas where there are well-planned and executed bicycling facilities or where there are significant bicycling trip generators such as schools or universities, the percentage of bicycling trips is many times greater than one percent. Moreover, there is ample evidence that a latent demand for bicycling exists and could be released through improvements to the infrastructure. Over time, reducing physical barriers to bicycling and walking and building facilities to create a transportation system for bicyclists and pedestrians can result in a greater utilization of these two modes of travel. The many health, physical fitness, environmental, and transportation benefits associated with walking and bicycling could also be realized.

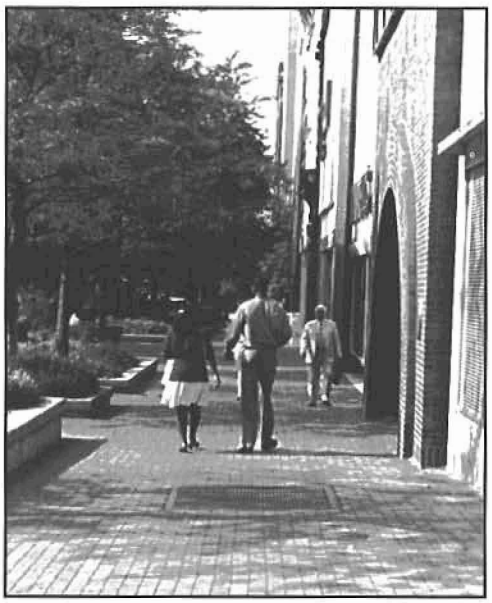
In order to provide for bicyclists and pedestrians, it is important to understand their needs. While these non-motorized modes share some similarities, bicyclists and pedestrians each have their own unique sets of user requirements. Within each group, bicyclists and pedestrians vary greatly in age, skill, and experience. For example, consider the two populations at opposite ends of the age continuum—children and senior citizens. Children, owing to their lack of traffic experience, impulsiveness, and small size, and senior citizens, owing to their age-related physical limitations, present unique challenges to the facilities designer as well as traffic safety educator.

Bicyclists and pedestrians vary greatly in age, skill, and experience

Mission Statement

The North Carolina Department of Transportation exists to serve the public by providing a statewide intermodal transportation system for the safe, efficient, and environmentally sound movement of people and goods, and by regulating that system in accordance with the law.

The Office of Bicycle and Pedestrian Transportation (OBPT) is a unit of the NC DOT and works to support the mission and goals of the Department. As its name implies, the mission of this office focuses on the bicyclist and pedestrian.



Pedestrian-friendly downtowns are assets to communities

The mission of the Office of Bicycle and Pedestrian Transportation is to decrease bicyclist and pedestrian injuries and fatalities on North Carolina's streets, highways, and other public rights-of-way by improving these corridors and the travel environment for safe bicycle and pedestrian use, thus promoting increased bicycling and walking.

This mission has guided the development of an integrated bicycle and pedestrian function within the NC DOT. The OBPT promotes and facilitates bicycling and walking by programming the construction of facilities and through the development of public educational, promotional, and safety programs. The implementation of *Bicycling and Walking in North Carolina: A Long-Range Transportation Plan* will be central to fulfilling this mission.

Statewide Transportation Plan for North Carolina

In 1995, the NC DOT published the *Statewide Transportation Plan for North Carolina*[2] which represents the State's multimodal planning and programming approach for the next 20 years. Bicycling and walking elements are an integral part of this plan, including the goals and objectives shown on pages 4 and 5.

Bicycling and Walking in North Carolina: A Long-Range Transportation Plan elaborates on the long-range planning specifically related to these modes. Through its five goals and 21 focus areas detailed in Chapter 4, the activities for bicycling and walking transportation will be programmed.

This long-range plan for bicycle and pedestrian transportation in North Carolina is consistent with the goals identified in *The National Bicycling and Walking Study*[3], and with Section 1025, *Statewide Planning,* of the *Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.*

Bicycling and Walking Excerpts from *The Statewide Transportation Plan for North Carolina (1995)*

Goal 1

Assess and plan for regional and statewide transportation system needs.

Objective 1.1 Identify needs within the transportation system.

Bicycling and Walking Strategies:

1.1.3 Develop and maintain an inventory of highways and major street needs for urban areas, counties, and the State Primary System, as well as inventories of bicycle, pedestrian, and transit needs across the State.

1.1.8 Develop a statewide plan for bicycle transportation, including the identification of strategic bicycling corridors and the assessment of regional long-range needs.

Objective 1.2 Enhance intermodal connections and multimodal options throughout the State.

Bicycling and Walking Strategies:

1.2.9 Identify critical links in regional and local bicycle and pedestrian systems as part of the project planning process.

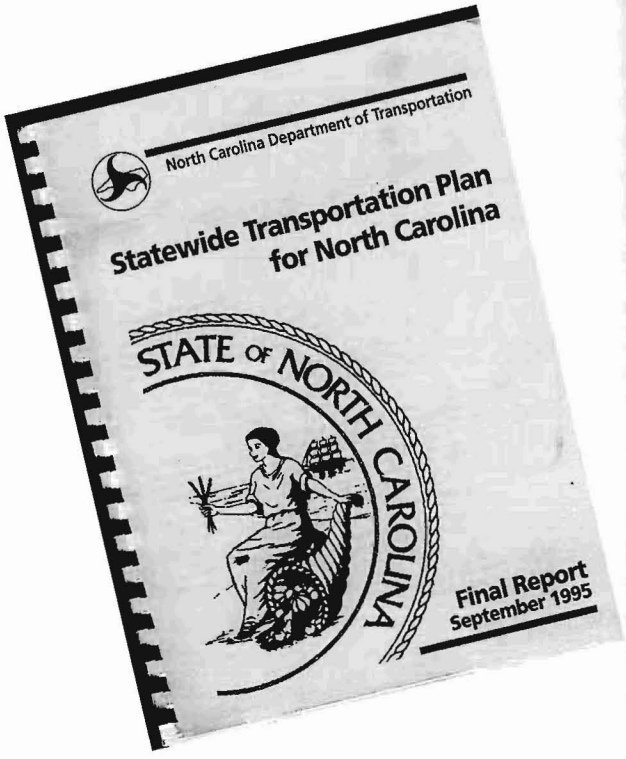
1.2.10 Promote safety and opportunities for bicyclists and pedestrians within the State through training and information exchange.

Objective 1.3 Plan for the continued development of an efficient, safe, cost-effective, and environmentally sound transportation system for the State.

Bicycling and Walking Strategies:

1.3.3 Include provisions for bicycle, pedestrian, and transit needs in long-range transportation plans.

1.3.7 Institutionalize the Administrative Action and Guidelines for including local adopted greenways plans in the transportation planning process.



Goal 2

Provide the transportation infrastructure necessary to support the mobility needs and economic vitality of the State.

Objective 2.3 Improve personal mobility and access to transportation.

Bicycling and Walking Strategies:

2.3.4 Continue to integrate transit, bicycle, and pedestrian plans into the overall transportation system to promote ease of transfer among systems.

2.3.7 Continue to implement pedestrian and bicycle improvements to transportation facilities as part of highway projects.

Preserve, maintain, and enhance the statewide intermodal transportation system.

Objective 3.1 Preserve appropriate corridors for future transportation use.

Bicycling and Walking Strategy:

3.1.6 Continue to make provisions for planned and existing greenway corridors where feasible as part of the highway planning process.

Objective 3.2 Maintain the quality, integrity, safety, and operational efficiency of the existing transportation system.

Bicycling and Walking Strategies:

3.2.7 Where practical, integrate the maintenance of state-maintained bicycle facilities and pedestrian facilities into the highway maintenance process.

3.2.8 Ensure that transportation system improvements include consideration of existing bicycle, pedestrian, and transit access.

Objective 3.3 Enhance the quality of life associated with the transportation system.

Bicycling and Walking Strategy:

3.3.5 Encourage bicycling and walking as alternative forms of transportation.

Continually improve all safety aspects of the transportation system and workplace.

Objective 4.1 Improve the safety of the traveling public.

Bicycling and Walking Strategies:

4.1.1 Develop and implement the Safety Management System ... ; the identification of safety needs of special user groups, such as bicyclists, pedestrians...

4.1.10 Improve transportation safety public education programs, including the development of an effective pedestrian safety program...

Objective 4.2 Continue to improve work zone and workplace safety.

Bicycling and Walking Strategies:

4.2.5 Consider bicyclist and pedestrian needs in work zone plans.

Continue to improve current practices and develop new practices that protect the environment and preserve our natural resources.

Objective 7.3 Develop and implement strategies to reduce transportation-related energy consumption.

Bicycling and Walking Strategy:

7.3.3 Encourage bicycling and walking as alternative modes of transportation.

ISTEA

The Intermodal Surface Transportation Efficiency Act (ISTEA) is the most recent federal surface transportation law which authorizes funding—$155 billion from 1992 through 1997—to state and local governments for highways and public transportation.

Among the key concepts in ISTEA especially relevant to bicyclists and pedestrians are:

Multimodalism. Improvements that make bicycling, walking, and transit more accessible are encouraged.

Flexibility. Federal transportation money can be more easily invested in projects, including bicycling and walking facilities, that meet local and state needs.

Efficiency. Emphasis is placed on maximizing the existing system and providing more options to the traveling public.

Planning. The planning process is significantly strengthened to ensure that transportation investments better meet broad social, economic, and environmental goals.

Public Involvement. Citizen participation is required in the transportation planning process.

Local Authority. Metropolitan Planning Organizations (MPOs) have more authority in transportation decision-making.

Within ISTEA legislation, numerous references are made to bicycling and walking, including:

- every State Department of Transportation must have a coordinator responsible for bicycle and pedestrian issues;
- every State and MPO must have a long-range (20 year) bicycle and pedestrian plan;
- a Transportation Enhancements category of funding for ten eligible activities, including bicyclist and pedestrian projects.

Unlike many other states, the NC DOT had already implemented many of ISTEA's requirements prior to its passage. While ISTEA has provided the opportunity, legislative support, and funding mechanisms to increase bicycle and pedestrian programming and facility development, NC DOT's commitment to its multimodal programs both predates and will have longevity beyond this otherwise important legislation.

Both on- and off-road facilities encourage more people to bicycle and walk

The National Bicycling and Walking Study

The 1991 U.S. Department of Transportation Appropriations Act directed the Secretary of Transportation to conduct *The National Bicycling and Walking Study*. The resulting Federal Highway Administration (FHWA) document includes nine Federal Action Items and five at the State and local levels. The specific goals of the plan are to:

- double the percentage of total trips made by bicycling and walking in the United States from 7.9 to 15.8 percent of all travel trips;
- simultaneously reduce by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

The plan seeks to create a more balanced transportation system in which bicycling and walking are attractive options. Government agencies, transportation professionals, and citizens all play vital roles in making this vision a reality.

Public Input to the OBPT Long-Range Plan

In developing the long-range plan, preliminary goals and focus areas were first made public in an edition of *Bike/Ped News*, the newsletter of OBPT, near the end of 1995. Readers were encouraged to comment on the goals and focus areas to aid in finalizing the framework for the plan. After receipt of the comments, the goals and focus areas were modified and the draft version prepared for further public review and comment.

The NC DOT Public Involvement Procedures for the *Statewide Transportation Plan* were followed, which included a 45-day comment period. The draft plan was sent to all urban area governments of greater than 5,000 population, all county governments, the 17 MPOs, 18 councils of governments, and a number of other interest groups, agencies, and organizations for review and comment. In addition, the draft was placed on the internet.

The availability of the draft plan was advertised in press releases to newspaper and radio and television stations across the state, as well as the North Carolina Environmental Bulletin, subscribed to by over 300 agencies and interest groups involved with environmental issues.

The many suggestions and comments received from the MPOs, local governments, other agencies, and individuals, as well as from within NC DOT, are gratefully acknowledged. A number of improvements were made to the draft plan as a result of this review. Some of the thoughts expressed by the public are also included as quotes in the Goals section of the plan.

About the Long-Range Plan

This long-range plan is a framework for action by the NC DOT. Central to the plan is the concept of *Partnership*. None of the plan's goals can be implemented without a partnership between NC DOT and other agencies, localities, volunteers, and the public.Therefore, this plan becomes a framework for action at all levels. Each of the five goals includes a perspective on the types of partnerships needed to meet the goal.

Proper planning and engineering will result in effective bicycle and pedestrian facilities

The remainder of this plan is organized as follows:

Chapter 2 provides information about the history, organization, and function of OBPT. It also explains the NC DOT Transportation Improvement Program funding process which funds bicycle and pedestrian improvement projects throughout the state.

Chapter 3 describes the current conditions for bicycling and walking in North Carolina. Accomplishments over the ten years of NC DOT bicycle project funding are highlighted. An inventory of bicycle and pedestrian facilities, a summary of MPO plans, and an analysis of recent crash data are provided.

Chapter 4 is the heart of the plan. *Goals and Focus Areas* which comprise the long-range bicycle and pedestrian plan's framework are fully described. Needed partnerships to accomplish each goal and a vision are offered.

Chapter 5 touches upon some long- and short-range issues of concern in considering the plan's implementation.

Chapter 6 offers some concluding thoughts on the past and future for bicycling and walking in North Carolina.

References

1. U.S. Department of Transportation, Federal Highway Administration, 1990 Nationwide Personal Transportation Survey. FHWA-P1-92-027. 1992.

2. North Carolina Department of Transportation, Statewide Transportation Plan for North Carolina. 1995.

3. U.S. Department of Transportation, Federal Highway Administration, The National Bicycling and Walking Study. FHWA-PD-94-023. 1994.

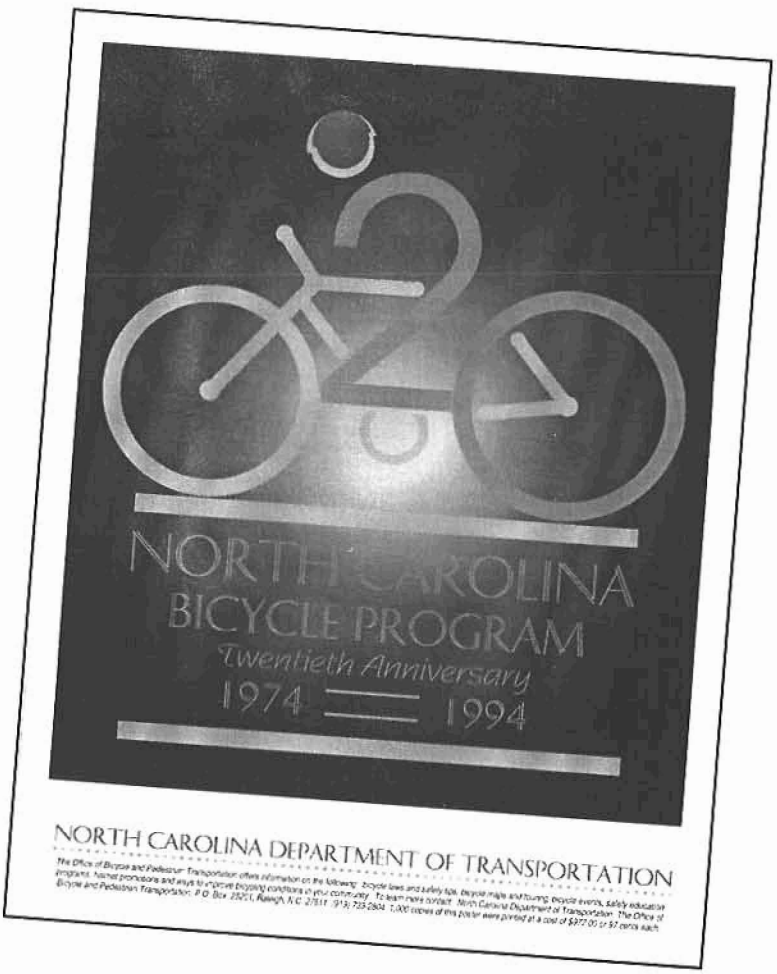
Office of Bicycle and Pedestrian Transportation

History, Organization & Function

2

Introduction

The nation's oldest comprehensive state bicycle program was created in North Carolina in 1974 with the passage of the Bicycle and Bikeway Act by the State General Assembly. This chapter presents an historical overview of the original North Carolina Bicycle Program and its expansion to the Office of Bicycle and Pedestrian Transportation (OBPT). It describes the structure and function of the program within the North Carolina Department of Transportation (NC DOT), and the legislative, policy, and operational framework within which bicycle and pedestrian facility and safety programming takes place in North Carolina.



Historical Overview

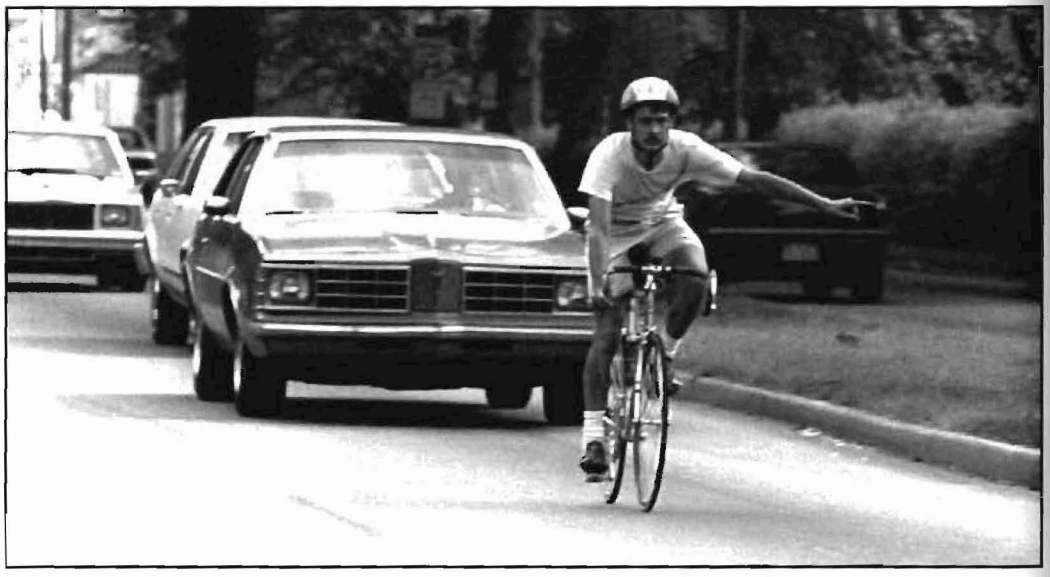
Program Beginnings

The foundation of the original Bicycle Program is the Bicycle and Bikeway Act of 1974, with key provisions shown on the following page and on pages 17 and 18. This far-reaching legislation:

- supports the legal definition that a bicycle is a vehicle;
- defines bicycle facilities as a bona fide highway purpose;
- designates the NC DOT to carry out the provisions of the article;
- assigns specific duties;
- allows for designation of bicycle facilities along and upon the state's public roadways;
- authorizes the department to spend budgeted funds and other funds from federal, state, local, and private sources;
- establishes the North Carolina Bicycle Committee.

The Act directs the NC DOT to perform the following duties:

- assist local governments with the development of bicycle programs and the construction of bicycle facilities;
- develop policies, procedures, and standards for planning, designing, constructing, maintaining, marking, and operating bicycle facilities and provide for the safety of bicyclists and motorists;
- develop demonstration projects and safety training programs;
- develop and construct a state bikeway system.



In North Carolina, the bicycle is a vehicle and riders have the same rights and responsibilities as drivers of motor vehicles

From Article 4A, Bicycle and Bikeway Act of 1974

G.S. 136-71.6. How Article cited.

This article may be cited as the North Carolina Bicycle and Bikeway Act of 1974. (1973, c. 1447, s. 1)

G.S. 136-71.7. Definitions.

As used in this Article, except where the context clearly requires otherwise, the words and expressions defined in this section shall be held to have the meanings here given to them:

(1) Bicycle: A non-motorized vehicle with two or three wheels tandem, a steering handle, one or two saddle seats, and pedals by which the vehicle is propelled

(2) Bikeway: A thoroughfare suitable for bicycles, and which may either exist within the right-of-way of other modes of transportation, such as highways, or along a separate and independent corridor

(3) Department: North Carolina Department of Transportation

(4) Program: North Carolina Bicycle and Bikeway Program

(5) Secretary: The Secretary of the North Carolina Department of Transportation (1973, c. 1447, s. 2; 1975, c. 716, s. 7; 1977, c. 1021, s. 1.)

G.S. 136-71-8. Findings.

The General Assembly hereby finds that it is in the public interest, health, safety, and welfare for the state to encourage and provide for the efficient and safe use of the bicycle; and that to coordinate plans for bikeways most effectively with those of the state and local governments as they affect roads, streets, schools, parks and other publicly owned lands, abandoned roadbeds and conservation areas, while maximizing the benefits from the use of tax dollars, a single state agency, eligible to receive federal matching funds, should be designated to establish and maintain a statewide bikeways program. The General Assembly also finds that bikeways are a bona fide highway purpose, subject to the same rights and responsibilities, and eligible for the same considerations as other highway purposes and functions. (1973, c. 1447, s. 3; 1977, c 1021, s. 1.)

G.S. 136-71.9. Program development.

The Department is designated as such state agency, responsible for developing and coordinating the program (1973, c. 1447, s. 4.)

G.S. 136-71.10 Duties.

The Department will:

(1) Assist and cooperate with local governments and other agencies in the development and construction of local and regional bikeway projects

(2) Develop and publish policies, procedures, and standards for planning, designing, constructing, maintaining, marking, and operating bikeways in the State; for the registration and security of bicycles; and for the safety of bicyclists, motorists and the public

(3) Develop bikeway demonstration projects and safety training programs

(4) Develop and construct a state bikeway system (1973, c. 1447, s. 5.)

G.S. 136-71-11. Designation of bikeways.

Bikeways may be designated along and upon the public roads (1973, c. 1447, s. 5.)

The remaining two General Statutes in this Act pertain to Committees and Funding and can be found on pages 17 and 18.

Historical Development

The Bicycle Program's early years were devoted to forming a program structure, developing bicycle policy, mapping bicycle routes, and organizing many of the safety education promotions which continue today. Starting in the 1980s, the NC DOT began building bicycle facilities, both as incidental parts of highway construction projects and as independent projects.

The Bicycle Program was expanded to become the Office of Bicycle and Pedestrian Transportation by the Secretary of the NC DOT in April, 1992. The expansion to incorporate pedestrian transportation and safety was in response to the passage by Congress of the Intermodal Surface Transportation Efficiency Act (ISTEA).

OBPT has had salary and operational funding since the enabling legislation was passed in 1974. Initially funds were available for one position with a second position added in 1975. These two positions existed within Systems Planning, the fledgling multimodal office of the new Department of Transportation which was created in 1973. Previously, the transportation agency was called the State Highway Commission.

In 1980 the Bicycle Program was given its own operating budget, staff was increased, and the mode became more autonomous. The staff currently has eight full-time and two part-time positions, half of which are paid through direct project funding. Consultants are utilized as needed to undertake the overload of scheduled work and when special projects warrant.

The chart facing this page depicts milestones in the evolution of North Carolina's Bicycle Program and the OBPT. Many of these milestones are discussed in more detail later in this chapter. Since the responsibility for pedestrian programming has only recently been added, most of these accomplishments pertain to the original Bicycle Program.

Since the early days of the Bicycle Program, input from citizens and bicycle professionals has been a part of innovative program development

NEWSLETTER

NCSU BICYCLE AWARENESS GROUP MAY 1977

BICYCLE AWARENESS WORKSHOP

Marcy & Barry, Mary & Curt* sitting 'round the table, trying to figure it out: how to make it happen --a bicycle happening, the come together of the nation's top cycling experts with North Carolina's own bicycle heavies in a "think tank" of sorts. Purpose?? "To discover the essence of bicycle problems and develop fundamental concepts and specific strategies for making attitude (cognitive, effective, and behavioral) changes in the North Caroline public." People would be the essence of this workshop. Who would we choose to help us in our task?

We sought the nation's most energetic, creative and involved bicycle people: Elizabeth Drake, famed cartoonist and bicycle planner from Tempe, Arizona; Larry Wuellner, of "Only One Road," from the Auto Club of Missouri; Dan Burden of Bikecentennial; John Williams, editor of "Cycleteral Thinking"; Bruce Burgess of the League of American Wheelmen; Kim Spencer, video artist with the Urban Bikeway Design Collaborative; and John Trojs, also of UBDC & of Sprocketman fame. There were

*Workshop organized by Marcy McKaig and Barry Anderson of the Bicycle Awareness Group and Curtis Yates and Mary Melachor of the North Carolina Department of Transportation Bicycle Program.

Office of Bicycle & Pedestrian Transportation

• M I L E S T O N E S •

1929
- Bicycle legally defined as vehicle by act of General Assembly

1974
- North Carolina Bicycle Program created
- Bicycle and Bikeway Act passed by General Assembly
- First Bicycle Committee appointed

1975
- Bicycling Highways system initiated with development of 700–mile Mountains to Sea route
- Governor proclaims first North Carolina Bicycle Week

1976
- First bikeway demonstration project funded by federal government
- North Carolina Bicycle Facility and Program Handbook receives award

1977
- General Assembly formally establishes North Carolina Bicycle Committee
- First "bicycle awareness" workshop held

1978
- Board of Transportation adopts nation's first comprehensive Bicycle Policy for planning, design, maintenance and construction of bicycle facilities

1979
- Department of Transportation signs first bicycle route
- First incidental bicycle facility projects included as part of the Transportation Improvement Program (TIP)
- First bicycle facility planning and engineering workshop held

1980
- First statewide poster contest and awards program implemented

1981
- First state-funded bikeway built and dedicated

1982
- Bicycle law enforcement program developed and first implemented

1983
- Bike Along '83 undertaken as first phase of Governor's Outdoor Events

1984
- First statewide safety education campaign — "Bicycles Are Vehicles" undertaken

1985
- Board of Transportation adopts first Bicycle TIP schedule

1986
- Initiated effort to require bicycle safety education in schools

1987
- Board of Transportation authorizes first annual Bicycle TIP funding of $250,000
- "Share the Road" sign created and first erected along roadways
- First "Bicycling Highways" route signed

1988
- Board of Transportation increases TIP funding to $500,000

1989
- Initiated statewide campaign to increase bicycle helmet use

1990
- Created "Basics of Bicycling" curriculum, began implementation in schools
- Board of Transportation increases TIP allocation to $1 million

1991
- Board of Transportation adopts revised and expanded bicycle policies

1992
- NC DOT creates the Office of Bicycle and Pedestrian Transportation
- First year of Governor's Highway Safety Program funding for implementing safety programs through local law enforcement agencies

1993
- Board of Transportation increases TIP funding to $2.2 million
- Board of Transportation sets aside $500,000 for pedestrian projects
- N.C. Bicycle Facility Planning and Design Guidelines published

1994
- NC DOT implements policy for providing incidental pedestrian facilities in highway improvement projects
- NC DOT develops greenway policy to incorporate local greenway plans into highway planning process

1995
- Board of Transportation allocates $1.4 million annually for pedestrian facility construction

Organization and Structure

NC DOT

The North Carolina Department of Transportation oversees the largest system of state-maintained roadways in the nation. The system includes over 77,000 miles of roadway: 12,000 miles of rural primary highways including Interstate, US, and NC routes; 59,000 miles of rural secondary roads; 6,000 miles of state-maintained urban roads; and 17,000 bridges. In addition, the system includes over 3,600 miles of rail track, two deep water seaports, 25 year-round ferries, and 116 public use airports.

To oversee this vast network of roadways, airways, railways, and waterways, the Department is organized into three primary sections: transit, rail, and aviation; highways; and general administration, personnel, and motor vehicles (see organizational chart on facing page). The Division of Highways has oversight for all aspects of roadway planning, design, construction, and maintenance. The Raleigh office handles the Highway Division planning and pre-construction functions of highway construction; the fourteen regional division offices facilitate highway construction and maintenance.

The Office of Bicycle and Pedestrian Transportation (OBPT) reports to the Secretary of Transportation through the Deputy Secretary for Transit, Rail, and Aviation. OBPT operates as one of the Department's modal offices with primary responsibility for bicycling and walking.

The Board of Transportation

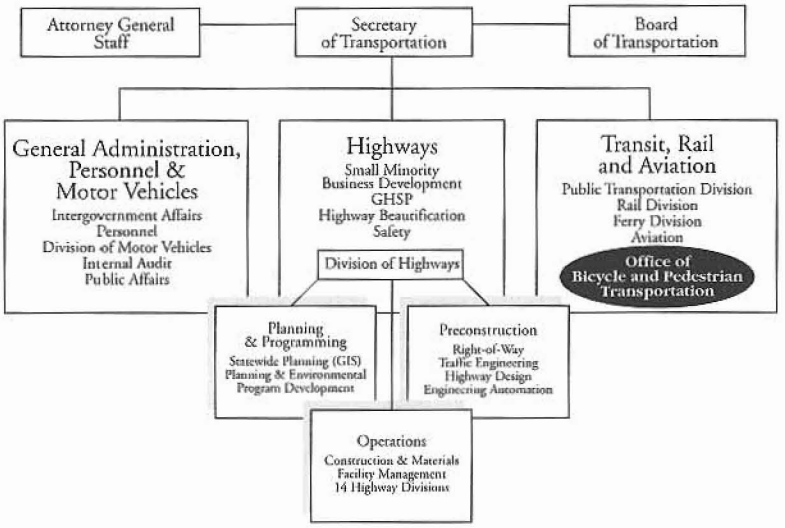
The Board of Transportation provides citizen input to the NC DOT. The Board consists of 24 members. Twenty-one are appointed by the Governor, one is appointed by the Speaker of the House, and one by the Lieutenant Governor. The Secretary of Transportation is an exofficio member and chair of the Board.

For transportation administrative purposes, the state is divided into 14 divisions. There is one board member from each division and nine at-large members. The Board approves the state Transportation Improvement Program (TIP) each year. The TIP is a seven-year schedule of highway, aviation, bicycle, pedestrian, Governor's Highway Safety Program, public transportation, rail, and other projects undertaken throughout the state by the NC DOT.

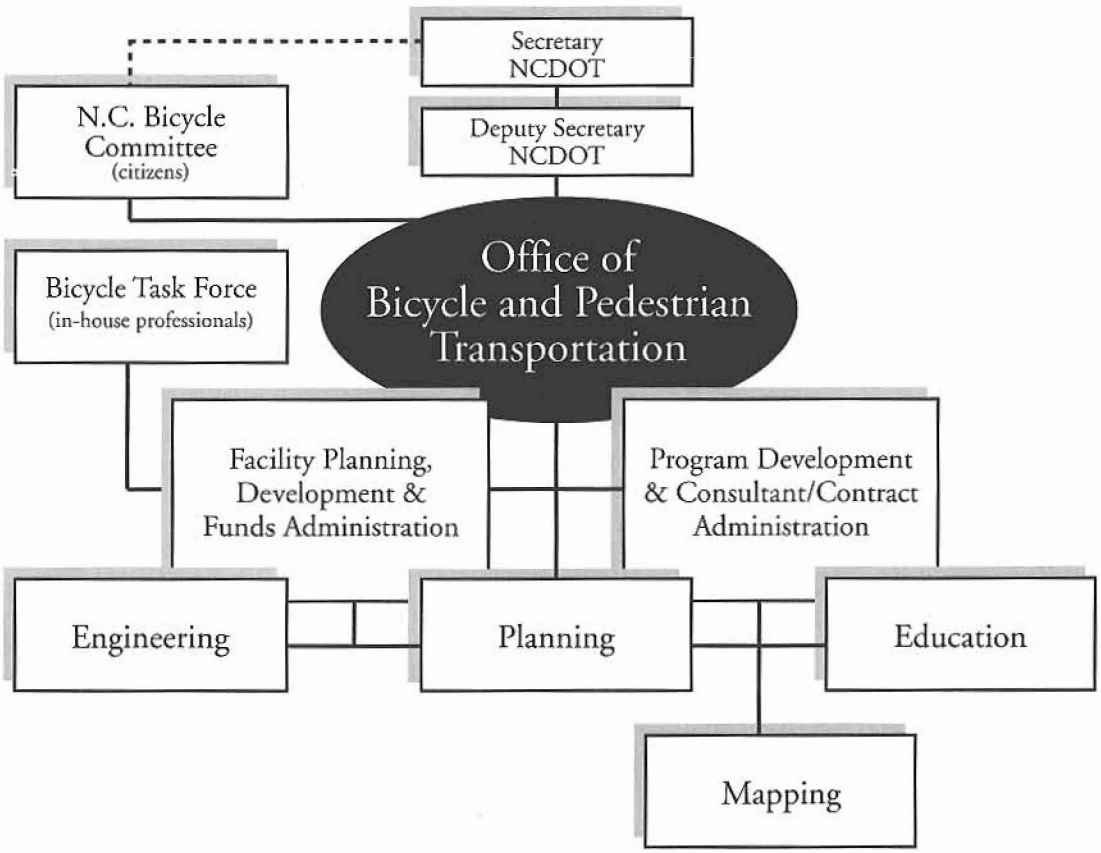
The Board also sets the policies within which the NC DOT operates and provides for the state's transportation needs. Several of the Board's policies directly affect bicycling and walking. They include:

Bicycle Policy. The Board adopted the nation's most comprehensive set of bicycle policies in 1978, in response to the enabling legislation passed in 1974. These policies were unique in that they detailed what a state DOT would do to make bicycle provisions an everyday operating function. They declared "bicycle transportation to be an integral part of the comprehensive transportation system in North Carolina" and formalized the inclusion of bicycle provisions in highway construction projects.

North Carolina Department of Transportation Organizational Structure



Office of Bicycle and Pedestrian Transportation Functional Chart



In 1991, the policy document was updated to clarify responsibilities regarding the provision of bicycle facilities upon and along the 77,000 mile state-maintained highway system. The new policy details guidelines for planning, design, construction, maintenance, and operations pertaining to bicycle facilities and accommodations. All bicycle improvements undertaken by the NC DOT are based upon the policy.

Pedestrian Policy. Pedestrian policies within NC DOT are evolving in response to ISTEA. A sidewalk policy was developed in 1993 whereby the NC DOT will participate with localities in the construction of sidewalks as incidental features of highway improvement projects. Prior to this policy, the NC DOT participation in sidewalk construction was limited to replacing sidewalks which were disturbed during roadway construction. At the request of a locality, state funds for a sidewalk are made available if matched by the requesting locality, using a sliding scale based on population. The NC DOT participation generally may not exceed two percent of the highway project construction cost.

The pedestrian policy ensures more NC DOT participation in the construction of sidewalks

Greenway Policy. In 1994 the NC DOT adopted an administrative policy to consider greenways and greenway crossings in the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction.

NC Bicycle Committee and DOT Bicycle and Pedestrian Task Force

OBPT is assisted in its efforts by a seven-member citizen Bicycle Committee appointed by the Secretary of Transportation, and by an in-house Bicycle and Pedestrian Task Force.

In 1977, the General Assembly established the nation's first legislated, state level citizens' Bicycle Committee. This legislation is shown on the following page. An ad hoc committee had been in place since 1974. The formal Committee consists of seven members appointed by the Secretary of Transportation to represent various regions of the state, as well as a complete range of bicycle concerns and interests. The group meets bimonthly to discuss, resolve, and recommend to the Secretary actions on bicycle projects and issues. Each year since 1985, the Committee has been responsible for recommending a four-year schedule of facility projects to the Board of Transportation for their consideration and adoption.

From Article 4A,
Bicycle and Bikeway Act of 1974

G.S. 136-71.13. North Carolina Bicycle Committee; composition, meetings, and duties.
(a) There is hereby created a North Carolina Bicycle Committee within the Department of Transportation. The Bicycle Committee shall consist of seven members appointed by the Secretary. Members of the Committee shall receive per diem and necessary travel and subsistence expense in accordance with the provisions of G.S. 138-5. Initially, three members shall be appointed for two years, and four members for four years; thereafter each appointment shall be for four years. Upon the resignation of a member in midterm, the replacement shall be appointed for the remainder of the unexpired term. The Secretary shall make appointments to the Committee with a view to providing representation to each of the state's geographical regions and to the various types of bicycle users and interests.

(b) The Bicycle Committee shall meet in various sections of the state, not less than once in any three months, and at such other times as may be necessary to fulfill its duties. A majority of the members of the Committee shall constitute a quorum for the transaction of business. The staff of the bicycle and bikeway program shall serve the Committee, maintain the minutes of Committee meetings, research questions of bicycle transportation importance, and undertake such other activities for the committee as may be consistent with the program's role within the Department.

(c) The Bicycle Committee shall have the following duties:

(1) To represent the interests of bicyclists in advising the Secretary on all matters directly or indirectly pertaining to bicycles and bikeways, their use, extent, location, and other objectives and purposes of this Article
(2) To adopt bylaws for guiding its operation, as well as an outline for pursuing a safer environment for bicycling in North Carolina
(3) To assist the bicycle and bikeway program in the exercise of its duties within the Department
(4) To promote the best interests of the bicycling public, within the context of the total transportation system, to governing officials and the citizenry at large

(d) The Secretary, with the advice of the Bicycle Committee, shall coordinate bicycle activities among the divisions of the Department, as well as between the Department of Transportation and the other departments. Further, he shall study bicycle and bikeway needs and potentials and report the findings of said studies, with the Committee's recommendations, to the appropriate policy or legislative bodies. The Secretary shall transmit an annual report to the Governor and General Assembly on bicycle and bikeway activities within the Department, including a progress report on the implementation of this Article (1977, c. 11021, s.1.)

The Bicycle Committee has helped create the foundation from which the state's response to bicycling has grown. These promotions include education, awareness, share-the-road, and enforcement. In addition, the Committee has played a key role in the 1978 development and 1991 revision of the Bicycle Policy, the development of design guidelines, and the development of state government bicycle initiatives.

The Task Force, chaired by the Director of the OBPT and made up of senior Division of Highways engineers, reviews project planning reports and design elements for all OBPT bicycle and pedestrian projects prior to funding authorization by the Board of Transportation. The group also advises OBPT on other issues involving coordination with the Division of Highways. The Task Force review of projects helps to ensure compliance with state and federal policies, standards, and guidelines and works to guarantee the most efficient response possible to local and state needs. The group meets monthly.

Program Operation

Program Funding

The 1974 Bicycle and Bikeway Act, the Bicycle Program's enabling legislation, allowed the NC DOT to budget funds to undertake the provisions of the law and defined bicycle facilities as a bona fide highway expenditure eligible for highway funding (see excerpt below). Initially, the NC DOT only provided operational funding, with project funding coming from federal grants. In 1987, the first annual allocation of $250,000 for independent bicycle facility projects was provided. The Board of Transportation increased this allocation several times, most recently to $2.2 million in 1993. In that year the Board also provided an annual allocation of $200,000 for pedestrian safety and demonstration projects. In addition, each of the 14 Highway Division offices received a $100,000 annual allocation for pedestrian facility construction. The Division Engineer and Board of Transportation Member determine the projects to be funded. Also, as of July, 1994, State Street Aid to Municipalities (Powell Bill funds) may be used by municipalities for the construction of sidewalks. Localities have had the authority to use their Powell Bill funds for bicycle facility construction since the late 1970s.

From Article 4A, Bicycle and Bikeway Act of 1974

G.S. 136–71.12. Funds

The General Assembly hereby authorizes the Department to include needed funds for the program in its annual budgets for fiscal years after June 30, 1975, subject to the approval of the General Assembly.

The Department is authorized to spend any federal, state, local or private funds available to the Department and designated for the accomplishments of this Article. Cities and towns may use any funds available. (1973, c. 1447, s.6.)

The Transportation Improvement Program

Highway projects in North Carolina progress through a standard process of planning, design, and construction. The starting point for most projects is the Statewide Planning Branch, which develops long-range transportation plans for all areas of the state including metropolitan areas, small urban areas, counties, and multi-county regions. Plans are developed in cooperation with the individual local areas and become the basis for local area requests for project funding through the Transportation Improvement Program (TIP).

Local area governments as well as individual citizens can propose project requests for TIP funding at annual public meetings held in each of the 14 divisions. Projects that are within any of the state's 17 metropolitan areas require the support of the Metropolitan Planning Organization (MPO) for that area. In order for a project in these areas to be included in the TIP, it must be part of the Local Transportation Improvement Program (LTIP) prepared by the MPO. The LTIP is a priority list of projects to be funded for each metropolitan area which, when approved, is incorporated into the State TIP.

Once a project is scheduled in the TIP, the Planning and Environmental Branch works with the local area to evaluate the social, economic, and environmental impact of various options for a project

and to recommend a preferred approach. The Highway Design Branch develops a preliminary design, public hearings are held, necessary field data collected, and right-of-way acquisition and construction plans prepared. Actual construction for the project is most often handled by private construction companies, overseen by the NC DOT engineers and inspectors at the division office level.

The Bicycle and Pedestrian TIP Process

Improvements for bicycling and walking may be included in the TIP as part of the construction of a highway project or, where no highway project is programmed, as an independent bicycle project. Bicycle and pedestrian projects follow essentially the same TIP process as do highway projects. One distinction, however, is that bicycle and pedestrian improvements may not be part of a long-range transportation plan. Integrating these two modes into local transportation plans in the future will strengthen both the incidental and independent project selection process. The chart on the following pages highlights the evolution and progress of a bicycle TIP project request.

The OBPT works with localities to create a four-year schedule of projects using their priority listing of bicycle needs and the adopted project selection criteria, shown on page 23. The OBPT compiles candidate bicycle and pedestrian projects that are considered for inclusion on the state TIP from the following sources:

- the prioritized TIP lists produced by the 17 MPOs, which have been derived from separate lists produced by communities and other local entities comprising the MPO;
- project requests from the state's small urban areas, counties, public and private entities, and citizens which are made at the annually scheduled TIP update meetings held in the 14 highway divisions or those requests submitted to the Secretary of Transportation within 30 days of these regional meetings;
- internal OBPT assessment of statewide bicycle and pedestrian project needs.

Wide paved shoulders provide safer conditions for motorists and bicyclists

All project requests are documented and distinguished as independent or incidental. Independent project requests are evaluated by OBPT using the project selection criteria shown on page 23. A prioritized list of candidate independent projects is presented to the N.C. 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 NC DOT Board of Transportation for approval and inclusion in the state's TIP.

Inclusion of a bicycle 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

The Transportation Improvement Program Process: From Need to Bicycle Improvement

I. Recognizing a need for a bicycle improvement project...

Somewhere in a local area there may be unsafe or difficult riding conditions for bicyclists which highlight a need for bicycle transportation improvements.

II. The need is presented to the North Carolina Department of Transportation...

A local official may make a bicycle request at a regional Transportation Improvement Program (TIP) meeting, which is held annually in each of the fourteen highway divisions. If a community is unable to send a representative, the request may be submitted in a letter addressed to the Secretary of the North Carolina Department of Transportation, by January 1. All requests will receive the same degree of consideration.

Individuals and nonprofit organizations wishing to submit a request should contact their town or county government officials or planning office to obtain local endorsement for their requests. Endorsement generally means the project will be included in requests submitted annually by the town or county to the North Carolina Department of Transportation. Town or county officials may, or may not, choose to include the project requests in their annual TIP. Projects that are within any of the state's 17 metropolitan areas require the support of the Metropolitan Planning Organization for that area.

For on-road projects, it may be difficult to determine which kind of facility improvement is most needed. Therefore, it is entirely appropriate to request that bicycle improvements be made along a particular corridor without specifying a particular type of treatment. For greenway–type bicycle path requests, localities must conduct sufficient planning to propose a specific alignment, not merely a general corridor, to be considered for feasibility study and construction.

III. All bicycle project requests are documented...

Following the public TIP meetings, requests for bicycle transportation improvement projects will be organized and documented by the NC DOT Office of Bicycle and Pedestrian Transportation. A survey questionnaire may be sent to the requesting individual or agency to obtain further information in order to better evaluate the requested project.

IV. Some bicycle improvement projects are selected for inclusion in the TIP...

The Office of Bicycle and Pedestrian Transportation first evaluates and prioritizes all the requests; then a summary of the project requests is presented to the NC DOT Bicycle Committee for its review using the Bicycle TIP Project Selection Criteria (see page 23). Following their review, the committee forwards recommendations on the scheduling of some of the requested projects to the North Carolina Board of Transportation which makes the final

decision on inclusion of the recommendations in the TIP. To be included in the TIP schedule does not guarantee that a requested project will be implemented; rather, it means that the project will receive further study and will be implemented if feasible.

V. Projects which are included in the TIP fall into two categories...

Bicycle projects which can be incorporated into a planned and scheduled highway improvement are categorized as incidental projects. The bicycle 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 highway project is constructed. Bicycle projects which are not incorporated into a planned and scheduled highway improvement, but are planned, funded, and built separately, are categorized as independent projects. These projects are constructed using 80% federal and 20% state funding.

VI. Finally, some TIP projects are implemented...

In the case of a scheduled incidental bicycle improvement, inclusion in the TIP means that the bicycle facility will be considered in conjunction with the feasibility and environmental studies for the given highway project. If the bicycle component of the project is deemed feasible, it will be included in the construction of the highway improvement.

Following inclusion in the Bicycle-TIP, each independent project will receive further study. This detailed planning study will include an evaluation of the feasibility of the proposed improvement as well as an actual project cost. Upon completion and acceptance by NC DOT, the project will then 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, in some cases, eliminate a proposed improvement due to regulatory and design constraints or because of unanticipated costs.

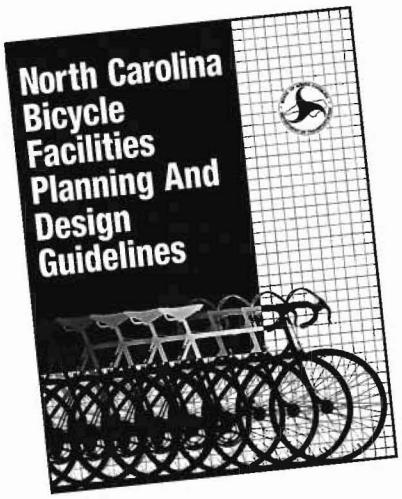
The implementation or construction of an independent project may be accomplished by NC DOT Division forces, by the Office of Bicycle and Pedestrian Transportation, or by the locality through a reimbursement agreement. All independent projects are viewed as a cooperative partnership between the locality and the NC DOT, with each party having responsibility for appropriate aspects of the project.

VII. TIP bicycle projects may take many forms...

There are a number of bicycle improvement projects which involve construction of on-road and off-road facilities; some of these include: wide paved shoulders (4 feet minimum width); specially striped lanes for bicycles; wide outside lanes (13–14 feet minimum width) which permit a safer bicycle/automobile mix; greenway-type bicycle paths; and the addition of bicycle-safe bridge railings.

However, there are eligible bicycle improvements that do not require a construction project. Examples of these include: signing bicycle routes, producing maps and safety brochures for cyclists in local areas, replacing dangerous drainage grates with bicycle-safe drainage grates, installing bicycle parking racks or bicycle racks on buses, and providing bicycle safety education materials to local areas.

projects are considered in conjunction with the planning study for the given highway project and implemented if feasible. For independent projects, a detailed feasibility study, including cost estimate, is conducted by OBPT. If determined feasible, OBPT prepares a more detailed planning study, which is reviewed and approved by the Bicycle and Pedestrian Task Force before being submitted to the Board of Transportation for funding authorization.



Program Highlights

Facility Construction

From the early days, the NC DOT has focused on making the state's streets and highways better and safer for bicycling. With the exception of a few federally funded demonstration bicycle facility projects and several incidental bicycle features in programmed highway construction, the Department did not build special bicycle facilities until the late 1980s. Since that time, a variety of projects have been undertaken, and include off-road paths, paved shoulders, mapped and signed bicycle routes, and other improvements.

Working with communities to identify pressing needs, OBPT has used these independent bicycle funds to improve or complete links in local bicycle transportation systems and to enhance statewide bicycling opportunities. Accomplishments over the 10 years of NC DOT bicycle project funding are highlighted in Chapter 3.

Design Guidelines

An important milestone in bicycle facility design was reached in January 1994 with the publication of *The North Carolina Bicycle Facilities Planning and Design Guidelines* by OBPT. The guidelines, adopted by NC DOT, are a significant contribution to the design and construction of safe bicycle facilities. Along with a companion videocassette which was produced in 1995, the guidelines provide an important resource for communities involved in the construction of bicycle facilities.

The development of design guidelines for pedestrian facilities was initiated for OBPT in 1995. These guidelines will serve to support pedestrian improvements as localities plan for the walking needs in their communities.

TIP Bicycle Project Selection Criteria

The following list of factors which affect bicycle project selection for the TIP is intended to provide guidance to local area requestors. It is important to note that:

(a) many worthwhile projects will fulfill only a few of the following conditions. Nevertheless, we encourage submission of all needed projects, since cost constraints and regulations may change over the next few years, allowing us to schedule previously infeasible projects.

(b) detailed project justification based on the factors listed below is not required at the time of project submission. We will contact you during a follow-up period to obtain any additional needed information.

The criteria are as follows:

1. **Cost limitations.** Given current budget constraints, it is unlikely that any projects with a cost over $300,000 will be scheduled.
2. **Right-of-way.** Complete information regarding the right-of-way situation should be provided. Due to the limited size of our annual budget, projects requiring that NC DOT acquire right-of-way are unlikely to be scheduled.
3. **Design standards.** Projects must be substantially in conformance with state and federally adopted bicycle design guidelines, as described in the *North Carolina Bicycle Facilities Planning and Design Guidelines* (1994), and the *AASHTO Guide for the Development of New Bicycle Facilities* (1991). The "sidewalk bikepath," which is constructed adjacent to the roadway for two-way bicycle traffic, runs counter to these guidelines and is discouraged within our program.
4. **Project purpose.** Each project must serve a primarily bicycle transportation purpose, as opposed to a recreation or pedestrian purpose.
5. **Preliminary project approval.** All necessary permits and approval must be obtained for any project involving a public jurisdiction (including approval of Metropolitan Planning Organizations and inclusion in the local TIP, lease agreements, construction and encroaching permits, etc.).
6. **Local area involvement.** Project requests are viewed within the overall picture of bicycling in an area. Evidence of local concern and involvement via other bicycle projects or activities lends support to each specific bicycle request. Local participation (via a direct dollar share or design) is viewed as one measure of a local area's commitment to an improved bicycle environment.
7. **Inclusion in transportation or bicycle planning process.** Evidence that your specific bicycle request is an element of a comprehensive transportation or bicycle planning process provides critical support for your project.
8. **Project need.** Priority will be given to those projects where the greatest need can be demonstrated. Accident statistics, potential safety problems, and information regarding current or potential users of the facility can all provide project justification.
9. **Boardwalks.** Multiuse pathways that are intended to accommodate bicycles should not be designed with significant sections of boardwalk or other such surfaces, which may be unsuitable for bicycle transportation purposes.

North Carolina Bicycling Highways

The North Carolina Bicycling Highways system was initiated in 1975 with the development of the 700-mile "Mountains to Sea" route. There are now 3,000 miles of Bicycling Highways along 10 routes covering the entire state. These routes are designated along lightly traveled secondary roads.

The first Bicycling Highways Route was signed in 1987, and approximately 70 percent of the route mileage has been signed to date. The Bicycling Highways system provides the framework for the state's designated bicycle routes. Along with the roads of the local and regional designated bicycle routes, these highways receive preferential treatment in regard to highway maintenance and incidental bicycle roadway improvements. Each year the public requests more than 15,000 bicycle maps from OBPT.

The "Share the Road" signs promote awareness of bicycles on roadways shared with motor vehicles

Local Bicycle Maps

Mapping of routes and facilities has been, and continues to be, an important function of OBPT. To date, the office has completed four major urban area maps and 14 local, regional, and county bicycle maps. Funding to undertake 10 additional local mapping projects is currently programmed, with 12 more scheduled over the next four years.

Safety Promotions

Safety promotions have been an integral part of OBPT's efforts since its Bicycle Program was created in 1974. The N.C. Governor's Highway Safety Program funded the bulk of the education and safety activities of the Bicycle Program during its first 10 years. Over this period many safety resources, including curriculum guides, manuals, posters, pamphlets, handouts, and other educational materials were developed.

In recent years OBPT's safety and education efforts have focused on four key areas—school-based bicycle safety education, bicycle helmet promotion, motorist education, and bicycle law enforcement. In the area of school-based education programs, OBPT developed the Basics of Bicycling, an innovative bicycle safety education curriculum utilizing on-bike lessons in a simulated traffic environment to teach safe bicycling skills to fourth and fifth grade children. The curriculum is currently being taught in more than 25 school systems across the state, reaching 25,000 children annually.

Bicycle helmet promotion is another major focus area of the program. In 1990 OBPT produced a wide variety of materials, including a manual to assist communities with helmet promotion efforts. Also that year it

hosted a workshop on how to conduct a local bicycle helmet campaign that was attended by representatives from more than 50 localities. To date more than 200 communities have participated in this effort.

In addition to these efforts, OBPT continues to educate motorists through its "Share the Road" campaign. Today, "Share the Road" signs are found throughout the state. *The Driver's Handbook* features a section on "Sharing the Road" which highlights bicyclists' rights and responsibilities and provides tips for motorists to make them more aware of how to interact safely with bicyclists.

The Office also works closely with state and local law enforcement agencies to support their efforts to promote safe bicycling. The N.C. Highway Patrol has recently become involved in promoting bicycle safety. They have equipped a truck with bicycles, helmets, and other materials needed to conduct a bicycle rodeo and to teach the Basics of Bicycling. Although law enforcement officers traditionally have been more supportive of bicycle safety education than enforcement of traffic laws regarding bicycling, OBPT continues to stress the need for traffic law enforcement as it promotes the seriousness of bicycling on the streets and highways.

OBPT annually distributes more than 500,000 pieces of bicycle safety materials to agencies in over 250 North Carolina communities. These materials are made available at no cost to the requesting individual or agency. With the expansion from the Bicycle Program to the Office of Bicycle and Pedestrian Transportation, OBPT has begun the process of developing a library of resource materials in the pedestrian safety area.

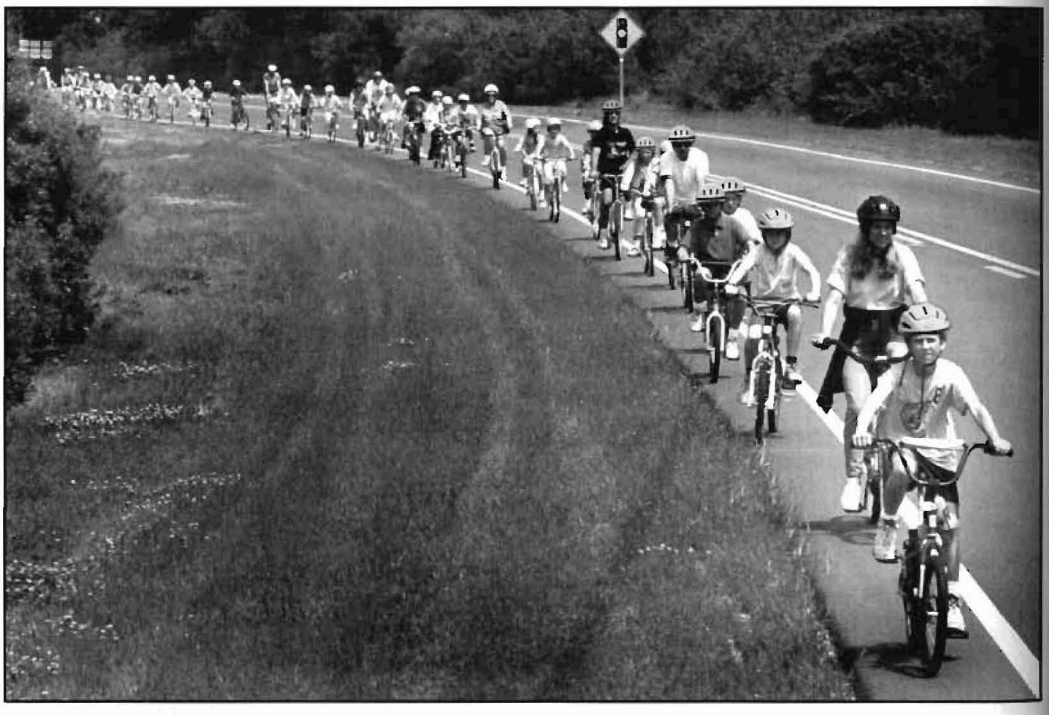
Many state and local agencies provide bicycle safety education programs

Work with Other State Agencies

In response to its enabling legislation of 1994, OBPT has been the focal point for bicycling interests and activities in state government. However, the expertise and support of other state agencies serving the public's education, enforcement, and recreation needs have been essential to improving bicycle safety in North Carolina. The movement for trails in North Carolina originated in the former Department of Natural and Economic Resources, now the Department of Environment, Health, and Natural Resources (DENHR). Bicyclists were strongly supportive and influential in these early trails activities. In 1975 OBPT assisted the Department of Public Instruction in the development of a bicycle safety curriculum which has since been replaced by OBPT's Basics of Bicycling. The Office has continuously worked with the State Highway Patrol in their bicycle safety promotions. Joint efforts to promote bicycle tourism have been undertaken with the Travel and Tourism Division of the Department of Commerce by incorporating bicycling into the state's travel promotions.

Conclusions

Bicycling and walking are increasingly integral parts of the transportation system in North Carolina. State roads are being built to be bicycle compatible, and many have sidewalks and intersections with special pedestrian treatments. Greenways and rail-trails are becoming important transportation links for those who bicycle and walk. Communities are starting to plan for these modes of transportation, and both children and motorists are being informed of how to interact safely in traffic.

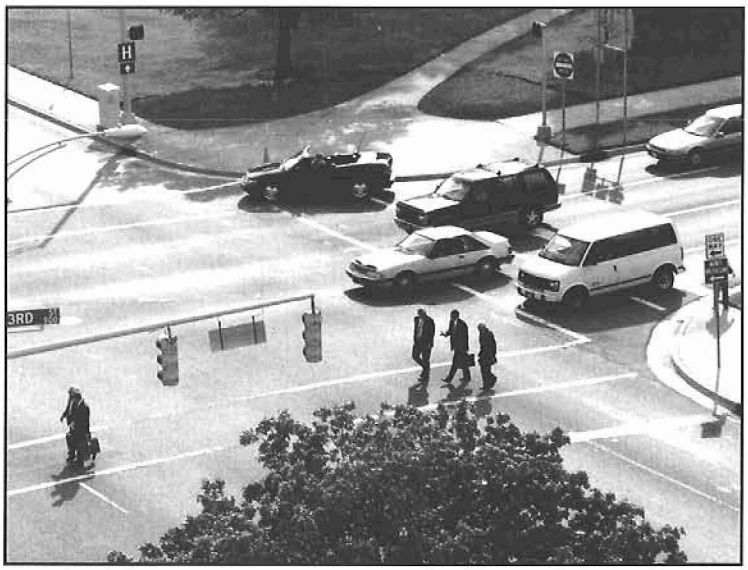


Current Conditions 3

North Carolina is for Bicycling and Walking

Demand for bicycle and pedestrian facilities and safety education in North Carolina is at an all time high. Bicycle safety programming is underway in more than 200 communities. Bicycle and/or greenway committees are at work in 30 communities, helping to identify areas where facilities should be provided. Many more communities have staff specifically assigned to address bicycle planning and programming issues. There are about 50 bicycle clubs and 100 bicycle shops in the state. More than 200 major bicycle events take place in North Carolina each year. The OBPT fills approximately 5,000 individual requests for bicycle touring information annually, providing more than 15,000 maps. The ferry system carries approximately 5,000 bicyclists aboard its seven routes annually, primarily during summer months.

The growing interest of individuals and communities in developing friendlier bicycle and pedestrian environments has resulted in many more requests to NC DOT for bicycle and pedestrian facilities. In 1996, 80 independent bicycle project funding requests were submitted to NC DOT, totalling an estimated $25 million. The incidental bicycle/pedestrian needs list has doubled in the last five years.



Providing for bicycle and pedestrian transportation is a growing interest among individuals and community leaders in North Carolina

Ten Years of TIP Funding

During the late 1970s and early 80s, most major cities in the state developed bicycle plans, but little money was available for implementation. A few communities began to develop their greenway systems or signed local bicycle routes. In 1976 and 1980 NC DOT participated in federally-funded bikeway demonstration projects, and in 1981 the first state-funded bike path was built.

Conditions began to change in 1987 when the first bicycle TIP projects were funded. Between 1987 and 1996 the state allocated over $15 million, with an additional $8.8 million programmed over the next four years. Since 1974, approximately $600,000 has also been provided from the Governor's Highway Safety Program to develop and implement bicycle safety initiatives. NC DOT funding for pedestrian facilities and safety programming was initiated in 1995, with an annual allocation of $1.6 million.

Funds are allocated annually for independent and incidental bicycle improvements in North Carolina

In the past 10 years, more than 100 independent bicycle projects in 50 communities have been completed.

Twenty-eight miles of wide paved shoulders for bicycle travel were added to roadways in 13 communities at a cost of $2.6 million. Eight off-road/greenway projects were built with $1.3 million in TIP funds. Although not many in number, these off-road projects provide important connections to areas not currently accessible by bike. Work on the construction of 25 miles of wide paved shoulders and bicycle paths in 15 communities is also underway, using $4 million in TIP funds. More than 1,500 miles of local bike routes and 3,000 miles of N.C. Bicycling Highways routes have been mapped at a cost of $0.5 million to guide bicyclists away from more heavily traveled roadways. Work on 12 local mapping and signing projects is also underway. More than 500 bicycle parking racks providing accommodations for 3,000 bicycles have been installed in 10 communities. More than 1,000 "Share the Road" signs have been erected on busy urban and rural roadways where significant bicycling occurs. More than 240 unsafe drainage grates have been replaced with bicycle-safe grates. A bicycle-safe drainage grate is now standard for NC DOT highway projects where bicycle travel is anticipated.

Over this time period, the scope of bicycle projects has grown as funding allocations have increased. From small-scale "Share the Road" signing projects and spot safety improvements, OBPT in 1993 began scheduling a greater number of paved shoulder and off-road projects for feasibility study and construction. Feasibility studies have been completed for 60 of these on-road and off-road projects, 75 percent of which advanced to the construction phase. In addition to the construction projects already underway,

13 miles of wide paved shoulders and off-road bicycle paths in six communities are scheduled for $1.5 million of construction funding next fiscal year. An additional 33 miles in 15 communities are scheduled for feasibility study by fiscal year 2000.

Major statewide bicycle safety education and facility program development initiatives have also been completed. The Basics of Bicycling curriculum and the *North Carolina Bicycle Facilities Planning and Design Guidelines* and companion videos created unique resources not previously available. The Basics of Bicycling curriculum is now being taught in 25 counties, reaching 25,000 children annually. The facilities guidelines, adopted by NC DOT in 1994, are now widely utilized by planners, engineers, and local officials. In conjunction with training workshops, each has served to greatly improve the safety of bicycling in North Carolina.

Significant gains have also been made through the Department's commitment to provide bicycle improvements as incidental features of highway and bridge construction projects. For the past 10 years, the OBPT has been a part of the highway and bridge planning and design process. Since most projects take at least seven years from the early planning phases to completion, the full impact of projects which will have incidental features constructed has not yet been realized. The area where most gains have occurred has been along the coast. A number of long coastal bridges were designed to include wide paved shoulders and bicycle-safe railings 54" in height when they were replaced. Coupled with wide paved shoulders, bike lanes, and widened curb lanes through urbanized areas, these improvements provide a real transportation alternative to those wishing to travel by bicycle throughout the state. Beginning in 1994, NC DOT's Greenways Policy and revised Pedestrian Policy now also provide opportunities for greenway crossings and sidewalks as incidental features of highway projects, if certain conditions are met.

Greenways often provide transportation links

Much has been done and much more remains to be done. Many tools are in place which will make future gains for bicycle and pedestrian transportation easier. Bicycle and pedestrian planning processes have been institutionalized within communities, and NC DOT policies are in place which will provide facilities for bicyclists and pedestrians. As missing links are built and problem areas are improved, larger bicycle and pedestrian networks will be created to make bicycling and walking truly viable transportation options.

The remainder of this chapter provides summaries of three indicators of current bicycle and pedestrian conditions. These consist of a summary of a recent inventory of bicycling and walking facilities throughout the state, an overview of current planning at the MPO level, and a brief review of the current status of bicycle and pedestrian safety in the state.

An Inventory of Bicycling and Walking Facilities

As part of the long-range planning process for OBPT, the University of North Carolina Highway Safety Research Center (HSRC) developed an inventory of bicycling and walking facilities in communities throughout North Carolina during 1994. Facilities refer to physical improvements such as bicycle lanes, multi-use paths, wide curb lanes, paved shoulders, greenways, and sidewalks, as well as amenities like bicycle parking racks, lockers, and office shower facilities. OBPT mailed surveys to the city managers or mayors of 294 communities, most of which had at least 1,000 population. Responses were received from 186 (63 percent) and analyzed by HSRC. A number of communities known to have bicycle and pedestrian facilities did not respond to the survey and are therefore not included.

Facilities and Trip Information

A summary of facility availability and mileage information is shown in the table below.

Community Bicycling and Walking Facilities in North Carolina

Type of Facility	Present in Community Yes	No	Total Miles in All Communities	Community With the Most Miles
Bicycle lane	13	166	51.6	Statesville
Bicycle/multiuse path	20	159	105.8	Raleigh
Parallel multiuse path	11	167	29.5	Raleigh
4' or more paved shoulder	24	150	111.0	Asheville, Windsor
Wide lane	48	122	296.8	High Point
Regular roadway or street signed as bicycle route	36	138	174.4	Greensboro
Sidewalk	126	46	1823.3	Charlotte
Other (e.g., 3' paved shoulder)	9	34	23.2	Kitty Hawk

Creating a local awareness of the need for more bicycle and pedestrian facilities is an important first step

The communities were also asked to indicate the three most important bicycle and pedestrian facility improvements they had made in the last five years. Many communities reported no improvements, while others reported three. Sidewalks and greenways or trails were often mentioned.

Obstacles to Bicycling and Walking

The most frequent responses as obstacles to bicycling were: (1) lack of facilities, (2) safety concerns (e.g., traffic, trucks, hostile motorists), (3) narrow streets, (4) lack of dedicated funding for facilities, (5) lack of interest or demand, and (6) lack of safe crossings.

The most frequent responses as obstacles to walking were: (1) lack of sidewalks and trails, (2) traffic safety concerns, (3) narrow streets, (4) lack of safe crossings/uncrossable roadway barriers, (5) lack of dedicated funding, and (6) lack of connectivity between existing facilities.

Plans

Thoroughfare plans existed in 114 communities and were underway in another 13. Most thoroughfare plans did not have any bicycle or pedestrian elements. Cary requires that new thoroughfares be constructed with wide curb lanes and sidewalks to accommodate bicyclists and pedestrians. The plans in Caswell Beach, Kitty Hawk, and Pittsboro include bicycle paths and trails for specified routes.

Eighty-four communities had transportation improvement plans (TIPs), and 22 of these noted bicycle and pedestrian elements. The bicycle and pedestrian elements included paved shoulders, bicycle paths, greenways, and sidewalks.

Local capital improvement plans were in place in 60 communities and often contained provisions for bicycle lanes, paths, and sidewalks. Fourteen communities had separate bicycle or

pedestrian plans and were proactive in regard to bicycling and walking considerations. Please see chart below.

Community Resources

The survey asked about a variety of resources available in the communities. Sixty-nine communities conducted bicycle promotion and safety events. Other frequently-mentioned resources were police bicycle patrols (36 communities), greenway plans (32), and bicyclist training in schools (31). Local bicycling maps were available in 18 communities and local walking maps in 25 communities. Twenty-two communities indicated the existence of a bicycle advocacy group or advisory committee, and 11 have a pedestrian advocacy group or advisory committee.

Bicycle and Pedestrian Community Resources in North Carolina

	Bicycle Advocacy Group or Adv. Committee	Pedestrian Advocacy Group or Adv. Committee	Greenway Committee	Bicycle Coordinator	Pedestrian Coordinator	Greenway Planner	Bicycle Master Plan	Pedestrian Master Plan	Greenway Plan	Police Bicycle Patrol	Bicyclist Training in Schools	Pedestrian Training in Schools	Bicycle Promotion/Safety	Pedestrian Promotion/Safety	Local Bike Maps	Local Walking Maps
Burlington	√			√		√	√		√		√		√			√
Carrboro	√	√					√	√			√		√		√	
Cary			√			√	√	√	√	√	√	√	√	√		√
Chapel Hill	√		√	√	√			√	√	√	√				√	
Charlotte			√			√			√	√					√	
Durham	√		√	√		√	√	√	√	√	√		√		√	
Greensboro			√	√	√	√	√	√	√				√		√	
Jacksonville	√	√	√	√	√		√	√	√				√	√		
Morganton	√	√				√		√	√	√			√			
Mount Holly								√			√	√				
Raleigh			√			√	√		√	√			√		√	√
Southern Pines				√	√	√			√			√	√		√	√
Wilmington	√								√		√		√		√	
Winston-Salem	√			√		√			√	√					√	√

Ordinances and Other Programs

In 46 communities, ordinances required developers to provide bicycle and pedestrian facilities in private developments. Bicycle ordinances were in place in 66 communities. Ordinances pertaining to pedestrians were in effect in 41 communities. Safety education programs were available in 65 communities and were most commonly handled by police departments and schools. The most popular programs were school presentations and rodeos.

Publicly-provided bicycle parking was often available at schools and parks or recreation areas. Privately-provided bicycle parking was much less common.

Working with OBPT

About 40 percent of the responding communities were familiar with OBPT. From the communities' perspective, OBPT could help in ways such as providing engineering and planning assistance, providing funding and/or matching funds, and sending information about bicycle and pedestrian funding, planning, and other issues.

Additional Comments

The end of the survey allowed for responding communities to provide additional comments of their choice, and these were quite varied. Several mentioned interest in sidewalks. A few indicated that there was not much concern for bicycling and walking. Some mentioned rails-to-trails efforts. The Town of Lewisville is interested in creating a pedestrian-friendly downtown and has a master plan to the year 2015. The City of Morganton is aggressively pursuing sidewalk installation.

Many schools and universities provide bicycle parking to help reduce the need for expensive automobile parking decks

Conclusions

In summary, the quality of the survey returns was variable. Some communities provided thorough responses, while others were much less detailed or complete. Although the surveys were originally mailed to either city managers or mayors, the replies generally came from a variety of people, usually town managers, planners, and traffic engineers, but also parks and recreation department personnel, town clerks and administrators, public works supervisors, police chiefs, etc. This is indicative that local bicycle and pedestrian issues are handled in many ways across North Carolina. Overall, the inventory provided a wealth of information about local bicycle and pedestrian facilities and activities from those communities that responded. It is obvious that many communities are eager to have more bicyclists and pedestrians share the road with motor vehicles.

Bicycle & Pedestrian Elements in MPO Transportation Plans

In each urbanized area, a Metropolitan Planning Organization (MPO) is responsible for developing the transportation plans, programs, and projects that will best meet the area's needs. The MPO plans must address many specific issues such as highway needs, transit service, safety, bicycle and pedestrian needs, and environmental impacts. Once developed, these plans are incorporated into the Statewide Transportation Plan.

The following summaries are taken or adapted from the *Statewide Transportation Plan for North Carolina* and provide overviews, in their own words where applicable, of each MPO's plans and activities related to bicycling and walking. The table on the following page lists the MPOs along with local government members.

MPO plans must address many specific issues including bicycle and pedestrian needs and environmental impacts

Alamance County Urban Area (Burlington). Alamance County, as the lead agency for transportation planning in the area, has developed an inventory of existing bicycle and pedestrian facilities in the area and plans for future bicycle and pedestrian facilities for the area's smaller municipalities. The City of Burlington has a Bicycle Committee and has prepared a comprehensive Bicycle and Pedestrian Facility Inventory and Plan for their jurisdiction which has been included in the urban area plan. The unifying framework for the urban area plan is a system of county-wide bicycle routes established for the county by the NC DOT. The Burlington portion of the urban area plan is currently scheduled in the TIP for implementation. The county-wide routes, in conjunction with the urban area municipal routes, establish a comprehensive bicycle and pedestrian route network to meet area citizens' bicycle and pedestrian transportation and recreational needs. The Bicycle and Pedestrian Facility Inventory and Plan was adopted by the urban area's TAC in July of 1994. Alamance County schools pilot-tested the Basics of Bicycling curriculum and have been teaching it since 1991. Burlington City schools have taught the curriculum since 1993.

Asheville Urban Area. The Bikeways Task Force has been in existence for a number of years in the Asheville Urban Area. They have been working on a variety of bicycle issues and will be developing a bicycle plan to be considered for inclusion in the comprehensive plan. Likewise, the

Metropolitan Planning Organizations (MPOs) in North Carolina

MPO Name	Members
Alamance County Urban Area	Alamance, Burlington, Elon College, Gibsonville, Graham, Green Level, Haw River, Mebane, Whitsett; part of Alamance County
Asheville Urban Area	Asheville, Biltmore Forest, Black Mountain, Fletcher, Montreat, Weaverville, Woodfin; parts of Buncombe and Henderson counties
Capital Area MPO	Apex, Cary, Fuquay-Varina, Garner, Holly Springs, Knightdale, Morrisville, Raleigh, Rolesville, Wake Forest, Wendell, Zebulon; all of Wake County
Durham-Chapel Hill-Carrboro MPO	Carrboro, Chapel Hill, Durham, Hillsborough; parts of Durham, Orange, and Chatham Counties
Fayetteville MPO	Fayetteville, Fort Bragg, Hope Mills, Spring Lake; parts of Cumberland and Harnett Counties
Gaston County Urban Area	Belmont, Bessemer City, Cramerton, Dallas, Gastonia, Lowell, McAdenville, Mount Holly, Ranlo, Spencer Mountain, Stanley; part of Gaston County
Goldsboro Urban Area	Goldsboro, Walnut Creek; part of Wayne County
Greensboro Urban Area	Greensboro; part of Guilford County
Greenville Urban Area	Greenville, Winterville; part of Pitt County
Hickory-Newton-Conover Urban Area	Brookford, Claremont, Conover, Hickory, Hildebran, Long View, Newton; parts of Alexander, Burke, Caldwell, and Catawba Counties
High Point Urban Area	Archdale, High Point, Jamestown, Thomasville; parts of Davidson, Guilford, and Randolph counties
Jacksonville Urban Area	Jacksonville; part of Onslow County
Cabarrus-South Rowan Urban Area	China Grove, Concord, Kannapolis, Landis; parts of Cabarrus and Rowan counties
Mecklenburg-Union MPO	Charlotte, Cornelius, Davidson, Huntersville, Indian Trail, Matthews, Mint Hill, Pineville, Stallings, Union County, Weddington; parts of Mecklenburg and Union counties
Rocky Mount Urban Area	Rocky Mount; parts of Edgecombe and Nash counties
Wilmington Urban Area	Bellville, Leland, Navassa, Wilmington, Wrightsville Beach; parts of Brunswick and New Hanover counties
Winston-Salem/Forsyth County Urban Area	Bethania, Clemmons, Kernersville, Lewisville, Rural Hall, Tobaccoville, Walkertown, Winston-Salem, Forsyth County

Pedestrian Task Force was formed a couple of years ago to provide the same level of public involvement as the bikeways group. They will also be working on a pedestrian plan for inclusion as part of the comprehensive plan.

Moreover, the City of Asheville and the MPO are currently in the process of assimilating data to update the computer mapping capabilities to include locations of sidewalks, bikeways, greenways, major traffic generators and attractors, etc. This will enable the MPO to provide better planning tools for the future.

Work is underway on a county-wide bicycle suitability map and "Share the Road" signing project scheduled in the state and local TIP.

Capital Area Metropolitan Planning Organization (Raleigh). The MPO members have varying policies, projects, programs, and commitments dedicated to bicycle and pedestrian users. The variety of efforts range from initial comprehensive planning to communities that are working with detailed facility plans 25 years or more beyond another town's beginning efforts.

Bicycling and walking are an integral part of urban transportation planning in many North Carolina communities

Within the metropolitan area boundary, a few municipalities have constructed several miles of greenways, bikeways, multi-purpose paths, bike lanes, and other pedestrian-oriented projects in their central business districts and suburbs. The majority of existing and proposed facilities are concentrated in the Cary, Garner, Morrisville, Raleigh, and Wake Forest jurisdictions. However, many of the other municipalities are beginning a comprehensive planning program that will, in the near future, include additional facilities. One MPO member has maintained an accident file on pedestrian and bicycle deaths and injuries since the mid-80s.

The development of the first comprehensive MPO pedestrian and bicycle plan has been initiated by the lead planning agency. The initial phase of the program is the compilation of all existing and adopted plans into a single metropolitan plan. After this initial phase is completed, all MPO members working cooperatively will identify shortfalls and develop recommendations.

Durham-Chapel Hill-Carrboro Metropolitan Planning Organization. The Regional Bicycle Plan is the result of a collaborative effort of the City of Durham, Durham County, the Town of Chapel Hill, and Orange County. The plan was adopted in October, 1993, by the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization and is a component of the Interim Comprehensive Transportation Plan.

The purpose of The Regional Bicycle Plan is to identify the numerous recommendations for how individual communities, transportation planning agencies, elected officials, and the private sector can support and encourage increased use of the bicycle for transportation purposes.

The Regional Bicycle Plan consists of several sections including bicycle education and enforcement programs, urban planning for a bicycle-friendly community, transportation engineering for a bicycle-friendly community, regional bicycle route planning, and a regional action plan. The urban planning section recommends specific methods for integrating bicycle needs within standard policy and procedure of local governments.

The City of Durham has an active citizen bicycle committee. Both Durham and Carrboro have bike maps.

Fayetteville Metropolitan Planning Organization. The 1980 Fayetteville Urban Area Bikeway Plan proposed a system of 150 miles of bicycle facilities, with 67 miles of those facilities being completely separated from other vehicular traffic. The objectives of the plan were to maximize the capacity of existing transportation facilities, to reduce the cost of system improvements, and to reduce the amount of energy consumed by transportation. That plan was never formally adopted by the County Commissioners. That plan is being updated to comply with the ISTEA requirements. New goals will reflect goals of The National Bicycle and Walking Study (to double the current percentage of trips made by bicycling or walking and to simultaneously reduce by 10 percent the number of bicyclists or pedestrians killed or injured in traffic crashes). A bike/greenway system proposed in 1992 would provide bicycle and pedestrian access to nine parks, 18 schools, a university, a community college, the central business district and seven major malls and shopping centers. A two-mile segment of the 20-mile project is included in the Transportation Improvement Program.

The long-range transportation plan, which encompasses a 20-year horizon, includes a bicycle and pedestrian component.

Gaston County Urban Area. In 1991 Gaston County was found to be in noncompliance for air quality in ozone emissions. Close cooperation between Charlotte and Gastonia is essential to improve air quality and for the Urban Area to avoid restrictions and penalties that will be imposed by EPA.

One of the unique problems of this area is the large number of state-maintained streets in need of widening within the city and its environs. This is a problem, since many of these roads have only 9-10 foot paved lanes. In addition, with few sidewalks and no bicycle facilities, there is increasing fixed use of roads that have barely enough space for an automobile or truck, making sharing that same space with a pedestrian or cyclist difficult.

In response to the issues outlined above, the MPO, in cooperation with NC DOT, has developed a series of transportation plans. The thoroughfare plan for the urban area was updated in 1991 and is the first major revision since its first adoption in 1977. The plan was developed after extensive public involvement, including a series of five committee workshops, six public workshops, and 13 formal public hearings.

The Citizens Advisory Committee on Surface Transportation was formed by the City Council in June, 1985, to study Gastonia's road needs and recommend solutions to surface transportation problems. In 1986, the Committee recommended an initial five million dollar bond package for roads and, in 1990, an additional $35 million dollar bond package, both of which the voters

Innovative solutions encourage people to use alternative forms of transportation

of Gastonia passed. The bond money will fund road widening, intersection improvements, new construction of roads, sidewalk construction, and right-of-way acquisition.

A county bicycle route map/city bicycle suitability map is also underway.

Goldsboro Urban Area. Bicycle and pedestrian planning in the Goldsboro urban area is underway.

Greensboro Urban Area. The Transportation plan incorporates a bicycle plan which includes proposed bike routes and encourages use of the bicycle as an alternate means of transportation. The plan emphasizes bicycle policies which coordinate bikeway planning efforts to reduce potential conflicts with railroad, vehicular, and pedestrian traffic. A pedestrian plan is forthcoming which will address many of the same issues.

The city of Greensboro has a system of signed bicycle routes connecting parks, schools, neighborhoods, and shopping areas. A city bicycle route map was printed in the late 1980s. Bicycle route mapping and signing for the Greensboro urbanized area is scheduled in the state and local TIP for fiscal year 1999.

Greenville Urban Area. A coordinated, multimodal Comprehensive Transportation Plan is being prepared. The second element will be bicycles and pedestrians. The City of Greenville has an existing Bicycle Plan and a Greenway Master Plan. Expanding such to include Winterville and surrounding Pitt County will facilitate bicycle usage. All widening projects are proposed to have widened outside lanes for bicycles, and sidewalks will be necessary in many instances when connecting residential with shopping areas. Plans for bicycles and pedestrians will be essential to making the overall plan multimodal.

Hickory-Newton-Conover Urban Area. The new 2020 plan will include a much expanded Pedestrian and Bicycle Plan. Some improvements in this area have been made over the past few years that resulted largely in a piecemeal manner. The new plan will link pedestrian and bicycle planning efforts of all 11 local governments.

High Point Urban Area. Alternative modes of travel are constantly being evaluated to determine if they can be used rather than street widening. Funding for a regional bike map was allocated from the NC DOT in 1995. Staff from all seven jurisdictions are involved in developing a map that includes the entire MPO and connects with neighboring communities. Public involvement is being solicited and a citizens' committee of bicycle users will be assembled. The regional bicycle map will be the first coordinated bike map developed by the MPO. The city of High Point developed a bicycle suitability map in the 1980s.

Jacksonville Urban Area. In October 1989, City Council appointed a committee to develop a series of trails throughout the City. In April, 1991, City Council chartered the committee as a

Trails Commission, and in February, 1993, City Council approved the Trails Commission's Master Plan for the City of Jacksonville. The Commission developed a comprehensive bicycle and pedestrian trails system throughout the urbanized area. The system of trails includes routes using on-road bicycle lanes, off-road trails adjacent to thoroughfares, and paths within power line easements. The system links the urbanized area to the proposed county trails system and to the U.S. Marine Corps Base. In addition to bicycle and pedestrian trails, the city has included water trails along two separate branches of the New River. The system links residential areas to commercial and shopping districts; churches, parks, and recreational areas; as well as wooded green belts in and around the City. One of the 10 projects listed in the 1996-2002 Transportation Improvement Program involves widening Country Club Road (SR 1403) to four lanes and including bicycle lanes.

Cabarrus-South Rowan Urban Area (Kannapolis/Concord). A bicycle and pedestrian improvement plan for the urban area was developed in 1995. Some of the concerns and needs expressed by citizens and members of the Technical Coordinating Committee of the MPO include: mapped and signed bike routes; improved pedestrian walkways and bike paths; bicycle, pedestrian and motorist awareness/education; bicycle and pedestrian safety; encouragement of alternate modes of transportation; enforcement of bicycle and pedestrian laws; recreational facilities; bicycle parking; and a rating system for county-wide bike routes. The plan includes specific proposals for addressing these areas of concern.

Mecklenburg-Union Metropolitan Planning Organization (Charlotte). The City of Charlotte completed a city-wide sidewalk inventory which indicates a need for 300 miles of walkway along thoroughfares (including 125 miles on state system roadways) and 250 miles along local streets. The estimated cost of building sidewalk along existing roads ranges from $125,000-$300,000 per mile.

Increased funding for Charlotte's Sidewalk Program, currently funded at $1 million a year, will be sought in the future. The sidewalk inventory will be expanded to include the rest of the Planning area to identify metro area walkway needs. Work is underway on a bicycle suitability map for the metropolitan area which will identify where improvements are needed to facilitate bicycle travel.

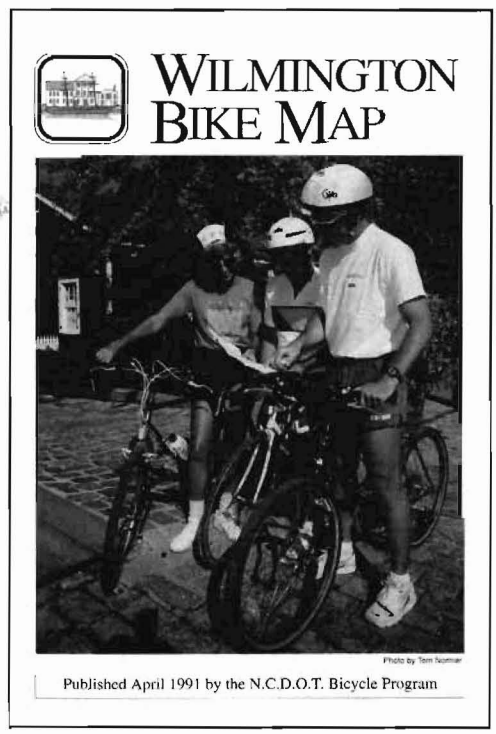
Rocky Mount Urban Area. The City of Rocky Mount engaged the Institute for Transportation Research and Education (ITRE) to inventory existing sidewalks throughout the City. This inventory will indicate condition ratings so that a plan for maintenance and repair can be developed and funded. It is acknowledged that sidewalks have received little attention in the past several years. The inventory by ITRE will serve as the basis for identifying the areas where sidewalks are needed to accommodate pedestrian traffic. It is believed that sidewalk improvements in residential areas along major thoroughfares are needed.

The City has developed a master plan for a bikeway-greenway that would connect City Lake with the proposed Martin Luther King Jr. Park. The bikeway-greenway would traverse Sunset Park and Battle Park which already exist as developed parks.

The Bicycle and Pedestrian Plan will be prepared and will utilize the ITRE data and the bikeway-greenway plan as starting points. The comprehensive plan will expand on these base plans. It is expected that this element will be completed after the Thoroughfare Plan is completed in approximately two or three years.

Wilmington Urban Area. The top project in the Enhancements category involves Third Street, located in historic downtown Wilmington near older homes, shops, and tourist attractions. This project will soften the negative visual impact of the street by adding landscaping features and making the street more pedestrian friendly. The 1985 Bicycle Plan is currently being updated and expanded to include most of New Hanover County. The Wilmington Bike Suitability Map was published in 1991 by NC DOT. The urban area has an active bicycle committee.

Maps assist bicyclists to navigate through busy urban areas



Winston-Salem/Forsyth County Urban Area. Bicycle and pedestrian plans have been important elements in the long-range transportation plan for the Winston-Salem/Forsyth County Urban Area for many years. From the first bicycle plan in 1974, a concerted effort has been made to plan and provide a variety of bicycle and pedestrian facilities and services.

Vision 2005, a comprehensive plan for the county, recommends a system of 120 miles of greenways, of which approximately 14 miles have been completed. Other greenway studies are underway for Brushy Fork Creek and Muddy Creek.

Staff has completed a county-wide inventory of all sidewalk and other pedestrian facilities (i.e. bridges, underpasses, skywalks, etc.). The inventory identifies the location of these facilities, where gaps lie in the overall network, what impediments exist (i.e. bridges with no sidewalks, etc.), and what major traffic generators are currently served or need service.

With the establishment of the Bikeway Advisory Committee in 1988, a group of citizens and bicycle enthusiasts reviewed the 1974 plan and developed a new system of on-street bicycle routes. A map showing the routes was completed in March, 1992. A system of new signs and bicycle racks was also planned and implemented. A few Winston-Salem Transit Authority (WSTA) buses also have been fitted with bicycle racks to provide an intermodal connection on some routes.

All of these elements will be incorporated into a new multimodal transportation plan for the urban area in the next few years.

Small Urban Area and County Plans

In addition to the metropolitan plans developed by the 17 urbanized areas in North Carolina, there have also been more than 165 long-range thoroughfare plans developed for small urban areas, counties, and multi-county regions across the state. These plans are conducted by the Statewide Planning Branch as requested by the local areas and present a 20-30 year strategy for transportation improvements in these areas. Once adopted by both the state and the local areas, these plans serve as guides in the continued development of the area transportation systems.

Historically, few of these plans have dealt with bicycling and walking considerations. Recently, however, several local areas have asked for these considerations to be included. OBPT, the Statewide Planning Branch, and the local areas will work together to determine ways to integrate bicycle and pedestrian plans into the thoroughfare plans to better serve long-term bicycle and pedestrian needs.

Current Status of Bicycle and Pedestrian Safety in North Carolina

With attractive options for bicycling and walking in North Carolina, many choose to use these modes for various kinds of trips. Crashes are proportional to exposure and risk. In the discussions to follow, population data are sometimes used to note demographic groups that may be over- or under-represented. It is understood that exposure data are needed to verify the trends described below. This recommendation is further discussed in Chapter 5.

Bicycle Safety

Reportable crash data from 1990-1994 have been examined to provide background about bicycle/motor vehicle crashes in North Carolina. During these five years about 6,400 such crashes were reported to the Division of Motor Vehicles, or about 1,280 per year. Examining the age of the bicyclist, all groups are affected, from children to the elderly. Slightly less than half (44 percent) are children or young adults under the

Children under 15 are over-represented in bicycle crash statistics

age of 15, while nearly half (48 percent) of crashes involve 15-44 year old riders. Children under the age of 10 are involved in about 17 percent of the crashes. The group aged 45 and older are typically involved in only about 6 percent of the crashes. Compared to their representation in the population at large, younger persons are over-represented in bicyclist crashes, while the elderly are under-represented.

Considering gender of the bicyclist, males are involved about five times as often as females. In terms of race, whites are involved slightly over half the time. While blacks account for 45 percent of the crashes, they account for only 22 percent of the population in North Carolina.

During 1990-1994, about 30 bicyclists were killed each year in these crashes. Bicyclists receive either fatal or severe (Class A) injuries about 23 percent of the time. Forty-two percent of bicyclists sustain moderate (Class B) injuries and 30 percent minor (Class C) injuries. In only about 3 percent of the cases is a bicyclist not injured.

Proper bicyclist behavior and motorist awareness will reduce the incidence of crashes

The physical condition of the bicyclists is reported as normal in about 82 percent of the cases. Impairment due to medicine or drugs occurs relatively infrequently. Bicyclists are reported to have been drinking in about 8 percent of the cases overall, which includes the "drinking, impairment unknown" cases, but this increases to about 23 percent for bicyclists aged 25-44 and 20 percent for bicyclists aged 45-64. Surprisingly, over 10 percent of crash-involved bicyclists age 65 and older have been drinking.

The frequency of crashes varies little by month of year, the average being 107 per month. June, July, and August are the three months with the most frequent number of bicyclists involved in crashes. These are the months of summer when many school-aged young people are riding their bikes and older adults are doing more outside recreational riding. Bicyclist crashes occur most frequently in late afternoon and early evening hours, when exposure is likely highest and visibility may be a problem.

Although North Carolina is predominantly a rural state, about 68 percent of the bicyclist crashes occur in urban areas, with 15 percent occurring in rural areas and another 15 percent in mixed rural/urban areas. As would be expected, the largest proportion of bicyclist crashes occur on local streets (55 percent). Bicyclist crashes occurring on higher speed routes tend to result in more frequent serious and fatal injuries. Approximately 37 percent of the cases occurred at the intersection of two roadways, with another 13 percent at public and private driveways and alley intersections. In about one out of ten crashes, the vehicle left the scene without reporting the crash.

In 1986 the Highway Safety Research Center conducted a study of bicyclists reporting to emergency rooms in North Carolina. The results showed that many of the injuries do not involve motor vehicles. It is currently estimated that about 20,000 bicyclists per year suffer injuries when these emergency room cases are included.

Pedestrian Safety

From 1990-1994 about 12,500 pedestrian/motor vehicle crashes occurred in the state, or about 2,500 per year. Examining age of the pedestrian, all groups are affected, from children to the elderly. Nearly half (44 percent) are children or young adults under the age of 25, and about one-third of the crashes involve 25-44 year old persons. Children aged 5-9 are involved in about 10 percent of the crashes. The groups aged 65-74 and greater than 74 are together typically involved in 6-7 percent of the crashes. Compared to their representation in the population at large, younger persons are over-represented in pedestrian crashes, while the elderly are under-represented. The elderly, however, are over-represented in serious and fatal crashes.

Considering gender, males are involved about twice as often as females. This tends to hold across most all age groups until age 65. For ages 65-74, males are involved in about 53 percent of the cases, while for ages greater than 74, females are involved in about 53 percent of the cases. In terms of race, whites are involved slightly over half the time. While blacks account for 45 percent of the crashes, they account for only 22 percent of the population in North Carolina.

Children and young adults are involved in almost half of the pedestrian crashes with motor vehicles

During 1990-1994, about 185 pedestrians were killed each year in these crashes. Pedestrians receive either fatal or severe (Class A) injuries about 38 percent of the time. Pedestrians under the age of 15 comprise 23 percent of the injured, while only 7 percent of the injured are over the age of 64. In only one of these nearly 13,000 reported cases over the five-year period was the pedestrian not injured.

The physical condition of the pedestrians is reported as normal in about 72 percent of the cases. Impairment due to medicine or drugs occurs relatively infrequently. Pedestrians are reported to have been drinking in about 16 percent of the cases overall, which includes the "drinking, impairment unknown" cases, but this increases to 29 percent for pedestrians aged 25-44.

The frequency of crashes varies little by month of year, the average being 208 per month. For the years 1990-1994,

October was the month with the highest average number of crashes (249), while February had the lowest average (180). More than one-third of pedestrian crashes occur on Friday and Saturday, likely reflecting increased exposure for some populations on weekends, as well as greater alcohol consumption. Pedestrian crashes occur most frequently in late afternoon and early evening hours, when exposure is likely highest and visibility may be a problem.

Although North Carolina is predominantly a rural state, about 64 percent of the pedestrian crashes occur in urban areas, with 18 percent occurring in rural areas and another 17 percent in mixed rural/urban areas. As would be expected, the largest proportion of pedestrian crashes occur on local streets (42 percent). Pedestrian crashes occurring on higher speed routes tend to result in more frequent serious and fatal injuries.

Approximately 16 percent of the cases occurred at the intersection of two roadways and an additional 15 percent at public and private driveways and alley intersections. This means that seven of every 10 crashes occur at non-intersection roadway locations with no distinguishing features. Examples include midblock dart-outs, walking along the roadway, lying in the roadway, parking lot mishaps, etc. In one out of eight crashes (12 percent), the vehicle left the scene without reporting the crash.

Summary

Interest in bicycling and walking is on the rise. If North Carolina is to meet state and national goals for bicycling and walking, current programs must be continued and new efforts initiated. New and/or improved facilities, education, enforcement, and encouragement measures will all combine to improve the bicycling and walking environment. The following chapter details the goals and focus areas which will guide the NC DOT in attaining this vision for the future.

References

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3. Stutts, J. An Analysis of Bicycle Accident Data from Ten North Carolina Hospital Emergency Rooms. HSRC-PR149. 1986.

4. U.S. Department of Transportation, Federal Highway Administration, The National Bicycling and Walking Study. FHWA-PD-94-023. 1994.

Goals and Focus Areas 4

Vision

In order to look 20 years into the future there has to be a VISION from which to build. The broad vision of North Carolina's programs and promotions for bicyclists and pedestrians is simple and straightforward:

All citizens of North Carolina and visitors to the state will be able to walk and bicycle safely and conveniently to their desired destinations, with reasonable access to all roadways.

This chapter identifies and discusses five goals to work toward for the next 20 years. Under each goal are a number of focus areas which represent strategies for reaching each goal. A summary of the goals and focus areas is provided on the next two pages. More detailed information about each goal, focus area, partnership needed to realize the goal, and sense of vision comprise the remainder of the chapter and the plan's framework for action.

The goals and focus areas expand upon the bicycling and walking provisions of the *Statewide Transportation Plan for North Carolina* (see Chapter 1). They are developed around the concepts of facilities, safety education and enforcement, institutionalization, research and needs assessment, and encouragement. These comprehensive efforts will ensure that increases in the amount of bicycling and walking in North Carolina will be safely accommodated to assure that reductions in the number of bicyclist and pedestrian crashes, injuries, and fatalities can be realized.

What follows is a detailed discussion of the individual goals and focus areas that comprise the North Carolina bicycle and pedestrian long-range plan. Each goal represents a major direction for these transportation modes; whereas, each focus area describes specific methodologies for reaching the goal. With each goal is a description of the partnerships which are crucial to obtaining the goal and the vision of bicycling and walking as a result of the goal.

Office of Bicycle and Pedestrian Transportation
Long-Range Goals and Focus Areas

Goal 1

Provide the bicycle and pedestrian facilities necessary to support the mobility needs and economic vitality of communities throughout North Carolina.

Focus Areas

1 Provide for quality independent projects and schedule more local bicycle and pedestrian transportation improvements in the State Transportation Improvement Program.

2 Provide for more incidental bicycle and pedestrian improvements by ensuring that the various units within the NC DOT consider bicyclist and pedestrian needs.

3 Develop continuous corridors for safe bicycle travel in areas of high demand for bicycle transportation, particularly in the coastal areas.

4 Expand, maintain, and improve the system of statewide Bicycling Highways.

5 Map and sign bicycle routes in all counties and major urban areas.

6 Develop and fund projects that improve transit access for bicyclists and pedestrians.

7 Identify, preserve, and develop abandoned rail corridors for bicycle and pedestrian transportation.

Goal 2

Provide a comprehensive program of education and enforcement strategies that will improve the safety of all bicyclists and pedestrians.

Focus Areas

1 Implement the Basics of Bicycling curriculum in all elementary schools throughout North Carolina.

2 Increase helmet usage by bicyclists of all ages.

3 Develop and implement school-based pedestrian safety curricula and programs.

4 Develop, publish, and maintain a clearinghouse of bicycle, pedestrian, and motorist safety materials targeting at-risk ages and groups.

5 Encourage law enforcement agencies to enforce laws impacting bicycle and pedestrian safety.

Goal 3

Institutionalize bicycle and walking considerations to enhance current transportation practices at the state, regional, county, and local level.

Focus Areas

1 Provide ongoing training and information exchange for state and local staff and officials.

2 Assess and incorporate federal, state and local legislation, regulations, ordinances, and policies concerning bicyclists and pedestrians.

3 Advocate the establishment of bicycle and pedestrian citizen committees to promote the development of local plans and programs.

Goal 4

Identify and promote new and innovative ways to advance bicycle and pedestrian safety and enjoyment through research and needs assessment.

Focus Areas

1 Conduct research to identify pedestrian and bicyclist safety needs to guide countermeasure and program development.

2 Periodically evaluate the effectiveness of bicycle and pedestrian facility and safety education programming.

3 Implement and evaluate innovative programming procedures, training techniques, and facility treatments.

Goal 5

Encourage bicycling and walking as viable transportation options.

Focus Areas

1 Sponsor statewide promotions and events, and encourage local activities aimed at increasing awareness of bicycling and walking opportunities.

2 Improve tourism opportunities for non motorized travel throughout North Carolina.

3 Develop, implement, and promote bicycle and pedestrian commuter incentive programs at the state, regional, county, and local level.

Goal 1

Provide the bicycle and pedestrian facilities necessary to support the mobility needs and economic vitality of communities throughout North Carolina.

Overview

The overall purpose of this goal is to integrate bicycle and pedestrian accommodations into the state's transportation system in a manner which supports existing users and attracts new users.

North Carolina has over 77,000 miles of state-maintained roadway representing nearly 85 percent of the state's total roadway mileage. Bicycles are allowed on all roads except fully controlled limited access highways. Even so, the current roadway system does not always provide the necessary accommodations for safe bicycling and walking. Through the incorporation of various facility treatments, an effective bicycle and pedestrian transportation network can be developed.

"[We hope] that the Plan will serve as a spur for a greater emphasis to be put on alternative transportation modes [and] that the Plan will lead to increased funding for bicycle and sidewalk projects."

-from the public comments received

There are two primary methods of facility implementation for bicycle and pedestrian travel: highway improvement projects that incorporate bicycle or pedestrian accommodations as incidental features; and bicycle and pedestrian projects undertaken independently of highway improvements. Incidental improvements are bicycle or pedestrian provisions which are incorporated into the construction of new or upgraded highways, e.g., the resurfacing of an existing roadway followed by striping which allows for 14-foot, widened outside lanes.

Independent bicycle and pedestrian projects, such as adding paved shoulders to an existing roadway or constructing multiuse paths, are features which provide for improvements to the numerous miles of roadway which are not scheduled for construction or are off-road facilities which complete the missing links within an area's bicycle and pedestrian system. Providing for incidental and independent bicycle and pedestrian projects results in a continuously improving transportation system serving all transportation needs and lessens conflicts between bicyclists, pedestrians, and motor vehicles.

Paving shoulders can be either incidental or independent and are an essential improvement feature of the NC DOT's future bicycle plans. Wide paved shoulders are relatively inexpensive to construct and have a significant impact upon bicycle safety throughout North Carolina. In combination, paved shoulders and wide outside lanes along critical bicycling corridors will improve both the pleasure and safety of traveling along the maintained roadway network.

Greenway and rail-trail segments are the most desirable off-road elements of a local bicycle and pedestrian system. They help provide links to important destinations and fill gaps within the road network to mitigate obstacles to bicycling and walking.

In addition, transit interface is an important mobility factor in any local comprehensive transportation system. With the additional capture radius that trains and buses offer the bicyclist and pedestrian, greater opportunities become available for bicycling and walking.

Finally, all bicycle and pedestrian facility development must be accompanied by an effective program of promotion and support materials. For example, mapping and signing projects offer information to the bicyclist and walker to guide them to special bicycling and walking provisions.

Through better planning and design of pedestrian and bicycle facilities, the mobility needs of all North Carolina citizens will be met

In summary, many bicycle and pedestrian facilities are built in North Carolina through independent and incidental projects. This goal will ensure that a comprehensive program including all bicycle and pedestrian facility types will be incorporated into the ongoing transportation provisions of the NC DOT.

A multiuse path along an active rail line creates an important transportation link

Focus Area 1

Goal 1

Provide for quality independent projects and schedule more local bicycle and pedestrian transportation improvements in the State Transportation Improvement Program

Background

Independent projects are developed separately from any other highway activity and may be best thought of as additions to the system. Examples include adding paved shoulders to roadways, roadway widening, bicycle/pedestrian multiuse paths, greenways, bridge retrofits (e.g., higher railings), and greenway bridges. Similar to highway projects, these independent bicycle projects go through all phases of the planning and design process and standard project procedures. Generally these projects emerge as part of a local transportation improvement plan, which has been adopted at the local level and is ready for programming. Citizens with suggestions for independent projects work through their local officials to get their wishes heard.

Independent bicycle projects were first allowed in 1978 as a result of the Board of Transportation's bicycle policies for the state. Bicycle projects were made a part of the TIP process and thus could be programmed when funding was made available. Because of lack of funds, few independent projects were completed between 1978 and 1987. However, in 1987, $250,000 was set aside by the Board for these projects. Funds increased to $500,000 in 1988 and to $1,000,000 in 1990. With the passage of ISTEA, $2,000,000 became available in 1992 through enhancement funds. The independent bicycle program is now a four-year schedule of projects consisting of $2,200,000 annually.

Policies are evolving in regard to the pedestrian program. Currently $1,400,000 is available for independent pedestrian projects, or $100,000 for each of the 14 highway divisions. These funds are controlled by the divisions and must be spent for pedestrian improvements. They are primarily used for sidewalk construction. Pedestrian provisions are also designed as a part of multiuse greenways and rail-trails which are built through independent bicycle funds. In addition, the OBPT has $200,000 available for pedestrian safety education/demonstration projects.

Within OBPT the facilities planner is responsible for the review of all independent bicycle project applications. Dozens of the applications are examined each year. These applications are usually presented at a series of TIP meetings held around the state. Project requests are evaluated using criteria designed to identify projects which can be scheduled within current funding levels and conditions (see Chapter 2) and then prioritized. Project summaries and a proposed funding and implementation schedule are then presented to the N.C. Bicycle Committee for their review. A project request may be either accepted as a candidate for the schedule, sent back to the locality for further information or changes, or rejected. Independent project

requests must show evidence of being part of local or MPO-level transportation planning. Project requests which meet the state's criteria and are a part of a local plan are eligible for scheduling in the state TIP.

In January of 1994, the OBPT published the *North Carolina Bicycle Facilities Planning and Design Guidelines*, a comprehensive document describing recommended treatments for a variety of bicycle improvements and facilities.

Outlook

In the past some of the more frequent independent bicycle improvements have included paved shoulders, greenways, rail-trail conversions, road widening, parking, transit interface, maps, signs, and spot improvements.

The *North Carolina Bicycle Facilities Planning and Design Guidelines* is the basis for the design of independent bicycle projects at all levels. OBPT has begun the process of familiarizing others with the content of the document, starting with NC DOT staff. Workshops are also now being scheduled on a regular basis for NC DOT and non-DOT personnel and include not only design specifics but also, for local staff, an overview of the TIP funding process. Independent project applications which follow these guidelines lead to higher quality local project requests. Project review and funding and subsequent progress through the construction phase can thus be facilitated.

A report pertaining to the development of pedestrian facilities has been completed. Guidelines for pedestrian facilities design will be published soon. Both local/MPO staff and DOT division and district staff will receive copies of these documents.

Independent bicycle projects are funded through the state Transportation Improvement Program

These individuals are currently responsible for planning and implementing most pedestrian facilities. In the future, the process of reviewing and scheduling independent pedestrian facility projects may more nearly resemble the process for bicycle independent projects. In the meantime, the OBPT will continue to look for ways to educate and work with the public, advocates, and other interested parties in developing quality independent pedestrian projects for review.

OBPT will continue to interact with people at the local and MPO levels, as well as DOT division and district staff, to ensure an expanded awareness of bicycle and pedestrian needs and the continued development of quality independent projects.

Focus Area 2

Goal 1

Provide for more incidental bicycle and pedestrian improvements by ensuring that the various units within the NC DOT consider bicyclist and pedestrian needs

Background

Incidental improvements are developed as a routine part of a scheduled highway project using a mixture of state and federal funds. The highway project may be a new roadway or the upgrade of an existing roadway. Examples include adding paved shoulders to roadways, roadway widening, lane restriping, bridge retrofits (e.g., higher railings), sidewalks, and intersection improvements. Generally the bicycle and pedestrian features emerge from information obtained by staff in the NC DOT planning or design branches or through suggestions made by OBPT as a part of the standard review of feasibility and highway project planning reports.

Wide curb lanes are often completed as incidental projects

Incidental bicycle projects have been allowed since the development of the North Carolina Bicycle and Bikeway Act of 1974, when the General Assembly stated that "bikeways are a bona fide highway purpose, subject to the same rights and responsibilities, and eligible for the same considerations as other highway purposes and functions." (The term "bikeways" is interpreted as all types of facility improvements for bicycle safety.) The same act stated that "bikeways may be designated along and upon the public roads" and that the Department of Transportation is allowed to "include needed funds for the program in its annual budgets" and to spend funds to accomplish the purposes of the act. The same sentiments were reiterated in the NC DOT bicycle policies in 1978 and in the revised version in 1991. The 1991 version states that bicycle facilities are to be planned and designed along with other roadway projects and should follow the North Carolina bicycle facility guidelines and AASHTO standards. Thus, the provision of incidental bicycle projects is institutionalized within various DOT branches and appears as part of the TIP process for roadway improvements. The projects may be selected and programmed if funding is available. Each year an estimated $5 million is spent on incidental bicycle projects through the TIP process.

Policies are currently evolving with regard to the pedestrian part of the

program. Prior to 1993 the NC DOT was only replacing sidewalks disturbed or destroyed during roadway construction. In 1993 the policy was amended such that the DOT now will participate with localities in the construction of new sidewalks as incidental features of highway improvement projects. At the request of a locality, funds for a sidewalk are made available if matched by the locality, using a sliding scale based on population. The cost of the sidewalk is not to exceed two percent of the highway project construction cost.

Pedestrian and bicycle accommodations can be built as part of highway improvements

Outlook

The OBPT participates in the highway project scoping process and in the review of all feasibility studies and planning documents completed by the Division of Highways relating to highway improvement projects. This review determines whether incidental bicycle features are, or should be made, a part of the roadway improvement. As an example, the review might determine that the addition of paved shoulders to a section of rural roadway, or roadway widening in an urban setting, is desirable to provide more space for bicyclists. The recommendation would then be forwarded to the Division of Highways for incorporation into their planning study/design.

A number of incidental improvements are described in the *North Carolina Bicycle Facilities Planning and Design Guidelines.* Following the adoption of the guidelines and the increased awareness of other DOT staff with bicycle facility standards, the review process as relates to bicycle improvements has become more efficient. The AASHTO guide for bicycle facilities is the other primary source document for DOT staff. Similar guidelines for pedestrian activities are planned for the future. The OBPT will continually keep state DOT planners and design engineers abreast of emerging roadway improvement concepts for both bicyclists and pedestrians.

Training for local and state engineers and planners takes place annually. This training, which will eventually extend to the DOT division and district level, positively affects the efficient incorporation of incidental improvements.

OBPT will continue to recommend the incorporation of incidental bicycle features, where appropriate, in all highway planning, design, and construction elements of projects. As pedestrian activities become more mainstream, a similar process will be followed for these types of improvements. Continued training at all levels will ensure the appropriate and efficient inclusion of bicycle and pedestrian features into planned highway improvements.

Focus Area 3

Goal 1

Develop continuous corridors for safe bicycle travel in areas of high demand for bicycle transportation, particularly in the coastal areas

Background

Paving shoulders to accommodate bicycle traffic and thus improve bike safety has been an important element of OBPT policy since the program began. Paved shoulders are always a primary consideration in improving any road without curb and gutter provisions. The first bicycle independent paved shoulder project was constructed in 1987 in Elizabeth City to connect Elizabeth City State University with residences and the local coast guard base. Since 1978 a policy of providing safe access on all bridges has been in place. In recent years standard DOT practice has been to add paved shoulders as a part of many highway improvement projects. Paving the shoulder not only lengthens the life of the roadway but also provides a safety benefit for motorists as well as bicyclists and pedestrians.

Bridges with adequate space and high railings provide safer travel for bicyclists and pedestrians

Outlook

Because of the safety benefits to both motorists and bicyclists, as well as the relative ease in funding these projects, OBPT will continue its emphasis on paved shoulders. In areas of high demand for bicycle transportation and especially along the coast, an effort will be made to guarantee connectivity via paved shoulders and bridge access throughout the region. The 1996 TIP schedule included a one-time additional allocation of $1.5 million to construct paved shoulders along the coast. Future schedules should include funding to complete a paved shoulder corridor along the coast, as well as in the piedmont and mountain areas where paved shoulders are the best alternative to meet bicycle facility needs.

Standard designs for new bridges have adequate (4 to 10 feet) space for bicyclists and pedestrians. However, bridges are not always designed with railings high enough to accommodate bicyclists and pedestrians safely. Railing height is an important element of plan reviews for incidental bridge plans.

Although it is not common practice to promote walking on paved shoulders, this is sometimes the best option for pedestrians in the rural areas of the state. Thus, paved shoulder and bridge access projects that benefit bicyclists will likewise aid pedestrians. Besides working

with state level NC DOT staff in carrying out these projects, OBPT will emphasize these needs to DOT staff at the district and division offices.

The long range focus is to continue directing funds toward paved shoulder projects. In the future, it may be desirable to designate a certain portion of available funding for this type of bicycle facility construction. In addition to paved shoulders, OBPT will work towards making all bridges in the state safe for bicycle travel. A short-range goal is the development of a continuous route with paved shoulders and safe bridge access throughout the coastal region, from South Carolina to Virginia.

Focus Area 4 — Goal 1

Expand, maintain, and improve the system of statewide Bicycling Highways

Background

The concept of a statewide network of bicycle routing originated in 1975. The first route, Mountains to the Sea, was completed in 1976. It is a 700-mile route from Murphy in the west to Manteo in the east, forming the backbone of the Bicycling Highways system. The Bicycling Highways routes were designed to guide bicyclists away from the more heavily-traveled roads of the primary highway system onto the more lightly-traveled and scenic country roads in the state. These routes generally parallel the major roadways, linking population centers, state parks, historic sites, and other important destinations. Initially the process was one of selecting, mapping, and describing the routes. In 1989 the OBPT began signing the cross-state routes. There are 10 routes covering approximately 3,000 miles of roads throughout the state. Approximately 70 percent of the route mileage has been signed with AASHTO-approved numbered Bicycle Route signs.

In recent years local, county, and regional bicycle route mapping and signing projects have been undertaken at the request of local government agencies. In many cases, these routes provide a local link to a Bicycling Highways route, thus creating a more extensive set of bicycle transportation options. For example, the Carolina Connection is designated as the U.S. 1 Bicycle Route, which runs north/south through the central part of North Carolina connecting to a route in Virginia. It will eventually span the eastern coast of the United States, from Maine to Florida. The U.S. 1 Bicycle Route thus becomes an important extension of any local and county bicycle route systems designated along this corridor.

Outlook

Currently the system of Bicycling Highways is reasonably well defined, and new statewide routes are not being added. The maps are now being computerized, which will make updating a more efficient task.

The Bicycling Highways are viewed very positively within the NC DOT. These designated bicycle routes receive preferential treatment in regard to highway maintenance and incidental roadway improvements. Bicycle safety improvements are almost always guaranteed when these highway segments are upgraded. However, since many of the Bicycling Highways routes are on lightly traveled secondary roads which are routinely maintained at the DOT division or district level, the OBPT is not always able to influence bicycle safety inclusions.

Even though most secondary roads are safe for bicycle travel due to low volumes of motor vehicle traffic, some sections could be improved with the addition of paved shoulders or wider lanes. OBPT will strive to be better informed about division and district projects on Bicycling Highways routes, so that more opportunities for improvement can be realized. Furthermore, local areas will be made aware of how to work with Division and District offices to effect local bicycle safety improvements. In addition, OBPT can work with local and MPO staff to make them more familiar with the needs of pedestrians and bicyclists and to assure that improvements for bicyclists and pedestrians are incorporated.

Bicycling Highways routes should be easily accessible to all North Carolinians. While it is conceivable that new routes may need to be added, the long range focus for this task is to continue the process of maintaining and refining the current Bicycling Highways in North Carolina.

Bicycling Highways routes form a system of low-volume roads which connect communities across the state

Focus Area 5

Goal 1

Map and sign bicycle routes in all counties and major urban areas

Background

Little had been done about urban or county bicycle mapping prior to the creation of OBPT. The Bicycling Highways concept was originated in 1975 and the Mountains to the Sea route laid out in 1976. Awareness of the benefits of providing bicyclist-oriented roadway information led many communities to request signed and/or mapped bicycle routes through the TIP. The first county map was completed by OBPT in 1983 and the first local/urban area map in 1991.

Local, regional, and county maps have been completed for:

- Alamance County
- Beaufort
- Buncombe County /Asheville
- Carrboro
- Chatham County
- Durham
- Forsyth County/Winston Salem
- Lenoir County
- Macon County
- Moore County
- Onslow County
- Pamlico Sound Area (12-county region)
- Raleigh
- Richmond County
- Southport
- Swansboro
- Wilmington

Funding to undertake ten other mapping projects is programmed. Twelve additional mapping projects are scheduled over the next few years.

Local regional and county bicycle route maps highlight opportunities for bicycle travel

County bicycle maps provide detail about selected routes throughout the county, as well as points of interest. The county routes are generally lightly traveled, and all are, or will be, signed. Some of the urban routes have suitability ratings, which reflect how well a street accommodates mixed bicycle and motor vehicle traffic.

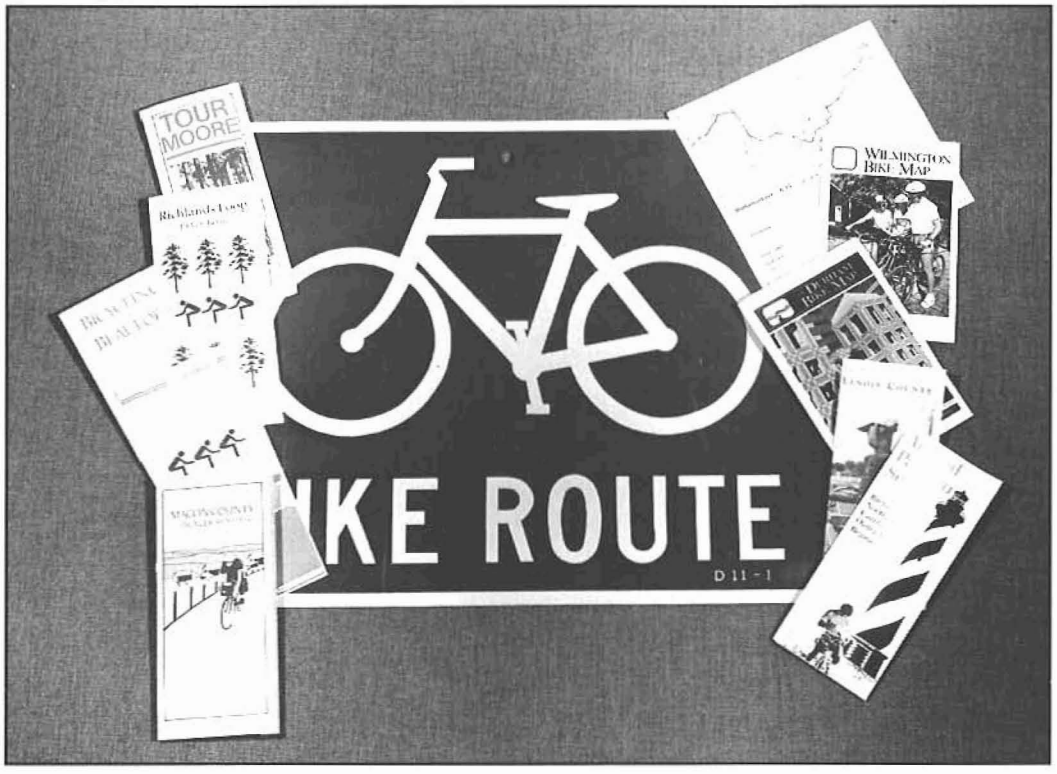
The OBPT is not involved with any mapping for pedestrians. However, the recently completed local area inventory of bicycle and pedestrian facilities, detailed on page 30 of this plan, revealed that 25 North Carolina communities have walking maps. The vast majority of this walking is for recreation.

Outlook

As more communities recognize the value of providing local bicycle route information, OBPT will receive more TIP requests for such projects. Eventually all 100 counties and all major urban areas will have mapped and signed bicycle route systems or suitability maps. Coupled with the system of Bicycling Highways, it is expected that a statewide bicycle network of local, county, and state roads will be created which will enable cyclists to easily plan and travel to all areas of the state on a preferred and safer system of roads.

Incidental and other improvements are important considerations for the various roads and streets which make up a local network for bicycling. Many of the county routes are on lightly-traveled secondary roads which are routinely maintained at the DOT Division or District level. The OBPT is not always aware of scheduled maintenance and improvements and thus is not able to influence bicycle safety improvements. OBPT will strive to stay more informed about division and district projects on county routes, so that more opportunities for improvement can be realized. Furthermore, local areas will be made aware of how to work with Division and District offices to improve conditions for bicyclists. OBPT can also have a positive influence with local and MPO level staff by familiarizing them with the needs of pedestrians and bicyclists.

Maps for pedestrians may become an important project focus in the future. If so, steps will be taken to create mapping and signing guidelines for such routes. OBPT will coordinate with DEHNR in regard to the provision of trail information, which is recreational in nature and is not currently the responsibility of the Office.



Eventually all 100 counties and all major urban areas will have mapped and signed bike route systems

Focus Area 6

Goal 1

Develop and fund projects that improve transit access for bicyclists and pedestrians

Background

Improving transit access for pedestrians and bicyclists is a relatively new concept; consequently, there is little background that can be reported for North Carolina. Provision of a network of sidewalks or convenient ways to access transit for pedestrians has been primarily a local concern. The OBPT role has been one of providing funding for parking and lockers near interface points with transit and bicycle racks on buses, as well as working to enable the carrying of bicycles onto the five Amtrak trains which travel through the state. Many communities have benefited from bicycle parking, and some have installed lockers. Winston-Salem has bike racks on buses for selected routes. Projects are underway to outfit the Durham, Raleigh, and regional Triangle Transit Authority routes. The Watauga County bus system provides racks on most of their transit vehicles, which include regular buses, renovated school buses, vans, and used moving trucks. Currently, folding bicycles are allowed on all trains. Standard bikes are permitted as checked baggage on the *Carolinian, Crescent, Silver Star, and Silver Meteor.* OBPT is working to make access to trains easier for shorter trips.

Combining bicycles with transit and rail gives bicyclists greater mobility

Outlook

OBPT will continue to improve bicycle transit interface by funding independent projects which provide better access to transit stops, safe and secure parking, and on-board accommodation of bicycles. OBPT will also work with the NC DOT Public Transportation Division to increase awareness of provisions which enhance both pedestrian and bicyclist transit options. There will be continuing dialogue with local transit systems. The office will also continue dialogue with Amtrak for improving access on trains.

For pedestrians, OBPT will promote sidewalk links that provide access to transit. However, it is recognized that sidewalk improvements will emerge fastest through actions taken by local governments.

Focus Area 7

Goal 1

Identify, preserve, and develop abandoned rail corridors for bicycle and pedestrian transportation

Background

State law designates the NC DOT as the agency authorized to preserve abandoned rail corridors for future transportation use. The NC DOT Rail Division is authorized to lease preserved corridors for interim uses, but only if acquired through the fee simple absolute provision of the law. OBPT has long maintained an interest in this activity, but legal opinions, restrictions, and/or property disputes have prevented the acquisition of many corridors. Thus, the history of rail-trail conversion is rather short, with about 10 miles of rail-trail currently existing in Carrboro, Greensboro, Winston-Salem, and Wrightsville Beach. However, two more projects are now underway. The American Tobacco Trail, which is located in the heart of downtown Durham, is a six-mile urban corridor connecting neighborhoods, schools, parks, and worksites. This off-road facility is the first phase of what will eventually be a 20-mile trail through Durham and Wake counties. Another rail-trail of approximately one-half mile in length is being developed in the heart of downtown Lincolnton.

Outlook

OBPT routinely receives notification of planned rail abandonments and works with several groups to determine their potential for development. These groups include local agencies; the Rail Division of the NC DOT; the Department of Environment, Health, and Natural Resources (DEHNR); and North Carolina Rail-Trails (NCRT), an activist group founded in 1990. DEHNR's main interest pertains to the value of these rail-trails as links in the state trails system. NCRT helps local areas start the process of identifying and preserving rail corridors by providing technical assistance and other information. In addition, NCRT has initiated an ongoing forum to identify obstacles and solutions to rail-trail development. OBPT will participate in this NCRT forum and continue to work with all these groups to evaluate potential sites, as well as provide funds through independent bicycle projects in the TIP for segments of viable rail-trail conversion. Rail-trails and greenways are the two primary off-road facilities funded through the TIP. OBPT intends to build on recent North Carolina successes and work to increase the number of rail-trail conversions.

Partnership Goal 1

Providing bicycle and pedestrian facilities across North Carolina will require OBPT to create a diversity of partnerships, including links with local citizens and planning agencies, county and regional agencies, local transit agencies and the state transit office, local and regional trails interests, and state rail corridor preservation interests.

Combined with local efforts, increased NC DOT funding for paved shoulder projects, greenways, sidewalks, maps, and other independent projects can provide more facilities throughout the state. Future highway projects can provide significant opportunities for wide outside lanes for shared auto/bicycle travel, wide paved shoulders and sidewalks, and accommodate planned greenways in a community. Without local initiatives in identifying bicycle and pedestrian needs and, for certain types of facilities, commitment to their implementation, increased and safer opportunities for bicycling and walking will not be possible. Interested citizens must make needs and opportunities known to local officials and staff, who can consider bicycling and walking improvements in transportation plans, ordinances, and capital improvement programs, and utilize available resources to request and/or develop feasible projects. While many of these projects may need to be locally funded, assistance by NC DOT can be provided for others. With active involvement, citizens and local governments can ensure that considerations for bicycling and walking in their community are not an afterthought.

Vision Goal 1

The vision of this goal is to produce a continuously improving system of facilities for bicyclists, pedestrians, and motor vehicle operators.

Goal 2

Provide a comprehensive program of education and enforcement strategies that will improve the safety of all bicyclists and pedestrians

Overview

The overall purpose of this goal is to expand bicycle and pedestrian safety education and enforcement programs in North Carolina. Each year an estimated 20,000 North Carolinians visit hospital emergency rooms with injuries sustained while bicycling. Traditionally there have been three primary approaches to reducing bicycle-related deaths and injuries: improved facilities (i.e., engineering), education, and enforcement. This same three-pronged approach is needed for pedestrian safety as well.

"Sharing the road is appreciated, but it requires constant education of the motorist and cyclist on the appropriate behavior of both."

-from the public comments received

Since most children ride bicycles, it is important that they receive training about how to ride safely in traffic. It is inconceivable that parents would send their children onto our streets and highways in motor vehicles without training, licensing, and a properly inspected vehicle. Yet most children, at much younger ages, are allowed onto these same roadways on their bicycles without the benefit of training concerning the operation of their bicycle and knowledge about how to interact with traffic. Bicycle safety education is needed to protect children now, and to provide a foundation for responsible motor vehicle drivers in the future. Since children are also at increased risk as pedestrians, school-based pedestrian safety education programs are needed as well.

Education about safe riding equipment is needed for bicyclists of all ages. Of primary importance is helmet use. Head injuries are the primary cause of death for bicyclists involved in crashes, and wearing a helmet can greatly reduce the likelihood of head injury. Despite this fact, only a small percentage of bicyclists choose to wear a helmet. Programs are needed to promote the voluntary use of helmets by bicyclists of all ages.

Along with education, enforcement is a primary tool for promoting the safety of pedestrians and bicyclists. Numerous North Carolina laws serve to protect bicyclists and pedestrians. Some pertain to these motorized road users specifically, while others pertain to motorists but have significant safety implications for pedestrians and bicyclists. Local areas often pass additional laws or ordinances impacting bicycle and pedestrian safety. Unfortunately, the impact of many of these laws is reduced due to insufficient enforcement. There is a need for innovative approaches to encourage the law enforcement community to become more actively involved in enforcing traffic laws that can improve pedestrian and bicyclist safety.

In addition to these specific safety programs and materials, there is a need to develop and disseminate a variety of safety materials for bicyclists, pedestrians, and motorists targeting at-risk ages and groups. OBPT's goal is to serve as a statewide clearinghouse for such materials.

Focus Area 1

Goal 2

Implement the Basics of Bicycling curriculum in all elementary schools throughout North Carolina

Background

The Basics of Bicycling curriculum is a classroom and on-bicycle training course for fourth and fifth grade elementary school children. The curriculum teaches the basic knowledge and skills necessary to prevent bicycle crashes and injuries. Seven class periods are usually required, the first two in class and the last five on-bike in a simulated road environment. Students learn to:

- follow the rules of the road
- recognize and avoid high-risk situations
- communicate with other road users
- handle their bicycles skillfully
- use proper equipment.

OBPT developed the Basics of Bicycling curriculum in collaboration with the Bicycle Federation of America. The program was pilot tested and evaluated by the University of North Carolina Highway Safety Research Center. Evaluation showed the program to be effective in teaching children the basic knowledge and skills needed to ride a bicycle safely in traffic. Since then the course has been marketed on a national level as a model bicycle safety education program. The curriculum has been formalized and a comprehensive teaching manual prepared. Through 1995 the Basics of Bicycling had been implemented in more than 20 school systems, with 14 additional systems being added in 1995-1996.

Students learn many on-bike skills through the Basics of Bicycling curriculum

Outlook

The OBPT has been actively implementing the Basics of Bicycling curriculum throughout North Carolina. The office promotes and distributes the curriculum and trains potential teachers within the school systems in the skills necessary to administer the course. The workshops include knowledge of background facts, course layout, development of props, and how to conduct the on-bike maneuvers. To date, OBPT has used Governor's Highway Safety Program (GHSP) grants to fund the education staff position and provide a series of seed grants to school systems. It is not clear

how long GHSP will participate in this endeavor, but monetary support from some source will be necessary.

The long-range focus for this task is to continue to work to have the Basics of Bicycling curriculum taught in public schools throughout North Carolina. Since new groups of children enter the fourth grade each year, the aim is to provide an educational system with an ongoing curriculum in bicycle safety. The plan is to continue this process until the curriculum is in place in all public schools throughout North Carolina. Having this curriculum taught in all the state's schools will improve the skills of children riding in traffic. Eventually all children will have experienced this training before they reach the age to drive a motor vehicle. These drivers will, therefore, become motorists with an awareness of bicyclists and the skills required to safely interact with traffic. They will be safer bicyclists as well as motorists.

Focus Area 2 — Goal 2

Increase helmet use among bicyclists of all ages

Local helmet promotions increase bicycle helmet use

Background

OBPT inaugurated a statewide helmet promotion effort in 1990. That year, a variety of helmet promotion materials were developed including manuals, posters, brochures, and handouts. "The North Carolina Bicycle Helmet Campaign Guide" was produced, and representatives from more than 50 communities attended a one-day workshop on how to conduct a local bicycle helmet campaign. To date more than 200 communities have undertaken some level of bicycle helmet promotion and safety education. Beginning in 1991, funds were made available from two sources (Office of Maternal and Child Health and Injury Control Section of DEHNR) to support community helmet

promotions, and a third funding source was added in 1992. The GHSP monies have been specifically targeted towards involving law enforcement agencies (including the State Highway Patrol) in bicycle safety education and helmet promotion activities.

Beginning in 1995, funds have been available to support a full-time position within OBPT to promote the Basics of Bicycling, which includes primary bicycle helmet promotion on a one-to-one basis. And recently, OBPT worked with other state agencies to distribute more than 1,000,000 discount coupons for helmets as part of a national program created by the Safe America Foundation.

Outlook

OBPT will continue to develop and produce materials and sponsor and promote local bicycle helmet promotion programs. Currently, wearing a helmet is voluntary in most North Carolina communities, and OBPT's safety efforts are being focused on promoting voluntary helmet use by bicyclists of all ages. A few communities, however, have passed local ordinances requiring children to wear helmets when riding their bicycles. The N.C. General Assembly, encouraged by local pediatricians and the State Pediatric Society, has also shown interest in passing a statewide helmet law for youths under age 18. If a statewide law is passed, OBPT is prepared to support and promote it through its statewide safety programming. OBPT will continue its efforts to promote the voluntary use of helmets by bicyclists not covered by the law.

Bicycle helmets have been proven to reduce the number and severity of bicycle injuries

The long-range focus is to have all bicyclists in North Carolina, regardless of their age and regardless of whether required by law, wearing an approved bicycle helmet when riding on North Carolina's streets and highways.

Focus Area 3

Goal 2

Develop and implement school-based pedestrian safety curricula and programs

Background

Pedestrian safety education has only become a focus of the NC DOT since the Bicycle Program was expanded to become the Office of Bicycle and Pedestrian Transportation in 1992. Prior to this, pedestrian safety education activities in the state were handled primarily by the Department of Education, through various school-based curricula. The K-9 Traffic Safety Education Curriculum was developed in the mid-1970s and made available to schools throughout the state to help meet the Department's health and safety goals. Subject areas addressed by the curriculum include pedestrian safety as well as bicycle, school bus, and passenger safety. Although the curriculum was generally found to be effective in increasing children's knowledge of these traffic safety issues and generally well-received by teachers and principals, it was never widely implemented and is no longer used today.

Beyond this curriculum, the primary source of pedestrian education materials and programs for school-age children has been through private organizations, such as the American Automobile Association and Walt Disney Productions. There has not been a focal point in the state for pedestrian safety activities and programs.

The school crossing guard program teaches children safe crossing behaviors

Outlook

OBPT is working to establish itself as a central resource for pedestrian safety education programs and materials in the state, a role that it already serves for bicycle safety education. An initial step in this process will be the development of a pedestrian safety education curriculum for children in kindergarten through third grade, to complement the Basics of Bicycling curriculum which targets children in grades four and five. Like the Basics of Bicycling, the pedestrian curriculum will use a hands-on approach and will be based on research results identifying the specific behaviors that cause problems for young pedestrians. Just as with the Basics of Bicycling, efforts will be undertaken to have the curriculum

implemented in school systems across the state to form a continuum of traffic safety education through the elementary school years.

To supplement this curriculum, OBPT will develop educational activity sheets, coloring books, posters, and other materials that can be distributed through the schools, health departments, law enforcement agencies, and other organizations.

Focus Area 4 — Goal 2

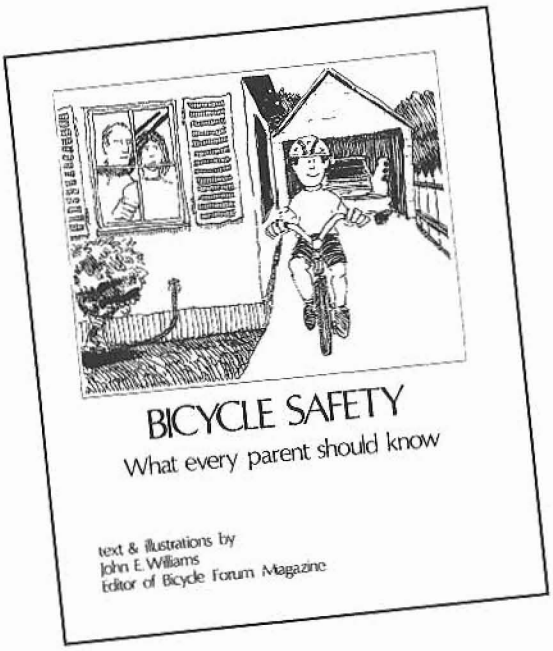
Develop, publish and maintain a clearinghouse of bicycle, pedestrian, and motorist safety materials targeting at-risk ages and groups

Background

Education has been a focus area of OBPT activities since the Bicycle Program was first established in 1974. In fact, during its first decade, funding was only available for safety education activities. During this period a variety of materials were created and made available. Examples include: *Namron Learns the Rules of the Road*, a coloring book and reader for children in grades K-3; *Even Your Mother Could Be One . . . a Bicyclist*, a pamphlet targeting motorists; an adult cycling instructor's manual; and a supplement to North Carolina's driver's education curriculum intended to instruct new drivers on interacting safely with bicyclists on the road. Also during this time OBPT began developing its film library for loan to schools, 4-H programs, scouting programs, etc.

Today OBPT has a wide assortment of pamphlets, activity sheets, manuals, posters, safety handouts, etc. that it makes available to North Carolina residents free of charge for their bicycle safety programs. Each year, more than 500,000 pieces of bicycle safety material are provided to organizations and agencies in more than 400 communities across the state. In addition, OBPT has undertaken the following special education programs:

- The Basics of Bicycling, a seven lesson bicycle safety education curriculum targeting 4th and 5th grade children, developed in 1990 and now being taught in over 20 school systems across the state.
- A community mini-grant program. Funded by the GHSP, this program provides support for communities to undertake a variety of safety programs which promote bicycle helmet use and hands-on bicycle safety training (including the Basics of Bicycling). Since 1991, more than 30 communities have initiated bicycle safety activities under this program.
- The "Share the Road" campaign, designed to make motorists more aware of cyclists' right to the road. In addition to the familiar "Share the Road" signs now found on highways frequented by bicyclists across the state, the program has utilized posters, a handbook for adult cyclists entitled "Streetwise Cycling," and information on bicyclists' rights and responsibilities which is incorporated into the state's driver's handbook.



The safety information clearinghouse provides needed support for local safety efforts

Although pedestrian safety activities in the state have not shared this distinguished history, one of OBPT's first steps after the pedestrian program was created in 1992 was to begin building a library of resources and materials to guide its program development. It also recently funded development of a pedestrian facilities guidebook for use by state and local planners and engineers wanting to safely accommodate pedestrians in traffic.

Outlook

OBPT will continue to create, update, and distribute quality bicycle safety materials, and will expand its program to incorporate pedestrian safety materials as well. These materials will be tailored to specific audiences and will address the specific educational needs of those audiences. For example, OBPT may want to develop a series of pedestrian safety pamphlets for school age children, senior citizens, parents of preschool-age children, etc., identifying the most frequent crash types for each group and key behaviors which will help prevent crashes.

To ensure that the safety messages being conveyed are effective and critical, OBPT will draw from available research and crash data. Where necessary, special studies will be funded to collect and/or analyze needed data. As new information is uncovered, materials will be revised and updated or replaced. OBPT will continue to make these materials available to North Carolina residents at no charge, and will continue to serve as a resource to citizens on all matters of bicyclist and pedestrian safety education.

Education is a primary tool by which OBPT can work to reduce the numbers of bicyclists and pedestrians killed and injured in collisions with motor vehicles and create a safer, friendlier environment for all road users. The goal of this effort is to develop and maintain a rich library of educational materials—including information guides, pamphlets, posters, videocassettes, etc.—that can be made available to citizens and organizations throughout the state to encourage and support their bicycle and pedestrian safety activities. New methods of information dissemination, such as interactive videos and the internet, will be utilized as such technological advancements become more mainstream.

Focus Area 5

Goal 2

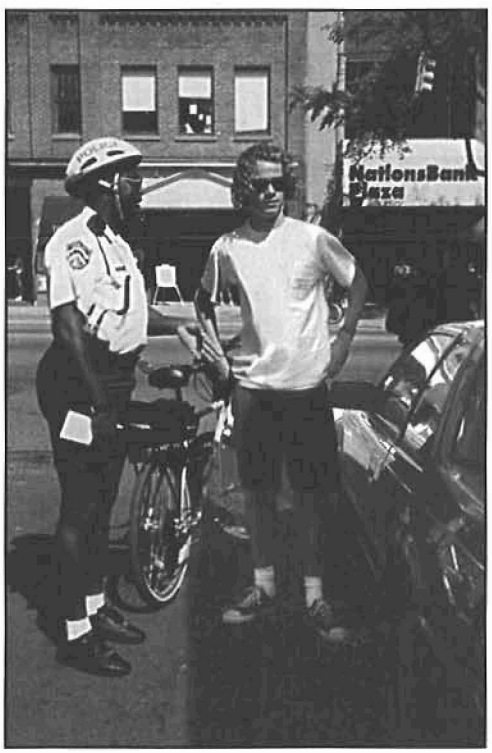
Encourage law enforcement agencies to enforce laws impacting bicyclist and pedestrian safety

Background

OBPT has a long-standing interest in promoting enforcement of traffic laws pertaining to bicyclists. In 1980, it supported a GHSP-funded project to develop the *Bicycle Law Enforcement Manual.* The Manual is a compendium of resources documenting the need for bicycle law enforcement, model programs, key program elements, the role of a bicycle enforcement officer, and a variety of supporting materials and resource organizations. Unfortunately, funding was never made available to take the next step of implementing and evaluating a community-wide bicycle law enforcement program.

During 1990-91, the North Carolina Bicycle Committee adopted bicycle law enforcement as one of its key emphasis areas. However, attempts to garner support from local police departments for bicycle law enforcement activities were largely unsuccessful. Although very supportive of bicycle safety education activities, police departments have generally not been willing to engage in programs of active bicycle law enforcement.

A trend that is becoming increasingly popular in police departments across the state and nation is to assign selected officers to patrolling on bicycles. More than 35 North Carolina communities now have some form of "Bike Patrol," and the number continues to grow. While these bike patrols are established primarily to help fight crime in downtown areas and on college campuses and to improve community relations, the officers serve as highly visible role models and increase opportunities for interacting with the bicycling and walking public. They also legitimize bicycles as valid and attractive transportation modes.



Law enforcement officers have an important role in enforcing safe bicycling, walking and driving behaviors

Outlook

Although a difficult area in which to effect change, bicycle law enforcement remains a priority within OBPT, and pedestrian law enforcement will likewise be an area for future emphasis. OBPT will continue to provide workshops and other opportunities for law enforcement officers to receive training on the types of pedestrian- and bicycle-motor vehicle crashes that occur and the specific behaviors that contribute to these crashes. Along with the education materials that it provides to law enforcement agencies for its school programs, OBPT will make available materials geared more toward the law enforcement officers themselves and the role that they can play in improving the behavior of bicyclists and pedestrians, as well as motorists, to reduce these groups' crash risk. OBPT will also explore the possibility of conducting demonstration projects to evaluate the impact of a police-based bicycle and pedestrian law enforcement program on injury levels within a community.

Finally, OBPT will stay informed of changes in state and local laws impacting bicyclists and pedestrians, and provide this information to lawmakers, law enforcement officers, and the public. Examples here include a possible statewide helmet law which was passed by one house of the North Carolina General Assembly in 1995, and recent efforts to legalize the right hand turn signal.

The long-range intent is to have all law enforcement officers in the state trained as to the need for bicycle and pedestrian law enforcement, what laws to enforce for what age groups, and effective approaches for enforcing these laws.

Partnership Goal 2

Safety education resources for preventing bicycle injuries and fatalities are currently available to all individuals and organizations in North Carolina who request them. Pedestrian safety education resources will be developed in the future. However, without the energy, involvement, and care of the many individuals who will learn about, practice, teach, and enforce safe bicycling, walking, and driving behaviors in their communities each year, injury prevention would be just a wish. Police departments, schools, libraries, health departments and providers, the media, parents, bike shops, scout troops, and so many others all play an active role in equipping children and adults with the skills and information they need to bicycle, walk, and drive safely throughout their lives. The public's demand for and utilization of safety education materials, and willingness to put this information into daily practice, is crucial to achieving the state's safety goal for bicycling and walking.

Vision Goal 2

The vision for this goal is a community of bicyclists, pedestrians, and motorists who interact skillfully and safely with one another in traffic, leading to fewer crashes and injuries.

Goal 3

Institutionalize bicycling and walking considerations to enhance current transportation practices at the state, regional, county, and local level

"We are lucky to live in a beautiful area with temperate climate which allows for walking and bicycling for most of the year. I think that many would be motivated to bicycle and walk to work/school if access was safer."

-from the public comments received

Overview

Creating and maintaining a foundation on which bicycle and pedestrian safety is effectively and efficiently incorporated into the everyday workings of government at all levels is the primary purpose of this goal. It will be realized through continually improving current practices wherever planning and programming for bicycling and walking takes place.

Providing technical assistance to and creating an information exchange with planners, engineers, local and state officials, and citizens throughout the state has been a function of OBPT since its inception. One of the four original mandates of its enabling legislation directs the NC DOT to provide this service.

Routine planning for bicyclists and pedestrians should be done at all levels of government

There is little formal training available for state and local planners and engineers which pertains to bicycling and walking as transportation modes. Planning and engineering curricula only touch the periphery of issues related to these non-motorized modes. Thus, the people who are involved with the day-to-day transportation planning and programming must gain their knowledge of bicycle and pedestrian facilities and operations through hands-on experience.

Legislation, regulations, ordinances, and policies that affect bicycling and walking exist at all levels of government. These guiding principles range from funding provisions contained in ISTEA to sidewalk policies at the local level. It is incumbent upon bicycle and pedestrian professionals to keep abreast of these issues.

Citizen participation is a key element in the success of any bicycling and walking improvements. The involvement of citizens through civic organizations, community groups, public meetings, and the individual with special interests guarantees the broadest support. By organizing these citizens into bicycle and/or pedestrian committees, they can develop plans and processes which will

assist decision-makers in making quality improvements to the bicycling and walking environments.

Trained professionals; favorable laws, policies and ordinances; and active citizen participation ensure the successful integration of bicycle and pedestrian transportation.

Focus Area 1 — Goal 3

Provide ongoing training and information exchange for state and local staff and officials

Background

Providing technical assistance to localities is part of the NC DOT's directive in the Bicycle and Bikeway Act of 1974. Since its inception, the OBPT has worked closely with communities across the state to help in developing and refining local bicycle programs. This information exchange has been accomplished in several ways, including one-to-one interaction, materials distribution, and workshops.

Ongoing training and information exchange is a normal part of OBPT operations

Outlook

Ongoing training and information exchange is currently a regular part of the OBPT operation. Most often there is personal interaction in the form of technical assistance to local staff persons. Increasingly, visits are made to localities and project sites. OBPT has technical resource files and a library available to the public. Staff members are called upon to answer many questions, ranging from the broader "how to do a plan or survey" and "what to do for children concerning bike safety" to the very specific of "what traffic sign is appropriate" and "how to teach the proper fit of bicycle helmets."

OBPT has a broad range of materials to assist localities in planning and implementing bicycle and pedestrian initiatives. These include not only the *North Carolina Bicycle Facilities Planning and Design Guidelines* and *Basics of Bicycling Curriculum* materials, but also manuals and guidelines dealing with bicycle helmet promotion, bicycle enforcement, community events, and other matters. Some of the education curricula and the facilities guidelines include a video component. Other materials provide workbooks, tests,

teaching supplements, and program examples.

Workshops represent the most intensive means of providing information exchange on specific topics. Examples include training elementary school teachers how to teach the Basics of Bicycling and mini-grant workshops for local law enforcement agencies. Training for bicycle facility planning and design is offered in workshops at least twice a year. An important element of this workshop is instruction on how to develop and submit a project request for TIP funding.

OBPT will continue to develop ways to provide technical assistance and information exchange. Internet information will be available. Manuals and materials will be updated and workshops offered where appropriate. A goal is to develop and provide bicycling and walking curricula elements for university-level engineering, planning, recreation, and education majors. With turnover in state-level positions, engineers and planners within the NC DOT need continuous training. This training should be extended to include division and district level personnel. Newsletters such as the current *Bike/Ped News,* as well as progress reports and technical periodicals, will continue to be used as primary tools for technical information distribution for DOT, MPO, and local planning staff. With more technical knowledge readily available at all levels of government, the mission of the OBPT will be more easily attained.

Focus Area 2 — Goal 3

Assess and incorporate federal, state and local legislation, regulations, ordinances, and policies concerning bicyclists and pedestrians

Background

At the federal level, the current ISTEA legislation has given much notice to the non-motorized modes of bicycling and walking, especially in regard to funding possibilities. Prior to ISTEA, the Surface Transportation Assistance Act allowed funds to be spent on bicycling improvements as independent projects. In recent years, the Americans with Disabilities Act and the Clean Air Act and amendments have led to improved conditions for pedestrians and bicyclists.

The Consumer Product Safety Commission has guided changes in bicycle product regulations for a number of years. The American Association of State Highway and Transportation Officials (AASHTO) has developed guidelines for various kinds of on-road bicycling improvements. AASHTO, the Institute of Transportation Engineers (ITE), and other groups have participated in the development and various updates of the Manual on Uniform Traffic Control Devices.

At the state level, OBPT has been guided in large part through its enabling legislation, The Bicycle and Bikeway Act of 1974, and the subsequent NC DOT Bicycle Policy. The NC DOT routinely incorporates and maintains bicycling facilities as part of highway improvements as per the wording contained in the Bicycle Policy. The Administrative Action to Include Local Adopted Greenways Plans in the NC DOT Highway Planning Process, enacted in January 1994, aids both bicyclists and pedestrians. Pedestrian Policy Guidelines developed in 1994 allow the NC DOT and localities to share in the building of sidewalks.

A variety of ordinances and policies exist at the local level as well. In the recent inventory of North Carolina bicycling and walking facilities, almost 50 communities responded that local ordinances require developers to provide bicycle or pedestrian facilities in private developments. Almost 70 communities responded that they have local ordinances that (a) define the status of the bicycle as a vehicle, (b) control the operation or use of a bicycle, and/or (c) regulate the equipment of a bicycle. Slightly over 40 communities responded that they have ordinances regulating pedestrians. In addition, local bicycle helmet ordinances are becoming more common.

Outlook

The OBPT approach has been, and will continue to be, to review and evaluate the legislation, regulations, ordinances, and other policies that pertain to bicycling and walking and thus determine if modifications, improvements, and/or other actions need to be taken. As examples, internal policies have twice been evaluated and changed. The 1974 enabling legislation was modified in 1977. Wording to form the Bicycle Advisory Committee was also added. In recent years, it was determined that updates and changes were needed in the 1978 "Bicycle Policy." This document was revised and subsequently rewritten in 1991.

On occasion, the N.C. Motor Vehicle laws are sometimes reviewed for possible revision. In the early 1990s, a bill was introduced that could have severely restricted or even banned bicyclists riding in groups from the highway. The bill would have required single file riding and prohibited bicyclists from riding close behind each other. OBPT opposed the bill which was eventually defeated.

Citizen participation can be important in the legislative process. Based on citizen input, a bill allowing an extended right arm to indicate a bicycle right hand turn was drafted by OBPT and introduced in the 1993 legislative session. However, after considerable debate, the bill was defeated in committee.

OBPT also reviews national policies as they are being updated. Examples include documents for ITE that pertain to facilities for bicyclists and pedestrians and the current revision to the AASHTO bicycle facility design guidelines.

OBPT plans to continue to work with technical groups, citizens, lawmakers, and others to stay abreast of developing legislation, regulations, ordinances, and other policies that impact bicyclists and pedestrians. Staff will make efforts to be appointed to groups reviewing new or revised documents, policies, and legislation. The office will work for modifications that will help create the best and safest environment for pedestrians and bicyclists.

Focus Area 3

Goal 3

Advocate the establishment of bicycle and pedestrian citizen committees to promote the development of local plans and programs

Background

There are currently 34 North Carolina communities which have bicycle/pedestrian or related citizen committees in place. In these localities, improvements have been continual. Consider the accomplishments of the Town of Carrboro: (1) first community in the state to apply for federal funds to build an off-road facility, (2) community bond issue for bicycling improvements, (3) first community to have NC DOT perform incidental bicycle facility project, (4) networks in place so that many children actually bicycle to school, and (5) incentives for developers to build bicycle and pedestrian facilities.

Sometimes a citizen bicycle and/or pedestrian committee is the *only* group within the community that can identify a group need and provide enough continuity to carry through the vision.

Local citizen committees are invaluable in helping to plan properly for bicycling and walking improvements

Outlook

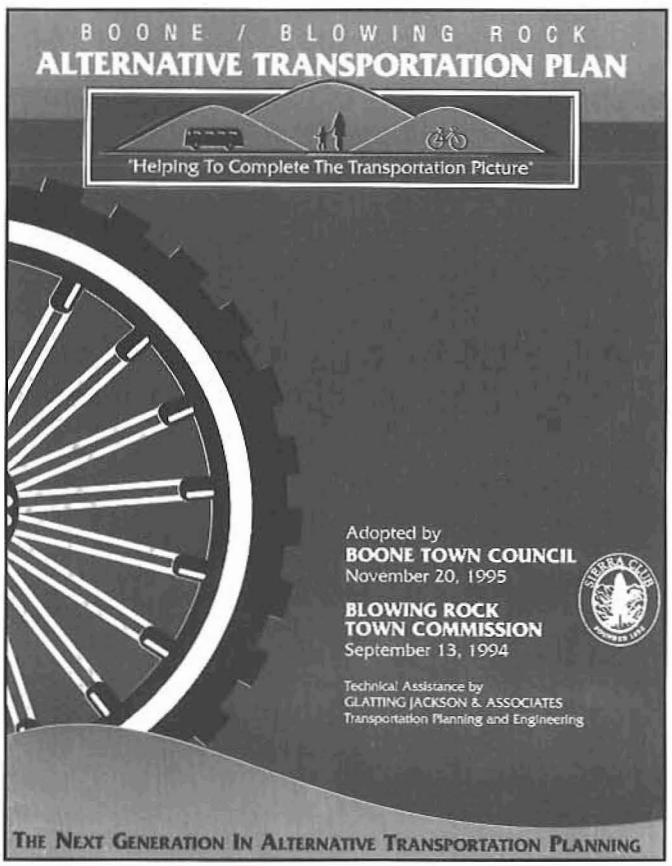
Providing technical assistance to localities is part of OBPT's mission, and since its inception, the OBPT has worked closely with communities across the state to help in developing and refining local bicycle programs. Pedestrian contacts are evolving. OBPT can advocate for citizen committees through its normal contacts with communities by promoting the value of these groups (i.e., why they are important and what they can do). Activities like the development of a bicycle plan or a mapping project can be the impetus which leads to the formation of a citizen committee, as local planners and others see the potential for bicycling.

OBPT will continue to advocate for citizen committees throughout North Carolina. The N.C. Bicycle Committee, which exists at the state level, can be the catalyst for the formation and/or continuation of local groups. A long-range goal is the creation of a federation of such groups. Statewide conferences and training will be used to exchange information.

Partnership

Goal 3

Institutionalization of bicycling and walking considerations into state, regional, county, and local level transportation practices will benefit from strong partnerships between OBPT and other state DOT offices, as well as regional and local transportation and planning offices and citizen activists. Working through these partnerships, OBPT will provide training and assistance for bicycle and pedestrian planning and programming at all levels of government. The Office will also provide legislative information and will encourage the formation of local citizen advisory committees to promote sound, comprehensive bicycle and pedestrian planning and programming at all levels of state and local government.



Vision

Goal 3

The vision of this goal is to foster well-trained professionals who, with the support of citizen organizations and the foundation of sound laws and ordinances, will develop bicycle and pedestrian programming at all levels of government.

Goal 4

Identify and promote new and innovative ways to advance bicycle and pedestrian safety and enjoyment through research and needs assessment

"Ultimately for walking and bicycling to be safe and effective alternatives to the personal automobile, much more will be needed, such as better land planning."

-from the public comments received

Overview

The purpose of this goal is to develop information which can be used to formulate and evaluate new and/or innovative engineering, education, enforcement, and encouragement programs.

Better data are needed to document the pedestrian and bicyclist safety problem as well as to provide information for safety program and countermeasure development and evaluation. Data on the full range of events causing injury to pedestrians and bicyclists as well as relevant exposure information to provide a context for interpreting the crash data must be gathered. Analyses of these data should be made available to safety professionals and other providers at both the state and local levels to form a solid basis for program development and action.

Well-designed trail crossings enhance safety

In addition to needs assessment and countermeasure development and implementation, evaluation is a key component to successful bicycle and pedestrian facility and safety education programming. Simply constructing a facility or implementing a safety education program does not guarantee that crashes will be avoided and numbers of injuries reduced. Evaluation is needed to assess the impact of specific treatments, facilities, and programs, as well as to assess and direct overall program efforts.

Research and evaluation, when coupled with program innovation, guarantees the most effective approach to improving the environment for bicycling and walking safety.

Focus Area 1

Goal 4

Conduct research to identify pedestrian and bicycle safety needs to guide countermeasure and program development

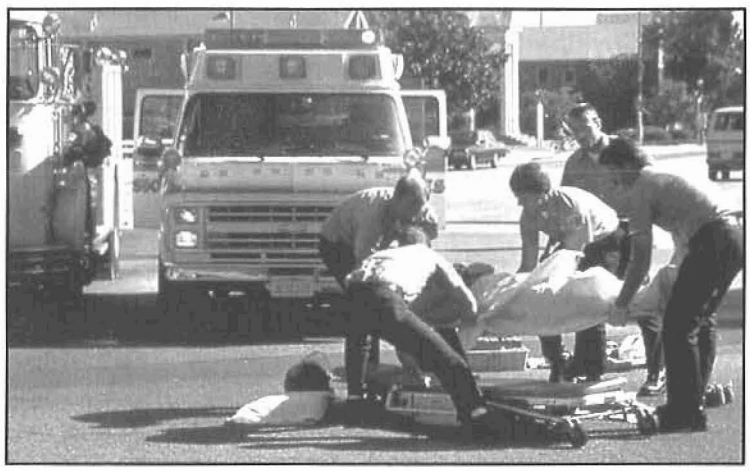
Background

Research and needs assessment have been a cornerstone of OBPT's bicycle safety efforts, dating to the very beginning of the program in the early 1970s. These research studies have influenced the development of programs and facility construction decisions.

Examples of these research efforts include: 1) a statewide household survey which indicated that over two million North Carolinians rode bicycles and over half of the households owned bicycles, and 2) the analysis of bicycle-related injuries reported to hospital emergency rooms which indicated over 20,000 bicycle injuries annually and under-reporting of automobile/bicycle crashes in police records by 40 percent. The Office has also used national research to support and expand the data found in North Carolina studies. The landmark 1975 Kenneth Cross study of bicycle crash types was utilized in the development of the nationally recognized Basics of Bicycling, a curriculum for training children in grades four and five. These studies and other research efforts underscore the need for continued analysis of bicyclist and pedestrian travel patterns and crashes.

Outlook

OBPT will continue to use available state and national data to identify bicycle and pedestrian safety programming needs. A key approach will be to examine the data to identify appropriate target populations and their particular areas of need. Research is needed to support expanded programming in such areas as helmets for adults, education of motorists, and responsibilities of vehicle operators. Currently, more data is needed on bicycle and pedestrian exposure and other characteristics.



Evaluation of crash data helps to identify appropriate countermeasures

The Office will continue to monitor North Carolina bicyclist and pedestrian crash data to: 1) identify new target populations and countermeasures, 2) detect changing trends in the groups involved and the nature of their crashes, and 3) identify emerging issues. Currently, a study is underway to develop a crash type analysis of N.C. bicycle and pedestrian crashes. An updated statewide survey of the characteristics and needs of bicyclists and walkers is planned.

Focus Area 2

Goal 4

Periodically evaluate the effect of bicycle and pedestrian facility and safety education programming

Background

As one of the nation's oldest programs, OBPT has often had to learn from its own experiences. One of the earliest facilities funded through OBPT was the Avent Ferry bike path built in Raleigh in 1980. The path was one of several national demonstration projects. This two-way, eight-foot-wide, joint-use facility was located three feet behind the roadway curb on the berm. This elaborate sidewalk became an immediate research facility, dated and unsafe almost from the beginning. Accidents occurred at driveways and intersections; it was too narrow for joint use; and bicyclists began to choose the street over the separated facility. OBPT learned from this experience which, along with other demonstration projects, has led to the development of guidelines for bicycle facility construction.

Bicycle and pedestrian facilities and programs should be evaluated for effectiveness

Another example of facility evaluation highlighted early in the Bicycle Program's history was unsafe drainage grates. Such grates were found throughout the state on streets and highways frequented by bicyclists. The Office worked with the Division of Highways to design a drainage grate which was both safe for bicyclists and met the standards for flow of water. This drainage grate is standard now and is used in all highway improvements.

More recently, OBPT developed an innovative bicycle safety education curriculum for elementary school age students that incorporates on-bike lessons in a simulated traffic environment. The program was evaluated both in terms of *process*, or how effectively it could be implemented, and *impact*, its effectiveness in increasing children's knowledge and practice of safe riding behaviors and, ultimately, reducing crashes and injuries. The positive results of the study have helped to convince educators of its value and have facilitated its introduction into schools across the state.

These are just a few examples of ways in which OBPT has incorporated evaluation into its programming. In addition to evaluating specific facilities and programs, the Office regularly evaluates the policies that guide these activities, such as the DOT's greenway and sidewalk policies. Evaluation has been conducted both formally and informally, and is considered to be integral to virtually all of the

Office's activities. This basic approach of incorporating evaluation into the everyday operation of the program, coupled with the longevity of key program personnel, have been important ingredients to OBPT's continued growth and effectiveness.

Outlook

OBPT will continue to incorporate evaluation into its bicycle and pedestrian facility and safety education programming, both on a formal and informal basis. Future evaluations will focus on the costs and benefits of a particular facility, treatment, or program. The Office will also provide guidance to local transportation and planning departments in evaluating the impact and safety of their own facilities and programs. All projects funded through Governor's Highway Safety Program grant monies include an evaluation component.

OBPT will also continue to incorporate the results of its day-to-day evaluation and feedback activities into its various facility guidelines and program implementation manuals. As an example of this sort of activity, the Basics of Bicycling curriculum was recently revised and updated to include an expanded instructor's video module to supplement the more formal on-site training sessions offered. In a similar manner, future guidelines and facility manuals will incorporate lessons learned from the cumulative experience of OBPT staff members.

Young children are a key target group in safety education programming

Specific activities being planned include the development and evaluation of a school-based pedestrian safety education curriculum, similar in scope to the Basics of Bicycling, and the evaluation of comprehensive, community-wide pedestrian and bicycle safety demonstration programs. OBPT also hopes to be able to obtain more information on the users (and potential users) of its facilities through surveys, focus groups, or other methods. Finally, the Office will be exploring new approaches to obtaining more direct and regular feedback from the public it serves through mechanisms such as a home page on the world wide web, an expanded newsletter, and more frequent public meetings.

Focus Area 3

Goal 4

Implement and evaluate innovative programming procedures, training techniques, and facility treatments

Background

Through the years, the NC DOT Bicycle Program has been regarded as a leader and trendsetter in the approaches it has taken to promote safe bicycling transportation. Examples include: "Share the Road" campaign, Bicycling Highways, the Basics of Bicycling education curriculum which incorporates extensive on-bike training in a simulated road environment, the development and use of bicycle-safe drainage grates in the mid-1970s, publishing an annual calendar of statewide bicycling events, and working with the state Governor's Office to establish Bicycle Week and Bicycle Month, first proclaimed in 1975. The Bicycle Program has evolved and expanded throughout its 22-year history, and the recent addition of a pedestrian component to the program is viewed as an opportunity for continued innovation and growth.

Outlook

The OBPT will continue to foster innovation in its programming, training, and facility treatments. It will maintain a skilled and motivated staff that is closely attuned to new developments and new technologies in the field and that has an open mind to change and innovation. Examples of new areas OBPT will be exploring include expanded uses for GIS, traffic calming in local communities, innovative traffic control devices (such as infrared light motion detectors), interactive videos for teaching and training, teleconferencing, and use of the internet and world wide web.

Different pavement colors and textures make pedestrian crosswalks more visible to motorists

Partnership Goal 4

OBPT is committed to identifying and promoting new and innovative ways to advance bicycle and pedestrian safety and enjoyment. Accomplishing this goal will require an ongoing investment by state and local agencies to identify areas of need, evaluate the effectiveness of existing programs, and conduct demonstration projects to examine the potential of innovative ideas and methods. The payoff should come in the assurance that North Carolina communities are receiving the best, most effective, and efficient programs available for bicycle and pedestrian safety.

Vision Goal 4

The vision of this goal is to create a program which maintains and facilitates the most efficient, effective, and up-to-date programming and facilities available for creating an environment conducive to safe and enjoyable bicycling and walking.

Goal 5

Encourage bicycling and walking as viable transportation options

"We are challenged to awaken our citizens to the immense values of bicycling and walking as recreation, a means of touring, and a means of commuting within cities."

-from the public comments received

Overview

Although bicycling and walking are enjoyable recreational activities that offer many health benefits, they are also important modes of transportation. Many North Carolinians enjoy bicycling or walking to work, to visit friends, or to run errands. A growing number of residents and visitors alike are discovering that bicycling and walking are a great way to tour the state and explore new sites and destinations. Many more may only need a little encouragement to discover the joys and opportunities that bicycling and walking offer. Goal 5 centers on promoting bicycling and walking transportation through a variety of promotional events, tourism opportunities, and commuter incentive programs.

Bicycling and walking are viable transportation options

Almost all children know the value of utilitarian bicycling. The bicycle is their primary means of personal transportation. Most adults have childhood memories of bicycling and, for a growing number of these individuals, bicycling is still an important part of their lives.

Many people are starting to look beyond their neighborhood to learn what bicycling and walking may offer them. For some, it is merely an opportunity to get some exercise or run some errands. For others, the lure of the long distance adventure beckons. Still others may have the opportunity to commute to work by bicycle and foot; however, relatively few are choosing to do so today. Results from the 1990 Nationwide Personal Transportation Survey showed that, overall, 7.2 percent of trips were made by walking and 0.7 percent by bicycling in the United States. Incentive programs have been shown to be effective in changing behaviors, including the amount of bicycling and walking to work.

Through a variety of bicycling and walking promotions, localities can increase public awareness of the opportunities each transportation mode offers for its citizens and visitors. Three detailed focus areas follow which describe the work activities of OBPT to reach the goal of encouraging bicycling and walking as viable transportation options.

Focus Area 1

Goal 5

Sponsor statewide promotions and events, and encourage local activities aimed at increasing awareness of bicycling and walking opportunities

Background

Since its inception OBPT has been involved in the development and promotion of various bicycle events which have generated interest in bicycling and created new riders. Since the responsibility for pedestrian programs has only recently been added, similar pedestrian promotion activities have yet to be undertaken. Bike Week/Month promotions have existed since 1975. The first calendar of bicycle annual events was produced in 1979 and listed about 20 events; today's version includes more than 150 events. A community manual describing bicycle events was produced in 1983. A skills test manual was completed in the late 1970s, and a rodeo manual became available in 1988. Since the early 1980s, the state has sponsored an awards program which recognizes communities, businesses, and individuals that have excelled in the encouragement of safe bicycling.

The promoting of bicycle touring and the development of touring tools has been an important aspect of the Office since the beginning of the program in the mid-1970s. Due to the demand of large numbers of North Carolinians and many visitors to the state, preferred statewide bicycle routing became a priority.

Many localities sponsor bicycle and walking promotions, both small and large scale. Bikeathons, walkathons, charity fund raisers, bicycle club-sponsored events, local bike-day celebrations, bicycle rodeos, etc., provide opportunities for adults and children to experience the joys of bicycling and walking.

Outlook

OBPT will continue to provide information and assistance to individuals and communities regarding promotions and events. The bicycle touring provisions will also continue with expanded local and county information. Participating groups include other statewide or local agencies, citizen organizations, bicycle/walking committees, etc. Plans are to increase media releases and to work more closely with local media outlets. OBPT will soon have a world wide web home page that can be used for such promotions. Future bicycle promotions include a cross-state ride and bike-to-work days.

At present, little is being done for pedestrians, but walking maps are a possibility in the future. There has been some coordination with trails groups interested in developing a "Mountains to the Sea" walking route. However, future plans focus more on developing environments conducive to walking at the local level.

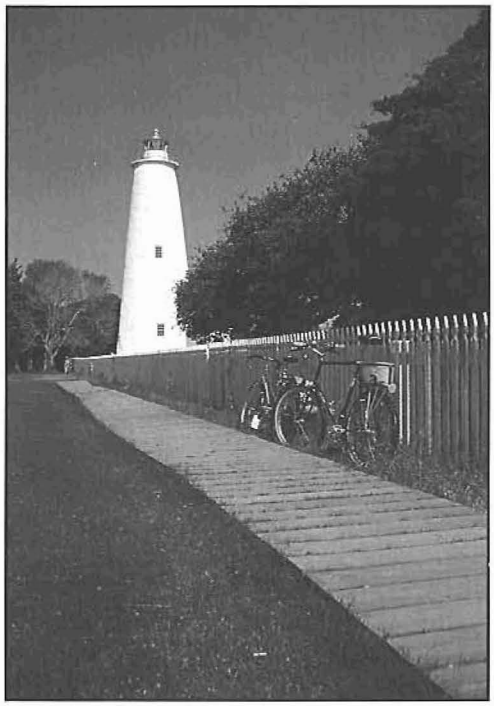
Focus Area 2

Goal 5

Improve tourism opportunities for non-motorized travel throughout North Carolina

Background

The promotion of bicycle touring and the development of local, regional, and cross-state touring information has been an important aspect of the Office since the beginning of the program in the mid-1970s. Due to the demand of large numbers of North Carolinians and many visitors to the state, preferred statewide bicycle routing was a priority. Thus in 1976 the first cross-state bicycle map was produced. This was a product that brought tourists into North Carolina and also made citizens aware of the opportunities to travel by bicycle. The annual calendar of events, first published in 1980, aided this activity. Also in 1980, OBPT assisted the North Carolina Bicycle Touring Society, a membership citizen organization, to enhance what the state could provide to interested bicyclists. The bicycling opportunities in North Carolina have been publicized both nationally and internationally. The Bicycling Highways route, "Carolina Connection," is a part of the U.S. 1 bike route, an interstate bike route from Maine to Florida. Parts of annual national tours use North Carolina routes.



North Carolina's many attractions invite bicycling

Outlook

Bicycle touring opportunities abound in North Carolina. The Outer Banks region of the coast and the Blue Ridge Parkway in the mountains are two high-demand locations, yet neither has all the ingredients necessary to make bicycle touring ideal. Providing paved shoulders along coastal roads is an ongoing activity that will certainly enhance bicycle touring in the Outer Banks area. In the mountains, the Nantahala Project has been evolving since 1993 and will eventually become a 100-mile circuit covering four counties. The tour will include three distinct parts, including an on-road leg that is part of a Bicycling Highways route, an excursion train that negotiates terrain otherwise unsuitable for touring by bicycle, and a separate off-road facility through a portion of the Nantahala National Forest.

One emphasis of OBPT is on making it easier to take bikes on transit. Ease in carrying bicycles on the five routes of the state's passenger trains is of particular importance to touring by bicycle. Baggage accommodations for fully assembled bikes on trains will soon be a reality. A promotional brochure on touring by bicycle and train is planned.

OBPT will continue to look for ways to improve touring opportunities. Some new ideas to be studied include the special touring need for secure bicycle parking, especially in state parks and tourist areas, and the potential for bicycle rental throughout the state. The OBPT plans to coordinate more closely with the Travel and Tourism Office in the Department of Commerce to highlight the bicycle touring opportunities North Carolina has to offer.

Focus Area 3 — Goal 5

Develop, implement, and promote bicycle and pedestrian commuter incentive programs at the state, regional, county, and local level

Background

OBPT has been involved in many kinds of bicycling promotional efforts since its inception, as mentioned throughout this plan. A number of these have helped increase interest in bicycling; however, none have emphasized commuting.

Outlook

There is much that can be learned and applied from other communities and their attempts to promote commuting to work by bicycling or walking. Bicycle Weeks and/or Months with Bicycle-to-Work days have been tried elsewhere with varying degrees of success. OBPT's approach would be to examine these experiences and develop materials and promotions for bicycling and walking commuter incentive programs. Once such materials were developed, the office would work with individuals, organizations, and agencies to tap their available resources for such promotions. For example, Bike-to-Work Day could be promoted statewide, or within certain communities, or perhaps within state government.

A variety of private sector incentives can be used to promote non-motorized commuting, such as reimbursement for trips made by bicycling or walking, providing bus passes for employees, arranging ways that emergency or longer trips during the day can be made by company vehicle, etc. OBPT will work with the private sector and various government agencies in these efforts.

Partnership

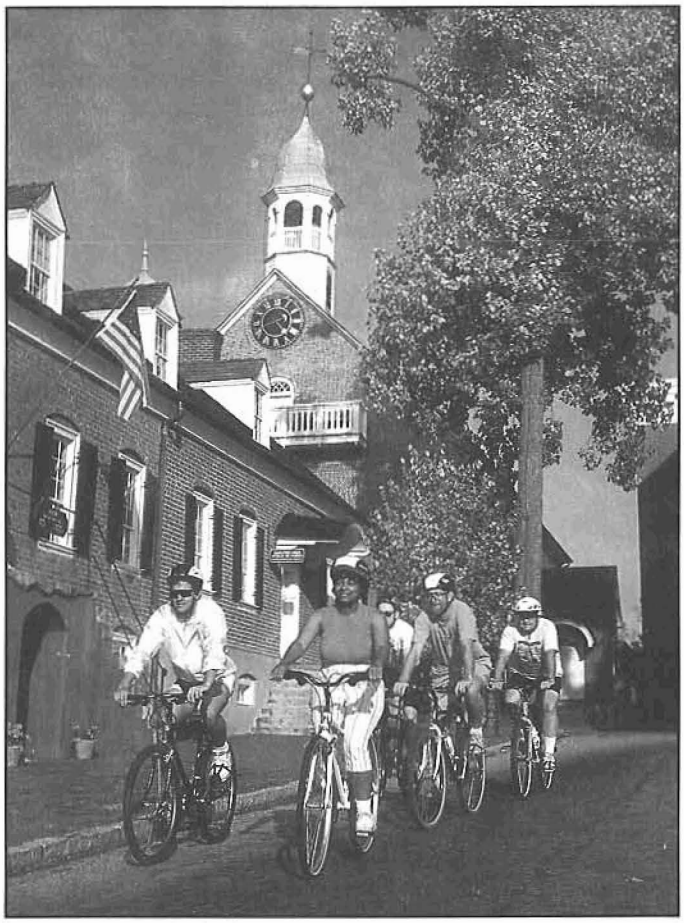
Goal 5

The goal of encouraging bicycling and walking as viable transportation options can be accomplished through a combination of state and local initiatives. OBPT can play a leading role in providing technical assistance and materials to local agencies, civic organizations, and citizens. The Office can coordinate efforts between NC DOT and the Travel and Tourism division within the Department of Commerce to increase tourism opportunities for non-motorized travel, as well as develop programs that can be implemented statewide or locally to foster increased commuting by bicycle or on foot.

Vision

Goal 5

The vision of this goal is to increase bicycling and walking through the promotion of special events, tourist activities, and commuting opportunities.



Actions and Opportunities 5

Introduction

Having completed the detailed discussion of goals and focus areas, this chapter briefly highlights some of the key actions and opportunities challenging OBPT in reaching the vision outlined in this long-range plan. There are both long-range and short-term targets. Specific issues include funding/budgeting, operations, programs, and research.

In places where well-designed bicycle and pedestrian facilities have been built, heavy usage occurs

Funding and Budgeting

To maintain the status quo of NC DOT efforts to improve bicycling and walking conditions or to generate usage of these modes, certain funding and budgeting concerns will be addressed.

Project Funding Levels

Project funding within OBPT is currently $2.2 million annually for scheduling independent bicycle projects and $250,000 for pedestrian facility research and demonstration projects. An additional $1.4 million ($100,000 per Highway Division) is programmed annually through 1997 for pedestrian facility construction. These funds presently come from the department's Enhancement Program. Federal ISTEA Enhancement funding is only budgeted through 1997. If this program is not renewed, other sources of funds for currently scheduled and future projects must be secured.

Equally important is the question of whether additional funds should be made available for bicycle and pedestrian projects. Annual bicycle requests for TIP funding from localities total over $20 million, and pedestrian requests are anticipated to be even higher. Additionally the current approach of funding pedestrian facility construction at the division level should be examined. OBPT must continue to weigh all funding options and be prepared to advise the Board of Transportation with appropriate approaches.

Increased funding is necessary to meet the facility needs of bicyclists and pedestrians

Pedestrian Project Evaluation

OBPT maintains records for all bicycle facility projects funded through the NC DOT; however, no such project records are maintained in one place for the pedestrian facilities being built. In order to be able to determine future funding levels and distribution strategies, fiscal and technical data must be maintained for all pedestrian projects and each should be evaluated for effectiveness. The state's pedestrian funding is spent along state-maintained roadways; however, localities remain the center of pedestrian planning activity. Therefore, funding strategies should be built around local goals and priorities, even if within the state-maintained system. Evaluating the effectiveness of the Department's pedestrian funding will assist in determining what level of local needs are being addressed and met.

Equitable funding distribution assures quality bicycle and pedestrian facilities throughout the state

Equitable Balance of Projects

Balancing the needs of bicyclists and pedestrians across the state will always be difficult for the NC DOT. However, equitable distribution of funds remains an operating principle. The relatively small funding available to OBPT for bicycling and walking may never be enough to warrant an equity formula as the Division of Highways' method of determining highway construction priorities. Nevertheless, OBPT should continue to provide for the funding of bicycling and walking improvements in each of the state's regions.

Federal Aid

Each year, once all Federal Aid Construction program funding is expended for that fiscal year, no new project funding is authorized by the Board of Transportation until the next fiscal year, which begins on October 1.

The $2.45 million for bicycle and pedestrian projects does not come to the OBPT in one lump sum on October 1. Funding for facility projects is received on a project-by-project basis once all project plans, permits, and agreements are completed. If these project elements are completed after the fiscal year's federal funds have been obligated but before October 1 of the next fiscal year, then the bicycle or pedestrian project must wait. Actual project work does not cease, but no new project funds are authorized. This procedure sometimes leads to project construction delays and difficulties with the budgeting of local matches. Project costs may also rise during that time. Furthermore, it is impossible to complete the Annual Report planning and engineering work within a five- or six-month window of funding opportunity. OBPT will continue to monitor the limitations brought on by the federal obligation ceiling and propose either an annual lump sum of allocated funding or an alternative to federal funding.

Operations

There are certain operational opportunities which would make accomplishing the NC DOT's bicycle and pedestrian goals more readily achievable. Several are discussed below.

Institutionalization Within NC DOT

OBPT is well integrated within the NC DOT. For example, Division of Highway planners and engineers often recognize and incorporate bicycle facility improvements as incidental features into programmed highway projects in accordance with the *North Carolina Bicycle Facilities Planning and Design Guidelines.* Pedestrian features do not currently fare this well. There is potential for further gains for bicycle and pedestrian considerations. OBPT should be involved in the review and update of Division of Highways policies, standards and manuals to ensure the inclusion of current practices and the consideration of potential new methods of facility treatments. OBPT should strive to participate more frequently in highway improvement scoping meetings and other related highway project sessions since such coordination guarantees safety considerations for bicycling and walking at the least expense to the state. Further, OBPT should work closely with Statewide Planning to incorporate bicycle and pedestrian elements into long-range plans for MPOs, regions, counties, and small urban areas. In addition, OBPT should increase its training and workshop sessions held specifically for Division of Highways engineers and other staff. Working with Division of Highways programs such as Secondary Roads and division maintenance, which has been limited to date, should be continually reviewed.

Many bicycle facilities are built as incidental features of a highway improvement

Working More Closely with NC DOT's Division and District Offices

The Division of Highway's local offices are responsible for many of the improvements to roads which directly affect bicycling and walking. A primary example is routine maintenance. Often, improvements for bicycling and walking can be incorporated into certain maintenance at no extra cost and with very positive safety benefits. Currently, such inclusions are most frequently made in the coastal divisions. Better coordination with the division offices could result in the combination of programmed bicycle and pedestrian projects with programmed maintenance projects (e.g., restriping or repaving to allow wider shoulders when resurfacing) to recognize cost savings. OBPT will work with division and district offices to improve coordination of projects as well as to provide available training regarding bicycle and pedestrian engineering and other enhancements.

Integrate Bicyclist and Pedestrian Data with NC DOT's Geographic Information System (GIS)

OBPT would benefit greatly if bicycling and walking data were integrated into the NC DOT's GIS. Many items important to the planning and design of bicycle and pedestrian facilities could be mapped using this capability, including existing and proposed facilities, crashes, user data, pavement quality, and shoulder width. The inclusion of this information would provide easy access to such data and allow for relatively easy updating, thus making current data available for problem identification and decision making. The information would also be invaluable to the Office's ongoing bicycle map production. OBPT should continue to provide data for inclusion in GIS files and work to get additional data included.

Personnel

Increased demands are being placed on limited staff to carry out all aspects of the program, as well as tasks which have previously been the responsibility of other units. OBPT will regularly review staffing needs and undertake necessary studies to justify these needs. The Office will also regularly review the amount of work being contracted out to professional consultants and determine if conducting these work tasks in-house with additional staff would produce cost savings. In addition, the low salary grades of current technical staff increases the potential for frequent turnover. Staff responsibilities in these positions exceed the requirements of the salary grades as compared to similar positions in other DOT units. OBPT will regularly study work demands and existing staff salary grade levels to ensure that well-qualified staff are available for the work load generated by the project schedule. Continually training new staff is time-consuming and inefficient.

Improved Coordination with Other State Agencies

As specified in the enabling legislation, NC DOT is the lead agency within state government for bicycling and walking. There are several other agencies which are logically linked to the mandates in the legislation. These are: the Departments of Environment, Health and Natural Resources (recreation and trails); Commerce (travel and tourism); Education; and Crime Control (Highway Patrol). Examples of issues which should be addressed are mountain biking, safety education in the schools, better non-motorized access to state parks, greater promotion of bicycle touring opportunities, etc. OBPT will improve interaction and communication with these agencies to better pool resources and promote more efficient programs.

Involving the Public

The ISTEA legislation has stressed public involvement in the transportation process. Even though OBPT has sought public input in most programs, promotions, and construction schedules undertaken, the Office will seek more inclusive and effective participation from the public, primarily by assisting communities to create bicycle and/or pedestrian committees. OBPT will also make available more information about project selection processes and the decision-making bodies overseeing these programs (i.e., Board of Transportation members and the North Carolina Bicycle Committee.)

Programs

There are several existing programs outlined below which have the potential for continued success. OBPT will maintain and increase these efforts as staff and funding allow.

Basics of Bicycling

No other program is more successful in improving the safety of the state's young bicyclists than this curriculum for grades four and five. It has been recognized nationally and is being promoted to other states as the best, most effective bicycle safety tool for this age group. OBPT must continue to assist school systems throughout the state to implement this curriculum as an ongoing part of their teaching schedule.

Helmet Promotions

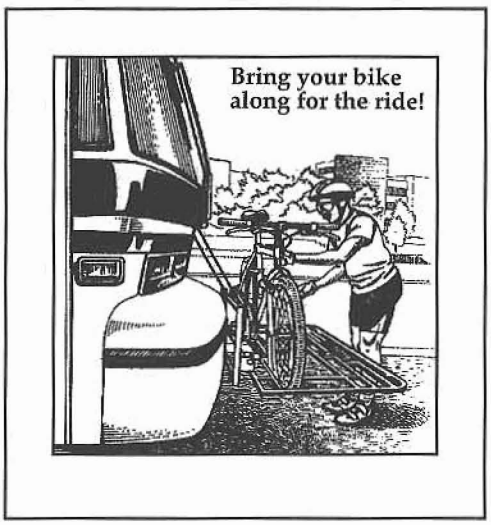
To date, the most far reaching and single most important bicycle safety element of the NC DOT's bicycle programming has been the promotion of voluntary use of bicycle helmets. Even though N.C. data are not available, the effectiveness of helmet use is well documented. Still, many bicyclists do not wear helmets. OBPT's helmet promotions must continue in order to reach an ever-increasing number of bicyclists.

Commuter Incentive Programs

North Carolina excels as an inviting area for bicycling and annually attracts many bicycling tourists. In addition, many local people depend upon the bicycle as a

With parking spaces at a premium, some companies offer incentives to employees who commute by bicycle

utilitarian vehicle as well as a primary recreational vehicle. However, only a small percentage of people commute to work by bicycle. The potential exists to increase the number of commuting cyclists not only by providing better facilities but also through promotions and incentives both within government and in the private sector. Free bicycle parking, monetary rewards for non-motorized commuting, etc. have been effective in many communities in other states. OBPT will focus more attention on increasing this aspect of bicycle transportation.



More North Carolina transit agencies are implementing bike-on-bus programs

Transit Links

Bike-on-bus accommodations can greatly expand the capture radius of transit systems in North Carolina's urban areas, making transit available for a greater number of citizens. Bike racks on buses, coupled with safe, easily-accessible bicycle parking at transit stops and destinations, can attract users. OBPT will continue to fund projects which outfit local transit systems with features which allow users to combine bike-bus travel.

Rail Links

Bicycle access to the state's Amtrak trains will allow for more regional and long-distance trips without dependence upon the automobile. The combination of train and bicycle travel is an easily obtainable objective. Being able to store fully assembled bicycles on trains and having bicycle rentals near Amtrak stations are among the options which will make this happen.

Enforcement

Bicyclists tend to be at fault in crashes with motor vehicles in about half the cases; thus, increased enforcement of incorrect riding practices, whether educational or punitive, is an effective countermeasure. Enforcement can also play an important role in improving pedestrian safety. The enforcement community must take a proactive role in enforcing traffic laws pertaining to bicyclists and pedestrians, in order to effect changes in unsafe movements made by motorists, bicyclists, and pedestrians. Additionally, motorists should be charged with violations, when appropriate, in bicycle/motor vehicle crashes. Currently, even when the motorist is clearly at fault, few charges are brought against drivers. OBPT will create a more formal interaction with the enforcement community in the future, early on with items like newsletters and regular reports as well as with training and one-on-one information exchange.

Research

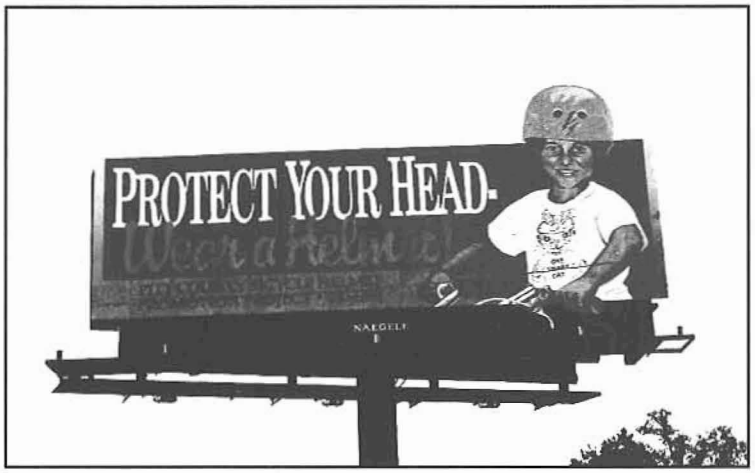
Evaluation

In order to maintain high quality, effective responses to the bicycling and walking needs throughout North Carolina, current programs, promotions, and facility treatments must be regularly evaluated. These evaluations, coupled with research, can lead to improvements in the programs or to the development of new programs when justified.

Exposure and Crash Data

In North Carolina, police-reported crash data are readily available for bicycling and walking, and a study of emergency rooms in the state has resulted in cataloguing significantly more bicycle crashes than those normally reported through police reports. Crash typing for both bicyclists and pedestrians was first developed in the 1970s. A crash typing study is now underway for North Carolina. Nevertheless, there is much more to learn about bicyclist and pedestrian exposure (i.e., the who, when, where, how, etc. of their riding and walking). Such data can help determine whether certain factors elevate or suppress risk of a crash. OBPT will periodically initiate studies to analyze and update such information about bicyclists and pedestrians and will use this information to evaluate existing and new programs.

Comprehensive crash data provides for better planning and programming



Demonstration and Innovation

In order to maintain the most up-to-date, effective, and efficient program of bicycle and pedestrian safety, the NC DOT must regularly consider new and innovative programming and methods of delivery, as well as new technologies and facility treatments. These include pedestrian presence detectors and associated crossing signals, advanced stop bar markings where bicyclists proceed first at intersections with high proportions of motor vehicle right turning movements, colored pavement experimentation, signing with different colors, etc. Also of interest is the implementation and evaluation of large scale demonstration programs in communities desiring to more proactively promote bicycling and walking. OBPT will develop such demonstration programs and projects and will evaluate their effectiveness to determine the benefits of more widespread implementation.

Conclusions 6

Up to the Present

North Carolina is a wonderful state for bicycling and walking. The natural environment provides diverse choices for bicyclists and pedestrians. The numerous small cities and towns create a conducive atmosphere for bicycling and walking, and the moderate climate rarely precludes these activities.

The state is fortunate to have had a successful bicycle program within the NC DOT for over 20 years. Now encompassing the responsibility for pedestrians as well, the OBPT can call on its past experience with bicycling issues to quickly move forward on the pedestrian front.

N.C. DIVISION OF ARCHIVES AND HISTORY

Bicyclists of Laurinburg — 1896

On to the Future

Past accomplishments notwithstanding, the OBPT recognizes the need to do more. Institutionalizing bicycling considerations into the every day functions of many units of the DOT has been one of the greatest accomplishments of the OBPT. However, much remains to be done to assure that pedestrian issues receive the same attention. Additional coordination in units which have not yet begun to routinely plan for bicycle and pedestrian accommodations must also take place. Once these modes are completely integrated throughout DOT, improvements will take place automatically, allowing OBPT staff to take on other pressing challenges.

The NC DOT differs from other DOT's in that it has control and responsibility for approximately 77,000 miles of roadways, which includes all Interstate, primary, secondary, and many local roads. Even with a history of including other modes of transportation, such as public transportation, rail, and bicycling, the bulk of the NC DOT operations pertain to highways and motor vehicles. The vision of this plan is for people who live and visit in North Carolina to have the broadest possible transportation choices to wherever they desire to travel.

Bicyclists of Elizabeth City — 1997

In the future it will be even easier to bicycle or walk to work or to other destinations. Well planned and designed facilities will be prevalent, including more greenways and rail-trails as transportation links. Commuter incentives and other encouragement programs will make fewer people reliant on the automobile to get to work. Connections with different forms of transit and passenger trains will be easier, and these modes will readily accept bicycles.

For those interested in longer journeys, maps will be available to guide them along an expanded Bicycling Highways system. Cyclists will be able to ride along the entire coast on a combination of paved shoulders and other facilities improved for bicycling.

Bicyclists, pedestrians, and motorists will continue to be taught to share the road. Enforcement of violations of responsible behavior by any of the modes will continue to be emphasized. Many more communities with police on bicycles will make this task easier.

Conditions for bicyclists and pedestrians will continue to improve in the future. Bicycling and walking will be more attractive transportation options for people of all ages and across all socioeconomic backgrounds. The OBPT is a mature organization with a busy agenda, but in reality it is just getting started.

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