

NEW
HAMPSHIRE
OFFICE
OF
STATE
PLANNING

JUNE, 1997

COMPREHENSIVE

Statewide Trails Study



STATE OF NEW HAMPSHIRE

OFFICE OF THE GOVERNOR

JEANNE SHAHEEN
GOVERNOR

July 9, 1997

Dear New Hampshire Resident:

I am pleased to present the 1997 Statewide Comprehensive Trails Study. This study took twelve months to complete and was prepared by the Office of State Planning and the Department of Resources and Economic Development, Division of Parks and Recreation, Trails Bureau in cooperation with other public, private and independent agencies. The study provides a current assessment of New Hampshire's trail resources, needs, and challenges. The report was written with the guidance of The Statewide Trail Advisory Committee and a group of volunteers.

As New Hampshire continues to face development pressures, it is essential that we plan for the wise use and management of our recreational resources. The New Hampshire way of life is closely associated with the State's natural beauty. This is what we wish to make accessible to residents, visitors, and the trails community in particular.

I ask you to become actively involved in implementing the recommendations of this study and help us to protect New Hampshire's trails and to provide recreational opportunities for all New Hampshire residents.

These recreational resources should be protected through local planning efforts, as well as regional and state efforts. Towns and municipalities will find the information in the 1997 Comprehensive Statewide Trails study valuable in the development of efforts to support and maintain local trails.

I wish you every success in this important work.

Sincerely,

A handwritten signature in cursive script that reads "Jeanne Shaheen".

Jeanne Shaheen
Governor

Comprehensive Statewide Trails Study

State of New Hampshire,
Jeanne Shaheen, Governor

Department of Resources & Economic Development,
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and

NH Office of State Planning,
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June, 1997

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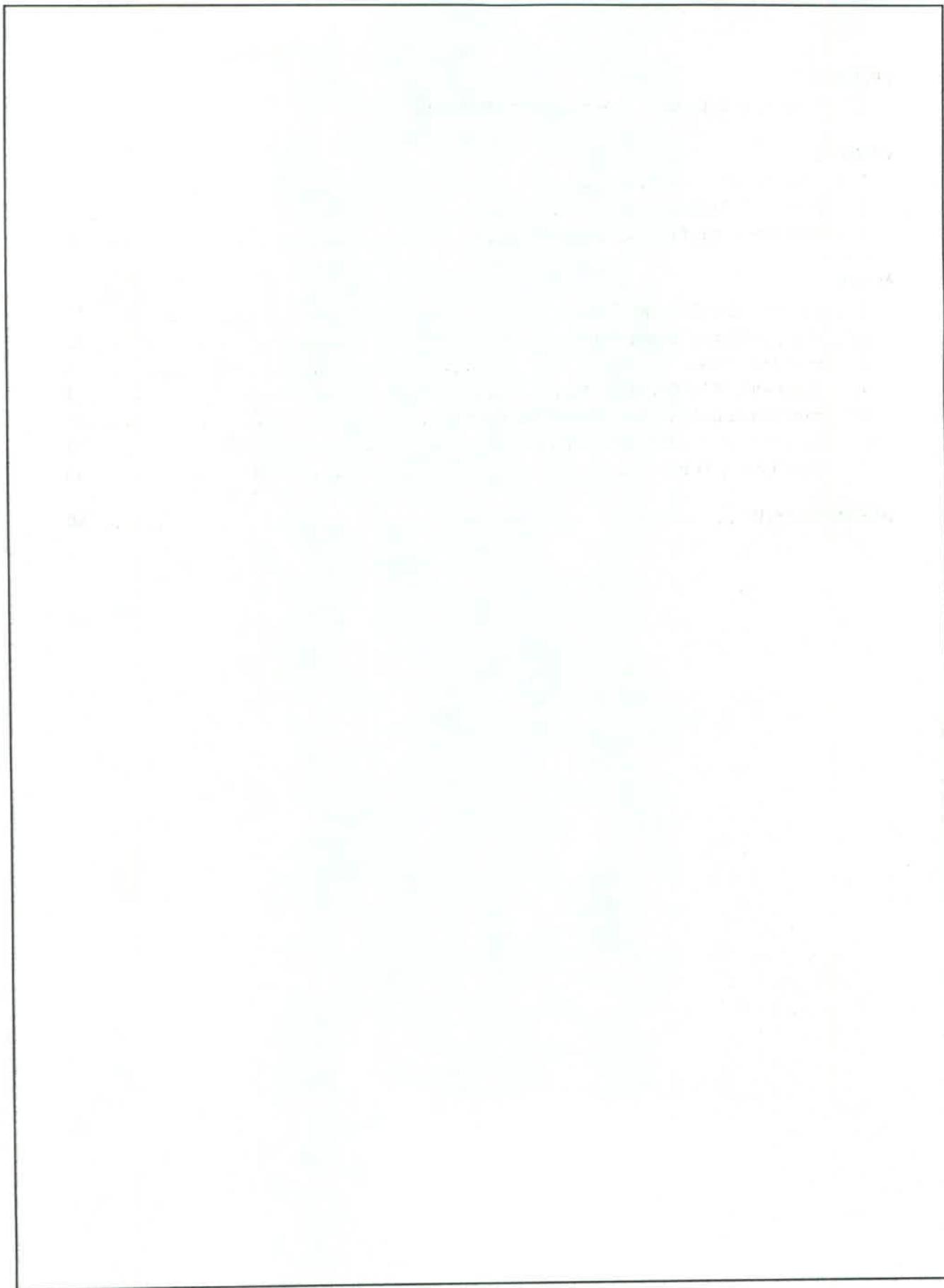
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ACKNOWLEDGMENTS

The New Hampshire Statewide Comprehensive Trails Study was prepared by the staff of the Office of State Planning with assistance from the Department of Resources and Economic Development, Bureau of Trails, which administers the National Recreational Trail Fund (NRTF) programs. Special thanks is given to the Statewide Trail Advisory Committee for its invaluable assistance during the course of this project. Numerous organizations have also rendered valuable advice and assistance throughout the course of this project including several federal, state and local agencies and private organizations.

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SUMMARY

The Office of State Planning (OSP) in cooperation with the Department of Resources and Economic Development (DRED), Division of Parks and Recreation (DPR), Bureau of Trails (BT) conducted a year long study of the state trail system focusing on existing and potential trails throughout the State. The study was conducted under the guidance of Statewide Trails Advisory Committee (see Appendix A) representing public and private trail organizations.

The primary purpose of the 1997 Statewide Comprehensive Trails Study is to address future trails needs, establish a recreation planning framework, analyze economic impacts and funding, discuss management and maintenance problems, identify priorities for protection and make recommendations. One of the more important findings of the chapter on economic impacts was that significant revenue and jobs are created as a result of trails activities. The study also focuses on identifying priorities for protection and evaluating the progress made in implementing the 1974 Trails Study.

Hiking has a long and honored tradition in the more remote mountain regions of the state. However, close-to-home multi-use trails are increasingly being recognized by the trails community that envisions trails within 15 minutes of home. Rails-to-trails, and greenway projects appear to be the primary approach for expanding the growing network of trailway systems. Community based trails projects are evidence of a strong grass roots trails movement in the state.



The state system of trails and greenways should be made up of a combination of state, local, federal and private organizations, with all four linked to form an interconnected system. Trails should be planned as part of the state's infrastructure, in the same category as highways and utilities.

A separate chapter was devoted to the issue of funding. This chapter identified available resources and methods used successfully in other parts of the country. Since that chapter was written, the State of Maine established a Conservation Lottery. The purpose of the lottery is to establish a stable source of funding for recreation and conservation. Funds from the lottery may be used for trail planning, property acquisition, maintenance, construction and any other action deemed appropriate for the preservation and enhancement of recreation in the State of Maine.

The opening paragraph of the section on State Resources states: " If there is a common chord that is struck in the various elements of the 1996 Statewide Trails Study it is the need for a continuous funding source for trail development and maintenance. While some New Hampshire communities have invested significant resources in recreational trails, many have not. Their reasons for doing so are not hard to understand." Finally, once the various components of the 1996 Trail Study were analyzed a series of issues, goals and recommendations were developed in Chapter 8. The Study ends with a process for evaluation and a conclusion.

CHAPTER 1.

INTRODUCTION

Purpose

The purpose of the 1997 Statewide Comprehensive Trails Study is to address future trail needs, develop a recreation planning framework, analyze economic impacts and funding, discuss management and maintenance problems, identify priorities for protection and make recommendations. Many of the strategies and issues were identified in consultation with the Statewide Trails Advisory Committee.

The study also evaluated the progress made in implementing the recommendations identified in the 1974 Statewide Trails Study. The 1974 Study noted that in a national recreation survey about half of all respondents spent their leisure time enjoying trails. The national survey also predicted a 150% increase in trails utilization/participation by the year 2000. According to various trails organizations, the popularity of trails activity has grown beyond all expectations.

Background

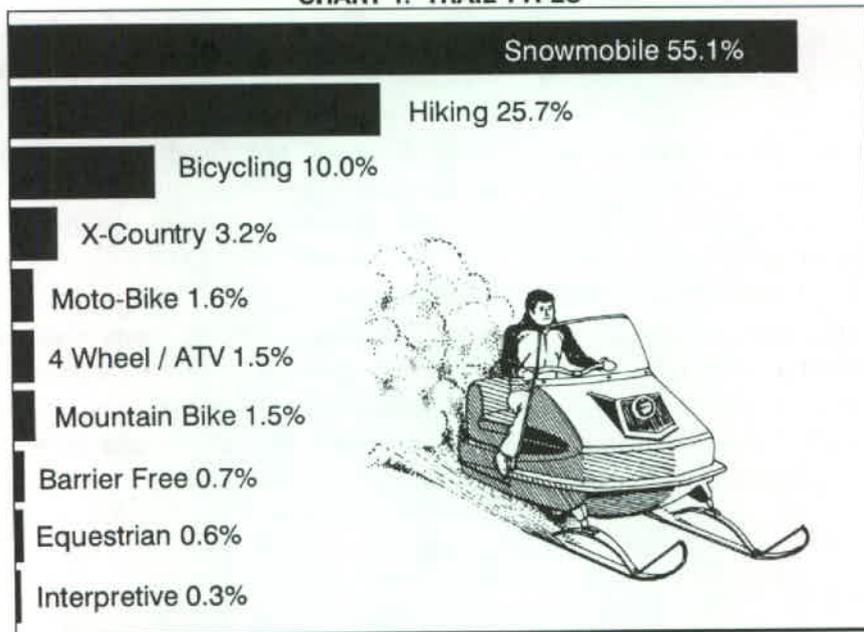
Trails have always played a role in the history of New Hampshire. The earliest trails were undoubtedly animal paths also utilized by Native Americans and with the arrival of the Europeans many of these trails were employed for commerce and communication. Toward the end of the nineteenth and early twentieth centuries, several organizations were formed for the purpose of promoting conservancy and enjoyment of the White Mountains. Organizations such as the Appalachian Mountain Club, the Dartmouth Outing Club, the Randolph Mountain Club and others have a long history of trails stewardship that continues today.

Currently, with increasing demands on all trails throughout the state, their future is uncertain due to budgetary constraints and changing land uses. According to a 1991 National Park Service Study (*Trails Today: A Heritage at Risk*) 11% of all trails managed by public agencies and 15% of those managed by private agencies are in poor condition. The same report also notes that 25% of all public trails and 36% of all private trails are only in fair condition and many of these trails have no permanent protection from a legal standpoint.

According to the 1994 State Comprehensive Outdoor Recreation Plan (SCORP), the state has an estimated 8,500 miles of trails on both private and public lands. However, more recent data indicate there are 10,890 miles of trails and of this total 55% are devoted to snowmobile trails. *Chart 1* provides a visual interpretation of the various types of trails by percentages. The data used in the chart is based on *Table 1* on page 5.

Between 1975 and 1995 nearly all trails across the state were open for use. Throughout these two decades public agencies with the responsibility of maintaining New Hampshire's trails were faced with new issues, such as safety, funding, vandalism, overuse and under staffing. A variety of trail organizations began expressing concerns as well. They were being faced with conflicts between different user groups, complaints from landowners, fear of liability and poor trail conditions.

CHART 1. TRAIL TYPES



There are approximately 824 miles of foot trails in the White Mountain National Forest. An estimated 64% of this mileage is reported to be in good condition. It is estimated that one quarter of the Forest Service's trails need some form of maintenance. Some 75 miles of trails are in such poor condition they require extensive redesign and reconstruction including tread way and drainage work. Of the trails maintained by private organizations less than half (49 percent) are in good condition and 15 percent are poor. Given the limited resources, these volunteer groups provide a valuable service to the state. The New Hampshire Heritage Trail, 220-miles running from Canada to Massachusetts, is an excellent example of work being performed by community-based volunteers. However, only a portion of the trail has been completed to date.

Despite maintenance setbacks, interest in trails across New Hampshire continues to grow. While hiking in the mountain regions has a long history, multi-use trails closer to urban centers continue to gain in popularity. In the future, trail users would like to find trails within a 15 minute drive from town. In order to accomplish this, trails should be planned as part of the state's infrastructure, in the same category as highways and utilities and should be accessible

to users' homes and workplaces. This goal can be implemented by increasing public awareness of the recreation, economic and social benefits of providing trails and greenways.

Another effective tool to meet this objective is to convert abandoned rail beds and river ways into an expanded trail system. The State has been active in acquiring rail beds since the 1974 Study. The section entitled, "Rail Corridors" outlines the state's progress in acquiring abandoned rights-of-way for trails.

Interest in different types of trails is increasing. The demand for trails accessible to mountain bikes, All Terrain Vehicles (ATVs), interpretative programs, canoeing and kayaking have grown tremendously in the last few years. At the same time as this growth in trails is occurring, a strong interest in the development of greenways has arisen. This phenomenon has occurred again from a desire to have trail access within a relatively short distance of home. Greenways not only provide opportunities for recreation but also serve to provide habitats for wildlife, a safer environment and economic opportunity.

However, these resources are at risk by uncontrolled development and growth. Many trails are located on private property, which is now being sold, subdivided, resold and developed. As a result it becomes more difficult to maintain the integrity of a trail system. At the same time these smaller parcels of land are displacing wildlife.

Management problems quickly develop from an ever shrinking resource, i.e., incompatible trail use, maintenance problems resulting from heavy use and insufficient maintenance budgets. These combine to make it more difficult to maintain the trail system. In addition, the loss of wildlife habitats is contributing to the displacement of wildlife and threatening some species.

Relationship to Statewide Comprehensive Outdoor Recreation Plan

The 1996 New Hampshire Statewide Trails Study is an element of the Statewide Comprehensive Outdoor Recreation Planning (SCORP) program. The SCORP serves as the State's official policy plan for outdoor recreation and conservation through December 1999. The document identifies major issues, problems concerning recreation, natural resources and also provides a series of recommendations to address those issues. The SCORP provides statistical data, research and discussion of key issues surrounding trail-based recreation.

Methodology

The Office of State Planning (OSP) in cooperation with the Department of Resources and Economic Development (DRED), Division of Parks and Recreation (DPR), Bureau of Trails (BT) conducted a year long study of the state trail system focusing on existing and potential trails throughout the State. Information was obtained from published and nonpublished data from public agencies and private trail-user groups. A small working group was established to review the progress of the study and make comments on drafts of the study. The author attended National Association of Recreation Planners Annual Conferences to discuss problems and issues related to trails with other planners. Appendix B contains a list of acronyms representing various organizations and entities.

Three questionnaires and an opinion poll were used in the development of this study. The three questionnaires were mailed to various trail user groups and agencies during the Winter and Spring of 1996. Finally, the opinion poll was used for on site interviews. The first questionnaire (Appendix C) was a Bicycle survey and it was sent to the Granite State Wheelmen for publication in their July/August newsletter. Having a membership of one thousand, better success was obtained from the bicycle questionnaire with one hundred and fifty-six people or 15.6% responding.

The second questionnaire was the 1996 Trails Study Survey which was mailed to trail user groups and Conservation Commissions with responses due by March 1996. This survey is discussed in Chapter 4 and the questionnaire and summary can be found at Appendix D. The 1996 Trails Survey asked respondents to provide maps showing the location of their trails. Out of one thousand trail surveys mailed, sixty questionnaires were returned for a 6% response rate. Of the total responding virtually all of the questionnaires were incomplete.

The third trail questionnaire was mailed in June 1996. This questionnaire was based in large measure, on the original 1974 Trails Study Survey - see *Appendix E*. Regional Planning Commissions were asked to include the questionnaire in their newsletter, unfortunately the response was negligible. Simultaneous to the three survey mailings, a data base was developed to tabulate the responses to the questionnaires. The opinion poll asked fifty individuals four questions including the following: first, the reason(s) for visiting the state; second, the type of recreation activity participated in; third, how did they enjoy their experience; and finally, what did they think of the state's recreation facilities? Some of the results of this poll can be found on page 41 of this study.

T CHAPTER 2 RAIL INVENTORY

Three recreation questionnaires were conducted during the winter and spring of 1996. The questionnaires were sent to more than one thousand agencies, organizations and individuals involved in trails and trail related activities. These groups included the U.S. Forest Service, U.S. Fish and Wildlife Service, New Hampshire Division of Parks and Recreation, Fish and Game Department, Department of Transportation, Appalachian Mountain Club, Audubon Society of New Hampshire, Society for the Preservation of New Hampshire Forests, The Nature Conservancy, The Dartmouth Outing Club and local conservation commissions. Information was also obtained from the 1995 SCORP Trails questionnaire and other published and unpublished data.

TABLE 1.
NEW HAMPSHIRE ESTIMATES OF TRAIL MILEAGE BY TRAIL USE, 1996*

Trail Use	Estimated Mileage
Snowmobiling	6,000
Hiking	2,800
Bicycle	1,090
X-Country Ski	345
Moto-Cross Bike	162
Four Wheel Drive/ATV	160
Mountain Bicycle	159
Barrier Free	74
Equestrian	67
Interpretive	33
TOTAL	10,890

*** Sources:**

Trails Today: A Heritage at Risk? A Report of the First-Ever Comprehensive New York/New England Trails Inventory. 1991; A Joint Project of the National Park Service and the Appalachian Mountain Club study. P.32.
The New Hampshire Statewide Bicycle and Pedestrian Plan.
 New Hampshire Department of Transportation, Bureau of Transportation Planning. 1995.
New Hampshire Atlas and Gazetteer. 10th Ed. DeLorme 1996.
 Additional statistics obtained from the Department of Resources and Economic Development, Bureau of Trails.

Table 1 is based on data obtained from a variety of sources. It should be noted that one of the main differences between the SCORP mileage estimate and the 1997 Trails Study estimate is the result of the inclusion of DOT bicycle route mileage. Some double counting of mileage may have occurred between various uses; however, every effort was made to avoid this from happening whenever possible.

There are an estimated 6,000 miles of snowmobile trails in the state and it represents the largest category of trail mileage. Using these statistics, the state experienced a threefold increase in snowmobile trail mileage since the previous study was completed in 1974 and an overall new trail development of 33 percent (7,200 miles in 1974).

The data for snowmobile trails was obtained from the Department of Resources and Economic Development, Bureau of Trails and a number of snowmobile clubs. These resources indicate snowmobilers use the same types of trails as noted in the 1974 Study. Specifically, they use everything from abandoned rail lines to private lands. One of the great advances made since the previous study has been the number of clubs with trail systems maps.

The estimate of trail mileage for moto-cross bikes or trail bikes was provided by the Merrimack Valley Trail Riders Association and the New England Trail Riders Association. The trail mileage for this class of user has only increased by 32 miles since the last study.

Table 2 provides a mileage break down for hiking trails maintained by various agencies and organizations and was obtained in part from the 1992 White Mountain Guide, published by the Appalachian Mountain Club. Other mileage data was obtained from the Department of Resources and Economic Development, Bureau of Trails, the White Mountain National Forest Office in Laconia, and the Society for the Protection of New Hampshire Forests.

TABLE 2.
HIKING TRAIL MILEAGE IN NEW HAMPSHIRE, 1996*

Maintained by:	Estimate Mileage
U.S. Forest Service, White Mountain National Forest	824
State of New Hampshire, Department of Resources and Economic Development	550
Private Organizations (AMC, DOC, RMC, SPNHF)	1,426
Total Hiking Trail Mileage	2,800

***Sources:**

U.S. Forest Service, Laconia Office
 Department of Resources and Economic Development, Bureau of Trails
 Society for the Protection of New Hampshire Forests
 Appalachian Mountain Club.

Federal Lands

The U.S. Forest Service maintained approximately 754 miles of trails at a cost of \$641,000 in 1995 and \$552,000 in 1994. Representatives of the Laconia Office of the US Forest Service state there are some 1502 miles of trails in the forest at present (see *Table 3*). The balance of the trail system in the WMNF is managed under cooperative agreements with a variety of trail user groups including the AMC and RMC.

According to the U.S. Forest Service, the White Mountain National Forest (WMNF) contains 723,899 acres of land at present and there are plans to expand the forest by some 52,000 acres. Currently, there are reportedly 173 trailheads in the WMNF, not all of which have parking spaces. *Table 4* provides a complete breakdown by tracts of land, acreage and trail mileage owned by various governmental organizations. The first column lists the number of tracts of land owned by a particular agency, the middle column provides the total acreage owned by that agency and the last column provides the total trail mileage on all tracts of land.

TABLE 3.
WHITE MOUNTAIN NATIONAL FOREST TRAIL MILEAGE*

Activity	Mileage
Hiking	824
Snowmobiling	262
Cross Country Skiing	174
Appalachian Trail	157
Wilderness	63**
Mountain Bicycling	22
TOTAL	1,502

* Source: US Department of Agriculture, Forest Service

** Includes mileage for only two of the four wilderness areas.

Information provided by the U.S. Forest Service, estimated 490,500 visitor days, (a visitor day represents 12 hours) in 1995 in trail use in the WMNF, a 23 percent increase in use since 1974. This figure represents a significant impact on the environment - both positive and negative. On the one hand there is a positive impact on the local economy, while on the other hand, the natural environment is negatively impacted by intensive use.

The two largest ski touring operations in the state maintain a total of 161 miles of trails. The majority of these are located in the National Forest which also maintains cooperative management agreements with ski touring operations as well as various snowmobile groups.

During the 1994-95 winter season the WMNF reported an estimated 67,600 snowmobile visitors days.

The Corps of Engineers reports that the majority of its land is under management agreement with the Department of Resources and Economic Development, Division of Parks and Recreation. There are some 18,501 acres under the care of the US Corps of Engineers and of that total 13,000 acres are administered by DRED. These properties have a total of thirty miles

of trail primarily for hiking, cross country skiing and snowmobiling. The Hopkinton/Everett flood control area has some 24 miles of motorized trails.

State Lands

The State of New Hampshire, Department Resources and Economic Development holds approximately 165,399 acres of land. Much of this acreage currently has trails and some is either under development or in the planning stages.

The DRED properties are administered through the Division of Forest and Lands with the Bureau of Trails managing the approximately 550 miles of trails. The trail system has more than doubled in the last twenty years. The increase in trail mileage is the result of the addition of rail-to-trails conversions. The Bureau of Trails manages 278 miles of rail conversion. There are approximately 272 miles of trails in state parks and forests; however, many of these facilities prohibit the use of motorized vehicles on trails because of the potential damage to soils and the environment.

The Fish and Game Department currently manages approximately 29,467 acres of land on 120 tracks of land relating to wildlife management. In discussions with the Department, they indicated that while some trails may exist on their properties, Fish and Game do not have an established trail program and do not inventory trail mileage.

The Department of Environmental Services, Division of Water Resources owns land primarily around dams. Spokespersons for the Division stated that some trails are currently being developed on some of their properties. The Division owns 9,257 acres of land on seventy-five properties. The largest of these holdings include, Enfield/Grantham Wildlife Management Area (4432.9 acres), and the Gilmanton/Alton/Gilford Wildlife Management Area (3268.7 acres). Properties range in size from a half acre to several thousand acres and a list of current land holdings is available from the Division of Water Resources. A summary of public lands acreage in New Hampshire can be found in *Table 4*. The acreage figure listed in *Table 4* varies from the 1974 Study as a result of federal properties being leased to the private sector, i.e., agriculture.

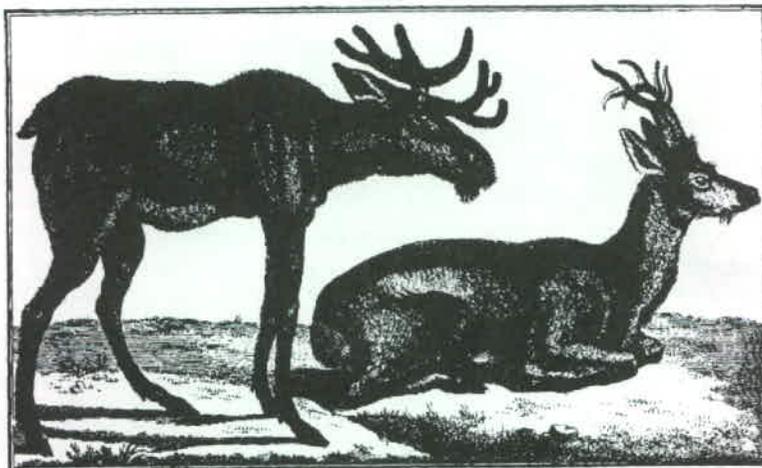


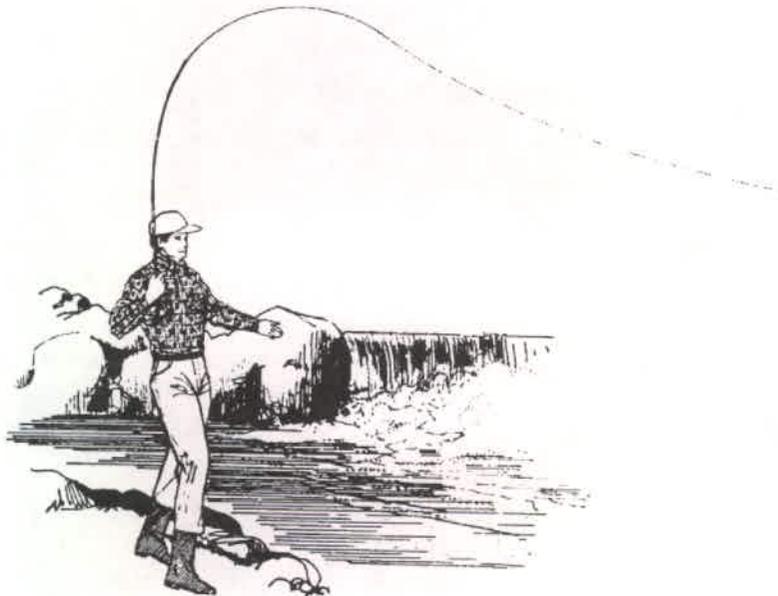
TABLE 4.
SUMMARY OF SELECTED STATE AND FEDERAL LANDS, NEW HAMPSHIRE
Areas with Existing or Potential Trails

	No. Of Tracts	Acres	Trail Mileage
STATE LANDS			
State Parks and Forests	314	165,399	550*
Fish and Game	120	29,467	unidentified
Water Resources	75	9,257	under dev.
TOTALS	509	204,123	550
FEDERAL LANDS**			
Flood Control Reservoirs			
State Administered	3	13,034	30
Federally Administered	7	5,679	0
National Forest	1	723,899	1,502
TOTALS	11	742,612	1,532

Sources:

* Based on GIS data from state parks trail maps, rail conversions and approximations.

** Data provided by the US Forest Service, Laconia Office and US Army Corps of Eng.



T CHAPTER 3 rail User Survey

Motorized Trail Use

• *Off-Highway Recreation Vehicles (OHRV)*

There are four types of OHRVs used on trails and rights-of-way: trail motorcycles, snowmobiles all-terrain vehicles (ATVs), and four-wheel drive vehicles. OHRV users' characteristics are similar to non-motorized trails users in terms of demographics. They also participate in hiking, mountain bicycling, and horseback riding, and share a love of the out-of-doors with non-motorized trail users.

The Department of Fish and Game is the agency responsible for issuing OHRV registrations. *Tables 5 and 6* on page 65 and 66 provide information on permits issued and revenues generated for a five-year period from 1990 to 1995. The registrations issued include snowmobiles, ATVs, and motorcycles. The revenues received by the State are divided between the Bureau of Trails and the Department of Fish and Game.

It can be concluded from OHRV data that registrations are largely driven by economic factors and weather related conditions.

• *Trail Motorcycles and All-Terrain Vehicles*

The American Motorcycle Association (AMA) reports that in 1994, approximately 47,000 motorcycles, motorbikes and ATVs were used in the State of New Hampshire and of this total 8,400 were motorbikes and ATVs. These trail users are referred to as "dirt bikers." Off-highway motorcycles and other ATVs are prohibited in the National Forest and state parks with the exception of Pisgah State Park which permits the use of ATVs and motorbikes on trails.

Three and four-wheel ATVs, are relatively new forms of recreational vehicles. They are more stable and easier to ride than motorcycles, but their width generally limits the area they can traverse. Hunters are among the largest group of users of this type of vehicle and they are used primarily for transportation to and from hunting sites.

The New England Trail Rider Association (NETRA) has a system of three trails in New Hampshire totaling 169 miles. One trail bike route, the Little Red School House Ride, is located in Croydon and is approximately 43 miles in length. This trail is rated as moderately difficult. A second NETRA trail, the Cobble Hill Trail Ride, is located in the villages of Landaff, Sugar Hill, Tinkerville and Bath and is approximately 67 miles in length and is also moderately difficult.

The third NETRA trail is the Marlow Loop located north of Keene and is rated moderately difficult. This trail is approximately 70 miles in length. Additional information can be obtained by writing to NETRA at P.O. Box 478, Ellington, Connecticut 06029.

- ***Four-Wheel Drive Vehicles***

These vehicles are generally highway-legal trucks and sport/utility vehicles. Four wheel drive enthusiasts use them on abandoned, seasonal or primitive roads that are often used by dirt bikes and ATVs .

The United Four-Wheel Drive Association of the United States and Canada is the major organization representing this group of trail users. Their primary goal is to provide a system of open primitive roads. The Four-Wheel Drive Association favors a user-fee program similar to the "Green Sticker Program" of California. The program is designed so that funds from a portion of the state's gas tax traceable to OHRV use would be used for management, enforcement and maintenance of motorized trail use.

- ***Snowmobiles***

More than half of all snowmobile trails are located on private land and use of those trails is typically through informal agreements with landowners. It is almost impossible to determine the exact number of landowners permitting snowmobilers to use their property for recreation purposes.

As mentioned earlier, snowmobile activity has experienced a very large increase in popularity since the last report. Many respondents to the Needs Survey (Appendix E) preferred trail routes which started close to home and then proceeded through rural and forested areas. Since 1974 the State of New Hampshire has done outstanding work in promoting snowmobile trail development. This fact is borne out by the approximately 4,200 miles of trails which have opened in the last 22 years.

While the State has been successful in fostering the creation of new trails, the need for additional facilities has lagged to some degree. Snowmobilers require access to parking and services, including rest and comfort facilities. Several questionnaire respondents also noted the need for emergency phones. Some respondents to the 1974 Study also suggested the development of an emergency phone system and with the technology available today, this goal is much more feasible; however, the problem with implementation lies with a lack of funding.

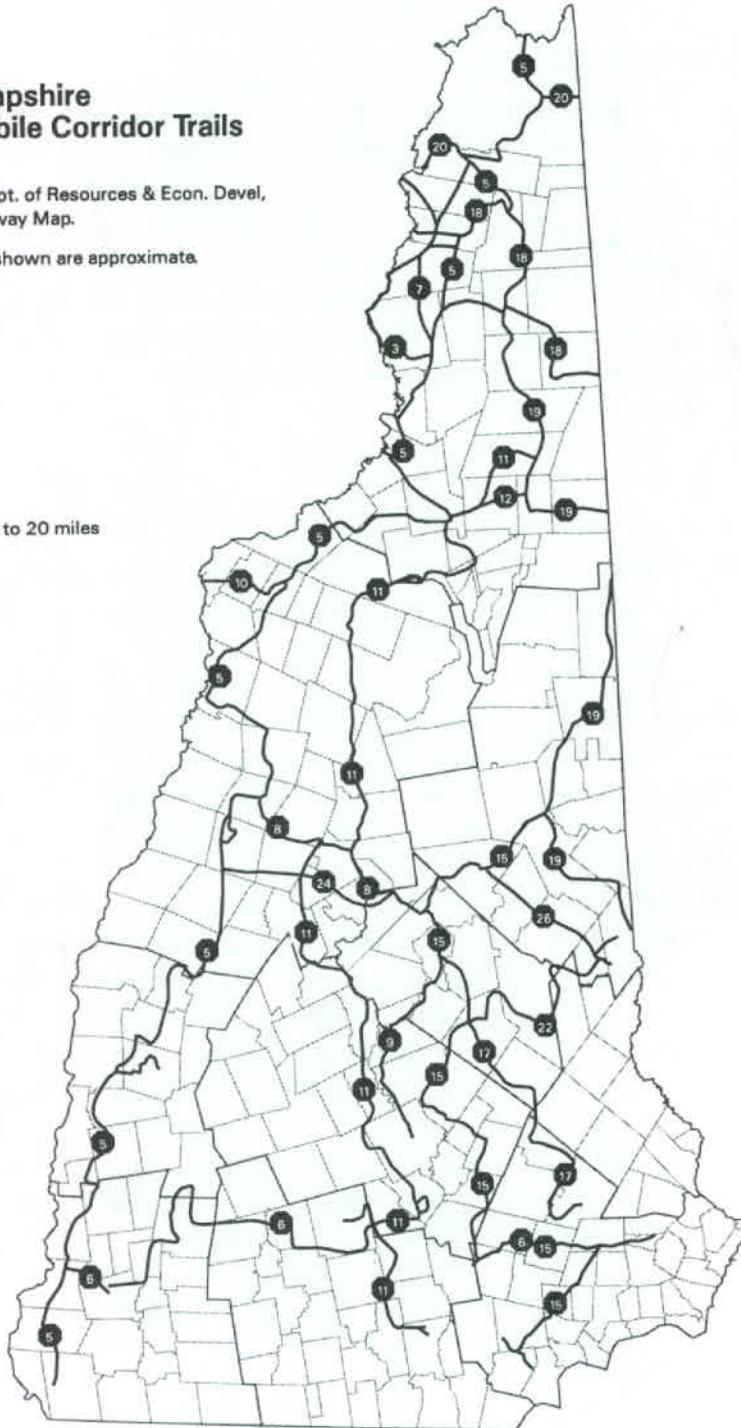
The Snowmobile Corridor map below indicates the major snowmobile corridors in the state by route number. The route numbers on the map correspond to the official snowmobile map published by DRED.

Map 1
New Hampshire
Snowmobile Corridor Trails

Source: NH Dept. of Resources & Econ. Devel,
1997 Highway Map.

Trail locations shown are approximate.

SCALE: 1 inch to 20 miles



Map produced at NH Office of State Planning, March 14, 1997

Non-Motorized Trails

• *Horseback Riding*

The majority of horseback riders utilize trails developed on private property, Class VI roads, legal trails, and logging roads. There is no inventory of actual miles of horseback riding trails because the information received in response to the trail's questionnaire was inconclusive in regard to equestrian trails. Using percentages developed by the National Park Service, estimated mileage was established. This estimate is much lower than that of the 1974 study in an attempt to avoid double counting of mileage (see *Table 1*). The 1974 Trails Study noted that the State Park System was not open for horseback riding; however, some discussion took place during that period regarding the opening of trails in the new Pisgah State Park for equestrians. Since that time, horseback riding has been permitted in most state parks with the exception of Hampton Beach. There are numerous riding clubs and events throughout the state. Pisgah, Pawtuckaway and Bear Brook State Parks have become popular for this form of recreation.

Response to the trail questionnaire indicates the most popular ride for equestrians is still a half day trip of 10 to 25 miles. Usually these types of trips are taken twice a week during warmer weather with longer trips occurring only once or twice a year. Trips of longer duration, three or more days, are usually sponsored affairs.

Similar to most other trail users, equestrians prefer loop trails in rural areas. One interesting fact gleaned from the current trail questionnaire is that a number of respondents indicated a desire to take half-day trips alone while taking longer trips with a friend or club. Many of the concerns noted in the 1974 Study regarding the availability of facilities and services have been addressed by the opening of state parks to equestrians. Specifically, the equestrian community suggested the development of parking and rest facilities to accommodate horseback riders. The New Hampshire Horse and Trail Association also recommended the development of shelters for riders and horses; however, this idea is costly and has not been implemented.

Horseback riders report they primarily use Class VI roads, abandoned rail beds, snowmobile trails and private property. The 1974 Study asked whether or not Class VI roads are still public rights of way? Class VI roads are still considered public right-of-ways subject to gates and bars except as restricted by RSA 231:3, II. According to a spokesperson for the New Hampshire Municipal Association, the public may use these roads at their own risk. Several horseback riding organizations report good cooperation between equestrian and motorized trail users. The suggested rules of an encounter between motorized trail users and equestrians noted in the 1974 Study are just as applicable today as they were 22 years ago and are worth repeating:

- When motobikes and horse riders approach from opposite directions, the trail biker should stop his engine, and wait for the horse rider to pass. The horse rider should proceed past the trail bike with caution. After the horse is well past, the trail biker may then start up the engine, and proceed on.
- When a trail biker overtakes a horse rider going along the trail in the same direction, the trail biker should stop the engine, and proceed to push his or her machine past the horse. The horse rider should stop his horse, dismounting, if necessary, and let

the trail bike pass. After the trail bike is well past the horse, the operator may start the engine, and proceed down the trail.

Horseback riders frequently use private property with the permission of the owner. There is concern on the part of riders over the abuse of this privilege on the part of other trail users. It must be remembered that the land over which one is traveling is private property and therefore subject to the conditions set by the owner for its use. When a property owner grants permission to use his or her property, it is best to establish some ground rules for its use so that there will be no future misunderstanding.

Several members of the riding community suggested the construction of wider road shoulders to accommodate horses. One of the major concerns for horsemen/women have been back country wooden bridges. Many riders believe, and justifiably so, that a great many wooden bridges have not been built with the horseback rider in mind because the spacing between the decking on the bridge is too wide. As a result the horse could lose a shoe or break a leg and in some case's bridges may not be strong enough to support the weight of a horse. It is suggested that future back country wooden bridge construction take into consideration some changes such as narrowing the gap to a one quarter of an inch when installing decking and/or installing a planked path across a bridge to accommodate horses.

• **Hiking**

Hiking generally means a long distance walk on a natural surface in natural surroundings. In a survey conducted by the National Park Service, 14% of all Americans participate in "day hiking." An exact figure for the State of New Hampshire is not currently available; however, most educated guesses place the percentage of participants in "day hiking," at approximately 17% of the state's residents. The annual use of New Hampshire's trails is conservatively estimated to be 500,000 hikers.

Hiking in New Hampshire's diverse and scenic terrain is a major attraction for residents and nonresidents. Day hikers participating in these one day events typically cover three to seven miles per day. Researchers at Colorado State University have identified four types of hikers including: Tourist hikers, those interested in sightseeing; Naturalist hikers, those interested in outdoor learning; Harvest hikers and Adventure hikers, those interested in hunting and risk/solitude respectively. The 1996 trails study questionnaires also identified similar characteristics of hikers as noted in the Colorado Research project.

Hikers enjoy a range of hiking opportunities. Many of the respondents to the 1996 Study questionnaire noted similar preferences as the 1974 Statewide Trails Study. Ninety (90) percent of all respondents reported taking half-day or day trips, ranging from three to 15 miles on a frequent basis. Longer trips of up to 25 miles were still taken by half the respondents; however, only 20 percent stated they had taken longer trips of three days to one week. This represents a 13 percent decline in twenty years.

INTERESTING FACTS:

The East Coast Greenway Alliance has big plans. It has proposed a 2,500-mile East Coast Greenway linking cities from Maine to Florida, and on June 1, 1996 it designated its first five segments - a total of 55 miles of trail in the states of Maryland, New Jersey, Connecticut and Rhode Island. The group hopes to have the Maine to Washington, D.C., portion in place by 1998 and the southern link completed by the year 2000. Source: Common Ground. 1800 N. Kent Street, Suite 1120, Arlington, Va. 22209. Vol.7, No.5 July/Aug. 1996

The trend seems to indicate more frequent weekend hiking trips to destinations slightly further away from home, and fewer, longer duration trips. Hikers also voiced strong interest in being able to hike through a "local forest" after work(ing) as a way to relax -- provided it was safe.

A complete and accurate inventory of hiking trails is not available primarily because of the limited financial resources available to conduct this study. In specific instances, OSP staff members conducted field work to determine the exact trail mileage where significant discrepancies were thought to exist. This work was completed using the Global Position System (GPS) while other information on trail mileage was obtained from various agencies and organizations. Discussions with public and private organizations indicate the trail inventory is decreasing because of private land closures or maintenance difficulties. The New Hampshire Bureau of Trails estimates there are approximately 10,890 miles of trails in the State of which 2,800 miles are devoted to hiking. A joint report of the National Park Service and the AMC estimates that 16% of the trails are in poor condition in the State. *Map 2* outlines the major trails in the State.

Because of the extensive system of trails, governmental agencies are not fully capable of maintaining the system without the continued assistance of private organizations and volunteers. These organizations and volunteers construct, maintain and manage the trail system. With ever diminishing governmental resources, these organizations and individuals will continue to play a key role in hiking. The use of trails is expected to increase and as the population ages greater demands will be placed on the construction of trails closer to urban centers.

New Hampshire has a great many trails to meet a variety of user needs. Perhaps the most famous of all New Hampshire trails is the Appalachian Trail which enters the state near Hanover and then proceeds through the White Mountains to the Maine border at Success, New Hampshire. The trail in New Hampshire is approximately 120 miles long.

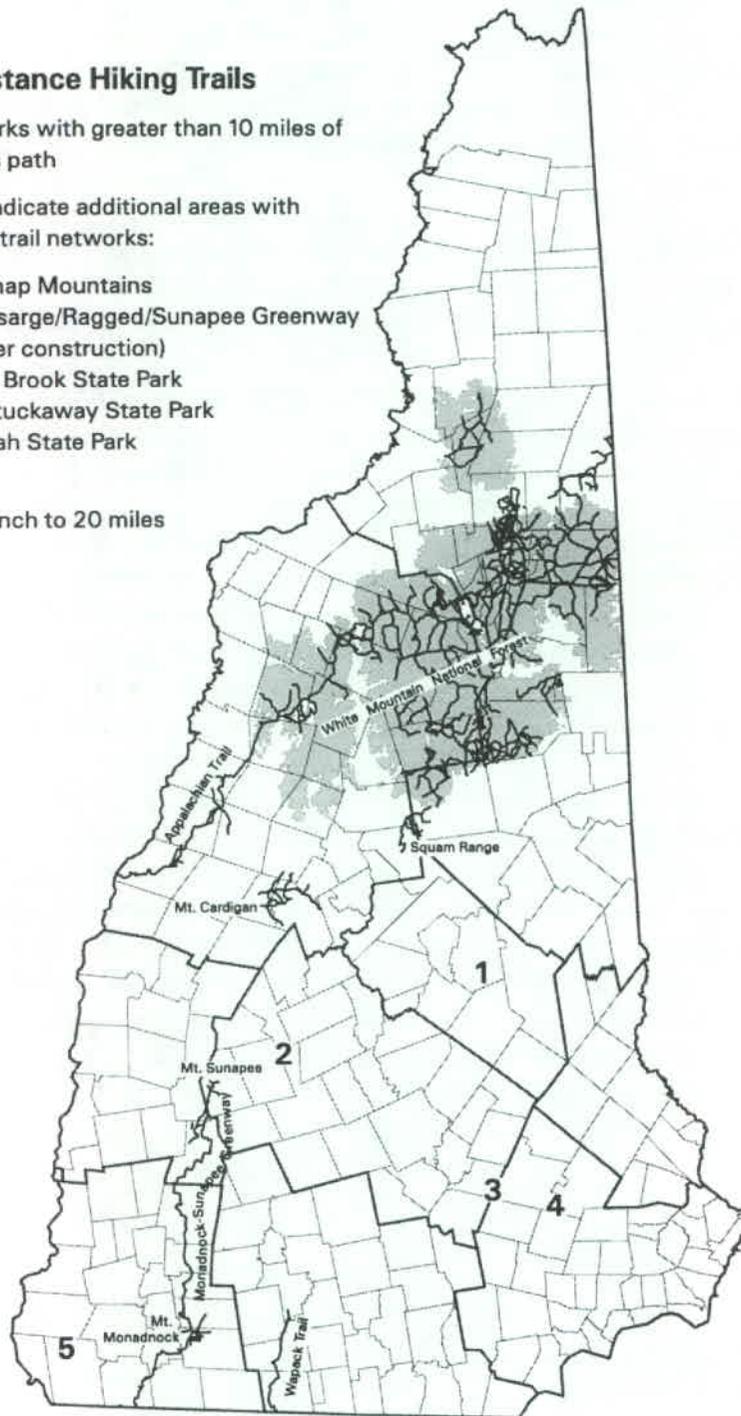
Map 2 Long-Distance Hiking Trails

Trail networks with greater than 10 miles of continuous path

Numbers indicate additional areas with significant trail networks:

- 1 - Belknap Mountains
- 2 - Kearsarge/Ragged/Sunapee Greenway (under construction)
- 3 - Bear Brook State Park
- 4 - Pawtuckaway State Park
- 5 - Pisgah State Park

SCALE: 1 inch to 20 miles



The New Hampshire Heritage Trail is a proposed 220-mile trail running from Massachusetts to Canada, along the Merrimack, Pemigewasset and Connecticut Rivers. To date approximately 60 miles of trail has been constructed. The trail is expected to be completed in the year 2016 when it will be used primarily as a long distance trail. *Map 3* shows the towns through which the trail will pass.

One comment made by several resident hikers was that the State should have its own hiking organization similar to the Green Mountain Club as a state-based organization serving local needs. The reason this suggestion was made seems to be that people believe the Heritage Trail would have a greater chance of being completed and permanently maintained if a stronger organizational structure existed. Many individuals recognize the fact that once a section of the trail has been constructed there is no organized effort to maintain it. Others felt the Heritage Trail Committee should be much more active in soliciting assistance from outside agencies and organizations.

In addition to long distance trail systems, hundreds of short day use trails are located around the state on both public and private lands, accounting for (some) several hundred miles of trails. Some of these short trails include the Wapack Trail, the Monadnock-Sunapee Greenway and the Sunapee-Ragged-Kearsarge Greenway.

Perhaps the oldest of all trails in the State of New Hampshire is the Wapack Trail. The trail was developed in the 1920s and served as the model for the Appalachian Trail. Blazed by Marion Davis and William Robbins, the trail runs a total of 21 miles from Mt. Watatic in Ashburnham, Massachusetts, to North Monadnock in Greenfield, New Hampshire.

The Monadnock-Sunapee Greenway is a hiking trail of approximately 50 miles. The trail traverses lands owned by the State of New Hampshire in three state parks and private lands of approximately 80 landowners.

New trails are being planned and developed. At this moment, some trail groups in the New London area are actively pursuing development of the Sunapee-Ragged-Kearsarge Greenway (see *Map 7*). When the trail is completed, it will be a natural extension of Monadnock-Sunapee Greenway.

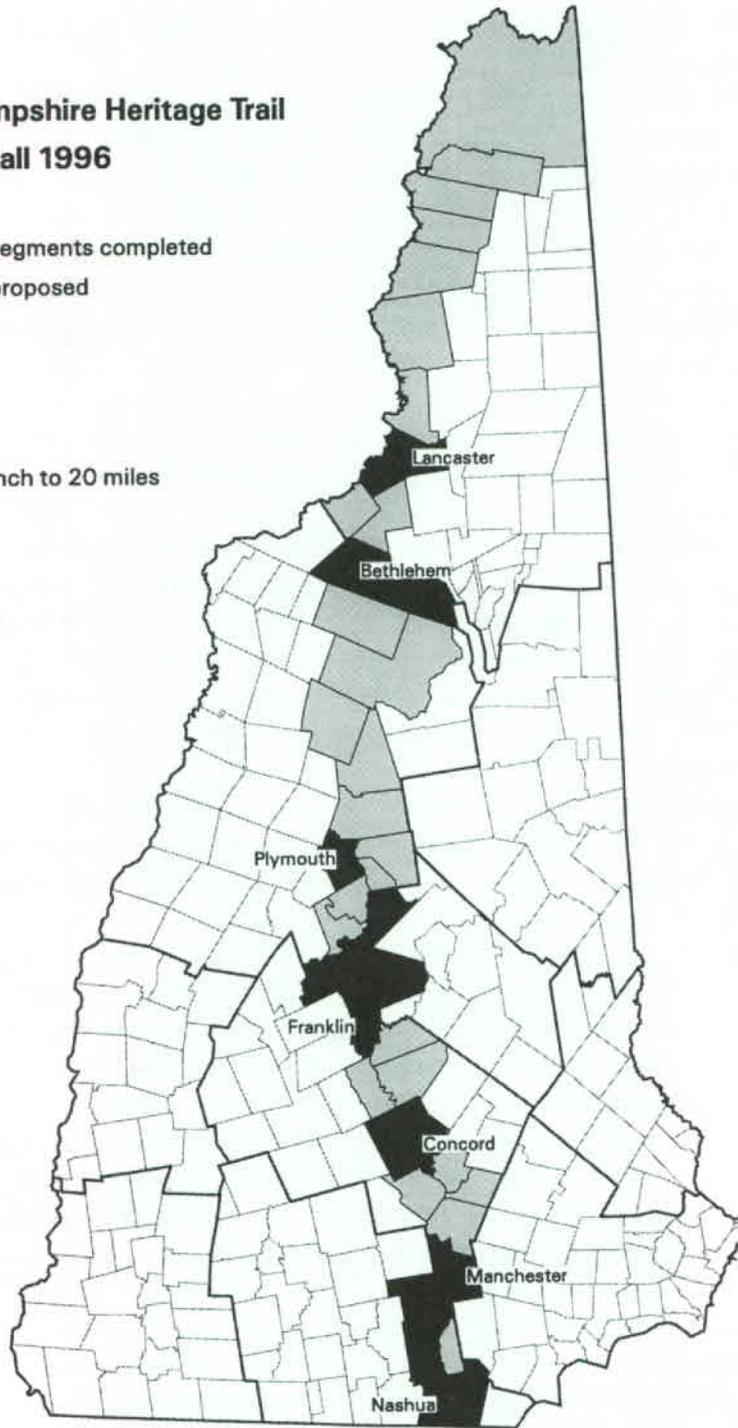
The vast majority of respondents to the 1996 trail questionnaires had concerns about conflicting trail uses. The response to questions regarding conflicting trail uses was similar to the 1974 survey; approximately 80% of respondents noted concerns and potentially conflicting trail uses with mountain bikers and motorized users. Safety problems and noise were the major concerns of hikers regarding motorized trail users. Mountain bicycles are a relatively new phenomenon and therefore were not identified in the 1974 Study. Most respondents to the 1996 questionnaires stated that multi-use trails were a wise investment and noted they felt "comfortable" with other classes of users particularly when the rights-of-way is wide enough to accommodate other users. A few hikers noted concerns of inconsiderate users of some trails by some younger mountain bikers.

There appears to be no easy solution to the issue of trail user conflicts. Better signage and some trail separation will help to ease the situation; however, there is an inherent conflict between motorized and non-motorized trail use. This fact was made clear at the annual New England Trail Conference held in Greenfield, Massachusetts, in April of 1996. During the final session, one speaker voiced an unwillingness to cooperate with the motorized segment of the trails community and many people in the audience voiced support for that position. However,

**Map 3
New Hampshire Heritage Trail
Status, Fall 1996**

-  Trail segments completed
-  Trail proposed

SCALE: 1 inch to 20 miles



Map produced at NH Office of State Planning, March 14, 1997



the best way to address the issue of trail use conflicts is through cooperation, education and simple courtesy and respect for others.

Appendix F provides a listing of New Hampshire's major hiking trails, trailhead locations and round trip distances.

• **Cross Country Skiing**

The Cross Country Ski Areas Association reports the majority of cross country skiers state they are involved with the sport for primarily three reasons: first, a desire to be outdoors; second, a desire to exercise; and third, an opportunity for social interaction. A few respondents also mentioned the fact that the sport was very affordable.

Nationally 3,428,000 individuals participated in cross country skiing last year. Approximately 377,000 individuals participated in cross country skiing in New England during the 1995-96 season according to the Cross Country Ski Areas Association. Ski NH reports 85,236 participants in cross country skiing for eleven of seventeen ski touring resorts operating in the State last year. During the 1994-95 season 81,152 individuals participated in cross country skiing in New Hampshire. The highest season total was for the 1993-94 period with 141,842 participants according to Ski NH. Participation rates for cross country skiing are highly dependent on good snow fall as there are no resorts capable of making snow for cross country skiing.

Statistics for cross country skiing noted participants in their teens had the greatest involvement at 80 percent and those in their forties and fifties were second with 50 percent.¹ The largest growth period for cross country skiing occurred during the early 1980s and since that time, participation has leveled off.

According to cross country skiers and industry representatives, today's cross country skiers in the novice class generally take round trips of two to four miles with intermediate skiers taking trips of various lengths up to ten miles in either half day or day long durations. Advanced skiers easily exceed these distances. Several downhill ski areas in the state provide long distance, cross country skiing opportunities for advanced skiers. Some individuals use old town roads, rail beds and logging roads because of the feeling of "independence" and freedom offered by the sport.

The most commonly cited need by cross country skiers was for emergency and warming facilities on longer trails. All respondents to the questionnaire suggested better lighted parking areas and rest facilities at trailheads. The primary concern of almost all cross country skiers was conflict with motorized trail users. Cross country skiers believe motorized use of trails is not compatible with their sport and once again the majority of users favored separate trails for each use. Some of the most commonly cited issues by skiers were that they cannot see approaching snowmobiles and speeding. Many respondents suggested user fees with funds specifically designated for the acquisition of ski touring trails. *Appendix G* provides a listing of cross country ski areas.

¹ 1995 Annual Report Outdoor Recreation Coalition of America. P.4

• *Dog Sledding*

This sport has been popular in the State for many years and in fact two of the oldest sled dog races, Tamworth and Laconia, are held each February. A third race and perhaps the longest race in the State is the Sandwich Notch Race. It covers a distance of sixty (60) miles and is held each year in February. Participation in the sport has been stable over the years with the greatest concentration of "Mushers" occurring in the southern portion of the State. According to the New England Sled Dog Association (NESDA) several new organizations have developed including the Yankee/Siberian Husky Club and the Downeast Sled Dog Club with headquarters in Farmington, Maine.

Mushers use a variety of trails; however, dog sledding is limited by the condition of the snow. Sledders frequently will use multi-use rail beds as they provide a level grade on which the teams can operate best. Mushers believe their use of the trail is compatible with other users and present little conflict with the environment. Snow conditions are of prime concern to musher as dogs cannot easily operate in icy conditions and it could be injurious to the animal.

The length of a sledding trip is generally governed by the number of dogs in the sled team. In this regard, the distances covered by mushers noted in the 1974 report has not changed with the exception of long distance mushers. This class of dog sledder has increased the length of their trips from fifteen to twenty miles on average. The dog sledding community includes three classes of enthusiast: the sprinter, the recreationalist and the distance musher.

While several trails exist in the central and northern section of the State particularly Franklin Falls, Bear Brook State Park, and Beebe River there is a need for some dog sled trails in the southern section of the State, which NESDA has recommended. These trails would accommodate the recreational user and cover a circuit of approximately eight miles. Currently, dog sled operators in the southern sections of the State are using the Rockingham Recreation Trail. To date only a few of the recommendations noted in the 1974 study have been implemented. Neither the New England Dog Sled Club nor the Lakes Region Dog Sled Clubs have acquired trail property; however, the Lakes Region does maintain a trail in their area. Both clubs do not feel they have the financial ability to acquire and build trails at the present time.

Some conflict has been noted between snowmobile operators and mushers during peak use periods especially on the weekends. It should be obvious that additional facilities are required to reduce conflicts. Some of the snowmobile corridors have been designated as high use dog sled trails on the snowmobile corridor's map.

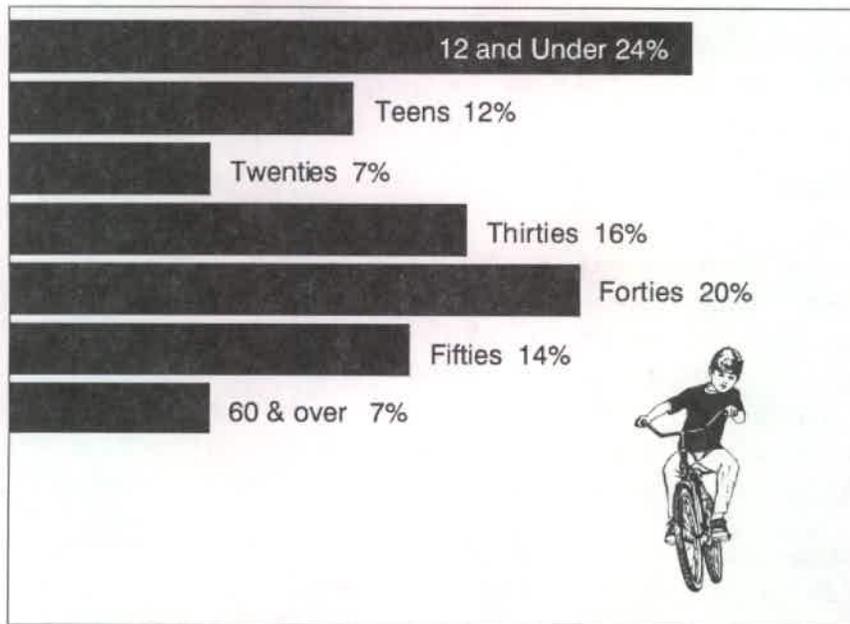
The sport of Ski-Juring, a dog sledding spin off, has developed in recent years and is being sponsored by various dog sledding associations. Instead of using a sled pulled by a team of dogs, the Ski-Jurer uses cross country skis and is harnessed to one or two dogs. The Ski-Jurer uses dog sled trails, snowmobile trails and in some instances cross country trails.

• **Bicycle Riding**

Similar to the 1974 Statewide Comprehensive Trails Study, the 1996 Bicycle Riders Survey was conducted in conjunction with the Granite State Wheelmen. The survey was distributed through the Regional Planning Commissions and the Wheelmen's monthly newsletters. Of the one thousand newsletters mailed, one hundred and fifty-six (156) Bike Surveys were returned to the Office of State Planning. This response represents a 15.6% response rate and is significant enough to draw some conclusions about the bicycle community. A copy of the bicycle rider's survey and summary can be found in Appendix C.

The average number of bicycles per family was four according to the survey. Usage by age group appears to be evenly distributed with the exception of those in their twenties and thirties. This group seems to be experiencing a small decline in ridership. The highest ridership participation seems to be amongst those in the age groups under thirteen and those in their forties. These two groups account for up 44% of all riders, while those in their twenties and thirties comprise only 23% of the total. *Chart 2* provides a percentage breakdown by age group ridership.

CHART 2. BICYCLE RIDERSHIP



When asked how they take their bicycle trips the vast majority of riders preferred "just riding around" (first), or riding around the neighborhood (second) followed by riding with a group or club (third). Only three individuals noted they used their bicycles to go to work. The respondents were given nine possible responses including trips to work, school and shopping. The bike riders were also asked what was most important to them. The greatest number of responses was for separate bicycle routes followed by marked routes over country roads. Cyclists were also asked what was the most frequent problem they encountered. The majority of riders listed problems with motorists closely followed by narrow road shoulders.

Asked whether bicycle safety should be taught in school the overwhelming majority said yes, while parents and students divided evenly on the need to create bicycle clubs. Parents favored forming bike clubs. A majority of cyclists also opposed the idea of registering bicycles with law enforcement. One questionnaire respondent from Salem, New Hampshire, suggested a few ideas for improving road conditions for cyclists:

"On roads with hills, make the road a little wider on the up hill by moving the center stripe a little off center. This allows a visual space that is a little larger for cars passing bicycles on the uphill, where bikes are slower. Since most bikes go down a hill much faster than up, cars are less inclined to pass until there is adequate clearance. Twelve inches less space on a down hill section will have little impact on the motorist but the extra twelve inches going around a bike will make a big difference in safety on the uphill."

There are two major types of bicycles: road racing or touring bikes and mountain bikes. Although mountain bikes can be used on all road surfaces, racers require a paved surface. The original bike route network was conceived before the advent of mountain bikes. Today that system is used in conjunction with off-road mountain bike trails.

Since the last Statewide Trail Study, New Hampshire has made great progress in the development of a bicycle route network. In 1973 the New Hampshire General Court enacted Chapter 569, which provided for cooperative activity between the Departments of Public Works and Highways (Transportation) and Resources and Economic Development (DRED) concerning the designation, signing and mapping of bicycle trails. The DRED, Office of Community Recreation was authorized to designate "highway bicycle trails" in conjunction with other State and local groups.

INTERESTING FACTS:

The White Mountain National Forest, Ammonoosuc Ranger District has developed a 25 mile mountain bike loop. The Cherry Mountain Bike Loop traverses a number of logging roads, three waterfalls, spectacular views, and the highest elevation state highway in New Hampshire. The trail utilizes the Lower Falls Hiking Trail, which leaves from the east side of the trailhead on Route 302, paralleling a beautiful stretch of the Ammonoosuc River. The bikeway passes through remote country for several miles before reaching Jefferson Notch Road, the highest state highway in NH at an elevation of 3007 feet. This trek is rugged, but one filled with adventure in every turn of the road.

Subsequent to the act, DRED prepared maps and other literature describing bike trails, and the Highway Department erected signs to designate trails. While the legislature provided a small appropriation for the implementation of the Chapter 569 law, the legislation did not provide funding for the construction of separate bicycle trail facilities.

The authors of the 1974 Study recognized that the construction of separate bike paths would be cost prohibitive and therefore concentrated their efforts on the designation and signing of official bike routes along public highways. The study made three major recommendations with regard to bike trails. First, urban bike paths should be created separately from motor vehicle paths; second, the concept of a shared roadway should be developed; third, the use of abandoned rail beds should be used as rights-of-way for bikes. All three of these recommendations have been implemented in varying degrees.

• *Bicycle Routes*

The 1995 Department of Transportation, New Hampshire Statewide Bicycle and Pedestrian Plan made several recommendations for projects involving the paving of shoulders along public highways. A statewide network of bike routes was established taking into account regional bike plans, population, recreation areas, services and the availability of existing paved shoulders. This study recognized the different needs of various types of bike riders. Commuting cyclists favored direct routes to urban centers and were less concerned with traffic, while recreational cyclists were more concerned with aesthetics and preferred bicycle routes away from vehicular traffic. The Statewide Bike Route System map is shown on *Map 4*.

Bicycle paths have also been completed along portions of I-89 in Concord and Enfield, I-93 in Franconia Notch, and the Spaulding Turnpike at Dover Point. The Department of Resources and Economic Development mapped all designated bike routes in the State. Although the map requires some updating, it shows reliable information on the majority of bike routes in the State.

One of the more popular recreation corridors and travel ways in the state is the Route 1A-1B Bicycle Route along New Hampshire's coast. The route begins in Portsmouth near Strawberry Banke but is quite narrow and winding both along 1A until Odiorne State Park and 1B through New Castle. Small segments along 1B, near The Wentworth Hotel, have wider shoulders enabling safer biking, but the road is still quite narrow and winding. At Odiorne State Park the route goes off the road and becomes a multi purpose, paved path through the State Park. At the south end of the Park the path goes back onto Route 1A where shoulders are 4' or greater through most of Rye (south of Odiorne).

At Wallis Sands State Park the shoulders become more variable in width and condition and remain that way through most of North Hampton.

Since the last inventory was completed, few changes have occurred with regard to bicycle routes and the primary routes remain the state's highway system. Many communities have established bike routes which are designated by the standard green and white routing signs. In 1982 the Department of Resources and Economic Development published a state bicycle route map and in 1995 the Department of Transportation completed a Statewide Bicycle and Pedestrian Plan which contained a bike route map.

There are many fine publications available to the public about bike riding in New Hampshire. Two of the better books, 30 Bicycle Tours in New Hampshire by Adolphe Bernotas and Tom and Susan Heavey and Mountain Bicycling New Hampshire's State Parks and Forests by Linda Chestney list many opportunities for a wide variety of bike enthusiast.

Both of these publications list more than 1200 miles of bicycle routes over a variety of terrain. The publication 30 Bicycle Tours in New Hampshire is an easy-to-use guide which provides a map, mileage, list of bicycle repair services, and level of difficulty rating for each tour. The directions for each tour are clearly written in **bold letters**. The maps provided in each book are of excellent quality. Appendix H contains a list of selected bike routes identified in 30 Bicycle Tours in New Hampshire.

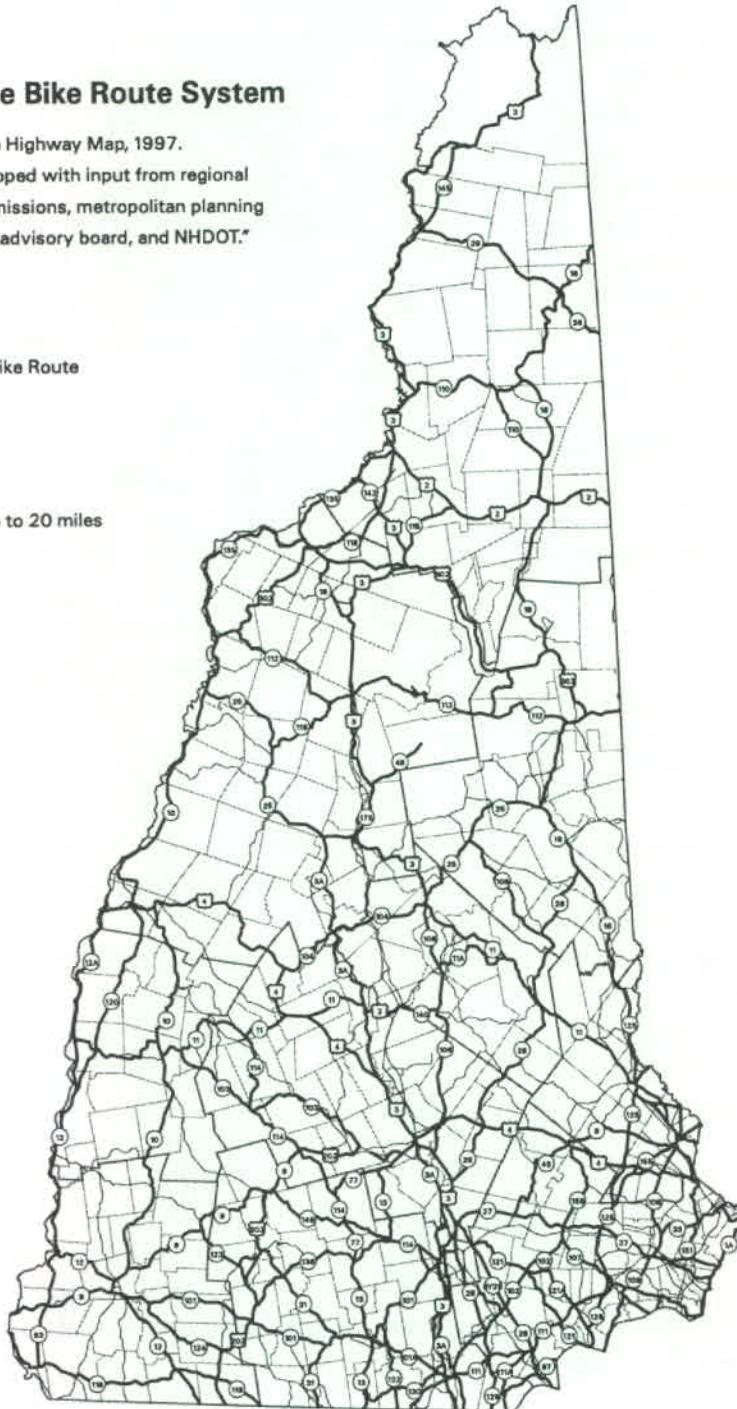
Map 4 Statewide Bike Route System

From NH State Highway Map, 1997.

"Routes developed with input from regional planning commissions, metropolitan planning organizations, advisory board, and NHDOT."

 Bike Route

SCALE: 1 inch to 20 miles



NEW HAMPSHIRE
GRANT
Regionally Balanced Growth
and Intermodal Transit System

Map produced at NH Office of State Planning, March 14, 1997

D CHAPTER 4 **EVELOPING TRAILS**

The first statewide concern for trails is protection of existing trails and bringing them up to an acceptable standard. New trails and greenways will be needed to meet the increasing public demand for trails within 15 minutes of every home.

There are many developing trails and greenways in New Hampshire that are worthy of further study on a case-by-case basis. A brief description of some of these trails is provided in this section. Work has begun to make a few of these trails and greenways a reality, while in other cases they are just a glimmer in someone's eye.

The rights of private property owners must be of paramount interest and in this regard RSA 212:34 and RSA508:14 provides some relief from liability concerns. In developing new trails it must be the primary concern of all parties involved in the planning, development, maintenance and operation that the land owners are treated with respect, kept informed and are involved in decision making so that management is compatible with the landowners' wants and needs.

Railroad Corridors

Railroad corridors provide a good resource for developing networks of trails and greenways. By design, these corridors are ideal for multi-use recreational trails. This right-of-way is compatible with a variety of activities and also has the advantage of linking up many communities. These advantages make them safe and accessible to all types of users and provide opportunities for both short and long expeditions.

The view of the general public about rail-trails is often misunderstood. The primary purpose of retaining the public right-of-way is to ensure the availability of that rail bed for future rail service and not necessarily for trails. However, the public perceives that the rail abandonment automatically means the rail corridor will become a trail, this not the case. Retaining the public right-of-way insures that costly future land acquisition can be avoided.

Rail trails and the promotion of such trails could provide an economic boost to many of New Hampshire's rural communities. Chapter seven discusses the economic impact of trails on the state's economy. What are some of the potential advantages to a community? A rail-trail could provide a community with a focused identity and draw visitors to the area. Businesses have benefitted by their proximity to rail-trails in many other areas of the country. There is usually a lot of history associated with these abandoned rail lines as well.

According to the 1994 SCORP there were 539 miles of operating rail line in New Hampshire and of that total 116 miles are state-owned. It is expected that the state will continue to acquire

the rail right-of-ways' and when appropriate the Department of Transportation will delegate the operation and management of these corridors to DRED for outdoor recreation purposes.

INTERESTING FACTS:

According to the Wall Street Journal, the Rails-to-Trails Conservancy reports that 750 rail trails around the U.S. generate \$1.52 billion in lodging, food, services, bike shop sales, rentals and other tourist spending in local communities. Assuming another 2,350 trails are opened in the next four years, it is estimated revenues could increase to the \$6 billion range. Perhaps the Conservancy should be renamed the Rails-to-Trails Cash Generator.

The 1974 Statewide Trail Study discussed the potential use of abandoned railroad rights-of-way as links in the trail system. As noted in the study, these rights-of-way, "lend themselves to a wide variety of trail uses even if these uses are not compatible for all trail uses." A number of abandoned or soon to be abandoned lines were identified in the study, and it was noted that the Public Utilities Commission was negotiating with the Boston and Maine Railroad to obtain various sections of the rail bed. Since the last study was completed, the State of New Hampshire, Bureau of Railroads has obtained title to thirteen lines including a municipally owned line (see *Map 5 Existing Rail Corridors/Multi-Use Trails*). The 1974 Study recommended that each rail bed be "Trail Zoned" for the various uses to be served, and provisions be made for trail maintenance, access, and linkage to other trails.

In some instances a management agreement has been instituted between the Department of Transportation and the Department of Resources and Economic Development for the management of these rights-of-ways for recreation purposes. Potential discontinued rail lines that could be converted into rail-trails include the following:

Ashuelot Branch - This railroad branch consists of 21 miles running through the towns of Hinsdale, Winchester, Swanzey, and Keene. This rail bed was purchased by NHDOT in July 1995 and by agreement with NHDOT is under the recreational management of DRED. The local rails to trail group, Ashuelot Rails-to-Trails (ARTA), has been active in planning and surveying this line for recreational use.

Cheshire Branch - In 1972 the State of New Hampshire acquired this rail bed which begins in Fitzwilliam and continues through Troy, Marlborough, Swansy, Keene, Surry, Westmoreland, and Walpole - a total distance of 42 miles.

Fort Hill Branch - This branch contains approximately 8.9 miles of rail bed within the town of Hinsdale and could be connected to the Ashuelot Branch in the future.

Fremont Branch - This rail bed is one of the two branches of the Rockingham Recreation Trail and was identified in the 1974 Statewide Trail Study as the Hudson-Fremont Rail Corridor and now connects to the main trunk of the Rockingham Recreational Trail at Epping. Owned by the Boston and Maine Railroad, the line ran from Nashua, Windham, Derry, Hampstead and Sandown to Fremont. Abandoned since the 1930s, sections of the line have been used for trail bicycling and horse back riding long before the 1974 Study was completed.

The State of New Hampshire made the Hudson-Fremont portion of the Rockingham Recreation Trail a multi-use path in the 1980's. The trail is heavily used by motorized recreational vehicles as well as hikers and mountain bikers. The trail has been extended some 14 miles from Depot Road in Windham to Route 107 in Fremont, with a 4-mile extension to Epping. This last section of trail is not open to motorized recreation vehicles. The trail surface varies from washboard to sand and gravel, some parts of the trail are graded twice a year.

Hillsboro Branch - This line was part of the Contoocook-Hillsboro Branch, a portion of which was flooded out with the creation of the Hopkinton-Everett Flood Control Project. The remaining rail bed runs through the towns of Bennington, Antrim, Deering, and Hillsboro with a total length of 7.75 miles available for recreation purposes.

Manchester and Lawrence Branch - Originally a part of the Boston and Maine Railroad, the Manchester and Lawrence Branch runs approximately 10 miles through the towns of Salem and Windham to the Derry town line. Acquired in the 1990s by the Department of Transportation, there are no immediate plans for its development into a multi-use trail.

Northern Branch - This line extends some 49 miles through the towns of Boscawren, Franklin, Andover, Wilmot, and Danbury in Merrimack County and continues through Grafton, Orange, Canaan, Enfield, and Lebanon in Grafton County. This rail bed is not currently available for recreation purposes although the track has been removed. It has the potential to become a major spur or trunk of the New Hampshire Heritage Trail. The rail bed is owned by the State of New Hampshire. Of all the available railbeds this line has the greatest potential for development primarily because of its location in relation to existing trails.

Northern Stratford to Beecher Falls Line - Approximately 8.7 miles in length, this line runs through the towns of Colebrook and Stewartstown. This railbed is owned by the State and is heavily used by snowmobile clubs.

Plymouth- North Haverhill Branch - The Boston and Maine Railroad referred to this line as the Blackmount. Extending approximately thirty-six miles from Plymouth to North Haverhill, it served as part of the major rail line between Boston and Quebec. At present the State of New Hampshire controls limited sections of the Blackmount Branch.

Portsmouth Branch - This multi-use trail is the primary branch of the Rockingham Recreation Trail. The trail starts on the east side of Manchester at Lake Massabesic and extends approximately 24 miles through Auburn, Candia and Epping terminating at Rockingham Junction in Newfields. This trail is a nonmotorized multi-use facility with the exception that snowmobiles are permitted in the winter season.

Sugar River Recreation Trail - This trail was part of the Boston and Maine Railroad from Concord to Claremont until it was sold to a private owner in the 1980s. Dwindling traffic in the 1960s forced the abandonment of the 32-mile section of rail between Concord and Newport. The final 10-mile section of track from Newport to Claremont was abandoned in 1977.

The 1974 Statewide Trail Study identified the entire 42 miles of rail bed as a potential trail corridor. Since that period, DRED acquired the Newport to Claremont section for recreational purposes. The trail is open to a variety of uses including: hiking, mountain biking, horse back riding, cross country skiing and snowmobiling. The trail surface is composed of gravel and original ballast material. One interesting aspect of this trail is the fact that it has two railroad covered bridges which are still standing and in fairly good condition.

Wolfeboro Branch - Wolfeboro/Sanbornville Recreational Trail (Wolfeboro Branch Line).

This 11.1 miles of track and trail between Wolfeboro and Sanbornville was identified in the 1974 Study for possible conversion for trails development. The operation was finally abandoned in 1986 and the right-of-way was given to the State of New Hampshire. Since then, the Department of Transportation and the Department of Resources and Economic Development, Division of Parks and Recreation, Trails Bureau has instituted a joint agreement to operate the right-of-way as a recreational trail with the track remaining in place. In 1991 a multi-use path was constructed on a ½ mile portion of the old rail bed in the Town of Wolfeboro. Two volunteer groups have received permission from the State to oversee the management and development of the trail/track which runs through the communities of Wolfeboro and Wakefield. Use of the trail and track is jointly shared by the Trails-Rails-Action-Committee (TRAC) and the Cotton Valley Rail-Trail Club (CVRTC). The later group is composed of railway enthusiasts.

The trail is divided into two sections with the Wolfeboro Section being accessible for the disabled. This section of trail is used primarily for walking and bicycling and extends for one mile. The Wentworth State Park Section is approximately eleven miles of bare ground and is used for walking, cross country skiing, snowmobiles, mountain bicycling, and horseback riding.

Municipally Owned

Mason Railroad Trail - Although the 1974 Study did not include a description of this abandoned railroad track its general location was noted on a map insert. This trail runs from the Massachusetts border to Mason, New Hampshire, a distance of 9.2 miles. The rail-bed is owned and managed by the Town of Mason and is used for hiking, horseback riding, mountain biking, cross country, snowmobiling and ATVs. Surface material consists of gravel and original rail ballast.

Map 5 Existing Rail Corridors / Multi-Use Trails

-  State owned, existing trail
-  Municipally owned, existing trail
-  State owned, planned trail

SCALE: 1 inch to 20 miles



Map produced at NH Office of State Planning, March 21, 1997



Utility Rights-of-Way

Utility corridors offer opportunities to create new trails and provide linkages to existing trails and greenways. These corridors are especially attractive in areas that are developed and where other corridor easements and agreements cannot be readily obtained.

Existing and new utility corridors should be evaluated for inclusion in the trail system. The various trails agencies and organizations should work cooperatively with Public Service of New Hampshire (PSNH) to determine where trails and utility corridors could be developed. As noted elsewhere in this chapter some utility companies have extensive trails and greenways on their property.

Electric utility corridors have the potential to offer the opportunity to create recreational trail routes. An excellent example of a trail, doubling as a path for PSNH power lines, runs through Bedford/Goffstown; another is the line that runs through Monroe/Haverhill (see Power Lines, *Map 6*). Working in cooperation with PSNH, the State could develop these resources into the existing trail system. Horseback riders and others in populated areas often use routes under power lines which are not usually owned by the utility itself. Easements over public and private lands are usually required.

Only a small percentage of utility rights-of-way are owned by the companies. Most transmission lines are constructed on easements, which require the permission of property owners for any use other than that for which the easement was originally designated. While utility companies seem to be open to the concept of shared use of utility corridors for trails, concerns have been noted over the questions of liability and whether or not the utilities have the legal right to grant permission for alternative use of the property.

One example of good recreational planning and cooperative uses of utility properties is Northeast Utilities' (parent owners of PSNH) Northfield Mountain Complex in western Massachusetts. The company was identified in the 1974 Study as developing additional trails on this 3,000 acre mountain facility. The study also noted the possibility of connecting those trails with New Hampshire trails.

In the past twenty-two years the Northfield Mountain Complex has been connected to the Metacomet/Monadnock Trail, which runs from Connecticut to Mt. Monadnock in New Hampshire. The Northfield Complex provides a multitude of trails and camping opportunities for those interested in long distance interstate hiking. The property is also accessible for winter trails activities including snowmobiling, cross-country skiing and snowshoeing.

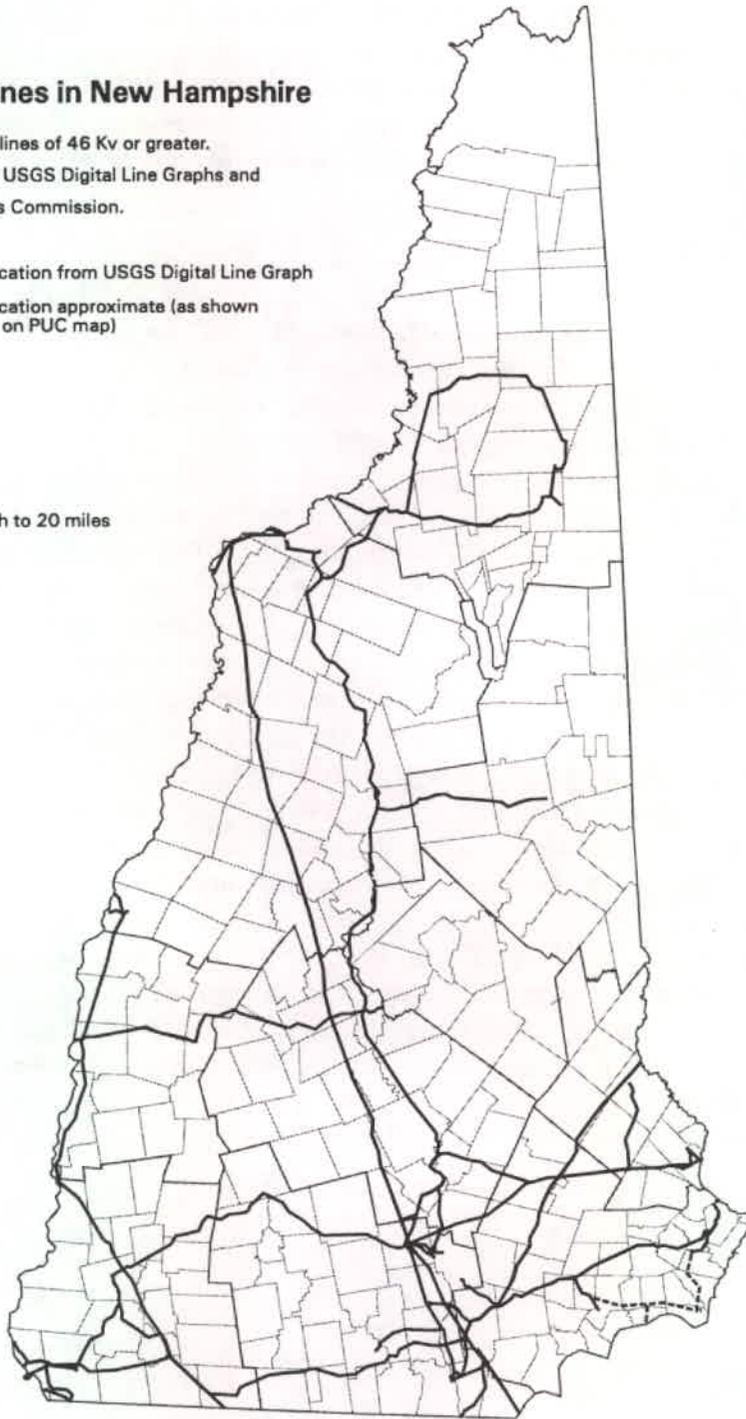
The policy adopted by Northeast Utilities more than twenty years ago regarding the multiple use of utility corridors has not changed. Essentially the policy states that, if a trail group obtains permission from a property owner for use of the easement as a trail, the utility will allow that use with some exceptions. A spokesperson for PSNH stated the company holds approximately 2000 miles of transmission line easements in the State and many of these corridors would be ideal for trail use.

Map 6 Power Lines in New Hampshire

Transmission lines of 46 Kv or greater.
Map sources: USGS Digital Line Graphs and
Public Utilities Commission.

-  Location from USGS Digital Line Graph
-  Location approximate (as shown on PUC map)

SCALE: 1 inch to 20 miles



Map produced at NH Office of State Planning, March 21, 1997



Public Land Linkages

Existing municipal, state and federal land holdings that are in close proximity to each other should be evaluated for possible connection by trails and greenways thereby increasing the potential for broader recreational experiences. Some examples of existing linkages could include connecting the old Concord to Claremont line, which includes the Sugar River section, with the Monadnock-Kearsage-Ragged Greenway. These linkages would assure recreational access for future generations as well as corridors for wildlife and plants.

Bicycle Routes and Trails

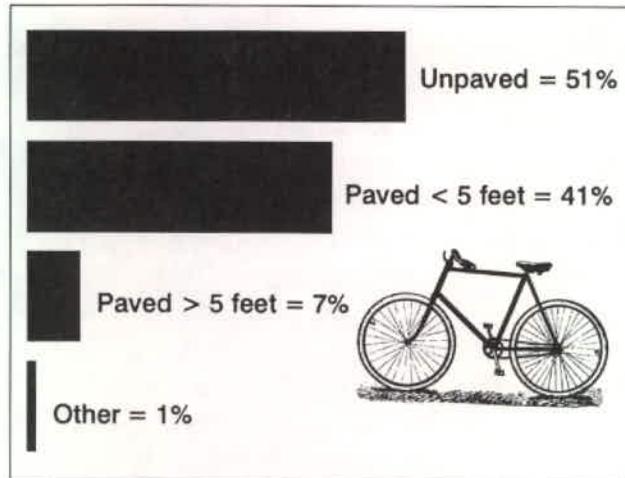
Three years after completion of the Statewide Comprehensive Trail Study, the New Hampshire Department of Transportation prepared a study (The 1977 Department of Transportation Bicycle Study) to identify ways of improving the safety of bicyclists and motorists. This study concluded that the most efficient way to accommodate bicycle travel was through the shared roadway concept. This study laid the groundwork for the state's bicycle policy. This concept provides for a paved surface for bicycle use adjacent to the travel lanes of state highways.

The New Hampshire Statewide Bicycle and Pedestrian Plan prepared by the Department of Transportation in January 1995 provides information regarding the progress the State has made in the development of safe bicycling routes. Research completed by the Department indicates the State has a total of 2240 miles of designated bikeways. Of this total 1150 miles are located on unpaved shoulders, 150 miles are located on paved shoulders of less than four feet in width, and 920 miles of paths were located on paved shoulders greater than four feet. Approximately 20 miles have been developed as separate bicycle paths with an additional 10 miles planned. *Chart 3* provides a percentage breakdown of paved vs. unpaved bike routes.

Respondents to the 1996 Trails Questionnaire believe the state and localities have done a good job in designating and developing shared roadways and multi-use trails. However, a number of respondents want to see the State develop separate bike paths in addition to constructing shared roadways.

With the advent of mountain bicycling, an even greater demand has been placed on the State's limited trail resources. Various bicycle organizations estimate the number of mountain bikes sold annually at 70 percent of total bicycle sales. It is felt by many bicycle enthusiasts that mountain biking will continue to grow in popularity primarily because of its "relative safety" versus the hazards of the shared roadway. The acquisition of rail beds for multi use trails would provide an excellent mountain bike resource.

CHART 3. BIKE ROUTE SURFACE CONDITIONS



However, rough surfaced routes are not suited for touring cyclists. Generally touring bikes require hardened surfaces for best performance. One possibility might include the development of a basic bike route system that is entirely friendly and safe. Such a system should include a major north/south and east/west axis route and later the system could be expanded to connect points along the axis. For example sections of Heritage Trail could be hardened to accommodate touring bikes. This technique has been successfully used in Maryland. A hardened bike trail was located along the side of a hiking trail which was part of a utility right-of-way.

Yet another possibility might be to harden one side of the abandoned North Branch rail bed to accommodate touring bikes. This same technique might also be applied to the Rockingham Recreation Trail. Route 4 between Concord and Lebanon has the potential to be a major bike route. It provides a unique bicycling opportunity for the bike rider to enjoy varied terrain and scenery. However, this route would require major alternations to make it a safe and enjoyable ride. The impact of such a route in the west central portion of the State could provide an important economic boost to communities along the route.

In the Hampton area, road shoulders are not consistently wide until south of Hampton Beach State Park and Hampton Harbor where shoulders are 4' wide all the way to the Massachusetts border. Although the shoulders are not wide enough, some secondary roads in New Castle and North Hampton are less heavily traveled in the summer months than Routes 1A and 1B and may be better routes for bicyclists with less experience.

Perhaps the best potential bicycle route, at the moment, is the New Hampshire/Vermont bicycle route running along the Connecticut River. Presently, this bicycle route is under discussion between the two states.

Motorized Trails

The majority of motorized trails are located on private property. Motorized trails vehicles are not permitted on DRED lands with few exceptions. As we are all aware, the major problems associated with motorized trail vehicles are noise pollution and soil erosion. The objectives for the Trails Bureau with regard to motorized trails use must be to minimize environmental damage, while maximizing recreation opportunities.

The State has developed a policy with regard to OHRVs use on public lands and that policy is largely governed by the State's Forest Management Guide. The Forest Management Guide is discussed under the section titled, "State Land Management" on page 47 of this study. The Guide designates some areas as suitable for motorized trail vehicle use. A copy of the Guide can be obtained from the Division of Forests and Lands.

Motorcycle Trails

As mentioned above one of the primary concerns regarding motorbikes is the noise level they create. Horses are easily affected by noise and may cause harm to the rider if "spooked." Motorcycle trails should be constructed away from populated areas as much as possible in order to reduce the impact of noise. Motorcycles have engines of at least 125cc or larger while minibikes have smaller engines. The major distinction between motorbikes and minibikes is that minibikes are not legal to use on the streets, whereas motorcycles may be registered for road use.

The 1974 Study notes there are certain steps which can be undertaken to minimize the impacts created by motorbikes, including the following: first, designating motorbike routes on state maps and installing signs on those designated routes; second, the State should enforce motorbike registration requirements, especially on designated public lands; third, the State should encourage the development of designated areas for motorbike use. On any weekend it is possible to drive past an abandoned sand and gravel pit or utility right-of-way and encounter motorbikes. These vehicles are usually located close to residential areas and sometimes impact the environment of those neighborhoods.

Snowmobile Trails

The majority (55.3 %) of trails in New Hampshire are snowmobile trails. Approximately 6,000 miles of snowmobile trails are managed by nonprofit snowmobile clubs with long distance trails forming an extensive network throughout the State. Most of the trail mileage (85 percent) is located on private lands. Snowmobilers may take several trips each week during the season and those outings may vary in length from 10 to 40 miles to one of longer duration, usually on the weekend.

In 1995, there were 34,688 registered snowmobiles with 26,056 resident and 8,632 nonresident registered snowmobiles. These figures have tended to fluctuate according to the weather and economy over the past decade. However, nonresident registrations have been increasing from five to 10 percent per year over the same period.

The State is well traversed with snowmobile trails on both public and private property at the present time. Snowmobilers have suggested that it would be helpful if some interconnection

between existing systems was developed. The development of future trails rests with the expansion of multi-use trails as they present the best opportunity for both long and short snowmobile trips. The rights-of-way already exists and little upgrade is required for winter use. Many of the branch lines mentioned under the rail conversion sections would be ideal for snowmobiling.

The major legislation governing the operation of snowmobiles is Chapter 215. This Chapter permits the Commissioner of the Department of Resources and Economic Development to: publish OHRV trail information; lease OHRV trails facilities and land under Trails Bureau control; print guide books and post notices at proper locations throughout the Trails Bureau system; and specify procedures for distribution of grant-in-aid programs. The section on, "State Legislation" provides more detail on OHRV procedures, development, administration and enforcement (see page 44).

The legislation also provides for the operation of snow traveling vehicles on state and local roads and also provides for limitations on operations. The law requires that snowmobile operators be at least 16 years old. Otherwise, the vehicle can only be operated on the property of the parent or guardian. State law also requires snowmobile operators to obtain permission from landowners to use private property.

The Trails Bureau in cooperation with the Office of Travel and Tourism, the New Hampshire Ski Areas Association and the New Hampshire Snowmobile Association have produced a snowmobile corridor map which indicates the major corridors in the state in addition to other winter sports activities.

Snowmobile Study

A snowmobile study commissioned by the New Hampshire Snowmobile Association was conducted by Robert A. Robertson, Ph.D. of the University of New Hampshire in conjunction with the Department of Resource Economics and Development. The purpose of the study was to assess the needs and concerns of snowmobilers. The information obtained from the study is necessary to enhance the snowmobiling experience in the State. One of the more important functions of the study was to provide estimates of the impacts of snowmobiling on the State's economy.

Other findings of the study indicated the average snowmobile group consisted of four people and the average expenditure during an outing was \$305. The mean number of miles traveled was 204. The most common type of snowmobile trip was taken with friends 39% of the time. The second most frequent trip was with family and friends, 34% of the time. Additional information about the Snowmobile Study economic impact analysis can be found in *Chapter 7* of this trail study.

One of the major findings of the snowmobile study noted the trail system of New Hampshire received average marks from respondents, and that there was a need for improvement in the number of miles of groomed trails, signing and availability of trail maps. When asked about financing for needed improvements, a majority of respondents in the snowmobile study stated they were willing to pay higher registration fees if they knew the funds would be used for trail improvements and maintenance. When asked to prioritize need, a majority of snowmobilers cited the following: first, better trail maintenance; secondly, additional new trails and finally better trail signing.

Commercial Trails

With the completion of the Interstate Highway System and ready access to resort areas, interest in the trails as a commercial enterprise has grown. From a commercial stand point, the most significant growth in trails has taken place in the winter sports, particularly for those activities involving cross country skiing.

There are seventeen ski touring centers in the State. Many of the original alpine ski areas developed ski touring as an adjunct to their down hill operations; however, several areas exist solely for cross country skiing. Two of the larger ski touring operations, Waterville Valley and Jackson Ski Touring, have developed an extensive trail system covering some 96 miles.

Future ski touring developments need to coordinate with snowmobile operations to reduce potential conflicts. As stated in the 1974 Study the greatest advantage of ski touring on a privately developed area is being able to use the trail with a minimum of conflict with snowmobiles. It is very important that future trail systems be carefully planned to minimize the disruption of established ski-touring routes.

The lengths of trails range from a low of seven miles to hundreds of miles on the property of others. These results are similar to those noted in the 1974 Study. It should be noted that many of these commercial trails operate in conjunction with local inns and motels. Businesses operating a trail system sometimes charge a fee for parking to cover the cost of trail grooming and the quality of the trail grooming varies widely.

Water Trails

The Wild and Scenic Rivers Act passed by Congress in 1968 provided for the designation of wild, scenic, or recreational rivers as part of a National Wild and Scenic Rivers System. Under the Act, Governors could apply for inclusion into the national system.

In 1971 the state legislature called upon the State Council of Resources and Development to develop criteria and inventory streams flowing in or through New Hampshire which might be included in the National System. New Hampshire's enabling legislation serves as the framework through which water trails could be identified and designated. Other State programs could then be coordinated to provide for a comprehensive approach to public use of streams and their shorelines.

Riparian corridors have tremendous value for a variety of reasons including maintaining water quality, aesthetics, wildlife and fisheries, agriculture, historic and archaeological resources, and recreation. There are approximately 1568 miles of potential water trails including 18 miles of coast line and 780 great ponds. A great pond is defined as a water body of 10 acres or more. A water trail is a trail that provides a route or path along a body of water and users of water trails range from white-water rafters to kayakers, canoeists and other small boats enthusiasts.

Interest in canoeing has become very popular and often is used in conjunction with other outdoor activities. Water trail users include those seeking routes that allow for day trips and a growing number who desire overnight camping for longer trips. The existence of a safe, navigable waterway does not create a water trail. A water trail must have identifiable put-in and take out points as well as camping and sanitary facilities spaced at regular intervals along water routes.

Since the 1974 Trail Study, the State has not developed programs which address a system of canoeable waters. The New Hampshire Office of State Planning is in the process of conducting a Public Access study/inventory of water bodies. To date 519 public access sites have been surveyed out of a total of twelve hundred known sites.

Appendix 1 provides a listing of rivers and streams which are suitable for canoeing. The AMC has done excellent work in preparing a river guide of the State entitled AMC River Guide: Central/Southern New England. Vol. 2 which includes maps and descriptions of various sections of rivers and their level of difficulty.

Rivers are generally rated according to the difficulty of the rapids found in the river. There are six basic levels of difficulty and they range from Class I which includes moving water with few riffles to Class VI which is nearly impassible and very dangerous.

A few of the major water courses used by small boat enthusiasts are worth mentioning. The Upper Connecticut River covers a distance of approximately 210 miles from the Connecticut Lakes to Turner Falls, Massachusetts. The Connecticut River is New England's longest and is navigable during the Summer. Flat water sections of the river are broken up by quick water and rapids; however, there are fifteen dams along the river which require portage. For more information about this river and its tributaries contact the Connecticut River Watershed Council at 125 Combs Road, Easthampton, Massachusetts.

The Merrimack River runs approximately 74 miles from the confluence of the Pemigewasset and Winnepesaukee Rivers in Franklin to the Massachusetts border. In high water the current is very fast and the AMC River Guide recommends avoiding it during these seasons. Portage is required around dams while numerous flat water stretches can be found along every section of the river. Additional information can be obtained from the Merrimack River Watershed Council in Lawrence, Massachusetts.

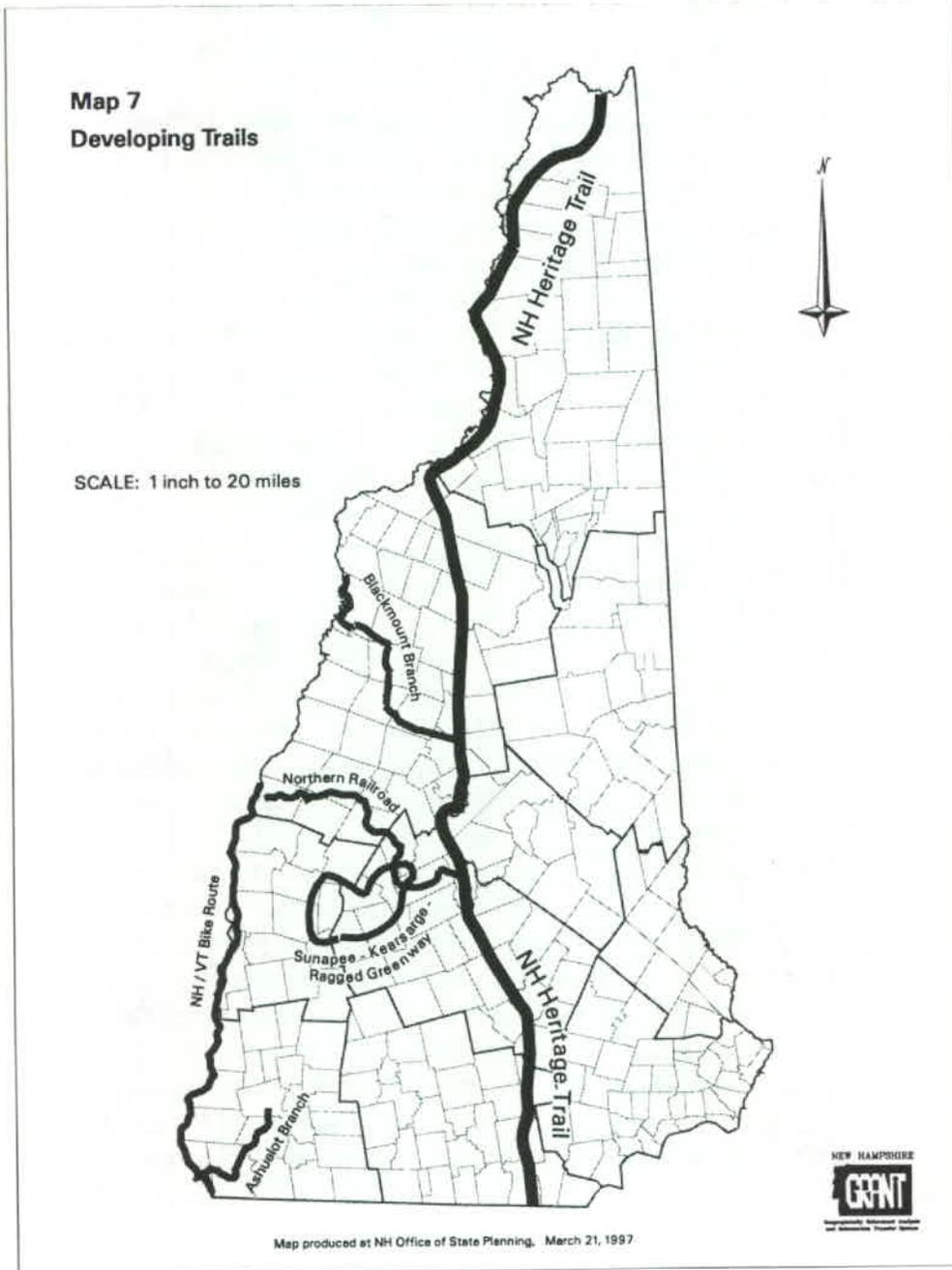
The Saco River runs through the Mount Washington Valley before entering the State of Maine near Fryeburg. This river offers a range of canoeing and kayaking opportunities to suit every type of user - from novice to expert. The Saco River is a popular tourist destination in the summer with numerous camping facilities found along its length.

The National Park Service has been working with the Native Trails Group to develop the "Northern Forest Canoe Trail." This water trail recreates the network of routes used by native Americans. The 700-mile water trail starts at Old Forge, New York, and ends at Fort Kent, Maine, with the entire length now passable. The New Hampshire portion of the Northern Forest Canoe Trail (NFCT) includes the Upper Ammonoosuc and Androscoggin Rivers. The NFCT connects or has access to every major drainage basin in the northeast, and traverses a diversity of waterways, each historically significant to the region's development.

The NFCT is not a wilderness trail. There are wild areas on the route, but much of the trail passes through developed areas. It takes approximately eight weeks to traverse the entire length of the trail. Additional information about the trail can be obtained from Native Trails Incorporated, Post Office Box 240, Waldoboro, Maine 04572 or telephone (207) 832-5255. Native Trails is a nonprofit organization whose primary function is the identification, documentation, and where possible, the preservation of pre-mechanized travel routes. This organization has documented other Native American canoe trails in New Hampshire as well.

Developing Trail Corridors

If the State is to accomplish its goal of completing the Heritage Trail by the year 2016, then it must be the number one priority for development. Because of its geography, this trail serves as the linchpin for the state trail system and its importance can be found in the fact that it will interconnect with other trails. At the present time only fragmented sections of the trail have been completed and much work remains north of Franklin with many gaps also existing between Franklin and Massachusetts.



Local Trails Committee

The 1974 Study briefly discussed local trail committees and their function. Since then, several towns have established trail committees including Hampstead, Hudson, Nashua and New London. Some of these committees serve as the organizing agency for local Heritage Trail efforts. Most community's trails efforts originate with the local conservation commission. The best example of this sort of effort is the Town of Newport's construction of an interpretive trail accomplished through the local Conservation Commission.

Trail work can be accomplished through a number of local governmental agencies including the Planning Board, Conservation Commission and Recreation Department. Often a trails committee might be a standing subcommittee of one of these groups, but whatever form it takes its main function should be to review trails planning, inventory resources and make recommendations.

Local Land Use Programs

Once a trails committee has been established, local governments should seek input and involvement in developing a land use program from residents of the community to obtain a consensus for the trails program.

The Trails Committee could function as a standing subcommittee of the Planning Board and once established, the committee should set about integrating itself into the construction permit granting process. This step is of critical importance because it is at this point that the trails committee would review and suggest possible alternatives and concessions from developers for trails corridors, greenways and buffers, and amenities which would enhance the quality of life for residents of the community.

Local Ordinances

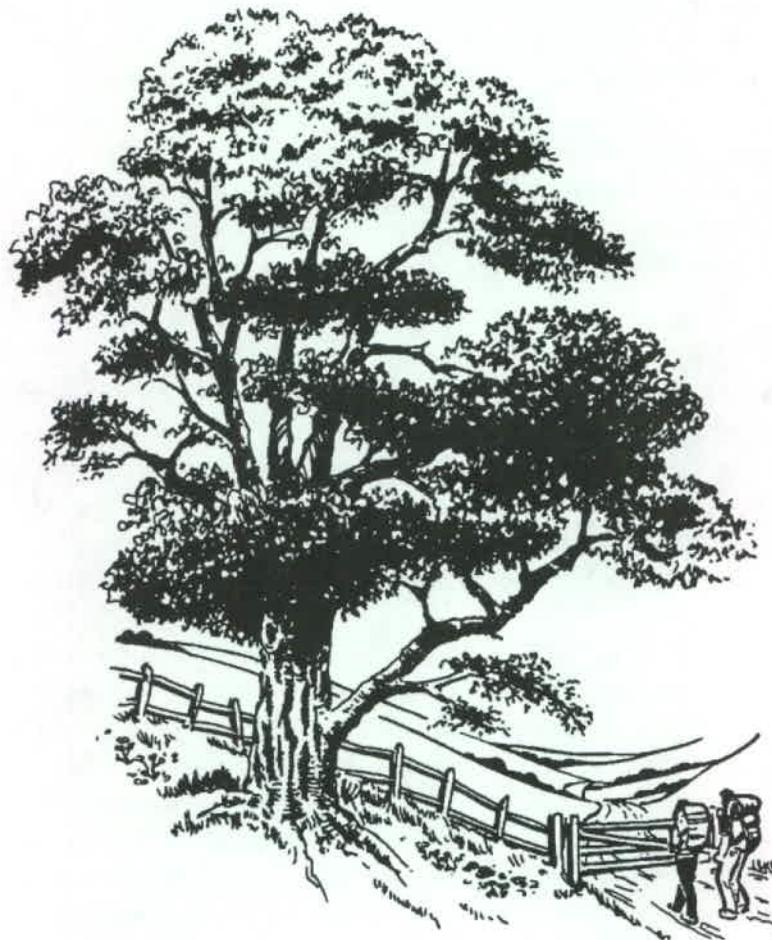
State regulations require that all OHRV operators obtain the written permission of the landowner prior to using the property. Most communities have not established any trails ordinances. According to the NH Municipal Association only a few communities regulate the hours of operation for OHRV use. Noise seems to be the most significant problem for communities particularly with regard to OHRV trails. Most problems relating to motorized uses are the result of nonresidents being unaware of local ordinances and the occasional random act of selfishness.

With the passage of RSA 231-A in 1995, communities have greater control over the designation of trails within their boundaries. This law provides for two classes of trails - Class A and Class B. This law permits the local legislative body or its designee to acquire, by dedication and acceptance or by gift, purchase, grant or devise: any class A or B trails subject to such public trail use restriction as may be imposed by deed by the owner, or grantor; or any lesser interest in land for trail purposes, including but not limited to a revocable easement, revocable license, lease or easement of finite duration, or conservation restriction, subject to such public trail user restrictions and such reserved rights as may be imposed by or agreed upon with the owner or grantor.

Discontinued Town Roads

Class VI roads provide trail opportunities that have finally received some recognition. According to the New Hampshire Department of Transportation in a 1995 inventory there are some 1,504 miles of Class VI roads. The majority of these roads are located in the central and northern sections of the State. This mileage represents a valuable resource that has all too often been ignored or taken for granted by the trails community at large. In many instances these public rights-of-way have also been ignored by the very towns that control them.

Many towns are not aware of the existence of their Class VI roads and the potential these public rights-of-way could play in providing recreational trails access and opportunities. Many of these roads could be linked to provide loop trail systems and connect with other trails on private and public lands. As private land is further developed there will be less access for all trail activities and town controlled corridors would help to ensure that there will continue to be a place to enjoy trail activities.



RECREATIONAL TRAILS MANAGEMENT

CHAPTER 5

Background

Since the last trails study was completed some twenty years ago, the state has acquired an additional 100,000 acres of land. During that same period the state's population began to rapidly increase. The last major land acquisition by the state was the purchase of Nash Stream from Diamond International in the late 1980's. The state purchased some 45,000 acres of land including 6,000 acres for Percy, Devil Slide and Ammonoosuc State Forests.

Between 1970 and 1990 the state's population increased by 35 percent or roughly 380,000 people. By the 1980's the pace of public land acquisition began to slow down at a time when population was increasing, thus placing a tremendous strain on the states' existing resources. With this kind of population pressure being placed on existing resources, the demand for more and broader trail experiences will increase.

The acquisition of public property will become more difficult in coming years with the elimination of federal funding especially the Land and Water Conservation Fund. The need for funding for the purchase of additional land, maintenance and management should be obvious to all. However, with ever decreasing financial resources, something must give and that something is usually recreation.

In an opinion poll (oral survey) of visitors to the state conducted by staff during the first week of July 1996 people were asked about their impressions of New Hampshire. Eight out of ten respondents stated they had, "great outdoor experiences while visiting the state." However, six out of ten respondents also felt their visit was impacted by the large number of people they encountered and the poor conditions of some facilities.

There is a limit as to what the state can acquire and adequately maintain. However, within those limits the state must identify those areas which are priorities. A way must be found to devote more funds to the maintenance of facilities before any more acquisitions take place. A move in this direction has started with a recent Department of Interior appropriation authorized by Congress to allow user fees to be charged at 47 test locations. It is hoped this demonstration program will raise enough revenue to increase funding for recreation management of federal lands. These funds would be used for better trail maintenance and trailhead facilities.

National Forest

The management practices of the several federal agencies charged with the responsibility of managing forests and trails vary from agency to agency.

"To some federal agencies, trails are explicit and separate functions within their organizational structures or are an integral part of an identifiable program's function. In other agencies, trails are dependent upon site demands or management preferences or the willingness to support trail-related activities."²

In 1986 the US Forest Service developed a more complex forest management system entitled the White Mountain National Forest Land and Resources Management Plan. Previously, the USFS divided the National Forest into four management areas, i.e., general, high density, dispersed, and solitude. Each of these areas was then subdivided into major use categories including, waters, timber, wildlife, mining, recreation and transportation.

Chapter 3 of the 1986 Land and Resources Management Plan describes a new management system which includes some fourteen management areas. Only the major management areas suitable for trails are described in this section. The first management area, designated as area 2.1 covers some 118,000 acres of land and is designated by its dominant use, in this case preservation of its aesthetic qualities. The second management area (area 2.1A) contains some 1,000 acres near Kilkenny. The primary objective for this management area is both aesthetic and as a source of high quality timber. The third Management Area, 3.1 includes some 227,000 acres and its dominant uses are timber production and wildlife management.

Management Area 5.1 includes 102,000 acres and by an Act of Congress is designated as a wilderness area. These areas include the Great Gulf and the Pemigewasset Wilderness. The purpose of this area is to:

- Recognize existing wilderness areas;
- Protect the wilderness character for future generations;
- Preserve natural ecosystems, and
- Provide recreational opportunities compatible with wilderness management.

The fifth Management Area designated as Area 6.1, includes some 94,000 acres and its primary purpose is to "emphasize semiprimitive nonmotorized recreational experiences in a predominantly natural or natural-appearing environment. Interaction between users is low, but there is often evidence of other users."³ Timber harvesting is permitted under this category.

The last two management areas are classified as semi-primitive and in the first of these two classifications some roads and hiking are permitted. In this last management area some motorized uses are permitted; however, timber harvesting is not permitted.

Management area 7.1 is classified as a winter sport area and includes such areas as Loon Mountain and Waterville Valley. Obviously the goal in this area would be to broaden the range

2 U.S. Department of Interior, National Park Service, National Trails Assessment, 1986. P.59.

3 United States Department of Agriculture, Forest Service, Land and Resources Management Plan, 1986, P. III-47.

of recreation opportunities for year round recreation. Management area 8.1 includes those areas with unique, scenic and scientific significance. The Appalachian Trail is included in this management area. The final management areas (9.4) are those areas which could be included in the national forest at some future date.

State Trails Program

The State of New Hampshire is one of a few states to establish a Bureau of Trails as a governmental entity although numerous states have trail coordinators. Under RSA 215:A-3 the Bureau was given a mission and responsibilities for nonmotorized as well as motorized trails. It is the responsibility of the Trails Bureau to oversee the entire state trail system.

This means the Bureau works to manage and maintain a statewide trails program. This mandate requires the Bureau to work with the Statewide Trails Advisory Committee which represents a variety of trail interests in making recommendations to the Director of Parks and Recreation for trail development. The Trails Bureau is also responsible for administering the National Recreation Trails Fund discussed below.

The 1974 Trail Study acknowledged that the development of a statewide trail program should be consistent with both management goals for the entire system and for individual land units. Once this goal has been obtained, a trails program can be devised to provide trail user opportunities consistent with the land base. The SCORP also notes the need for systematic planning and the development of strategies for protecting trails.

Currently the state manages its trails system based on state laws; however, a specific management plan with identifiable goals and actions has not been developed due to a lack of resources. The Trails Bureau should develop a management plan which relates its land management policies to the needs of various user groups.

State Responsibility

The State's primary responsibility with regard to the development and maintenance of the statewide trail system includes:

- (1) land acquisition,
- (2) public land use planning,
- (3) trails designation,
- (4) trails management, and
- (5) funding.

Many of these responsibilities were identified in the 1974 Study.

These responsibilities are just as applicable to the system today as they did yesterday. For example, public land use planning is important because it involves minimizing environmental impacts and reducing user conflicts. Another important responsibility of the state is trails management. Trails management involves tracking the status of various trails in order to

schedule maintenance. The final state responsibility is to provide adequate sources of funding to maintain the existing system and expand it when it is appropriate.

State Legislation

Over the last twenty years state laws governing the trails system have been consolidated under Chapter 216. This chapter grants authority over trails development to the Commissioner of DRED. Chapter 216 provides for the following:

- Permits the Commissioner of the Department of Resources and Economic Development to acquire land for the purpose of protecting or developing a statewide trail system.
- Provide trails within the system to be used as recreational trails for hiking, nature walks, bird watching, horseback riding, bicycling, ski touring, snowshoeing and off highway recreational vehicles and for natural scenic enjoyment.
- Provide for the development of facilities to serve people using those natural resources.
- Permit the Commissioner to appoint a Statewide Trail System Advisory Committee. The purpose of the Advisory Committee is to advise the Commissioner on matters relating to the Statewide Trail System.

The Chapter also provides that the committee will include, but not be limited to, representatives from the Trails Bureau, Department of Fish and Game, Office of State Planning, New Hampshire Snowmobile Association, New England Trail Riders Association, Appalachian Mountain Club, Society for the Protection of New Hampshire Forests and a representative of landowners.

Other legislation affecting trails development is RSA Chapter 216-A, the expansion of the state park system. The intent of this legislation is to continually provide such additional park areas and facilities as are necessary to meet the recreational needs of citizens.

Perhaps the most ambitious trail construction project in the state has been the creation of the New Hampshire Heritage Trail. In 1988 the legislature noted a gap in the existing trail system, that is, a north-south trail did not exist from the Canadian border to the Massachusetts border. As a result it became state policy to promote a recreational trail generally following the Connecticut, Pemigewasset, and Merrimack Rivers from the Canada to Massachusetts.

Chapter 216-F established a standing subcommittee of the Statewide Trails Advisory Committee to work on the planning and implementation of the Heritage Trail. The Advisory Committee is composed of representatives of twenty-four organizations and agencies appointed by the Governor. Subsequently, the Heritage Trail Advisory Committee has become a part of the Statewide Advisory Committee under HB 1492. It is the responsibility of the Statewide Advisory Committee to oversee the planning and development of the Heritage Trail.

Other legislation governing trails and recreation corridors include RSA 215 which governs off highway recreation vehicles, and gives the Bureau the responsibility to provide coordination between DRED, Fish and Game Department, and the Department of Transportation. The Bureau is also responsible for administering funds provided to the Department of Resources

and Economic Development for the OHRV program. One of the more important tasks of the Bureau is to coordinate efforts in obtaining easements and rights-of-way.

The state law governing bicycle routes are located in RSA 230:77. It requires the Department of Transportation to design, locate and erect suitable signs to mark bicycle paths or trails established pursuant to the provisions of RSA 12-B:4 along class I, II, III, IV highways so designated as bicycle paths and trails. RSA 12-B:5 authorizes the Director of Community Recreation to prepare and print a map which will describe bicycle paths and trails.

Finally, under RSA 212:34 and RSA 508:14 property owners including the State or any political subdivision, who without charge permits any person to use land for recreational purposes or as a spectator of recreational activity, will not be liable for personal injury or property damage in the absence of intentionally caused injury or damage. The Trails Bureau has a \$2 million dollar landowner liability insurance policy which is extended to all property owners whose land is used for trails under the Bureau's grant-in-aid program and Heritage Trail Program.

Statewide Implications

Since the last study, state laws have not changed significantly at least in regard to financial management. Some changes have been made concerning administration and coordination; however, little attention has been given to the long term financial needs of the system. Ten percent of the funding the Trails Bureau receives is used for administrative costs with the balance going to the grant-in-aid program.

The advent of the Statewide Trails Advisory Committee has made it possible to coordinate the actions of State and nonprofit agencies. The role of the Advisory Committee is to obtain ideas from the various trail users and to provide information to State agencies involved in the trails planning process. Many of the state lands resources are currently administered under cooperative agreements, i.e., the Trails Bureau manages a number of abandoned rail lines for the Department of Transportation.

The State Trails System exists and has the ability to coordinate activities; however, that ability is limited by the availability of resources particularly when it comes to working with local governments and organizations. There is little incentive for communities to cooperate in a statewide trail system when the financial resources available are so limited, both for development and maintenance. Small, rural communities do not have the financial resources available to undertake such a large burden.

Standards and Design

There are some general guidelines which can apply to trail design. Implementation of these guidelines may vary depending on the trail use. The importance of design considerations is borne out by the fact that with some forethought and planning, maintenance costs can be greatly reduced and thus scarce funding can be devoted to more pressing issues. It is not the function of this study to delve into the specialized fields of design and maintenance; however, some discussion is required, if we are to understand the basic issues involved in developing and maintaining a viable trail system. According to John Hultsman, et.al., in his book entitled,

Planning Parks for People, there are four basic design standards used in trails development including: zoning, design psychology, field design and construction administration.

Under zoning there are three primary concerns which need to be addressed. The first consideration is the function to be served by the trail, i.e., hiking, snowmobiling, interpretative, etc. These uses are referred to as the primary function. Some trails are not intended as primary trails but rather serves a secondary function. Secondary trails serve as a means to connect locations, movement within an area, such as access from a parking lot to a waterfall. Trail functions should not be the responsibility of the planner, but rather the administrator.

The second zoning consideration is how one trail relates to another trail. Trails with conflicting use should not be grouped together with other types of trails. For example, you would not want to create ATV trails around an interpretative trail while an interpretative trail would be well suited to an area close to a camp ground.

The final zoning consideration is how the trail relates to other facilities. Camp facilities should be far enough away from motorized trails to avoid conflict, while other type trails might complement and enhance the outdoor experience, i.e., campers often bring bicycles with them on camping trips or use interpretative trails. These types of facilities obviously should be close to camp grounds.

The next area of concern is design psychology. The objective of design psychology is to make the user feel comfortable in the natural environment. This technique attempts to manipulate the environment without the users being aware. One technique is to use a loop trail. This type of trail avoids having to backtrack. The main advantage to this type of trail is that novices cannot easily get lost.

Planners should try to create the experience of being secluded on a trail. Often this can be accomplished by constructing trails which are curvilinear, or reducing the linear distance people can see. Finally, design psychology should provide visual variety by taking advantage of the natural setting as much as possible. This simply means the hiking experience will be enhanced if a trail passes through a variety of terrain rather than hiking exclusively through wooded areas.

Field design and construction primarily addresses future maintenance issues. By paying close attention to the topography during the construction phase of a trail project, the less likely it will be that a trail will need extensive maintenance in the future. A few preventive measures can reduce the amount of maintenance a trail requires. For example the installation of water bars and grade dips are simple techniques used to reduce erosion and avoiding the use of switchbacks because they encourage the hiker to take short cuts and require greater maintenance. The AMC has developed an excellent handbook on trail maintenance and designs entitled: Trail Building and Maintenance, Second edition, by Robert D. Proudman and Reuben Rajala.

Trails require less administration and management than most other recreation facilities; however, this does not mean they should be ignored. The trail administrator should devise a maintenance schedule to ensure that trails are properly blazed. Periodically the entire trail system should be reviewed to see if it adheres to some of the above criteria. This can be accomplished by meeting with the trail crew, reviewing maps and map overlays and actually getting out and surveying the system.

State Land Management

Since the early 1970's the State of New Hampshire has managed its natural resources under a cooperative agreement between DRED and the Department of Fish and Game. Currently referred to as Cooperative Land Management, the program consists of a three-person policy board and a working committee composed of agency staff responsible for program review, evaluation, development and implementation. In conjunction with these bodies, the Division of Forests and Lands developed a Forest Management Guide to inventory and manage State Forests. The guide classifies forest lands according to six management areas based on the dominant use. Briefly these areas include the following:

- Scenic Areas – those areas in which aesthetic considerations are of paramount concern; however, some timber cutting would be permitted provided it does not impact the aesthetic qualities of the area;
- Water Resource Areas – those areas designated to preserve and protect water quality, stream banks, provide buffer zones and provide access;
- Natural Reserve Areas – those areas which contain unique geological, plant and animal communities minimizing human activity to the maximum extent feasible;
- Wildlife Area – those areas which include key sources of wildlife food and water the objective of which is to maintain a variety of wildlife;
- Historical Areas – those areas which contain man made features such as old buildings, cemeteries, mines and roads of archeological or historic interest;
- Timber Management Areas – those areas which are available for the sustained yield of timber products and include all categories not included in the above listing.

User Education

The growing popularity of trail activities, increases in the number of people using trails, growth of new forms of trail uses such as mountain bicycling and ski-juring, and the continual commercialization of recreation has all contributed to more instances of abuse of public and private lands and to the alienation of private landowners.

Most users of private land respect the land and the owner. However, an increasing number of individuals disregard posted property signs leaving litter and in some cases vandalizing the property. Many of these individuals have no sense of responsibility or stewardship of the resources available to them. Individuals enjoying the outdoors must develop a sensitivity toward nature, the environment and private landowners.

Various state agencies provide brochures which inform individuals about policies regarding trash disposal. The Trails Bureau also has a pamphlet entitled Landowner Partnerships which points out the simple idea of asking for permission of the land owner to use the land first. The handbook also notes other concepts such as using the trails only when they are dry and stable.

Local Management

Local trails have become increasingly popular with the public in the last few years. These paths are located close to where people live and work and provide a variety of uses. In recent years, through private initiative and federal programs, approximately 25 miles of local trails have been constructed or planned. Most communities are interested in providing trails as a recreational resource and as a means for alternative transportation to link homes, schools and workplaces.

Where these trails exist, they are heavily used not only by local residents but by residents from neighboring towns as well. The paths have become major community assets and are central to the lives of many people. Many of these community paths have become overcrowded, which is a good indication that perhaps more should be acquired and developed.



ECONOMIC IMPACT

CHAPTER 6

Trails have varied levels of tourists drawn to them. They often encourage visitors to extend their stay or enhance business and pleasure visits. The level of attraction of an area determines the amount of time and travel expenditures a visitor spends. If visitors extend their trip an extra night to visit a trail or greenway, the additional night's lodging and meals can be attributed to the trail or greenway.

Several studies have shown trail user expenditures of more than \$1.2 million per trail annually with average daily expenditures of \$25.14 for trip related expenses per person.⁴ This study indicates that 50 percent of the users questioned were from out of state. Comparable studies by the AMC indicate average daily sales expenditures of \$67.23 in the White Mountains.⁵ A Study of expenditures by snowmobilers was conducted by the University of New Hampshire's Department of Resource Economics and Development and the results indicate that expenditures by snowmobilers have a significant impact on the State's economy. Estimates range from \$233 to \$367 million annually.

The Outdoor Recreation Council of America (ORCA) estimates the total annual outdoor product and specialty retail sales to be in the \$10 billion range including trail equipment. ORCA also estimates the total economic contribution of human powered outdoor recreation at \$35 billion and growing including direct and indirect contributions.⁶ This estimate is based on sales of suppliers, manufactures, distributors, retailer's outfitters and guides, as well as associated expenditures such as travel, permits and fees.

Economic Multipliers

There are three basic components of multipliers including direct, indirect and induced effects. A direct effect occurs when a purchase is made by a trail user, from outside of the local area, at businesses within the local economy. An indirect effect is created when businesses and their employees purchase goods and services from other businesses. The final compo-

- 4 Gray, Jack and Hamilton, Sue, et. Al. January 1989. A Look at Visitors on Wisconsin's Elroy-Sparta Bike Trail, Madison, Wisconsin: University of Wisconsin -- Extension Recreation Research Center.
- 5 Appalachian Mountain Club. 1995. The Appalachian Mountain Club's Hut System and Its Contribution to the White Mountains. Northern Economic Planners. P. 3
- 6 Outdoor Recreation Council of America. Human Powered Outdoor Recreation: State of the Industry Report 1995. Lisa Widdekind P. 8

ment of a multiplier is the induced effect (see *Figure 1*, page 51). Induced effects are created from income received by individuals from both direct and indirectly affected businesses. The total economic activity of a trail can be established by estimating the direct, indirect and induced effects of user expenditures.

A multiplier may be defined as a ratio of the indirect and induced effects divided by the direct effect. The larger the multiplier, the larger the increases in economic activity in the local community. Multipliers are derived from economic models. Using the methodology described above you can show the total amount of economic activity in a community per dollar of direct effect of greenway visitor spending.

Four basic multipliers are used to measure economic impact: gross output, total income, value added, and employment. These terms can be defined as follows: gross output represents the value of outputs produced in a specific region; total income represents the wages and salaries paid to employees and property income; value added represents the sum of employee wages and salaries, indirect business taxes, and property income; also employment is defined as the number of people employed by firms and businesses in the local region.⁷

A recent study completed by the National Park Service entitled: The Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors Report notes that: "..... the total economic effects, whether sales, jobs or income, are often approximately one and a half to three times more than the amount of the actual recreation-related expenditures. The magnitude of direct, indirect, and induced impacts depends on the number of visitors attracted to the greenway; the amount they spend; the structure and diversity of the local economy; and the quantity of input supplies purchased within your local community."⁸

The American Motorcycle Association (AMA) estimates the direct effects of motorbikes and ATVs expenditures at \$65,000,000 in New Hampshire annually.⁹ Using the multiplier quoted above we can project sales of \$189 million at the low end of sales to a high of \$378 million

What does this information do for us? First and foremost, it tells the economist about the health of the local economy. Secondly it shows us the relationship between businesses in the local economy. Economists use multipliers to understand how the local economy is interconnected.

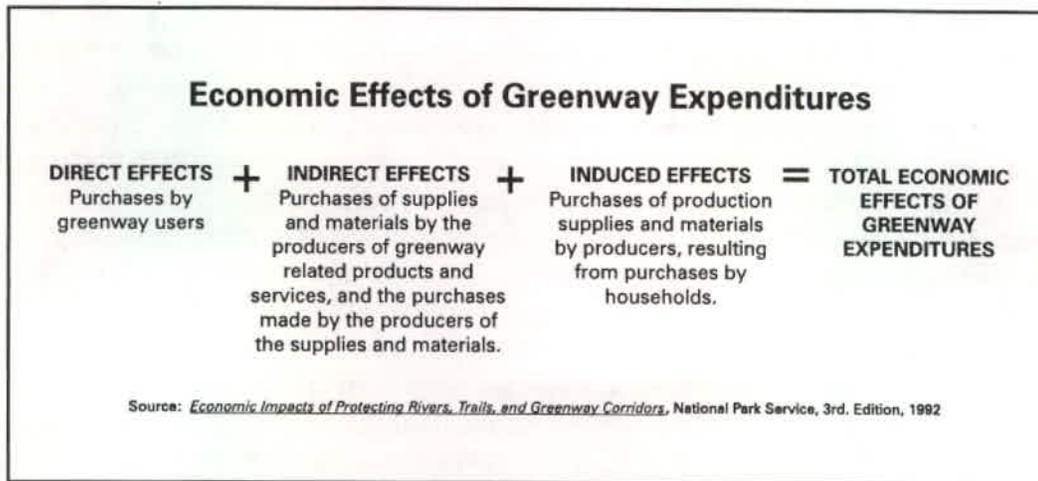
Armed with this basic information about the effects of multipliers, let us look at some of the economic impacts created by one segment of the trails community in New Hampshire snowmobilers. The Assessment of Snowmobiling in New Hampshire 1996, by Dr. Robert A. Robertson indicated the total of direct and indirect expenditures by snowmobilers in New Hampshire was estimated to range from \$233 to \$367 million last year and generated nearly one million dollars in registration fees.

7 US Department of Interior, National Park Service. 1992. 3rd Edition Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors, P.5-10 & 5-11.

8 IBID. P. 5-9

9 Annual Report 1994. American Motorcycle Association, 33 Collegeview Road, Westerville, Ohio 43081

FIGURE 1. ECONOMIC EFFECTS OF GREENWAY EXPENDITURES



The study also noted that nonresidents expended a total of \$22,537,369 in direct expenditures including \$14,449,986 on nondurable goods in New Hampshire. The total for both resident and nonresident expenditures in durable and nondurable goods was \$118,323,046 during the 1995-96 season. The effect of multipliers was not included in this total. The spin off from all of this economic activity translates into jobs - in fact it represents 4,449 full time positions according to the snowmobile study.

Gasoline revenues from snowmobiling were estimated to be \$717,455 last year from both residents and nonresidents and of this total \$399,912 was returned to the New Hampshire Snowmobile Grant-in-aid program. No funds for the grant-in-aid program come from the State's general fund. The balance of the gasoline revenue is given to the NH Transportation Fund. The Grant-in-aid program provides funds for snowmobile trail construction and maintenance.

Other revenues generated from snowmobiling included \$1,032,912 from the room and meal taxes; however, none of this revenue was used to support the sport. Snowmobile registrations also generate revenue for the State. Currently nonresident snowmobilers pay a \$29 registration fee and residents pay \$25. A portion of this fund is returned to Clubs for Grant-in-Aid through the Bureau of Trails.

Marketing Potential

Trails provide unique opportunities which nearby business establishments can capitalize on and feature in their advertising. Because trails are profitable attractions for businesses, they may also be interested in donating funds for the development of the trail. For example, The National Park Services' Economic Impacts of Protecting Rivers Report notes that:

"In the City of Yakima, Washington, many businesses were spurred on by the development of a greenway. A local hotel credits their year round occupancy to their proximity to the greenway and a nearby restaurant built a patio adjacent to the Greenway and enjoyed increased business from trail users and hotel guests. In Campbell, California, a local inn was required to provide an easement for the Los Gatos Trail. Realizing the marketing potential of the

trail, developers constructed part of the trail, an additional spur, and now provided rental bicycles for hotel guests."¹⁰

What are some of the tools you can use to promote your trail? Perhaps the best example of good promotion is the one which requires virtually none - that is through word of mouth. If visitors enjoyed their excursion they will want to share the experience with others, while on the other hand a bad experience can do great harm to all of your efforts. With that thought in mind, what can you do to affect communication about your trail?

Perhaps the best way to affect this type of promotion is to gather testimonials from visitors and use their statements in your advertising and promotional materials. Use quotations provided by individuals to include in newsletters and broadcast media.

The travel and tourism industry is an important part of New Hampshire's economy and outdoor recreation and trails have played a large part in bringing visitors to the State. The ability of the public sector to develop, operate and maintain outdoor recreation resources continue to be strained due to diminishing revenues and increased costs. The private sector and public/private partnerships are being relied upon more and more to provide and promote recreation facilities and services at the local level.

Each community has its own unique set of attractive and desirable features that contribute to the overall quality of life in the community. These assets include cultural, historic, recreational and natural assets as well as the infrastructure of the town scape. These features together all contribute to the community's successful economic development strategies.

Recreational tourism, economic development, outdoor recreation and resource protection are intertwined and dependent upon each other. Resource-based tourism blends into the social structure of rural areas without intruding into community life. Local trails and greenways provide opportunities for resource protection and tourism development.



10 Economic Impacts of Protecting Rivers, Trails and Greenway Corridors, P. 5-13

F CHAPTER 7 FUNDING

Federal Resources

One of the first objectives of this study is to identify financial resources for the existing state trails system. The Federal Intermodal Surface Transportation Act (ISTEA) of 1991 allows states to use up to \$4.5 million of their highway funds for 100 percent funding of independent bicycle and walkway projects annually. ISTEA can help to create new opportunities by:

- placing more emphasis on bicycles, buses, rails and walking;
- providing new funding for trails and scenic and historic preservation;
- encouraging more local decision-making in the transportation process and
- promoting partnerships between states and citizens.

The important components of ISTEA to trails, rail-trails and bicycle and pedestrian paths are outlined below:

- ***Surface Transportation Program (STP) [Sec. 1007]***

The Surface Transportation Program is a block grant type program that may be used by state and localities for any roads that are not functionally classified as local or rural minor collectors. The State may also elect to use the funds for the capital costs of transit projects. Bridge, carpool/vanpool, and safety improvement projects are not restricted to Federal-aid roads but may be on any public road.

The activities that are eligible for STP funds that are most relevant to trails and greenways include:

- Bicycle facilities and pedestrian walkways;
- State bicycle and pedestrian coordinator (Section 1033); and
- Transportation enhancements.

Section 1007 (d) (2) requires 10 percent of STP funds to be spent on Transportation Enhancement Activities (TEAs) which are defined to include: bicycle and pedestrian facilities; acquisition of scenic easements and scenic or historic sites; scenic or historic highway pro-

grams; landscaping and other scenic beautification; historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities including historic railroad facilities and canals; preservation of abandoned railway corridors including the conversion and use for pedestrian and bicycle trails; control and removal of outdoor advertising; archaeological planning and research; and mitigation of water pollution due to highway runoff.

An activity is eligible for transportation enhancement funds if it is included in one or more of the categories and if it is related to any active or completed transportation project which involves federal transportation funds. An enhancement need not occur along the project boundaries, but may occur in "the [geographic] area to be served by the project" if the population there can reasonably be expected to use or benefit from the activity.

Enhancements are eligible for all Surface Transportation Funds, not only the 10 percent set aside.

- ***Metropolitan Planning [Sec. 1024], Statewide Planning [1025] and Management Systems [1034]***

The metropolitan planning provisions of the ISTEA feature and enhance the role for local governments. The metropolitan planning organization (MPO) is responsible for developing, in cooperation with the state and affected transit operators, a long range transportation plan and a transportation improvement program (TIP) for the area. The TIP must include all projects in the metropolitan area that are proposed for funding. In New Hampshire there are four Metropolitan Planning Organizations including: Nashua Regional Planning Commission, Rockingham Regional Planning Commission, Southern New Hampshire Regional Planning Commission, and Strafford Regional Planning Commission.

The planning process must now include additional considerations such as land use, intermodal connectivity, methods to enhance transit systems, and needs identified through management systems. States, under the statewide planning provisions, are required to establish a statewide planning process, develop a statewide transportation plan and a statewide transportation program.

The state planning process must consider 20 factors when developing an intermodal state transportation system. Some of the factors related to trails and alternative forms of transportation include the following: strategies for incorporating bicycle transportation facilities and pedestrian walkways in projects; international border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes, national parks, recreation and scenic areas, monuments and historic, and military institutions; recreational travel and tourism; and preservation of rights-of-way for construction of future transportation projects, including the identification of unused rights-of-way which may be needed for future transportation corridors.

Each state must develop a statewide transportation plan that includes provisions for the development of pedestrian walkways and bicycle facilities. The statewide transportation program (STIP) must be consistent with the long range plan, the metropolitan transportation improvement program (TIP) and expected funding. In areas with a population of less than 50,000, projects are selected by the state in cooperation with affected local officials.

• ***Federal Lands Highway Program (FLHP) [Sec. 1032]***

Federal Lands Program authorizations, previously available through four categories, are now provided through three categories — Indian Reservation Roads; Parkways and Park Roads and Public Lands Highways, which incorporates the previous Forest Highway category. Funds available for each category of Federal Lands Highways may be available for the following:

- Transportation planning for tourism and recreational travel including the National Forest Scenic Byways Program, Bureau of Land Management Back Country Byways Program, National Trail System Program, and other similar federal programs and that benefit recreational development;
- Adjacent vehicular parking areas;
- Interpretive signing;
- Acquisition of necessary scenic easements and scenic or historic sites;
- Provision for pedestrians and bicycles;
- Construction and reconstruction of the roadside rest areas including sanitary and water facilities;
- Other appropriate public road facilities such as visitor centers.

• ***Bicycle Transportation and Pedestrian Walkways [Sec. 1033]***

The existing Section 217 (the bicycle section was originally written in 1973) was rewritten in ISTEA. Funds for bicycle and pedestrian facilities are no longer available at 100 percent funding, but instead federal funds must be matched on a 20/80 basis by the states. This section also requires that each state hire a state bicycle and pedestrian coordinator to promote and facilitate the increased use of nonmotorized forms of transportation and to develop a state plan for bicycling and pedestrian walkways.

“For purposes of this section a bicycle transportation facility’ means new or improved lanes, paths, or shoulders for use by bicyclists, traffic control devices, shelters, and parking facilities for bicycles.” No bicycle project may be carried out under this section unless the project will be principally for transportation, rather than recreation purposes.

Other changes include:

- **Use of Surface Transportation Program Funds** — Subject to project approval by the Secretary of Transportation, a state may spend funds apportioned to it under the STP for highway, transit or bridge projects, including the construction of pedestrian walkways and bicycle transportation facilities and for carrying out nonconstruction projects related to safe use.
- **Use of National Highway System Funds** — Subject to project approval by the Secretary of Transportation, a state may spend funds apportioned to it under the National Highway System for construction of bicycle transportation facilities on land adjacent to any highway on the NHS.

- **Use of Federal Lands Highway Funds** — At the discretion of the department charged with administering these funds, the construction of pedestrian walkways and bicycle transportation facilities are eligible under the Federal Lands Highway Program.



- **Scenic Byways Program [Sec. 1047]**

The National Scenic Byways Program was established under Section 1047 of ISTEA to include a national advisory committee charged with developing criteria and standards for use by states and federal agencies in designing highways as National Scenic Byways and All American Roads. Grant funds are authorized for the planning, design and development of state scenic byway programs and to allow states to undertake scenic byway projects. The Interim Program supported the development of State programs.

Eligible projects related to trails and bicycles and pedestrian paths include:

- Construction along the highway of facilities for the use of pedestrians and bicyclists, rest areas, turnouts, highway shoulder improvements, passing lanes, overlooks, and interpretive facilities;
- Improvements to the highway which will enhance access to an area for the purpose of recreation, including water-related recreation.
- Protecting historical and cultural resources in areas adjacent to the highway.
- Developing and providing tourist information to the public, including interpretive information about the scenic byway.

- **National Recreational Trails Fund (NRTF) Act [Sec. 1302]**

The ISTEA contained the National Recreational Trails Fund, which for the first time established a program for allocating funds to states to develop a grant program. These funds may be passed on to the local governments and other governmental entities, nonprofit organizations, and individuals for recreational trails and trail-related projects.

The project is administered by the U.S. Department of Transportation (USDOT) in consultation with the Department of Interior. Trail projects must be identified on or further the specific goal of trail plans included or referenced in the Statewide Comprehensive Outdoor Recreation Plan (SCORP), which is required by the Land and Water Conservation Fund Act (LWCF). It is administered in New Hampshire by the Trails Bureau.

Funds are allocated to the states by: (1) 50 percent equally among all eligible states; and, (2) 50 percent proportionate to the amount of nonhighway recreational fuels use in that state. At least 30 percent of the funds received is for nonmotorized and 30 percent for motorized trails. The remaining 40 percent is allocated for shared, multi-use trail facilities. Congress can appropriate up to \$30 million annually to the NRTF for the next six years.

Permissible uses of the funds include the following: administrative costs, environmental and safety education programs, development of urban trail linkages, maintenance of existing trails, restoration of areas damaged by trail use, trails facilities' development, provision of access for people with disabilities, acquisition of easements and fee simple title for property, and construction of new trails.

Programs such as these could be the driving force behind trails and greenways development over the next few years. However, most trails' initiatives will occur at the local level, by citizens plugging into local transportation planning, by organizing local trails and greenways committees and organizations, and by marketing their efforts to draw visitors to their area.

During fiscal year 1996 the Trails Bureau awarded 24 grants for various local trail projects totaling \$151,000 under NRTF. Eight of the projects were for nonmotorized trail projects and sixteen were for combination projects. The Trails Bureau will have approximately \$157,000 available to fund projects under this program in January 1997.

State Resources

If there is a common chord that is struck in the various elements of the 1996 Statewide Trails Study it is the need for a continuous funding source for trail development. While some New Hampshire communities have invested significant resources in recreational trails, many have not. Their reasons for doing so are not hard to understand.

One reason is that park and recreation managers have several other recreation needs to meet. Shortages of neighborhoods playgrounds, tennis courts, swimming facilities, and campgrounds exist near every major population center in the state. Recreational trails, when forced to compete for funds with these more traditional and very chronic needs, generally end up near the bottom of the priority list.

The Trails Bureau's Off-Highway Recreational Vehicle (OHRV) program is fully funded by the State's OHRV registrations and gas tax funds. The funds obtained from registrations are used for publications, motorized trails, easements, and OHRV facilities. The Trails Bureau works cooperatively with the N.H. Fish and Game Department, which provides law enforcement, safety training, and search and rescue services. Table 5 and 6 (below) provides a breakdown of revenues received by the OHRV Registry Desk for the last five years. The Tables indicate that registration fees are impacted by fluctuations in the economy and weather. The decline in revenues in the early 1990's is closely related to the recession in that period.

The majority of revenue earned by the Registry Desk occurs during the winter season and can be attributed to snowmobile registrations. The Registry Desk reports that for the 1994-95 season, there were 34,688 snowmobiles registered in the State and of this total 8,632 consisted of nonresident registrations.

TABLE 5. OFF-HIGHWAY RECREATION PERMITS AND REVENUE

YEAR	1994-95	1993-94	1992-93	1991-92	1990-91
Total Permits	10,001	8,876	7,732	8,420	9,246
Revenue	\$255,401	\$226,704	\$197,040	\$214,512	\$235,934

Compared to previous seasons, this total represents a 10% increase over the 1989-90 season and a 15% increase over the 1990-91 season. However, during the 1991-92 season registrations declined by nearly 9% compared to the previous year. This decline can be attributed to the recession which occurred in those years and the mild winter season. Table 6 provides a five-year breakdown of snowmobile registrations and revenues.

The 1996 Trails Study questionnaire asked citizens of New Hampshire to express their support or opposition to several methods of funding for trails. Alternative funding sources are needed to meet future demand. Questionnaire respondents were asked if they favored a "trail user permit" system. Forty-five percent favored such a system. In a follow-up question, 40% stated they would favor establishing a fee for permit system. Several respondents also suggested an *ad valorem* tax (value added) on hiking and camping equipment with the revenue being set aside for trails. Other respondents also suggested using lottery revenue for trail maintenance and construction. This latter approach is currently being used by the State of Colorado and serious consideration is being given to this proposal in California. It should also be noted that a number of people expressed concerns over security and felt those existing resources should be used to safeguard trails.

TABLE 6. SNOWMOBILE REGISTRATIONS PERMITS AND REVENUE

YEAR	1994-95	1993-94	1992-93	1991-92	1990-91
Total Permits	34,688	38,747	33,608	29,545	42,491
Revenue	\$901,728	\$1,008,519	\$876,512	\$774,517	\$1,114,067

There is never sufficient funding to go around, and many communities have not been able to muster the necessary funds to take advantage of trail opportunities before they are lost. There appears to be some interest generally for the establishment of a mechanism that will produce more dollars for trail development in the state; however, there is no clear consensus on the source of that funding.

The portion of the trail study addressing bicycling, hiking and horseback riding indicates the greatest demand for these activities occurs near urban areas. Individuals engaged in these types of activities expressed a desire to have trails built closer to where they lived. Therefore, the responsibility for acquisition, development, operation, and maintenance of bicycling, hik-

ing, and horseback trails should rest with local governments. An effective trail funding program should allocate most of its resources to local governments, according to specific criteria.

Some of these funds (perhaps 25%) should be retained for projects that are best developed by the Bureau of Trails. In these instances, the department's responsibility for trail development would include the following:

1. in areas of high demand, in or next to units of the State Park System, or
2. in areas of high demand, impacted by recreationists from other regions, where the local agency is incapable of assuming operation and maintenance responsibilities.



CHAPTER 8

ISSUES, GOALS, RECOMMENDATIONS and EVALUATION & CONCLUSION

Issues, Goals, Recommendations

The State of New Hampshire is faced with a variety of issues and goals related to trails. The following is a list of recommendations submitted by the Trails Bureau and OSP to the Statewide Trails Advisory Committee for their consideration. The issues affecting trails and greenways are identified and the actions required for resolving those issues are defined. For each goal a set of action steps is proposed for achieving the specific goal.

❖ ISSUE 1: Protection of Resources

Protection of existing trail corridors and greenways for high quality experiences are becoming an increasing problem due to land development, changing land ownership patterns and private land closures.

Goal:

To adequately protect existing trail corridors and greenways, and to identify, develop and protect potential new trails and greenways opportunities.

Recommendations:

- ✓ Local, state and federal agencies should work with trail organizations and the State Trails Advisory Committee to develop a protection plan for each type of trail or greenway.
- ✓ Trail organizations and towns should work with land trusts to protect trail and greenway corridors.
- ✓ Trail organizations, governmental agencies and nonprofit corporations should work together to link and promote trails.

- ✓ Trail corridors and greenways must be identified and mapped, and this information should be included in statewide, regional and local plans.
- ✓ Governmental agencies, trail organizations and private landowners should work together to protect the scenic value of existing trails through enlightened forest management.
- ✓ Develop programs to educate the public about trail and greenway protection needs, which could include mass media marketing and educational programs in schools.
- ✓ DRED should continually work toward developing multi-use trails on abandoned rail lines as they become available. Coordination should be established and maintained with the New Hampshire Department of Transportation, Bureau of Rail and Public Transit.

♣ ISSUE 2: User Needs

Existing trails and greenways are inadequate to meet current and future user needs.

Goal:

To maintain existing trails, and to identify and develop future trails and greenways to meet various user abilities and needs for all types of trails, including short and long-distance trails, trails of varying difficulties, loop trails accessible to persons with disabilities, and conservation greenways.

Recommendations:

- ✓ Trail organizations and governmental agencies should take a greater role in developing trails and greenways.
- ✓ DRED and NHDOT should encourage links between places where people work, live and play.
- ✓ Foster and encourage the development of an interconnected trail system between greenways and public lands.
- ✓ Work with neighboring states to develop an interlinking regional trail system.
- ✓ State agencies should work to promote trails and greenways as a means for enhancing economic development at the community level.
- ✓ The state should encourage towns and communities to strive to develop trails within 15 minutes of home.
- ✓ Encourage corporations to be involved and assist in the development of local trails and greenways.
- ✓ Encourage the formation of volunteer groups to help maintain long distance trails.
- ✓ Work with mountain bicycling organizations to identify bike trails and loops on state land and Class IV and Class VI roads and certain highways in urban areas.

- ✓ Trail organizations should develop priority lists of trail needs to be used when determining annual plans of work of trail provider organizations, i.e., Youth Conservation Corps.

♣ **ISSUE 3: Compatibility of Trail Activities**

Growing numbers of trail users are creating conflicts between types of trail users and between trail users and nontrail users who compete for the same space. In some cases this is resulting in environmental damage, safety problems and loss of trails.

Goal:

To provide both single and multiple-use trails opportunities provided it does not significantly reduce the quality of the experience.

Recommendations:

- ✓ Encourage the development of trail corridors to accommodate the needs of different trail users.
- ✓ The Trails Bureau should work with trail organizations and governmental agencies to develop more trail systems for all trail users, including ATVs, bikers and horseback riders.

Goal:

To minimize conflicts between trail organizations and other interest groups through good communication.

Recommendations:

- ✓ DRED should work with trail organizations and other interest groups to develop information programs about various trail uses and needs.
- ✓ DRED should develop a comprehensive program to educate new users on trail issues, needs, ethics and etiquette.
- ✓ DRED should develop a statewide code of etiquette and behavior for all trail's users.

Goal:

To educate users to act in a manner that would minimize problems and conflicts.

Recommendations:

- ✓ Trail organizations, working jointly with state agencies should develop user educational programs. A landowner brochure should be given high priority for development and publication.
- ✓ The Statewide Trails Advisory Committee should encourage the development of a 'home grown' trails organization to help foster New Hampshire's interests.
- ✓ Trail organizations should educate trail users on appropriate trail etiquette through trailhead signs, brochures and maps.

♣ ISSUE 5: Maintenance

Some trails are not being adequately maintained, resulting in environmental degradation and user dissatisfaction.

Goal:

To maintain all trails to standards adopted by the trail organizations.

Recommendations:

- ✓ The Trails Bureau should coordinate efforts by trail organizations to adopt comprehensive standards for construction, maintenance, structures and markings.
- ✓ Trail managers should develop and implement trail monitoring plans for evaluating trail maintenance needs on their systems.
- ✓ User groups should take an active role in identifying, funding and completing maintenance work.
- ✓ Governmental agencies and private organizations should develop and agree to cost sharing projects to reduce maintenance costs.
- ✓ The Trails Bureau should discourage the development of new trails until adequate resources exist to maintain them.
- ✓ The Statewide Trails Advisory Committee should lead the effort to establish additional funding sources.

♣ ISSUE 5: Funding

There is inadequate funding to meet the needs for trail and greenway planning, land acquisition, trail development, maintenance, and public information.

Goal:

To establish adequate and stable sources of funding and support for trails and greenways.

Recommendations:

- ✓ DRED should appoint a task force to develop a plan for the adequate funding of trails and greenways.
- ✓ The Trails Bureau should develop a public education program to increase public understanding of the need for trail and greenway funding.
- ✓ The Trails Bureau should disseminate information to communities and individuals about a range of funding and support for trail activities, i.e., a newsletter.
- ✓ Leverage National Recreation Trails Fund with other state and private resources to enable communities to undertake larger trail projects.

♣ **ISSUE 6: State Law**

State laws, rules, and regulations that impact trails and greenways need to be developed or updated so as to be fairly administered and enforced.

Goal:

The general landowner liability law needs to be updated to make it more understandable, to eliminate loopholes and provide greater protection for a landowner who makes their land available for recreation.

Recommendations:

- ✓ Statewide Trails Advisory Committee should appoint a task force to review existing laws and if necessary, recommend the adoption of new legislation.
- ✓ The state should encourage towns to use the municipal trails policies.
- ✓ Develop a program that provides incentives to landowners for making contributions and donations of land for trails and greenways.
- ✓ Develop a mechanism for compensating landowners who allow recreation trails on their lands.
- ✓ The Statewide Trails Advisory Committee should initiate discussions concerning property tax reform and current use in order to begin a rationale discussion of the need to establish a stable funding source for recreation in general and trails in particular.
- ✓ The Statewide Trails Advisory Committee should appoint a study group to develop and work toward implementation of comprehensive trails legislation.

♣ **ISSUE 7: Municipal Trails**

The Trails Bureau should work with local governments and Regional Planning Commissions to develop trails projects which help to foster an integrated statewide trails system

Goal:

Encourage municipal governments to become more involved in developing and managing a trails program.

Recommendations:

- ✓ Conduct trail planning as part of the recreation, conservation, and transportation components of the local master plan.
- ✓ Develop greenways and community trails to connect to park and recreation areas, historic places, conservation lands, and community facilities.
- ✓ Work with neighboring communities to insure that connections to trails in adjacent towns are made.

- ✓ Adopt land use regulations which encourage developers to provide trail easements, if land being developed includes a trail corridor which is identified in a local trail plan.
- ✓ Work with local trail groups and Regional Planning Commissions in developing projects for ISTEAs funding.

Evaluation

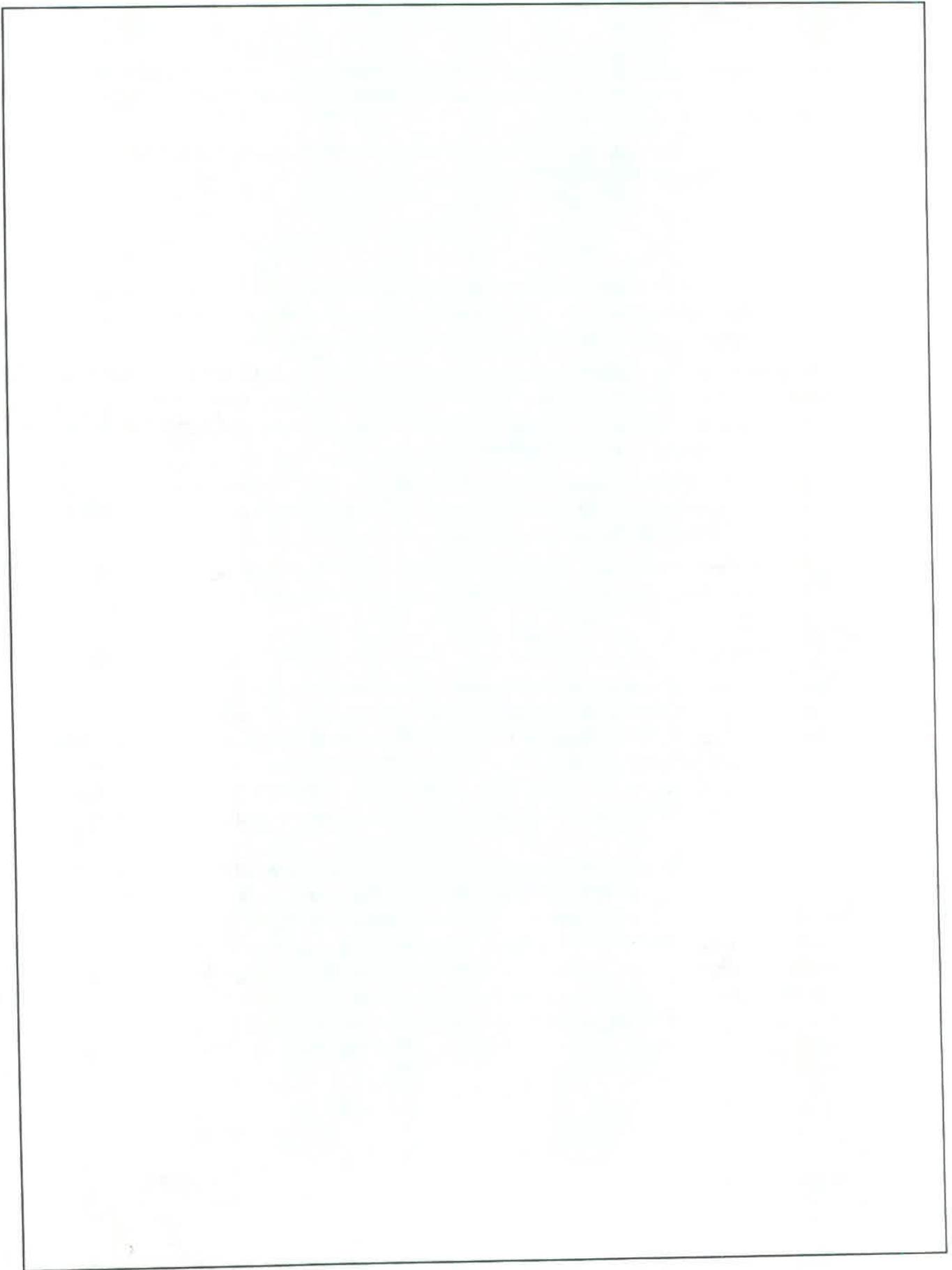
It is important that this study be evaluated for the degree to which it helps to advance trails and greenways in New Hampshire, in general and the degree to which specific goals are achieved. The following actions will be used to help evaluate this plan:

1. An annual report of Study accomplishments should be prepared with cooperation from the Trails Bureau and the Office of State Planning and presented to the Statewide Trails Advisory Committee. The report, if accepted by the Advisory Committee, would become the basis for a work plan for the next year.
2. One year from the date of approval of the Study, the State Recreation Planner should conduct a small survey of the identified plan tasks to determine the extent of implementation or whether any modification of the plan is required.
3. An identification and inventory update of existing trails that are brought up to standard, new town trails' committees are formed and miles of new trails constructed.

Conclusion

What is needed is a vision for the future of New Hampshire's trails system. Ongoing planning and funding are absolutely necessary, if the State desires a first rate trails system. It is widely acknowledged by many in the trails community that interests in trails across New Hampshire will continue to grow and as it does, existing resources will deteriorate without adequate planning, maintenance and financial assistance. The 1974 Trails Study acknowledged some of these same issues and therefore met its primary objective of examining the existing system.

The 1997 study provided some ideas for the future of trails in New Hampshire; however, a great amount of work remains to be done. Ultimately the decision makers must realize the State of New Hampshire derives great economic benefit from all types of trails both in terms of revenue and jobs. While motorized trails have a dedicated revenue source, others are inadequately funded. A way must be found to fund the planning, acquisition, construction and maintenance of trails whether it is through a conservation lottery, user fee or taxes. With a failure to undertake these initiatives, the State runs the risk of losing the economic benefits derived from trails. Our trails cannot be left to fend for themselves.



APPENDIX A

**NEW HAMPSHIRE STATEWIDE TRAILS
ADVISORY COMMITTEE**

MEMBERS	AFFILIATION
Tim Acerno Fish and Game Department 2 Hazen Drive Concord, NH 03301 271-3127	Fish & Game Dept.
Rep. Bill Boucher 190 Litchfield Road Londonderry, NH 03053 432-7293 LOB/3661	Elected Official
William S. Bartlett, Jr. Commissioner, DRED PO Box 1856 Concord, NH 03302 - 1856 271-3727	Department of Resources and Economic Development
Malcolm Chase NH Heritage Trails, Chairman Durham Point Road Durham, NH. 03824 868-2508	NH Heritage Trail
Carl Demrow Appalachian Mtn. Club PO Box 298, Rte 16 Gorham, NH 03581 466-2721	Hiking
Tom Dimaggio New England Sled Dog Club 42 North Road Candia, NH 03084 483-2677 (W) 622-1211	Sled Dogs
Terry Frost The Jimwintery Group 37 Clinton Street Concord, NH. 03301	Society for the Protection of New Hampshire Forests
Carl Gebhard 719 Main Street, Box 638 Laconia, NH 03247 628-8721	White Mtn. National Forest

Steve Gorham **Trails Writer**
 12 Grove Court
 Exeter, NH 03833
 778-2693

Paul Gray **Chief, Trails Bureau**
 NH Div. of Parks and Recreation
 Trails Bureau
 PO Box 1856
 Concord, NH 03302-1856

Mike Jenkins, Director
 Governors Commission on Disability
 57 Regional Drive
 Concord, NH 03301
 271-2773

Robert Jennings **4 X 4 Trucks**
 4 Seasons Mechanical Inc.
 PO Box 1621
 Hooksett, NH 03106-6121
 644-0377

Ed Kyle (Chair) **Department of Transportation (DOT)**
 Department of Transportation
 2 Hazen Drive
 Concord, NH 03301
 271-2693

Denis Laliberte **Educator**
 529-7629

Tom Levesque **Off Highway Motor Cycling**
 12 Bill Street
 Derry, NH 03038
 432-8049

Raymond Lobdell **Municipal Association**
 Planning Board, RFD 1 Box 50
 Landaff, NH 03585
 838-6880

Richard McLeod, Director **Department of Resources and
 Economic Development**
 NH State Parks
 Director Parks and Recreation
 PO Box 1856
 Concord, NH 03302-1856

Jim Mitchell **Eastern Mountain Sports**
 C/O EMS
 310 Daniel Webster Highway
 Nashua, NH 03060
 891-1180

Christopher (Kit) Morgan **Finn Posner
 Railroads - DOT**
 Department of Transportation
 Bureau of Rail and Public Transit
 91 Airport Road
 Concord, NH 03301
 271-2468

Reuben Rajala **Trails Program**
22 Mechanic Street
Gorham, NH 03581
466-5521

Bob Sammon **State Planning**
Office of State Planning
2 ½ Beacon Street
Concord, NH. 03301
271-2155

Joan Stratmeyer **Equestrian**
Winch Hill Road Box 489
Langdon, NH 03602
835-2423

John Summers **Equipment - Non Motorized**
Summers Back Country Sports
16 Ashuelot Street
Keene, NH 03431
352-0151

Rep. Arthur Tufts **Elected Official**
200 High Street
Exeter, NH 03038
772-3483

Vacant. **Bicycles**

Vacant. **Landowner**

Vacant. **Recreation Planner**

Paul Vahey **Snowmobile**
11 Grandview Road
Bow, NH 03304
224-8906

Rep. Mike Whalley **Elected Official**
Hooksett Kawasaki **Equipment - Motorized**
1354 D.W. Highway
Hooksett, NH 03106
668-4343

APPENDIX B

LIST OF ACRONYMS

AMA	American Motorcycle Association
AMC	Appalachian Mountain Club
ARTA	Ashuelot Rails-to-Trails
ATV	All Terrain Vehicles
CVRTC	Cotton Valley Rail-Trail Club
DOT	Department of Transportation
DRED	Department of Resources and Economic Development
FLHP	Federal Lands Highway Program
GPS	Global Positioning System
HB	House Bill
ISTEA	Intermodal Surface Transportation Act
LRDSC	Lakes Region Dog Sled Clubs
LWCF	Land and Water Conservation Fund Act
MOP	Metropolitan Planning Organization
NESDA	New England Dog Sled Association
NETRA	New England Trail Riders Association
NFCT	Northern Forest Canoe Trail
NHDOT	New Hampshire Department of Transportation
NPS	National Park Service
NRTF	National Recreational Trails Fund Act
OHRV	Off Highway Recreation Vehicle
ORCA	Outdoor Recreation Coalition of America
OSP	Office of State Planning
PSNH	Public Service of New Hampshire
RMC	Randolph Mountain Club
RSA	Revised Statutes Annotated
SCORP	State Comprehensive Outdoor Recreation Plan
STIP	Statewide Transportation Program
TEA	Transportation Enhancement Activities
TIP	Transportation Improvement Program
TRAC	Trails-Rails-Action-Committee
UFWDA	United Four-Wheel Drive Association
WMNF	White Mountain National Forest

APPENDIX C

BIKE RIDERS SURVEY and RESPONSES

1996 New Hampshire Trails Study
Department of Resources and Economic Development
Division of Parks and Recreation
Bureau of Trails
and
New Hampshire Office of State Planning

To better serve the growing number of Granite State Bicycle riders, The New Hampshire State wide Trails Advisory Committee, the Bureau of Trails and the Office of State Planning are studying the need for better bicycle facilities in the State. As part of this study, we are conducting a survey of bicycle riders to find out how many people are interested in a bike trail system in New Hampshire.

We need to hear from as many bicycle riders as possible, adults and young people, commuters and sports riders, experienced riders, and those "thinking about it." To help us obtain the information we need, please answer the questions carefully and return the survey to the Office of State Planning, 2 1/2 Beacon Street, Concord, New Hampshire 03301.

1. How many bicycles does your family own? **ANS. – AVERAGE 4 PER FAMILY**
2. _____ How old are the bicycle riders in your family?
3. Please list the start and finish of the most important bicycle trips your family or individual members of your family take in a week.

From: _____	To: _____	Miles: _____
From: _____	To: _____	Miles: _____
From: _____	To: _____	Miles: _____
From: _____	To: _____	Miles: _____
From: _____	To: _____	Miles: _____
4. Using 100% as a total, what per-cent of your family's bicycle riding is done on the days of: Sunday (____ %) Monday (____ %) Tuesday (____ %) Wednesday (____ %) Thursday (____ %) Friday (____ %) Saturday (____ %)
5. How does your family make the following trips? (by car, bus, bike, or walking)
 - A. Work: _____
 - B. School: _____
 - C. Shopping: _____
 - E. Ride with a group of friends: _____
 - F. Around the neighborhood: _____
 - G. Downtown: _____
 - H. Out in the country: _____
 - I. Just ride around: _____

6. Of the trips listed in number 5 above, which kind of trip is most frequently made by Bike? _____
 Second most frequent? _____
 Third most frequent? _____
7. The State of New Hampshire has a designated Statewide Bike Route System prepared by the NH Department of Transportation. In your opinion, which of the following items are necessary to improve the system? Please check:
- A. Marked routes through towns? **(51% or 79 responses)**
 - B. Marked routes along existing roads?
 - C. Wider road shoulders? **(46% or 72 responses)**
 - D. Separated routes along existing roads?
 - E. Special routes through state parks and forests?
 - F. Rest areas?
 - G. Overnight parking?
 - H. Camping facilities?
 - I. Parking facilities?
 - J. What other items are important to your family?
8. Of the items you checked in number 7 above, please list the three which are most important to you? (First -- **Marked routes**), (Second -- **Wider shoulders**), (Third -- **Other**)
9. If the items you listed in number 8 above were available to you, would you use your bike more often? **(82 answered yes and 74 gave no response)**
10. What are the three most important problems that you encounter when you are bike riding? **ANSWER:**
- (A. Bad drivers 50% or 78 responses)**
 - (B. Narrow shoulders 40% or 62 responses)**
 - (C. 10% other)**
11. Do you think a bicycle safety course should be taught through the school system or in another appropriate agency? **ANSWER:**
- (YES 145 or 93%)**
 - (NO 11 or 7%)**
12. Students — would you like to organize and run your own bicycle club? (Yes) (No)
(ANSWER: 118 non response, 9 responded no and 13 responded yes)
13. Parents — are you in favor of students organizing and running a club? (Yes) (No)
(ANSWER: 50% NO or 78 responses)
(40% YES or 62 responses)
(10% no responses)

APPENDIX D

1996 TRAIL STUDY SURVEY and RESPONSE SUMMARY

OFFICE OF STATE PLANNING
STATE OF NEW HAMPSHIRE
2 ½ BEACON STREET, CONCORD 03301
TELEPHONE: 603-271-2155
FAX: 603-271-1728

and

Department of Resources and Economic Development
Division of Parks and Recreation
Bureau of Trails

The Office of state planning and the Department of Resources and Economic Development, Division of Parks and Recreation, Bureau of Trails are requesting your assistance in gathering information for the updating of the Statewide Trails Study. The information you provide will further aid in the preparation of a new statewide trail study.

Please fill out the enclosed questionnaire and return it in the enclosed envelop by March 30, 1996 to the Office of State Planning, 2 ½ Beacon Street, Concord, N.H. 03301. Should you have any questions please contact Robert Sammon, OSP Outdoor Recreation Planner at 271-2155 or Robert Spoerl, Program Specialist, DRED, Trails Bureau at 271-3254. Please fill out one form for each trail mentioned. **RESPONSES ARE INDICATED BY BOLD LETTERS AND NUMBERS. A TOTAL OF 63 RESPONSES WERE RECEIVED.**

GENERAL INFORMATION

Organization Name and Address:

Number of Members in Organization:

77750 (includes AMC)

Questionnaire completed by:

Name:

Address:

Telephone Number:

TRAIL INFORMATION:

Trail name: _____

Trailhead location: _____

Maintained by: _____

Funding source(s): **Most answered (1) donations and (2) Grant-in-aid** _____

How many of the following have you had within the past three years? Please provide a quantifiable number:

- 10568** Positive comments about the trail
- 5505** Requests for information about a trail
- 7854** Volunteers
- 66** Complaints
- 20** Complaints from abutting landowners
- 32** Trail closures by landowners
- 23** Trail relocation problems
- 1320** Management problems (litter, fire, vandalism, water drainage, fallen trees, etc.)
- 62** Development encroachment
- 10** Other (please specify): **Unauthorized dirt bike use**
- _____ Have not had any problems

Please list any future development plans or problems of a general nature affecting this trail.

- (1) Constant maintenance of trail**
- (2) Mapped self-guide**

How many miles of this trail have been lost or relocated because of land use/ownership changes during the past three years? **18.5** Miles

Percentage of trail surface **80 avg.** % natural, **20 avg.** % manufactured (pavement, Blue Stone, etc.)

How is the trail marked?

- (1) Organization trail marks**
- (2) State Snowmobile signs**

Are there any significant facts about the trail's natural or cultural history? If you require additional space, please use the back of this form.

Part of many trails included old railroad track.

Trail Use Breakdown by Miles:

Note: Overlap of trail uses may cause these mileage figures to exceed the total miles of trail which your organization maintains.

Trail Use	On Public Lands			Protected Trail on Private Land	Trail Not Protected on Private Land
ATV/Four Wheel Drive		44.5	19.5		
Barrier Free		63.25	43.25	3	29.2
Bicycle	37	42.0	47	8	42
Cross-Country Ski	51	70	43	74.5	115.5
Equestrian	20	23	15	47.8	85
Hiking	377	105	78	112.5	171
Interpretive		1.4	8	38.6	25
Motorcycle		9.4	27.5	6	
Mountain Bicycle	55	67	14	61	65
Overnight				2	
Snowmobile	85	137	109	288.9	587
TOTAL	625	562.55	404.25	642.3	1119.7

MAINTENANCE ISSUES

Please estimate the overall condition of the trails maintained by your organization.

- Good: (Readily usable requires no repairs) **80% Avg.**
- Fair: (Passable, but requires no repairs) **15% Average**
- Poor: (Usable; however, requires extensive repairs) **5% average.**

What was your 1995 budget for trail maintenance \$ 330,910 , construction \$ 52,392

How many crew member workdays did you have in 1995 for trail maintenance 6890 and construction 1481 ? (one crew member for eight hours - one workday)

Volunteer Hours 35881

Paid Hours 20097

Please describe briefly any new trails opportunities your group is currently working on (mileage, trail significance, potential users, land ownership).

Trying to preserve the long term protection of trails.

APPENDIX E

New Hampshire Statewide Trails Study Trails Need Survey - June 1996 and Response Summary

Fifteen responses were received to this questionnaire. Some questions may have more than 15 answers. Total responses to each question are indicated in bold numbers

1. **TRAIL ACTIVITY: From the following list of trail activities, please indicate which one is most important to you and/or your group.**

Motorized		Non-Motorized	
All-terrain vehicles	1	Bicycle riding	3
Dune or trail buggies		Hiking	7
Four Wheel Drives		Horseback riding	
Trail Bikes	1	Ski touring	
Snowmobiles	3	Snowshoeing	
Other (specify) Minibike		Other (specify) Canoeing	

II. Trail Jurisdiction:

- A. For your most important trail activity, please rank the following in order of most frequent use.

Trail on private land **1**
 Trail on public land **7**
 Combination of **3**
 Don't Know **4**

- B. If a private trail is used most often, or is part of your trail, approximately how many individuals own land over which the trail goes? _____ Don't know. Do you have to pay for the use of any of this land? Yes _____ No _____. If yes, how much do you pay? \$ _____ Per _____.

- C. If a public trail or trail through public land, what level(s) of government have jurisdiction over the trail? Town 15, County 1, State 2, Don't know 1.

Is permission to use the trail required? (Yes) (No)

If required, is this permission granted (annually) (for each occasion)?

From what agency do you get this permission? _____

Do you have to pay for this trail use? (Yes) (No)

If yes, how much do you pay? \$ _____ Per _____

- D. Comments on trails jurisdiction in general: _____

III. TRIP LENGTH AND FREQUENCY: Indicate the average distance traveled and about how often you take the following trips:

- A. Half-day: Trip of **5 to 10** miles **one** times per **week. (13 respondents).**
- B. All-day: Trip of **10 to 25** miles **one** times per **week. (13 respondents).**
- C. Two-day: Trip of _____ miles _____ times per _____.
- D. Three-day: Trip of _____ miles _____ times per _____.
- E. 4-7 days: Trip of _____ miles _____ times per _____.
- F. A week +: Trip of _____ miles _____ times per _____.

IV. TRAIL ROUTING. When using a trail, which do you prefer?

- A. To go out and back on the same trail **3** or out on one and back on another **12** question
- B. A trail out to some particular place **12** or a trail which takes you back where you started **1** question
- C. The trail should start (indicate your preferences):
1. Within city/town **(2)**
 2. Close to city/town **(3)**
 3. In rural area **(2)**
 4. In forested area **(4)**
 5. In public park/forest **(2)**
 6. Other (specify) **(2)**
- D. The trail should go through (indicate your preference):
1. City/Town **()**
 2. Towns & rural areas **(5)**
 3. Rural area only **(1)**
 4. Rural and forests **(6)**
 5. Forested only **(1)**
 6. Wilderness **(7)**

- 7. Other
- 8. Combination of **(2)**

E. For the following, please check those items which are important for your use of a trail.

- 1. The trail should be close to: Home **(9)**, Public Transportation **(1)**, Public Lodging **()**, Public Camping **(5)**, Public dining **(3)**, Mechanical services **(1)**, Need other services/specify **()**, Wild Trails **(2)**
- 2. The following is preferred: Travel alone **(1)**, Travel with family **(10)**, Travel with friends **(6)**, Travel with club **(1)**, Meeting other people **(2)**, Avoiding other people **(3)**, Well-maintained trails **(9)**, Wilderness **(4)**, Open Spaces **(3)**, All **(1)**

F. Comments on trail routing: _____

V. GENERAL DESIGN REQUIREMENTS: In General, MOST COMMON ANSWERS

- A. What type of trail surface is best? **(Gravel & natural surface)**
- B. What is the best trail width? **(8 feet)**
- C. What is the maximum grade (or slope)? **(Gradual)**
- D. Please comment on other trail design requirements which are important.
(Provide for erosion control and easy footing).

VI. TRAIL FACILITIES: Indicate which types of facilities are important.

- A. At the trail head: On paved road **(2)**, Parking available **(13)**, Rest facilities **(9)**, Picnic facilities **(8)**, Camping facilities **(2)**, Lodging facilities **(1)**, Mechanical services **(1)**, Other/specify **()**.
- B. On the trail: Rest facilities **(7)**, Picnic facilities **(5)**, Camping facilities **(4)**, Comfort facilities **(7)**, Mechanical facilities **(1)**, Lodging facilities **(1)**, Other/good signage **(1)**.
- C. Comments on trail facilities.

VII Potential Trail: For each of the following possible parts of a multiple-use recreational trail system, rate excellent, good, fair, or poor according to their suitability for your trail _____ use.

- State highways: **(7 stated poor)**
- Town roads, paved; **(6 stated fair)**
- Town roads, gravel: **(4 stated fair)**
- Town roads, seasonal: **(4 stated good)**
- Town roads, discontinued: **(5 stated good)**
- Utility rights-of-way: **(4 stated good)**
- Abandoned railroad beds; **(7 stated excellent)**
- Abandoned logging roads: **(5 stated excellent)**
- Ski slopes: **(4 stated good)**
- Natural terrain: **(4 stated excellent)**
- Other/ specify ()

VIII. MULTIPLE USE. Referring to your most important use of a trail:

MOST COMMON ANSWERS

- A. What other activities are compatible with this use?
(Cross Country, Horseback Riding, Mtn. Bike, Walking, Jogging)
- B. What other trail activities conflict with this use?
(Motorized Vehicles)
- C. Comments on multiple use of trails.
(Should promote good health)

IX. TRAILS DEVELOPMENT.

- A. Are you in favor of designating separate trails, or sections of a trail, for specific users? **Yes (12) No (2)**
- B. Are you in favor of a "trail user permit" system?
Yes (4) No (11)

Comments on user permits:

- C. Are you in favor of establishing a fee for this permit?
Yes (4) (No 10)
- D. If a trails user fee system were established, rank the following uses of funds in your order of priority.
 - Trails acquisition **(6)**
 - Trails development **(2)**
 - Trails maintenance **(1)**
 - Trail markings **(3)**
 - Trail patrols **(5)**
 - Trails maps **(4)**

Trail descriptions **(7)**
Environmental ed. **(8)**
Other/specify **()**

Comments on use of funds: _____

X. THE FUTURE. Please comment on any aspect of the future development of a public multiple-use recreational trail system which you feel should be considered.

- Landowner cooperation**
- Establish exercise trails**
- Avoid conflicting trails use**

Trail User Group or Organization _____

Date _____

Please return to:

OFFICE OF STATE PLANNING, 2 ½ Beacon Street, Concord, NH. 03301

APPENDIX F

LIST OF MAJOR HIKING TRAILS*

<u>Trail Name, Location</u>	<u>Trailhead</u>	<u>Miles</u>	<u>Comments</u>
Adams Trail, Great Bay NERR	Near parking area	1.0	Easy
Air Line Trail, Randolph	Parking area	8.6	Difficult
Alpine Garden, Thompson Pur.	Mt. W. Auto Rd.	3.0	Easy
Ammonoosuc Ravine, Chandlers Pur.	Base Rd.	3.6	Difficult
Andrew Brook Trail, Newbury	Mountain Rd.	5.6	Moderate
Appalachian NST, Hanover	Wheelock St.	172.0*	Difficult
Arethusa Falls, Crawford Notch	Parking area	3.0	Moderate
Artists Bluff Path, Franconia Notch	Parking area	2.2	Moderate
Avalon Trail, Bretton Woods	US Rte. 302	3.6	Moderate
Bald Mountain, Willard Pond	Beyond cottage	2.3	Moderate
Basin Trail, Beans Purchase	Parking area	4.5*	Difficult
Basin - Cascades Trail, Franconia Notch	Parking area	2.0	Moderate
Beaver Brook Trail, No. Woodstock	NH Rte. 112	2.2	Moderate
Big Rock Cave Trail, Wonalancet	NH Rte.113A	3.2	Easy
Black Cap Path, No. Conway	Hurricane Mt. Rd.	2.3	Easy
Blue Job Mt. Trail, Strafford	1st Crown Pt. Rd.	1.0	Easy
Boulder Loop Trail, Passaconway	Dugway Rd.	3.1	Moderate
Brooks Trail, Urban Forestry Ctr.	Parking Area	2.0	Easy
Caps Ridge Tr., Thompson Pur.	Jefferson Notch Rd.	5.0	Difficult
Champney Falls Tr., Passaconway	NH 112	7.6	Moderate
Charles L. Pierce Res., Stoddard	NH 123	5.2	Moderate
Cherry Mt. Tr., Carroll	NH 115	5.3*	Moderate
Chippewa Tr., E. Haverhill	Lime Kiln Rd	3.6	Moderate
Coppermine Tr., Franconia	NH 116	3.5	Moderate
Crotched Mt. Tr., Greenfield	Crotched Mt. Rd.	3.5	Easy
Davis Path, Harts Location	US 302	15*	Moderate
Devils Hop Yard, Stark	S. Pond Rec Area	2.6	Moderate
Diamond Peaks, 2nd College Grant	Near Dartmouth Col. Mgt. Ctr.	2.2	Moderate
Diceys Mill Tr., Wonalancet	Ferncroft Rd.	9.2	Moderate
East Pond Tr., Livermore	Tripoli Rd.	2.8	Moderate
Ethan Pond Tr., Crawford Notch	Willey House Station	5.0	Moderate

Falling Waters Tr., Franconia Notch	Parking area	6.4	Difficult
Forest Ecology Tr., J. Hay Refuge	Parking Area	1.8	Easy
Gap Mt. Tr., Troy	Quarry Rd.	2.3	Moderate
Georgiana Falls Path, Lincoln	Hansom Farm Rd.	2.5	Moderate
Glen Boulder Tr., Pinhams Grant	Glen Ellis Falls Picnic Area	3.2	Difficult
Glencliff Tr., Glencliff	Sanatorium Rd.	7.8	Moderate
Great Gulf Tr., Greens Grant	NH 112	7.8*	Difficult
Great Turkey Pond Tr., Silk Farm	Silk Farm Rd.	0.8	Easy
Greeley Ponds Tr., Livermore	Livermore Rd.	5.4*	Moderate
Greenleaf Tr., Franconia Notch	Parking Area	7.6	Moderate
Guinea Pond/Black Mt. Tr., Ctr. Sandwich	Sandwich Notch Rd.	8.0	Moderate
Hale Brook Tr., twin Mt.	Zealand Rd.	4.4	Moderate
Hay Reservation, Newbury	NH 103A	5.0	Moderate
Heald Tract, Wilton & Temple	King Brook Rd.	6.4	Moderate
Imp Tr. Loop, Martins Location	NH 16	7.8	Moderate
Indian Arrow Tr., Surry	NH 12N	1.9	Moderate
Kedron Flume Tr., Crawford Notch	US 302	2.0	Easy
Kilburn Loop, Pisgah State Park	Parking area	5.4	Easy
Kilkenny Ridge/Starr King Trs., Stark	S. Pond Rec Area	24.2*	Difficult
Kinsman Ridge Trs, N. Woodstock	NH 112	8.5*	Difficult
Les Clark Nature Tr., Concord	Portsmouth St.	3.0	Moderate
Liberty Tr., Paugus Mill	Parking area	8.0	Moderate
Lonesome Lake Tr., Franconia Notch	Parking area	3.3	Moderate
Madame Sherri Forest, Chesterfield	Gulf Rd.	1.2	Moderate
Magalloway Mt. Tr., Pittsburg	End of fire Rd	1.6	Moderate
Mahoosuc Tr., Gorham	East end of dam	31.6*	Difficult
Manning Tr., Alexandria	Shem Valley Rd.	9.2	Moderate
McCabe Forest Tr., Antrim	US 202	2.5	Moderate
Moat Mt. Tr., Conway	Dugway Rd.	9.2*	Difficult
Monadnock-Sunapee Greenway Trail, Jaffrey	Mt. Monadnock	49.1	Difficult
Morgan/Percival Loop, Holderness	NH 113	5.8*	Moderate
Mt. Major Tr., Alton	NH 11	3.0	Moderate
Mt. Osceola Tr., Livermore	Tripoli Rd.	6.4	Moderate
Mt. Pemigewasset Tr., Franconia Notch	Parking area	3.6	Moderate
Mt. Willard Tr., Bretton Woods	US 302	3.2	Moderate
Nancy Pond Tr., Harts Location	US 302	8.6	Moderate
North Peak Tr., Goffstown	Mountain Rd.	1.5	Moderate

North Trail, Kearsage	Hurricane Mt. Rd.	6.2	Moderate
Odiorne Point Tr., State Park	Parking area	2.0	Easy
Old Bridle Path Tr., Holderness	NH 113	1.8	Easy
Percy Peaks Tr., Stratford	Nash Stream	4.4	Moderate
Plymouth Mt. Tr., Hebron	Pike Hill Rd.	5.8	Moderate
Pumpelly Tr., Dublin	Lake Rd.	9.0	Difficult
Red Hill Tr., Center Harbor	Sibley Rd.	3.4	Moderate
Red Tr., Gilford	Parking area	1.5	Easy
Ridge Tr., Fox State Park	Parking area	4.3	Moderate
Ridge/Lakeside Trail, Nature Ctr.	Beyond parking area	1.0	Easy
Rock Woodlands Tr., Bethlehem	US 302 E	1.8	Moderate
Rocky Ridge Tr., Wildlife Sanctuary	Parking area	1.5	Easy
Rollins Tr., Rollins State Park	Parking area	1.2	Moderate
Sandy Point Trail, Great Bay	Discovery Ctr	0.5	Easy
Sabbaday Falls Tr., Waterville Valley	Picnic area	1.0	Easy
Sandwich Mt. Tr., Waterville Valley	NH. 49	7.8	Moderate
Signal Ridge, Livermore	Sawyer River Rd.	10.0	Moderate
Skookumchuck Tr., Franconia	US 3	10.0	Moderate
Stinson Mt. Tr., Rumney	Doetown Rd.	3.6	Moderate
Sugarloaf Tr., Stratford	Nash Stream Rd.	4.2	Moderate
Table Rock Tr., Dixville	NH. 26	1.5	Moderate
Trout-n-Bacon Tr., Pierce Wildlife	Old Antrim Rd.	11.0	Moderate
Tuckerman Ravine, Pinkhams Grant	Notch Visitor Ctr.	8.4	Difficult
UNH Tr., Passaconway	Parking Area	4.8	Difficult
Unknown Pond Tr., Berlin	York Pond Rd.	6.3*	Difficult
Valley Way Tr., Randolph	Parking area	8.4	Difficult
Wapack Tr., Miler State Park	Parking area	5.5*	Moderate
Wapack Tr., Ashburnham, Ma.	Ma. 119	21.6*	Difficult
Weeks Woods Tr., Gilford	NH 11A	1.3	Easy
Webster Cliff Tr., Crawford Notch	US 302	6.6	Difficult
Webster-Jackson Tr., Bretton Woods	US 302	6.5	Moderate
Wentworth Tr., Ctr. Sandwich	Smith Rd.	4.2	Moderate
West Ridge Tr., Cardigan State Park	Parking area	3.0	Moderate
Winslow Tr., Winslow State Park	Parking area	2.2	Moderate

* Asterisk indicates one way

* Source: New Hampshire Atlas & Gazetteer, 10th Edition, 1996. Delorme. P. 16

APPENDIX G

NORDIC SKIING CENTERS

Name and Location Trail lengths in miles

Balsams Wilderness, Dixville Notch	47
Bretton Woods, Bretton Woods.	56
Eastman Ski Touring Ctr., N. Grantham	19
Great Glen Trails, Martins Location	32
Gunstock, Gilford	32
East Hill Farm Troy.	9
Jackson Ski Touring Foundation, Jackson.	96
King Pine, E. Madison	12
Loon Mt., Lincoln	22
Mt. Washington Valley Ski Touring, N. Conway	37
Nordic Skier, Wolfeboro	12
Norsk, New London	53
Steele Hill Resort Ski Touring, Sanbornton.	7
Temple Mt., Peterborough	25
Waterville Valley, Waterville Valley	65
Windblown, New Ipswich	25
Woodbound Inn, Jaffrey	9

APPENDIX H

SELECTED BICYCLE TOURS

Location	Distance	Comments
Alstead-Marlow	27.5	Difficult
Canaan- Newfound Lake	54.7	Difficult
Chichester-Loudon	24.1	Easy-Moderate
Concord-Hopkinton	14.2	Easy
Crotched Mountain-Colby Hill.	50.5	Moderate 2-days
Dixville Notch Century	105.7	Difficult 2/3 days
Dunbarton-Goffstown	23.0	Moderate
Exeter-Massachusetts	28.5	Easy
Gilmanton Triangle	16.2	Moderate-Difficult
Grand Groveton Gambol	57.5	Easy -Moderate
Greenville-New Ipswich.	28.1	Difficult
Hancock-Peterborough-Harrisville.	27.2	Moderate
Hanover-Orford.	36.8	Moderate
International Century	108.0	Easy-Moderate
Jaffrey-Fitzwilliam.	20.6	Moderate
Lake Sunapee Loop	23.5	Difficult
Litchfield-Londonderry.	17.5	Easy-Moderate
New Hampshire-Maine	30.0	Easy
New London Lakes	24.1	Moderate
North Conway Bear Notch.	38.6	Moderate-difficult
Nottingham-Epping	27.0	Moderate
Pierce Homestead	19.8	Moderate
Portsmouth-Little Boars Head	33.0	Easy
Potter Place-Lake Mascoma	57.0	Difficult
Shaker Village-McAuliffe Planetarium	25.3	Moderate
Sugar Hill	15.0	Moderate
Surry Mtn. - Gilsum.	22.5	Moderate
Swanzey-Covered Bridges	18.3	Easy
Tamworth-North Sandwich	23.2	Moderate
Tri-Stater-Hinsdale.	31.5	Easy to moderate
White Mountains Meander	29.7	Easy-Moderate
Wolfeboro-Ossipee	38.4	Moderate

APPENDIX I

POTENTIAL WATER TRAILS IN NEW HAMPSHIRE

Watershed/Stream/(area)	Location	Approximate miles on stream
ANDROSCOGGIN RIVER	Umbagog to Berlin	35
	Berlin to Maine Border	13
PISCATAQUA RIVER (Southern Area)		
Salmon Falls River	Great East Lake - Wakefield to Piscataqua at Dover	25
Piscataqua River	Dover through Great Bay to Atlantic Ocean	11
Coheco River	Farmington to Dover	25
Isinglass River	Strafford to Dover	16
Bellamy River	Madbury to Dover	10
Oyster River	Lee to Durham	7
Lamprey River	Deerfield to Newmarket	39
Piscassic River	Epping to New Market	13
North River	Nottingham to Lee	8
Exeter (Squamscott) River	Sandown to Newfields-Greenland	40
Winnicut River	Hampton	7
CONNECTICUT RIVER (Northern and Southwestern Area)		
Connecticut	West Stewartstown to Mass. Line At Mass line at Hinsdale, N.H. -- Northfield, Mass.	237
Ashuelot	Ashuelot Pond (Washington) to Hinsdale	52
Ashuelot, South Branch	Troy to Swanzey	9
Otter Brook	Stoddard to Keene	9
Cold Brook	Acworth to Walpole	12
Little Sugar River	Unity to Charlestown	12
Sugar River	Sunapee to W. Claremont	25
Sugar River, S. Branch	Goshen to Newport	6
Mascoma River	Canaan to West Lebanon	19
Ammonoosuc River	Bretton Woods to Woodsville	47
Gale River	Franconia	3

Johns River	Whitefield	6
Israel River	Jefferson to Lancaster	12
Upper Ammonoosuc River	Milan to Groveton	30
Nash Stream	Stratford	10
Phillips Brook	Stark	8
South Pond & Brook	Stark	3
Mohawk River	Colebrook	8
Halls Stream	Pittsburg	33
Indian Stream	Pittsburg	15
Perry Stream	Pittsburg	6
MERRIMACK RIVER (In all three areas)		
Merrimack River	Franklin to Mass. Line at Lowell	78
Powwow River	Kingston to Mass. Line at Amesbury	10
Little River	Plaistow to Mass. Line at Haverhill	3
Spicket River	Hampstead to Mass. Line at Methuen	10
Beaver Brook	Derry to Mass. Line at Pelham-Lowell	20
Salmon Brook	Mass. Line at Groton to Nashua	8
Nashua River	Hollis to Nashua	17
Nissitissit River	Brookline to Hollis	4
Souhegan River	Greenville to Merrimack	28
Stone Brook	Lyndeboro to Wilton	3
Cohas Brook	Auburn to Goffs Falls (Manchester)	10
Piscataquog River	Goffstown to Manchester	9
Piscataquog River, North Branch	Weare to Goffstown	14
Piscataquog River, South Branch	Francestown to Goffstown	15
Suncook River	Gilmanton to Allenstown	29
Suncook River	Loudon to Allenstown	23
Turkey River	Concord	2
Contoocook River	Jaffrey to Penacook	64
Contoocook River, North Branch	Hillsboro	1½
Nubanusit Brook	Harrisville to Peterborough	6
Beards Brook	Hillsboro	2½
Warner River	Bradford to Hopkinton	21
Blackwater River	Wilmot to Hopkinton	29
Winnepesaukee River	Lake Winnepesaukee to Franklin	21
Pemigewasset River	Franconia to Franklin	72
Smith River	Grafton to Bristol	22
Newfound River	Bristol	3

Fowler River	Alexandria	2
Cockermouth River	Dorchester to Hebron	3
Squam River	Holderness	5
Baker River	Warren to Plymouth	28
Mad River	Waterville Valley to Compton	10
Pemigewasset, E. Branch	Lincoln	6

SACO RIVER(Northern Area)

Saco River	Crawford Notch to Maine State line at Conway	39
Ossipee River	Freedom-Effingham	11
Lovell River	Ossipee	1
Pine River	Wakefield to Ossipee	16
Beech River	Ossipee	8
Silver River	Madison to Ossipee	7
Bearcamp River	Sandwich to Ossipee	16
Chocorua	Tamworth to Ossipee	6
Swift River	Albany to Conway	17
Ellis River	Jackson to Bartlett	4½

COASTAL RIVERS (Southeastern Area)

Blackwater River	Seabrook to Hampton Marshes	13
Browns River	Seabrook to Hampton Marshes	3
Hampton River	Hampton Falls to Hampton Marshes	7
Hampton Falls River	Hampton Falls to Hampton Marshes	5
Nilus Brook-Tide Mill Creek	Hampton to Hampton Marches	4
Little River	Hampton	3

BIBLIOGRAPHY

- AMC River Guide. Vol.2. Central and Southern New England 1978.
- American Motorcyclist Association. 1994. Off-Highway Motorcycle and ATV Trails: Guidelines for Design, Construction, Maintenance and User satisfaction. 2nd Edition. Joe We-mex.
- American Hiking Society. 1991. Membership Survey.
- Appalachian Mountain Club. 1981 Second Edition. Field Guide to Trail Building and Maintenance.
- Arkansas Department of Parks and Tourism. 1986. Statewide Trails Plan.
- Ashuelot Rails to Trails Association. 1996. Survey of Abutters and Users of Proposed Multi-use Trail on Ashuelot Branch Rail Line.
- Assessment of Snowmobiling in New Hampshire "1996" Summary and Recommendations. Robert A. Robertson, Ph.D. Tourism Planning and Development Program, Resource Administration and Management Program. Department of Resource Economics and Development. University of New Hampshire, Durham, New Hampshire. August, 1996.
- Brookshire, David S. And V. Kerry Smith. 1987. "Measuring Recreation Benefits: Conceptual and Empirical Issues." Water Resources Research 23.
- Colorado Division of Parks and Outdoor Recreation. 1992. State Recreational Trails Master Plan.
- Colorado Division of Parks and Outdoor Recreation. 1985. State Recreational Trails Master Plan Non-Motorized.
- Della Penna, Craig P. 1995. Great Rail-Trails of the Northeast: The Essential Guide to 26 Recreational -Biking Trails. New England Cartographics.
- Department of Leisure Management and Tourism, University of New Hampshire. 1989. A Directory of New Hampshire Walking Clubs.
- Douglas, Aaron J. 1988. Annotated Bibliography of Economic Literature on Instream Flows. Washington, D.C.: US Department of Interior, Fish and Wildlife Service, Research and Development. Biological Report
- Hultsman, John. et. al. Planning Parks For People. Venture Publishing, Inc. State College, Pennsylvania. 1987.
- Idaho State Parks and Recreation. 1993. Idaho Trails Plan.
- Interagency Committee for Outdoor Recreation. 1991. Washington State Trails Plan: Policy and Action Document.
- Loomis, John. 1987. "Economic Value of Instream Flow: Methodology and Benefit Estimates for Optimum Flows." Journal of Environmental Management (24): 169-179.

- Loomis, John. et. al. 1986. "Economic Losses to Recreational Fisheries Due to Small-Head Hydro-Power Development: A Case Study of the Henry's Fork in Idaho." *Journal of Environmental Management* (22): 85-94.
- National Park Service. 1992 Third Edition. *Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors: A Resource Book*.
- National Park Service. 1986. *National Trails Assessment*.
- National Park Service and the Appalachian Mountain Club. 1991. *Trails Today: A Heritage At Risk - a Report of the First-Ever Comprehensive New/York New England Trails Inventory*.
- New Hampshire Office of Comprehensive Planning. 1974. *New Hampshire Statewide Trails Study*.
- New Hampshire Department of Transportation. 1995. *New Hampshire Statewide Bicycle and Pedestrian Plan*.
- New Hampshire Department of Transportation. 1991. *Amendment to the New Hampshire State Rail Plan*.
- Office of Parks, Recreation and Historic Preservation, State of New York. 1994 *New York Statewide Trails Plan*.
- United States Department of Agriculture, Forest Service. *Land and Resources Management Plan*. 1986.
- Vermont Department of Forests, Parks and Recreation. 1988. *Vermont Recreation Plan*.