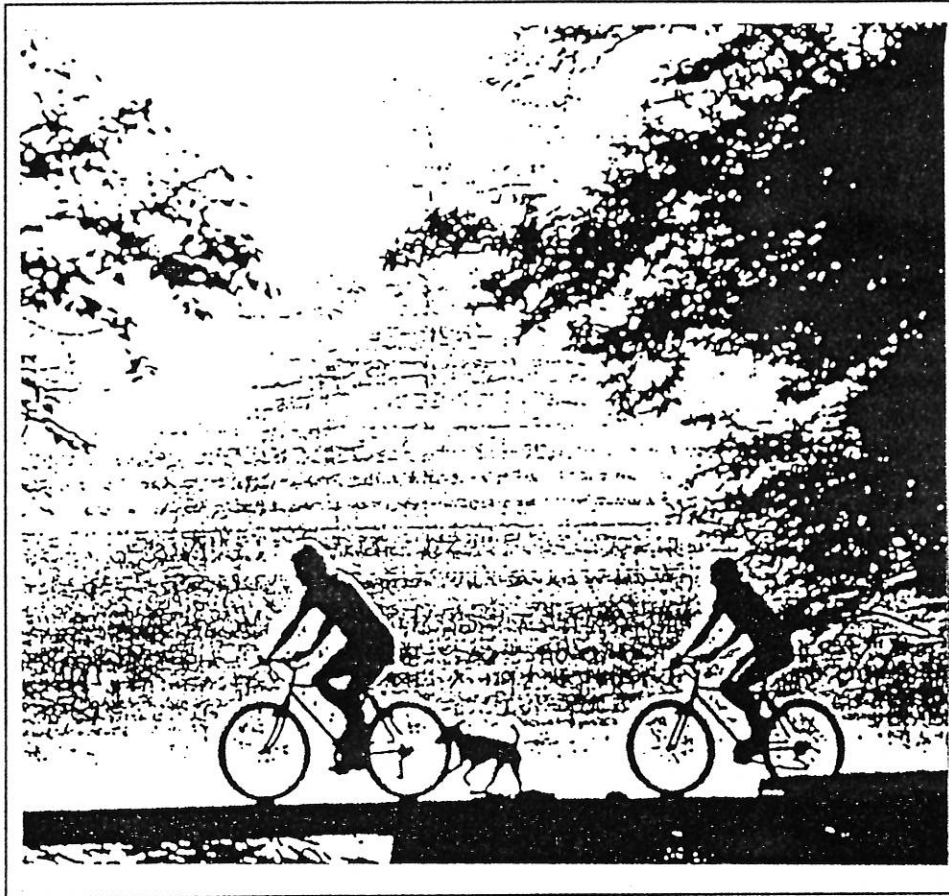


The Durham Bicycle Plan



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INTRODUCTION

This Plan was developed over a period of approximately 12 months. An Ad Hoc committee was established to develop the Bicycle Plan. Membership on the committee was open and included: long time residents; new residents, a high school student, Faculty and Staff at UNH; a UNH student; and a retired individual who is a resident of the City of Dover. The group met on a semi-regular basis to develop the Bicycle Network Map, create the Goals and Objectives listed in the Plan, and prioritize the projects outlined in the implementation matrix and Bicycle Network Map.

It was noted by the Committee that a successful plan is one that has a **long term vision** matched with a **commitment to the maintenance and support** of projects that have been implemented. Simply financing projects and putting them in place is not enough. Successful implementation strategy is based on **public/private partnerships**. Partnerships are essential because in most cases no one segment of the community can solve problems alone. Further, a partnership generally leads to greater resources, and more creative and imaginative solutions.

We believe that the recommendations put forth in this Plan will be the foundation for a successful and sustained implementation effort.

THE DURHAM COMMUNITY

As noted in the recent Community Development Plan, Durham is a special community. It is a University Town, and has the exciting and vibrant flavor inherent in such communities. However, it has a long and proud history and tradition that extends beyond the University. Durham was settled three hundred and fifty (350) years ago, and was a vibrant and thriving community focused on activities and life along its beautiful waterways. It was not until approximately one hundred (100) years ago, that the institution now known as the University of New Hampshire was established in Durham. Since that time Durham has grown and evolved as a "University Town", though there have always been significant segments of the community which have had no formal ties, connections, or relationship to the University.

The Town of Durham's population and the daily influx of University Students and faculty make the Town an ideal location for bicycle improvements. On the following page you will find population information from the 1990 US Census and the University of New Hampshire' Office of Institutional Research.

DURHAM POPULATION

TOTAL POPULATION	11,818 ¹
INSTITUTIONAL POPULATION	5,411 ²
UNH DAYTIME STUDENT POPULATION	12,518 ³
UNH TOTAL EMPLOYMENT	2,755 ⁴
TOTAL TOWN DAYTIME POPULATION DURING UNH SCHOOL YEAR	21,680 ⁵

Durham is many things. It is a university community, host to the State's largest educational institution. Durham is also a beautiful community with spectacular open spaces, and intimate, quiet settings. It is a community of active and thriving neighborhoods. It is a community which values education and quality of life. It is a community with a vibrant downtown comprised of energetic and imaginative business people. It is a community without the strip commercial development and suburban sprawl afflicting much of America, and a community which strongly wants to protect and preserve its heritage and resources.

PURPOSE OF THE PLAN

The Bicycle Plan is designed to be two things. One, it is intended to articulate a shared vision, reflecting the student, faculty, residential and employee needs for bicycle improvements in the community. Two, it is intended to be a blue print and catalyst for the implementation of these necessary improvements within the Town.

The vision articulated in this Plan is to promote bicycling as an alternative mode of transportation through the development of:

- a comprehensive bicycle lane and path network;
- properly maintained surface areas for bicycling;
- appropriate street lighting that will provide a safer environment for all modes of transportation;
- an education, encouragement, and enforcement campaign that will facilitate the expanded use of bicycling; and
- a recreational link to all bicycle programs.

¹ 1990 US CENSUS

² 1990 US CENSUS

³ FALL 1994 REGISTRATION INFORMATION, OFFICE OF INSTITUTIONAL RESEARCH, UNH

⁴ FALL 1994 EMPLOYMENT INFORMATION, OFFICE OF INSTITUTIONAL RESEARCH, UNH

⁵ COMPILATION OF US CENSUS DATA AND OFFICE OF INSTITUTIONAL RESEARCH, UNH

This Plan, like all planning documents, is an evolving document that will need to be reviewed and modified on an on-going basis to insure that it reflects the wants, needs, and desires of the overall community. With this in mind, it is a recommendation of this Plan to establish a review schedule that occurs at least every five (5) years, and at more frequent intervals if there is substantial change (growth) in the Town or the University of New Hampshire.

OVERVIEW OF THE BICYCLE POLICY AND PLAN

1. The Town should review the Bicycle Policy for possible update and modification every five years. The 1976 Bicycle Plan stated the need to review and revise the Bicycle Plan on a timely basis. Now, almost two decades later, the need for such review and revision is especially evident, as the past nineteen years have brought numerous and dramatic bicycling changes, nationally and locally.
2. There are many appropriate solutions to bicycle safety and circulation problems, including: policies, programs, and projects in the areas of engineering education, enforcement and encouragement. As the AASHTO (American Association of State Highway and Transportation Officials) Guide for Development of New Bicycle Facilities, 1981 notes: ". . . *bicycle transportation planning is more than planning for bikeways.* "
3. The Town has a process to identify and set priorities for physical bicycling improvements. The Durham Road Program should be used to identify needed improvements which will be considered for inclusion in the bicycle element of the Transportation (Public Works) section of the Capital Improvement Program (CIP). Comprehensive bicycle planning should be viewed as a two-phase effort, with the Bicycle Plan guiding the selection of bicycling improvements included in the CIP.
4. This Bicycle Plan also recognizes that there are many agencies and organizations responsible for improving local bicycling conditions. The Town of Durham has the primary responsibility for improving both the quantity and quality of local bicycling. Other government and private agencies also impact bicycling in Durham. These organizations and groups can and do furnish a variety of resources which enhance bicycling. A comprehensive approach to bicycle planning in Durham is best served by coordination and cooperation among these various groups.
5. Many recommendations contained in the 1976 Bicycle Plan have not been responded to or acted upon. The 1976 Bicycle Plan proposed projects and programs were reviewed in the development of this Plan.

BICYCLIST TYPES

The key element in bicycle transportation planning and programming is the bicyclist. In meeting the goals and objectives of this Plan, the following groups will be considered:

Experienced

Experienced bicyclists have an extensive knowledge of bicycle operation, skill, and physical ability. For utilitarian trips, they usually prefer a direct on-street route, even if they must cope with heavy or high-speed motor traffic. The experienced bicyclist tends to make longer, more frequent, and more utilitarian trips than does the novice. Most bicycle commuters and many recreational bicyclists fall within this group.

Occasional

The occasional bicyclists are willing to travel more indirect routes to avoid heavy or highspeed motor vehicle traffic. They prefer either residential streets where motor vehicle traffic is light or bikeways that are separate from motor vehicle traffic. Although most of their bicycling is recreational, some is utilitarian. Operator error is the main cause of accidents among novice cyclists.

Youth

Among youth, the bicycle is a major means of transportation, mainly for neighborhood travel. Although many children have excellent bicycle handling skills, most lack the experience, training, and judgment to cope with the hazards of riding a bicycle. Generally, youth bicyclist use specific, identifiable travelways. Since this group is involved in the largest number of bicycle/motor vehicle accidents, the Town should carefully evaluate all potential hazards along these travelways and correct any deficiencies. Also, the youth bicyclist will benefit the most from education programs.

POLICY STATEMENT

It is the policy of the Town of Durham to:

- ⇒ promote the safe, increased use of bicycles for both transportation and recreation;
- ⇒ integrate bicycling into all appropriate municipal programs and activities;
- ⇒ require the consideration of bicycle use in all appropriate town funded projects and programs.

Transportation and recreation objectives should not be viewed as mutually exclusive, for two reasons. First, many of the improvements provided to enhance bicycle transportation may at the same time enhance bicycle recreation although this must be addressed carefully on a project-by-project basis. Second, many of the individuals attracted to bicycling for one reason or another may expand their bicycle usage for other purposes.

The Town further recognizes that a comprehensive approach to improving bicycling conditions and opportunities requires Engineering, Education, Enforcement, and Encouragement efforts; further defined as follows:

1. The Encouragement element seeks to promote awareness of the benefits of bicycling, and of improved facilities, safety, education, and enforcement programs. It is aimed at potential bicyclists, to encourage them to get out and bicycle, and to individuals and organizations who have an interest in and responsibility for furthering bicycle use, through such means as technical reports, press releases, and special events.
2. The objective of the Engineering element is to provide a safer, more convenient bicycle circulation system, through planning design and construction of improvements to the existing street system, on and off-street facilities, and bicycle parking.
3. The Education element will modify the behavior of both bicyclists and motorists by teaching safe riding practices to bicyclists, and courtesy and awareness to motorists. Educational efforts include printed and audiovisual material, workshops, courses, and clinics.
4. The Enforcement element aims to improve the behavior of both bicyclists and motor vehicle operators, and includes Municipal ordinances as well as Police policy and programs.

No one element of the "4E's"-- Encouragement, Education, Enforcement, and Engineering—is more or less important than the others. All contribute to the broad quality of the Bicycling Policy. Similarly, no single agency or organization has sufficient scope, resources, or expertise to address all of these elements. Many contribute to achieving the elements of the Bicycling Policy.

The elements of this Bicycling Policy will provide the basis for on-going bicycle improvements in Durham. The Plan is advisory in that it specifies ideal or desirable conditions to be achieved over time as funding and other resources allow. In some cases, the ideal may never be achieved but further activities, in both the public and private sectors, will be directed toward achieving the goals and objectives established in this document.

BICYCLE PLAN GOALS AND OBJECTIVES

Goal Definition—In a broad sense, goals are statements of "self-image." They are general expressions of the intent. A goal is a "result" toward which effort is directed. Goals should not be too specific. Goals should be realistic. Goals are usually followed by objectives or action steps on how to achieve the goal.

1. **GOAL**—Establish and maintain a downtown core that is safe and inviting for all forms of traffic, especially pedestrian and bicycle traffic.

OBJECTIVE—Create and implement a bicycle education campaign that targets all Durham residents, especially elementary and middle school students.

OBJECTIVE—Implement a "bicycle and pedestrian friendly" sign program that is targeted at the gateways into Durham—Old Concord Road, Madbury Road, Newmarket Road, and Dover Road.

OBJECTIVE—Provide fixed location bike storage facilities at key locations in the Downtown.

OBJECTIVE--Reduce the speed limit to 20 m.p.h. in the Downtown and implement an aggressive enforcement program.

2. GOAL—Develop a bicycle lane network along the primary arterial streets in Durham—Madbury Road, Route 108, US Route 4, Route 155A and Route 155.

OBJECTIVE--Identify all primary arterials streets and prioritize each corridor, based on:
safety considerations based on existing mix of vehicular and bicycle traffic; existing pavement width; traffic volume and speed;
linkage to residential concentrations;
user demand; and
connections to neighboring communities.

OBJECTIVE—Require the Town and NHDOT to include bicycle lanes in all new road construction or repair.

OBJECTIVE—Repair all roadways to eliminate man-made and natural hazards.

3. GOAL—Facilitate the development of a coordinated bicycle path and mixed-use trail system design to interconnect residential neighborhoods, public lands, recreational areas, and UNH.

OBJECTIVE—Require new developments to set aside and or develop bicycle or mixeduse paths that will link abutting properties together (insert as a zoning requirement).

OBJECTIVE—Negotiate with the University to allow the development of an integrated bicycle path or mixed use trail system on its property throughout the Town.

OBJECTIVE—Work with the Town Council, Parks and Recreation Commision, Conservation Commission, and Planning Board to develop and implement a comprehensive bicycle path or mixed-use trail system on Town property.

OBJECTIVE—Negotiate with private landowners for the development of bicycle paths or mixed use trails that would create necessary linkages to neighborhoods, public lands and recreational areas.

IMPROVE THE TRANSPORTATION SYSTEM

Portions of Durham's bicycle facility system, as shown on the enclosed map, were part of the adopted 1976 Durham Bicycle Plan. Additional segments have been included based on residential development and the University of New Hampshire's continued expansion. The provision of such physical improvements--the filling in of the map or completion of these projects -- should be part of the yearly Transportation (Dept. of Public Works) portion of the Capital Improvement Program (TCIP).

The Goals and Objectives of this Plan provide a guide for evaluating TCIP projects and developing funding recommendations. Several other generalized goals and objectives statements for bicycle improvements can use the "Location Criterion" found in AASHTO design guideline documents, (Chapter 1. Planning, Selection of a Facility for Engineering and design) for implementation.

Another key consideration in the implementation of this Plan is community support both among potential users and the impacted neighborhoods. Compatibility of the facility with the environment in which it is situated must be thoroughly assessed.

1. Reduce roadway surface and design conflicts. Bicycle transportation will not increase significantly until the transportation system is made more hospitable and bicyclists' safety concerns are reduced. Priority is given to funding and designating improvements to existing streets. Regular maintenance is important since bicycles are more vulnerable to surface irregularities and debris than motor vehicles. Improvements should include installation of bikesafe drainage grates, fill material on roadways, and utility cut repairs which are flush with existing street surfaces.

As the AASHTO Guide emphasizes: "Bicycle programs must reflect local laws and ordinances. Bicycle facilities must not encourage or require bicyclists to operate in a manner inconsistent with the adopted Rules of the Road." Similarly, bicycle enforcement is an important component of an effective, comprehensive plan because it reinforces education programs and informs the public that behavior of bicyclists and attitudes towards bicyclists are as important as in other types of traffic.

2. Improve bicyclists' access. Good bicycle access is essential for bicycle transportation.

Routes should be reasonably direct, free from frequent delays, and devoid of bottlenecks that adversely affect safety or convenience. Particular attention should be paid to conditions such as:

- A) natural or built barriers (waterways, steep slopes, highway bypass,);
- B) interrupted bicycle routes;
- C) difficult intersections;
- D) traffic-activated signals which do not respond to bicycles (College Rd and Main St. intersection and the Rte 108 and Main St. Intersection);

- E) current suitability of major streets for bicycling (lane width, shoulder condition, motor vehicle volume and speed);
- F) the quality/adequacy of existing bicycle facilities; and
- G) provision for bicycle access to and parking at transit/bus stations.

Some access problems cannot be solved by improving the existing roadway system. In such cases, it may be desirable to provide a separate bicycle facility to bypass the obstacle or to connect two major system segments. Separate facility construction may also be useful to provide safe shortcuts for cyclists. However, because of the high cost of installation, the continuing cost of maintenance, and the increased potential for intersection conflicts, separate bicycle transportation facilities should be considered *only* if other treatments will not provide for bicycle access as conveniently and economically, or be developed and maintained with private funding.

All roadway construction projects should be examined to ensure, at a minimum, that bicycle access is maintained and, wherever feasible, that it is enhanced.

Multi-modal opportunities (bicycle/bus) offer the potential for reducing the number of short automobile trips, increasing the potential range of bicycle trips, and bridging bottlenecks. These opportunities are currently limited by the lack of secure bicycle parking at most transit/bus locations and by the inability of all present mass transit vehicles to accommodate bicycles. The Town should encourage the development of multi-modal opportunities whenever feasible. In particular, secure adequate bicycle parking should be provided at large public and private parking lot facilities and other major transit access points. Consideration should also be given to increasing the capacity for carrying bicycles on mass transit, at least along certain routes and at certain hours. To this end, the Town should encourage and facilitate the development of bicycle access to the COAST bus service.

Another critical factor with access is the bicyclist's awareness of good bicycle routes. Durham should develop, produce and update a system map that identifies recommended streets, separate facilities, and bike lanes, and which also helps in route selection by locating difficult intersections, roads, or steep grades. Directional signing for cyclists should be expanded. Youth bicyclists should be permitted to ride on sidewalks outside of the Downtown loop until the Town has successfully established a comprehensive bicycle network. This approach will ensure that the youths are safe and that the Town is promoting bicycling for all ages.

3. Provide bicycle parking facilities. Secure and convenient bicycle parking is essential before a commuter or shopper will consider bicycling for transportation. Bicycle parking should be provided at all employment centers (UNH, Heidelberg Harris, U.S. Post Office, etc.) at the Mill Plaza, neighborhood parks, transit locations, and throughout Downtown. Bicycle facilities should be placed under cover where possible. This can be done by continuing to adopt ordinances which require that bicycle parking facilities be provided in conjunction with all new construction, renovation, or expansion projects. Municipal parking areas for bicycles can be established at several downtown locations, while local retailers

and industries can also be encouraged to provide bicycle parking for their employees and customers.

Secure and convenient bicycle parking, and provision for storing clothes and equipment, should also be provided at all municipally owned and/or leased buildings.

IMPROVE OPERATOR AWARENESS AND COMPETENCE

A 1982 Bicycle Facility Evaluation Study performed by the City of Seattle, WA found that "The primary cause of current bicycle-car conflicts is behavioral operator failures..." and that "bicycle safety training may ultimately be more effective than physical improvements in increasing bicyclists' safety." (Seattle Engineering Department, p.1)

The following implementation strategies address the issues of improving operator competence:

1. Provide incentives. The objective of incentive programs is to provide bicyclists with at least the same level of benefits enjoyed by automobile, transit, car, van pool, and other commuters; to make it easier and more attractive for people to ride their bicycles to work, to school, and on errands. Incentives could include widespread adoption of flex-time; reimbursement for use of bicycles for official business, subsidized or free; secure and convenient bicycle parking; purchase of company bicycle fleets for use on local business errands; and the provision of showers and lockers for employees who bicycle, walk long distance, or run to work. These type of incentives could be included as a Land Use Ordinance that permits a reduction in parking spaces to companies that provide alternative transit facilities, such as: bicycle storage lockers and changing rooms with showers. The Town should attempt to develop a Town wide system which could serve as a model for such activities.

2. Make comprehensive bicyclist education/training available to adults. Both introductory and in-depth education programs should be made available to adults. The program should attempt to correct bicyclists' operation, particularly concerning compliance with traffic laws. The program would include on-bike training in traffic skills and bicycle handling, classroom instruction in "road sense," conflict awareness, route selection, rules of the road, and equipment choice and maintenance. This program could be made available in condensed form to employees at their work sites, in full-length version to high school and college students through physical education programs, and in varying lengths to interested adults through the Durham Parks and Recreation Advocate's Office, service organizations, and other programs.

Strengthen public information/awareness programs. The Town and other appropriate agencies (the University, major employers, etc.) must market bicycling as acceptable, practical transportation. The Town of Durham should develop a bicycle commuter information packet which could be distributed to major employers, and to students and faculty at the Middle School, High School and University. Noontime employee clinics and enclosures in the

Town's utility bill mailings also would provide opportunities to publicize bicycle transportation. Special events such as "Bike to Work Day" and "Bicycle Commuter Week" should also be encouraged.

Strengthen motorist information programs. Brochures should be developed and also be distributed on a continuous basis through the vehicle registration program. In addition, drivers' education classes should be contacted by the Police Department with personal presentations, films and video, and printed material.

Although primarily a State function, information related to bicycle operation and roadsharing techniques should be included in drivers' education curricula and in State drivers' manuals. Local on-road training should include, where feasible, practice in scanning for bicycles, evaluating bicyclists' behavior, sharing the road with a variety of vehicles, and exposure to bike lanes or comparable facilities.

3. **Increase enforcement efforts designed to reduce bicycle accidents.** To the extent that funding is available, the Durham Police Department should conduct regular enforcement campaigns targeted at the most critical violations (in terms of car/bicycle accident causation) by both bicyclists and motorists. This type of program should concentrate on bicyclists riding against traffic, riding on the sidewalks, disregarding traffic signals and stop signs, not using lights on the bicycles at night, and motorists failing to yield to bicyclists at intersections. This program will emphasize to both motorists and bicyclists the rules of the road and could reduce unsafe operation and accidents. Such a program should be accompanied by the development of appropriate fines and penalties for adult and youth bicycle riders.
4. **Make comprehensive bicyclist education/training available to children.** Programs have been developed in other school systems to train children in grades 4 and up in bicycling skills and safety. These programs should be implemented in the Oyster River Cooperative School District as a means of reducing bicycle accidents and fostering safer bicycle use. Such programs provide greater depth than the limited assembly and bike rodeo presentations currently offered by Police personnel. Other community resources--service groups, bicycle clubs, and the UNH Cycling Team--should be enlisted to provide such training.

IMPROVE INSTITUTIONAL AND PROFESSIONAL RESPONSIVENESS TO BICYCLE TRANSPORTATION

1. **Funding opportunities.** ISTEA allows the use of the National Highway System, Surface Transportation Program, Congestion Mitigation and Air Quality Program, and Bridge Program funds for the planning, design, and construction of bicycle facilities. While bicycle projects are eligible for these funds, they will have to "compete" against other transportation projects which are also eligible for the funds, such as projects that deal with roadways, transit, carpool/vanpools.

The competition between highway, transit, bicycle, pedestrian and other projects is intense. Transportation needs far outstrip the availability of funds to meet those needs. As such, the Town should also explore other potential funding

options, such as public/private partnerships, public and private transportation providers, and civic groups.

An additional funding source is the U.S. Department of Safety's **Section 402 Funding**, which deals with bicyclist and pedestrian safety and education. In New Hampshire, these funds are administered by the New Hampshire Highway Safety Agency. Section 402 funds can not be used for construction projects, but rather to help municipalities fund bicycle and pedestrian safety programs, bike rodeos, and other safety programs. Requests for these funds do not go through the Seacoast Metropolitan Planning Organization's Transportation Improvement Program process; rather the Town applies directly to the Highway Safety Agency. Programs which have been funded under Section 402 include bike rodeos, pedestrian safety programs, in-school safety programs, and bicycle helmet promotions.

2. Consider bicycle use in all Town-funded projects and programs where appropriate.

3. Integrate consideration of bicycle transportation into planning activities. Every effort should be made to ensure, through rigorous program review, that bicycle transportation is given thorough consideration in all planning activities. Full integration of bicycle transportation requires evaluation of the range of impacts which any transportation proposal and many development projects may have upon bicycle use and bicyclists' safety. Full integration will allow a wider range of opportunities for bicycling that might not be considered if bicycle transportation activities are done independently of other planning and programs for all modes. Such consideration pertains not only to all Town agencies, but to other organizations and institutions whose activities impact mobility in Durham, such as UNH, the State of New Hampshire, Federal Government, and private developers.

4. Improve coordination of bicycle transportation activities. Coordination of such activities between Town and other agencies can be improved by liaison with task forces, advisory groups, and the individuals and organizations who coordinate bicycle transportation programs.

RECREATION

For many Durham residents and visitors bicycling is a popular participation sport. Bicycling offers recreational opportunities relatively close to home. Facilities which are designed for recreational purposes may serve commuter bicyclists as well. Similarly, people who are positively introduced to bicycling through enjoyable recreational riding may also bicycle for transportation purposes.

1. Improve the circulation system for recreational bicycling. Recreational bicyclists-especially the less experienced or proficient can also benefit from the same type of on-street improvements designed to enhance bicycle transportation--filling potholes, smoothing roadway shoulders, widening curb lanes. These and other relatively low-cost "spot safety" enhancement projects

promote safer, more enjoyable recreational bicycling. Scenic roadways, large residential neighborhoods, and linking roadway systems merit particular attention for improvement.

Off-street and physically separated facilities will also be provided to supplement the existing roadway system. Providing trails along utility right-of-ways, through park areas, and on undeveloped street right-of-ways can expand the utility and continuity of existing streets. (It should be recognized, however, that any such facilities, no matter if funded and designated as "bikeways", will function as multipurpose recreational facilities. Attention must be paid to minimizing conflicts between diverse uses. In addition, separate facilities should not negatively impact on-street bicycle use, such as by narrowing the curb lane width or introducing intersection crossing problems.)

2. Improve awareness of recreational bicycling options. Informational programs, such as publication and distribution of bicycling maps and self-guided tour brochures, can expand the range of recreational bicycling opportunities. These tours are especially effective when highlighting Durham's many unique attractions--the historic district, parks, viewpoints, and waterfront activities. Such recreational activities should take advantage of lower-traffic streets and be complemented by directional aids such as signing, stencils, and vicinity maps.

3 Improve operator proficiency. Bicycle proficiency programs should be provided and encouraged so that recreational bicyclists may be able to improve their operator skills, and expand their range of riding. Both on-street and off-street skills should be emphasized (e.g., safely overtaking pedestrians on trails, making a left turn on-street, etc.). Such programs can be offered through the Durham Parks and Recreation Advocate, Oyster River Cooperative School District, bicycling clubs (such as the Granite State Wheelmen), and other organizations to both youth and adult bicyclists.

4. Encourage special bicycling events. Events such as 'Bicycle Sunday' acquaint many inexperienced bicyclists with the enjoyment of recreational bicycling.

5. Organized bicycle racing should be facilitated in Durham. Bicycle racing can expand public interest in other types of bicycling, and enhance the Town's livable image. Durham should assist with and encourage the promotion of organized bicycle racing events. To the maximum extent possible, signed corridors favored for bicycle training should be established and maintained in excellent condition.

6. Bicycle touring to and through Durham should be encouraged. Durham is part of an attractive regional and interstate bicycle touring routes and should be publicized as a means to enhance the Town's image and increase its revenues through tourism. Availability of an increasing number of Bed and Breakfasts as appropriate lodging for bicycle tourists should also be publicized.

IMPLEMENTATION MATRIX AND PRIORITIZATION

PROJECT	LOCATION	IMPLEMENTATION YEAR
Reduce speed to 20 MPH	Downtown loop and Main Street to the UNH Field House	1995-1996
Place "Durham is a Bicycle and Pedestrian Friendly Community" signs (suggested wording)	At each of the gateways into Town (Old Concord Road, Newmarket Road, and Dover Road)	1995-1996
Bicycle Education Campaign	Elementary, Middle, and High School, UNH and Parks and Recreation	1996
Bicycle Storage Facilities Racks and Lockers	Reference implementation map	1996-1997
Shared Motor Vehicle and Bicycle travel lanes	Downtown Loop	1996
Bicycle Lane Network	Madbury Road, Main St., Old Concord Road, Mill Road	1996-1997
Bicycle Lane Network	Packers Falls Road, Durham Point Road, Mast Road (RTE 155A), Bennett Road, Bagdad Road, Coe Drive, Edgewood Road, Garrison Road, RTE 108, and RTE 4	1998-2000
Mixed Use Path Network	Old Road (from Dover Road to Watson Road)	1998-1999 (presently funded under ISTEA)
Mixed Use Path Network	College Brook down to the Mill Pond to Jackson's Landing via Old Landing Park (Waterfront Path)	2002

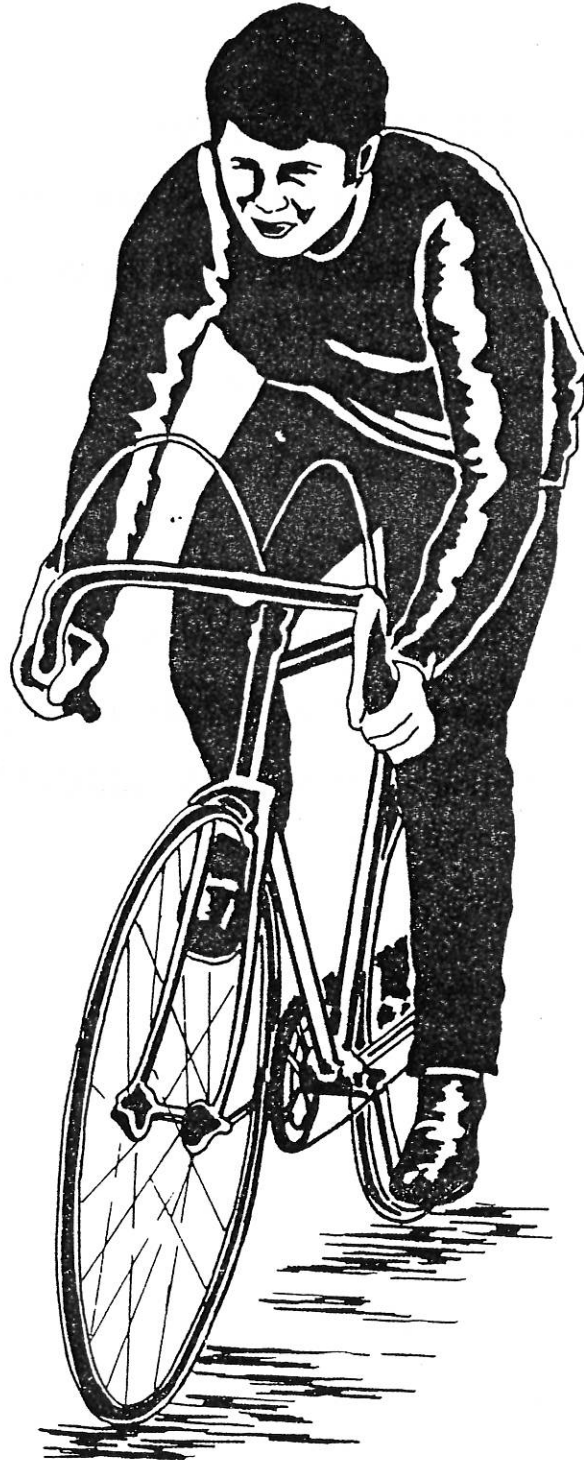
PROJECT	LOCATION	IMPLEMENTATION YEAR
Mixed Use Path Network	Foss Farm Development to the Faculty Development (a bridge across the Oyster River at the Pumping Station in the Faculty Development) and College Woods, from Mill Road to the UNH Water Treatment Plant	2000-2002 (possibly a UNH Thompson School Demonstration Project)
Require Town and State road construction and reconstruction to include bicycle lanes	Town Wide	Ongoing
New Development to include Bicycle Lanes or Mixed Use Paths	Town Wide	Ongoing, associated with New Development and Land Use Regulation Change
Work with UNH, the Town, and private land owners to create a Mixed Use Path network linking all public lands in town	Town Wide	Ongoing (facilitated by the Parks and Recreation Committee and the Conservation Commission)
Repair All Natural and Man Made Hazards	Town Wide use the Durham Bicycle Path/lane Repair Inventory Card to log locations	On going

APPENDIX A
SEACOAST METROPOLITAN
PLANNING ORGANIZATION'S
BICYCLE PLAN

APPENDIX B
DURHAM BICYCLE PLAN
1976

DURHAM BIKEWAY STUDY

A PROPOSED PLAN FOR BICYCLE ROUTES
IN THE TOWN OF DURHAM, N.H.



PREPARED BY THE TOWN OF DURHAM, N.H. IN COOPERATION WITH THE
STRAFFORD REGIONAL PLANNING COMMISSION AND THE
N.H. DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DURHAM BIKEWAY STUDY
A PROPOSED PLAN FOR BICYCLE ROUTES
IN THE TOWN OF DURHAM, NEW HAMPSHIRE

FEBRUARY, 1976

PREPARED BY THE TOWN OF DURHAM, NEW HAMPSHIRE
IN COOPERATION WITH THE STRAFFORD REGIONAL PLANNING COMMISSION
AND THE N.H. DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

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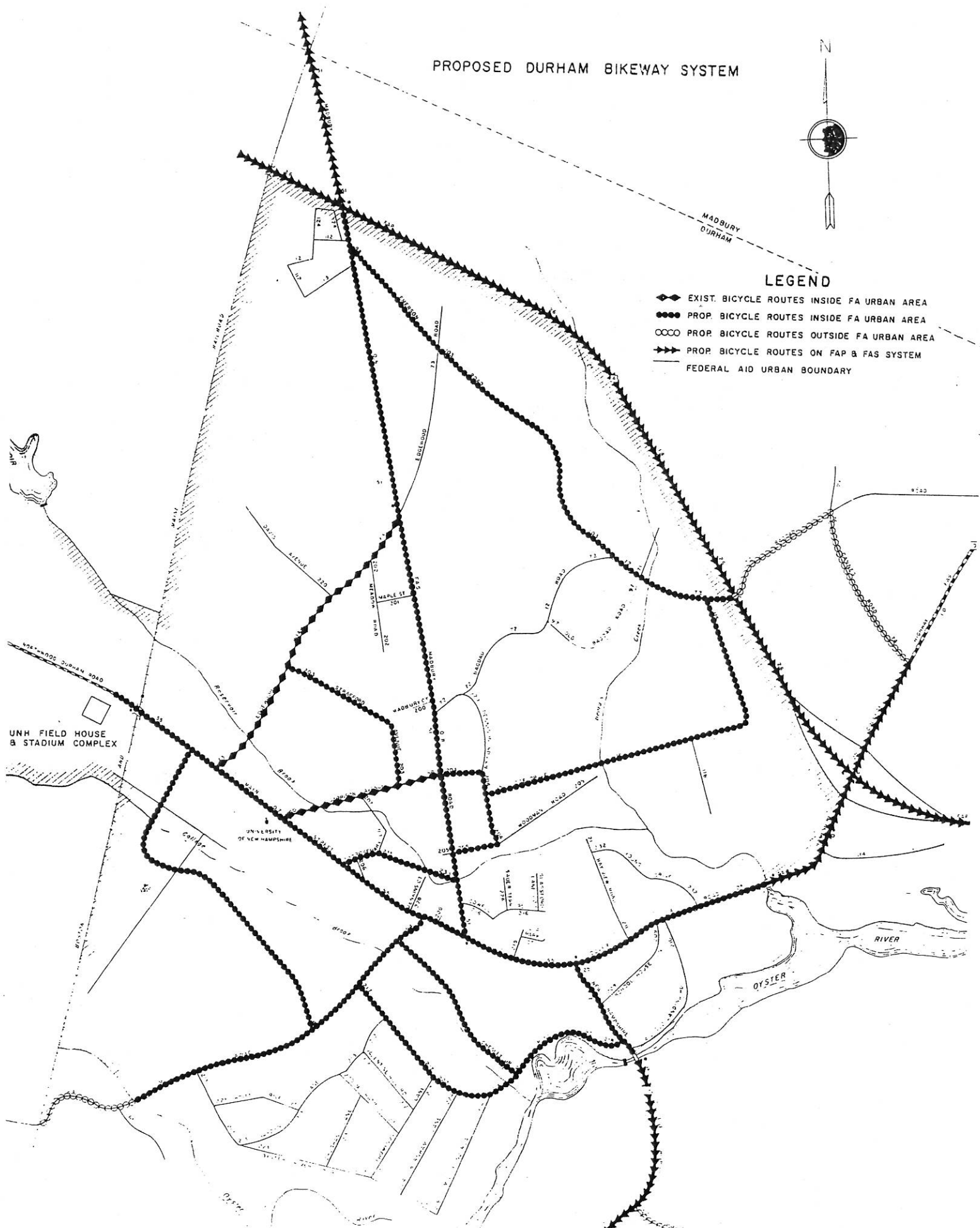
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PROPOSED DURHAM BIKEWAY SYSTEM



LEGEND

- ◆◆◆ EXIST. BICYCLE ROUTES INSIDE FA URBAN AREA
- PROP. BICYCLE ROUTES INSIDE FA URBAN AREA
- PROP. BICYCLE ROUTES OUTSIDE FA URBAN AREA
- ▶▶▶ PROP. BICYCLE ROUTES ON FAP & FAS SYSTEM
- FEDERAL AID URBAN BOUNDARY



CHAPTER 1

INTRODUCTION

In recent years there has been a marked increase in bicycle usage, particularly among adults. As opposed to sales reports in the 1950's and 1960's, current findings indicate that the bicycle is no longer merely a child's toy; rather, its usage as a transportation and recreation vehicle for adults is increasing rapidly. The National Electronics Inquiry Surveillance System (NEISS) of the Consumer Product Safety Commission has developed data which show that approximately one million accidents involving bicycles occur across the United States each year.

The National Safety Council estimates that 100,000 motor vehicle-bicycle accidents and one million injuries associated with bicycles and requiring professional medical treatment occur each year. Research studies suggest that a very small percentage of all bicycling accidents on and off the highway are reported to police authorities. Only motor vehicle-related bicyclist deaths on public highways are commonly reported.

Other facts about bicyclist accidents are as follows:

More than 78 percent involve children.

The highest frequency occurs during rush-hour traffic in urban areas.

Bicyclist accidents are primarily attributed to loss of control of the bicycle, mechanical failures, and entanglement of body and bicycle.

Studies show that bicyclist accidents seem to be most often the fault of the bicyclist rather than the opposing motorist.

In many cases, accidents involve bicyclist who do not know or who willfully disregard traffic regulations.

Coupled with the increases in bicycle sales and usage and in the proportion of adults riding bicycles on the highways, these accident data point to the fact that bicyclist injuries and fatalities are and will continue to be a serious problem that deserves immediate attention! 1.

A Bikeway Demonstration Program has been recently established by the Federal Government and the town of Durham may now apply for a Bikeway Demonstration Project grant under this program. Further details are discussed in Chapter 3 of this report.

Technical criteria for this study shall conform to the AASHTO Guide for Bicycle Routes, First Edition, published in 1974.

1. U.S. Department of Transportation; National Highway Traffic Safety Administration; Pedestrian and Bicycle Safety Study; Highway Safety Act of 1973 (Section 214).

CHAPTER 2
BACKGROUND MATERIAL

I. Legislative Efforts.

Town Meeting Warrant Articles - 1975. A copy of a warrant petition pertaining to bikeways was submitted to the Board of Selectmen and approved for inclusion in the annual town meeting warrant after having been signed by 50 registered Durham voters. The preparation of the article was conducted by a group of interested citizens, spearheaded by Mrs. Cicely Buckley of Durham.

This article for bikeways consisted of the following:

To see if the Town will vote to direct the Board of Selectmen and the Planning Board to make appropriate plans for the construction of bicycle paths and lanes on future town roads and construction wherever feasible on existing town roads. Further, to direct the Selectment to request the State Department of Public Works and Highways to construct bicycle paths and lanes between Durham and Newmarket on Route 108, and between Durham and Dover on Madbury Road, and Route 155, and Route 4 between Durham and Portsmouth, Route 155-A between Dover and Lee, and Route 108 between Durham and Dover.

This article was passed by an 8 to 1 margin at the March Town meeting.

Bike Study Bill - New Hampshire Legislature. In February 1975, Representative James Horrigan, D-Durham, submitted a bill to the New Hampshire Legislature which would authorize a feasibility study for bicycle paths in the State, with emphasis on the Durham area.

Horrigan submitted the bill on behalf of Cicely Buckley of Durham. The feasibility study would emphasize the transportation role of the bicycle, especially in the Durham - Dover - Newmarket area. Unfortunately the bill was defeated by a substantial margin in the New Hampshire Legislature.

II. Transportation Surveys in Durham. (See Appendix B for survey forms and results)

During the spring of 1975, a number of surveys were conducted dealing with commuters, bicycles, alternative transportation, etc. Groups participating in the preparation and administration of these transportation surveys were the Institute of Natural and Environmental Resources and the Whittemore School of Business, both of U.N.H.; the Durham Bicentennial Committee; the League of Women Voters; and Citizens for Alternative Transportation.

I.N.E.R. - League of Women Voters Survey. This consisted of 2 separate surveys - one administered to 135 commuters to U.N.H. and one administered to 75 Oyster River High School students. These surveys were primarily oriented toward identifying the problems and suggested improvements expressed by bicyclists, although other alternative forms of transportation were discussed.

Whittemore School Survey. The Whittemore School Survey of commuters was undertaken as part of a study of parking and traffic problems at U.N.H. It should be noted that only U.N.H. commuters were surveyed. A final sample of 307 commuters was interviewed: 101 faculty, 103 staff members, and 103 student commuters.

C.A.T. Household Survey. During the summer of 1975, the Citizens for Alternative Transportation (C.A.T.) group, headed by Mrs. Cicely Buckley and Mrs. Phyllis Jellison of Durham, conducted an additional survey of 100 seacoast area households, with the emphasis on Durham. A copy of this survey questionnaire is included in the Appendix.

Summary. There are a number of similarities in the results of all these transportation surveys:

- Bicycle usage was found to rank below driving and walking for all groups surveyed; however, it was found that bicycling would increase by a large percentage if safe bikeways were constructed.

- Travel routes commonly used by bicyclists at the present time in order of frequency were: Madbury Road, 108 Dover, 108 Newmarket and Mill Road.

- Roads on which bikeways were felt to be most needed in order of frequency were: Main Street, Route 108, Madbury Road and Mill Road.

- A large percentage of respondents indicated that they were willing to pay higher bike registration fees to aid in bikeway construction within the community and that they also favored a percentage of State highway funds being made available for bikeways.

Summaries of all of the above transportation surveys are included in the Appendix.

III. Community Involvement.

Citizens for Alternative Transportation. This group was formed to promote development of bikeways within the Durham area. To date, they have assisted the League of Women Voters and the Institute of Natural and Environmental Resources at U.N.H. with the preparation and administration of 3 transportation surveys (commuters, high school students, and households within Durham). The results of all of these surveys have been tabulated and presented to the Board of Selectmen and the Planning Board. C.A.T. has also put out news releases on their activities and their position on the issue of future bikeway construction in the Durham area.

Bikathon - November 2, 1975. This has been the most successful activity of C.A.T. to date. The Bikathon covered 19 miles and was held to demonstrate the need for safe bikeways in and around Durham and to raise funds to match existing Federal funds to construct bikeways on State and/or town roads. Many community organizations and businesses sponsored over 100 riders who took part in the event. A total of \$1700 was raised, of which \$1400 has been collected so far.

Durham Planning Board. The March 1975 town meeting article pertaining to bikeways stipulated that the town plan for and construct bikeways within Durham. The Board of Selectmen asked the Planning Board to prepare a plan for bikeways and to present a proposal for the March 1976 town meeting.

In September 1975, the Planning Board asked the Strafford Regional Planning Commission for technical assistance on this matter. A number of progress reports were made by the Strafford Regional Planning Commission to the Durham Planning Board during September, October, and November. Interested citizens were encouraged to attend these meetings, especially members of Citizens for Alternative Transportation (C.A.T.), in order to participate in the discussions. These discussions served to give the Planning Board an idea of what type of final proposal to present to the 1976 town meeting.

IV. Strafford Regional Planning Commission Involvement.

As stated above, the Planning Board requested that the Strafford Regional Planning Commission study the future bikeway needs of Durham and prepare a plan for future construction of bikeways. The Planning Board members first prepared a list of suggested roads within the Durham area on which they felt bikeways should be seriously considered. Except for various transportation surveys done by citizens groups and the University of New Hampshire, the Strafford Regional Planning Commission played the key role in first, gathering information for the Planning Board and second, formulating the information into a series of construction proposals. On November 19, 1975, a preliminary report on bikeways was presented to the Planning Board. The contents of that report will be discussed in the following.

Data Collection. Most of the data in the report was collected by David Chadbourne of the Strafford Regional Planning Commission, assisted by Ann Garretson, a student at U.N.H. The first item of business was to conduct an inventory of existing conditions on each of those roads suggested by the Planning Board. Items such as direction of travel, sidewalk widths where present, cut and fill requirements, and pavement conditions were considered. A list of obstacles (hydrants, utility poles, stone walls, etc.) which might hinder bikeways construction on these roads was also prepared.

Right-of-Way information for each of the roads was researched, with the assistance of David Littlefield, Planning Assistant for the Town of Durham. This information was obtained from records in the Town Office and from plans recorded at the Registry of Deeds. Where the information was not available, the width of the bound from stone wall to stone wall was measured at selected intervals and an average width was used. Also, the estimated length in linear feet for each of these roads was calculated in total as well as in segments and then noted.

As previously noted, the results of all transportation surveys which are conducted were carefully reviewed and summarized in the report.

All potential Federal, State and local sources of funding for bike-way construction were thoroughly researched and were also summarized in the report.

Finally, preliminary cost estimates for bikeway construction were developed with the assistance of George Crombie, Durham Public Works Director, and the Planning and Economics Division of the New Hampshire Department of Public Works and Highways. In developing these estimates, the following standards were used:

Twenty-two feet (22') minimum distance from the center line on each side of road is needed (24' distance is more suitable)

	<u>Minimum</u>	<u>Desirable</u>
Vehicle Lane	11'	12'
Bicycle Lane	3.5'	4'
Ditching, Drainage	$\frac{8'}{22.5' \text{ width (from C.L.)}}$	$\frac{8'}{24' \text{ width (from C.L.)}}$

Based on an average bicycle lane width of 3.5 feet, unit costs were developed for the following items: bituminous concrete surface (2" depth); aggregate sub-base (6" depth); excavation; fine grading; ledge removal; striping; and landscaping. It should be noted that these estimates were based on average estimates for work involving these items done by private contractors for the New Hampshire Department of Public Works and Highways.

Plan Formulation. After carefully examining all of the data which has been described above, four alternative plans for future bikeway construction in Durham were prepared. According to each of these plans, development of bikeways would be phased over a number of years, in this case, ranging from five to eight years. Costs were determined on linear foot basis for each particular year of the

construction schedule. The total construction cost estimates were the same for each of the four alternative proposals--only the phasing of each differed. The total projected costs for the 4.5 miles of bike-ways being considered was determined to be approximately \$375,000.

V. Bikeways Plans

Strafford Regional Planning Commission Proposal. As described above, the Strafford Regional Planning Commission proposal, entitled DURHAM BIKEWAY STUDY-PRELIMINARY REPORT, presented four separate alternative plans for bikeway construction. The timetable by which bikeways were to be constructed was based on the following ordering of priorities: (1) bicycling for school-age children to and from school, recreation areas, etc., (2) bicycling for commuters to and from the University and various places of business, and (3) recreational bicycling. The report was developed in this manner to allow the Planning Board as much flexibility as possible in the setting of priorities for future bikeways within the community.

Copies of this report were submitted to the Planning Board, interested U.N.H. Officials, Planning and Economics Division of the New Hampshire Department of Public Works and Highways, members of C.A.T. and other bicycling enthusiasts.

C.A.T. Proposal. Shortly after the Strafford Regional Planning Commission proposal was presented, C.A.T., represented by Mrs. Phyllis Jellison, presented an alternative proposal for bikeways. The essence of this proposal was that entire bikeways along the selected roads should be completed within one year, instead of doing segments of them on a year-by-year basis.

This report also went more deeply into the funding aspects of future bikeways. Underwriting the cost of construction of a bikeway network in Durham by issuing long-term bonds was advocated. Also, it was suggested that money for the engineering and construction phases of the project be requested at the same time, instead of in separate years. The rationale for this was that future capital expenditures of Durham may make it imperative to undertake the engineering and construction phases at the present time.

The C.A.T. proposal was basically phased over a four year period, with an optional fifth year for construction of recreational bikeways if desired. The cost estimates in this proposal also assume that Bureau of Outdoor Recreation funds will be made available to the town on a 50-50 matching basis. With this assumption in mind, the total cost for the four year plan was estimated to be \$294,391 (Durham's share with the 50-50 match). With the fifth year option, total cost to Durham was approximately \$383,455.

Planning Board Proposal. After reviewing all of the above data and bikeway proposals, the Planning Board formulated their own proposal to be presented to the Selectmen and Budget Committee for inclusion in the warrant for the March 1976 town meeting.

According to the final proposal, bikeway development would be phased over a total period of seven years, lasting until 1983. There are three distinct phases to the proposal, each of which would be preceded by an engineering and design study. With each of the three major phases, various priorities as to where bikeway construction

should occur are outlined. Engineering studies and construction work are proposed to be done in separate years, not all within one year as outlined in the C.A.T. proposal.

The engineering and design studies for each of the major phases was estimated to be approximately \$27,000. The construction costs estimates range from \$197,000 - \$325,000. Therefore, total cost estimates for the entire bikeway development project ranged from \$225,000 - \$350,000.

Urban Roads Program: In 1974, the Town of Durham approved approximately \$22,000.00 for its preliminary share in the Urban Roads Program. The objective of this program was to look at a number of traffic circulation problems in the Urban Area, and improvements that could take place. At the 1975 Town Meeting, it was made clear by the vote of the Town that any project undertaken would give considerable review to bikeways.

In the early spring of 1975, under this project, the State Highway Department hired Hamilton Engineering to look at both the one-way traffic pattern in Town and the Chesley Drive extension. In both areas, it was specified under the Engineering Contract that bikeways would be designed in these areas if so feasible. Up to this date, preliminary design conducted by Hamilton Engineers shows proposed bikeways in these areas.

CHAPTER 3
PROPOSED DURHAM BIKEWAY SYSTEM

I. Bikeway Demonstration Program

A Bikeway Demonstration Program was established under the Federal-aid Highway Amendments of the 1974 Act. Congress recently provided for an appropriation of \$6,000,000 for this program as a part of the Federal-aid Highway Act of 1975. On December 31, 1975 the U.S. Department of Transportation's Federal Highway Administration (FHWA) announced that these funds were available for the construction of bicycle facilities and to supplement funds already available for bicycle projects under the regular Federal-aid Highway Act. Funds will be provided to States and local communities on an 80 percent Federal and 20 percent State or local matching basis. The monies are not available for constructing facilities in rural areas. The purpose of this program is to promote bicycling as a viable surface transportation alternative.

A major portion of the proposed Durham Bikeway System (80% \pm) could be included under this program. This portion would include the proposed bicycle routes falling within the Federal Aid Urban area and are the bicycle routes for which application for Bikeway Demonstration Project funds will be made.

Final guidelines for applying for a Bikeway Demonstration Grant are not available at this time. When they are received additional information, if required, will be provided in the grant application.

II. Proposed Overall Plan

The proposed overall plan involves four categories of which three would require different levels of funding. These categories and their corresponding descriptions are as follows: (Please refer to map at front of this report).

1. Existing bicycle routes inside Federal Aid Urban area.

Edgewood Road from Main Street to Madbury Road	2900 L.F.
*Garrison Avenue from Main Street to Madbury Road	1460 "
	<hr/>
	4360 L.F.

2. Proposed bicycle routes inside Federal Aid Urban Area.

These are the routes to be included in the Bikeway Demonstration Project.

Main Street from U.N.H. Field House to Peettee Brook Ln.	2785 L.F.
+Main Street from Peettee Brook Ln. to Madbury Rd. (one way)	1325 "

Main Street from Madbury Rd. to Newmarket Rd.	1115 "
Dover Rd. from Newmarket Rd. to Beard's Creek	2080 "
Strafford Ave. from Edgewood Rd. to Garrison Ave.	1805 "
+Peettee Brook Ln. from Main St. to Madbury Rd. (one way)	1098 "
+Madbury Rd. from Main St. to Peettee Brook Ln. (one way)	480 "
Madbury Rd. from Peettee Brook Ln to U.S. Rte. 4	6855 "
Garrison Ave. from Madbury Rd. to Dennison Rd. (one way)	375 "
Dennison Rd. From Garrison Ave. to Woodman Rd. (one way)	650 "
Woodman Rd. from Madbury Rd. to Dennison Road	570 "
Coe Dr. from Dennison Rd. to Bagdad Road	3715 "
Emerson Rd. from Madbury Rd. to Bagdad Road	3930 "
Bagdad Rd. from Emerson Rd. to F.A.U. boundary	1065 "
+College Rd. from Mill Rd. to Main Street	3400 "
Mill Rd. from F.A.U. boundary to Chesley Dr. Extension	2763 "
+Mill Rd. from Chesley Dr. Extension to Main Street	400 "
Faculty Rd. from Mill Rd. to Mill Pond Road	1635 "
Mill Pond Rd. from Faculty Rd. to Chesley Drive	220 "
+Mill Pond Rd from Chesley Dr. to Newmarket Road	1250 "
+Chesley Dr. from Mill Rd. to Mill Pond Road	1650 "
Newmarket Rd. from Oyster River to Main Street	920 "
	<hr/>
	41,086 L.F.

- *Programmed for construction by town in summer of 1976.
- +Portion of proposed system overlapping "Hamilton" Urban D study.
- ‡University of New Hampshire Street.

3. Proposed bicycle routes outside Federal Aid Urban area.
These are routes on the rural town road system and would be totally funded by the town of Durham.

Bagdad Road from F.A.U. Boundary to Canney Road	1350 L.F.
Canney Rd. from Bagdad Rd. to Dover Road	1630 "
Mill Rd. from B&M RR bridge to F.A.U. Boundary	1102 "
Durham Point Rd. from Newmarket Rd. to Pinecrest Ln.	500 "
	<hr/>
	4,582 L.F.

4. Proposed bicycle routes on the Federal Aid Primary and Federal Aid Secondary systems. These are proposed routes included in the overall bicycle route plan for the State. (See Map Appendix C) State matching funds would be applied to these sections.

Madbury Road from U.S. Route 4 north
U.S. Route 4
Dover Road From Beard's Creed to Canney Road
Newmarket Road from Oyster River south

Mileage Summary

Existing bicycle routes	4,360 L.F.	0.8 miles
Town road and streets inside F.A.U. area	30,483 L.F.	5.8 miles
U.N.H streets inside F.A.U. area	3,400 L.F.	0.7 miles
Roads and streets overlapping "Hamilton" study.	6,203 L.F.	<u>1.2 miles</u>
Total mileage inside F.A.U. area		7.7 miles
 Town roads outside F.A.U. area	 4,582 L.F.	 0.9 miles
 Total mileage for Durham Bikeway System		 9.4 miles

III. Estimated Costs

The following cost estimates are based on average bid prices for highway projects constructed in New Hampshire during 1974.

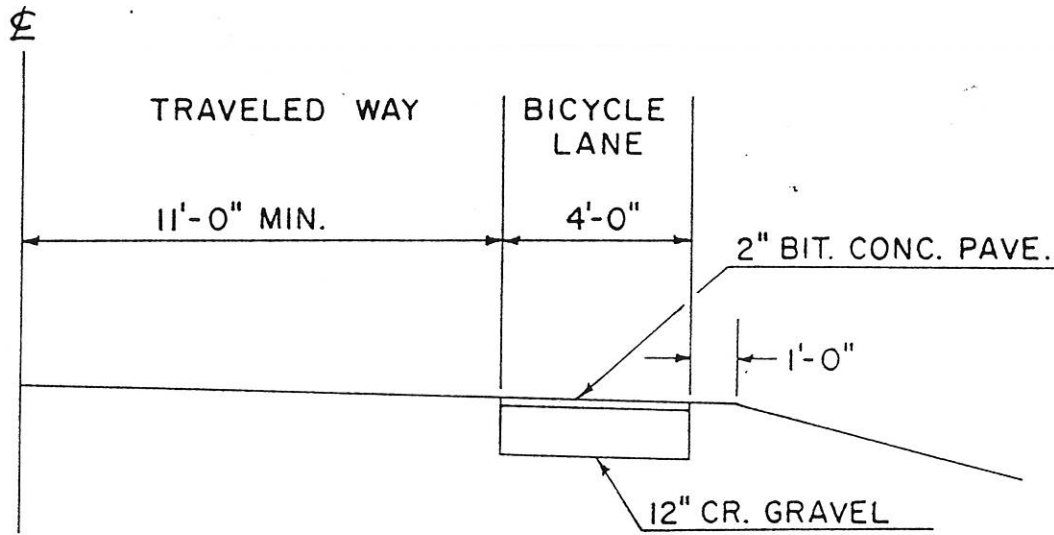
1. Bikeway Demonstration Project

Town of Durham	5.8 mi.	\$389,000	
Town of Durham (Hamilton Study area)	<u>1.2 mi.</u>	<u>\$ 14,000</u>	
Total Town of Durham	7.0 mi.	\$403,000	
Town of Durham (20% Share)			\$80,600
University of New Hampshire	0.7 mi.	\$ 100	
University of New Hampshire (20% Share)	_____	_____	<u>\$ 20</u>
Total Bikeway Demonstration Project	7.7 mi.	\$403,100	\$80,620

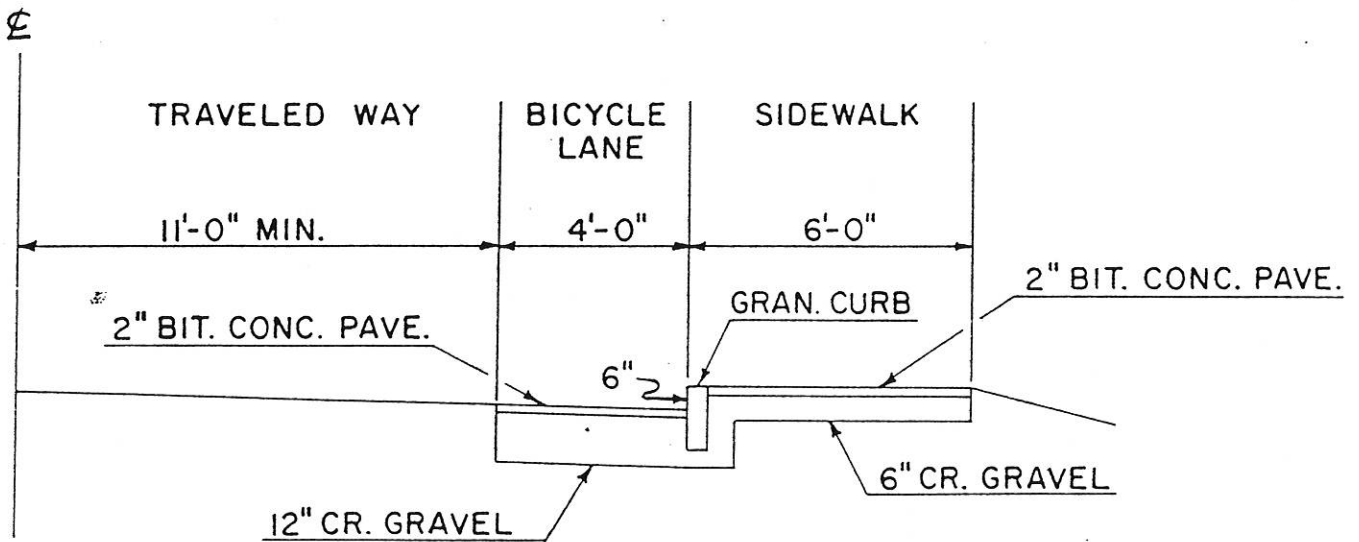
2. Durham Rural Bicycle Routes

Town of Durham (100%)	0.9 mi.	\$ 57,000
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BICYCLE LANE TYPICAL SECTIONS

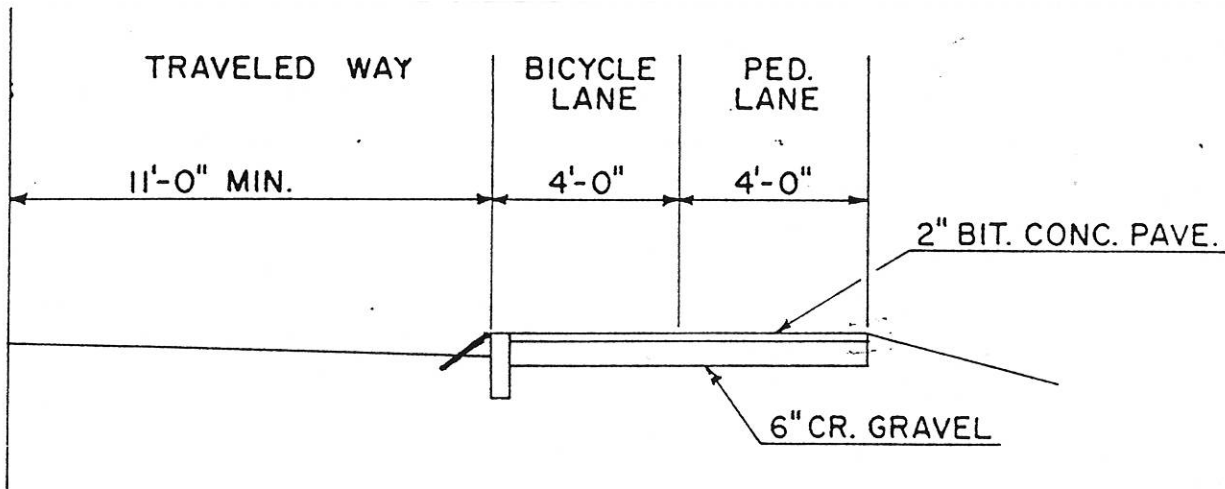


TYPICAL NO. 1

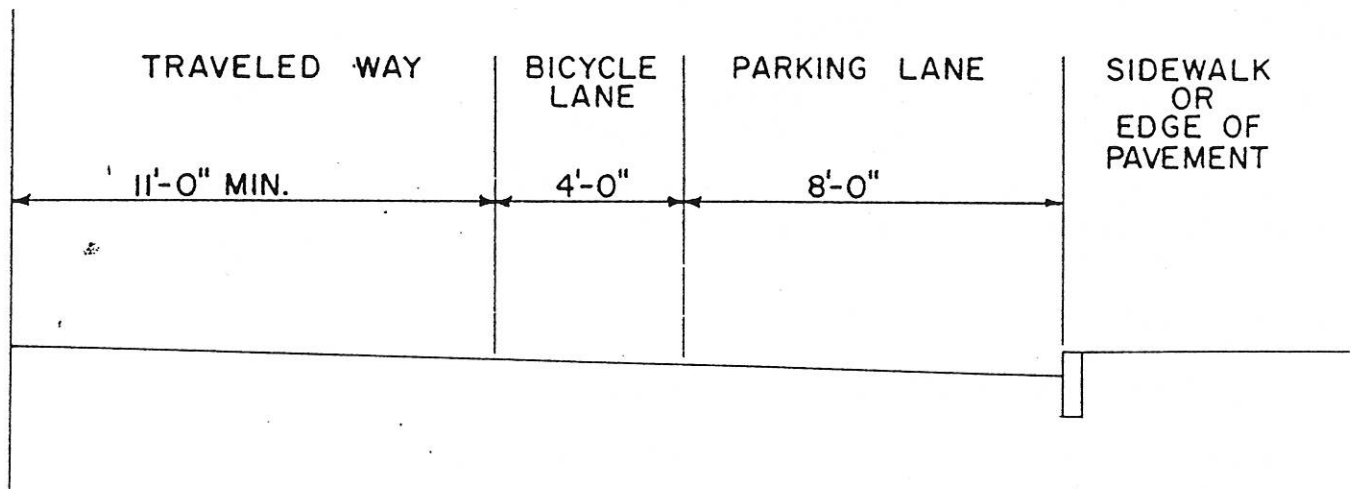


TYPICAL NO. 2

BICYCLE LANE TYPICAL SECTIONS



TYPICAL NO. 3



TYPICAL NO. 4

ALTERNATE TRANSPORTATION SURVEY

Adult survey respondent: Age _____ Sex _____ Town of Residence _____
 No. of household members 18 or over _____ Under _____ Under 18 _____

1) How many in your household bike a) commuting to work or school _____
 b) shopping _____
 c) for recreation _____

2) Rank 1 to 5 present road conditions for cycling on roads you take to work (1 is tension-free, 3 safe, 5 hazardous) 1 2 3 4 5
 Town of departure _____ Destination _____
 Via roads _____

3) What percent of time is your transport to work or school from April thru Oct, in fair weather:
 Walking _____
 Hitchiking _____
 Bicycle _____
 Public Transport _____
 Private vehicle _____

4) If roads were safer, what % would you bike to work or school, April thru Oct. in fair whether: _____

5) Specify roads where bikelanes or bikepaths are most needed:
 In your town _____
 State roads _____

6) Should bikeways be restricted to non-motorized use? (motorbikes and skimobiles prohibited) Yes No

7) Is public transport conveniently available to work? Yes No
 Would you use inexpensive public transport if available? Yes No

8) Do you favor using a percent of state highway funds to match existing federal funds for bikeways? Yes No
 If yes, waht percent? 1% 2% 5% 10%

LEISURE AND RECREATIONAL OPPORTUNITIES:

Check those you feel are now INADEQUATE in your town

- | | |
|---|--|
| <input type="checkbox"/> bikepaths or bikelanes | <input type="checkbox"/> community center |
| <input type="checkbox"/> walking or ski trails | <input type="checkbox"/> craft center |
| <input type="checkbox"/> tennis courts | <input type="checkbox"/> reading & periodical room |
| <input type="checkbox"/> parks or nature study area | <input type="checkbox"/> music listening & chess room |
| <input type="checkbox"/> public swimming (freshwater) | <input type="checkbox"/> coffee house (indoor and outdoor) |
| <input type="checkbox"/> other (specify) _____ | <input type="checkbox"/> other _____ |

Please add your name and address to join CAT to help us be heard! If you wish to help further, please include phone.

SUMMARY OF RESULTS OF COMMUTER SURVEYS

Present Means of Transportation

Whittemore School Study

Major Means of Transportation

	Faculty %	Staff %	Students %	Weighted Total %
Drive	72.9	83.2	91.7	82.6
Walk	17.9	6.7	0.0	8.1
Public Trans.	1.6	4.2	3.7	3.1
*Bike	4.8	0.0	0.0	1.6
Car pool	.8	4.2	0.0	3.1

Secondary Forms of Transportation

	Faculty %	Staff %	Students %	Weighted Total %
Drive	16.0	6.7	5.6	9.4
Walk	16.0	5.9	2.2	8.0
Public Trans.	4.0	5.0	10.1	6.4
*Bike	16.8	4.2	9.2	10.1
Car pool	2.4	2.5	6.5	3.8
Hitch hike	0.0	0.8	9.2	3.3

INER Study

	Total Responses %
Drive	41
Public Trans.	18
*Bike	17
Hitchhike	22
Motorcycle	2

Use of Alternative Transportation if Available

Whittemore School Study

	Faculty %	Staff %	Students %	Weighted Total %
Public Trans.	40.0	33.3	77.8	50.2
Walk	40.0	44.4	0	28.1
*Bicycle	13.3	0	0	4.4
Drop off	6.7	0	0	2.2
Car pool	----	22.2	22.2	14.8
Sample Base 33	15	9	9	

Travel Route Usage

Whittemore School Study

	Faculty %	Staff %	Students %	Weighted Total %
Madbury Rd.	16.8	23.3	16.5	18.0
108 Dover	11.9	14.6	21.4	18.9
108 Newmarket	7.9	13.6	22.3	18.9
Old Route 4	10.9	10.7	16.5	14.6
Mill Road	14.9	5.8	0.0	2.8
155-A	4.0	2.9	1.9	2.4
155	5.0	7.8	6.8	6.8
College Road	13.9	1.9	0.0	1.8
Edgewood Road	4.0	1.9	1.0	1.5
Sample Base 307	101	103	103	

INER STUDY (Bicyclists Only)

	Total Responses %
Madbury Rd.	37
108 Dover	28
108 Newmarket	22
Mill Rd.	12

Hazardous Road Conditions

INER Study

	No. Responses	%
Rt. 108 Dover	40	90
Rt. 108 Newmarket	76	85.5
Rt. 4 Portsmouth	53	66
Packers Falls/ Mill Rd.	30	26.6

Bikeways Improvements Needed

Iner Study

78% feel adequate bikeways not provided, especially along the following roads:

	No. Responses	%
Main Street	40	22
Mill Road	30	17
Madbury Road	28	15
College Road	27	15
Garrison Ave.	21	12
Pettee Brook Lane	20	11
Edgewood Road	16	9

Funding Methods

Iner Study

91% favor State highway funds being made available for the planning and construction of bikeways in the biennial state budget to match existing federal funds.

85% willing to pay higher registration fee for bikes if needed to aid in matching funds for bikeway construction (52% would pay \$3.00, 41%-\$5.00, 6%-\$10.00)/

SUMMARY OF RESULTS OF HIGH SCHOOL STUDENT SURVEYS

Usual Transportation To School

	%
Drive	10
Walk	28
Bus	37
Bike	25

Travel Route Usage

	No. Responses	%
Mill Road	19	13.5
108 (Dover/Nmkt.?)	18	12.8
Madbury Road	17	12.1
Faculty Road	15	10.6

Rt. 4	11	7.8
Durham Point Road	11	7.8
Rt. 155	7	5.0
Mill Pond Road	6	4.3
Bennett Road	5	3.5
Main Street (Downtown)	32	22.7

Hazardous Road/Intersection Conditions

	No. Responses	%
108 & Main At Police Station	10	17.9
108 (Dover or Nmkt.?)	9	16.1
Mill & Main	5	8.9
Madbury & Main	8	14.3
Route 4	10	17.9
Madbury Road	9	16.1
Durham Point Road	5	8.9

Bikeway Improvements Needed

	No. Responses	%
Route 4	32	26.5
Rt. 108 (Dover or Nmkt.?)	29	24.0
Rt. 155	24	19.8
Madbury Road	20	16.5
Druham Point Road	16	13.2
Others Mentioned:		
Bagdad Road		
Mill Road		
Mill Pond Road		
Emerson Road		
Edgewood Road		

Funding Methods

67% would pay increased bicycle registration fee of \$3.00.

Local and federal funds and donations were also suggested.

SUMMARY OF RESULTS OF HOUSEHOLD SURVEYS

Planning for 1976: Year of the Bike

More bikes means less gas consumption and a healthier environment. As the Bureau of Outdoor Recreation and the National Bicentennial Commission have declared 1976 the Year of the Bike, Citizens for Alternate Transportation (CAT) propose that New England work now to make roads safer for cyclists and pedestrians; and that we update our transport to include inexpensive, attractive public transportation.

Two coast-to-coast bikeways are planned for '76 vacationers through areas of scenic and historic interest. Many states have provided bikeways for recreation and commuter needs, reducing traffic congestion and pollution. Oregon voted in '71 to use 1% of its highway funds for bikeways annually. Vermont is planning 16 miles of bikeways. Funds to match local and state funds are available: Federal Highway Act 80/20, BOR 50/50, some pilot projects receiving more. 6 cyclists died, over 300 reported accidents with motor vehicles in '74 in NH, indicating the need for safer roads and safety education.

Securing safe passage for cyclists is part of the effort to improve the quality of our daily lives, providing tension-free passage for those preferring this form of transportation to the expensive family car. CAT

ALTERNATE TRANSPORTATION SURVEY -- 100 Responses

Adult survey respondent: ^{OVER 30 - 65} Age 30-35 ^{F-51} Sex M-49 Town of Residence DEIRHAM-57
MISC - 43
 No. of household members 18 or over 214 Under 18 128

- 1) How many in your household bike
- | | |
|--------------------------------|---------------|
| a) commuting to work or school | <u>112</u> |
| b) shopping | <u>69 1/2</u> |
| c) for recreation | <u>226</u> |

- 2) Rank 1 to 5 present road conditions for cycling on roads you take to work (1 is tension-free, 3 safe, 5 hazardous)
- | | | | | | | |
|-------------------|----------------------------|--------------|-------------|---|---|--|
| | 1 | 2 | 3 | 4 | 5 | |
| Town of departure | <u>DUR</u> | | | | | |
| Destination | <u>DUR (34 out of 100)</u> | | | | | |
| Via roads | <u>MAIN-MAD-MILL</u> | <u>108-4</u> | <u>-155</u> | | | |
| | <u>MILL POND -</u> | | | | | |
- | | |
|--------------|-----|
| TENSION FREE | 1. |
| SAFE | 22 |
| HAZARDOUS | 77. |

- 3) What percent of time is your transport to work or school from April thru Oct, in fair weather:
- | | | | | | |
|------------------|-----------|-----------|-----------|-----------|-----------|
| | 0-25% | 26-50 | 51-75 | over 76% | |
| Walking | <u>36</u> | <u>5</u> | <u>1</u> | <u>3</u> | <u>45</u> |
| Hitchhiking | <u>19</u> | <u>1</u> | <u>2</u> | <u>4</u> | <u>26</u> |
| Bicycle | <u>78</u> | <u>18</u> | <u>2</u> | <u>12</u> | <u>60</u> |
| Public transport | <u>17</u> | <u>1</u> | <u>2</u> | <u>2</u> | <u>22</u> |
| Private vehicle | <u>18</u> | <u>10</u> | <u>15</u> | <u>46</u> | <u>89</u> |

- 4) If roads were safer, what % would you bike to work or school, April thru Oct, in fair weather:
- | | | | | | |
|--|----|---|----|----|----|
| | 16 | 7 | 23 | 20 | 66 |
|--|----|---|----|----|----|

- 5) Specify roads where bikelanes or bikepaths are most needed:
- In your town MAIN ST 27 (22.5%), MADBY RD 15 (12.5%), MILL RD 8 (6.6%)
 State roads 108 NMVT 22 (18.3%), RT 4 20 (16.7%), RT 155 & 155A 16 (13.3%)

- 6) Should bikeways be restricted to non-motorized use? (motorbikes and skimobiles prohibited)
- | | | |
|-----|-----------|----------|
| Yes | <u>89</u> | <u>0</u> |
| No | | |
- 7) Is public transport conveniently available to work?
 Would you use inexpensive public transport if available?
- | | | | |
|-----|-----------|----|-----------|
| Yes | <u>5</u> | No | <u>87</u> |
| Yes | <u>67</u> | No | <u>23</u> |
- 8) Do you favor using a percent of state highway funds to

LEISURE AND RECREATIONAL OPPORTUNITIES:

Check those you feel are now INADEQUATE in your town.

- | | |
|--|---|
| <u>83</u> bikepaths or bikelanes | <u>30</u> community center |
| <u>34</u> walking or ski trails | <u>20</u> craft center |
| <u>31</u> tennis courts | <u>5</u> reading & periodical room |
| <u>28</u> parks or nature study area | <u>8</u> music listening & chess room |
| <u>22</u> public swimming (freshwater) | <u>18</u> coffee house (indoor and outdoor) |
| <u>4</u> other (specify) _____ | _____ other _____ |

Please add your name and address to join CAT to help us be heard! If you wish to help further, please include phone.

Name _____ Street _____ Town/Zip _____ Phone _____

This survey is supported by the Durham League of Women Voters. Your check towards postage and further efforts may be sent to LWV BIKING COMMITTEE.

* * * FOLD, STAMP AND MAIL TODAY! * * *

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Citizens for Alternate Transportation
c/o Durham League of Women Voters
Box 367
Durham, NH 03824

Stamp

From:

APPENDIX C

DURHAM BICYCLE PATH/LANE REPAIR
INVENTORY FORM

DURHAM BICYCLE PATH/LANE REPAIR

INVENTORY FORM

DATE:

LOCATION (STREET/INTERSECTION/ADDRESS):

NATURE OF DEFICIENCY:

- Broken pavement
- Need bike rack
- Road needs sweeping
- Stripe/Restripe bike lane
- Uneven road surface
- Storm grate/manhole cover problem
- Other:

EXPLANATION OF DEFICIENCY:

Optional - Name and Address:

PLEASE COMPLETE THIS CARD AND MAIL OR DROP OFF AT THE TOWN

HALL.

*NOTE: THE INFORMATION COLLECTED ON THIS CARD WILL ASSIST THE TOWN IN PRIORITIZING BICYCLE RELATED INFRASTRUCTURE IMPROVEMENTS AND ALLOW THE TOWN TO SEEK FEDERAL GRANTS TO MAKE BICYCLE IMPROVEMENTS.