

SECTION I. GREENWAYS AND THEIR BENEFITS

Concern for the environment and access to parks and open space is not frivolous or peripheral; rather, it is central to the welfare of people -- body, mind, and spirit.

--Laurance S. Rockefeller

GREENWAYS

WHAT IS A GREENWAY?

A riverfront walkway, a bicycle path, an urban walking trail connecting historic sites and neighborhood parks, a wildlife migration corridor, and a series of open spaces joined by trails are all examples of greenways. By definition, greenways are linear corridors of land and water and the natural, cultural, and recreational resources they link together. They help conserve a variety of unique resources, create many types of recreational opportunities, and most importantly, link these special areas together.

Greenways are comprised of both public and private lands, and can include trails, riverways, habitat and resource conservation areas, unique natural features, scenic roads, historic structures, vacant urban lands, forestland, and farm fields -- basically any resource that is significant to a community. Some greenways focus on resource conservation through stream corridor protection. Others connect existing parks and open lands to increase recreational opportunities. Still others aim to promote revitalization of downtown sites by providing an inviting green corridor or pathway, making the area more appealing to businesses and residents alike. A greenway can be as simple as a foot trail connecting two neighborhood parks, or as complex as a multi-use urban recreational path that extends into the countryside through an intricate network of trails, old railroad grades, and local roads. While greenways may vary in size, ownership, and purpose, they share a common theme: to protect the resources that help create the unique character of a place and to integrate these special features into the surrounding landscape. Winding their way through our cities, suburbs, and rural areas, these diverse corridors of green highlight our natural and cultural heritage, provide recreational opportunities close to home, and can help shape the future growth of our communities.

THE GREENWAY APPROACH TO OPEN SPACE PROTECTION

Whether you call it a trail, a linear park, a riverway, or a wildlife corridor, it is the approach to creating and protecting these areas that defines them as greenways. Key to understanding the difference between greenways and other efforts at land protection is an appreciation of the fragmented nature of our landscape. In many communities, parks, wetlands, playgrounds and other open spaces are scattered and to many people accessible only by car. The greenway concept is a response to this fragmentation and focuses on reconnecting our recreational and ecological resources. In simplest terms, while paths might wind around within a particular park, a greenway links this park together with other resources to create a coordinated and accessible system of open spaces and natural areas. These networks are not predetermined and superimposed on the landscape, but instead grow out of the natural and cultural features that already exist. The nature of a specific greenway project is determined when this concept of linking resources and protecting corridors of land and water is applied to a particular area, and the physical factors, political climate, available resources, and priorities and needs of those involved are considered. This process not only results in a logical, cost-effective, and environmentally-sound development pattern, but it also brings together a variety of individuals as partners.

Greenways are often initiated and almost always implemented on the local or regional level. This grassroots approach results in greenway plans and projects that reflect local interests and needs, and thus are more likely to gain community support and acceptance. Local players have a detailed understanding of the physical and political landscape of their communities, and are the most logical ones to work with neighboring landowners and fellow community members. They are attuned to the strategies most likely to succeed and will be the most convincing advocates. And while the focus of individual greenway supporters may be town-specific, a strong local contingent can lay the groundwork for inter-town cooperation for protecting those resources that know no political boundaries. Citizens, town planners and other municipal officials, and local advocacy groups play a major role in determining the nature of particular greenway projects. Because of the variety of resources that can be incorporated into a greenway network, and the infinite possibilities for linking them together, greenways themselves are often defined by the ideals of the project participants. While a major goal of the greenway approach is to link together landscape features, the creation of a greenway is an extremely effective means of connecting people with the land, and with one another.

RESOURCE AREAS: THE BUILDING BLOCKS OF GREENWAYS

Many different types of land and water resources can be incorporated into a greenway system. They fall into four broad categories: resource conservation areas, parks and open spaces, cultural and historic resources, and the corridors of land and water which connect these other elements together.

Resource Conservation Areas

Resource conservation areas, sometimes called preserves, encompass a variety of natural environments, including floodplains, wetlands, aquifer recharge areas, stream and river banks, coastal dunes, forests, and other environmentally-sensitive areas. Protecting these resources and keeping them in their natural state helps maintain the integrity of many ecological systems and ensures that they continue to function properly. While some of these areas are ideal for hiking, nature study, and outdoor appreciation, many are too fragile or simply not suitable for recreational activities. As a result, we may not have access to every inch of greenway created, but we do benefit from the clean water, healthy populations of fish and wildlife, scenic pleasures, and natural setting that their protection provides.

Parks and Open Spaces

Parks are ideal spots for recreation and relaxation. A variety of public and private parks provide opportunities for swimming, boating, fishing, picnicking, golfing, walking, jogging, bicycling, rollerblading, playing ball, or simply sitting and enjoying the outdoors. Other open areas such as farm fields, estate lands, and golf courses are often privately owned and inaccessible to the public. Nonetheless, protection of these lands can play a key role in maintaining scenic views, local character, and the general open feeling of an area. They can also be used to link nearby protected areas, thereby increasing the amount of contiguous open space. This is often critical to the habitat requirements and migration patterns of wildlife. In addition, easements and public rights-of-way can sometimes be secured adjacent to or across private open lands, providing access to a relatively small strip of land but enabling people to experience the entire landscape as they move through it.

Cultural and Historic Resources

Cultural and historic features reflect the diversity in history, settlement, and character of the 351 cities and towns in Massachusetts. This group of resources includes any feature in a town or region that has special meaning or plays a role in defining the character or charm of that place. They range from old mills and historic buildings to churches and cemeteries to town commons lined with two- hundred-year-old sugar maple trees. By recognizing and protecting these resources, we are preserving our heritage and highlighting the features that tell a community's story. Not only does this teach us about our past, but it also ensures that the unique and diverse characteristics of the Commonwealth continue to exist for generations to come.

Corridors

Corridors are the stretches of land and water that link the various resources to create greenway networks. They are usually linear in nature and can be natural, human-made, or a combination of both. Some examples include river and stream channels, coastlines, canal towpaths, railroad and utility rights-of-way, paths and trails, scenic roads, and city sidewalks. These linear resources and their inherent potential for linkage characterize the greenway approach and set it apart from other open space protection initiatives. By joining different resources together into an integrated network, each individual resource area becomes part of a greater whole whose utility, accessibility, and environmental value are far greater than any of the separate pieces.

The four types of resources discussed above may be under public or private ownership and can vary greatly in terms of the level of protection enjoyed and the type and extent of public access permitted or desired. Public and quasi-public land is generally protected to some degree and tends to provide some level of public access and use. Examples of this type of land include public and private parks and conservation lands, nature centers, college campuses, municipal golf courses, certain land trust holdings, and waterways. It is likely, however, that many other resources and parcels of land that would be ideal for inclusion in your greenway network are not protected at all. Typical examples include farms fields, scenic vistas, aquifer recharge areas, undesignated historic structures, waterfront and roadside properties, and tracts of undeveloped land. These types of areas often face the greatest degree of threat, but also present the greatest opportunity. By working to protect these resources and to incorporate them into your greenway, you can have a positive impact on the environmental quality, visual beauty, and future character of your town or region.

TYPES OF GREENWAYS

All greenways link together resources, but the specific elements included and the way in which they are connected will vary depending on the goals, objectives, and feasibility of your particular project. For example, if the primary goal is to provide recreational opportunities, the swath of land chosen may be quite different than if the intent is to create a wildlife corridor. Both might include open fields, wooded trails, and land adjacent to rivers, however the linkage patterns, types of infrastructure needed, acceptable levels of human access, and permitted uses would vary greatly, influencing the location as well as the character of the chosen corridor.

While greenways may be as diverse as the resources they protect, most projects fall within four broad categories: river greenways, paths and trails, cultural and historic greenways, and wildlife corridors. A brief description of each is given below. It is important to keep in mind, however, that greenway efforts rarely fit neatly into one category. Most greenways combine elements from one or more categories, ultimately satisfying a variety of goals.

River Greenways

Some of the most popular greenways in the country are those following rivers. The natural appeal of water, the abundance of resources and recreational opportunities in and around river corridors, and the linear nature of waterways are among the reasons so many greenway efforts focus on rivers and streams. A river greenway typically includes the actual river or stream channel plus a corridor of protected land on either side of the waterway. The width of this corridor is defined by a number of factors including natural features and environmental constraints, local setback requirements, ownership patterns, and human-made barriers such as railroad tracks, canal towpaths, or existing buildings. River greenways also vary greatly in length; some focus on a particular stretch of water, while others attempt to encompass the entire river basin.

Rivers have played a key role in the economic development and success of many communities across the Commonwealth. At the same time, they are essential to the life cycles of many plants and animals, and play a critical role in maintaining clean water supplies and the delicate balance that exists at the water's edge. Creating a system of greenways that incorporates these waterways and the resources that surround them can at once protect the natural environment, rehabilitate historic landmarks, provide various outdoor opportunities, promote economic activity, and enable citizens to safely enjoy and experience our natural and cultural heritage.

River greenways are often grouped into two basic types: *urban river greenways* and *natural river greenways*. Although both address water quality and pollution control issues, many urban river greenways focus on recreation and are seen as a means to help stimulate economic activity and downtown revitalization. In contrast, the primary goal of most natural river greenways is to maintain the natural state of the river corridor. The distinction is not always clear cut, however. Riparian greenways can satisfy a variety of environmental and social needs, leading to an infinite number of possibilities over the river's course.

➤ *Urban River Greenways* ◀

Rivers played a central role in the industrial revolution and were critical to transportation, communication, and economic growth. As a result, they became the backbone linking together the many cities and towns that developed along them. But with the advent of trains and automobiles, many urban rivers were abandoned as a means of commerce or transportation and were used primarily as dumping grounds for human and industrial wastes. This gave rise to vacant, unkempt areas bordering many urban rivers, which were often as uninviting as the polluted waters that ran through them. Rather than being the focal point of a community, rivers began to divide cities and their inhabitants.

Over the past twenty years, much has been done to improve the water quality of many rivers in Massachusetts. Creating urban river greenways can play a vital role in this trend and help restore rivers to a more positive cultural and economic status. Working to clean up a river and to create a riverfront pathway such as the Housatonic Riverwalk can have significant environmental, economic, and recreational benefits. An urban river greenway can also act as the spine of a larger greenway network; spin-offs connecting the waterfront with neighborhoods, shopping centers, and various historical sites and tourist attractions further increase its utility and economic benefit. In addition, a river greenway that begins in an urban area can provide pedestrian or bicycle access to the natural environment as it travels out into the countryside. When complete, the Blackstone River Bikeway will run from downtown Worcester to Providence, Rhode Island, traveling through several small towns and suburbs along the way.

This major transportation and recreation corridor will be an asset to the region and has stimulated many smaller, local greenway and trail projects which are tied into the larger, long-term vision.

➤ *Natural River Greenways* ◀

Natural or "wild" river greenways provide many of the same benefits as urban river greenways, but usually differ in character from their urban counterparts. Resource protection is very often the primary goal of natural river greenways. Protecting natural river corridors helps to maintain water quality, is essential to the continued existence of many plant and animal species, minimizes flood damage and the associated costs, helps to prevent erosion, and provides many recreational opportunities such as nature study, hiking, canoeing, and fishing.

Monitoring adjacent land uses is also an important element in establishing a successful natural river greenway. Extensive agricultural spraying, timber cutting, earth removal, lawn care applications, and/or paving, can lead to increased run-off, water pollution, and erosion of the streambanks. In addition, proper management of adjacent land helps protect the scenic beauty of the riverbanks, enhancing the experiences of those hiking, swimming, canoeing, kayaking, or fishing.

Paths and Trails

Like river greenways, trail-based greenways are diverse and can take numerous forms on the ground: walkways, hiking trails, bicycle paths, exercise trails, riverfront esplanades, and bridle paths. These provide for a variety of recreational opportunities including walking, hiking, skiing, nature interpretation, bicycling, roller-blading, and running. Because of the linear nature of trails and their ability to link resource areas, every type of greenway usually includes some type of trail. It is important to remember that the main purpose of most trail-oriented greenways is to provide people with recreational opportunities and easy access to the outdoors close to where they live. While creating trails and paths clearly has environmental and economic benefits, recreation, access, and mobility are the prominent features of trail-based greenway systems. Paved and hard surfaced pathways can also provide recreation and transportation opportunities for people in wheelchairs.

Most trail-oriented greenways, regardless of their specific character, connect a variety of open spaces, public places, and resource areas. However, some networks feature the trails themselves, such as the Metacomet--Monandock, Midstate, and Appalachian trails and bicycle pathways like the Norwottuck Rail Trail and the Minuteman Commuter Bikeway. Many of the more developed bikeways and pathways are also used as an automobile alternative for commuting, shopping, and other local activities. In these cases, a separate bicycle lane is sometimes designated to help prevent conflicts among trail users.

Trail corridors can be assembled and acquired by municipalities, land trusts, or other private organizations, and are often established along easements donated or purchased from private land owners. Railroad and utility rights-of-way, although not originally intended for public recreational use, are often put to good use by greenway planners. There are many such rail-trail efforts underway throughout Massachusetts. The Organization for the Assabet River, for example, is working to establish a twelve-mile-long pathway between Marlborough and South Acton using abandoned railroad rights-of-way and stretches of the Assabet River greenway.

Cultural and Historic Greenways

The motivation behind this type of greenway is to rehabilitate and conserve cultural and historic resources, and to make them accessible to the public. Once identified, features such as

historic districts or individual structures, urban heritage parks, monuments, sites of cultural interest, and museums can be integrated into a greenway system. Various combinations of walking routes, scenic roads, trails, and waterways can effectively weave together these often scattered resources into a logical network. The Ten Mile River Watershed Alliance is working with the City of Attleboro to establish a Heritage Trail network throughout the Ten Mile River watershed. The first phase of this project is to create three miles of walking trails within Attleboro which highlight and interpret historical and natural resources along the route.

Creating cultural/historic greenways often involves the rehabilitation of abandoned structures and the restoration of entire areas, both of which help to enhance the quality and character of a place. These types of improvements can also increase the property value of parcels within and adjacent to the greenway. In addition, cultural/historic greenways usually entail some interpretation of the featured resources, serving to educate both residents and tourists alike.

The features included in cultural/historic greenways document our past, enrich our present, and highlight the unique character of cities and towns across the Commonwealth. Protecting these resources better enables us to appreciate our heritage and to share it with future citizens. Not only are these greenways attractive and educational, but they can also help to stimulate the economy, making Massachusetts a more appealing place to live, work, and visit.

Wildlife Corridors

A wildlife corridor is a swath of protected land and/or water where animals can live and travel undisturbed by development and other human activity. Urbanization and unplanned growth have resulted in a fragmented development pattern. While the landscape may appear too developed to support many wildlife species, there is often more open space within developed areas than might be expected. The problem is that most of these parks and patches of green space are isolated and do not meet the habitat requirements of wildlife that require large protected territories, or the ability to move between two different habitats for breeding purposes. However, when these scattered areas become part of a connected network of protected natural areas, their utility and ability to support larger and more sensitive wildlife species often increases. Protected corridors can also link together existing wildlife preserves, greatly enhancing the contiguous acreage of safe habitat on which many animals depend. Linking habitat areas to create safe migration routes is a key concept behind wildlife corridors.

Unlike most other greenways, wildlife corridors are rather specific and must be carefully tailored to the habitat and migration needs of particular species. The size of the swath, its location, and the permitted level of human access are determined by the requirements of the primary animal(s) targeted for protection. For example, river otter habitat requirements were selected as a criterion for determining the feasibility of a wildlife corridor between Quabbin Reservoir and Mount Wachusett in Worcester County. River otter require a corridor with a 300-foot buffer area, and a range of approximately fifteen to thirty linear miles.² It was found that a corridor this size could be assembled and designated within the suburban/rural environment under consideration, especially since river otter can tolerate a certain amount of human activity. The Florida panther, on the other hand, requires acres and acres of contiguous, undisturbed wilderness in order to survive.³ Creating a corridor to accommodate these needs would likely require designating large areas as wildlife preserves and connecting critical habitat areas to prevent further fragmentation by new roads and development of their already endangered habitat.

It is clear that we cannot stop development nor can we afford to purchase and set aside the large amount of land some species require. However, establishing wildlife-oriented greenways is a feasible alternative for protecting and expanding threatened habitat areas and for maintaining biological diversity in our ever-changing landscape.

THE GREENWAY MOVEMENT: BRINGING NEW LIFE TO AN OLD IDEA

Greenways have become extremely popular in the past two decades, but they are by no means a new idea. A number of planners, landscape designers, projects, and books in both the United States and Europe have influenced open space initiatives and contributed to the modern greenway concept. In the late 1800s, well-known landscape architect Frederick Law Olmsted designed a number of urban park systems based on the premise that open space and recreation were essential components of urban life.⁴ He believed that in order for citizens to genuinely experience the outdoors, they needed to be able to move through it from one park or open space to another. It was this notion that gave rise to Olmsted's "parkways," which were scenic paths connecting urban parks. Unlike modern parkways built to accommodate fast-moving automobiles, Olmsted's parkways were designed to enable people, either on foot or in carriages, to experience the beauty of their surroundings as they traveled.⁵ These linear connectors were the forerunners of the linkage principle, one of the major components of the modern greenway concept.

One of Olmsted's most famous park and parkway systems was Boston's Emerald Necklace. Proposed in 1887, this four-and-one-half-mile-long arc of open space created a green strip connecting Boston Common with Franklin Park and including many accessible open areas along the way.⁶ The Emerald Necklace was the inspiration for the present-day Massachusetts Bay Circuit which, when complete, will form a diverse network of open spaces encircling the entire Boston Metropolitan area.

While Olmsted was creating and promoting the parkway concept in the United States, greenbelts were also gaining prominence in Britain. In the U.S. the term greenbelt is often used interchangeably with greenway to refer to any relatively wide swath of protected open space. In Britain, however, the term greenbelt describes the specific technique of encircling a growing urban area with a band of open space to contain metropolitan expansion, to prevent cities and towns from merging together, and to maintain large areas of open countryside amidst a developing landscape. Most contemporary greenways in the U.S. do not specifically focus on containment, although they do use open space to shape growth while providing access to the countryside. This characteristic of our modern greenways is based in part on the British greenbelt system.

In 1928, Benton MacKaye, a forester by training, spoke of the need to create "circuits of open ways" to guide metropolitan development and to provide people with access to the natural environment.⁷ Known as the originator of the Appalachian Trail, MacKaye's work focused on creating large environmentally-based networks of open space. His ideas on regionalism and resource-based planning and design added significantly to the evolving greenway concept, and made him an important figure in the regional planning movement of the 1920s.

Finally, in his 1968 book on metropolitan open space, *The Last Landscape*, William Whyte speaks of the utility of linking open areas to create linear open space networks.⁸ A well-known landscape architect and urban planner, he also played a large role in popularizing the term "greenway," although clearly he was neither the first nor the last to promote the idea.

In 1987, The President's Commission on Americans Outdoors brought national recognition to greenways and greenway planning by making it the centerpiece of their final report. It is not surprising that as metropolitan growth has continued to expand, so has the need for and thus the interest in greenways. In the Commission's summary report they recommended that "communities establish corridors of private and public recreation lands and waters, to

provide people with access to open spaces close to where they live, and to link together the rural and urban spaces in the American landscape." ⁹ This national support and publicity of the greenway vision validated the greenway movement and further increased its momentum.

The modern greenway concept has grown out of the challenges and successes experienced by some of the most creative and visionary planners of this century as they attempted to protect the aspects of the countryside they valued most. Today's greenway movement is the result of hundreds of committed individuals who have updated these visions, and transformed them from ideas of the past to present-day realities. While discussions and articles about the greenway concept have been ongoing for more than a century, the popularity and success of greenway planning projects over the past two decades has been dramatic. Today, hundreds of greenway initiatives are underway throughout the United States, including a number of innovative efforts in Massachusetts. It is hoped that with the help of this guidebook, more individuals and communities will, in the words of the President's Commission, join in the "prairie fire of local action" and work together to tap the energy and vision to create a ever-expanding network of greenways.

WHY GREENWAYS? THE VALUE OF THE GREENWAY APPROACH

THE BENEFITS OF GREENWAYS

Creating greenways can benefit you and your community in numerous ways, both now and in the future. Although quite diverse, these benefits may be grouped into three broad categories: environmental, social and cultural, and economic. While each greenway has specific impacts, this chapter provides you with an idea of some of the multiple benefits that commonly result from greenway efforts. Feel free to borrow from these ideas as you publicize the greenway concept in your community. Although no greenway can be expected to yield all the values listed below, remember that as the range of potential uses and users of a greenway increases so too will the constituency that supports it.

ENVIRONMENTAL BENEFITS

By their very nature, greenways benefit the environment by preserving the integrity of natural systems. They help conserve and enhance our resource base, and protect the plant, wildlife, and human populations which depend on the health and well-being of our natural environment. In particular, greenways can:

- Protect, conserve, and link together natural resources and open areas;
- Preserve environmentally-sensitive areas;
- Help protect endangered species and their habitat;
- Revitalize threatened and degraded resource areas;
- Protect fish and wildlife habitat;
- Connect isolated habitat areas and help preserve biological diversity;
- Provide natural buffers along waterways and enhance water quality by trapping and filtering pollutants;
- Slow runoff, which helps groundwater recharge, filters non-point source pollution, and reduces flooding, erosion, and stream sedimentation; and
- Conserve wetland areas.

In more developed settings, greenways can:

- Provide shade by protecting trees, thereby helping to absorb sound and heat from buildings and streets;
- Help save energy by providing opportunities for non-motorized transportation;
- Provide usable open areas within a developed landscape; and
- Provide habitat for many species of wildlife.

SOCIAL AND CULTURAL BENEFITS

Greenways benefit society on a fundamental level by reconnecting people with the land and with one another. Through education, recreation, and preserving local character, greenways can help to restore or enhance our interactions with the outdoors and with the landscapes that define our cultural heritage.

From a social and cultural perspective, greenways can

- Provide recreational opportunities close to people's homes;
- Provide easy access to the outdoors at little or no cost;
- Promote interaction among people of different ages and socioeconomic backgrounds;
- Promote community wellness by encouraging exercise;
- Conserve and enhance community character by protecting the natural, cultural, scenic, and open space resources that create a sense of place;
- Encourage revitalization of urban waterfronts and cultural and historic resources, often improving the image and safety of an area;
- Enhance the utility of existing facilities and natural areas by linking them together;
- Create traffic-free routes between schools, shops, and parks; and
- Act as outdoor classrooms for both school children and adults.

Close and easy access to recreational opportunities encourages participation in outdoor activities, be it for exercise, relaxation, or nature study. This has an appeal that transcends generational or economic lines and enables people living in urban, suburban, or rural areas to experience the outdoors in their own neighborhoods. This sort of opportunity will enable people to develop a better appreciation for the natural environment and will hopefully foster a sense of stewardship and responsibility among all members of society. Building a diverse group of outdoor advocates throughout Massachusetts will help ensure that our natural and cultural resources flourish for generations to come.

In addition to the direct social benefits listed above, greenways can play an important role in land-use planning and growth management. The key here is to focus on the positive aspects of creating greenways and on their compatibility with development. In this context, greenways can:

- Provide a positive way to shape growth;
- Act as lines of demarcation and buffer incompatible land uses;
- Direct development away from sensitive areas; and
- Act as landmarks or points of reference in the land-use planning process.

ECONOMIC BENEFITS

The environmental and social benefits of greenways are quite compelling and have successfully stimulated interest and enthusiasm for greenway planning at all levels of government. However, these merits are very difficult to quantify and concrete economic benefits are often necessary to translate enthusiasm into official support, funding, and action. Many citizens, businesspeople, and local officials are concerned that greenways and greenway planning

will cost their communities money in capital outlays, tax dollars, and maintenance. Over the last decade, a number of studies have been completed which address these very concerns. They overwhelmingly indicate that while planning for and securing greenway corridors do cost money, the economic benefits, social gains, and environmental protection derived from these activities outweigh the initial and long-term costs we will incur if we do not directly address resource protection and recreational needs. Many communities have found that the cost of services that must be provided to new residents, especially for education, outstrip the costs of open space protection. With proper planning, greenways have also been found to save tax dollars by helping to direct development away from sensitive areas and toward locations that are better able to accommodate construction. This often reduces municipal infrastructure costs and saves money by protecting rather than by having to restore fragile areas such as floodplains and aquatic habitats. Also important to consider are the intangibles, such as the real estate value derived from the enhanced community image a greenway affords.

In terms of economic benefits, greenways can

- Increase the value of adjacent properties, which enhances the tax base and helps to offset the lower tax revenues generated by open land;
- Attract recreation- and tourism-based businesses, such as cross-country ski touring or bicycle and canoe rentals and trips;
- Generate local revenues through tourist and local spending at greenway events;
- Save money by conserving stream corridors, wetlands, and floodplains, thereby minimizing the amount of money a community spends on repairing flood damage;
- Reduce the amount of money spent on cleaning up and seeking new drinking water supplies by helping to protect water quality; and
- Save communities money on infrastructure and service costs often required as land is developed.

THE ADVANTAGES OF THE GREENWAY APPROACH

In addition to the positive impacts of greenways themselves, the *greenway approach* to resource management offers a number of advantages.

GREENWAY PLANNING IS PRACTICAL

Dollar for dollar, greenways often provide more protection and a greater degree of access than some of the more traditional land protection efforts which focus on setting aside large tracts of land. Because of their linear nature, greenways do not require an extensive amount of land, offering an efficient and effective means of protecting a diverse resource base and increasing public access to recreational opportunities.

Greenways provide a logical means of managing a variety of resource areas which are often dispersed throughout the landscape. They emphasize existing landscape features and use them as the framework for planning. Because these natural areas rarely coincide with municipal boundaries, greenway planning often leads to a more environmentally-based, regional view of

land and resource management. Greenways also offer an unusual opportunity to take a holistic approach to resource protection by explicitly planning for the joint use and protection of natural, cultural, and recreational resources.

Greenways are sensitive to current recreational needs and demands. In 1987 the President's Commission on Americans Outdoors found that not only are the recreational demands of the American people growing, they are also changing. Based on their research, the Commission found that people want convenient and continuous access to recreational opportunities close to their homes. Greenways are structured to meet these demands.

By linking together various resources, greenways are an efficient means of resource and recreation planning. Connecting existing resources, patches of open space, and linear strips of land and water creates meaningful open space networks. While some of the resources included in greenway systems are valuable in and of themselves, individual fragments may not be appealing or inviting to potential users, may not be adequate to support wildlife, or may not effectively protect the environment. Weaving them together, however, greatly increases their ability to meet both environmental and recreational demands. The whole greenway becomes a great deal more than the sum of its parts.

Because greenway corridors are linear in nature, they are ideal for providing multiple access points. This encourages use by a broader range of people, whether they are out for an afternoon stroll or bike ride, a long-distance hike, or a day-long canoe trip.

GREENWAY PLANNING IS FLEXIBLE AND ADAPTABLE

Every greenway is unique and reflects particular interactions between people and the land. Greenways can be established in urban, suburban, and rural areas, and they can address a variety of goals and objectives. In addition, the goals and priorities of greenways themselves often change over the length of the corridor and can be implemented accordingly across a region. This enables a community to achieve specific local goals while complementing and becoming part of a regional system.

GREENWAY PLANNING ADDRESSES THE NEEDS OF SEVERAL USER GROUPS

Greenways are appealing to many different types of individuals and organizations. By involving citizens and public officials who may not normally work together, greenway planning efforts are able to build extremely diverse constituencies. These interactions and a broad base of support can help counter, or even eliminate, opposing points of view. In addition, cooperating on a project often fosters a sense of trust and develops a basis for future planning efforts.

These same benefits can be realized beyond the boundaries of a single neighborhood or town. Many greenway efforts bring together people from different towns as partners. Success in planning a regional greenway may encourage a more regional approach to other planning initiatives in the future.

GREENWAY PLANNING IS A CITIZEN BASED EFFORT

Most greenways are born out of the hard work, enthusiasm, and perseverance of ordinary citizens as they strive to transform their ideas into realities. Playing an active role in establishing a greenway is empowering. It enables us to create something positive and tangible for ourselves and for our communities. Involvement in greenway planning fosters civic and personal pride, and helps to create or restore a feeling of community which is fast becoming a rarity.

SECTION II. DEVELOPING A GREENWAY STRATEGY

A man's mind, once stretched by a new idea, can never regain its original dimension

--Oliver Wendall Holmes

Greenways provide an alternative approach to open space and resource protection. In light of the variety of potential land uses competing for the remaining open spaces in the Commonwealth, simply relying on areas where development is not occurring is no longer an effective means of satisfying open space and recreational needs. As open space advocates, we must take a proactive stance and strategically manage our remaining resources to ensure that quality recreational opportunities are available and critical areas are conserved.

Creating a successful greenway requires you to step back and take a hard look at what exists in terms of natural, cultural, financial, and human resources in the context of the social and environmental needs of the area. This comprehensive assessment will help you define realistic goals tailored to your particular greenway effort, and help ensure that recreation and conservation occur in the most appropriate areas.

A variety of methods can be used to create greenways. One approach involves securing a corridor based on a particular resource or important area. For example, many greenways grow out of the desire to protect and to provide access to an important stretch of river. Another basic approach is to conduct a broad-based inventory to determine the most appropriate location for a greenway network. This kind of activity usually follows or works hand-in-hand with town or regional open space planning initiatives.

Whichever route you choose, it is essential to develop a strategy articulating what you want to accomplish and why. A well-formulated strategy will guide your efforts, keep your initiative focused, and illustrate that your greenway proposal is the result of a rational planning process. Based on these goals and objectives, your strategy should also define and eventually map the nature and location of your proposed greenway. Putting your ideas in writing is a good way to clarify them and to get feedback in refining this essential piece. In addition, the written component of your greenway strategy can be used as a publicity tool to engender support and to solicit funds. It is important to keep in mind however, that while the actual document is important, a greenway strategy isn't simply a report but rather the synthesis of extensive research and public participation. It should be a working document, continuously evolving to accommodate new information, opportunities, and political and financial realities.

The remainder of this guidebook details the process for planning and establishing a greenway. It begins with a chapter on initiating your greenway project, continues with a step-by-step description of project planning and implementation, and concludes with suggestions for maintaining your newly established greenway. Although many of the steps actually occur simultaneously, this process is described in a linear fashion, beginning with defining your project and ending with maintaining your greenway.

The information presented in the remaining chapters is general and should be adapted to your needs, which will vary depending on the type and scope of your project, the experience level of those involved, and the current stage of your greenway planning efforts. As you read the remainder of this guidebook, feel free to focus on those ideas and suggestions that will be most helpful to *your* greenway project. Spend some time looking at the profiles and examples scattered throughout the text as sources of information and inspiration. And most importantly, never hesitate to ask questions or to seek advice -- we can all learn from the challenges and successes of other greenway efforts.

GETTING STARTED: ORGANIZING A GREENWAY INITIATIVE

Beginning a greenway planning project is similar to initiating any type of major program or campaign. Among the essential first steps are identifying an important project or idea, forming a core group of committed individuals, and publicizing your ideas.

DEFINING YOUR PROJECT -- CULTIVATING IDEAS

It is very important to pick a project that is meaningful to your community, one that will have a tangible impact when completed. Ideas for a greenway project can grow out of particular community needs or problems, such as a shortage of recreational opportunities or the degradation of a river. They can also arise out of more general issues, such as concern over loss of community character or a local desire to protect open space. Greenway projects call for long-term planning and commitment rather than a short-lived effort aimed at quick results, and your project should reflect this reality.

To determine your community's needs, take a good look around your town. One way to do this is to organize an outing or series of outings to evaluate your town's assets and needs. Because landscape changes are often incremental, it is sometimes difficult to notice the cumulative impacts of what is occurring around us. Several informal field trips can help to identify existing environmental conditions, changes in land use, and issues that need to be addressed, ultimately generating ideas and opportunities for potential greenway projects.

It is helpful to supplement data gathered in the field with historical information about your community and region. Looking at the events that gave rise to current land-use patterns and practices can provide insight into the problems and issues that exist today. Historical information about your community can usually be obtained from the local library or from nearby college or university libraries, from local newspaper archives, or from annual town reports. The Massachusetts Historical Commission is another potential source for this type of data. Some communities have a local historian and/or a local historical museum with papers, books, and photographs documenting the town's past. Your local Conservation Commission or Planning Board may also be able to provide insights into issues related specifically to land use.

Along with research on your town, start to educate yourself and your colleagues about greenways and greenway planning (see Appendix A for useful reference materials). One of the most effective ways to learn about the various types of greenways is to visit them. This will give you a real sense of the kinds of opportunities greenways provide and it will help you visualize what you want to work toward. You may also wish to contact other greenway groups for advice, encouragement, and technical assistance. A great deal can be learned from informal

conversations with fellow greenway advocates, not only about their accomplishments but also about the problems they've encountered.

Your initial observations, reconnaissance, and research will generate a number of ideas, as well as uncover issues that will need to be addressed. At this point you may find it helpful to contact local groups, town boards, and regional and state agencies to get their input and insights on your ideas (see Appendix B for sources of planning and technical assistance). It is also important to determine if any similar projects have previously been attempted in your community, and the outcome of these efforts. Reactions to your ideas and information about analogous projects are often good indicators of the originality of your ideas, the political climate, and the kind of help or hurdles you can expect in the future. Communication with a broad range of organizations in the early stages of your project will also help to foster relationships with groups and individuals that you may be interested in working with in the future. This is the time to sow widely the seeds that will be harvested later as support for your greenway.

Discussing your ideas with others is an essential part of the greenway planning process. An open dialogue can generate a great deal of useful information, educate a variety of individuals, help publicize your efforts, and garner public support. You will, however, need to use your judgement and knowledge of your community to determine how much detailed information to discuss at this point in the process. This will likely depend on the nature of the project and on your community. If, for example, your greenway project is fairly well defined and you expect there will be significant opposition, you may not wish to discuss the exact location of the proposed corridor prior to gaining stronger public support. This does not mean that you should proceed secretly. Nevertheless, it is sometimes necessary to exercise caution in order to avoid negative reactions before you get the project off the ground.

If you or your small group began with a specific project or location in mind, this initial brainstorming phase is a good time to consider the bigger picture and to look at your ideas in a regional context. While most of your efforts will be focused on getting your particular project off the ground, it is always important to keep a long-range plan in mind. Maintaining a broad perspective increases the potential for expanding your greenway and for connecting it to a regional network in the future.

THE PROJECT GROUP -- FORMING A GREENWAY COMMITTEE

Establishing a formal committee or council early in the process will give your initiative credibility and will help to ensure that it proceeds in an organized and effective fashion. In the beginning especially, enthusiasm and commitment to the project idea are more important than expertise. Information and financial support can always be gathered from outside sources, but motivation and dedication must come from within your core group.

An alternative to forming a brand new greenway committee is for an existing community organization, such as the Conservation Commission, Open Space Committee, or a local land protection organization to adopt the greenway project and to become its sponsor. This can work quite well. The Discover Hamilton Trail, for example, was developed by the Town Conservation Commission; this 9.9-mile-long trail links greenways in Hamilton with the Bay Circuit Trail in Ipswich and with the Hamilton Historic District. It is important, however, to make sure that the reputation of the group and the other work in which it is involved will not compromise your goals or limit the potential constituency of your greenway effort. If this is the case, your cause may be better served by asking a representative from these various groups to participate in your new greenway committee.

Whichever route you choose, it is essential to select a leader early in the process. Again, the leader isn't necessarily the individual who is most knowledgeable about greenways and open space planning. More importantly, the person you choose must be truly committed to the project, have the time and energy to devote to it, and possess excellent communication and organizational skills. In addition, an effective leader must be able to

- _ delegate important tasks and responsibilities;
- _ recognize the strengths and weaknesses of others;
- _ initiate and focus group discussions without dominating them;
- _ recognize and articulate good ideas;
- _ get along with all types of people and enjoy working in a group;
- _ motivate the group and keep its progress on schedule.

(adapted from *The Open Space Planners Workbook*)

THE VISION STATEMENT -- ARTICULATING YOUR PROJECT CONCEPT

Once you've collected some information, gotten initial input from fellow citizens and open space advocates, and established a project group and leader, you are ready to define the overall vision for your greenway. The project vision communicates a general idea of what will be accomplished through your efforts. It is the conceptual definition of the corridor you hope to establish and protect, and may include some of the reasons your group feels this effort is essential, and what a greenway plan will mean for the community. The project vision will become the underlying theme that guides your initiative and ties all your efforts together. At the same time it is the ideal endpoint you hope to reach in the future. Articulating this vision is an ongoing process open to change as the project evolves.

Defining your vision may at first seem like a daunting process. One way to begin is to raise a series of questions and issues with the other members of your group. Discussion topics might include:

- _ specific resources and areas that are important in your community
- _ various types of greenways and their applicability to your situation
- _ why and how a greenway could benefit your community
- _ possible locations for the corridor
- _ potential uses and users
- _ what you hope to achieve through this effort
- _ would your town support such an initiative

Several themes are likely to emerge through this dialogue. It is often helpful to further articulate and discuss these key topics and to then list them in order of priority. In determining your vision statement, remember that the interests within your community are many; some people may focus on wetland protection, others on providing safe biking routes, and still others on preserving an agricultural landscape. As a rule, the more local interests that are addressed, the broader --and stronger -- the support base. This process will usually entail both negotiation and compromise. In the case of the Merrimack River Trail, for example, the primary purpose of the project was to protect and conserve the River and adjoining lands. The planning group also saw trails as integral to their efforts even though they would increase access and put more stress on the River and its environs. In the big picture, the group felt this potential drawback was outweighed by the broader constituency base that would result from endorsing a multi-purpose greenway.

The final step is to reach consensus on a broad vision statement for your project which can be used to present your ideas to the public. Give careful attention to being clear and concise. Getting bogged down in details at this stage will draw attention away from the real message you are trying to get across and may raise red flags to those not yet sold on the idea. Remember, too, that this vision represents the concerns and desires of a small group within your community. It should be used to guide the project and to generate ideas and support for the greenway, not to dictate its outcome. Your vision statement may change considerably by the end of the planning process as you discover new information and attempt to balance resource protection goals with other community concerns and interests.

PROJECT PUBLICITY -- SPREADING THE WORD

Once you've decided on a general vision or concept for your project, it is important to educate other community members, to solicit feedback on your ideas, and to begin to build a constituency. Never underestimate the power and importance of building strong public understanding, awareness, and support for your project. At this stage it is often beneficial to decide upon a name for your project to promote local and regional recognition for your program. Sponsoring a contest for the name and/or for designing a logo or trail marker for your project is a wonderful way to draw attention to your efforts.

Potential avenues for spreading the word include writing articles, editorials, and press releases for your local newspaper, communicating through radio and community access cable television, setting up a home page on the Worldwide Web, distributing brochures and flyers, holding public forums and workshops, offering field trips, working with your local schools, and contacting other groups and individuals whom you would like to involve in the process. The remainder of this chapter describes some of these publicity methods in more detail.

WRITTEN MATERIALS

Written materials offer an endless array of options from articles to posters to annotated maps. Written materials produced in the early phases of the planning process can present some of the specific information you've learned, as well as some of the questions and issues you've uncovered. Raising questions and asking for feedback is a nonconfrontational way to draw your fellow citizens into the process.

The first step in producing written materials is to determine what you want to say and to whom you want to say it. Answering these questions will help you decide what information to include and the style or tone in which it should be presented. Tailoring written materials to target audiences is an effective means of providing specific groups with the information most relevant to their interests and concerns.

Writing articles for the local paper or for newsletters of local conservation, land trust, or similar groups, is an effective avenue for reaching a wide audience and for soliciting their input on your project concept. Thought-provoking brochures, articles, and editorials will educate readers and may generate commentary in the form of suggestions, questions, and concerns. The nature of these responses will help guide your project, point out the controversial issues, and identify potential allies and opponents. If nobody replies to your articles, however, don't assume they are not being read. While not evoking an active response, you are introducing new ideas and issues to the general public. Putting the word out early on will help familiarize community members with greenways and with your proposed initiative, so they will not be surprised when they hear more about it in the future.

When producing flyers or brochures, remember that most people are bombarded with thousands of pieces of information every day. In order for your materials to effectively communicate your message, they must be eye-catching, clear, and concise. Be sure to also include a name and phone number of someone to contact for more information. Once you've

created a compelling flyer or brochure, there are three steps you can take to help ensure your materials end up in people's hands, and not in their trash or recycling bins.

First, distribute the materials by hand. This increases the likelihood that people will read the information and there's a better chance they will remember the name of your group or project if they can connect it with a face. Volunteering to help disseminate materials demonstrates your commitment to the project, and the personal contact provides people with an opportunity to ask questions or express concerns. When distributing flyers and brochures, it is important to be somewhat selective and accept the fact that not everyone will want one. Pushing materials on people may make them angry and can be detrimental to the reputation of your initiative.

Second, make sure the materials are available at several easily-accessible locations such as supermarkets, laundromats, nature centers, libraries, and Town Hall. Placing materials in a variety of places will enable you to reach a broader audience than is possible by hand distribution alone. In addition, an individual who chooses to take the information generally wants it and is therefore more likely to read it.

Finally, if you do choose to mail written materials, be selective. It is often more effective to target specific groups of people, rather than to send a brochure to every person in town. You may also want to try a sample group at first to test your written materials before doing a larger print run. Being selective also helps to minimize the amount of printed materials wasted and cuts postage costs. You must exercise caution, however, that this targeted effort does not come across as excluding certain groups or that an overwhelming positive response is not just a reflection of the orientation of the group that received the mailing.

Another avenue for getting the word out is to create a poster that gives an overview of the proposed greenway project, along with a contact for additional information. These can be hung in the same types of places where brochures are distributed, as well as on general bulletin boards or kiosks at town parks or shopping areas. Some stores will also display notices and posters as a public service. Having school classes design posters or sponsoring a poster design contest is another effective publicity tool that reaches a wide audience. This is a wonderful opportunity to educate children -- and through them, their parents -- about the greenway idea. Bringing the schools into your educational efforts may also have rewards down the road if teachers and classes volunteer to help with resource inventory or other aspects of your project.

Producing and distributing good written materials costs money. An effective way to reduce expenses is to ask local printers, copy shops, advertising agencies, and talented community members to donate their services. An acknowledgment of these services is often all a business or individual will ask for in return. These types of in-kind contributions can have a significant impact on the quality and extent of your publicity campaign while greatly reducing the costs.

During the later stages of your project, newspaper coverage and public service announcements are effective ways to publicize the actual corridor and to advertise greenway events. It is essential to develop a good rapport with the staff of the local newspaper, radio and television station(s) as early in the process as possible. If they know you and your project, they will be more likely to help you write press releases and public service announcements, to cover your events, and to run your stories.

PUBLIC FORUMS AND COMMUNITY MEETINGS

Forums are a great way to introduce your group and your project to the community. There are many different methods of running forums and workshops, and the approach you choose will depend upon your resources and upon how far along in the process you are when you decide to hold one. If your group is fairly small and having difficulty formalizing its vision statement, you may wish to hold an informal roundtable discussion where a facilitator introduces some ideas and then leads a brainstorming session. The main purpose of this type of meeting is to generate ideas and to gather information, advice, and suggestions.

Further along in the process when you have some specific information to convey, a panel discussion may be more appropriate. This format enables you to feature key members of your group such as the greenway committee leader, a member of the Conservation Commission and/or Planning Board, local business leaders, and a representative from one or more recreation or conservation organizations. Each speaker is given the opportunity to present their point of view on whatever issues you decide to address, underscoring the diversity within your group. This variety will help appeal to the broadest range of potential constituents, and their different viewpoints will hopefully stimulate discussion about the many issues to be addressed. Through these dialogues, participants will begin to discover that greenway planning is extremely versatile, and that it can provide equitable and effective solutions to environmental, social, and economic concerns.

THE PLANNING PROCESS -- TAKING THE NEXT STEPS

Once you've collected some meaningful information, established a core group of greenway advocates, generated an overall vision, and gained community support, it is time to develop a more detailed strategy for establishing your greenway. To do this you'll need to get a more accurate sense of the landscape, decide what the larger community thinks is important, and determine what some of the major sticking points will likely be. This can be accomplished through conducting a preliminary inventory of the types of land and of the general ownership patterns in your study area. It is also helpful to articulate your preliminary goals and priorities; at this point they can be general, especially if you have not yet identified the actual corridor.

As you proceed, it is essential to maintain a continuous dialogue with the public through newspaper articles, flyers, fact sheets, posters, public meetings, and the like. Keeping community members informed of and involved in your activities will encourage better public participation, persuade more citizens that greenways are beneficial, and keep you abreast of concerns and potential problems associated with your greenway initiative.

UNDERSTANDING YOUR RESOURCES: INVENTORY, ANALYSIS AND GOAL SETTING

One of the key steps in protecting the integrity of any area is to identify its natural and human-made components, and to understand how they function and interact. To do this you will need to conduct a comprehensive inventory of your study area: its resources, land-use regulations, and ownership patterns. Analyzing these three data sets together will help identify specific resource and recreation needs, potential threats, and appropriate locations for your proposed greenway. A thorough analysis will give you a better understanding of your study area, thereby enabling you to devise a stronger greenway plan. It is not always necessary, however, to systematically undertake every aspect of the inventory. If greenway and open space planning in your region is already underway, or if strong landowner and community support already exists, you may need to modify the inventory steps described below. In addition, some of the resource types or issues outlined in the following section may not be relevant to your effort or study area. As you proceed, remember that the basic idea behind the inventory and analysis phase is to identify the natural and human-made assets that exist in your study area, to understand how they interact, and to decide which are the most important, and why. Discussing your findings with your group and with the community at large will help clarify the general goals and objectives for your greenway initiative.

It is likely that much of the basic information you will need already exists, either as maps or in written reports. A good place to begin is with town boards including the Planning and Zoning Boards, the Boards of Health and Assessors, and the Water, Sewer, Conservation, and Historic Commissions. List in advance the type of information you want and use that as a starting point when approaching town boards. Staff are often strapped for time, so be prepared to push up your sleeves and copy or transfer the information you want from their records. You might also ask where you can purchase copies of any maps they have on file. Municipal open space plans and associated maps are another excellent source of information about a community's natural and cultural characteristics. State agencies, regional planning agencies, conservation organizations, and land trusts may also have relevant data they are willing to share (see Appendices B and C). Finally, check with local colleges or universities to see if any theses or research reports have been written about your area by students in planning, landscape architecture, resource management, or similar fields.

INVENTORY

Your task in this phase is to collect many different kinds of information and to compile them in a way that provides you with a better understanding of your study area. One very effective method for doing this is to prepare a composite map, or a base map with overlays that can be evaluated together, to help pinpoint key resource areas, potential linkage routes, and

possible problem spots. It is likely that much of the information you need has already been mapped. Features such as soil types, watershed delineations, and vegetative cover are all available in mapped form, although you may need to reduce or enlarge them to reach a common scale for easy comparison and analysis. Most of the information you want will have been prepared on a town-by-town basis. If you are working on a multi-town project, however, you may have to piece together the data from several towns to get the regional perspective you need.

For information on different mapping options, see the section called, "A Word on Maps" and accompanying box entitled "Mapping: Ends and Means" later in this chapter.

LOOKING AT THE RESOURCE BASE

A logical place to begin is with an inventory of the physical features of your study area to help describe the nature of the landscape you are considering. The kinds of data you'll need fall into several broad categories -- natural resources, cultural and historic sites, scenic features, and recreational opportunities. You will also want to look at the use and intensity of developed areas, which may influence the route of your proposed greenway. Keep in mind that some resources may logically fit into more than one category. A river, for example, may be viewed as a natural resource, as a cultural resource because of its former use in commerce, and as a recreational asset. It is also possible that some items may not be relevant to your efforts: a detailed soils map may not be necessary if you are creating a greenway following historic buildings and parks in a city.

It is important to take the time to sit down and figure out what features in an inventory will be the most useful to your specific greenway project. The categories of resources found in this chapter are intended only as a framework to guide data collection. As you are brainstorming, do not hesitate to recategorize or to add other types of information which may enhance the development of your greenway project.

Natural Resources

The main purpose of this part of the inventory is to identify and map significant natural features in your study area. These features may include topography, soils, hydrologic and geologic features, vegetation, and fish and wildlife. Each of these areas is discussed below.

_ Topography _

Topography is the shape of a landscape, defined by changes in elevation over distance. These changes are represented by contour lines on topographic maps. The patterns made by the contour lines reflect actual changes on the ground and depict hills, mountains, ridges, ravines, valleys, and plains. Topographic features impose a natural order on the land and greatly influence its use. Analyzing the topography of an area can provide insight into how and why land-use patterns developed as they did, and can suggest ways in which future patterns may evolve. Of particular interest to greenway planning, topographic maps point out natural corridors such as ridges or river and stream channels. They can also be used to determine steep slopes. In

addition, identifying points of high elevation can be useful in recognizing potential vistas and in delineating drainage basins.

Topographic information can be obtained from United States Geological Survey (USGS) Quadrangle Maps. These also show buildings, roads, wetlands, streams, rivers, lakes, and gravel pits. Topographic maps are available at many bookstores, local map outlets, and outdoor supply stores. They may also be purchased from Cartographic Information Research Services at UMass/Amherst or from the USGS Map Distribution Center in Colorado (see Appendix B).

Soils

Soil is the substance that land is made of and thus supports every land use. Soils data can help to identify a number of landscape features including areas commonly flooded, shallow depth to bedrock, high water table, gravelly areas, and steep slopes. This kind of information can be used to determine the suitability and limitations of particular areas for various land uses. In addition, basic soils information can be aggregated to identify areas of prime agricultural, poorly drained, or highly erodible soils. Grouping soils by what they can support is a valuable way to indicate how they are related to future land use.

Soils data can be obtained from the United States Department of Agriculture, Natural Resource Conservation Service (NRCS), formally known as the Soil Conservation Service (SCS). These soil surveys categorize and map soils based on particle size and other prominent characteristics. In working with NRCS data, it is important to remember that the basic premise of the classification system is to separate the landscape into segments which can support similar uses and which have similar management requirements. This type of delineation can be extremely helpful in highlighting critical soils and for making preliminary assessments, but soil categories should be confirmed by an on-site inspection before conservation and development decisions are finalized.

Water Resources

This category of resources includes surface water, wetlands, flood hazard areas, and aquifer recharge areas. Clean water is essential to most forms of life; protecting water resources is crucial to maintaining a healthy environment and high quality recreational opportunities. Information about the nature and location of water resources will help identify areas that need protection as well as opportunities for water-based recreation. Remember that water is a dynamic resource and every water body is part of a larger system or watershed. Considering the "bigger picture" will help identify potential threats to water quality that exist outside your study area, as well as the impact your proposed project could have on the larger system. For more information on water resources, contact the Department of Environmental Protection (DEP), Division of Water Supply, or the Department of Environmental Management (DEM), Office of Water Resources. Technical assistance is also available for coastal communities from the Massachusetts Coastal Zone Management program. See Appendix B for further information on these state agencies.

Surface Water. Information about lakes, ponds, streams, bays, estuaries, and reservoirs can be found on USGS topographic maps, National Wetland Inventory maps, and by looking at aerial

photographs. You may also wish to consult the Massachusetts Water Supply Protection Atlas, updated annually by the Department of Environmental Protection (DEP), Division of Water Supply. It uses overlay maps on USGS topographic maps to show surface drainage basins, the location of public drinking water supplies, and potential sources of contamination (e.g., salt storage sheds, landfills). Check for availability of this manual at your library, Town Hall, or regional planning office.

Wetlands. Wetlands play an essential role in maintaining water quality, regulating stream flow, and supporting wildlife. Most of these areas are protected from dredging and filling by the Massachusetts Wetlands Protection Act. This law is administered by municipal Conservation Commissions. For each wetland-related project, these Commission set specific requirements for how wetlands are to be protected and buffered. However, beyond this buffering the law does not necessarily prevent degradation caused by adjacent or nearby development. It is therefore essential to consider each wetland in the context of the larger hydrologic system when making conservation, recreation, and development decisions.

USGS topographic sheets and National Wetland Inventory maps are good starting points for obtaining wetland data. For greater detail, check DEP's Water Supply Protection Atlas or consult the Wetlands Conservancy Program within DEP's Division of Wetlands and Waterways. Because of their scale, these maps may not enable you to fine tune the boundaries or to detect smaller pieces of wetlands. Whenever possible, site visits, aerial photographs, and locally-generated maps should supplement this information.

Flood Hazard Areas. A flood hazard area, often referred to as the one-hundred-year floodplain, is the area surrounding a stream or river that would be flooded in a storm that has a statistical probability of occurring once in every one hundred years. These areas have been delineated on Flood Insurance Rate maps produced by the Federal Emergency Management Agency. Communities are required by the federal government to regulate development within these areas in order to qualify for federally-subsidized flood insurance. Copies of these maps are available at most Town Halls or from the Town Engineer. They are also available from the Flood Hazard Management Program within DEM's Office of Water Resources (see Appendix B).

In general, flood hazard areas are most suitable for uses which do not require structures, such as agriculture, recreation, and open space. They are often quite scenic and provide valuable habitat for wildlife. Because many of these areas are not by law considered "developable," their fair market value is usually lower. This may increase the economic feasibility of including them in your greenway. However, not all land lying within flood hazard areas is automatically protected. The degree of protection depends on the nature of the floodplain and on the local regulations in place.

Aquifer Recharge Areas. An aquifer recharge area is the land area through which precipitation replenishes ground water supplies. These areas are essential to maintaining quality drinking water. They include "zones of contribution" to public well supplies, and surface watersheds contributing to water supply reservoirs. Consult DEP's Water Supply Protection Atlas or the Aquifer Land Acquisition Program within DEP for information on delineating these areas (see Appendix B).

– Geologic Resources –

This category includes unusual geologic features such as caves, cliffs, ravines, gorges, glacial potholes, rock outcrops, and drumlins. These unique resources have taken thousands and thousands of years to form and can reveal much about an area's history. They are worthy of protection and can make ideal focal points within your greenway. For more information about geologic resources in your community call the State Geologist or try contacting the geology department at a nearby college or university (see Appendix B). USGS Geologic Quadrangle maps also show the location of sand, gravel, and various deposits and sediments. These resource maps, available from the USGS Map Distribution Center, are accompanied by commentary on landforms, soil profiles, and significant patterns and changes in the area.

_ Vegetation _

This group of resources includes rare, threatened, and endangered species and critical habitat areas, as well as plant communities representative of your part of the state. Of particular interest are large tracts of contiguous woodlands and stands of old-growth forest, both of which are fast becoming rarities. Vegetation resources have ecological, recreational, and economic value. In addition, the way they are dispersed over the landscape helps to create the character and scenic quality of a place.

When gathering vegetation data, it is important to think not only about the individual resources but also about their significance in the larger landscape. For example, a series of hedgerows separating farm fields may provide prime habitat for birds and small game. Cutting them down would remove an important source of food and cover for these species, but it would also alter the entire character of the area. Similarly, the recreational value of a woodland for hiking, hunting, or bird-watching may be well known, but its economic value as a source of lumber and its resource protection value in terms of soil stabilization and habitat protection must also be considered.

Some of the best sources for information on vegetation are: aerial photographs or land-use and forest cover maps, often available through local Planning Boards and Conservation Commissions; the Resource Mapping/Land Information Systems unit within the Department of Forestry and Wildlife Management, UMass/Amherst; the Massachusetts Natural Heritage and Endangered Species Program within the Department of Fisheries, Wildlife and Environmental Law Enforcement; and the Division of Forests and Parks within DEM (see Appendix B). Input from long-time residents or site visits by a field botanist can also be quite valuable. This is especially true for an evaluation of understory or herbaceous species. It is also a good idea to conduct inventories at several times of the year to document the seasonal change. Spring ephemerals, for example, bloom for only a short time each spring and usually even their leaves have all but disappeared by mid-summer. Basing a trail layout on a late August survey might completely miss this important and often fragile resource. In addition, when detailing your vegetation maps, be cautious about drawing attention to rare or sensitive species that might be damaged by excessive trampling or picking.

_ Fisheries and Wildlife _

The purpose of this inventory is to identify the species of fish and wildlife that inhabit or visit your study area, along with their habitat requirements. Particular attention should be given to those species listed as rare, threatened, and endangered. Learning about the fish and wildlife species representative of your area will enable you to help protect them by maintaining and linking habitat areas and by steering clear of sensitive species. For more information, contact the Fisheries, Wildlife, and Habitat Information and Education Office or the Massachusetts Natural Heritage and Endangered Species Program, both within the Department of Fisheries, Wildlife and Environmental Law Enforcement (see Appendix B).

_ Areas of Critical Environmental Concern _

Areas of Critical Environmental Concern (ACEC) contain a concentration of significant environmental features, ranging from agricultural areas and old-growth forest to aquifer recharge areas and estuarine wetlands. To be eligible for designation as an ACEC, an area must contain features from a minimum of four resource categories, such as rare species habitat, wetlands, or agricultural lands, and it must be of regional or statewide significance. ACECs are formally designated by the Massachusetts Secretary of Environmental Affairs following a public nomination and review process. This designation is aimed at enhancing and facilitating stewardship of these special sites and it directs state environmental agencies to follow a proactive agenda to preserve, restore, and enhance the resources of these areas. An ACEC designation complements local authority and zoning, and can help state, local, and private organizations work together to create an ecosystem-based framework for resource preservation and management. For more information on the locations and resource features of these areas, contact the ACEC program within DEM (see Appendix B).

Cultural and Historic Resources

These resources vary greatly across the Commonwealth and can include almost any feature that is important to your community. Some examples are historic structures or landmarks, cemeteries, museums, canals, dams, town commons, and archeological resources. Identifying the location of these resources will help you determine how they relate to other landscape features and how they could be incorporated into your greenway. Including these treasures in your greenway can provide additional protection and help ensure that they are accessible to citizens now and in the future. Sources for this type of information include the Massachusetts Historical Commission, local historic commissions or societies, site visits, and input from fellow citizens (see Appendix B).

Scenic and Special Landscape Features

Scenic vistas, farmland, hilltops, forestland, town commons, roads, and estates may be among the significant scenic resources in your study area. Use this section to identify the places that are unique to your study area and to determine what it is that makes them special. Very often these areas are where a number of resources overlap in particular ways or where people have had a particular influence on the natural landscape. While you may have included some of these resources in other categories, it is important to recognize how they interact to create a special sense of place. This might also include identifying areas that contain a mixture of important resources such as coastal wetlands, wildlife habitat, and scenic landscapes. To truly protect these special qualities it is essential to look at the entire landscape and how it is being used, as well as at its individual components.

Given the individual nature of this category, the best source of information may well be on-site explorations of your area. To supplement your own evaluations, consult DEM's *Scenic Landscape Inventory* (see Appendix A). A study of the USGS topographic map(s) for your targeted area will also reveal hilltops, stream corridors, orchards, unusual geologic features, and other characteristics of potential interest to your greenway.

Recreational Facilities and Opportunities

This element of your inventory will play a key role in helping you determine potential locations for your greenway. It can include existing resources such as public parks, playing fields, trails, bikepaths, schools and other public facilities, playing fields, and swimming areas. It should also indicate opportunities for recreational use such as abandoned railroad and utility rights-of-way, stream corridors, old summer camps, and privately-owned open spaces and recreational areas such as golf courses. Many of these areas may already be used informally by the public and this should also be noted. A landowner already accustomed to some public use of his or her land may be more inclined to formalize these rights than one who has no experience with public use.

As you gather recreation data, it is likely you will identify some areas already listed in your natural, cultural/historic, or scenic inventories. For example, many water resources provide excellent opportunities for swimming and fishing, as well as important habitat. Mapping resource and recreational information together can illustrate where categories overlap, identify natural connections between resources, and point out where linkage is needed. Areas of multiple resource value are prime targets for inclusion in your greenway, although they may raise difficult management issues. For example, certain coastal areas may be ideal for recreation although human activity may also threaten shorebird nesting habitat. At this point in the process acknowledge these kinds of issues, but try not to let them inhibit your creativity.

In addition to identifying and mapping recreational resources, it is also useful to gather information on current use patterns, fees charged, accessibility, and maintenance of existing areas. This kind of data will help you evaluate existing opportunities and give you a general sense of community needs.

Recreation means different things to different people; as a result, the kinds of resources which offer recreational opportunities vary greatly. Keeping your greenway vision in mind as you collect and consider recreation data will enable you to think creatively, make the best use of your time, and minimize the amount of extraneous information you gather. Finally, don't be discouraged if you can't identify many recreational resources. You may have discovered a very important reason for establishing a greenway in your study area.

A Word on Maps

Maps are an effective means of summarizing, storing, and graphically presenting resource and land-use data. Maps are also extremely useful educational tools; they can help raise and answer many questions, and serve as a focus for discussion. By showing the extent and location of a variety of resources on a single sheet or through the use of overlays, maps help people visualize the elements that comprise the landscape and the unique character of an area.

At this stage, any maps you produce should be working documents to give you and your community a better understanding of the study area. They need not be fancy or perfectly accurate, and can be produced manually "in-house." It is usually wise to avoid producing an expensive, definitive-looking map indicating potential greenway locations *before* you speak with

landowners. Someone may be completely sold on the greenway idea until they see a map showing it going through their backyard. While maps can help people understand the greenway concept and ultimately promote the project, they can also backfire if they come as a surprise or appear too final too early in the process. The key to this issue is timing and you will have to use your judgement and knowledge of your community to determine when to go public with a detailed map.

The fact that maps can spark controversy should not deter you from producing a set of working resource maps. They will be invaluable in helping to summarize and present your data for discussion. Maps can also help you visualize potential corridors and identify the issues associated with the various options being considered. Although they may raise questions and concerns, it is better to uncover and address these issues as early in the process as possible, before a certain corridor or set of features is fixed in people's minds. And don't forget -- maps can also suggest possible resolutions to some of the issues they raise.

LOOKING AT LAND OWNERSHIP AND LAND USE

The next major element of your inventory is to look at your study area in terms of land ownership and use. Information on land ownership illustrates how land is subdivided and can be extremely useful in developing a realistic protection strategy for your proposed greenway. Knowing whether an area you hope to include in your greenway belongs to one, two, or multiple landowners, and how that land is being used, will help you determine the most effective and feasible means of securing the land. Most of this information is available in map form at the local Assessor's Office, but it will require piecing together the appropriate parcel maps and then cross-referencing them with ownership lists. The local land-use or zoning map may also provide useful information.

One key element in your land-use analysis is the identification of protected and unprotected open spaces. These can include publicly-owned parcels, tracts held by land trusts, conservation organizations and institutions, large private holdings, vacant land, and land subject to conservation and agricultural preservation restrictions. It is important to remember that not all public land is permanently protected. For example, a town may decide to sell one or more of its public school properties for redevelopment into office space, condominiums, or elderly housing. Similarly, parcels that appear to be protected, such as tracts in use value taxation programs (e.g., Chapter 61 or 61A) or private areas that have been used as "public" open space for years, could potentially be developed. It is essential, therefore, to determine which parcels are protected in perpetuity, which are subject to temporary measures, and which are not protected at all. This type of information may be available from your local Assessor's Office, Planning Board, or Conservation Commission, or from your town's Open Space Plan. You may also wish to consult the Division of Conservation Services within EOEPA for assistance on conservation restrictions (see Appendix B).

As part of your inventory and analysis, consider the open space and recreational resources you've identified in the context of recent land-use patterns and trends. What type of development has occurred in or near your proposed corridor over the past few months or years? How will this

trend affect existing open space and recreational resources? Will there be an increased demand for recreational opportunities in the foreseeable future? It is also useful to identify the developed lands in and around your study area and to determine how the undeveloped areas are zoned. Existing and proposed land uses that could have adverse impacts on the resource base, such as gravel mining, landfills, large subdivisions, and highway expansions should be considered. Although it may not be feasible to do a parcel-by-parcel analysis of this larger area, a broad-brush survey will help you develop a better understanding of how your project site fits into and interacts with the surrounding landscape.

USGS topographical maps show existing buildings along with rail lines, industrial areas, gravel pits, landfills, etc. You should, however, check the date the map was prepared. In some cases these maps are ten to fifteen years old and considerable new building may have occurred during that period. Your local Planning Board or Regional Planning Agency should be able to provide you with current zoning and land-use maps. Aerial photos are also a good source for this type of information.

Reviewing land-use and ownership patterns in and around your study area will help identify opportunities as well as uncover issues that need to be addressed. Working through these issues, and weighing threats and conflicts with opportunities and needs, will help you further define the nature and location of your proposed greenway.

CONSIDERING LAND-USE REGULATIONS AND PROGRAMS

The last major element of your comprehensive inventory involves looking at the variety of land-use and environmental regulations at work within and around your study area. This information will enable you to determine the ways in which land may be utilized and protected.

Zoning Bylaws

A good place to begin is with the zoning bylaw(s) of the community(ies) involved. In general, zoning regulates the nature, distribution, and intensity of development permitted within a municipality. The complexity and scope of these regulations vary significantly throughout the Commonwealth. In addition to basic density and use requirements, some communities have incorporated innovative provisions into their bylaws in an attempt to guide growth to the most appropriate areas and to minimize the impacts of development on natural resources. The more common of these techniques include overlay zoning (which provides added protection for sensitive areas), open space zoning, and site plan review. If your community has one or more of these or other innovative mechanisms in place it is important to determine to which areas they apply, how and if they are being utilized, and the level of protection they provide. For more information about regulatory land protection techniques, consult the *Growth Management Workbook*, available through the Pioneer Valley Planning Commission (see Appendix A).

Subdivision Regulations

Local subdivision control regulations detail the process for subdividing a large piece of land into multiple parcels. These regulations may apply to both residential subdivisions and to

nonresidential subdivisions, such as office or industrial parks. In addition to meeting lot size and setback requirements specified in the zoning bylaws, a developer must adhere to requirements set forth in the subdivision regulations. These might include erosion control measures, utility and drainage requirements, open space set-asides, and a variety of design standards for streets such as width, length, surface material, maximum gradients, and sidewalk and bikepath requirements. As with zoning bylaws, the complexity and detail of subdivision regulations vary tremendously among communities. Some towns have adopted regulations that require a developer to submit both a conventional subdivision plan and a cluster development plan for projects containing over a certain threshold of lots. It is important to determine if the subdivision regulations in place in your study area include any provisions such as this which could potentially benefit or impact your greenway initiative. For example, if a large tract of developable land lies within or adjacent to your proposed greenway, you might explore how provisions could be written into your community's subdivision rules and regulations requiring that a perpetual easement be granted for the greenway. Requiring public access as a condition for approval of a subdivision may be one avenue to ensure that your proposed greenway becomes a reality.

Environmental Regulations and Programs

Most land-use laws in Massachusetts are drafted and implemented on a town-by-town basis and rarely address issues beyond municipal boundaries. However, looking at physical features, ownership patterns, and the regulations of areas that transcend municipal boundaries may reveal opportunities that previously went unnoticed. Analyses based on this type of information can provide new insights and may suggest a more regional approach to conservation and recreation.

Board of Health regulations provide another set of standards that help protect resources at the local level. They are administrative rules established in each community to guide the construction and maintenance of wells and septic systems, and are geared primarily toward protecting water resources from contamination. At a minimum, local Boards of Health are required to enforce the regulations set forth by DEP in The State Environmental Code Title V: Standard Requirements for the Siting, Construction, Inspection, Upgrade, and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage (310CRM-15). However, local Boards of Health also have broad authority to establish more stringent guidelines which may be relevant to natural resource protection. Again, it is useful to know the regulations in place in your community and how they are being enforced. If a river and associated wetlands are a prime feature of your proposed greenway, you may find local Board of Health regulations that offer protection from septic tanks and leach fields greatly complement your resource protection goals.

In addition to local and regional approaches, it is important to identify state laws and programs that could potentially protect significant resources in your study area. These include: the Scenic Mountains, Wetlands Protection, Coastal Zone Management, and Endangered Species Acts; and the Wetlands Conservancy, Areas of Critical Environmental Concern, Agricultural Preservation Restriction, and preferential taxation (Chapter 61, 61A, and 61B) programs. See Appendix D for more information on the Commonwealth's land and resource protection programs and laws.

After learning about the different types of regulations and programs in place, you will need to determine whether they adequately address your resource needs and to identify gaps in existing protection mechanisms. Complementing regulations with proactive initiatives can greatly increase their overall effectiveness. In general, proactive or voluntary efforts are more flexible and can be tailored to site specific resource protection needs. In addition, nonregulatory techniques aren't subject to changes in government, and can therefore often provide more permanent solutions.

PUTTING IT TOGETHER: SOME IMPORTANT QUESTIONS

As you continue to evaluate and synthesize the information you've collected, you will gain a better understanding of the resource base and how it is impacted by present and potential land uses. While it is likely that you've been considering the implications of your findings throughout the inventory phase, it is essential to systematically consider your data in terms of resource protection and recreational needs, community priorities, and the hopes and intentions of your greenway group. This will help you set the goals and objectives for your greenway project. The following is a list of discussion questions to guide your review and analysis; as always, tailor this list to your project by focusing on those most relevant to your study area and by adding new ones.

- What is it about your community or study area that makes it special?
- What areas do community members value most?
- What are the most pressing resource protection needs?
- What are the most critical resources or resource areas?
- Which areas are threatened -- how and how soon?
- What are the most pressing recreational needs?
- Are recreational needs and demands being met?
- What are the most pressing community needs and concerns?
- What are some conflicts between existing land uses?
- What are the current land and recreational use patterns within your study area?
- What are some economic considerations around this and other resource protection initiatives?
- What are some political considerations around this and other resource protection initiatives?
- Are there any potential conflicts within the greenway advocacy group?
- Has there been any opposition to your initiative to date? If so, around what issues and do you now have information to effectively address them?
- Do existing mechanisms (regulatory and non-regulatory) protect important resources? To what extent?
- Where are the gaps in existing protection mechanisms?
- How might a greenway address these issues?

These and other questions should be discussed and answered within your greenway group, as well as with citizens at large, landowners within the proposed project area, local conservation groups, and various municipal boards. It is essential to return to community members to present your findings, to learn what they feel is most important, and to gauge what they are willing to do to achieve these ideals. These discussions, along with the actual data, should be considered as you articulate the goals and objectives of your proposed greenway initiative.

GOALS AND OBJECTIVES

Developing a clear set of goals and objectives to guide your greenway initiative is a critical step in the greenway planning process. Your project goals should be a series of ideals that you hope to achieve by creating a greenway. Goals are more specific than the overall project vision in that they are informed by the extensive research you have conducted. They correspond to specific issues. The fact that the goals you develop are supported by your resource inventories should not, however, stifle your creativity. This remains a time of imagination. At this point you may also wish to revisit the vision statement you articulated earlier to ensure that it still accurately represents what you hope to accomplish.

Objectives are even more refined and should reflect specific ideas for achieving the goal to which they apply. It is common to have several objectives relative to a particular goal, each reflecting a different approach to achieving the broader ideal. When articulating goals and objectives, it is important to remember that goals are general concepts, objectives are specific ideas for achieving the goals, and action steps (discussed in Chapter 5) are particular activities which, if carried out, would advance the objectives.

Sample Goals, Objectives, and Action Steps

GOALS	OBJECTIVES	ACTIONS
1. Protection of water resources.	1a. Preserve watershed in identified areas.	1a & b. Organize Open Space Committee to identify watershed areas, wetlands, and critical zones
	1b. Identify, map, and protect wetlands.	- same -
	1c. Protect existing and future well sites.	1c. Acquire land abutting well site #4.
2. Preservation of open, scenic areas and rare plant and animal habitats.	2a. Establish critical zones and protect them.	2a. See actions 1a and 1b above
	2b. Develop educational materials aimed at publicizing the importance of these areas.	2b. Begin school "Hug a Habitat" program
3. Integrate recreation and conservation.	3a. Develop trails to link conservation areas with active recreation areas.	3a. Acquire rights along Muddy River.
	3b. Survey citizen demand for different recreational opportunities.	3b. Organize a Recreation Committee to develop and administer survey.
4. Provide a balanced recreation program.	Provide recreational opportunities for elderly.	Develop a recreation program for the elderly with Recreation Department.
	Create winter sports activity area.	Develop plan for Mt. Trashmore-East program.

Writing a clear set of goals and objectives can be difficult. It is essential to be patient and to spend the time you need to ensure that your project goals and objectives are realistic and accurately reflect what you hope to achieve. The extra time and effort required to consider all your information and to maintain a dialogue with the public will pay off during the implementation phase of the project and will help keep your project on track. You must remember, however, that while greenways can do a lot, they cannot solve all resource management problems. As you set your goals, it is important to be realistic and to try to strike a balance between the visionary and the pragmatic.

Once you and the community are satisfied with the greenway goals, put them in order of priority. This entails weighing a variety of issues including community needs, the integrity of the resource base, and the political climate. It isn't necessary to determine an exact order, but to decide which goals are of primary importance and which are secondary. This will focus your efforts and help to determine potential locations for, or the sequence for developing, the proposed greenway. Later in the process, this hierarchy will guide you in targeting sections for completion in the first phases of implementation.

The last step before you begin to develop an implementation strategy is to identify and map potential areas to be included in your proposed greenway. Your resource inventories,

fieldwork, community meetings, and project goals and objectives will likely reveal a number of greenway possibilities. While an exact alignment must be determined at some point, the purpose of this map is public education and outreach, and it is vital to remain flexible. Flexibility will enable you to work with landowners to determine the most desirable location, and it will prevent the situation of one particular parcel compromising the entire project. Again, the appropriate level of detail and the issue of when to go public with your greenway map will depend on the nature of the project, the level of community support, and other factors unique to your effort. The best advice is to just use your judgment, but to err on the side of caution.

IMPLEMENTATION: MAKING YOUR GREENWAY A REALTY

Once you've decided on the nature and approximate location of your proposed greenway, it is time to determine the most effective means of making it happen on the ground. The steps in this process will vary significantly among greenway projects and will be shaped by the particular circumstances and individuals associated with your initiative. Implementing a greenway means protecting and connecting the resources within the proposed corridor and obtaining the funds required to do so. These seemingly straightforward tasks can become complex when the variety of resources and alternatives for protecting them are considered in the context of private property rights and political realities. To keep your efforts on track, it is helpful to first chart your course of action. As you develop your strategy, remember that implementing a greenway is very much a public process that requires the involvement and continued support of citizens and community leaders.

This chapter outlines some of the basic steps in the implementation process. It is meant to generate ideas and to provide the information you'll need to get started. Think of these guidelines as a framework you can modify to develop the most effective implementation strategy for your greenway. Every situation is different, so think creatively, remain flexible, and be patient.

DEVELOPING YOUR IMPLEMENTATION STRATEGY

TARGETING A PILOT PROJECT

One of the first steps in the implementation process is to decide which stretch(es) of the proposed corridor to target first. This is particularly helpful if you are working on a large greenway project. If you consider your greenway in sections, implementation then becomes a series of smaller projects that occur in a particular order, with each step bringing you closer to achieving your overall greenway goals. There are several advantages to this approach. Focusing on "do-able" projects makes implementation more tangible and prevents those involved from being overwhelmed by the prospect of attempting to protect the entire corridor at once. In addition, completing smaller projects enables you to measure and publicize your successes. These milestones are inspiring not only for greenway advocates, but for the uninitiated as well. Pilot projects become living proof that creating a greenway is possible, and they illustrate the benefits it will provide.

Your priority goals and objectives, resource maps, and inventory data will help you target pilot projects. Your initial effort should be feasible, visible, and clearly illustrate the positive impacts and potential of greenways. Other factors such as threats, feasibility, and popularity

must also be taken into consideration. If, for example, an important area is facing imminent degradation, it may be wise to begin there even if it is not the most critical section of the greenway. Similarly, if securing the most important area is simply not possible at this point in time, it may be in your best interest to hold off on pursuing it. Finally, it is always a good idea to kick off your initiative with a project that is both manageable and popular. The less opposition you encounter early on, the more successful you will be in implementing the greenway project and promoting its benefits.

As you identify areas to target, begin to formulate an overall game plan into which these pilot projects fit. This will provide a context for the smaller activities and will prevent you from losing sight of the big picture. Your general framework, along with the specifics of the pilot projects, will become the basis for a detailed implementation strategy.

TOOLS FOR IMPLEMENTATION

Once you've targeted one or two pilot areas, consider how best to secure them. First, you'll need to look at the area parcel by parcel to determine current use and ownership, level of protection (if any), and how the resources are dispersed relative to property boundaries. This information will suggest what kind of protection and access you will need for each parcel in order to achieve your project. Additional factors to consider in choosing the most appropriate land and resource protection methods are what you intend to accomplish, the degree of control that will be needed over a particular parcel, potential future use(s), development threats, available funding, and the needs and wishes of the landowner(s), which will play a critical role in determining how and when to proceed. To keep track of all these factors, it is helpful to develop a matrix or table which includes the parcels under consideration and the relevant factors for each.

When it comes to strategizing about land protection techniques, the first method that often comes to mind is outright or fee simple purchase. Given today's market and the many parcels and landowners often involved in greenway projects, this is rarely a feasible option for the entire corridor. Securing a greenway usually requires a variety of land protection and conservation tools, which can range from informal agreements made at will to legally binding restrictions recorded at the Registry of Deeds. These include securing easements, obtaining conservation restrictions, negotiating public access, soliciting donations of land, working with land trusts, participating in statewide conservation programs, and adopting certain zoning regulations (such as creation of a greenway overlay district). All of these techniques are voluntary and with the exception of regulations can be applied on a case-by-case basis. This variety allows for a great deal of flexibility and enables you to tailor protection strategies to specific parcels or sections of your greenway.

Land trusts and other nonprofit conservation organizations can play an invaluable role in helping your group develop and implement an effective protection strategy. Many land trusts have extensive experience in landowner negotiations and are familiar with the tax benefits often associated with bargain sales and donating land or easements. They can also help answer landowners' questions about the variety of conservation options available, and assist in drafting

easements and other essential documents. See Appendix E for a discussion of voluntary land and resource protection techniques; Appendix C contains a list of land trusts in Massachusetts.

As you work toward securing particular sections of your greenway, remember that no one technique will provide all the answers. Most likely you will need to utilize several land protection tools in concert to achieve your specific conservation and recreation objectives. Think creatively and try combining various elements from different protection methods to create strategies tailored to your greenway project. However, if you intend to use unproven techniques, it is wise to verify their legality with an attorney before proceeding.

DEVELOPING AN IMPLEMENTATION STRATEGY

The essence of an implementation strategy is determining which land protection techniques will be most effective for each section of the greenway, and then deciding when and how to proceed. It is important to make these decisions for the entire corridor and to commit them to writing. This written strategy should include a fairly detailed description of what you hope to achieve and how you plan to achieve it at both the parcel and the corridor levels. Estimates of the funds necessary to carry out these tasks should also be included. A good map of your greenway is another critical element of the implementation strategy. At the very least it should show the general location of the overall greenway in the context of the larger landscape. A more detailed map may highlight your proposed pilot project(s), areas already protected, important resources, critical parcels, and areas you intend to link together. This map will become one of the basic tools for presenting your project vision and goals. Again, you will have to use your judgement on the level of detail you feel is appropriate for different audiences at different points in the process.

There are several benefits to writing a brief implementation plan. A written strategy will guide your efforts, help keep your group focused, and enable you to make sure tasks are carried out as planned. In addition, the strategy document can be used to publicize your initiative and to leverage funding from both public and private sources. Segments of the text can also be used for brochures, press releases, and grant proposals. Regardless of how you decide to use your written strategy, bear in mind that although written, it is by no means set in stone. If it is truly representative of your efforts, it will continue to evolve as opportunities and problems become apparent throughout the process.

As you develop your strategy, remember that others have traveled the same path before you. If you aren't sure if something will work, contact fellow greenway advocates to see if they've ever tried it. Working with other groups and learning from their experiences will increase your effectiveness, save time and money, and enable you to do the best job possible. See Appendix F for a brief description of greenway projects in Massachusetts supported through DEM's Greenways and Trails Demonstration Grants program.

WORKING WITH LANDOWNERS

It is wise to begin a dialogue with the owners of properties you hope to include in your greenway as soon as you are confident in your greenway plan. It is helpful to start with the easiest and most accessible properties first. These might include existing parks and protected open spaces, tracts owned by conservation organizations, and parcels owned by supportive landowners. Securing these "easy" parcels first will enable you to get success stories on the map right away at little or no cost. The tools for incorporating these properties in your greenway may also differ from those you'll need for more difficult properties; including a town park, for example, may involve more of a formal endorsement than actual negotiation. Alternately, discussions with supportive landowners may entail working out mutually-beneficial financial arrangements addressing concerns over landowner liability. Finally, it may be necessary to fine tune existing restrictions and access policies on certain protected properties to ensure their consistency with your greenway goals and objectives. Regardless of the specific details involved, these initial parcels will become the cornerstones that you can build on and link together as you work to protect the entire greenway.

After an initial effort to protect these low-cost or "easy" parcels, you will need to start negotiating with individual property owners who may or may not be interested in your greenway initiative. Approaching these people early in the process is important. It is critical, however, to be prepared and well-informed. When contacting landowners, treat them with respect and make every effort to incorporate them in the process. If they begin to feel some ownership of the greenway project, and believe that they are an integral part of its success, they may be more willing to negotiate. It is often helpful to enlist a landowner supportive of the greenway to accompany you in meeting with his or her neighbors. The first landowner may inspire the second by describing the benefits that motivated him or her to participate. If you run into opposition, remember that private property rights are highly respected and guarded in the United States, and that we have little experience with common landownership or greenbelts as are found in England and other European countries. Asking people to forfeit or share some of these rights can be quite threatening. It is essential to recognize this at the beginning, respect landowners' concerns, and make it clear that you are not there to condemn their land or to force a deal. A frank approach will help you build trust and enable you to begin discussions from a point of mutual understanding.

BOX: Keys to Successful Greenway Implementation

Be persistent: An overall goal of any greenway project should be to increase public awareness and appreciation of important resources. This can only happen over time. Education, and in some instances changing long-held beliefs and practices, is a long, slow process. A steady consistent presence and a series of small gains and improvements is necessary.

Build strong local support: Any greenway project will ultimately come down to the effect on the local property owners. People from the community or locality will be more successful in accomplishing results and allaying fears and suspicions than someone from outside the locality. The most beneficial situation is when ideas about the greenway are generated from the locality itself.

Be willing to listen to local concerns and to make modifications as necessary: Approaching a greenway project with preconceived notions is a prescription for potential controversy and failure. Flexibility is necessary to respond to the many ideas and concerns generated.

Be up front and in the open: Suspicion is bred when landowners and residents believe that something has been sprung upon them, especially at the last moment. Scheduling meetings with municipal officials early in the process is useful.

Be respectful of personal property rights: Nothing is more important to people than their property. Plans or ideas which mention a specific use of a private property, without prior approval, should be avoided.

Work along many fronts: A greenway consists of many interrelated components, such as habitat protection, recreational access, land protection through zoning or easements, clean-ups, restoration, etc. Working along many fronts allows exposure and visibility to be maintained during times when some components may not be as active.

--Tom Matuszko, Pioneer Valley Planning Commission,
Westfield River Greenway Plan

END BOX

In addition to being humble, approaching landowners with respect, and attempting to make them feel a part of the initiative, there are several things you can do to help ensure that negotiations proceed as smoothly as possible. The following list of "tips" is based on the successes and failures of many land protection advocates.

Do Your Homework

- Learn as much as possible about the property and the people who own it.
- Try to find out how particular landowners view their land and what their financial relationship is to it.
- Know what you are asking for and why you are interested in their property.
- Know your bottom line and be prepared to walk away if you can't get it.
- Anticipate questions about condemnation, privacy, liability, tax deductions, and options for selling the land in the future.
- Know what your management plan will say about preventing vandalism and about personal liability for injuries that happen while on their property.
- Know who you expect your user group to be (e.g., pedestrians and joggers, bikers, skiers, motorized vehicles, etc.).
- Know how access limitations will be enforced (e.g., stiles, chains, locked gates, etc.).
- Know who will manage the portion of the trail that crosses their land (e.g., volunteers, municipal workers, a land trust, etc.).
- Know what kind of maintenance is planned and how often (i.e., monthly, bi-annual, annual, etc.).

Meeting with a Landowner

- Try to get introduced by a mutual acquaintance.
- Meet at the landowner's house; get to know them and let them get to know you.

- Keep contacts simple, consistent, and straightforward.
- Be honest and be yourself -- people don't give their land to entities, they give it to people they trust.
- Get landowners excited about the project and make them feel special because they own something critical to its success.
- Bring the landowner copies of maps, photographs, and a packet of information to help explain the greenway project.
- Bring a neighbor who has already donated or sold land to help dispel fears and to answer questions.
- Don't pressure landowners -- be flexible, listen to their concerns, and respect their worries.
- Always leave something unfinished so you can keep the process going.
- Be patient. The sale of an easement can take two years, and when you're assembling a group of easements or parcels ten years isn't unreasonable.
- Be prepared for the landowner to get cold feet. Planning a celebration right after the closing is sometimes helpful.
- Deals can and do fall through. Always have in mind another way to achieve your objectives.

As you begin to work with landowners, remember that they are probably a lot like you. Put yourself in their shoes and try to think up questions that you might have. Brainstorming with your steering committee or participating in role-playing activities are also effective ways to help prepare yourself for these meetings. If you do your homework, use common sense, and treat property owners with respect you will have the best opportunity for success. Most people want to be generous to their neighbors and communities. Your job is to nurture those feelings and to help people feel empowered to act on them.

DESIGNING AND DEVELOPING YOUR GREENWAY

Up to this point, implementation has been discussed in terms of securing the land within the corridor. In addition to land protection, implementing a greenway usually entails designing and developing the corridor to some extent. As you're working on securing the resources, it is also important to determine the type and intensity of infrastructure that will be needed for each section of your greenway. These design considerations will reflect the goals and purpose behind establishing the greenway and who you expect the major user groups will be. Some questions to consider are listed below.

- If pathways are involved, what will their surface be (e.g., wood chips, gravel, packed dirt, etc.)?
- What areas, if any, will be paved? Will these areas be designed to accommodate wheelchairs?
- Will there be benches, signs, or facilities along the way?

- _ Will trails need to be cut? If so, what will be the required width and depth of the trail bed and will these requirements vary with terrain and intended use?
- Do you hope to have interpretive signs or services?
- Will any areas require landscaping?
- Will parking areas be provided and which, if any, will be wheelchair-accessible?
- What features can be incorporated to accommodate physically challenged users?
- Has an ecological assessment been done to ensure that proposed
 - infrastructure will not negatively impact soil stability or important plants or habitats?
- What sorts of buffers will be needed to help control erosion and
 - sedimentation, to stabilize streambanks, or to provide adequate wildlife habitat?
- Are there any limitations due to slope or other natural features that should be considered in designing trails or other infrastructure?
- How can the greenway best accommodate different modes of travel and recreational use (e.g., bikers, skaters, walkers, etc.)?

Once you decide on the design and type of infrastructure needed, you should next develop a detailed map or plan of the proposed greenway to illustrate what it will look like when complete and to indicate the nature and location of various improvements. Producing this plan will require a fair amount of cartographic and design skill. If nobody in your group has that expertise, you may wish to hire a consultant, find a talented volunteer, or enlist the help of one or two interns from a nearby college or university (see Appendix G for sources of interns). If your greenway involves a great deal of construction, grading, paving, or planting, it would be wise to hire a professional engineer and/or landscape architect.

The maps and plans produced during this phase of the project will be quite detailed, showing several specific parcels within the greenway. The more polished the maps, the easier it is to think of them as *the* blueprints for implementation. It is essential, however, to remain flexible and to be ready and willing to adjust the alignment of the greenway in the event that one or two landowners change their minds. Remember that just because something is drawn in detail doesn't mean you can't change it to accommodate new opportunities or to alleviate problems.

KEEPING YOUR INITIATIVE IN THE PUBLIC EYE

It is essential to continue to publicize and popularize your initiative throughout the planning and implementation process. There are numerous ways to do this, including producing written materials, airing public service announcements, and holding promotional greenway events. By highlighting the special characteristics of your project and the individuals involved, you can create unique promotional celebrations and guided walks or canoe trips with special guests and/or the local media -- the possibilities are almost endless. Regardless of the vehicles you choose, make sure you reach out to a broad audience. Work with a variety of groups such as conservation organizations, school children, senior citizens, scouts, and local government

officials to publicize and popularize your greenway initiative. Targeting many different types of people will help you to build a broad-based constituency.

Active and on-going publicity of your initiative will increase its credibility and help to institutionalize the greenway plan. Try to persuade local officials and private and public organizations to endorse your project, or get your community to adopt your greenway strategy and map at town meeting. Ideally, you'll want the strategy to become part of the municipal master plan and your greenway to appear on the local land-use map. Once part of municipal plan, the corridor will become a legitimate consideration in future land-use decisions. "Official" acceptance of your greenway will also enable you to utilize local regulatory techniques to protect land within the corridor. Depending on your community and on the nature of your proposed greenway, achieving this level of recognition could prove to be difficult. If you sense controversy, the potential negative impacts may outweigh the benefits. Again, you know your community best and will have to use your judgement in determining the appropriateness of "official" endorsement.

Regardless of whether or not your strategy and map become "official" elements in the local planning process, it is important to continue to work with municipal boards to identify existing programs and bylaws that can be used to advance your greenway goals and objectives. In addition, explore with local officials the possibility of incorporating specific greenway provisions into municipal regulations, where appropriate. Maintaining a good relationship with town officials, local conservation groups, and community groups will help keep your initiative alive.

FUNDING

The success of your greenway initiative will depend, in part, on successful fund-raising activities. Organizing the project, securing and developing the corridor, and maintaining a high public profile all require a certain level of financial wherewithal and technical assistance. There are several approaches to fund-raising; the method(s) you choose will depend on the amount of money needed, the intended use of the funds, and the individuals and businesses involved. For example, full fee acquisition of a parcel almost always costs more than securing easements or cutting a trail. Your objectives for each section of the greenway will guide you in developing a project budget and in determining the most appropriate means of raising the funds necessary to carry out specific tasks. In addition, you will need to decide what combination of private and public monies will be used to fund your project. The answer to this question may well depend on the availability of local resources and public funds, and on how well your project meets the criteria of a wide variety of public and private grant programs.

Below are a sample of methods commonly used to solicit funds and services necessary for establishing a greenway. In dealing with financial issues, it is important to think creatively and to utilize the widest range of options available. Potential sources of funding include:

- Local fund-raising activities
- Private and nonprofit grant sources
- Municipal, state, and federal sources

LOCAL FUND-RAISING ACTIVITIES

There are countless ways to generate funds locally and many serve a double purpose in also publicizing and building credibility for your greenway. Organized events such as walk- or bike-a-thons, canoe or raft races, concerts, bake sales, and picnics appeal to a wide audience. On a larger scale, special events such as an auction or a benefit dinner featuring a well-known guest speaker and local conservation or recreation leaders can raise substantial funds, although you need to be realistic about the time and effort it may take to organize such an undertaking. Greenway advocates in Stowe, Vermont raised money for the Stowe Recreation Path by "selling" pieces of the path. The names of the sponsors and sections of the path they purchased were published weekly in the local newspaper. Once your greenway has a name and logo, selling items such as T-shirts, hats, pins, and bumper stickers provides another avenue for raising funds and further publicizing your efforts.

The business community is another good source for local funding. Local businesses and corporations are often willing to make donations of supplies or expertise for public service projects. These might include loaning equipment, providing supplies such as landscaping or construction materials, printing your brochure, adopting a segment of the trail to maintain and keep clean, or even offering the services of its employees. Other businesses may be willing to donate larger items such as furniture, a weekend trip for two, or a month of free service that can then be raffled or auctioned off to raise funds. You might also approach local corporations for cash donations that can be used as matching funds for local, state, or federal grants. Another opportunity lies in developing a wish list of items you feel are most needed to help your greenway effort -- tools, materials, office supplies, maps, etc. -- and to publicize this around your community. When approaching local businesses for support, be ready to give a concise summary of your project that addresses what the benefits will be to the company or business as well as to the community. In addition to promotional exposure and community goodwill, benefits to a business might include increased recreational opportunities for employees. In the case of larger companies, an existing greenway is often seen as improving the quality of life in the area and that may help attract high quality workers and executives.

PRIVATE AND NONPROFIT FUNDING SOURCES

Numerous private foundations and corporations provide financial assistance to community-based conservation initiatives. Since community service funds are often in high demand, you should be prepared to give a concise and compelling summary of your project that includes what the benefits will be to the community. You should also consider each company's fiscal timetable. Many businesses determine their budgets for the next fiscal year in the fall, so you will want to contact them with your request well before that time. In researching foundation and corporate grants, draw on your knowledge of the business community and upon your network of supporters and their personal and business contacts. You may also want to consult your local library for listings of these entities and their grantmaking policies and requirements.

The Associated Grantmakers Library is an excellent source of information on grant programs and their sponsors (see Appendix B).

Another source of greenway funding and technical assistance is through nonprofit organizations such as land trusts or conservation organizations. Many times these groups are willing to "take on" a particular project and to help secure charitable contributions from its members to support it. In other cases, their assistance may come from negotiating donations of easements or access agreements, providing legal assistance, or helping to prepare maps or brochures. Further information on these types of assistance may be available from other greenway groups, the Massachusetts Greenways Council, government resource agencies, the Associated Grantmakers Library mentioned above, and the hundreds of local land trusts that currently exist across the state. Some of these organizations provide financial and technical assistance in addition to general advice on fund-raising. See Appendix B for sources of technical and planning assistance and Appendix C for a list of land trusts in Massachusetts.

MUNICIPAL, STATE AND FEDERAL SOURCES

A number of public agencies provide grants for planning, improving, and acquiring open space. At the municipal level it may be possible to secure funding through one or more departments that is involved in related work, such as parks and recreation or open space protection. If possible, try to find a town board or municipal agency to sponsor your project, and work through them to sell the idea to public officials, municipal staff, and other stakeholders. This sort of sponsorship may also prove critical for funding and maintenance needs in the years ahead.

Securing state and federal grant monies has become increasingly difficult over the past ten years. It is not impossible, however, given some ingenuity and hard work. An excellent place to start is by contacting state agencies that handle the sorts of issues addressed by your project, such as recreation, environmental protection, transportation, fish and wildlife protection, and coastal zone management. Explain your proposed project and the type of help you need, and find out what sort of funding or technical assistance programs they have to offer. See Appendix H for a list of grant programs for planning, protecting, or improving open space.

The Department of Environmental Management sponsors the Greenways and Trails Demonstration Grants program specifically aimed at supporting innovative, community-based greenways and trails efforts in Massachusetts. Small grants are available annually for planning and research, public education and community outreach, mapping and ecological assessment, and construction, maintenance, and expansion. Since its inception in 1993, this program has provided financial and technical assistance to over one hundred projects throughout the Commonwealth. DEM also sponsors the Coastal Access Small Grants program which supports projects enhancing public access to the coast, particularly through coastal trails. See Appendix F for a summary of greenway, trail, and coastal access projects funded through these programs.

Federal funds are often disbursed through state programs, so you may have covered many of these when exploring state funding programs. Nonetheless, it is wise to explore all possible avenues through the regional offices of federal agencies, through your regional planning

commission, or through your local congressional representatives. For example, the Merrimack River Trail, which winds its way from Tyngsboro on the New Hampshire line to the coastal community of Newburyport, owes its support and progress to the collective actions of its state senator, the National Park Service, and a local river group. One more recent source of federal monies for greenways is the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) which includes grants for transportation-related trails and bikepaths, scenic highways, walkways, as well as for local and state transportation planning. This program is administered by the Massachusetts Highway Department; however, local applications are submitted through the thirteen Regional Planning Agencies (see Appendix B).

Raising money and applying for grants is hard work. There are, however, several ways to help stretch the precious dollars you do obtain. These include:

- establishing partnerships with other conservation groups
- soliciting donations or partial donations of land
- taking advantage of in-kind contributions
- utilizing the skills and talents within your community

Just as linking natural resources together increases their value, pooling financial resources can also have a synergistic effect. For example, a local land trust or conservation group may not be able to donate money to your general fund, but they may be interested in working together to secure a particular section of the greenway. In addition to the obvious benefits of sharing costs, cooperative management and the added expertise a land trust can bring to the project will greatly enhance the value of each dollar spent.

It is also important to remember that a great deal can be accomplished through in-kind contributions, volunteer efforts, and donations of land and interests in land. Tax benefits often available when land is donated or sold to a conservation organization for less than its full market value can provide landowners with a real financial incentive for making a donation. Encouraging landowners to take advantage of these benefits enables them to be generous without bearing as great a financial burden. In this way, more land is protected per dollar spent.

Finally, never underestimate the power of grassroots enthusiasm. When people truly believe in a project, they will go to great lengths to help ensure its success. The key to tapping into local support is to get community members excited about the greenway early on so they willingly donate their time, expertise, and resources, and help convince their friends to do the same. While state and federal assistance can be a catalyst for action, it cannot be the foundation. Commitment, energy, and enthusiasm from within your community is what will keep the project alive when outside attention and financial support have shifted to other initiatives.

KEEPING YOUR GREENWAY ALIVE

Once the implementation phase of your initiative is underway, it is essential to maintain a positive image. Continued popularity and pride in the greenway will generate the support necessary to keep it growing. Greenway users who value this resource will be more likely to join in efforts to extend the trail or to upgrade and maintain existing sections. Active management and maintenance programs are an integral part of providing quality recreational opportunities and preventing potential negative impacts on landowners. Effective management will also help ensure that your conservation and recreation objectives are met and that your greenway continues to be a safe and desirable community resource.

MANAGING AND MAINTAINING YOUR GREENWAY

Greenways protect the resources they link together and often enhance their value. By connecting these areas, however, you are creating a new and more complex resource to be managed and maintained. To address these needs, it is wise to develop a management strategy as soon as you begin to secure your greenway. In general terms, this strategy should describe how the greenway will be managed, used, and maintained. It should also identify how specific tasks will be carried out and who will be responsible for them. Having this type of framework in place as sections of the greenway are completed will help ensure proper use and stewardship of the resources you intend to protect.

If many parties are involved -- as is usually the case with greenways -- it is helpful to draft a cooperative management agreement. In this type of arrangement, the management issues and needs are identified, and the rights and responsibilities of the various entities are clarified. For example, if you've secured trail easements over private property to link a conservation area owned by a nonprofit with a town park, your management agreement might state that the town will cut the path and provide the necessary materials, and that the nonprofit will mark, maintain, and monitor the trail according to certain specifications. Schedules and assignments for various maintenance activities such as litter collection or posting signs should also be included. If each party knows and is comfortable with their responsibilities from the start, the tasks will more likely be accomplished in an orderly fashion, resulting in a well-maintained greenway.

Even if your greenway group is the primary steward, it is a good idea to formulate a strategy for managing and maintaining the corridor. The following section contains some basic ideas to use in developing the framework for such a strategy. It includes potential issues and tasks to consider, as well as suggestions on how to proceed. Remember that the ideas presented here are general and will need to be developed and tailored to your particular project.

IDENTIFY MANAGEMENT ISSUES

One of the first steps in developing a management plan is to determine the specific issues you need to address. These might include potential conflicts between habitat protection and recreational use, erosion along streambanks or steep trails, potential conflicts among different recreational uses, or the impacts of recreation on existing activities such as farming, residential use, or wildlife habitat.

ESTABLISH USER GUIDELINES TO ADDRESS MANAGEMENT ISSUES

A well thought-out set of user guidelines will help to ensure user safety, minimize conflicts among users, and prevent environmental degradation. These will likely focus on when, where, and to what extent particular uses are permitted. It is helpful to post signs and to distribute leaflets which explain these ground rules.

ESTABLISH A MONITORING PROGRAM

It is essential to develop a means of monitoring the greenway to make sure users are acting in accordance with the guidelines. This may be done by volunteers, local police, park staff, or neighborhood groups. In addition, an enforcement mechanism should be in place so monitors know what to do or who to call in the event of a problem.

IDENTIFY MAINTENANCE NEEDS

Determine in advance the type and extent of maintenance activities your greenway will require, and how many people will be needed. These can range from annual tasks such as streambank stabilization and general trail maintenance, to regular mowing, plowing, planting, and litter collection.

DEVELOP A MAINTENANCE WORK PLAN

This plan should explain the tasks to be completed, and include a work schedule with specific assignments.

ESTABLISH A CORE OF VOLUNTEERS

An organized corps of volunteers can effectively and economically ensure that the greenway is well maintained over time. In addition, volunteer efforts can serve to publicize your initiative and generate support. Local schools, nature centers, scout groups, conservation organizations, and community groups are all potential sources to tap for volunteers. Organizing a special subcommittee to recruit and supervise volunteers will enable you to develop a good group and to ensure that the work is accomplished as efficiently and effectively as possible.

KEEP YOUR GREENWAY GROUP ALIVE

Keeping your greenway group together is critical to the continued success of the project. Regular meetings help to maintain the group's cohesiveness and provide opportunities to monitor progress, plan events, evaluate the maintenance program, and continue fund-raising efforts.

HOLD GREENWAY MAINTENANCE EVENTS

Greenway maintenance events can serve a variety of purposes. They benefit the greenway directly, and enable those involved to experience firsthand what the project is all about. For example, a litter walk followed by a barbecue results not only in a cleaner greenway, but serves to bring together a variety of individuals as co-workers and can generate a good deal of positive press as well.

CONTINUE TO PUBLICIZE YOUR INITIATIVE

A well-maintained and utilized greenway promotes itself. However, you must continue to actively publicize your initiative to ensure that nonusers are made aware of this new community resource, experience its benefits, and understand the need for continued support from the community at large.

COUNTERING CONCERNS ABOUT GREENWAYS

Managing and maintaining your greenway will go a long way toward fostering and perpetuating a positive public opinion of your initiative. However, you should also be prepared to constructively deal with opposition to your greenway project. Very often, opposition stems from fears that the greenway will in some way harm individual property owners or the community as a whole. One of the best methods of countering negative comments is to provide information that proves otherwise.

ADDRESSING THE CONCERNS OF LOCAL GOVERNMENT

When local governments oppose greenways and open space protection initiatives, they usually do so on economic grounds. They believe these efforts will cost their municipalities money and that these costs will outweigh the benefits. While greenways do cost money to build and maintain, some communities have discovered that they can provide significant economic benefits as well. It has long been accepted that growth results in increased tax revenues for a town. While this is true, it is important to also consider the cost of services the community must provide. Through this kind of analysis, many municipalities have found that certain types of growth may actually add to a town's overall tax burden. Some communities have explored this issue by comparing the amount of revenue generated, with the costs to a town in services required for each type of land use. For example, a 1992 study by the American Farmland Trust (AFT) compared the cost of community services in the three Pioneer Valley towns of Gill, Deerfield, and Agawam. It found that although residential development increases the local tax base, these towns paid more on residential services than they received from local tax revenues. The average ratio of dollars generated by residential development to services required was \$1 to \$1.12 -- meaning that for every dollar raised by residential revenues, the towns spent \$1.12 in direct services such as education and social programs, public health and safety, highway maintenance and public works, and local government. In contrast, the average ratio for farm, forest, and open lands was \$1 to 33 cents -- meaning that for every dollar raised, 33 cents was spent in direct services, leaving the towns an average surplus of 67 cents on the dollar.¹⁰ While the ratios may not be as dramatic in your community, the point is to show local officials and community members that resource protection initiatives, including establishing greenways, can make economic sense for a community and even help to subsidize or offset some of the costs associated with other essential land uses.

But greenway initiatives can do more for towns than protect the resource base and provide recreational and transportation opportunities. Recent studies have shown they can also bring money into the communities through which they pass, by a combination of newly-created jobs and the expansion of existing businesses. In 1993, DEM undertook a survey of thirty-eight businesses located mostly within a one-half mile radius of the Cape Cod Rail Trail to examine how rail-trail users affect neighboring businesses. Twenty-four percent of the business owners stated that the rail-trail played a part in the opening or acquisition of the businesses. Sixty percent said they had expanded their operations since opening, and of these about half listed the rail-trail as a prominent factor in their expansion decisions. In terms of sales, 53 percent reported revenues from trail users constituted over 10 percent of their annual total revenues, and 75

percent indicated that the proximity of the rail trail to their business would make it easier to sell it in the future.¹¹ Similarly, along the Minuteman Commuter Bikeway west of Boston, Steve's Ice Cream Shop in Arlington serves about 200 more people a week since the bikepath opened, and the Gap clothing store in Lexington claims a 30 percent increase in business because of the trail.¹²

Area real estate agents may also be able to help substantiate your economic justifications for open space protection. A number of studies have clearly shown that trails, especially in urban and suburban areas, are considered by realtors as a valuable amenity to attract homeowners to a community. In a recent study conducted around metropolitan Denver on the effect of urban trails on nearby property values, 73 percent of the realtors interviewed thought that a home adjacent to a trail would be easier to sell and 58 percent believed that such a home would sell for more than one in a neighborhood with no trails. Similarly, 57 percent of the owners of single family homes felt that having a trail nearby would make it easier to sell their homes, while 29 percent believed they would be able to get a higher price. Residents of apartments, townhouses, and condominiums adjacent to the trail were unanimous in their opinion that it would not decrease the selling price of their properties.¹³ In making your case to local officials and community members, you might also call upon less tangible benefits of greenways such as increased tourism, enhanced potential for corporate relocation, retention, and employee recruiting, and lower costs for pollution treatment because of resource protection.

ADDRESSING THE CONCERNS OF LANDOWNERS

Most concerns voiced by the owners or abutters of potential greenway parcels have to do with vandalism and crime, liability, maintenance, litter, and property values. These are all legitimate concerns and you should be prepared to discuss these issues with landowners and with community members at large. Some can be worked out through realigning trail routes, by providing adequate buffers, or by explaining how the trail will be patrolled and maintained and who will be responsible for these activities. It is important to recognize that some individuals will be opposed to the greenway and will never permit public access across their property. However, most landowners will consider granting access if they can be assured that the greenway will not intrude into their private lives, damage their property, or result in financial loss.

A significant amount of research has been done to determine if formally designated trails do, in fact, result in harm to property owners. A number of studies conclude that well-established greenways cause very few problems. As summarized by greenway proponents in New Jersey: "They attract joggers, families, and serious walkers and because of this traffic are not favored for teenage hangouts or as an escape route for thieves."¹⁴ Follow-up studies on the Minuteman Bikeway, which in Lexington runs along an abandoned rail line, found that the number of burglaries to adjacent homes decreased because police could enforce a curfew along the trail route, effectively eliminating late night parties.¹⁵ Similar results were found along the Burke Gilman Trail in metropolitan Seattle, a twelve-mile-long bikepath linking six public parks and passing through an industrial area, several commercial areas, residential neighborhoods, and the University of Seattle. A 1986 evaluation of the trail's impact on property values and crime

showed no increase in burglaries or vandalism to homes as a result of being adjacent to the trail.

¹⁶ Police interviewed for this study believed that when the trail was used by burglars it was for convenience rather than the cause for picking that location. This is not to say that no damage will occur with the opening of a greenway corridor. Nuisance littering, wildflower picking, graffiti painting, and minor vandalism of signs and benches have all been noted. Homeowners should be assured, however, that if a problem occurs the local police will respond.

Maintenance concerns can often be addressed through volunteers. Local boy and girl scout troops, hiking clubs, garden clubs, land trusts, and conservation organizations are all excellent sources of help in maintaining trails. Maintenance activities usually consist of hiking the trail once or twice a year and cutting brush, removing trash or litter on a regular basis, fixing damaged trails, clearing downed trees, replacing or repairing trail markers, removing noxious vegetation, and the like. You also might explore having local companies, schools, or community groups "adopt" a section of the greenway in which case they are responsible for keeping their stretch clean and well-maintained. For heavily-traveled urban trails or bike paths that are paved or graveled, it may be necessary for safety reasons to bring in a paid crew to maintain the trail surface and for regular mowing and brush cutting. This might be a situation where your local Highway or Public Works Department could donate the use of its crew and equipment as way to show municipal support for the project.

Finally, landowners are often hesitant to permit public use of their property for fear they will be liable for injuries sustained on their land. While greenway users can sue landowners, liability is limited by Massachusetts state law. In general, if a landowner permits public use of his or her land for recreational purposes and does not charge a fee for such use, then he or she is not financially responsible for injuries sustained by a user, provided that the landowner has not willfully created a hazardous situation and has made an effort to repair or warn users of hazards that are known to exist. See Appendix I for more information on landowner liability and the law.

In summary, you can provide landowners with objective information that will help convince them that greenways do not pose a threat to their safety, compromise the value of their property, or expose them to unreasonable lawsuits. In addition, putting landowners in touch with people who actually live near greenways or who have granted public access easements across their property without detriment can go a long way in addressing their concerns and gaining their support.

CONCLUSION

THE MODERN GREENWAY -- AN IDEA WHOSE TIME HAS COME

In Frederick Law Olmsted's time the greenway concept was a visionary idea. Today, greenways offer a practical solution to current demands for open space and resource protection. They provide a feasible means for communities to satisfy both social and environmental needs during a time when land prices are high, resources are increasingly threatened, and state and federal aid are scarce. Greenways are also appealing because they protect and provide access to the outdoors while respecting local control and private property rights. They are created by and tailored to the communities through which they pass, and as a result, greenways are generally quite popular among residents. Unlike many of the more regulatory resource protection techniques, the greenway approach is often perceived as giving something back to the people rather than taking something away. The goals and characteristics of greenways themselves reflect many important values and themes in our society, including health and fitness, family recreation, habitat and wildlife protection, water resource protection, mobility with less dependence on the automobile, and overall environmental awareness.

Greenways focus on experiencing the landscape by moving through it. Whether riding twenty miles on a bicycle, taking a stroll along a path, or sitting by a stream and imagining where it leads, the emphasis of most greenways is on motion and the endless possibilities that exist around the next bend. Although the majority of greenway users stay fairly close to home, the concept of having access to a network that meanders across and about the country is an idea which few can resist. Greenways combine a spirit of adventure with the needs and realities of modern society. The greenway approach to open space and recreation planning is an idea whose time has come.

In the words of the Report of the President's Commission on Americans Outdoors, "Greenways have the potential to become this country's most important land-based effort for conservation (and) recreation in the next several decades." The vision of establishing greenways across America is an inspiring and intriguing idea. While it may seem like an overwhelming task, the path to achieving this great vision begins here in Massachusetts, in your community, and most of all with you.

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