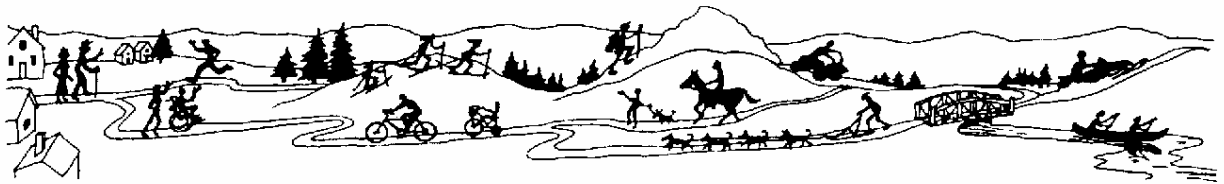


Vermont Trails and Greenways Manual



Prepared by the
Vermont Trails and Greenways Council
September, 2005

This Manual was produced with funding from the Vermont Recreational Trails Fund, and is the result of a collaborative effort of the membership of the *Vermont Trails and Greenways Council*.

Many individuals contributed their time and expertise to this manual, but the following people were particularly instrumental in getting this project completed:

Manual Writer: Lucy Gibson, Smart Mobility Inc., Norwich, Vermont

Project Coordinator: Beth Ann Finlay, Northern Vermont Resource Conservation and Development Council

Grant Administration: Sherry Smecker, Becca Brown and Tiffany Shaw, Recreational Grants Program, Vermont Department of Forests, Parks and Recreation

Trails and Greenways Manual Committee:

Jennifer Waite, National Park Service Rivers and Trails Program

Amy Bell, Vermont Agency of Transportation Bicycle and Pedestrian Coordinator

Steve Ovenden, Windham Regional Commission

Jen Lamphere, Northern Forest Canoe Trail

Luke O'Brien, North Woods Stewardship Center

Alexis Norwalk, Vermont Association of Snow Travelers

Todd Scheinfeld, Vermont All Terrain Vehicle Sportsman's Association, Inc

Lenore Budd, Catamount Trail Association

David Hooke, Rivendell Trail Association

TABLE OF CONTENTS

Welcome to the Vermont Trails and Greenways Manual.....	iii
The Vermont Trails and Greenways Council.....	iii
Vermont's Vision for Trails and Greenways.....	iii
About This Manual.....	iv
Chapter One: Introduction to Vermont Trails and Greenways	1
Vermont's Growing Trail Network.....	1
Trail and Greenway Resources.....	5
Chapter Two: Planning for Trails and Greenways in Vermont.....	7
Vermont's Planning Environment.....	7
Planning for Trails at the Town Level.....	7
Planning for a Specific Trail Corridor.....	9
Planning Resources	15
Chapter Three: Landowner and Public Outreach.....	17
Landowner Contact and Relations.....	17
Getting the Word Out to the Community.....	19
Landowner Resources.....	22
Chapter Four: Inventory and Mapping.....	27
Create a Town Trail Planning Base Map.....	27
Detailed Inventory Data for a Trail Corridor.....	31
Using your Maps.....	31
Inventory and Mapping Resources	31
Chapter Five: Trail Layout and Design.....	33
Who will Use the Trail?	33
Trail Layout	34
Design	36
Trail Layout and Design Resources	40
Chapter Six: Land Protection and Acquisition Techniques.....	41
Land Acquisition Techniques	41
Considerations about Trails and Liability	43
Summary of Land Acquisition Options	44
Land Acquisition and Protection Resources	45
Chapter Seven: The Permit Process.....	47
Levels of Permits and Jurisdiction	47
How to get started.....	48
Permitting Resources for State and Federal Funded Projects	51

Table of Contents, Continued

Chapter Eight: Trail Construction.....	55
Construction Options.....	55
What to Expect During Construction.....	56
Getting the Best Results.....	56
Construction Drawings.....	56
Putting Jobs Out To Bid.....	57
Working with Contractors.....	57
Basic Backcountry Trail Construction Techniques.....	58
Trail Construction Resources.....	59
Chapter Nine: Fundraising and Spending Money.....	61
Funding Assistance Programs.....	61
Funding for Trail Maintenance and Management.....	64
Fundraising Resources.....	64
Chapter Ten: Trail Management, Maintenance and Stewardship.....	65
Set Management Goals.....	65
Insurance.....	65
Trail Promotion and Publicity.....	66
Trail Maintenance.....	67
Maintaining a Workforce.....	68
Community Relations.....	68
Landowner Relations.....	69
Crime and Vandalism.....	69
Trail Accessibility.....	69
Maintaining Your Trail Vision.....	70
Trail Management, Maintenance and Stewardship Resources.....	70
Chapter Eleven: Working with Volunteers.....	71
Volunteer Resources.....	72

Welcome to the Vermont Trails and Greenways Manual

This manual, a publication of the Vermont Trails and Greenways Council, is intended to help trail groups, town trail or recreation committees, town planners, land trusts, conservation groups, and others interested in preserving, planning, maintaining, or establishing trails in their community. It takes many people working together to organize and build a trail, as well as to create the broad base of support needed to gain community acceptance, and to maintain the trail once it is completed. All stages of trail work, from the general planning and visioning to the maintenance of a completed trail, are discussed in this manual. We hope that this manual will provide a resource for interested Vermonters to help fulfill this mission.

The Vermont Trails and Greenways Council

The Vermont Trails and Greenways Council has a mission of ensuring that people will always have access to adequate land and water based trails and greenways. The actions of the Trail and Greenway Council are to:

- plan for the future of Vermont's recreational activities,
- promote the development and maintenance of trails,
- coordinate public and private trail efforts,
- encourage education programs, and
- recommend allocation of funds for Vermont's trail funding programs.

The Vermont Trails and Greenways Council receives staff support for the Department of Forests, Parks and Recreation of the Vermont Agency of Natural Resources, and has a close working relationship with the agency, although we are an independent non-profit membership organization. The Trails & Greenways Council serves an important role in Vermont's recreational community, and we welcome anyone who has an interest in the development, protection, or maintenance of trails or greenways to join as a member.

Vermont's Vision for Trails and Greenways

The vision held by the Trails and Greenways Council is a well-mapped network of trails and greenways throughout the State of Vermont that will provide recreation opportunities for all types of trail users, preserve wildlife habitat, help protect water quality, link schools, places of work, parks and neighborhoods with safe, traffic-free routes; link and protect natural and cultural resources, promote economic development, and create open space for all to enjoy.

The trails and greenways in this network will, insofar as possible, originate within 15 minutes or closer to where most Vermonters live. Types of trail experiences will vary from high-elevation hikes to roadside bike paths, from water trails for paddlers to snowmobile trails or country walks through farmland. All trails and greenways will be maintained, and new trails and greenways located and

developed according to high standards which emphasize the safety of the user and, where practical, accommodate multiple uses. Adequate public information and signage will be provided to help locate and use the system. A well-organized and funded infrastructure will be in place to support trails and greenways, and it will include the cooperative efforts of statewide and local user groups; local, state and federal governments; and landowners.

About This Manual

This manual was written to provide communities and groups with basic practical information to guide them through the process of establishing trails in their community, and provide direction to organizations and resources for further information. This manual is not intended to be a comprehensive detailed how-to volume; rather it provides an overview of the various tasks you will be undertaking to develop a trail, and points you toward the many highly valuable technical books, resources, and organizations that will help you with the details.

TRAILSTEPS

WHAT DO YOU LOOK FOR IN CREATING A TRAIL?

In general, look for the special places and features that define your town or region, and give it its distinctive identity.

1. Anchors

- Destinations, places people want to go or start from (parks, historic and cultural sites, scenic viewpoints, shopping areas or downtowns, schools and playgrounds, workplaces, neighborhoods)
- Places you'd like to see people go to more often (historic and cultural features, downtowns being revitalized, riverfront being reclaimed for public use)

2. Linkages

- Corridors that lead from place to place (trails, paths, roads, sidewalks, railroad beds, stream and river corridors, utility corridors, valleys and ridgelines)

GENERAL STEPS IN CREATING A TRAIL

A. Identify the resources that relate to your vision.

- Go out and walk, drive around and take a look. Take people with you and talk about the possibilities. Take pictures. Look at maps.

B. Identify issues affecting those resources.

- Talk to people: landowners, leaders of community groups, business people, local officials.
- Ask questions: why do you want a trail? for recreation? a safe alternative to a busy road? to promote tourism? to create and protect greenways?

C. Set goals.

- Sketch and/or write down a concept plan that includes clear goals that respond to the issues.

D. Consider alternatives.

- Mark up some maps, show them to people, address the issues that they raise. Change your maps. Develop a workable alternative. Maps may include topography, property ownership, zoning maps, etc.

E. Decide on specific actions.

- Develop a brochure to promote the trail idea. Organize an event along the proposed trail, or a hands-on trail project. Work with trail groups, public agencies, and landowners to create a trail development and management plan.

GENERAL ADVICE

Focus on active tasks - Aim for early accomplishments - Establish credibility - Share credit generously - Have fun

Remember why you're doing it: Trails are for people.

Chapter One: Introduction to Vermont Trails and Greenways

Our communities' trails and greenways should be considered as important parts of our infrastructure, on par with other public infrastructure such as roads, schools and wastewater treatment systems. Trails and greenways are our *Green Infrastructure*, and need to be planned, built, maintained and managed with the same deliberate intent and adequate funding levels as other components of our infrastructure. Trails are also part of our communities' "social capital", assets that provide an opportunity for social interaction with our neighbors, and to work together for common goals. Trails and greenways may become more challenging to build in the future, as growth occurs and land continues to be subdivided. At the same time, demand for trails is likely to increase, with our growing population and growing popularity of trail-based recreation. The work of Vermonters to develop, manage, maintain and fund trails is of tremendous value, and will leave a wonderful legacy of healthy and vibrant communities.

When you start planning your trail, you are joining a growing community of active people who care about their towns, their children, their neighbors, and their health. Trails can bring to your community:

- sense of community accomplishment
- opportunity for more social interaction
- improved recreation opportunities
- improved bicycle and pedestrian transportation and safety
- economic benefits to the community
- educational opportunities as an outdoor classroom
- health and fitness benefits
- opportunity to enhance our appreciation of our natural and cultural resources

Vermont's Growing Trail Network

Numerous towns and trail organizations have been working successfully with the State of Vermont Agencies of Natural Resources and Transportation, private landowners, regional planning commissions, and others to establish a growing network of trails in our state. Together we have made substantial progress toward the vision of the Trails and Greenway Council. The Vermont Agency of Transportation (VTrans) is a leader among state transportation agencies in taking advantage of the increasing flexibility of transportation funds, and devoting a significant share of state and federal funds towards bicycle and pedestrian projects. The Vermont Agency of Natural Resources (ANR) provides funding and support through several popular trail grant programs that have helped a multitude of towns and trail groups throughout the state build trail projects of all kinds. Vermont has several youth corps programs that have worked on trail projects across the state. These are just a few of the resources that are available for trail projects.

Some of the types of trails that form Vermont's trail network are described below. As you begin thinking about trails in your own community, this might help organize your ideas about what types of trails are needed and would be supported in your community, and how trails in your community could be linked to form a local or regional trail network.

Shared Use Paths-These multi-use paths (sometimes referred to as recreation paths or bicycle paths) serve a multitude of purposes such as exercise, recreation, and transportation. These trails are generally designed to be usable and accessible by people of varying levels of agility and ability. They are typically paved or have a firm, smooth gravel surface. Some examples of community recreation and transportation paths in Vermont include the Burlington Bikeway, Toonerville Trail in Springfield, the Mississquoi Valley Rail Trail in Franklin County, and the Stowe Recreation Path. Some of these paths are components of regional trail plans that should eventually link many communities together and provide a unique long distance recreation opportunity. Shared-use paths often form the backbone of a community network, as they can be enjoyed by so many people, and can include side trails connecting users to specific destinations.



Toonerville Trail Grand Opening, Springfield, Vermont
Credit: Jennifer Waite

Mountain Bike Trails-Mountain biking has become very popular in Vermont, and trails can be established with narrower footprints and steeper grades than more conventional bicycle paths. Many communities already have an excellent network of class 3 and 4 roads that are used for mountain biking, and new trails are being established. Kingdom Trails in the Burke area has developed an outstanding regional network of mountain bike trails.

Hiking or Backcountry Trails-With the Long Trail and Appalachian Trail in Vermont, there is already a tradition and experience with hiking trails on our spectacular mountains. Hiking continues to be a very popular pastime, and hiking trail networks need constant maintenance, re-routing, and new trails to ease the overcrowded trails.

Cross Country Ski Trails -Vermont has a numerous trails offering backcountry skiing experience, including the end-to-end Catamount Trail. These trails may or may not be co-located with hiking or other non-winter use trails.

Water Trails-Paddling sports are among the fastest growing outdoor activity, and Vermont is ranked third in the nation in terms of participation rates. Providing and preserving public access to water is increasingly important. Several water trails have been established to provide a trail



Paddlers on the Missisquoi River Section of the Northern Forest Canoe Trail.

Credit: Jen Lamphere

experience on our public waterways, including the Northern Forest Canoe Trail, the Connecticut River Canoe Paddlers Trail (VT and NH), and the Lake Champlain Paddlers Trail. These types of trails generally have smaller land requirements than land-based trails, limited to portage trails, water access points, and campsites.

Interpretive Trails-Some trails primarily exist to provide access to interesting historic or unique natural features, and provide interpretive information about these special places. They contribute to Vermont's offerings for "heritage tourism", which is an increasingly important part of the Vermont tourist economy, where visitors come to the state to learn and experience our

history and environment. A few examples include the Robert Frost Interpretive Trail, Connecticut River Birding Trail or Lake Champlain Basin Trails.

Snowmobile Trails-The Vermont Association of Snow Travelers (VAST) maintains an extensive network of snowmobile trails on both public and private lands.

All Terrain Vehicle (ATV)

Trails-ATV recreation is growing in popularity, and offers access to the outdoors for many people who either cannot or do not wish to walk or ride a bicycle in order to enjoy the outdoors. ATV riders often rely on town rights-of-way, as well as public and private trails.



VAST Trail along the Deerfield River.

Credit: Alexis Norwalk

Vermont has also seen many regional trail networks and long distance trail concepts develop. Some of these trails are already well established, and others are being implemented piece by piece.

Regional Trail Networks -A number of groups have become organized to develop regional trails or trail networks. These groups can provide support and an overall vision with the towns where trail planning is active. Communities in or near these trail organizations will benefit from having the organization and guidance that these groups can provide, and will be able to link their trails to a wider network. A list of regional trail organizations is provided in the reference section at the end of this chapter.

Statewide Long Distance Trails-The Catamount Trail, Long Trail, Appalachian Trail, and Cross Vermont Trail are long distance trails. The Long Trail is the oldest long-distance hiking trail in the

United States, and both it and the Appalachian Trail have rich histories, and are managed and maintained by well established membership organizations. The Cross Vermont Trail (shared use, varying types of facilities) and Catamount Trail (cross country skiing) are newer, but each have tremendous appeal, and have made significant progress. Communities along these long distance routes have an opportunity to connect their local trails to destinations far beyond their town.

Bicycle Routes and Networks-Vermont has a very active bicycling community, with riders ranging from bicycle tourists to children riding to school to experienced fitness riders. The Vermont Agency of Transportation (VTrans) has a very successful Bicycle and Pedestrian program, which has been active in helping numerous communities plan and build bicycle facilities ranging from roadside routes on shoulders to separate shared use paths. Vermont's regional planning commissions have been developing regional bicycle and pedestrian transportation plans in partnership with VTrans, which can provide useful information about local and regional needs, priorities and policies for bicycle transportation. Contact information for these agencies is provided in the reference section at the end of Chapter 2.

Conservation Greenways-These are natural corridors that are established to promote both environmental conservation and trails. These "linear parks" often follow natural corridors such as ridges or waterways, or link conserved areas together in a network. Establishing a greenway can allow a community to meet combined objectives of conservation, recreation, public access to special places, and alternative transportation (i.e. bicycling) corridors. Combining land conservation with trail development can broaden the appeal of your efforts, and bring in more members of your community to help. There are a number of active land trusts and conservation groups that you can contact to learn about conservation projects in your community, and how you may want to combine conservation priorities with trail network planning. The Chittenden Greenways concept plan has spawned many interconnected community paths and conservation corridors over the past ten years. The Town of Newbury has successfully combined conservation and trail projects where the Cross Vermont Trail corridor parallels the Wells River. The Windmill Hill Pinnacle Association has developed a ridgeline conservation corridor in the Putney/Westminster area.



Bluff Mountain Lookout, Island Pond, VT
Credit: Luke O'Brien

Trail and Greenway Resources

The Vermont Trails and Greenways Council has a website which can be found at: <http://www.state.vt.us/anr/fpr/greenways/index.htm> . This website includes an up-to-date directory of trails, conservation, and greenway organizations. The following lists contact information for some of Vermont's active trail and greenway organizations.

Vermont Trails and Greenways Council Contacts

Beth Ann Finlay, Coordinator Northern Vermont RC&D, Inc. 617 Comstock Road, Ste. 2 Berlin, VT 05602-8498 802-828-4595 802-223-6163 – FAX beth_ann.finlay@vt.usda.gov	Tiffany Shaw, Recording Sec. Sherry Smecker, Trails Grant Admin. Dept. Forests, Parks & Rec. 103 South Main St, 10 South Waterbury, VT 05671-0601 802/241-3653 802/244-1481 Fax tiffany.shaw@anr.state.vt.us
---	---

Statewide Trail and Conservation Organizations

National Park Service Rivers & Trails Program Jennifer Waite, Vt Coordinator 802/457-3368 x21 jennifer_waite@nps.gov	Green Mountain Club Ben Rose, Executive Director 802/244-7037x12 www.greenmountainclub.org	Green Mountain Horse Association Joe Silva 802/457-1509 www.gmhainc.org
Vermont Youth Conservation Corps Brian Cotterill 802/241-4452 www.vycc.org	Catamount Trail Lenore Budd, Trail Manager (802) 864-5794 www.catamounttrail.org/	Boy Scouts of America David Osborne 800/704-3089 info@scoutingvermont.org
Vermont Horse Council Virginia Lancaster-802/457-1792 <i>or</i> Lynn Dow-802/728-9007 www.vthorsecouncil.org	Vermont Mushers Association Julius Goodman 802/496-3795	Vermont Outdoor Guide Association Gray Stevens 802/425-6211 www.voga.org
Vermont Housing and Conservation Board Paul Hannan, Conservation Dir. 802/828-2117 phannan@vhcb.org	Vermont Land Trust 802-223-5234 http://www.vlt.org	The Conservation Fund Nancy Bell 1331 Town Hill Rd Shrewsbury, VT 05738 802/492-3368
Vt Association of Snow Travelers (VAST) Alexis Nowalk 802/229-0005x13 www.vtvast.org	Vt ATV Sportsman's Assoc. Todd Sheinfeld 802/229-2997 www.vtvasa.org	Vt Mountain Bike Assoc (VMBA) P.O. Box 563 Waterbury, VT 05676 www.vmba.org/
Vermont Rivers Conservancy Jeff Meyers, Executive Director 802-388-9277 www.vermontriverconservancy.org	Trust for Public Lands Dennis Shaffer 802/223-1373 ext. 11 www.tpl.org/	Vermont Nature Conservancy 802/229-4425 ext. 108 rpaul@tnc.org

State Assistance Programs

VTtrans Bicycle and Pedestrian Program Amy Bell, Coordinator Jon Kaplan, Assistant Coordinator 802/828-0059 amy.bell@state.vt.us ; jon.kaplan@state.vt.us	ANR Recreational Trails Program Sherry Smecker, Coordinator Tiffany Shaw, Assistant 802/241-3655 sherry.smecker@anr.state.vt.us
---	---

Local and Regional Trail and Conservation Organizations

Friends of the West River Trail Sharon Crossman 802/824-6246 www.westrivertrail.org	Local Motion (Bicycling -- Burlington area) Chapin Spencer 802/652-2453 www.localmotion.org	Mad River Path Association www.madriverpath.com 802-496-7284
Middlebury Area Land Trust Gioia Kuss 802/388-1007 malt@middlebury.edu	Montpelier Parks Geoff Beyer 802/223-7335 www.montpelier-vt.org/parks	Northern Forest Canoe Trail Kate Williams 802/496-2285 www.northernforestcanoetrail.org
Cross Vermont Trail Association Eric Scharnberg 802/498-0079 eric@crossvermont.org	Northwoods Stewardship Center Luke O'Brien 802/723-6551 www.northwoodscenter.org luke@northwoodscenter.org	Rivendell Trails Association David Hooke dhooke@sover.net 802-685-4353
Stowe Bike Club Rick Sokoloff 802/253-1940 rick@stowemtnbike.com	Upper Valley Trails Alliance Wally Elton 802/649-9075 www.uvtrails.org	Winooski Valley Park District Jennifer Ely 802/863-5744 www.wvdp.org
Addison County Community Trust Kevin Cosgrove 802/388-9080	Manchester Conservation Commission Lee Krohn 802/362-4824 www.town.manchester.vt.us	Middlebury Bike Club Jim Arnold 802/462-2000 jim@bikeclub.org
Morristown Trails Committee Mike Stafford 802/253-2505 msstafford@vtusa.net	Rutland Area Physical Activity Coalition James Tasse 802/353-0037 www.rapac.info	Montpelier Area Mountain Bike Association www.bikemamba.org Jase Roberts 802/225-1327
Rutland Recreation & Parks Dept. Cindi Wight 802/773-1822 ext. 13 cindiwight@adelphia.net	Westmore Association Trails Paul Moffat 802/525-8828 paulmoffat@aol.com	Windmill Hill Pinnacle Assoc. Beverly Major 802/387-5737 bevm@sover.net

Chapter Two: Planning for Trails and Greenways in Vermont

Planning for trails and trail networks in Vermont is now more important than ever. There are several trends at work that could affect our trail networks and recreation opportunities, including changes in attitudes of land owners (accompanying changes in ownership), and subdivision of land into smaller parcels that may be less able to support trail corridors. At the same time, trail-based recreation is growing in popularity, putting more stress on our existing trail networks.

Vermont has a very strong tradition of local planning, and has also established a number of programs and policies that can help communities plan for expanding, preserving or enhancing their local trail networks. This chapter will provide information and guidance for planning your trail network, and where you can go for more information. This chapter includes planning guidance for both town-wide trail network planning as well as for planning of specific trail corridors.

Vermont's Planning Environment

In Vermont, planning occurs at several different levels of jurisdiction: local (town or city), regional, and state. At the state level, the Vermont Agency of Natural Resources publishes the State Comprehensive Outdoor Recreation Plan (SCORP), as well as the Vermont Trails and Greenways Plan. The Vermont Agency of Transportation has a Bicycle and Pedestrian Policy Plan. At the regional level, each regional planning commission publishes a Regional Plan and a Regional Transportation Plan. Many regions have also prepared Regional Bicycle and Pedestrian Plans or Regional Trails Plan, which include inventories of the region's network of bicycle and pedestrian transportation facilities, as well as priorities and policies for improvements. Most Vermont towns and cities have adopted Municipal Plans, which describe the town's vision for its future, and an approach of how it will attain that vision. The local plan sets the stage for policies and planning activities to invest in town infrastructure (including trails and greenways), manage and regulate growth and development, and conserve and protect resources.

Vermont local plans have significance in a variety of ways. Developers must look to these plans, as the Act 250 land development permitting process requires that projects be consistent and compatible with local and regional plans. Many state-funded grant programs will give priority to applications that are furthering the goals and objectives of their town plan. Town plans generally have been prepared with ample public input, and represent community consensus on a variety of important issues affecting their future.

Planning for Trails at the Town Level

In order to prepare a successful plan for a trail or greenway in your community, you should coordinate your efforts with ongoing town and regional planning activities. Contact your regional planning commission and your Town Planning and Conservation Commission to learn about the status of regional and local plans. These plans are generally updated every five years. Explore needs

and priorities for green infrastructure for the next version of your town plan. Participate in the preparation of your town's next plan update, adding language about the importance of trails, and goals to protect or expand your town's trail system.

Some towns have gone further and developed an open space plan, or are in the process of doing so. An open space plan could easily be expanded into a green infrastructure plan, by adding consideration of trails, linkages, public access to water, and planning for other important outdoor recreation opportunities in your town. These plans should also be updated every five years, so you should plan to participate in the next update of your town's open space plan.

The following sections offer some specific topics that you might explore in your local planning process.

Inventory Town Rights of Way

One of the early tasks you might undertake is to work with town officials, regional planning commissions, and local knowledgeable people to develop a comprehensive inventory of locally owned and controlled rights-of-way. Many Vermont towns are laced with old road rights-of-way that are no longer used for vehicle travel, most of which are Class 4 Roads. These can provide an outstanding recreational resource, and should be inventoried and documented in every Vermont town. While it is the town's responsibility to inventory and identify these old rights-of-way, many of these old corridors are not officially recorded on maps, and are known locally, through word-of-mouth.

While some Class 4 roads are used as driveway access or for logging, others are so rugged or remote that they are only used as trails. Towns should consider re-classifying these unused Class 4 roads as "Legal Trails". This is enabled by Vermont Law, and is appropriate for town rights-of-way whose primary use is really as a trail. This classification has several advantages for a town, including even further reduced liability and responsibility for the town. "Legal Trail" status also provides an opportunity for towns to establish policies or ordinances that specifically govern trail use and management. Legal trails can always be "upgraded" to roads again, if at some time in the future this makes sense, making reclassification virtually risk-free for a town. The Town of Norwich recently reclassified many of their Class 4 roads into trails, and has developed a trail use ordinance.

In addition to Class 4 roads and legal trails, many towns are also laced with "ancient roads", or rights of way that were established, then abandoned, long ago, and are no longer shown on town maps. However, these rights of way are still owned by the public unless formal road abandonment procedures are followed. Many of these ancient roads are known only by local knowledge, and a planning process to inventory and identify these old corridors is another planning activity to consider. The Town of Charlotte has undertaken a comprehensive inventory of their ancient roads, in order to develop common understanding of their location.

Create a Trail Linkage Map

Vermont communities have the option of developing and adopting an "Official Map", which lays out the planned future road and street network for a town. This map may show new roads and streets where none exist today. As land is developed in the areas where these future roads are, the roads are to be built by the landowner/developer. Eventually, the town will have a coherent street network that will serve the best long term interests of the town.

This general concept could be applied to develop a “Town Trail Linkage Map”, which could show possible future trail linkages, and would encourage landowners or future developers to allow for the trail corridor in their plans. While this may seem like a burden to landowners, in fact, having a trail corridor passing through or connecting a development to other parts of town by a trail has proven to significantly increase the appeal and value of their property. Communicating about the value of long range trail and green infrastructure planning to your town officials, developers, and the public will be an important task as your town planning proceeds. A green infrastructure plan, that asks for good planning and development practices from developers is in the entire community’s long term interest, and makes economic sense.

Developing a plan can start with a proposed future trail and conservation map for your town, identifying areas that eventually could be linked (schools, parks, village stores, neighborhoods). Include existing trails, class 4 roads, “legal trails”, utility corridors, public lands, parcel boundaries, places that would be good to have trails to/through on your map. However, do not locate proposed trails, or “draw lines on the map” connecting these areas without first approaching the landowners. Your town trail plan can be general: “provide bike route between school and recreation fields” or “establish hiking and cross country skiing trail between the park and the town forest”.

The Town of Charlotte has produced a “trail vision map”, which is available on the Town’s website, and a copy is included at the end of Chapter 4, Inventory and Mapping.

Consider Trails in your Town Plan and Subdivision Ordinances

After developing a general trail linkage map, your town’s subdivision ordinances could be amended to include consideration of a future trail network in subdivisions. As lands on a proposed potential or future trail corridor are proposed for subdivision, the developers can incorporate the trail corridor into their plans, and provide an easement to the town for trail use and maintenance. The developer may even be willing to actually construct part of the trail. In areas that are seeing rapid subdivision and development pressure, implementing a trail plan in your town’s official regulations will prove to be a great gift to the future generations of your town. While they may initially seem like a burden to developers, these trail corridors usually prove to be a great, long term asset to the community, and also increase the development’s market value.

Planning for a Specific Trail Corridor

If you are ready to focus on planning for a specific trail corridor or project, the following outline of steps can guide you through the trail corridor planning process.

1) Join or Form a Community Trails Committee

Is there a committee in your town already that has the responsibility of working on trails? Sometimes it’s a subcommittee of the town recreation committee, the conservation commission or planning commission. It could also be an ad hoc committee formed by the selectboard, established to work on trails. If one does not already exist in your town, form a group of dedicated, enthusiastic and realistic trail supporters, and ask for recognition and a charge from the selectboard. While official town recognition is not absolutely necessary, it is a good idea to have official town support, especially when seeking state and federal funds.

The trails committee should be small enough that meetings are not unwieldy or hard to convene, but

large enough that you have enough people among whom to divide tasks. Although you want to keep your core group relatively small for efficiency, make sure that everyone in the community feels invited. Interested people could be found through ads in a local paper, on community bulletin boards, or by word of mouth.

2) Imagine Your Future Trail or Greenway

It is imperative that your group collectively dreams about the possibilities of your trail or network rather than diving directly into the practical reality. Talk about the kind of activities you envision, what the trail itself might look like, what sort of sights it might take in. Discuss your individual visions of a community trail, and discover where committee members' visions are the same and where they are different. Have a town map handy. First, mark existing trails and greenways, Class 4 roads, abandoned railroad beds, public lands, popular scenic or recreational spots, and areas of town that would be nice to link together with a trail or greenway, or important to link for safety (for example, sidewalks by schools). You will do this in more detail later, during the inventory phase, but get a general idea now. Then indicate destinations the trail might serve. Don't mark specific trail routes yet, except as very broad potential corridors. Mark up the map with all your ideas, both in words and pictures. Don't think of it as something that has to look great, or be a finished product. Just get everything onto paper. There are no bad ideas, yet.

The purpose of this exercise is to have something to start with, a beginning plan. Although these ideas may be completely dismantled and changed before you ever build your trail, it will provide you with something people can respond to, and something that you yourselves can come back to and change. An additional important benefit of envisioning your trail in this way is that, in the process of creating it, you "jump start" your thinking about the trail, build excitement in committee members, and begin to articulate your values as you recognize those of others.

The map you create can be used in the next stage, when you start a broader community discussion about your trail or greenway idea.

3) Reach Out to Landowners First

One of your first responsibilities at this early stage of planning is to contact the landowners whose properties could possibly be affected by the trail concept. You may hesitate to contact a property owner too early, before you know enough, but then again you don't want to move onto wider public involvement without first consulting them. Let owners know that you are in a preliminary, exploratory phase, and would like their input. Visit with landowners you know; seek an introduction to those you don't. Show them your map of destinations - talk about the



Meeting with U. S. Fish and Wildlife Officials Discussing Plans for a Water Trail
Credit: Jen Lamphere

dream and purpose of your trail idea. Let them choose to become involved. Then, you can start seeking community support without giving the impression of going behind anyone's back. Chapter 3 provides a more lengthy discussion of how you can approach landowners, how to involve them in your trail planning process, and how you can try to address their concerns. Many of your committee members are likely landowners in your community, and some of them may even already host trails on their land.

4) Establish Community Support

There are many ways to inform the public about your ideas, and to find out the public's views on those ideas. Some of the most successful, widely used methods include:

- Write articles for local periodicals and publications.
- Meet with people - town officials, civic groups, local trails organizations or clubs, school classes, chambers of commerce, business groups, church groups, etc.
- Organize guided walks and tours of the trail or unique sites along the trail.

A good way to start is to write articles about the path idea for local periodicals. These articles can serve to excite other peoples' interest, generate helpful input, build support and enthusiasm. You don't have to know exactly where the idea is going in order to talk about it; you can use the articles to ask questions you might have. Hopefully you will encourage people to help you answer them. Remember that the more informed people are, the more likely they will be to support your project, both conceptually and financially.

Meeting with people is another excellent way to get them involved and move the project forward. Meet with whoever might conceivably have an interest. You will make your idea and, perhaps most importantly, yourself more visible. People will be able to see the face or faces behind the concept, and know that this is a project being advanced by neighbors, not a faceless group of "them". Find out how the trail idea can help other town projects along, and broaden supporters of your trail idea.

Writing articles, holding meetings, and other public involvement will be a learning experience that you should strive to take advantage of. Do research for your public presentations: look into other trail projects, read up on construction techniques, find out how community trails affect economic growth. Everything you learn can be valuable in bringing your trail dream closer to reality.

The public outreach element of the planning process will be an ongoing one. When you reach the stage of actually designing the trail it will be important to take people on



Discussing a Trail Project
Credit: Jen Lamphere

guided walks of the proposed trail route, showing them its best views, its problem areas, or where a bridge or a park bench will go. Activities involving the public should serve to help people feel the trail is theirs, fostering a sense of ownership. More detail about this subject is given in Chapter Three, Public and Landowner Outreach.

5) Inventory the Trail Environment

Once you have gotten some feedback on your trail or greenway "vision," your committee should take another look at the trail ideas that are emerging and see if this collective vision has any merit "on the ground." Remember to consult with landowners and obtain necessary permissions, and then conduct an inventory of the physical characteristics of the area in and around potential trail routes. The completed inventory will help you make good decisions during the design phase, and will help ensure that you are not adversely affecting the natural environment with your project. The information you collect, combined with your knowledge of existing trails, Class 4 roads, abandoned railroad beds, and rivers, will help you locate the best final trail route(s), taking advantage of both natural and human-made features. Remember that trails that connect popular destinations such as parks, swimming areas, scenic views neighborhoods, businesses and other trails; or serve a valuable safety function, such as getting walkers off of a busy road; are the most valuable to the community. Check out Chapter Four for more detail on how to accomplish this activity.

6) Determine Reasonable Goals for your Trail

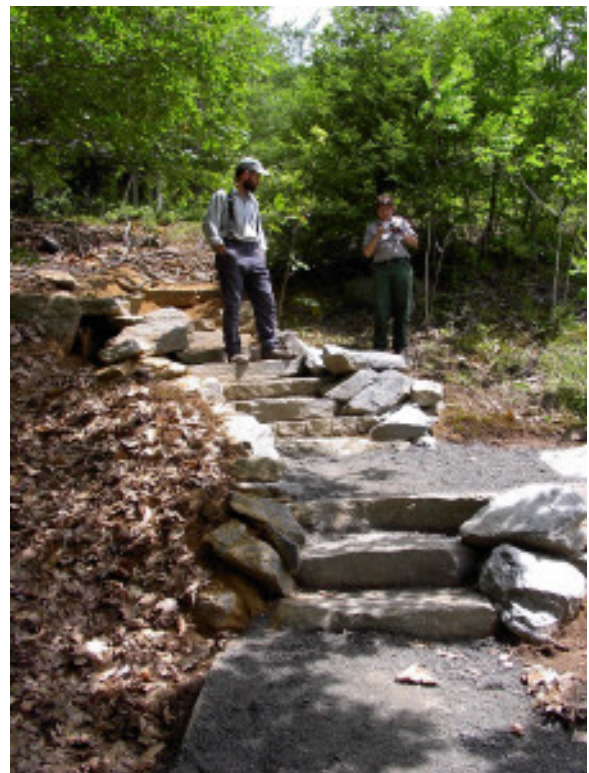
Once your committee has a sense of the community's desires for the trail; some specific ideas for routes, purpose and type of trail; and knowledge of the physical environment of the proposed trail or greenway, you have the necessary background to determine specific goals and objectives for your trail or greenway project.

Setting goals is simply a way of working ideas and any public input into a more solid, understandable form so that you can really think about the goals of your trail project. Thinking in terms of goals allows you to dream beyond the present, and envision a best possible future that takes into account all you have learned.

Some questions to answer when defining your goals:

- What purpose will it serve?
- Who do you hope to attract?
- What activities will take place?
- What is the life span and future of the trail?

Objectives are benchmarks that, when achieved, will let you know that a goal has been reached. Benchmarks are generally expressed in concrete



Completion of a Section of a Trail in Windham County.
Credit: Steve Ovenden

terms. For instance, if your goal is, “provide bicycling and in-line skating opportunities between downtown and Riverside Park,” then your objectives might include, “completion of bike/skate lane on Oak Street,” and “installation of bike racks at Riverside Park parking area.” This level of detail cannot necessarily be reached early in the planning process, and definition of your objectives will evolve as an ongoing part of the process. The objectives that are currently identified will form the backbone of your workplan, discussed below.

At this point, your group should consider the scope and complexity of your trail idea, and decide whether or not it would be helpful to seek the help of professional consultants. Simple, dirt walking paths may be able to be completed by a volunteer group alone, but a more highly engineered, multi-use shared path, or trail with large bridges, will almost certainly require the assistance of professional in the planning, design and construction phases. Chapter 9 provides a list of sources of funding that can be used to get this type of professional design and planning assistance from an engineer or landscape architect.

7) Prepare a Workplan

Once the Trail Committee has done a lot of thinking and talking, gathered information, received lots of feedback and ideas from people in town, learned about the physical characteristics of the possible trail routes, and established the nature and purpose of the trail or greenway through goals, it's time to figure out exactly where and how this trail is going to be built and who is going to take care of your trail. To do this, you need a workplan and a schedule.

The workplan is a written document that should delineate each of the tasks to be accomplished for the trail to be completed, opened for public use and managed and maintained into the future. The level of detail in your workplan will depend on the complexity of the project, and the confidence and expertise of the people involved. The less complex the project, and the more confident and expert the workers, the less detail your workplan needs to show. The workplan should serve as a reference document that indicates:

- tasks that need to be accomplished, and in what order;
- milestones which will indicate that particular tasks have been accomplished;
- who is responsible for each task, or set of tasks; and
- how each task is to be carried out (level of detail may vary, as described above).

The list of goals and objectives will prove very useful in designing a workplan. Each objective can suggest the tasks needed to achieve it. The schedule is a document accompanying the workplan which simply shows when each task needs to be accomplished. The schedule can be an integral part of the workplan.

8) Seek Funding

There are a variety of sources of funds that you can seek to help with planning, designing, or construction of your trail project. These are discussed in more detail in Chapter 9. Before seeking funding, make sure your group or organization is really ready for funds, and that you have a very clear plan of how you will make the best use of them. Be realistic about how much you will need, and what you are ready to take on. Make sure you seek enough funds to finish what you start, as it is very discouraging to run out of money and have to make changes to your plans mid-stream.

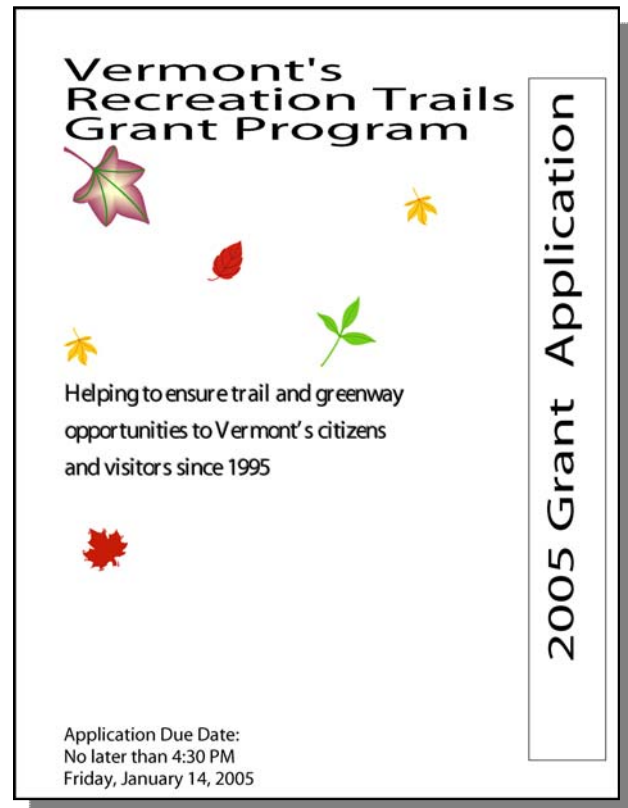
9) Adoption and Implementation

This is the part of the planning phase where you agree upon the plan and then do it. The goals, objectives and workplan could be adopted through community consensus, or by a town vote, to ensure that everyone is working together with a common vision. If the Trail Committee has been successful with public involvement, everyone will recognize the plan and their contribution to it, and no one will be surprised. Surprises about the route, nature or purpose of the trail are not conducive to a successful project.

Implementation of the plan will likely happen in phases, depending upon finances, labor availability, weather, or other factors. Building flexibility into the schedule without giving yourselves too much leeway can make implementation run more smoothly. Glitches are bound to surface no matter how careful the preparations. Still, the better prepared you are, the fewer glitches there will be.



Burnt Brook Bridge, Burke, VT
Credit: Luke O'Brien



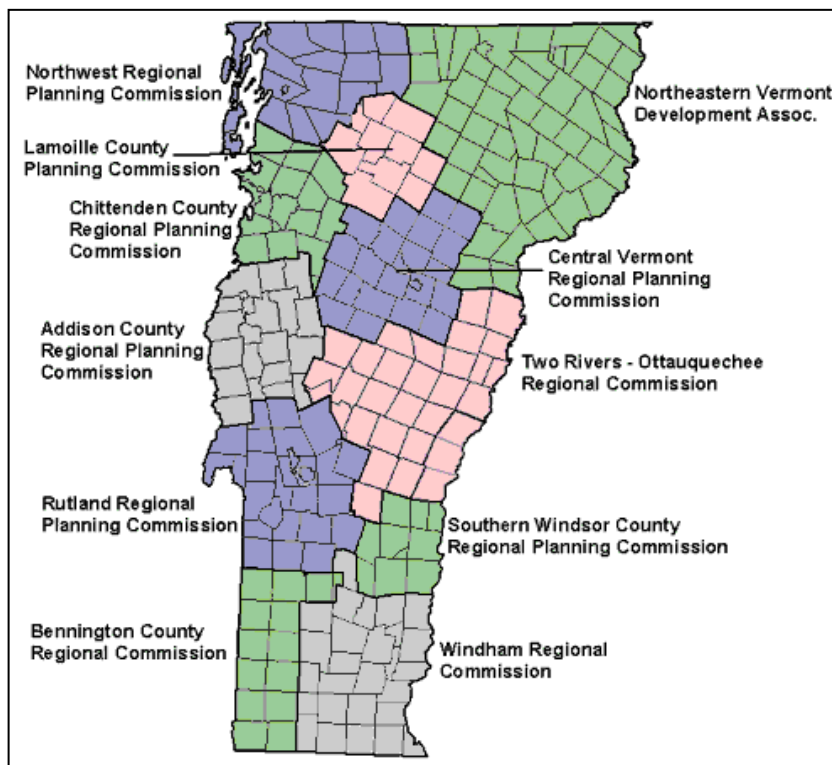
Planning Resources

There are several ways that your trail group can get assistance with the many technical and organizational tasks that planning a trail network or trail will involve. The following are some of the most typical sources, along with a description of the roles these agencies or organization can play and contact information.

Regional Planning Commissions

RPC's can help with many aspects of trail planning, design, and funding. Most RPC's offer technical assistance and grant-writing assistance to town groups working on implementing town or regional plans.

The map to the right shows the service areas of Vermont's regional planning commissions, and below is contact information for each RPC.



RPC	Phone	E-mail	Website
Addison County Regional Planning Commission	802-388-3141	alougee@sover.net	www.acrpc.org
Bennington County Regional Commission	802-375-2576	bcrcburk@verizon.net	www.rpc.bennington.vt.us
Central Vermont Regional Planning Commission	802-229-0389	cvrpc@cvregion.com	www.central-vt.com/cvrpc
Chittenden County Regional Planning Commission	802-846-4490	info@ccrpcvt.org	www.ccrpcvt.org
Lamoille County Planning Commission	802-888-4548	lcpc@lcpcvt.org	www.lcpcvt.org
Northeastern Vermont Development Association	802-748-5181	info@nvda.net	www.nvda.net
Northwest Regional Planning Commission	802-524-5958	cdimitruk@nrpcvt.com	www.nrpcvt.com
Rutland Regional Planning Commission	802-775-0871	mblucher@rutlandrpc.org	www.rutlandrpc.org
Southern Windsor County Regional Planning Commission	802-674-9201	tkennedy@sover.net	www.swcrpc.org
Two Rivers-Ottawaquechee Regional Commission	802-457-3188	pgregory@trorc.org	www.trorc.org
Windham Regional Commission	802-257-4547	wrc@sover.net	www.rpc.windham.vt.us

National Park Service Rivers and Trails Program

The Rivers & Trails Program is a community resource of the National Park Service. RTCA staff provides technical assistance to community groups and local, state, and federal government agencies so they can conserve rivers, preserve open space, and develop trails and greenways. The RTCA program implements the natural resource conservation and outdoor recreation mission of the National Park Service in communities across America. For more information on how the Rivers and Trails Program can help you, contact:

Jennifer Waite
jennifer_waite@nps.gov
(802) 457-3368, ext 21

Resource Conservation and Development Program, Natural Resources Conservation Service

There are two offices for this program, each serving different watersheds in Vermont. These groups assist communities and non-profit with certain aspects of trail and conservation projects.

George D. Aiken RC&D Council

Kenneth J Hafner, Coordinator, Kenneth.Hafner@vt.usda.gov
22 North Main Street Suite 2
Randolph, Vermont 05060
Telephone: (802) 728-9526
Fax: (802) 728-5951
Serving Bennington, Ottauquechee, Otter Creek, Poultney-Mettawee, Rutland, White River and Windham Conservation District areas.

Northern Vermont RC&D Council

Beth Ann Finlay, Coordinator, Beth_Ann.Finlay@vt.usda.gov
617 Comstock Road Suite 2
Berlin, Vermont 05602
Telephone: (802) 828-4595
Fax: (802) 223-6163
Serving Caledonia, Essex, Franklin, Grand Isle, Lamoille, Orleans and Winooski Conservation District areas

Please see Chapter 9 for a list of funding sources that can be used for planning activities, including the Vermont Agency of Natural Resources-Department of Forests, Parks and Recreation; Vermont Agency of Transportation; and the Vermont Department of Housing and Community Affairs.

Chapter Three: Landowner and Public Outreach

To create a successful trail or trail network, two critical elements you will need are public support and landowner agreement. Building public support for your trail will be an ongoing task. Plan to inform and involve the public every step of the way. Share information about your vision for the trail, trail issues, benefits the trail might bring to the community, and how the trail will be managed. Develop a strategy to promote the trail for its intended users, and maintain its popularity once established.

Landowner contact and relations are among the most important and daunting requirement for trails, especially for trails on private land. Informing and involving landowners in your project very early in the process is critical. The ways that you can do this are numerous, and some are discussed in detail in the following sections.

Plan to address the questions and concerns that the public or landowners have. Solicit input from the public and landowners with the goal of developing a thoughtful, reasonable approach to address these concerns.

Involving the public after the trail is built is equally critical. It helps keep the trail cared for and well managed. It spreads the word about the benefits of the trail. It keeps business owners, town managers, and law enforcement personnel informed and happy. It also recruits a continuing supply of helpers for maintenance work, or even trail expansion. On top of it all, public involvement can be fun, as a project like creating a trail or greenway can bring a community together.

Landowner Contact and Relations

It is only through the willingness or generosity of landowners that a trail idea can become a reality. Many landowners may be apprehensive about the idea of a trail or recreation paths on their property, and how it might impact their property value, liability, safety and privacy. They may be concerned about how enforcement or maintenance will be accomplished. These are all valid concerns, and you will need to eventually address them satisfactorily. However, it is not necessary to have answers to all of these concerns right at the beginning. Use your discussions with landowners and the public to solicit ideas, or come up with alternatives as the trail project moves forward.

Tips for Landowner Contact and Discussions

So how and when do you first approach a landowner with your trail idea? If you go too soon, before the idea is fleshed out enough to give the landowner a good idea of the project, how can they support or reject it? If you go too late, the landowner could feel that planning regarding his or her land has occurred behind his or her back, and might make the landowner feel pressured or resentful.

There is no single answer to the "when" question. The best guideline to consider might be how well you have been able to publicize the concept of a trail or greenway in your community, or whether the trail idea has been integrated into your town plan. If either of these happen first, when you go to talk to landowners, they will likely be aware of the trail idea. Your aim is to reach out to possibly affected landowners before there is any public discussion of specific trail corridors, but after there has been at least some expression of public support for the concept of a trail.

Sometimes people feel it can be awkward to get the conversation with a landowner going because you are asking for what seems like a big favor. But the favors actually go both ways, and the encounter needn't be awkward. Start with the idea that you should approach landowners with the same empathy and respect that you would want were you in their position. The concerns of landowners are likely to include property values and taxes, liability, privacy, crime, vandalism and noise. These are legitimate concerns and should not be shrugged off. Experience shows that in the huge majority of cases, however, these issues have not come to haunt trailside neighbors, as long as the trail is managed and supported by the community. In the case of landowner liability, Vermont law provides a high level of protection to landowners allowing recreational trail use, which is summarized in the document from the Vermont Trails and Greenways Council, referenced at the end of this chapter.

Remember that you also have a favor to give: trails have multiple positive values that benefit the landowner. Trail groups have sometimes been successful in gaining landowner support by incorporating into their projects features that the landowner specifically wants – a bridge or better access to part of their land, or a well-marked and signed “official” trail that will discourage “unofficial” use of their land. Other possible benefits to the landowner include increased property values, a boost to local businesses, convenient and safe transportation alternatives for children and other family members, and the opportunity to be involved in a worthwhile project with the community. Discussions with landowners that are open and allow them to express their concerns, trail related or otherwise, will help you find opportunities for your project to benefit the landowner as well as the community.

Visit with landowners that you know, following a phone call. For those you don't know, you might take along someone who does know them, or consider just a one-to-one phone conversation, as they may feel less pressure.

Talk about the concept of the trail, and see how they feel about the idea in general. Then, bring out a map of the area showing the key destinations that could be linked by a trail, such as schools, parks, downtown, neighborhoods, public lands, existing trails and roads, and waterbodies. Ask landowners where they think a trail or trail system might logically go to link up these destinations and take advantage of existing corridors. They will see for themselves if the logical path goes across their land. Give them an opportunity to express how they feel about the trail in general and in particular the portion that might be on their property. If they are not ready to comment, give them all the time they need, and offer to get back in touch at a later date. This is a very non-threatening approach that involves landowners without you imposing your ideas. This way, they become part of the planning team.

Tips for Approaching and Working with Landowners Successfully

- Approach landowners with the same empathy and respect that you would want were you in their position.
- Follow through on any questions landowners ask.
- Remember that educated and informed landowners are much more likely to be willing to help.

Don't feel that you need to have all the answers. Your apparent “newness” to the trail and greenway world should count for, not against, you with most landowners. It is important, though, to follow through on any questions they ask. Find out from other trail groups how they have addressed similar concerns. Also, getting back to landowners with answers to their questions, or simply with more information, is an excellent way to keep channels of communication open. Solicit input from landowners and the community for ideas of how to address these concerns. Your efforts to educate yourself about trail issues and landowner concerns, and to share your findings with others, helps communicate your sincerity, commitment and willingness to work. This encourages others to pitch in and work, too, and to be generous in other ways.

Wherever you go, take with you a stock of literature, articles and copies of maps, anything that helps communicate your idea. This can be thought of as "carrying a conversation in a basket"-you are always ready with positive reinforcement, and something to offer about the trail idea. Leave things with people to keep the conversation fresh in their minds, something that they can reread and mull over later. Remember that an educated consumer is your best customer.

In the process of seeking answers to landowner concerns regarding taxes, real estate, etc., try to enlist the interest and support of experts in those fields for future help in negotiations, assessments, contracts, agreements, etc. Volunteers breed more volunteers, because once people see the fun and reward of involvement, they want some of the action! Landowners are no different. It is easier for them to feel good about donating a right-of-way or easement if they can see that others have also made gifts and sacrifices. Let them know about the community efforts going toward the trail: bake sales, pot lucks, professional time donations, donations of material. Spread out the burden of work and the joy of involvement. Also, remember to contact other trail groups in your area or elsewhere in the state to learn how they were successful in their efforts.

Working with landowners toward attaining passage for a trail may be one of the greatest challenges for your trail project. Your efforts to accentuate the positive can payoff with community enthusiasm, generosity and cooperation. The trail itself is not the only benefit you gain from the project. The planning and building of the trail can bring the community together around a worthwhile project, working to create a legacy of cooperation for the town.

Getting the Word Out to the Community

In the early stages of trail planning, you may not know much more about the whole idea than the public will. Therefore, your focus at this stage will be on informing townspeople and others about the idea with the hope of soliciting ideas and feedback, and getting more people involved with the trail project.

If you are working on a specific trail project, your first task for getting the word out will be to identify stakeholders by making a list of everyone who could



Trailside Cookout and Walks along the Cross Vermont Trail in Wells River

Credit: Eric Scharnberg

conceivably have an interest in your project. Landowners, business people, town officials, school kids, environmental groups, sports clubs, adjacent towns, regional trail groups might all be on your list. The list could be quite extensive depending on the type of trail you are considering, and the size or number of user groups you have in your community.

There are many ways to accomplish outreach and involvement of your community. You should develop a strategy that is tailored to your community. In some towns, e-mail and the internet is an ideal way to inform interested people. In other towns, face-to-face public meetings are the best way to reach out. Your strategy should reflect the time and communication resources of most people in your community. The following lists provide some possible approaches you can use in your outreach strategy.

How to Involve People in the Early Planning Phase

- Writing articles, distributing flyers and posters.
- Meeting with government, civic, private or school groups.
- Going on local radio or even TV.
- Leading exploratory walks along proposed corridors.
- Holding open meetings.
- Knocking on doors and dialing the telephone.
- Creating a web site, e-mail discussion group, chat room, or blog.

How to Involve People throughout the Planning and Design Process

- Holding public meetings.
- Distributing a survey.
- Creating a "citizens' advisory panel."
- Arranging special information/Q & A sessions for groups with a special interest (i.e., landowners or law enforcement).
- Taking a walk along the trail route – this could have other functions too, such a trash pick-up.

How to Keep the Public Informed Once the Trail is in place

- Conducting guided tours along the proposed trail route.
- Mailing out a "trail news" letter.
- Arranging work parties.
- Creating posters out of your trail design maps.
- Writing press releases.
- Host events and work days along the trail.

As organizers of a trail or greenway project, you need to educate yourselves as thoroughly as possible so that informed decisions can be made. It is not possible for everyone in the community to have the same degree of knowledge or expertise on trails and trail building. However, the better you

are at conveying your knowledge to all interested parties, the more support and help you will get from them, and the more confidence your community will have in your group's ability to be successful.

Educational efforts need not focus directly on your specific project. When you conduct research into other trail projects, make copies of articles and have them available at public meetings. Go to schools, civic organizations, and planning commission meetings and talk about trails in general. Put up a poster display on greenways at town meeting. Your goal will be to excite peoples' imaginations and make them want to get involved in some way.

Your education efforts need to include decision makers in town. Having them on your side and supporting your trail projects will bring more credibility to your group, and possibly funding to assist in design, construction and/or maintenance of the trail.

How to Involve the Community in the Life of the Trail

- Plan a Grand Opening Celebration that the whole community can be involved in.
- Talk to parent groups about teaching children how to safely walk or bike to school on the path. Encourage use of the path for commuting.
- Coordinate with schools or other educational organizations about using the path as an "outdoor classroom" for nature study.
- Hold Work/Fun days, National Trails Day where the morning is spent working on trail projects, and the afternoon is spent enjoying the trail as a group.
- Make a tradition of holiday events such as July 4th parades, Easter egg hunts, Halloween haunted forest walks, Arbor Day plantings, President's Day ski races, etc.
- Be open to new ways of enjoying the path resources: bird walks, fun runs and races, inline skating clinics, Green Up Day activities, food and craft sales, fund raising walks for charity, "art on the trail" projects, etc.



Cross Vermont Trail Newsletters



Beebe Spur Railtrail Grand Opening, Derby, VT.
Credit: Amy Bell

Landowner Resources

Public Recreation on Private Land-A Landowner's Guide, Vermont Agency of Natural Resources, Department of Forests, Parks and Recreation, www.vtfpr.org/recgrant/pubrec.pdf

Public Involvement: The Community Tool Box: Techniques to Turn Your Vision into Reality, by Evelyn Swimmer, National Park Service Rivers & Trails Program, www.nps.gov/rtca

Sample Landowner Agreement Forms. Attached to this chapter are two examples from the Rivendell Trails Association (permission to scout), and the Department of Forests, Parks and Recreation.

Tips for successful community involvement:

1. **Build a large tent.** Recruit a strong local advisory committee that represents a cross section of community interests.
2. **Play fair.** Identify your group decision-making process up-front.
3. **Get on the same page.** Establish a group mission and community vision by consensus.
4. **Create allies.** Get out and talk with those who might, upon first glance, not be supportive. They can become your strongest allies if you ask about their concerns early on and address them sincerely.
5. **Do a demo.** A small-scale but highly visible demonstration effort, such as creating a scenic overlook or picnic stop, will help make the larger project feel real and doable.
6. **Achieve the possible.** Set achievable goals, record progress, and build momentum by celebrating the small steps along the way.
7. **Get on-site.** Organize events on-site to help people see, feel and touch the vision.
8. **Be graphic.** People respond to images that help them visualize what you're proposing -- use maps, drawings, photographs, websites, brochures, slides, video and models.
9. **Anticipate challenges.** Consider how the project might be impacted by the needs and concerns of various landowners and by other community priorities. Do your homework. Meet challenges with workable solutions.
10. **Mobilize citizen power.** Area colleges, schools and community service groups might have committed volunteers looking for projects to tackle. Organize projects to use their time well. Show your appreciation. Make it fun for them.
11. **Evolve.** Renew the group with new participants and local expertise as the project grows and changes.
12. **Share success.** Let everyone claim ownership of your idea.
13. **Be passionate.** Show that you care. You are improving the quality of life in your community and conserving natural treasures for future generations!

From the National Park Service Rivers and Trails Program

Example of a "Permission to Scout" Form, Developed by the Rivendell Trail Association

To: David Hooke, Coordinator
 Cross-Rivendell Trail Project
 74 North Road
 Vershire, VT 05079

Dear David Hooke/Rivendell Trails Association:

As a property owner I give permission for students teachers and community members under the direction of the Rivendell Trails Association to

- Explore a possible route for the Trail across my property, including hanging flagging tape as needed to follow the route
- Consult with me about this trail route
- If we agree on the route, to allow the trail to be constructed subject to my final written approval.

I give this permission subject to the following conditions:

This trail if agreed will be a footpath, with no motorized use permitted, and laid out so as to minimize erosion. The trail will be cleared two to four feet wide, with a cleared treadway no more that 24" wide.

Any flagging tape for sections of proposed route that are not approved for use will be removed within 30 days of the time that we agree on a final route or that I inform you that no route will be possible. All flagging will be removed after the trail is completed and marked.

If a trail is constructed on my land that I will approve a long-term maintenance plan and the Trails Association will take full responsibility for the regulation of use of the trail on my property.

In accordance with state law I will not be held liable for any accidents or injuries that may occur during the course of this undertaking, unless I am found to have willfully or maliciously failed to have guarded against a dangerous condition.

Signature _____ **Date** _____

Name: _____

Address: _____

Tel _____

Email/Fax _____

Landowner Permission Form

The Recreation Trails Program requires sponsors secure public access to private lands. Project sponsors receiving trail grants for work on private land must have written permission from each landowner that they grant permission for that trail to cross their land and understands the work that will be done. A Landowner Permission Form is provided here for your use in securing written permission. Please submit written permission forms with your grant application

I/We, as a property owner or agent for a property owner grant permission for _____
(trail name)

to cross my/our property and ensure this trail will be fully accessible to the public. The trail is for Motorized, Non-Motorized, Multiple use and is approximately _____ feet wide and
(circle one) (width)

crosses the property at an approximate length of _____.
(length)

I understand that:

- _____ takes full responsibility for the regulation of use
(name of organization)
of the trail and all necessary maintenance or upkeep.
- according to 12 V.S.A. Section 5791, I/we will not be liable for property damage or personal injury sustained by a person who, without consideration, enters or goes upon my/our land for a recreational use unless damage or injury is the result of my/our willful or wanton misconduct.
- Permission is of indefinite duration but may be suspended or terminated by me/us or the above named organization with 30 days notice.

The following conditions are attached to this permission:

Signature Date

Printed Name

Address and Phone Number



Landowner Permission Form

for the
 Vermont Association of Snow Travelers, Inc.
 41 Granger Road • Barre, VT 05641
 802-229-0005 - fax 802-223-4316

Permission is hereby granted to the Vermont Association of Snow Travelers, Incorporated (VAST), to _____ County
Name of County
 Snowmobile Club, Incorporated, and to the _____ of
Name of Local Snowmobile Club
 _____, Vermont to establish, maintain, and groom a snowmobile trail or trails upon property located in
City/Town
 _____, Vermont belonging to _____ of _____
City/Town Property Owner's Name City/Town
 _____, State. The snowmobile trail(s) shall be established and maintained in an area acceptable to the landowner. No
State
 construction or major maintenance shall occur without the landowner's permission. Permission is further granted to VAST, to the fourteen Vermont
 county snowmobile clubs, to all affiliated local snowmobile clubs, and to their respective members to use the trail(s). Permission extends for a
 period starting _____ to _____.
Date Date

Permission is subject to the additional terms and conditions listed below, if none enter "NONE:"

Vermont law limits the liability of landowners for personal injury and property damage sustained by a person operating a snowmobile or riding as a passenger to damage intentionally inflicted by the landowner unless the landowner charges the owner or operator of the snowmobile a cash fee for the use of the property. VAST agrees to maintain a policy of trails liability insurance with a policy limit of at least \$1,000,000 covering the landowner as an additional insured. VAST further agrees to defend the landowner or reimburse the landowner for the reasonable costs of defense in the event that a claim is made or a suit is brought as a result of a snowmobile accident on the landowner's property, unless the landowner charges a fee for the use of the landowner's property for the purpose of establishing and maintaining a snowmobile trails(s). A complete "Explanation of Landowner Rights and Protections" is printed on the reverse side of this document. **Neither this permission nor any use of the trail(s) established pursuant to this permission shall, under any circumstances, entitle VAST, any county snowmobile club, any local snowmobile club, or any member of any one or more such clubs, to claim any dedication, any right of adverse possession, any prescriptive easement, or any similar right with respect to any portion of the landowner's property.**

Dated this _____ day of _____, 20____.
Day Month Year

Vermont Association of Snow Travelers, Inc.

By: _____

 Signature of landowner or landowner's duly authorized agent.

 (Please Print Name)

Its duly authorized agent for the limited purpose of negotiating
 and entering into landowner permission agreements.

Mailing Address: _____

Phone Number: _____

Phone Number: _____

VAST Copy
White

Over

Chapter Four: Inventory and Mapping

This chapter discusses how to gather information relevant to trail planning, put it on a map, and use this information to better inform your trail project. Once the important features in your community (for example, Class 4 roads, rivers and streams, greenways, community linkages, abandoned railroad beds and regional trail networks) are on a town map, you will probably see opportunities for a future trail network, with trail linkages between locally important resources and special places.

Your base map can also be a source for identifying concerns and opportunities. You might find that the route encounters a boggy area, a dense regrowth area in an old clear cut, an impassable ravine or cliff, even a housing development that was not there when you last looked. Other features of the landscape that can affect your trail are things you want to encounter: a scenic vista, a peaceful bend in the river, an old cellar hole, a woodpecker tree, a neighborhood, downtown, or school.

Creating a map with a variety of types of features of the land is much simpler with the technology now available that allows for "overlay" of different features onto a single map. The Geographic Information System, or GIS, is a computerized mapping program that stores inventory information in spatial form, and can generate maps combining many or few different "layers" of information. Regional planning commissions serve as GIS service centers, and they should be contacted early in your inventory stage, as they may be able to provide low cost or possibly free mapping services for your effort. The Vermont Center for Geographic Information (VCGI) may also be able to consult with your group, and some towns have their own GIS capability and may be able to assist with mapping efforts.

The maps of your inventory could also serve to sell your idea to the people who will fund, donate land for, publicize and use the trail once it is completed. If people can graphically see what the trail route connects, and recognize favorite "spots" along the way, they are more likely to become excited and involved in the project.

Create a Town Trail Planning Base Map

In the past 15 years or so, the State of Vermont, working with the Vermont Center for Geographic Information and the state's regional planning commissions, has developed an excellent GIS, or Geographic Information System database. This has been of tremendous help to planning of all kinds, as this technology allows for the preparation of customized maps, which show particularly relevant features to the task at hand.

Most towns have base maps and town planning-related maps that will provide much of the information you will find useful. At your town hall, you may find that the planning commission has already had a full set of maps prepared, that you can review.

These maps are typically prepared by the regional planning commission that serves your town. All of the regional planning commissions have access to Geographic Information Systems, which they use for preparing maps as well as more complex analyses of geographic data. You should approach your RPC office, and ask them about their policies, and fee structures, for preparing a customized map for your trail planning work. These maps are often available at just the cost of printing and set up time of the staff person.

The following lists some things to ask to be included on your base map:

- Local Roads
- Class 4 Roads, “Legal Trails” and “Ancient Roads”
- Existing Trails
- Utility Corridors
- Abandoned Railroads
- Elevation contours
- Rivers, Streams and Wetlands
- Rare, Threatened, or Endangered species
- Public Lands (state, federal or town-owned)
- Conserved Lands (land trusts)
- Public Buildings and Facilities
- Historic buildings, sites and features
- Educational institutions (schools, colleges, daycare centers, adult centers)
- Hazardous waste sites

Class 4 Roads: Many Vermont towns are laced with public rights-of-way that were established as roads long ago, and are no longer used or maintained for transportation purposes. However, Vermont law is very clear on the fact that unless the Town Selectboard has followed the road abandonment procedure, these rights-of-way are still in public ownership. These rights-of-way are often valuable trail corridors, and should be a prominent consideration in your trail planning. They are already in public ownership, and often are already in use as a trail. Even though many of them haven't been in use as travelways for decades, they do usually go somewhere. They have a historic character that contributes to the pleasures of the trail, often being bordered by old stone walls, cellar holes and abandoned orchards and fields. Other types of similar right-of-ways include “Legal Trails”, which result from a reclassification of a public road to reflect the current predominant use as a trail, and “Ancient Roads”, which are rights of way that are still in theory in public ownership, but are no longer mapped on the town’s official road map. Local knowledge will be very important in learning where these ancient corridors exist. Documenting and mapping these ancient roads often involves extensive research into town records, tracing the roads back to the property owners at the time the roads were first laid out. Several Vermont towns, including Barnard, Stockbridge and Charlotte, have conducted detailed inventories of unmapped town rights-of-way. Resources on class 4 roads are provided at the end of this chapter.

Greenways: If your town has a land use map, it can be very instructive to study it during early planning meetings to see where there are extended areas of forest, field, lake or river, and where these areas are interconnected by strips of forest, hedgerows or streams.

As you look at your map, you may find that there is a web pattern of green and blue. This web offers you potential for developing a greenway. A greenway is a natural corridor through green areas that connects larger green areas or urban centers, and can be thought of as a long, linear park. A greenway can also be water-based, or a combination of land and waterways. You can call your project whatever you want, but taking the "web of green" into consideration when planning can broaden your possibilities.

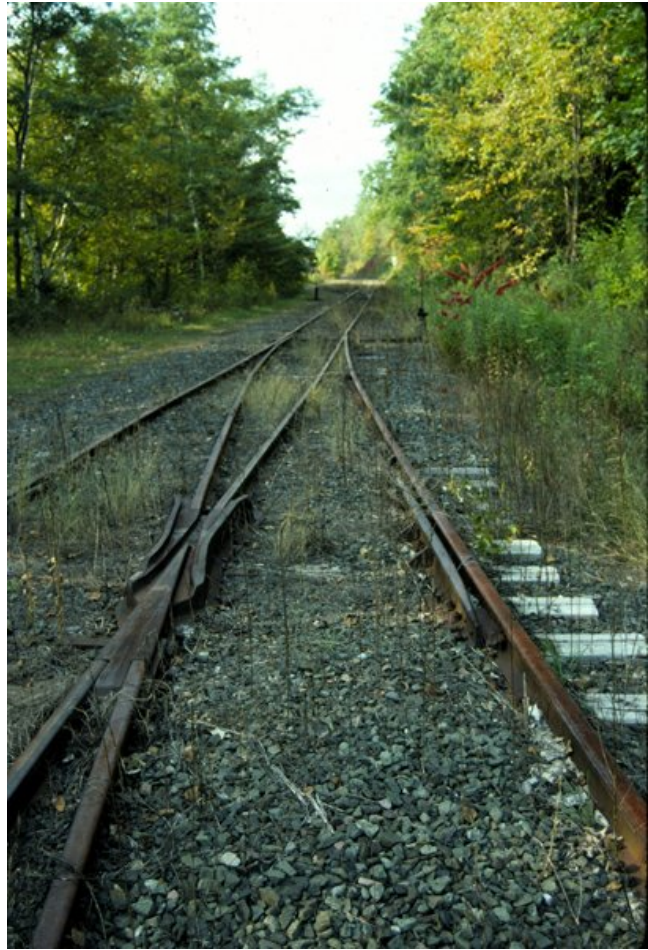
Waterways: Consider the role of waterways in your community, either as scenic corridors to parallel a land-based trail, or for its potential as a water trail for paddlers. Waterways are often central to the history and environment of most Vermont communities, and can make ideal trail corridors. People are drawn to water, and trails along rivers or lakeshores are often highly successful. However, the environmental resources along shorelines also make these routes more fragile and sensitive to construction, and more difficult to gain environmental permits. These factors will have to be balanced in layout of your trail.



Conserved lands along the Wells River and Cross Vermont Trail.
Credit: Jeff Meyers

Community Linkages: There are probably several places in your community that are common destinations for many people. These might include schools, community centers, shopping areas, parks, fishing and picnic spots. Using your trail to link these popular destinations with residential areas, and with each other, can increase its usefulness many times over. Trail use will be greater, and traffic on local roads might even be reduced if people can choose to walk, bike, or skate to their destinations. An additional advantage is that school children could have a safe and fun way to walk to school, and commuters to bike to work, if they were on a trail rather than along the margin of busy roads. The Town of Charlotte has developed a trail linkage vision, shown at the end of this chapter.

Abandoned Railroad Beds: Abandoned railroad beds constitute important resources for trails. Old rail rights-of-way were remarkably well constructed, and are often as dry, solid, smooth and clear as the day they were built. They make marvelous recreation paths. The Rails to Trails Conservancy is a national group that can provide you with a host of materials available for rail-trail projects. Some of the existing trails in Vermont that take advantage of abandoned rail beds include the Burlington Bike Path, the Delaware and Hudson Rail Trail between Castleton and Poultney, the Mississquoi Valley Rail Trail (MVRT) from St Albans to Richford, the Cross Vermont Trail on the former Montpelier Wells River Railroad, the West River Trail from Brattleboro to South Londonderry and the Beebe Spur in Newport and Derby. As of 2005, a total of 60 miles of state-owned rail trail have been established and are in use.



The Vermont Agency of Transportation has a policy that state-owned railroad property shall be retained for future railroad use, and may be used for bicycle/pedestrian paths in the interim. The Agency of Transportation may then lease the railroad property to units of federal, state, or local government for interim use, i.e. “railbanked” lines. Current railbanked lines in Vermont include the Burlington Bikeway, Delaware and Hudson, the Beebe line, and MVRT.

Vermont also has several very old railroad beds, which may still exist physically, but have fragmented ownership. While establishing a trail on these older railroads will be far more challenging, it is well worth considering their potential as part of your community trail network. These railroad lines were abandoned long before federal railbanking law was in place, and land ownership generally reverted back to the adjacent property owners. Examples of these older railroad lines include the Montpelier-Wells River Railroad, Rutland Railroad, the Island Line, and the Peavine Railroad.

Regional Perspectives: Look at trails and conservation projects in your neighboring communities, and for opportunities to extend and enhance regional trail networks. If you could link your trail with those of neighboring communities, your trail could provide a much longer route. Regional trail can also potentially serve as an alternative transportation network. Again, your regional planning commissions will be aware of trail and greenway projects in your area that you should consider in the inventory stage of planning.

Detailed Inventory Data for a Trail Corridor

An inventory for a specific trail corridor may contain many of the features above, at least those that are known to be present. Once you begin planning for a specific trail corridor or project, there are more detailed datasets available to assist you:

Aerial Photography-Using aerial photography as a base layer of your inventory map is extremely helpful. All of Vermont now has digital aerial photography available. These can be used as a base layer in your maps, allowing even better visualization of the trail corridor's features and environment.

Property Boundaries- Many towns now have their property boundaries digitized and entered into GIS, so that they can be overlaid onto these other features.

Local Knowledge and History-Speaking with people who have lived in your community a long time, or know it particularly well, can also inform your inventory. Some trail projects have become great opportunities for history lessons, as trails may often pass through historic sites, use abandoned road or railroad corridors, and have a rich history of their town long before becoming a popular trail. You can gain a lot from an insider's knowledge of the lay of the land, the history of the area, and the patterns of use by wildlife. Other sources of information include university libraries, local libraries, historical societies, and your local bookstore.

Field Measurements and Observations-Field work is a final way to look for new features along a trail that you may have learned about through interviews, or determine if changes have occurred since the GIS data you are relying on was entered. Using Global Positioning Systems (GPS) equipment, you can field locate points by geographic coordinates, and maybe even ask your regional planning commission GIS staff to enter these features into GIS so that they will be accurately located on future maps.

Using your Maps

Accurate inventory maps will be vitally useful in your work to discuss the trail network or trail with people from your town or landowners. It will allow you to share your vision of what places a trail or greenway will connect, how it can be used and enhance your community, as well as some of the challenges that you may face. Bring your maps with you whenever you will be talking about the trail.

Inventory and Mapping Resources

Contact your regional planning commission (see end of Chapter 2) for mapping assistance.

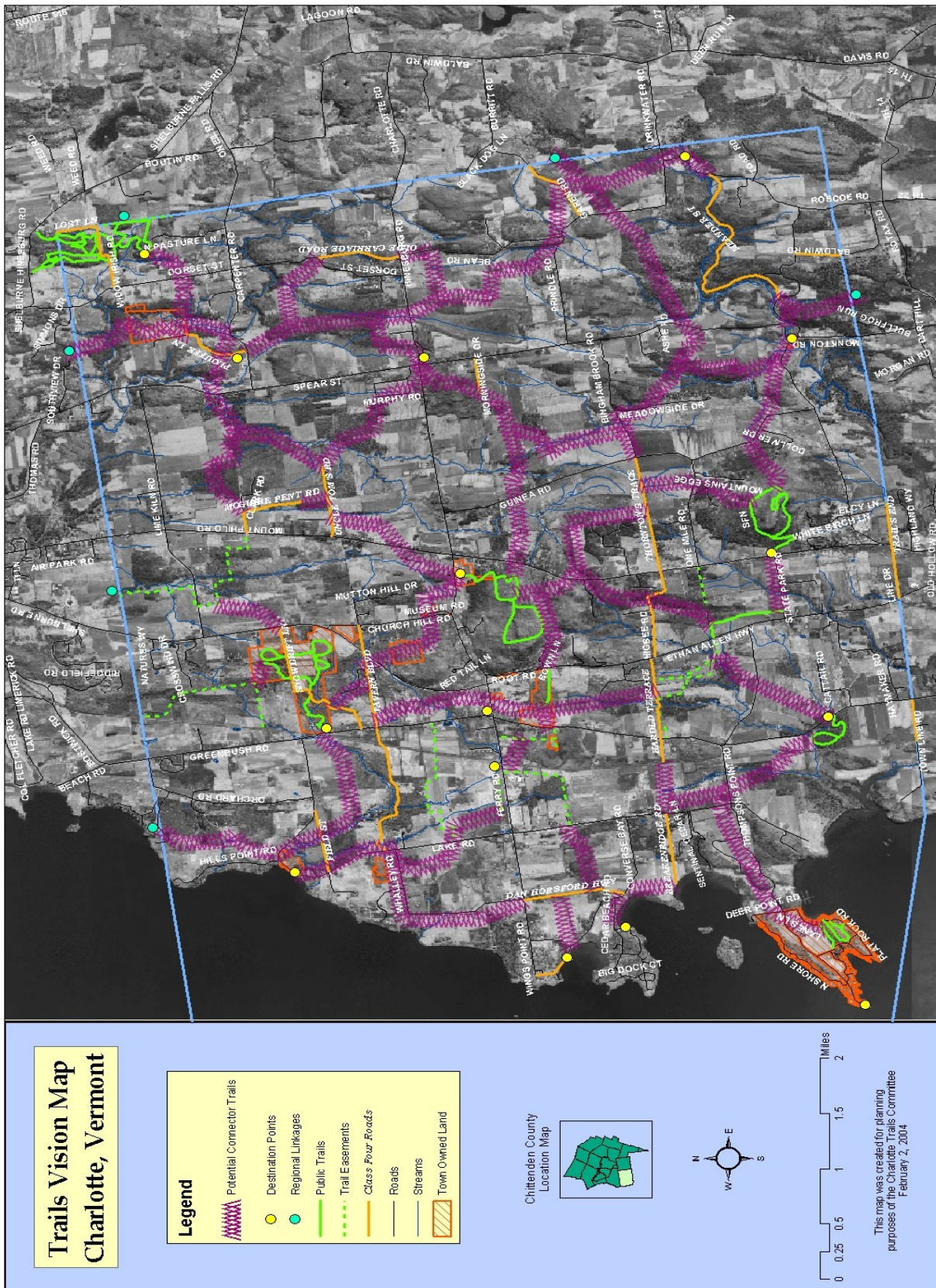
The Vermont Center for Geographic Information (www.vcgi.org) provides geographic data for download.

The Vermont Trails and Greenways Council has published a useful summary of information about Class 4 Roads in Vermont, which can be found through their website at

<http://www.state.vt.us/anr/fpr/greenways/spr04in.pdf>



Making Use of Trail Planning Maps in Manchester, VT
Credit: Lee Krohn



Chapter Five: Trail Layout and Design

This chapter will give you some guidelines for creating a detailed physical design for your trail. Once a detailed understanding of the trail route environment has been gained through inventory and mapping of the area, it is time to put pen to paper and determine exactly where the trail should go (the "layout"), how wide it should be, what kind of surface it should have, what if any landscaping and signage is needed, etc. (the "design"). This chapter is intended to help you with some of these decisions.

Laying out and designing a trail is very often an iterative process. There will be multiple factors and people and processes that will influence the trail's location and design. It is however important to start with a "concept" design of the trail. This will help you discuss the trail with landowners, local officials, residents, and state agencies that you might need environmental permits from. As you discuss your proposed trail concept with all of these stakeholders, they may each offer suggestions of things they would like to see. This could range from limiting the users of the trail, perhaps preferring non-motorized use only, for example; or perhaps suggestions of locations of where to cross a stream to minimize impact and make easier environmental permitting.

As you continue this process of working on layout and design, new ideas will come to you. As you get deeper into planning the project, you will continue to refine and have new ideas. Enjoy these revelations, and take advantage of them. Setting your ideas in stone too early could deprive you of the best trail you can have.

Who will Use the Trail?

The most important factor that will determine most of the important design features of your trail are, what uses are you planning? The following is just a partial list of potential uses, and each will bring certain design features. Some uses may be incompatible with others.

- walking
- hiking
- handicapped accessible use
- mountain biking
- road biking
- inline skating
- cross country skiing



Mixed Users on the Missisquoi Valley Rail Trail
Credit: Bonnie Waninger

- horse back riding
- paddling and portaging canoes or kayaks
- snowmobiles
- dirt bikes
- ATV (all-terrain vehicles)

A general concept to consider when deciding what uses may be feasible for your trail is “the user envelope”, which defines how extensive the physical requirements will be (i.e. width, maximum curvature, length of visibility, firmness of the surface). There are also limits to how many different types of users at widely varying speeds will be able to safely enjoy the trail together. Seasonal variations can provide opportunities for many uses that complement each other throughout the year. A summary table of these requirements is provided later in this chapter on pages 41 and 42.

Trail Layout

Trail layout involves physically locating and marking the route of the trail on the land. Armed with maps of the general route identified in earlier steps, you can now make a determination of where your path will go. As you walk the trail route, tie pieces of bright flagging tape on trees to mark approximately where the path will go. Where there is no vegetation, attach pieces of flagging to wire stakes and stick them in the ground. A poster describing the planned trail, sponsors and why the trail is being marked will educate curious observers and may protect your hard work from vandals.

As you mark the trail the potential trail route, keep in mind the concept of “control points”. These are features in your trail corridor that are either desirable for the trail, or places that the trail should avoid: Your first “draft” trail layout should seek to connect the desirable control points, and avoid the undesirable features. Following this will be a design process to refine and improve your layout route, check with stakeholders, and refine your alignment again as needed, keeping the following considerations in mind:

Water Resources: Water features, such as streams, wetlands, or waterfalls, will be some of the most rewarding and challenging features of your trail corridor. Waterways can provide a natural trail corridor, or a resource for a water-based recreation trail. Connecting people to these resources will



View from the Missisquoi River Section of the Northern Forest Canoe Trail
Credit: Jen Lamphere

be of great benefit and earn popularity for the trail, but will also make gaining the environmental permits and approvals for your trail more complicated. Wildlife will also be more prevalent along waterways, which should be a consideration in your layout.

Slope: Also known as grade, the slope of your trail is critical to the types of uses for which it will be suitable. The table attached to this chapter

provides an overview of the typical grades on trails for various uses. Also, the references listed at the end of this chapter will provide more detailed guidelines. Unless your trail will be raised (as in an old rail bed) or paved, it should be crowned to avoid the puddling of water that will eventually create a quagmire.

Topography: The trail ought to fit with the contours of the land, going with them rather than cutting across them wherever possible. Sidehills can be among the most stable type of trail alignment if properly designed, and switchbacks can be used to change elevation.

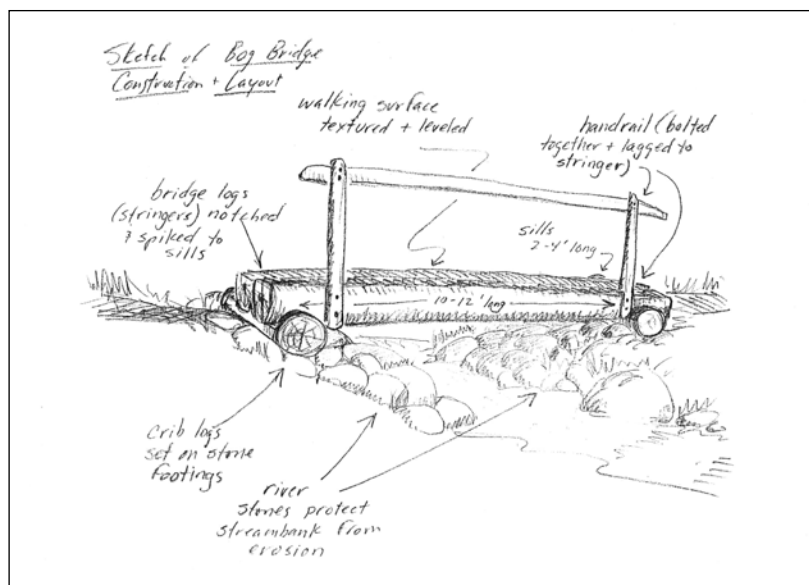
Scenic Views or Points of Interest: Keep in mind that a variety of trail environments makes the experience more interesting and fun for trail users. Seek out changes in elevation, vegetation and scenery. Avoid long straight stretches, which are dull. Consider the need for a harder wearing surface for areas that see more intense use, such as scenic overlooks or picnic sites.

Crossings: If possible, cross roads and streams at right angles to the flow. This is safer for the trail user, and helps avoid excessive damage to stream banks. However, you will also need to consider line of sight for the crossing, especially for trails for higher speed users (biking, skiing, or motorized uses).

Trail Intersections: Make connections with other trails in places that are comfortable and obvious, so confusion is minimized and use of the trail network is encouraged. This also includes locations where access to the trail is provided, such as parking areas and entrances at schools, downtown or in neighborhoods.

Road Intersections: If your trail will need to cross a road or street, how and where to cross will require careful consideration. Lower volume or slower speed streets can often be safely crossed with marked or unmarked crosswalks. High volume roads or highways may require a grade separated crossing, either a bridge or underpass. Providing these types of crossings is a great expense, and the costs and benefits of such a crossing will have to be weighed with other project needs.

Curve: Adequate sight distances along the path vary depending upon the speed of those traveling the path. A hiking or pedestrian path can be (and should be) curvy. As traveler speed increases, from equestrians to skiers to bicyclists to motorized vehicle riders, safe sight distances lengthen. Guidelines for shared use path sight distances are provided by *Vermont Pedestrian and Bicycle Facility Planning and Design Manual*. In general, the practice of common sense and care will help you provide adequate sight distances for your trail or greenway.



Bog Bridge Design by Luke O'Brien



Handicapped Accessibility: The Americans with Disabilities Act requires that reasonable efforts are made so that public facilities are accessible by the disabled. Since this law was passed in 1990, the federal government has been developing and publishing specific standards and guidelines for design and construction, known as ADAAG, or Americans with Disabilities Act Accessibility Guidelines. There are numerous benefits to the community in providing accessible trails, as it will greatly broaden the constituency to include the approximately one in five Americans who are disabled in some

way. On the other hand, these guidelines acknowledge that some types of trails, such as wilderness hiking trails in steep terrain, cannot be made accessible and still retain their purpose. If your trail is of moderate terrain and difficulty, the addition of design features to allow full accessible use by people of varying abilities will be very valuable.

Design

The most basic design issues for your trail are:

- How wide and high should the trail clearing be?
- What surface should the trail have?
- How should the water be drained?

The matrix on pages 41 and 42 is intended to give some guidance on the basic issues of width, height and surface, and related design characteristics. Published guidelines can vary from source to source; the ones shown here shows guidelines from various sources. Of course, final determination of these features is up to you as trail designers; however, these are the generally accepted standards for trails according to the type of use.

Other design issues include shoulder width, landscaping, signage and parking and other access. If you are hiring a consultant, either an engineer or landscape architect with trail design experience, for construction drawing, he or she should be able to help you with these issues also.

Shoulder Width: The shoulders of a trail are the cleared areas on either side of the actual treadway or paved area. Shoulder width depends on the intended usage and on aesthetic preferences of the designers. For a walking path in the woods, your shoulders might be only 18 inches wide on each side of the trail. For a paved bike path, shoulders of 2 to 3 feet are recommended.

Landscaping: Landscaping will be influenced by a number of considerations, including aesthetics, stabilization of the soil, safety, and privacy of adjacent properties or landowners. For instance, where a path crosses a road, judicious clearing of trees and planting of low growing shrubs and perennials just makes sense. Similarly, where a path traverses someone's backyard (someone who has generously agreed to grant the right of way despite a small holding to begin with), a privacy planting

of high shrubs such as lilac, or the creation of earthen berms, would be a good idea. In some areas, where steep slopes are present, the proper ground cover is required to prevent soil erosion. In any case, plan on using native plants, and avoid exotic, invasive species.

Signage: Critical points for signs are access areas (such as trailheads and parking); intersections (such as where your trail links into a regional system or loops back into itself); and danger points (such as road crossings, sharp turns or precipitous drops). Further signage may be desirable, depending entirely on the nature and purpose of your trail. Informational signs regarding the natural environment, local businesses, points of scenic or historic interest, or other trail-related factors can be used in some settings. Directional signs for schools, shopping areas, town borders or recreation areas can also be beneficial in some cases. It is often a temptation to "over-sign" a trail. Some restraint is a good thing; it is important for trail users to experience discovery for themselves. In general, the more primitive the trail, the less signage is appropriate. Similarly, the more primitive the trail, the more rustic the sign "style" should be. Much of this is common sense, but remember to plan ahead - good signs can really be a boon for your trail. Design them so that they:

- 1) are easy to read,
- 2) give the information desired in a clear format, and
- 3) discourage thievery or vandalism.
- 4) portray positive messages, i.e. "Do's", rather than "Don'ts"

Parking: Determining the amount and type of likely use of your trail will guide you in providing adequate parking. Placement and design of parking areas will be an important design component. If the trail is a short loop, one large area is probably adequate. A linear trail might require parking lots at either end. If it were very long, intermediate access parking areas could be a good idea. Placement should also take into consideration the traffic situation on the access road(s). Seasonal variations of users should also be considered, such as snowmobile trailer parking versus bicycle user parking. Design of parking areas should allow for good visibility in either direction up and down the road, plenty of turn around space and sufficient area for loading, unloading and for people to gather.

Handicapped Access: The Americans with Disabilities Act requires that reasonable efforts are made to accommodate disabled trail users. Making your trail accessible to wheelchair users opens it up to a wider community that needs and wants such opportunities. Other than backwoods hiking, biking or equestrian trails, which are rustic by definition, most paved trails, hardened trails, and water trails can be made accessible to people of varying abilities. An outstanding resource for this topic is *Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide*. Reference information for this document is listed on page 43.



Northern Forest Canoe
Trail Portage Sign

General Trail Characteristics for Vermont

Trail Type	Recommended Tread Width	Cleared Width	Cleared Height	Recommended Maximum Grade	Surfaces	Bridges & Boardwalks
Hiking	18" – 2'	3-4'	8'	15%; 25% for short stretches	soil, stone	Rock crossings, timber or prefabricated bridges, recycled lumber boardwalks
Town or City Sidewalks	Local: 6-8' Commercial areas/downtowns: 8-10'	2-4' either side on local streets 5-8' for busy streets	8'	5% or less running slope; 2% or less cross slope	Concrete, asphalt, compacted crushed stone or earth, soil cement	Protective handrails by drops of 30" or more, slope of 1:4 or more, or fast/deep water
Shared Use Paths and Rail-Trails	Paved 10 – 14' Unpaved 8-10'	2-3' either side	8-12'	Less than 5%; steeper grades as needed for short distances	Asphalt, concrete, soil or soil with stabilizer, crushed rock	Timber or prefabricated; at least as wide as path leading up to it
Mountain Biking; Singletrack	18-24"	2-4'	8'	(15%)	Natural surface, sometimes with rock, tree and brush obstacles	Rock crossings or timber bridges
All-Terrain Vehicles	5-8'	7-10'	9'	(10-15%)	Soil, stone	Minimum 5' wide, timber or prefabricated
Off-Highway Motorcycle	18-30"	1.5' each side if level; 2' downhill side and 3' uphill side if sloped	9'	8% (Easiest) to 30% (Difficult)	Soil, stone; avoid sand and loose materials for easier trails; difficult trails more rough	Minimum 3' wide, rock crossings, timber or prefabricated bridges
Snowmobiles	Class 1: 14' Class 2: 12'	2' clear zone either side	Class 1: 12' Class 2: 10'	10-15%	snow	Strong enough to accommodate groomers (4 to 12' wide, 1 to 10 tons) on main corridors
Accessible Trail	8-14'	5' unobstructed zone on either side of trail	8-10'	5% or less; steeper grades for short distances if "staging areas" provided; cross-slope 2% or less	"stable, firm and slip-resistant" criteria; Portland Cement concrete, asphalt, soil with stabilizer, ¾" minus crushed rock;	Timber or prefabricated with apron & approach railings; curb ramps and detectable warnings (truncated domes)
On-Road Bicycling	Bike lane: 4-6' Paved Shoulder: 3-5'	Additional shoulder width needed by guardrails or bridge railings	8-10'	Provide additional shoulder width if grade over 5%	Pavement, kept clear of sand and debris	Approach width of the trail should be carried across the bridge

General Trail Characteristics for Vermont, continued

Trail Type	Recommended Tread Width	Cleared Width	Cleared Height	Recommended Maximum Grade	Surfaces	Bridges & Boardwalks
Horseback Riding	18-30" (1 lane)	5-6' (one lane)	10-12'	10%; 20% for shorter than 50 yds	Natural trail surface; avoid sharp gravel	Flat, solid decking that doesn't bounce; minimum 48" wide with strong, high railings
Cross-Country Skiing	8'; wider at turns and uphill/downhill sections	Groomed 10-12' Backcountry 4-6'	8' above average snow depth	Novice: 8% Intermediate: 15% Expert: 25%	snow	Minimum 8' wide and 4'6" railings
Canoe/Kayak Portaging	2'	4', with gentle, large radius turns where needed.	10'	5 to 10%	Clear of debris, well drained	

Trail Layout and Design Resources

The nitty-gritty of design may be handled by a consulting engineer or landscape architect, or you may sweat out the details as a group. Your goal is to end up with detailed drawings of every aspect of the trail, from which a construction crew can proceed. Details such as the amount of gravel and inches of pavement needed to withstand expected usage, construction of bridge abutments, placement of culverts and other really technical needs are probably best left to a professional. Notable resources include:

The Complete Guide to Trail Building and Maintenance by Carl Demrow & David Salisbury, Appalachian Mountain Club, <http://www.atctrailstore.org/>

Appalachian Trail Fieldbook: Maintenance and Rehabilitation Guidelines for Volunteers by Appalachian Trail Conference, <http://www.atctrailstore.org/>

Trail Construction & Maintenance Notebook; USDA Forest Service, 2004.
<http://www.fhwa.dot.gov/environment/fspubs/00232839/>

Off Highway Motorcycle & ATV Trails: Guidelines for Design, Construction, Maintenance and User Satisfaction, Pennsylvania ATVing, <http://www.paatving.com/ama/trailguidelines.asp>

ATV Trail Guidelines, Maine Bureau of Parks & Trails,
www.state.me.us/doc/parks/programs/ATV/atv_trailguide.html .

Guide to the Development of Snowmobile Trails, Vermont Association of Snow Travelers (VAST), 2001. <http://www.vtvast.org/>

Vermont Pedestrian & Bicycle Facility Planning and Design Manual, Vermont Agency of Transportation, 2002,
www.aot.state.vt.us/progdev/Documents/LTF/FinalPedestrianAndBicycleFacility/PedBikeTOC.html

Lightly on the Land: The SCA Trail-Building and Maintenance Manual by Robert C. Birkby, The Mountaineers, 1996. http://www.thesca.org/res_trail.cfm

Trail Solutions: IMBA's Guide to Building Sweet Singletrack by Vernon Felton, International Mountain Biking Association, 2004
http://www.imba.com/resources/trail_building/trail_solutions.html

Trails for the Twenty-First Century 2nd Edition, by Flink, Olka and Searns, Rails-to-Trails Conservancy, 2001. <http://railtrails.tranguard.com/>

Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide, Federal Highway Administration. Available on the internet:
<http://www.fhwa.dot.gov/environment/sidewalk2/index.htm>

Chapter Six: Land Protection and Acquisition Techniques

The trails in our communities vary widely in terms of land ownership and protection. Some informal neighborhood trails exist on land without any special status or protection, but rather reflect the generosity of the landowner who has given permission for trail use. Other trails, such as the Appalachian Trail, have a relatively wide right-of-way owned by the National Park Service.

If you are establishing a new trail, there are a variety of ways that land can be protected. One important consideration is whether or not it is necessary to have a permanent agreement or easement from the landowner. Many trails, such as the VAST network, are not owned or permanently protected. Rather, the snowmobile club has signed agreements from landowners that are renewed annually. The landowner has the opportunity every year to revoke permission, or ask for the route to be altered. This relatively informal, flexible approach has allowed VAST to establish a very large and successful network. However, there are occasional incidents where trails must be closed or re-routed when landowners change their mind about the trail, or there are new landowners who are not receptive to trail use.

For any trail that you anticipate making significant investments in infrastructure, such as bridges, retaining walls, or paved surfaces, you will need to secure permanent protection of the land. This is a requirement of grant programs that provide funds for these projects. In many cases, this becomes one of the most difficult tasks of a trail project. As you look to acquire land for your trail, also consider the likely funding sources that you would use for construction. Federal funding comes with strict guidelines about land acquisition, so it is important to seek guidance if you believe you may be in this category. VTTrans offers a helpful explanation of this in their *Local Transportation Facilities Guidebook*, which is referred to on page 55.

Some trail groups have taken the approach of establishing their trail through license agreements, and then evolve into more permanent protection once landowners become accustomed to the trail, and are willing to support it permanently.

The following are some land acquisition or protection techniques that have been used for trail corridors.

Land Acquisition Techniques

- Handshake agreements
- License agreements
- Leases
- Easements
- Outright Purchase (Fee Simple)

Informal "handshake" agreement- These usually consist of either a verbal agreement or a letter by the landowner and the trails organization. They are the least permanent form of trail access agreements, but they allow a landowner and trail organization to try out a potential trail alignment on a trial basis before potentially considering a more permanent arrangement.

License Agreements These are agreements that outline the permission that the landowner is granting to a trail organization. They are somewhat more formal than handshake agreements, and have been used highly successfully by VAST. Other organizations have also begun using them. The information contained on a license agreement would typically include the location of the trail, types of use, hours of use or other conditions that the landowner would like to see.

Leases- Land for your trail can be leased from landowners. This option is not an excellent one, for a number of reasons: it represents an ongoing expense; your rights to the land are limited to the length of the lease; and your options for management of the land for the trail may be limited by the terms of the lease. However, in some cases a lease may be your only or best option.

Easements - An easement is an agreement whereby the landowner sells or donates a portion of the rights of use or development on all or part of his or her land. A trail easement is a permanent right-of-way, usually a long, narrow strip of land through which a trail is maintained and the public may pass. The land continues to be owned by the original owner, and the trail easement is conveyed to the trail group (or other entity, such as the town) by donation or purchase. In return for conveying these rights, and subject to standards specified in the IRS code, the landowner may be entitled to tax benefits. The trail easement may be any width that is comfortable for the landowner and useful for trail building, maintenance, and intended types of uses (25-50 feet is typical). A trail easement is legally binding, remaining in force when the property is sold or changes hands. The trail organization is responsible for monitoring the land at least annually.

Easements for trail projects are usually access easements, or open space, scenic or conservation easements. Access easements simply allow for the construction of a trail and the passage of trail users through the property. Conservation easements would also include restrictions upon development or other significant land-changing actions by the landowner. When properly written, easements are legally binding agreements which "run with the land," meaning that if the landowner sells his title, the restrictions or allowances that are part of the easement are also binding upon any subsequent owner.

Sometimes trail easements are part of a larger land conservation easement project. The Catamount Trail has several sections of trail easement that are part of larger land conservation projects, completed in partnership with land trusts.

Outright Purchase - Buying the land on which your trail is built offers the most comprehensive, long-term protection that is available. If you have a very large source of funds available, it might be desirable to begin negotiations with landowners for the outright purchase of a trail corridor at market value. Few trail groups, however, will have the necessary funds. Sometimes outright purchase is the best alternative for certain critical sections of your trail, such as a bridge site. The disadvantages of ownership can include: 1) being forced to buy and hold more land than you really need for the trail; 2) responsibility for managing any extra land; 3) land unnecessarily removed from town tax rolls; and 4) breakup of existing properties.

Sometimes you can arrange to purchase land in the trail corridor for less than its market value. This benefits your organization because you save some money; and it benefits the seller because he or she can take a tax break on the difference, which amounts to a gift. This situation can be especially useful for people who need to realize some gain from their land, but who wish to help you with your project.

Before raising the possibility of a bargain sale with such a landowner, read up on the latest tax laws or visit with a professional, so that you can inform the landowner knowledgeably and accurately about the tax benefits of this approach. Of course, the disadvantages of ownership still apply whether you paid full price or not.

As with all the acquisition and protection techniques discussed in this chapter, having the flexibility and willingness to protect your trail corridor through a diverse package of techniques will help you toward your ultimate goal. When negotiating with landowners toward outright purchase, assessments of the land's market value should be made by a third party agreed upon by you and the landowner. Closing of the deal can be carried out similarly to any ordinary land transaction.

Finally, a word of caution if federal funds are to be used in the acquisition or construction of the trail, either now or in the future: it is essential that certain procedures be followed in acquiring the land. Check with the related state and federal agencies before taking any action. ANR website has a Land and Water Conservation Fund (LWCF) link with acquisition documents containing required forms and language.

Ultimately, you will probably use a little bit of each of the above techniques in creating your trail. Keeping careful records along the way will help your management efforts later, because you will know exactly where your responsibilities lie for each section of the trail.

Considerations about Trails and Liability

As there is a very strong tradition of Vermont landowners sharing their land for recreation, Vermont law provides several layers of protection against liability.

Legal protection of landowners:

- Vermont's landowner liability statutes do an excellent job of protecting landowners from liability. The general statute (12 V.S.A. Section 5791) says that no owner is liable for any property damage or personal injury to a person who uses the property for recreation, providing a fee is not charged. Landowner liability increases if a fee is charged for use of the property for recreation, since a higher level of care (responsibility) is owed to recreationists.
- Other specific statutes provide additional protection for landowners who allow snowmobiling, all-terrain vehicle (ATV) riding, horseback riding, and bicycling.
- The strong landowner liability protection laws make it very difficult for a party to bring a successful suit unless the landowner has intentionally created a danger or engaged in willful or wanton misconduct.

Acceptance of risk by the user: Under Vermont law (12 V.S.A. Section 1037, Acceptance of Inherent Risk), recreationists accept the risk in the sport they perform. This means they cannot successfully sue a landowner for injuries sustained as a result of the risk inherent to the activity, when snowmobiling, cross-country skiing, mountain biking, or even walking.

Private landowners in partnership: A landowner's liability decreases as the degree of public or non-profit interest in lands increases.

Effect of posting on liability: The landowner is protected whether or not the land is posted.

Effect of easements on liability: Easements do not affect liability. Both the landowner and the party holding the easement are similarly protected, as if there were no easement. A landowner's liability decreases as the degree of public or non-profit interest in lands increases.

Additional protection for the landowner:

Most standard homeowner's insurance policies cover legal expenses and damages awarded as a result of a lawsuit. The landowner can also seek "contractual indemnification" - also called "hold harmless agreements" - or become an "additional insured" with the organization or agency using the land. In contractual indemnification, an organization agrees to pay the cost of defending a lawsuit and any judgments against the owner. As an additional insured, the landowner is added to the organization's or agency's insurance policy, and thus is covered.

Summary of Land Acquisition Options:

Informal "Handshake Agreement"

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Easy, flexible; allows the landowner and the trail group to "try out" a potential trail route on a trial basis 	<ul style="list-style-type: none"> ▪ Not a permanent arrangement; often stops when the land is sold

License Agreement

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Leaves land in private ownership ▪ The agreement clearly spells out the responsibilities of the trail maintaining organization and the landowner 	<ul style="list-style-type: none"> ▪ Not a permanent arrangement ▪ Changes easily as ownership changes

Trail Easement

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Leaves land in private ownership ▪ Can be tailor-made to the needs of the landowner and the trail organization ▪ Is permanent and runs with the property 	<ul style="list-style-type: none"> ▪ Can be less effective if not carefully written and monitored by the trail organization ▪ More tax advantages for the landowner if it is part of a larger land conservation project

Donation of land

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ The landowner may qualify for tax benefits ▪ Liability is passed to the trail organization 	<ul style="list-style-type: none"> ▪ Can be expensive for receiving organization if problems with property (for example, if title is clouded, or property may contain hazardous materials, etc)

Option or Right of First Refusal

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Little or no cost in the short-term ▪ Safeguards the opportunity for the trail organization to not lose a trail segment, should the property change hands, but does not permanently obligate either party ▪ Doesn't change whatever current trail arrangement there is 	<ul style="list-style-type: none"> ▪ When land is offered, there will be a need to raise funds for the purchase possibly with short notice.

Purchase of trail corridor/land

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Landowner receives compensation, trail organization receives full rights and title to land ▪ Avoids complex long-term administration and/or management issues that occur sometimes with other trail arrangements 	<ul style="list-style-type: none"> ▪ Can be expensive; organization may not have the funds or the capacity to raise them ▪ Trail organization must be able to cover ongoing land ownership costs – taxes, stewardship, management and maintenance

Land Acquisition and Protection Resources:

Public Recreation on Private Lands: A Landowner's Guide, by the Vermont Department of Forests, Parks and Recreation, 2002

Trails for the Twenty-First Century: Planning, Design and Management Manual for Multi-Use Trails, Rails to Trails Conservancy, 2001

Protection Tools for National Rivers and Trails, Appalachian Trail Conference, 2002

See list of Land Conservation Organizations on pages 5 and 6.

See sample landowner permission form developed by the Vermont Association of Snow Travelers, shown at the end of Chapter 3.

Contact the Vermont Housing and Conservation Board for information on land acquisition funding and technical assistance. www.vhcb.org

A Variety of Trail Users on Vermont's Trails



Mississquoi Valley Rail Trail Dog, Rider and Bike
Credit:: Bonnie Wanniger



Spruce Grouse on the Trail
Credit:: Luke O'Brien



Cows Crossing the Mississquoi Valley Rail Trail
Credit:: Bonnie Wanniger

Chapter Seven: The Permit Process

This chapter will help you learn about the environmental permitting process, and the permits you may need to build your trail. It is the responsibility of government to regulate the cumulative impacts of the building activities in their jurisdiction, and to ascertain that the environment or neighboring properties are not going to be adversely affected by development.

Although the permitting process can be challenging and time-consuming, the process can also result in an improved trail design, with fewer environmental impacts. The process will require careful attention to detail, paperwork and filings, and frequent communication with the permitting agencies. Keep in mind that the staff charged with granting permits can be extraordinarily helpful, and their job is to guide you through the permitting process, not be an obstacle. Another thing to keep in mind as you go through the permitting process is that you will need flexibility and patience, as the design of your trail project may undergo some refinements and changes in order to gain approval. Your discussions with landowners may have resulted in some changes to the design or layout of your original trail concept. Be prepared for further changes arising from the permitting process, which should ideally make the permitting much simpler by avoiding certain natural resources or historic sites, for example.

There is often some tension in the planning and design of trail corridors. Often, one of the purposes of a trail or greenway project is to connect people with a special environment, perhaps along a river or stream, or near the edge of a pond or wetland. Connecting people with the natural environment is of great value, provides education opportunities, provides enjoyment and solace, and increases appreciation of the natural world. On the other hand, the officials responsible for protecting the environment of these special places might prefer that they are not opened up for access, and that trails instead be built along corridors that are already developed, such as along road right of ways. Building a trail in a sensitive area will require much more careful design, perhaps some flexibility from your original ideas, and may be more costly. For example, boardwalks or bridges may be required to minimize impacts to low wet areas. You will need to consider the balance between your goal of providing access to natural areas with keeping the project more easily permitted.

Levels of Permits and Jurisdiction

While you may need very few if any permits, there could potentially be several different permitting entities that you would need to interact with and obtain permits from. These include:

- Local permits certify that what is being built conforms to the public health and zoning ordinances adopted by the municipality.
- State permits State highway access permits are required if your project will cross or be within a state highway right-of-way. State environmental permits or certifications ensure that the project will not have negative impacts on streams, roads, wetlands, historic buildings or areas. Act 250 permits may be required for construction projects involving

more than 10 acres of land or on lands already governed by Act 250, and certify that the project conforms with the town plan and regional plan, and will not have undue adverse impacts on traffic flow, town services, land and waters, wildlife, historic areas, and scenic areas.

- Federal permits from the U.S. Army Corps of Engineers or the U.S. Coast Guard may be required in special cases, such as a project that uses federal funds, or affects federally-owned land, navigable waterways or federally-designated wetlands.

How to get started

With your inventory and mapping, combined with your concept of where your trail might go, and what type of trail it will be, use your best judgment to assess what types of impacts your trail might have. Many of the important resources that are protected by the permitting process are mapped and available on the GIS through your regional planning commission, so this will make your job easy. Class 1 or 2 wetlands, floodplains, historic sites or districts, river or stream crossings or impacts to public parks are examples of impacts you should be able to determine with your GIS maps and trail concept. There are several types of resources, however, that will be less obvious.

Most of Vermont's wetlands are Class 3, and therefore not included on most GIS wetlands inventories. Some municipalities have done more detailed wetlands inventories, which may be helpful. If your trail corridor may impact a low wet area, it is likely there will be wetlands impacts, so you should plan on speaking to a representative of the Agency of Natural Resources wetlands office. Another less obvious impact, which you may need to seek additional information about, is archaeological impacts. The Vermont Division for Historic Preservation is responsible for protecting our history that is buried beneath the ground, preferably by avoiding disturbance to these resources. It is difficult for a lay person to assess whether or not there may be significant archaeological resources impacted by your project, but a few things to look for include old foundations, or sites near rivers where Native Americans may have camped or fished. If you can plan your trail to provide some access to interesting sites, without harming them, which is ideal, as the trail will help with enjoyment and interpretation of our past. Again, contacting the Vermont Department of Historic Preservation should be among your first steps in this process.

If you'll be using federal funding for construction (such as VTrans Transportation Enhancements Program, Public Lands Highways Program, Federal Recreational Trails Funds, or VTrans Bicycle Pedestrian Program), you could be facing a more complicated permitting situation, and your best option may be to seek funding for design and permitting. In these cases, you should consider pursuing funds to conduct a feasibility study of your project. There may be other sources of funds for this type of study, such as the Municipal Planning Grant program. An example outline of a Feasibility Study is provided at the end of this chapter, and information about the technical assistance grants is provided on page 68. This study will be very helpful in determining if there are significant potential permitting issues, and explore alternative alignments to minimize the impacts and difficulty in getting permits.

It is important to seek the guidance of environmental permitting staff before you have invested too much in design of your project, but after you have a fairly specific idea of where you want your trail to be, and the environmental features that exist on the corridor. Your first visit with permitting staff should happen after you have an inventory map, and a rough idea of the type of trail (i.e. trail design), and the trail corridor. There may be many ways you can design sensitive portions of the trail

to avoid impacts, and therefore make the permitting portion of your work much easier for everyone.

Make sure first of all that your trail concept does not have any “show-stoppers”, or impacts to important resources so significant that the agencies will not be able to grant you a permit. Review potential impacts with the permitting agency, to the various resources that you have identified on the GIS map, or that might potentially exist, such as wetlands or archaeological sites. Can the impacts be avoided with changes that would not compromise the overall value and functioning of the trail? If impacts are unavoidable, how can they be minimized through design? For example, building a boardwalk over a wetland area rather than filling it in.

The permits that you need will vary greatly. You should contact the various offices, describe your project and ask whether you need a permit. If you are unsure, agency staff will be able to help you determine whether or not you need to proceed further with them. Some offices, such as the State Historic Preservation Office, may not grant actual permits, but can provide certification that your project will not have adverse impacts in their area of concern.

Guide to Permits and Contact Information:

PERMIT/CERTIFICATION	Possible Indicators that Permit will be needed	CONTACT
U.S. Army Corps of Engineers	For projects involving navigable waterways or impacts to more than 2 acres of wetlands, or excavation in a floodplain.	U.S. Army Corps of Engineers Vermont Project Office Camp Johnson, Building 10-18 Colchester, VT 05446 PHONE: (802) 655-0334
Section 4(f) Public Parklands	Only required if federal funding is used. For Projects involving Public Parklands or historic sites, if federal funds are used.	Vermont Agency of Transportation Technical Services National Life Bldg., Drawer 33 Montpelier, VT 05633 PHONE: (802) 828-3441
Section 6(f) LWCF Lands	Only required if federal funding is used. For projects that could impact public lands of the Land and Water Conservation Fund (LWCF).	Department of Forests, Parks & Recreation 103 South Main Street Waterbury, Vermont 05671-0601 PHONE: (802)241-3960
National Environmental Policy Act (NEPA)	Only required if federal funding is used. Most trail projects would qualify for a Categorical Exclusion, which requires relatively simple documentation of possible environmental impacts.	Environmental Services Engineer VTrans Environmental Section National Life Bldg., Drawer 33 Montpelier, VT 05633 PHONE: (802)828-5265
Lakes and Pond Encroachment	For projects that involve construction on or within the buffer area of a lake or pond.	Lake and Pond Encroachment Environmental Engineer 103 South Main Street Waterbury, VT 05671-0408 PHONE: 802-241-3791

Guide to Permits and Contact Information, continued:

PERMIT/CERTIFICATION	Possible Indicators that Permit will be needed	CONTACT
Stream Alterations	For projects involving a stream crossing or streambank stabilization.	<p>Northern Vermont Stream Alteration Engineer 184 Portland Street St. Johnsbury, VT 05819 PHONE: 802-751-0129</p> <p>-----</p> <p>Northwestern and Central Vermont Stream Alteration Engineer 103 South Main Street 10 North Waterbury, VT 05676 PHONE: 802-241-3757</p> <p>-----</p> <p>Southern Vermont Stream Alteration Engineer 450 Asa Bloomer State Office Building Rutland, VT 05701-5903 PHONE: 802-786-5906</p>
Vermont Natural Heritage Program	If the project could impact the habitat of rare, endangered and threatened species.	<p>Vermont Department of Fish and Wildlife 103 South Main Street, 10 South Waterbury, VT 05671</p> <p>PHONE: (802) 241-3700</p>
Hazardous Waste Permit	For construction in areas that are known hazardous material sites.	<p>Hazardous Materials Section Department of Env'l Conservation 103 South Main Street, West Office Bldg. Waterbury, VT 05671-0404</p> <p>PHONE: 802-241-3888</p>
Agricultural Soils	For projects that would impact prime agricultural soils.	<p>Natural Resources Conservation Service 356 Mountain View Drive, Ste 105 Colchester, VT 05446</p> <p>PHONE: 802-951-6796</p>
State Wetlands Permit	If trail is planned within a wetland or wetland buffer area (50 feet from edge of wetland).	<p>State Wetlands Office, Water Quality Division Dept of Environmental Conservation Building 10 South, 2nd Floor 103 South Main Street Waterbury, VT 05671</p> <p>PHONE: (802) 241-3770</p>
State Historic Preservation Office	For projects with impacts to historic or potential archaeological sites. Many trails along rivers could potentially impact archaeological sites.	<p>Vermont State Historic Preservation Office National Life Building, Drawer 20 Montpelier, VT 05620-0501</p> <p>PHONE: 802-828-3211</p>

Guide to Permits and Contact Information, continued:

PERMIT/CERTIFICATION	Possible Indicators that Permit will be needed	CONTACT
Act 250	For all projects affecting more than 10 acres, on lands higher than 2,500 feet in elevation, or on property already governed by an Act 250 permit.	State Environmental Board 58 East State Street, Drawer 20 Montpelier, VT 05602-3201 PHONE: (802) 828-3309
Storm Water Discharge	This would generally only apply to trails with substantial paved surfaces, requiring more complex grading and stormwater drainage plans. Temporary permits may be needed for impacts during construction.	ANR DEC Wastewater Management Division Stormwater Section 103 South Main Street The Sewing Building Waterbury, VT 05671-0405 PHONE: 802-241-3822
State Highway Right-of-Way Permit Or Utilities Access Permit	For projects that will involve construction within the right-of-way of a state highway. This will be required if your trail travels along a state road, or crosses a state or interstate highway. If relocation of utilities in a state highway right-of-way (i.e. powerlines) will be required.	Vermont Agency of Transportation Utilities Department. National Life Building, Drawer 33 Montpelier, VT 05620-0501 PHONE: (802) 828-3876

Local Permits

Local permit requirements vary significantly from town to town. Contact your town planning and development staff, zoning administrator, public health officer, and highway commissioner or foreman to determine if there are any local permits you will need.

Permitting Resources for State and Federal Funded Projects

In addition, the VTrans Local Transportation Facilities program has developed a detailed project management and operations manual that outlines the process that local project managers must follow for VTrans funded projects, including all the permitting and approval steps. The processes in this manual are not required for projects with other funding sources, but this manual can provide a detailed reference. This manual can be downloaded from the following website:

<http://www.aot.state.vt.us/progdev/Sections/LTF/LTFGuidebook/LocalTransportationFacilitiesGuidebook.htm>

The following page shows an example outline for bicycle pedestrian project feasibility study, which will identify likely permits needed. Following that is a reproduction of the Historic Preservation Survey Form that accompanies the Vermont Recreation Trails Fund applications. It can be used to screen projects for potential historic or archaeological impacts.

Bicycle and Pedestrian Feasibility Study and Design Project Outline

- I. PURPOSE AND NEED OF THE PROJECT – identify goals and objectives, provide description of existing conditions (how do they hinder the goals?)

PROJECT AREA AND EXISTING CONDITIONS – identify the project area, existing conditions and proposed location of facilities. What other locations were considered? What origins and destinations are served by the proposed facility?
- II. RIGHT OF WAY – identify Town or State Highway right of way (if project parallels a highway) and abutting property owners and assess their level of interest in the project if their property is likely to be impacted.
- III. UTILITY IMPACTS – What existing underground and/or overhead utilities are in the project area? How will they be impacted by the proposed project? Will they need to be relocated outside the existing right of way?
- IV. NATURAL AND CULTURAL RESOURCES – identify constraints and possible design solutions and necessary permits. Include resource maps indicating identified resources and the relationship to the preferred alternative. Develop a resource impact matrix for inclusion in the final report.
 - A. Natural Resources
 1. Wetlands
 2. Lakes/Ponds/Streams/Rivers (stormwater discharge and erosion/sediment control implications)
 3. Floodplains
 4. Endangered Species
 5. Flora/Fauna
 6. Stormwater
 7. Hazardous Wastes
 8. Forest Land
 - B. Cultural Resources
 1. Historic
 2. Archaeological
 3. Architectural
 4. Public Lands
 5. Agricultural Lands
- V. CONSTRUCTION COST ESTIMATE – including preliminary engineering, right of way acquisition, construction, project management and construction inspection costs.
- VI. MAINTENANCE - Discuss anticipated maintenance needs of the proposed project, including how snow removal is likely to be addressed.
- VII. PUBLIC INVOLVEMENT – Document the extent to which the public supports the project and identify any potential problems.
- VIII. COMPATIBILITY WITH PLANNING EFFORTS – Indicate how the proposed improvement is compatible with relevant local Town plans, regional Transportation or Bike/Ped (if available) plans, and the 1998 VTrans Bicycle and Pedestrian Plan.
- IX. PROJECT TIME LINE – given the nature of the project what is your best estimate of the time it will take to scope, design and construct the project (or initial phase of the project).
- X. VIABILITY – why should VTrans or other funding sources consider this project proposal? Is the project responsive to a community need and is the public good served by spending local, state and federal dollars on this alignment? Are there other considerations that should be made before this project is advanced?
- XI. CONCEPTUAL PLANS
- XII. PRELIMINARY PLANS

Historic Preservation Survey

Project / Trail Name: _____

1. Are you proposing a project involving any rehabilitation, demolition, removal, or use of a structure or building which is more than 50 years old? Yes No
2. Does the project include excavation (to any depth) within a floodplain or within 200 feet of a river or stream? Yes No
3. Does the project include a stream crossing? If yes, describe on separate page, including width, length, ground disturbance, and depth of excavation. Yes No
4. Are there any cellar holes, foundations, mill ruins, historic ruins or areas of historic importance in the project area (i.e., roads or other historic features)? If yes, please describe on a separate page. Yes No
5. Do you know of any Native American sites or artifacts in the project area?
 Yes No
6. Is all proposed trail work to be done within the existing trail tread?
 Yes No

Permits & Clearances

Permit Specialists are available in the regional offices to answer your questions about the permit process. The Permit Specialist will advise you about needed state permits and will prepare a Project Review Sheet. The Project Review Sheet is a preliminary determination of not only environmental permits, but any state permits your project may need. It lists the agencies and departments and provides contact information. Knowing all of the permits required before you begin your project can prevent costly delays, saving you time and money. Has a Permitting Specialist at your Regional Environmental Office been contacted? Be sure you request a Project Review Sheet before January 1st to ensure you receive it before submitting your application.

___ YES ___ NO

If YES give status of any permits or clearances deemed necessary. If NO, please explain:

The following will be coordinated by FPR if the project is recommended for funding. Has the applicant initiated review for any of the following items for all or a part of this project? If so, please submit documentation with application to help facilitate the approval process.

Categorical exclusion YES NO

Environmental Assessment YES NO

Environmental Impact Statement YES NO

Historic Preservation (Section 106) clearance YES NO

The following is reprinted from *Greenspace* Newsletter, published by Parks and Trails of New York, www.ptny.org

Integrating natural values and recreational use

River and stream corridors provide unique trail and greenway opportunities. They are linear in nature and tend to be relatively flat. They are usually undeveloped since their susceptibility to flooding has tended to limit their use to agriculture and other low-impact activities. They are ecologically significant and aesthetically appealing. In addition, railroads were often built along rivers and stream corridors so there is great potential for rail-trails along waterways. Developing a trail along a river or stream presents a unique challenge: how to protect and promote the natural value of the waterway while integrating those values with recreational use. Sometimes, a river or stream corridor has such extraordinary natural assets that the health of those assets takes precedence over recreation. But, in most cases, the impact of trails and other low-key human uses, such as boat landings, can be mitigated through proper design and management. In addition to providing recreation, trails along rivers and streams bring people back into contact with these precious resources and can cultivate a new sense of awareness and appreciation which often creates strong river advocates.

Some design considerations for developing trails along waterways

- Whenever possible, stay out of the most sensitive natural areas such as wetlands. Locate trails on the edge or adjacent to these areas.
- If wetlands must be encroached upon, use a bridge or boardwalk to minimize disturbance.
- Minimize human-wildlife conflicts by siting paths where there will be the least interference. Know the species that need the most protection and try to accommodate them in the design of the trail. Keep in mind that some species are more sensitive to disturbance at various life stages and seasons
- Use lookouts and scenic overlooks to enjoy and learn about sensitive areas rather than having trails go right through them.
- Do not add above-grade fill in a floodplain. If gravel, concrete, or asphalt is necessary for construction, remove an equal amount of floodplain material to maintain an unimpeded floodway.
- Ideally, a bridge crossing a waterway should span the watercourse and the floodplain. If this is not possible, secure the bridge on foundations with break away mountings or attach moorings to minimize damage from flood debris.
- Soil along rivers and streams is highly subject to frost upheaval and may require special base preparation, particularly for paved surfaces.
- Plant stream-side buffers, including trees and filter strips of grasses and shrubs, to check runoff sediments and pollutants from agricultural fields and other nonpoint pollution sources and to moderate water temperature. The width of the buffer varies according to surrounding land use, soil, vegetation, slope, and other factors.
- Use native vegetation that is sustainable without chemical treatment, excess watering, or frequent mowing. Excessive mowing of stream-side vegetation reduces the vegetation's filtering effectiveness, lessens wildlife value, and unnecessarily adds to maintenance expense.
- Preserve existing vegetation, such as trees, and all ground cover within the drip lines of trees.
- Protect both sides of a river or stream, if possible. Include in the protected area the floodplain, riparian forest, associated wetlands, intermittent tributaries, gullies, and upland areas.
- Build steps or a ramp between the top and bottom of a river or stream bank to provide easy access and discourage trail users from creating lots of little paths to the waterway which will increase erosion.
- Incorporate river education into trail brochures, maps, and trail head signs.
- During trail construction, use erosion-control devices such as silt fences, hay bales, diversion ditches, and sediment basins.
- Use porous surface materials when possible. Pavement prevents infiltration of rain and runoff.

Chapter Eight: Trail Construction

This chapter will cover construction options, what to expect and watch out for during construction, and how to ensure the best final results. For more complex trail projects requiring engineering (i.e. paved bike paths, or trails with long bridges or retaining walls) we will discuss construction drawings, putting jobs out to bid, and working with contractors. For trails that are for the more rustic, and are to be built largely by volunteers, we will discuss some very basic construction techniques, and resources for detailed instructions.

With trail construction, as with most other things in life, the more you put into it at the start, the less you will be required to put into it later. Initial investments of quality pay off in the long run through lower maintenance costs, longer life span and higher enjoyment levels. This applies equally to urban, suburban and back country trails. If you find yourself out on the trail performing a salvage operation only three years from now because of sloppy construction or sub-standard materials, this will become eminently clear. But don't wait to find out the hard way; and don't waste your time and money. Do the best job you can with the resources you can find, and watch the dividends roll in for years to come.

Construction Options

Your options for constructing your trail are directly related to the type of trail and types of activities you envision for it. Some projects will be straightforward, albeit time consuming and strenuous, as in a backcountry hiking trail. Others are more complex, and will require special construction drawings and professional assistance. There are some projects where most of the length of the trail can be completed with local volunteers, but have one or two specific parts of the project that will require professional design and contractors to complete.

A poorly designed or built trail could be looked at as a liability to the town, trail organization or property owner that has provided use of the land, so it is important to get the right kind of professional help to get a durable design of the appropriate scale. Do not make the mistake of taking on more than you can handle; and be aware the limitations of your time and skills.



VYCC Crew Member at Work on the Cross Vermont Trails

Paying for professional help now will be cheaper than having to constantly go back and repair later. Also, the time that you do not spend supervising construction crews or cutting brush yourself can also be very profitably spent on planning, fundraising, informing the public, and recordkeeping.

Construction Options

1. Build the trail with volunteer labor based upon plans and drawings you create;
2. Build the trail with volunteer labor based upon professional designs;
3. Contract for labor with one of Vermont Youth Corps programs (VYCC or Kingdom Corps) or the Student Conservation Association using professional designs (contacts provided at the end of chapter 1);
4. Build the trail with hired labor based upon professional designs; or
5. Contract the entire project out to professionals as a “design/build” project, based on preliminary designs.

What to Expect During Construction

Whether you are building yourself or contracting the job, there will sometimes be confusion and delays, which are inevitable to some extent, but can be minimized through planning, careful recordkeeping and close scrutiny of each day's progress. Make contracts crystal clear. Have a detailed schedule and workplan for volunteers and professionals to refer and adhere to. Note the progress achieved each day, and deal with problems right away. Remember to keep the public involved throughout the construction phase, as you never know where help will come from. Remember that construction is also a very exciting process, and the entire community can celebrate your very tangible progress.

Getting the Best Results

The best results generally arise from a combination of good people and good materials, the former often being much more important than the latter. Making the volunteer or professional construction crew feel needed, appreciated and respected probably does more for final quality than any material or financial rewards. More on working with volunteers can be found in Chapter 11. Using the finest materials available within your budget is another way to obtain the best results possible. Skimping here always shows up later! Finally, continued attention by you and your core planning team will help pick up potential problems and fix them before they get too serious; make needed changes in the plan where flexibility is called for; and keep the vision of the trail alive right through to opening day.

Construction Drawings

Your trail may be a corridor that can primarily be constructed without formal design plans and specifications, largely through volunteer labor and donated or found materials. However, many trails may have certain features that may best be designed and drawn up by a professional, including the following:

- Bridges
- Trail Specifications (width of the trail tread, clear path width, surface treatment, drainage)
- Parking Lots

- Stairs
- Water Access Points

Creating construction drawings for a paved trail or shared use path will also require the services of an engineer or landscape architect. These types of paths usually require specialized engineering skills to produce a trail design that will be safe for a variety of users. The design will specify grade, banked curves, drainage structures, strength of materials, bridges, subbase depth, turning radii, and other details important to creating a safe, durable trail. The Vermont Agency of Transportation's Transportation Bicycle and Pedestrian Program can put you in touch with professionals who do construction drawings.

Putting Jobs Out To Bid

When preparing to advertise your trail project for construction, you will need to become familiar with all applicable rules or regulations associated with your funding sources. Typically, procurement of a contractor is initiated by preparing a "Request for Proposals" and advertising or placing notices. An example RFP is available from AOT-Local Transportation Facilities section (contact info at the end of chapter 1). You can reach potential bidders through direct mailings to companies, press releases, ads in newspapers and postings at local bulletin boards.

The bidding process usually involves providing copies of the construction drawings, and precise instructions about the scope of work to all bidders. If you have retained an engineer or landscape architect, they will be able to make these instructions for you, and help in the selection process.

Bids are sealed, and opened at a predetermined time in a public manner. Rather than immediately leaping upon the lowest bid, make sure that each bid is truly responsive to your request. Most contractors will have made itemized lists for their own purposes in putting together the bid, and will sometimes offer to let you see these lists. Contact references, particularly if there are other trail projects that this contractor has been involved with. You will need to determine if your funding sources require you to accept the lowest "responsible and responsive" bidder.

When you have finally selected the winning bid, a contract should be prepared and signed by all parties as soon as possible detailing the agreement and the bid amount, how change orders will be handled, and any other relevant items. Have a lawyer scrutinize the contract. Again, your funding source may have other things to say about the bidding process - follow their instructions precisely!

Working with Contractors

There is no magic formula here. Mutual respect, obviously, goes a long way towards creating a smooth



Trail Step Construction
Credit: Luke O'Brien

working relationship. Try to understand the constraints that they are working under: necessity to achieve the bid price while still making a fair profit, quality control, inevitable setbacks and unforeseen difficulties. At the same time, they will be helped by understanding your personal and passionate interest in everything that occurs regarding the trail, your anxiety about cost containment and schedule problems, and your joy and enthusiasm as each new milestone is achieved. Open lines of communication will help you steer through any problem areas. Discussion with trail groups in other towns that have already been through the process could be helpful, as would be conversations with town official or others who have worked with the contractor in the past.

Basic Backcountry Trail Construction Techniques

Many excellent texts are available to help you learn backcountry trail construction techniques, including tread construction, drainage structures, clearing and marking. The most common and important techniques are described here.

Tread Construction: The "tread" of a trail is the part you actually walk or ride on, the part that receives the wear and tear of wheels and feet. Therefore, the tread must be protected from degradation over time. During construction, this is achieved by good siting (avoiding very steep, wet or loose areas); clearing the tread of organic debris (which becomes soggy); hardening the tread in very wet areas where necessary (with logs, stones, rocks); creating a stable environment for the tread in unstable areas, like side slopes or steep slopes (with cribbing, steps, bridges); and good drainage to keep the trail dry.



Use of Geotextile on a wet section of the Cross Vermont Trail in Newbury
Credit: Eric Scharnberg

Drainage Structures: There are many clever ways to keep water from washing your trail away. All methods divert water away from the trail. Water bars, Coweeta dips, and drainage ditches can be built in many ways with an abundance of natural materials.

Clearing: Although your tread may be only 18" - 24" wide, the area that must be cleared for the trail to be used comfortably is wider. Clearing techniques take into account heights of users, maintenance of natural beauty and environmental health, safety of users, and trail integrity (keeping users on the trail, and not sidetracked by false trails). Managers of the Long Trail and the Appalachian Trail (the Green Mountain Club and Appalachian Trail Conference, respectively) have developed standards for clearing and marking that take into account all of the above, and are well worth emulating. Their texts are referenced at the end of this chapter.

Marking: Good trail marking is a subtle art. Obviously the primary purpose is to keep users on the trail without getting lost. However, too many blazes and signs detract from the sense of adventure and primitive wilderness that people seek from backcountry trails. You should try

to achieve a reasonable balance between a well-marked trail and a wilderness experience. This is not always easy, but again the Green Mountain Club and Appalachian Trail Conference have developed useful standards you can refer to for help.

Trail Construction Resources:

Backcountry trail construction information can be found in the following texts, among others:

Lightly on the Land: The SCA Trail-Building and Maintenance Manual, by Robert C. Birkby, The Mountaineers Publishers, 1996.

AMC Field Guide to Trail Building and Maintenance, Robert Proudman; Appalachian Mountain Club, 1977.

Trail Design. Construction and Maintenance; William Birchard and Robert Proudman, The Appalachian Trail Conference, 1981.

"*Trail Standards*," The Green Mountain Club, 1989.

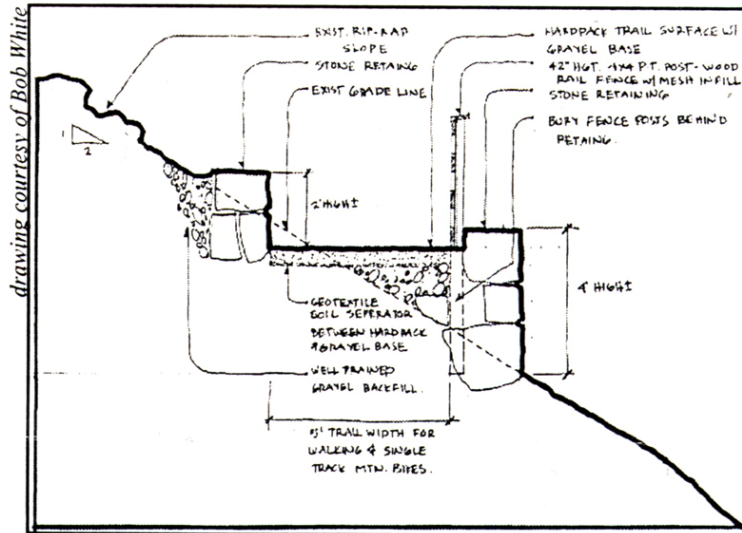
Contacts:

Vermont Youth Conservation Corps, 802/241-3699, www.vycc.org/

Kingdom Corps, c/o Northwoods Stewardship Center, 802/723-6551 ext 117 ,
corps@northwoodscenter.org , www.northwoodscenter.org/corps.html

VTrans Local Transportation Facilities Section; 802/828-3588,
<http://www.aot.state.vt.us/progdev/Sections/LTF/LTF.htm>

From Idea to Design to Construction: The Cross Vermont Trail I-91 Underpass:
Credit: Eric Scharnberg



Chapter Nine: Fundraising and Spending Money

This chapter will cover various ways to raise money to plan, design, build and manage the trail. There are many considerations in what types of money you might seek, and for what purposes. Consider the skills that the individuals on your trail committee have, and the types of activities that you will be able to undertake on your own. Identify the tasks for which you may need grants or technical support to complete.

If you will rely on grants, you will need to be very careful in following the grant procedures carefully, such as documentation of all spending, and making certain your expenditures are allowable for the grant. You will need to be fully aware of the grant guidelines, and stay in close touch with your grant administrator. Grants can range widely in the degree of oversight and approval needed before expending the funds. Public funds tend to have carefully thought-out process that must be followed to spend money. While these seem cumbersome, they are in place to prevent misuse of funds, not to hinder your work.

Funding Assistance Programs

Vermont has several very generous programs to assist communities and trail organizations with trail projects. This section gives a general outline, and more details are provided at the end of this chapter.

Vermont Recreational Trails Fund

These funds provide assistance for trail projects. These grants are primarily provided for construction, but planning and land acquisition are also eligible. The Recreation Trails Grant Program (RTP) is administered by the Department of Forests, Parks & Recreation (FPR) with advice from the Vermont Trails & Greenways Council and in cooperation with the Vermont Agency of Transportation (AOT) and the Federal Highway Administration. Funding comes from the federal recreation trails program and the Vermont recreation trails fund and is derived from a portion of federal and state gas taxes from off-highway recreation vehicles. Federal funds require a 30-30-40 split, which means a minimum of 30% federal funds must be used from motorized recreation, another 30% minimum is to be used for non-motorized recreation, and a 40% minimum us to be used for multi-use recreation projects.

Eligible projects include:

- Construction of new trails on state, municipal, and/or private lands;
- Restoration of areas damaged by use of trails;
- Maintenance on existing trails;
- Development of trailside and trailhead facilities;

- Features which facilitate access to and use of trails by persons with disabilities;
- Preparation & printing of trail related plans, studies, maps & other educational material;
- Trail protection including fee simple or easement land acquisition;
- Purchase of hand tools for granted trail work.

Funds are available to municipalities, schools, non-profit organizations, and inter-municipal districts.

Vermont Bicycle and Pedestrian Program


This funding is intended to assist in the development and construction of bicycle and pedestrian facilities. This includes activities that enhance the transportation system through the building and improvement of existing facilities to make them more usable and friendly for pedestrians and bicyclists. Projects should focus on the elimination of barriers to bicycling and walking and implementation of a continuous network of bicycle and pedestrian facilities throughout the community. Applications with the following emphasis will be considered favorably:

- connectivity to other bicycle and pedestrian facilities
- proximity and access to and within village centers and downtown areas
- multi-town, multi-regional projects
- projects that demonstrate a strong relationship to economic development

Projects that enhance larger transportation projects and which resolve conflicts between users of different modes in favor of bicyclists and pedestrians are strongly encouraged. Municipalities are eligible applicants for this program, and non-profit organizations are not. This program is geared toward somewhat larger projects which cannot be accomplished with some of the other available programs. This program requires a 10% local match of funds.

Vermont Transportation Enhancements Program


Transportation Enhancement activities offer communities the opportunity to expand transportation choices. Activities such as safe bicycle and pedestrian facilities, scenic routes, beautification, and other investments increase opportunities for recreation, accessibility, and safety for everyone



VTrans *Working to Get You There*
Vermont Agency of Transportation

Transportation Enhancements

2006 Grant Application Form and Instructions



Hardwick Railroad Depot, 2001 Enhancement Project

beyond traditional highway programs. In 1991, the U.S. Department of Transportation turned its sights on developing a more modally balanced transportation system by encouraging projects that are "more than asphalt, concrete, and steel." The focus of building our transportation system now involves consideration of environmental, cultural, economic, and social conditions in an effort to create a more balanced transportation system which provides people with choices and with a richer experience. An important program at the heart of this thinking about quality of life is transportation enhancements (TE). With funding intended to improve communities, the end goal of the TE program is to "leave a place better than we found it." TE projects must fit into at least one of the following categories of activities:

- Pedestrian and Bicycle Facilities
- Acquisition of Scenic Easements and Scenic or Historic Sites
- Scenic or Historic Highway Programs, Including Tourist and Welcome Centers
- Landscaping and Scenic Beautification
- Historic Preservation
- Rehabilitation and Operation of Historic Transportation Buildings, Structures, or Facilities
- Preservation of Abandoned Railway Corridors
- Control and Removal of Outdoor Advertising
- Archaeological Planning and Research
- Mitigation of Highway Runoff and Provision of Wildlife Connectivity
- Establishment of Transportation Museums
- Pedestrian and Bicycle Safety and Education Activities

Non-profit organizations and municipalities are eligible applicants for this program. There is a requirement for at least a 20% local match of funds, which can include a portion of volunteer effort, donations, and other non-cash sources.

National Park Service Rivers and Trails Program

The National Park Service Rivers and Trails Program provides technical assistance for trail projects, and are renewable for up to three years. This program is ideal for trail organizations who are at the stage of undertaking projects which will involve technical work such as planning, design, acquisition of right-of-way, and other complex tasks. The program staff has a wealth of experience and expertise, and is able to provide services from outside consultants for specific project components. This program has also helped many trail organizations and communities find funds for construction of their trails.

Vermont Municipal Planning Grants

This program provides grants to municipalities in amounts up to \$15,000, for projects that have some relationship to implementing your town plan. These grants can be used for trail planning or land acquisition.

Other Sources of Funds

There are a large number of grant opportunities, which can be used creatively to fund specific aspects of your trail project, or be used as matching funds to leverage your major grants. Attached to this chapter is a comprehensive list of available sources at the time of this publication.

Funding for Trail Maintenance and Management

Obtaining funds to operate and maintain a trail is a lot tougher than obtaining funds for building one. Operation and maintenance lack the glamour and excitement of planning and construction. This is a problem associated with almost all aspects of management: the operation and maintenance phase of almost anything is harder than the start-up. Therefore, your search for funding will call upon all your creative and persuasive powers.

Here are some possible options for raising funds for trail management:

- 1) Public support. This could take a variety of forms, ranging from some time and/or materials of the town's road crew, to an actual line item in the budget. The latter may require a warrant item on your town meeting ballot, which means that education of the voters about what the spending will cover and why it is needed will be important. If your trail is already established and being enjoyed by members of your community, your chances of a successful vote should be quite high.
- 2) Private fundraising. An annual event, such as an auction or dance, pledge drives, Trail Adoption programs, bake sales, jumble sales, festivals, and other fun fundraisers for the trail; targeting local residents, businesses and organizations. A trust fund to which townspeople may donate or will their money could be established. Privately raised funds can often be used to match grant funds, making contributions more appealing by their ability to leverage public funds.

Ultimately, the canny use of volunteer labor for most, or all, of the trail's needs will minimize your need for funds. This also serves the very important purpose of keeping a lot of people involved in the trail. But do not underestimate your need for dollars; some materials and some labor will have to be purchased, and it would be a shame to see the trail suffer for lack of the necessary money.

Fundraising Resources:

Recreation Trail Grant Information: <http://www.vtfpr.org/recgrant/trgrant.cfm> This also includes a very comprehensive list of possible sources for matching funds.

VTrans Bicycle/Pedestrian Program:

<http://www.aot.state.vt.us/progdev/Documents/LTF/2004BikePedProgamGuideApplication/2004ProgramApplicationGuidebook.pdf>

Transportation Enhancements Program:

<http://www.aot.state.vt.us/progdev/Sections/LTF/Enhancements%20Program/EnhancementsHomePage.htm>

Rivers, Trails and Conservation Assistance Program: <http://www.nps.gov/rtca/>

Chapter Ten: Trail Management, Maintenance and Stewardship

The management of a trail can be fairly complex, with a variety of unforeseen issues arising that must be addressed promptly. This chapter is designed to help you recognize problems before they overwhelm you, and perhaps avoid them altogether. Issues that will be discussed include maintenance, insurance, maintaining a workforce, community relations, landowner relations, landowner liability, and crime and vandalism.

This chapter is also about the positive role of management in maintaining a vision for the trail, and keeping its purpose clear to all users. Articulation of roles and responsibilities in trail management also helps keep the trail vision alive, as everyone involved has a clear idea of his or her job.

Once your trail, or first segment of trail, is complete, designation of a manager or management team is important to the continued success of your trail. The trail management should deal with problems proactively, respond quickly when an emergency arises, and be easily found by trail users who have questions or complaints. Trails require active management to keep them functioning, appealing, safe and useful.

Set Management Goals

Articulating the goals of management is a critical first step for your trail committee. A clear picture of the purpose of your trail will help to guide you in developing a consistent management approach. It will also help you deal effectively and fairly with requests and conflicts that may arise over trail use.

Outlining roles and responsibilities for management is also critical for your committee. The public needs to be able to get a response to concerns, questions and suggestions from one or two people. Ideally, if resources can be found, consider hiring a trail manager. A part-time position would probably be all that was necessary. The advantages of having a single manager, who would report to the trail's steering committee, are that all aspects of management are naturally integrated, the public knows who to turn to, and responsibility is clear. Formalizing the managing organization's goals and objectives in a written document provides a valuable tool for sustaining the trail over the long term. A Trail Management Plan can translate the goals for trail maintenance into strategies and actions to maintain trail resources, develop public support, and generate funding for future projects.

The following are management issues that will have to be dealt with at some time or another. Being prepared with knowledge and optimism will help you take them in stride.

Insurance

Even though you will obviously take all steps possible to create an appropriately safe trail environment, your trail or greenway must be covered by some kind of liability insurance. Besides

covering your organization in the case of a user lawsuit, insurance can cover volunteer workers, and landowners who have given rights-of-way for the trail.

If your project is sponsored by your town, it will likely fall under existing town policy that covers schools, sidewalks, etc. In the case, of the Stowe Recreation Path, the trail was covered by the Town's insurance policy. The addition of the path did not increase the premiums at all, because creation of the path in fact made the town a safer place.

Larger scale projects that span multiple towns will probably need to seek out their own insurance carriers. Organizations such as V.A.S.T. and the Green Mountain Club carry policies that cover the club, any club volunteers doing trail work, and landowners whose land is crossed by a trail (listed as "additional insured"). These kinds of policies can be expensive. National trail user groups are sometimes willing to provide some coverage. Trails or greenways constructed entirely on state land, even if done by a citizen group, might be covered by the State's insurance.

Trail Promotion and Publicity

While most trails are so popular that the idea of advertising or promotion of trails hardly seems necessary, in fact it is important to let the broader public know about your trail. The most use your trail gets, the greater constituency it will build, and the broader support you will have when you need volunteers, donation of funds, and expressions of support for grants. One of the best ways to let people know about your trail is through a map and brochure. Some groups have established trail websites, with information about trails, where to find them, what kind of uses are allowed, and interesting things they might see. Below is an example of a trail map available through the Upper Valley Trails Alliance.

Bill Ballard Trail

3-4 mile out and back
Moderate

The Bill Ballard Trail runs alongside the Charles Brown Brook, which empties into the Norwich Swimming Pool. Park at the pool parking area and proceed past the pool to the trailhead. The trail continues several miles uphill. Approximately 1.5 - 2 miles from the pool, a class 4 road leads out of the woods to Beaver Meadow Road near the Charles Brown Schoolhouse. This is a good point to turn around to complete a 3 to 4 mile walk. Alternatively, you can make a loop by returning to the parking area on Beaver Meadow Road. If you take the road, watch for vehicles, which can be numerous at times.

Directions: From the Hanover/Norwich exit off I-91 (Exit 13), take Main Street into downtown Norwich. Make a left onto Beaver Meadow Rd. just after the Norwich Inn. Follow Beaver Meadow Rd. for about 1 mile. The Norwich Swimming Pool is down a dirt road on the left, almost opposite (just before) Brigham Hill Road, which is to the right.

Parking: Available at the Norwich Swimming Pool, where restrooms (seasonal) are also provided.

Uses: Trail is open to foot traffic. Bicycles and motorized vehicles are not permitted. Not wheelchair accessible. Pets are permitted.

Extension Suggestions: The Bill Ballard Trail continues uphill beyond the abandoned road, coming out on Beaver Meadow Rd. approximately 2 miles farther along. Along the way it passes a rock feature called the Grand Canyon of Norwich. There are some steeper sections along this trail, but overall the difficulty remains moderate. The end of this trail extension is just below the intersection of Beaver Meadow Rd. and Tucker Hill Road, about 4 miles from the Norwich Inn, where a small parking area is mostly downhill 4-mile, point-to-point walk to the swimming pool

Ownership/Maintenance: The Bill Ballard Trail is owned by the Town of Norwich. An easement held by the Upper Valley Land Trust on a section of this trail ensures that the land will be protected.

Trail Maintenance

Maintenance is absolutely necessary to protect your trail and greenway investment. Good, timely trail maintenance will prolong the life of your trail surface, keep the trail attractive to users, avoid the development of hazardous situations, and keep trail management and volunteer helpers aware of what is happening "on the ground" through hands-on experience. As your group considers establishing a trail, you will also need to think about who and how it will be maintained over its long life.

The goals of maintenance are to enhance longevity of the trail surface, keep the trail safe for its users, and maintain the aesthetic qualities and healthy ecology of the trail environment. With that in mind, you should write out a maintenance program for your particular trail. The following offers some guidelines for certain types of trails.

Backcountry Trails

Backcountry trails must generally be checked twice a year (spring and fall) for washouts; erosion; fallen trees, branches or rocks; encroaching undergrowth or branches; and other situations that threaten the integrity or safety of the trail. Depending upon the length of your trail, one or more groups of people can travel and inspect sections of the trail, or the entire trail, carrying with them the necessary maintenance tools. Primary tasks will be clearing out of water bars and ditches, removing dead and downed wood from the trail right-of-way, trimming new growth that interferes with the passage of trail users, and construction of any new structures required by changes in trail conditions. At the same time, blazes or other markings should be checked for adequacy, and repainted or reconstructed if necessary. The AMC guides described at the end of Chapter Eight (Trail Construction,) on pg. 54 contain excellent maintenance information for hiking trails, suggestions about necessary tools to bring along, how to plan maintenance trips, etc.

Water Trails

Water trails require regular maintenance activities, including monitoring the condition of access points, portage trails, signage and campsites. The water ways need to be monitored for obstructions after storms.

Graveled or Paved Roads

Since these types of trails are generally more heavily used than backcountry ones, and also closer to population centers, scheduled checks for washouts and erosion are not as critical, since unsafe situations are likely to be brought to your attention immediately. Special equipment may be needed to repair big holes or washouts, and warning signs or fencing may be temporarily necessary until the equipment or labor can be brought in. Minor problems, especially on a graveled surface, can often be fixed immediately with a shovel and a rake. Grass shoulders will need to be mowed several times during the growing season. Trails with a graveled or crushed limestone surface may need treatment for weed growth. Remember to trim back overhanging branches to the necessary height once a year. Bridges will need to have safety checks every few years by a certified structural engineer.

Snow Trails

Although in general snow trails are used only in winter, when the ground is frozen and little erosion occurs, it is still very important that they be protected from water damage during their off-season.

Trail washouts will affect the quality of the snow surface during the winter, harm the environment, and are unsightly. Drainage structures need to be capable of handling a great deal of running water during spring melt. Snow that is repeatedly packed down on the trail, turning lower layers into ice, means that melt water can run rapidly over its surface, off the edges of the icepack, and cause considerable damage on either side of the trail. Good ditching is therefore very important in eliminating erosion and sedimentation. The construction and maintenance of the trail tread should control surface and groundwater runoff to reduce soil erosion and the chance for ice build-ups (especially on hills). A smooth and well-drained trail surface will safely accommodate grooming equipment used to maintain the trails during the winter months.

Maintenance of a usable snow surface during the ski and snowmobile season is another aspect of winter trail maintenance. For snowmobile trails, simply the passage of enough snowmachines will maintain an open trail, although after a particularly heavy snowfall, several vehicles may need to work together to pack down the trail. Ski trail maintenance efforts vary according to the nature of the trail. Other important aspects of snow trail maintenance are the clearing of overhead branches to 8'-10' over snow height, and the checking of trail blazes, signs or other markings.

Maintaining a Workforce

This issue is covered in Chapter Eleven, "*Working With Volunteers*". Its relation to management can be summed up briefly here. As a manager, your ability to make dollars stretch, keep the community involved and enthusiastic, and create a high-quality trail and trail experience, will depend in large part on the quality and size of the volunteer workforce you can keep on "red alert." Always remember that calling on people for help makes them feel good. Spread out and share the burden of work and the joy of involvement.



Cub Scouts preparing to work on the Cross Vermont Trail, Newbury

Community Relations

Having one or two people to whom the community can turn with questions, comments and complaints about the trail is very important. Even if there is a committee that really oversees the trail, a "point person" helps people feel that their needs are being personally addressed. This aspect of management intersects with many others, and can take up a surprising amount of the manager's time. Some suggestions for maintaining good community relations are as follows:

- Keeping the image of the trail positive in the community's eyes
- Dealing promptly and fairly with problems
- Maintaining ongoing communication with public officials, civic groups and others
- Welcoming new uses of the trail that are consistent with its mission and promote community involvement and goodwill

- Publishing regular articles regarding trail activities, events and issues
- Keeping the trail clean, safe and fun

Landowner Relations

Positive relationships need to be maintained with landowners bordering the trail. The automatic inclusion of landowners in any mailings or meetings regarding the trail is an easy and effective way of keeping them informed. Keeping them involved is a different matter, and one that doesn't necessarily happen easily. Not all landowners will want to be active participants in the trail. So, your primary responsibilities as manager, as far as landowner relations go, are to:

- Be prepared to respond to their needs as they arise;
- Keep them fully informed of events and developments;
- Provide opportunities for involvement should they desire it; and
- Educate trail users to understand and respect the landowners' needs and generosity.

Detailed information on landowner liability is provided in Chapter 6, page 43.

Crime and Vandalism

Fortunately, fears of serious crime on community recreation trails have proven to be mostly groundless. This does not mean that bad things have not occurred, or that you will not experience any difficulties. Vandalism continues to be a problem, particularly with trail signs. The Appalachian Mountain Club's "*Trail Design, Construction and Maintenance*", and AMC *Field Guide to Trail Building and Maintenance* both offer good advice regarding vandal-proofing of signs. Other vandalism problems might include defacing or destroying benches, bridges or shelters; disturbing or delimiting trees or other plantings; and disturbance of the trail bed. As vandalism is often the province of the young, your best approach to thwarting it might be to make a special effort in your local schools to involve and educate children about the trail. When people feel that the trail is theirs they are less likely to want to hurt it.

Popular trails tend to "police themselves", and the frequent passing by of trail users is a serious deterrent to any type of criminal activity. An active community involvement program from the trail's inception is the best way to prevent vandalism. Rallying the appropriate law enforcement personnel into vigorous action is your best defense. Remember, however, that crime on community trails has never been a big problem on any trail in Vermont or elsewhere.

Trail Accessibility

Early in the trail planning stages, you should have determined the extent to which the trail would be accessible to wheelchairs and other mobility aids. Construction guidelines should have been used, available in any number of design books and published regulations regarding specifications, materials, slope, etc. Some public funding sources require accessibility for persons with disabilities on at least part of a trail they fund.

From a management standpoint, maintaining the quality of accessibility is a paramount responsibility. A section of paved trail is no longer accessible if there are branches lying across it. A lovely, smooth trail is no good if the path from the parking lot to the trail is narrow, rocky or root-filled.

Maintaining Your Trail Vision

Strategies such as those discussed in Chapter Three for involving the community will help keep your trail vision alive, fruitful and vital. It is very important to constantly remind yourself, your trail committee, and your community of the purpose and benefits of the trail or greenway that is now a part of your lives. There will never be a time to rest on your laurels, so enjoy your trail, use it, talk about it, and publicize it to the utmost, because enjoyment and enthusiasm begets more of the same.

Trail Management, Maintenance and Stewardship Resources

The management of trail users is occasionally an issue for local trail managers. There are several groups, described below, of specific types of trail users, which may be helpful if there are management concerns related to the trail use of these types. See pages 5 and 6 for contact information.

VMBA-The Vermont Mountain Bike Association has formed to promote trail advocacy through education, planning, funding, establishing and maintaining multi-use trails throughout Vermont. They work to promote responsible, environmentally sensible trail use and the creation of community recreation trail networks for the health and benefit of local citizens and visitors.

<http://www.vmba.org>

Snowmobile Trails- The Vermont Association of Snow Travelers (VAST) is a non-profit private organization that maintains an impressive network of snowmobile trails across the state through the efforts of thousands of volunteers that make up the 138 local VAST Clubs. Through the incredible generosity of over 8,000 Vermont Landowners, over 85% of the Statewide Snowmobile Trails System (SSTS) is located on private property. VAST negotiates agreements with landowners that specifically allow passage for snowmobile use on the trails crossing their lands. Any other use may require additional permission during the winter season. Permission is granted to the VAST Clubs during the snowmobile season from Dec 15th to April 16th. Cross-country skiers frequently use VAST trails and it is recommended that they contact the local VAST snowmobile club to ensure that landowner permission has been granted for other use. <http://www.vtvast.org>, 802/229-0005.

All Terrain Vehicle Trails-The Vermont ATV Sportsman's Association was formed in 1998 to help organize clubs and foster cooperation among other Trail User Groups and the ATV community. The need for ATV tolerant trail opportunities is pressing for ATV users and landowners alike. Experience in Vermont has shown that when a legal trail opportunity is created, the trespass that has often been associated with ATV recreation decreases. Efforts by the ATV community to develop better working relationships with other trail groups, the State of Vermont and the Federal Government are a continuing goal. Some Vermont towns have begun to allow use on some of their town roads as a means to connect trails on private land. In those towns which have worked with the users to create opportunities, complaints about ATVs have been greatly reduced. <http://www.vtvasa.org>., 802/229-2997.

Vermont Trails and Greenways Council- The Council acts as an advisory body to the Vermont Department of Forest, Parks and Recreation. It is a membership-based organization which advocates for trails and greenway development statewide. All trail user groups are welcome to attend quarterly meetings and enjoy the benefits that networking with diverse trail groups provides. <http://www.state.vt.us/anr/fpr/greenways/index.htm> .

Chapter Eleven: Working with Volunteers

Your trail project is probably driven by a group of citizens who have a common goal and vision. Among the group, there are probably people with diverse skills and specialties, many of whom can be valuable in trail planning, building and managing. But a small steering committee cannot usually carry out the whole project. Help is available and ranges in price from standard market cost for professional contractors, to inexpensive labor through low cost or matching fund programs for groups such as the Vermont's youth corps programs, to volunteer labor.

Volunteers will be essential to completing the huge variety of tasks you will be faced with to plan, design, build, maintain and manage a trail. The greatest advantage of volunteers is that they are free. The value of volunteer labor can even be used as matching funds for a variety of grants. Volunteer labor is not necessarily unskilled labor. You may easily find in your community many people with a high degree of skill in tasks relevant to trail building. Many of them will gladly donate their labor for the opportunity to help out with the project, get to know others, or in exchange for some other service.

Another advantage of using volunteers is that you will build a core group of willing people you can call on in the future to support the trail, or trail-related issues. A well-managed team of volunteers has great morale, and can create a wonderful public relations situation for your project.

There will be room for all types of volunteers at many levels of effort in the life of your trail. Think of a "pyramid" of volunteers. There will ideally be a large number of volunteers that you will probably only call on occasionally for some brush cutting, baking for bake sales, or other labor intensive maintenance tasks. There will be then smaller groups of people who may be contributing more time and more specialized skills to the trail, such as graphic design for publicity materials, legal services for developing easements, or donating materials. An even smaller group will compose the trail management committee, who will likely devote quite a bit of time to the trail. Try to help prospective volunteers find a match with their available time and skills within this "pyramid".

Volunteers should be given meaningful tasks that will show substantial accomplishment, and allow for a feeling of competency and pride. The joys of working together to bring about a worthwhile project are immeasurable, and the resulting sense of satisfaction means more to most people than any day of paid labor could. Similarly, the social aspects of working in a volunteer crew on a worthwhile project are extremely important, and should not be neglected. Therefore, when delegating planning and construction projects, and planning your "volunteer days," strive to create a cooperative, purposeful, fun-filled and friendly atmosphere. Volunteers should work in groups. They should be able to eat lunch together. Document their work with photographs and videotape. Be generous with praise. Follow up the work day with a social event, like a dance or cookout. Perhaps have some kind of souvenir available for those who gave their time. Each volunteer event should create a story or have noteworthy event, like a memorable swim after, a dinner out, helping a youth

group like boy scouts, a picture in the newspaper- that will create an aura of interest in the community and this will cause others to want to get involved.

Your wise use and respectful treatment of volunteers can pay huge dividends in the next phase, when you want to be able to call on them again for other, ongoing tasks. In volunteer organizations, you should always be thinking about attracting new members, since over time people naturally move on to other activities.

The creation of a high quality, trustworthy, enthusiastic and skilled team of trail volunteers takes time and effort. Depending upon the nature and scale of your trail, you may need:

- A small crew of regulars, each capable of working independently;
- Several volunteer leaders, each capable of taking charge of a crew of volunteers on needed projects; or
- A membership organization, such as the Mt. Ascutney Trails Association, that has an organizational structure specific to the needs of your particular trail or greenway system.

The finer points of volunteer recruitment and team building are discussed extensively in other publications. The most extensive treatment is given by the AMC publication, *Organizing Outdoor Volunteers*.

Volunteer Resources

Organizing Outdoor Volunteers. 2d Edition, Moore, LaFarge and Tracy,. Appalachian Mountain Club Books, Boston. 1992

Organizing Volunteers for Preservation Projects. A How-To Guide for Using Volunteers to Save Historic Buildings. Bell and Harris, Preservation Trust of Vermont, Windsor, VT. 1993.

"*Safety Standards for Trail Workers*," Resource Sheet from the Trail Center, 4898 El Camino Real, Office 205A, Los Altos, CA 94022.