

Chapter 5 - Creating Connections Beyond Parks and Open Spaces

New York's landscape is comprised of a large patchwork of protected parks, greenways, trails and open spaces. Landscapes and buffer lands that surround these important open spaces need to be protected from encroaching development and incompatible uses. Development of "connections" among these areas is critical to allow people and wildlife to move across these landscapes. Local communities must consider parks, trails and historic preservation as essential elements of community infrastructure. They must also advance recreation and open space projects in and around urban centers in order to meet the needs of underserved populations and "Smart Growth" principles.

Protection of Existing Protected Lands

There are over 4 million acres of state open space areas with thousands of miles of boundaries throughout the state. Their primary focus is on the protection of important recreational, natural or cultural resources. However, assuring this protection goes beyond the borders. Habitats, watersheds, viewsheds and quality of experiences are not limited by man made boundaries. Therefore, sound land use of adjacent areas is important to ensure the quality of the resource. Although state agencies, local governments and non-for-profit organizations can protect some areas through acquisitions and easements, the solution is broader in scope. This includes an awareness and understanding of the need for

protection and connections by the general public.

Protecting Connections to Protect Our Natural Resources

Biodiversity is the variety of plants, animals and ecological communities found across the landscape as discussed in Chapter 4. A key factor in biodiversity protection and enhancement is maintaining connectivity between natural areas. Scientific studies have shown the importance of securing connections at both small and large scales for the protection of biodiversity and ecosystem processes (Noss, 1983; Noss, 1991b; Soule, 1991b). Protecting large swaths of natural areas are critical in providing a variety of natural habitat types which are needed to support healthy and viable populations of plant and animal species. In addition, connectivity is protected and maintained throughout these large, contiguous blocks of natural habitat. Preserving connectivity at this larger scale is particularly important because it facilitates the resurgence of biodiversity following natural disturbances such as floods, droughts, fires and blown-downs.

Protecting small-scale connections is equally important as these connections are often needed to allow for the movement of species between habitats. Small patches of natural land act as stepping

stones and can provide refuge and/or linkages when connections between larger natural areas are not feasible. For example, large isolated parks, in their vastness, hold a larger proportion of wildlife than smaller parks. But large, isolated parks may become islands of refuge for many species (Robinson and Quinn, 1992; Robinson et al., 1992). In particular, the persistence of a rare or endemic species may be dependent upon interactions between neighboring populations. The effects of isolation are further exacerbated in species with limited motility, such as freshwater mussels and salamanders. When adjacent land uses are incompatible or thwart movement between populations, the persistence of that species may be jeopardized. In small isolated parks, land area is even more of a limiting factor since essential habitat and resources may only be present in the park itself. In this case surrounding land uses are extremely important especially in those parks that have endemic populations. Without influx from neighboring populations and presence of essential habitat, the species could very well be extirpated from a particular area. By protecting connections between natural areas at both scales, there is a greater opportunity to maintain genetic variability and prevent local extirpations, thus allowing species' persistence and viability over time (Meffe et al., 1997).

A number of factors threaten connectivity; habitat loss and habitat fragmentation are the two largest contributors to connectivity loss. Loss of natural habitat through land use change is the single, most significant threat to wildlife in the United States (Wilcove et al., 2000). Habitat loss occurs when land is converted or cleared for uses that are incompatible with natural resource protection. Statistical surveys have shown

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that in the United States between 1997 and 2001 land development (which includes infrastructure, housing, commercial and industrial use) claimed an average of 2.2 million acres each year (Natural Resources Conservation Service, 2000). Studies have also shown that natural vegetation remains on just 42% of the total land area in the United States (Bryer et al., 2000). While this estimate is alarming in itself, it does not indicate the land's ownership, the quality of the vegetation, the extent of impact from invasive non native species, and pressures from adjacent land uses. Additionally, vegetation removal, chemical and nutrient inputs, and noise, motion and light disturbance can further degrade ecosystems essentially rendering habitat dysfunctional for the viability and persistence of native plants and animals over time.

Habitat loss is closely followed by habitat fragmentation as a threat to species viability. With fragmentation, habitat is broken into smaller and often times isolated patches thereby restricting or altering the movement of species and populations. Requirements for movement differ by species. Some require daily movements while others require seasonal and lifetime movements. For example, there are species of turtles, such as the wood turtle, that nest in terrestrial habitats and then overwinter in streams. Most plants and trees require connections for their pollen, seed, cone, or fruit dispersal (Damschen et al., 2006). Habitat fragmentation affects not only the movement of plants and animals, but also the natural processes critical to completing plant and animal life cycles. Periodic flooding is essential for the successful reproduction of certain species and/or maintaining suitable plant and animal habitat. Networks of roads or areas containing large amounts of impervious surface can impede the natural flow and movement of water across the landscape, thus altering the functionality of natural systems. Reduction in large unfragmented or core habitat and an increase in habitat

edge also facilitates the introduction of non-native species. These non-native species compete with native species for limited resources, and in some cases prey upon native species. They can also reduce diversity by colonizing an area thus leading to potentially substantial changes in system dynamics.

Ultimately, the severity of impact on species viability and ecosystem functionality depends on the type and intensity of human activity. Sometimes these impacts can be mitigated by land protection strategies. These strategies may lead to active or passive conservation management of the potentially affected natural resources.

Ways to Protect and Enhance Connectivity

Two tools commonly used to protect and enhance connectivity are the creation of corridors and protection of buffer zones. This is often accomplished directly through public or private land purchases, through land donations, or indirectly by the creation of conservation easements or the implementation of environmentally sensitive guidelines for land use.

To maintain biodiversity and ecosystem functions in both the short and long-term it is necessary to maintain habitat connectivity so that species can continue to move across the landscape. Human development and activities often disrupt these movements by fragmenting habitats, thus restricting natural movements throughout the landscape. Corridors, which are described as man-made or natural linear strips of land connecting two habitat types, can be an effective means of providing connectivity. Examples of natural corridors include river and stream corridors, while man-made corridors can include unpaved trails and right-of-ways. Corridors providing maximum benefits will encompass broad tracts of land containing a variety of habitats. Currently attempts are being made by

a consortium of conservation organizations to identify such maximum benefit corridors in the Adirondacks (Frisch, 2007). However, it is important to note that corridor sizes are variable and are dependent upon the species, habitats and landscapes they seek to protect.

Buffer zones, defined as areas adjacent to protected lands with resource protection provisions, are commonly used to augment conservation goals or cushion detrimental effects caused by adjacent, incompatible land practices (Sayer, 1991). The most effective buffers contain undeveloped land with native vegetation. Uses of these areas are often limited to passive activities that are compatible with conservation objectives. Buffer areas are most commonly used to protect riparian shorelines, wetlands, and vernal pools. However, there is no prescribed buffer size that can be applied to all situations. Similar to corridors, buffer sizes are often variable and dependent upon the species, habitats, and ecosystems at risk. For example, a minimum of 80 feet may help in removing pollutants from run-off (Kennedy et al., 2003), while a minimum buffer of 750 feet is needed to protect critical terrestrial habitat for vernal pool breeding species (Calhoun and Klemens, 2002). Land buffers as large as 535 feet may be needed to protect the long-term health of the ecosystem (Howard, 2004). Therefore, site specific information is needed in determining the size of buffer needed to protect the natural resources present.

Both corridors and buffers are key components in creating a network of conservation lands because they increase the total amount of protected land area needed for the satisfactory persistence of species, populations, habitats and communities. A conservation network can be defined as a system of land (and water) managed solely for conserving the representative ecological qualities of that region (Defenders of Wildlife, 2005). At national, regional, and local levels developing conservation

networks is an important strategy in protecting and sustaining biological diversity over the long-term. These networks may have similar or different uses but the focus of their management is for natural resource preservation. Sub-units of a network collectively hold their own unique characteristics, yet the properties governing these relationships are consistent across networks. Size and location of the subunits, in addition to the total size of the network, also contribute to the behavior of the network (Detours et al., 1994). It is important also to provide specific attention to the individual parameters influencing networks. This enables us to discover and examine concepts that contribute to the viability of entire networks. This strategy of applying protective measures in cooperative and compatible ways, results in the continuity of habitats and resources and ultimately the preservation of ecosystem functionality which is the essence of biological conservation.

Parks, Connections and Biodiversity Conservation

Parks and other natural areas are clearly important to the conservation of biodiversity. Without such designated areas plants, animals, habitats and entire ecosystems would eventually be eliminated by habitat destruction and fragmentation. At a minimum, these protected natural areas provide important areas of refuge. However it should not be surprising that many such areas also serve as home to a high diversity of plant and animal life. This point is driven home by recent biological surveys that found New York State Park lands hold 21% of the state-listed animal populations, 21% of the state-listed plant populations, and 20% of the globally rare (G1-G3) species and significant natural communities found on NY State public lands (New York Natural Heritage Program, 2005).

But the potential for biodiversity protection through parkland designations and management is severely limited as natural connections within the landscape diminish. Historically many parks were acquired in relatively small chunks and for a variety of reasons, ranging from protecting open space and scenic vistas to providing recreational opportunities. Protection of biodiversity may not even have been the driving force behind such designations. As a result, some of these smaller areas that are now scattered across the landscape with little or no natural linkages to one another have become more like islands of refuge rather than viable, functioning ecosystems.

Clearly more connections are required. Because resources for acquisition and other protection mechanisms are limited, areas that will serve as corridors or buffers should be selected using a sound, scientific basis. It is likely that these areas will contain the greatest biodiversity value and will have the highest potential for biodiversity conservation improvements. Although it may not be possible to completely protect a corridor or buffer area all at once, the identification and protection of high biodiversity nodes or "hot spots" can serve as a starting point for eventual corridor designation. Plans already in place, such as the New York State Open Space Plan (2006) and the Hudson River Estuary Action Plan (2005), serve as good models for addressing the need for biodiversity protection through acquisitions and connections.

Connectivity evaluations can and should be based on the potential for contribution to biological conservation. Such evaluations can be based on biodiversity alone or in combination with connections that also move people between and along natural areas. Fostering open space connections for people via the greenways, trail corridors and right-of-ways may or may not provide a viable connection for the protection of species, habitats,

and ecosystems. Biodiversity protection and recreation use can be compatible but they need to be carefully melded together. At times park attendance can even be driven by the unique biodiversity it holds. However some types of recreation may actually consume habitat and contribute to habitat fragmentation.

Recreational activities, if not properly located or managed, can lead to natural resource degradation and can ultimately result in the decline of visitation rates. Impacts by recreational use can disrupt the valuable benefits provided by healthy ecosystems and lead to a reduction of benefits to people and/or increased costs associated with facility construction to mimic the benefits provided by natural systems. But because parks can play such an important role in both environmental conservation and human well being, there is a constant need to strike a balance between the two. Without establishing an acceptable equilibrium, goals for neither will be achieved and visitors will no longer be able to enjoy the resources that we strive to protect. The key is in recognizing the potential for conflicts between recreation use and resource protection and to take steps to minimize, if not eliminate, such conflicts.

Striking a balance between natural resource protection and recreational use can be achieved through environmental education and environmental planning. Environmental education can be viewed as a connector of a different kind because it connects people with a better understanding of the beauty and value of our biological diversity. Environmental education also raises the public's awareness of environmental issues such as habitat loss and fragmentation. As a result the public becomes aware that they are stakeholders in environmental protection. Education is a means of empowering the public with a greater role and involvement in environmental protection. Environmental planning is equally important to the

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use and protection of natural resources. Those parks with similar ecological and geological characteristics often contain similar habitat-dependent species and have similar recreational uses. Sensitive management, incorporating the needs and requirements of biodiversity, can be identified within master plans or other types of recreation plans. As such, the development and implementation of statewide management plans, like the Open Space Plan and the State Comprehensive Outdoor Recreation Plan, are imperative in assuring that high use areas are located away from sensitive natural areas.

Trails

New York’s natural and cultural resources provide for a broad range of land and water based trails that offer multiple recreational experiences. They range from hiking the gorge at Niagara Falls, cross-country skiing at Allegany State Park, biking along the Finger Lakes, and snowmobiling in the Tug Hill, climbing the high peaks in the Adirondacks, horseback riding in the Hudson Valley, bicycling along the Erie Canal on the Canalway Trail or walking the beaches on Long Island. Each region of the State offers a unique setting and different opportunities.

Vision

The vision for trails in New York State is to have a statewide network of interconnecting shared and single use trails that connect parks, open spaces, historic sites, communities, business districts, and residential areas to allow people and wildlife to move across New York’s landscapes. This would be accomplished through a system of federal, state and local trails and partnerships with not-for-profit groups and private landowners. Support facilities would be provided for trail users and to enhance the local economy. The trail system would promote the health and well being of the users, enhance the economy, provide alternative means of transportation, reduce the dependency on fossil fuels and benefit the quality life in general.

Trail Definition

A trail in its simplest form is a linear corridor, on land or water, which provides access for recreation and transportation as well as related outdoor education and sport activities. A trail may link two or more points or be a looped system with



Figure 5.1 - The New York State Water Trail System

the same start and end point. It may accommodate single or shared use; allow non-motorized and/or motorized uses; be open for a single season or year round; be narrow or wide; in an urban and/or rural area; and comprised of various types of surfaces. It may be a stand-alone entity or part of a broader corridor such as a

greenway. The term trail has evolved to include routes on existing transportation systems that link points of a specific theme usually of a historical, cultural or scenic in nature. These types of trails are commonly referred to as heritage trails or corridors and are addressed later in this chapter.



Figure 5.2 - The Long Island Parkway System



Figure 5.3 - Montauk Point Parkway System



Figure 5.4 - Niagara Parkway System

Types of Trails

There is a broad spectrum of trails that support a variety of trail activities. Each trail activity may be supported by various types of trails that provide different recreational trail experiences. This may reflect the level of difficulty, size and type of group (e.g., individual versus family), type of desired experience or geographic location. The range of activities associated with trails includes:

- Walking
- Hiking
- Jogging/Running
- Cycling (Biking)
- Mountain Biking
- In-line Skating (roller blading)
- Nature Study
- Horseback Riding
- ATV Trail Riding
- Trail Biking
- Boating/Canoeing/Kayaking
- Cross-Country Skiing
- Snowmobiling
- Snowshoeing

These activities represent only a sampling of types of trail activities. There are others that currently exist and ones yet to be developed.

Terminology

As trails have evolved over time, so has the terminology. In some cases, the same term can mean different things to different people. It is helpful to have a set of terms that are consistent for all user groups. This provides a common baseline and helps to avoid misunderstanding and potential conflicts. A listing of the definitions for the various types of trails and trail elements is provided in Appendix D.

local systems. These trail systems have potential or existing interconnections along very long stretches of open space or transportation systems (abandoned or active).

Long distance trails include federally designated trails such as the Appalachian National Scenic Trail (AT), North Country National Scenic Trail (NCNST), Upper Delaware National Scenic and Recreation River and the Seaway Trail All American Byway. Trails of statewide significance include but not are limited to the following: the Long Path, Finger Lakes Trail, Long Island Greenbelt, Harlem Valley Rail-Trail, Canalway Trail, Hudson River Valley Greenway Trail System, Hudson River Greenway Water Trail, Genesee Valley Greenway, the Pony Express Trail and the statewide Snowmobile Trail System.

The long distance linear systems traverse many political divisions, communities, ecological habitats and adjacent residential properties. As development increases, the ability to create linear

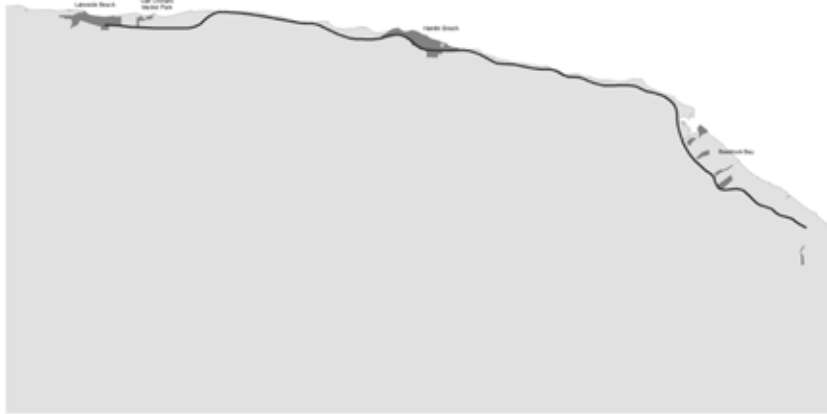


Figure 5.5 - Lake Ontario Parkway System

Existing Systems

There are estimated to be over 16,000 miles of trails in New York State with new trails constantly being developed. They range from short nature trails to the 4,600 mile North Country National Scenic Trail. A comprehensive inventory effort is underway to identify all the major trails within the State and all the trails within State Parks. The inventory will include such information as owner, maintainer, location, physical attributes, allowable use and accessibility. Exclusive of the 11,000 miles of the state funded snowmobile trail system, nearly 10,000 miles of trails have been identified

The opportunity now exists to use Geographic Information System (GIS) technology as a tool for inventory and planning of a comprehensive trail system. As part of the inventory effort, a systematic process is underway to locate all the trails within State Parks using Global Positioning System (GPS) units. Many counties have also mapped their trail system in GIS. The New York State GIS Clearinghouse provides the

means to share information at all levels of government. Figures 5.1 to 5.8 identify the existing statewide trail systems.

To achieve the vision, the statewide trail system would be comprised of primary, secondary and stand-alone trails. Each type of trail is important even though its purpose and function may differ.

Primary Trails

The primary system is comprised of trails of national, statewide or regional significance. These are considered long distance trails that have generally been developed over the years by inter-governmental initiatives and efforts by paid and volunteer trail organizations. The long distance trail system forms a framework for other governmental planning initiatives, as well as support for efforts of municipalities and volunteers to develop inter-connective



Figure 5.6 - Palisades Parkway System



Figure 5.7 - Primary Long Distance Trails

corridors becomes more difficult. Joint and adaptive reuse of existing corridors provides some of the best opportunities. These include river corridors, canal systems (existing and abandoned), abandoned railroad rights-of-way, utility corridors and parkways. It is important to develop partnerships or acquire such corridors as they become available; once the linear system is segmented it is more difficult to develop a contiguous trail. Figure 5.1 identifies the existing water trail system and Figures 5.2 through 5.5 show the existing parkway system.

Many long distance trail systems have evolved through the hard work of trail users who develop partnerships with local landowners. This has been the case with the hiking and snowmobile trails systems, in particular. Nearly 85% of the statewide snowmobile system is on private land. These partnerships are critical in maintaining existing trails and developing new trails. To ensure the continuation and expansion of these partnerships, it is equally important that the General Obligations Law be amended to expand the level of protection for landowners who allow trail activities.

Secondary Trails

A secondary trail system ideally connects to a primary trail system. In many instances, the connection between a secondary and a primary trail does not exist but is planned. Secondary trails are generally shorter in length than primary trails and transverse fewer

political boundaries. They provide linkages to support services, attractions, and communities from the primary trail system. Secondary trails are particularly important in the encouragement of physical activity for good health. Studies have shown that people who live near short or connecting trails spend more time being physically active than their counterparts who do not live near trails. Partnerships around secondary trails are equally as important.

Secondary trails include trails within parks or open space areas that connect to a primary trail. An example would be the vast trail system within Allegany State Park that connects to the Finger Lakes Trail or the extensive secondary trail system that supports the statewide snowmobile trail system.

Stand-Alone Trails

Stand-alone trails are trails of local significance that do not connect to a primary trail system. They are generally loop trails, trails that connect to points of interest or provide short connections between parks, open spaces, historic sites, and/or communities or elements



Figure 5.8 - Snowmobile Corridor Trails

of a community (residence, school, business). There may be a system of stand-alone trails within a park or other open space. Although there may be a major element of the facility or local community, they are not of regional significance. In most cases, they exist within a single political boundary or facility. These trails also provide an opportunity for safe outdoor recreation to increase health and reduce the incidence of disease.

Statewide Trails Plan

The existing Statewide Trails Plan was adopted in 1994. An effort is currently underway to update the Plan. This is being supported by surveys conducted as a part of the SCORP update process, additional trail specific survey efforts, the development of a comprehensive trails inventory and out-reach to the various trail organizations and interest groups. The updated plan will provide statewide policy direction; roles and responsibilities; identification of issues and strategies; and a framework for the statewide system of trails and greenways.

The following is a summary of the social issues identified:

Overuse

Trails are developed based on design standards and the type of experience desired. Although the level of use may be within design standards, it may exceed the level for the desired experience. This can occur on any trail from primitive trails to trails within urban areas. The perception of overuse, however, can vary from user to user.

- Design trails based on the desired experience, environmental conditions and type of trail users.
- Develop and implement a monitoring program to assess level of use,

perception of trail users and trail conditions.

- If overuse is occurring:
 - Limit / control parking at trail heads.
 - Limit access points.
 - Modify design standards (trail width, surface treatment, etc.).
 - Limit group size.
 - Allow use through permits.
 - If multiple use, allow specific trail uses at specified time (temporal distribution).
 - Evaluate impact on surrounding environment.
 - Identify and encourage use of alternative locations for similar types of trails experience – dispersion of use.

Illegal Use

Illegal use of a trail occurs when the trail is used in a manner other than its intended purpose. This can have a negative impact for those users who are properly utilizing the trail as well as adversely impacting the trail and environmental resources. Illegal uses may involve the same or different type of trail activity.

- Establish clearly defined rules and regulations.
- Communicate the rules and regulations through signage, brochures, and news releases so users and landowners are aware of what is and is not allowed on the trail.
- Install appropriate signage – easy to understand, symbols, rules of the road, multi-lingual (as needed).
- Educate the public – intended experience, environmental significance, potential safety and environmental impacts.
- Foster community involvement and sense of ownership.
- Develop trail friends groups comprised of trails organizations and residents.
- Communicate with the illegal users.
- Provide alternatives (locations) that provide for trail opportunities desired by illegal users.

- Conduct routine monitoring and patrolling.
- Encourage use of the trail system.
- Coordinate with local law enforcement officials.
- Use law enforcement as the last resort.

Conflict between User Groups

Conflicts between user groups can occur on shared or multiple use trails. User conflicts occur when one user group or individual objects to another user group or individual on the same trail. Conflicts are often related to activity style (i.e. mode of travel), focus of the trip and expectations, attitude and beliefs toward the environment, and the level of tolerance for others (FHWA, 1994).

- Consider the needs and demands of the various user groups early in the planning process.
- Listen and understand trail user concerns.
- Develop trail friends groups that include trail users and residents.
- Foster communication among the various groups.
- Educate the users to trail etiquette.
- Consider alternatives that can meet user needs and avoid conflicts.
- Modify the trail design standards, if needed.
- Focus the user groups' energies on issues/conditions that benefit all.

Conflicts between Landowners and Users

Conflicts between land owners and users can occur when users utilize private property without permission or engage in a trail activity that directly or indirectly impacts the environment of the land owners in the vicinity of the trail. This can take the form of physical impacts to the property, visual intrusions or noise impacts.

- Include all stakeholders in the planning process.
- Provide informational signage at the trail head and along the trail.

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- Reach out to adjacent landowners – encourage participation in trail friends groups.
- Identify a contact person to address concerns to.
- Close social trails that lead to private property.
- Be clear with landowners about the level and nature of enforcement that the agency/community can provide. Do not promise what cannot be delivered.

Personal Safety

Concerns for personal safety emanates from fears of assault, robberies and other personal crimes, especially in areas where trails are in remote areas and away from populated areas. Law enforcement agencies also have concerns about responding to trespass, vandalism and other personal crimes on trails. Trails can cross jurisdictional boundaries involving more than one local police force. Also incidents on trails are not always in locations that are easily accessible to emergency service vehicles.

- Provide information (i.e. maps, trail conditions, access points, mileage, etc.) at the trailheads and point of reference along the trail (i.e. mile markers).
- Maintain trails and parking areas in a clean and inviting manner.
- Parking areas should be visible to the general public.
- Monitor trail use and have routine patrols.
- Educate the trails user in ways to improve personal safety (i.e. being familiar with the area, aware of weather conditions, participating with friends, letting others know where you are going and when you expect to return, etc.).

Littering/Dumping

The appearance of the trail can influence a person's willingness to use a trail. Littering and dumping send messages about the types of users and the

level of security and maintenance that occurs on the trail.

- Develop and implement a maintenance plan.
- Cultivate a carry-in carry-out ethic.
- Utilize volunteer trail adopters or friends group to periodically remove litter and dumping.
- Install gates or other means to control trail access to prevent motor vehicles from accessing the trail to dump.
- Encourage community "buy in / ownership" to the trail.
- Periodically check and post the boundary.
- Institute penalties and follow through with convictions to discourage dumping.

Trail Vandalism

Vandalism results from the lack of ownership the user has for a trail as well as from inadequate maintenance and monitoring. It can range from destruction of the trail surface, illegal use, to stealing or defacing signs. Vandalism can occur on any trail at any time but is most often seen on trails that have low use and are infrequently monitored.

- Design trails and associated elements to discourage or resist vandalism.
- Increase ownership of the trail within the community.
- Encourage more use of the trail.
- Maintain the trail conditions.
- Repair vandalized property quickly.
- Increase monitoring and patrols in problem areas.
- Post emergency numbers at the trail head.
- Publicize arrests and court results to send a message that perpetrators will be arrested and prosecuted.

Trail Guidelines

Trail guidelines provide guidance in design, construction and maintenance. Table 5.1 provides a listing of guidelines for various types of trails. These should be used as a starting point and modified, as necessary, to address the natural characteristics of the resource and specific needs. For instance, the snowmobile guidelines provide general statewide guidance and would be modified for the conditions within the State lands of the Adirondack Park.

Additionally, the following Best Management Practices should always be considered when designing, constructing and maintaining any types of trails:

- Locate trails to minimize necessary cut and fill;
- Wherever possible, lay out trails on existing old roads or clear, or partially cleared areas;
- Locate trails away from streams, wetlands, and unstable slopes wherever possible;
- Use proper drainage devices such as water bars and broad-based dips;
- Locate trails to minimize grade;
- Use stream crossings with low, stable banks, firm stream bottom and gentle approach slopes;
- Construct stream crossings at right angles to the stream;
- Limit stream crossing construction to periods of low or normal flow;
- Use stream bank stabilizing structures made of natural materials when feasible such as rock or wooden timbers;
- Use natural materials when feasible to blend the structure into the natural surroundings.

Table 5.1 - Trail Guidelines

Trail Type	Vertical Clearance	Corridor Clearance	Treadway Width	Surfacing Materials	Trail Length	Sight Distance	Slope	Turning Radius	Users / Mile
Biking Class 1 (Path)	8-10 feet	5-6 ft. (1 Lane) 8-10 ft. (2 Lane)	2-3 ft. (1 Lane) 6-8 ft. (2 Lane)	Smooth pavement, asphalt, concrete, crushed stone, clay or stabilized earth.	Min. -5 mi. loop (1.5-2 hrs.) 15-25 mi. of linear or loop trails (day trip)	Min. of 50 ft. up to 100 ft. on downhill curves or road crossings	0-5% Max: 5-10% sustained 15% shorter than 50 yd. Out slope of 2-4%	8-14 ft. depending upon speed.	40
Mountain Biking	8-10 feet	1.5-6 ft. (1 Lane)	Novice -36 in. Intermediate -24 in. Expert -6-12 in.	Firm natural surface with some obstacles such as roots, grade dips or rocks	Min.-5 mi. loop (1.5-2 hrs.) 15-25 mi. of linear or loop trails (day trip)	Min. of 100 ft. up to 150 ft. on downhill curves or road crossings	Over all grade not to exceed 10%. Climbing turns not to exceed 7-12% Out slope of 3-5%	Novice/ Intermediate -8 ft. min. Expert -6 ft. min.	10
Cross-Country Skiing	8-10 feet above snow depth (10-12 ft. in summer)	8 ft. (1 Lane) 10-12 ft. (2 Lane)	4-6 ft. (1 Lane) 7-8 ft. (2 Lane) 8-10 ft. (up and down hill)	Snow with underlying bare soil, rocks or wood Out sloped, chips, underlying material. Can be groomed or un-groomed	0.5 -3 mi. loops up to 4-8 mi. (2-4 hour trip)	Down hill runs, stream or road crossings -50 ft. otherwise not critical	0-5% Max. -10% sustained 15-25% shorter than 50 yds. 25-40% shorter than 50 yds. experts only Out slope -0-2%	Avoid sharp turns. Never locate a turn at the base of a downhill run. Min.-50 ft. Preferred -100 ft.	5-30
Hiking (developed, interpretive, group or connector)	8-10 feet.	4-8 ft.	4-6 ft.	Bare soil, rocks, stone dust or wood chips. May have hardened surface (concrete, asphalt or boardwalks) in high use areas.	0.25-5 mi. (1/2 day) 5-15 mi. (full day)	Not critical, barriers on reverse curves may be used.	0-5% Max. -15% sustained 40%+ shorter than 50 yds. Out slope -4% max.	N/A	0-30
Hiking (primitive, back packing)	8-10 feet.	4-6 ft.	18-30 in	Bare soil, rocks, gravel, wood hardened surface for wet areas.	Min. -5 mi. (full day) 5-15 mi. (multi day)	Not critical	1-5% Max. -15% sustained 40-50% shorter than 50 yds.	N/A	1-5
Horse	10-12 feet.	5-6 ft (1 Lane)	18-30 in. (1 Lane)	Soils having a large percentage of rocks, clay and/or organic matter. Void of rocks football sized or larger. Little treadway development required if soils are appropriate. Problem areas, water control measures may be installed Brush and saplings should be cut flush or below ground level. Remove dead or leaning trees.	Min -5 mi. (11.5 hrs.) 15-25 mi. of looped trails (full day)	Not critical unless 2-way traffic. 50-100 ft. 100-200 ft. at motorized road crossings	0-10% Max. -10% sustained 20% shorter than 50 yds. Outslope -4% max.	Not critical but avoid sharp turns on steep slopes or using switch-backs (30 in. if they are necessary)	5-15
Snowshoe	8-10 feet above snow depth (10-12 ft. in summer)	8 ft. (1 Lane) 10-12 ft. (2 Lane)	4-6 ft. (1 Lane) 7-8 ft. (2 Lane) 8-10 ft. up and down hill	Snow with underlying bare soil, rocks or wood chips. Outsloped underlying material. No grooming is needed.	0.3 mi. loops mi. (2-4 hr. 4-8 trips)	N/A	0-5% Max. -10% sustained 15-25% shorter than 50 yds. for experienced snowshoers	N/A	5-30
Snowmobile	8-12 feet above snow depth (10-12 ft. in summer)	14-16ft. 1A16ft. -141B12ft. -8C8ft. min. D	1A -12 ft. 1B -8-12 ft. C -4-8 ft. 4 ft. min. -D	Groomed snow Groomed snow Groomed snow Ungroomed snow	5-50 mi.	Min 50 ft. 100 + ft.	10-15% Max -25% sustained 40% shorter than 50 yds.	Min-50 ft. 100 ft.	15

Table 5.1 - Trail Guidelines (Continued).

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Trail Type	Vertical Clearance	Corridor Clearance	Treadway Width	Surfacing Materials	Trail Length	Sight Distance	Slope	Turning Radius	Users/ Mile
ATV - novice	6 ft	10 ft	6 ft	Smooth, no rocks over 3" diameter, tread plane flat, wet crossings 6" deep, 10' long	20-40 mi	100+ ft	Max-20% over 200 ft	Min-20 ft	25
ATV - Intermediate	6 ft	9 ft	5 ft	Some rough sections, no rocks over 5" diameter, tread plane 5%, wet crossings 10" deep, 10' long	30-60 mi	50+ ft	Max-25% over 300 ft	Min-10 ft	15
ATV – expert	5 ft	8 ft	4.5 ft	Some very rough sections, no rocks over 10" diameter, tread plane 10%, wet crossings, 18" deep, 10' long	30-80 mi	20+ ft	Max-35% over 500 ft	Min-5 ft	10
Trailbike – novice	8 ft	8 ft	4 ft	Smooth, no rocks over 3" diameter, avoid loose material	20-40 mi	100+ ft	Max-15%	Min-15 ft	20
Trailbike-intermediate	8 ft	6 ft	2	Some rough sections, no rocks over 6" diameter, loose material, logs less than 6" diameter	30-60 mi	50+ ft	Max-30%	Min-10 ft	15
Trailbike-expert	8 ft	4 ft	1 ft	Very rough sections, no rocks over 12" diameter	30-80 mi	20+ ft	Max-50%	Min-5ft	10
4-Wheel Drive rated from Class 1* (easiest) to 4 (most difficult). Half-day ride (~4 hrs) Full-day ride (~6 hrs)	8-10 ft	12-14 ft (1 lane) 19-24 ft (2 lane)	8-10 ft (1 lane) 15-20 ft (2 lane)	Soils having a large percentage of rocks, clay and organic matter. Including (obstacles) ruts, hill climbs, ledges, and rocks foot ball size and larger, In problem areas, water control measures may be installed. Class 1* - obstacles to 8" Class 2 – obstacles 12"-16" Class 3 – obstacles 18"-24" Class 4 – obstacles 24"+	2-30 mi (20 mi easy to 2 mi hard) A 2-mile Class 4 trail can provide a full-day of trail riding.	Not critical, unless on multi-use trail (50-100 ft)	0-40%	Not critical, but avoid sharp turns on steep slopes. (25 ft avg)	5-15

* See Table 5.1a for descriptions

Table 5.1a - 4-Wheel Drive Vehicle Class Requirements

Class 1:	Only general safety requirements. Recommended: disconnected sway bar. Stock vehicles
Class 2:	Disconnected sway bar. Recommended: aggressive tread tire.
Class 3:	Disconnected sway bar, 30" or larger aggressive tread. Recommended: winch and locker
Class 4:	Disconnected sway bar, 32" or larger aggressive tread, minimum one locker, winch. Recommended: both front and rear lockers (Note: vehicle size restrictions generally – 80" width, 105" wheelbase)

Trail Accessibility

New trails and existing trails that require maintenance/repair should be designed or modified to maximize the opportunity to improve accessibility for persons with disabilities. Universally accessible trails not only provide opportunities for persons with disabilities, but also for seniors and persons with other mobility impairments. Proposed accessibility guidelines that include trails have been developed by the Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas. A broader discussion on the Americans with Disabilities Act of 1990 (ADA) is provided in Chapter IV.

The proposed accessibility guidelines are for newly constructed and altered trails connected to accessible trails or designated trailheads. There are some departures from the technical provisions that are permitted. A detailed explanation of the guidelines, exceptions to the categories and departures can be found on the Access Board's website at www.access-board.gov. The following is an abbreviated listing of the proposed trail guidelines without the exceptions:

Surface - The trail surface shall be firm and stable.

Clear Tread Width - The clear tread width of the trail shall be 36 inches (915 mm) minimum.

Openings - Openings in trail surfaces shall be of a size that does not permit passage of a 1/2 inch (13 mm) diameter sphere. Elongated openings shall be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel.

Protruding Objects - Protruding objects on trails shall have 80 inches (2030 mm) minimum clear head room.

Tread Obstacles - Where tread obstacles exist, they shall not exceed 2 inches (50 mm) high maximum.

Passing Space - Where the clear tread width of the trail is less than 60 inches (1525 mm), passing spaces shall be provided at intervals of 1000 feet (300 m) maximum. Passing spaces shall be either 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum space, or an intersection of two walking surfaces which provide a T-shaped space provided that the arms and stem of the T-shaped extend at least 48 inches (1220 mm) beyond the intersection.

Slopes - Slopes shall comply with the following:

Cross Slopes - The cross slope shall not exceed 1:20 maximum.

Running Slope - Running slope of trail segments shall comply with one or more of the provisions of this section. No more than 30 percent of the total trail length shall exceed a running slope of 1:12.

Running slope shall be 1:20 or less for any distance.

Running slope shall be 1:12 maximum for 200 feet (61 m) maximum. Resting intervals shall be provided at distances no greater than 200 feet (61 m) apart.

Running slope shall be 1:10 maximum for 30 feet (9150 mm) maximum. Resting intervals shall be provided at distances no greater than 30 feet (9150 mm) apart.

Running slope shall be 1:8 maximum for 10 feet (3050 mm) maximum. Resting intervals shall be provided at distances no greater than 10 feet (3050 mm) apart.

Resting Intervals - Resting intervals shall be 60 inches (1525 mm) minimum in length, shall have a width at least as wide as the widest portion of the trail segment

leading to the resting interval, and have a slope not exceeding 1:20 in any direction.

Edge Protection - Where edge protection is provided along a trail, the edge protection shall have a height of 3 inches (75 mm) minimum.

Signs - Newly constructed and altered trails and trail segments that are accessible shall be designated with a symbol at the trail head and all designated access points. Signs identifying accessible trail segments shall include the total distance of the accessible segment and the location of the first point of departure from the technical provisions.

Roles and Responsibilities

The trails in New York include national, state, regional and local trails. They occur on public and private property and are developed and maintained by the public and private sector. Through cooperative efforts by both these sectors, statewide and regional trail systems have evolved. Their larger systems provide links to local or secondary trails. In many cases, national and State designated trails provide the foundation for a primary trail system. Such is the case with the Appalachian National Scenic Trail, Lake Champlain Bikeway, Canalway Trail and Statewide Snowmobile System that link to local trail systems.

Trail systems are acquired, developed, maintained and promoted through a variety of relationships among units of government, organizations and individuals. There is no single set of roles and responsibilities for all trails. In many cases, a single trail may consist of various trail segments that have been acquired and developed by different units of government

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utilizing different methods. The trail may be maintained by the land owner or through an agreement with another unit of government or trail organization. A good example of this is the Canalway Trail. To the public it is perceived as a single trail when in fact many agencies and levels of government each have responsibilities for various segments of the trail. Although there is some overlapping of roles and responsibilities, there are some general distinctions among the various providers and maintainers of New York State's trails.

Federal

Provider: The US Fish and Wildlife Service (USFWS) and the National Park Service (NPS) are the primary federal agencies in New York State with land holdings that provide trail opportunities. This includes the Appalachian National Scenic Trail (AT), Upper Delaware Scenic and Recreational River, the North Country National Scenic Trail, and the numerous trails within national parks, seashores, wildlife, and recreation areas.

Operations / Maintenance: The federal agencies manage the trails within their facilities. However, management of long distance trails such as the AT is accomplished through an agreement with state agencies and trail organizations.

Funding: Various federal grant programs are available for acquisition and development. Most are administered by a state agency such as the Land and Water Conservation Fund (LWCF) and Recreation Trails Program through OPRHP, and SAFETEA-LU through the DOT. Almost all the grants require a local match of funds received. Although the NPS Rivers and Trails Program does not direct or fund projects, it can assist citizens and community leaders who have decided to conserve close-to-home landscapes and get them started.

Technical Assistance: Technical assistance to state and local agencies,

not-for-profit groups and trail organizations is provided through NPS's Rivers, Trails and Conservation Assistance Program. Additional assistance is provided through design, construction and maintenance manuals produced by various federal agencies.

State

Provider: The State has a dual role in providing trails on state-owned lands and in developing statewide and regional trail systems. Many trail opportunities exist within the open space resources managed by OPRHP and DEC. Over 1,350 miles of trail are maintained within the 167 State parks, 35 historic sites and 9 trail corridors administered by OPRHP. DEC manages more than 2,000 miles of recreation trails on nearly four million acres of land statewide. In addition, the DOT has signed 1,200 miles of bicycle routes along the State's road system.

Operations/Maintenance: Trails on lands administered by OPRHP and DEC are maintained by park personnel, friends groups, volunteers or through formal agreements with trail organizations. DEC's Adopt-a-Natural Resource (AANR) Stewardship Program is an example of the success of local municipal volunteer services used to establish and maintain access to trails. Volunteer recognition is given with the placement of appropriate signs on or near the adopted trail. Other forms of recognition, including but not limited to certificates, press releases, and newsletters may be provided.

Funding: The state agencies, such as OPRHP, DOS and DOT, administer various federal and state funds for trail-related projects. This includes EPF, LWCF Grants, Snowmobile Grants, Recreation Trail Program (RTP) Grants, EPF- LWRP Grants, Hudson River Valley Greenway Grants, SAFETEA-LU Grants and Scenic Byway Grants. It is the responsibility of the administering agency to establish a

fair and equitable system to distribute funds.

Technical Assistance: State Agencies provide technical assistance in the form of standards and guidelines, technical information, grant assistance and, to a limited extent, training. DOS, as part of its LWRP planning process, provides communities with planning assistance. Regional programs such as the Tug Hill Commission and the Hudson River Valley Greenway provide additional assistance.

Local Government

Provider: Many counties, towns, villages and cities have developed trails that link open spaces, parks, schools and/or residential and business areas within their communities. Some of the trails are segments of or connect to broader systems that extend beyond the unit of government's boundaries. Trail lengths and activities vary. In many cases a municipal government will enter into a partnership to develop a trail on linear corridors owned by a state agency. Local governmental support is critical in the development of regional and statewide systems and determination of the types of allowable trail activities. Local municipalities often develop formal community trail plans that include references to regional nodes or corridors and encourage or mandate that developers design trail systems within new community complexes.

Operations/Maintenance: Local government involvement is important in the operations and maintenance of local, regional and statewide trail systems. Agreements are commonly developed with counties, municipalities and not-for-profit organizations to manage the segment of a regional or statewide trail system that is within their boundaries. Local law enforcement, in particular, is critical in maintaining safe and enjoyable trail systems.

Funding: County and municipal governments can provide funding through their own budgets and bond acts, seek funding through various state and federal grant programs, or function as a pass through for grants to local organizations.

Technical Assistance: Technical assistance among counties and municipalities varies considerably.

Private / Not-for-Profit / Trail Organizations

Provider: A percentage of trails in the State are on private lands and lands owned by land trusts or other not-for-profit organizations. For example, approximately 85% of the snowmobile trails are on private lands. These trails are the result of the efforts of various trail organizations to facilitate agreements with landowners. Not-for-profit and trail organizations play an important role in advocating for land acquisition and development of trails. Such is the case with the acquisition of Sterling Forest® State Park and the Genesee Valley Greenway. As part of their role, not-for-profit organizations are lobbying the legislature and decision makers to raise funds and create a vision for a statewide trail system. The private sector is also critical in providing support and facilities, such as lodging, food and other amenities.

Operations/Maintenance: Not-for-profit and trail organizations maintain trails on lands they own, on privately held lands via an agreement with the owners, and on various public lands. Maintenance agreements range from formal agreements, such as management of the AT to informal assistance from friends groups, such as the Green Lakes Friends Group; and individual volunteer efforts. An Adopt-A-Trail program provides a formal means of establishing partnerships between state agencies and local governmental entities and trail organizations for maintenance of specific trails.

Funding: The private sector has the ability to directly raise funds for projects, apply for various grants, assist with negotiations and direct funding, provide in-kind and monetary match for grants, and donate land and resources. In some cases, not-for-profits are able to move faster than a governmental body to advance a project, such as an acquisition of a piece of land which would otherwise be lost. They also have the ability to advocate for funding, legislation and other support.

Technical Assistance: Not-for-profit and trail organizations play an important role in providing technical assistance and disseminating information about various aspects of development, including acquisition, design, construction, maintenance, and management. This is accomplished through training manuals, workshops, conferences, inventories, informational brochures, and maps.

Implementation

There are a number of issues and needs relative to trails in New York State. The following list summarizes accomplishments over the past 5 years and outlines the goals and actions for the next 5 years. In order to work towards the statewide trails vision, a variety of local, state and federal agencies in partnership with one another, trails user groups, academic institutions and/or the private sector will be responsible for carrying out these goals and actions.

Goal

Encourage federal and state funding and program initiatives that enhance trail and other recreation opportunities for the public.

Accomplishments

- The EPF, funded at \$225 million a year, now contributes more than \$50 million annually to the conservation of priority projects identified within the Open Space Conservation Plan.
- \$224 million have been received from the LWCF to be utilized for state and municipal recreation projects.
- \$12.7 million through the Recreation Trails Program (from 1993 and 1996-2007) has funded 247 trail projects statewide.
- 260 miles of trail exist along the Canalway Trail.
- 675 miles of riverside community trails, bike routes and water trails exist within the Hudson River Valley Greenway Trail System.
- Four heritage trails have been developed and the development of two more is underway.
- Legislative bills have been proposed to strengthen the General Obligation Law.
- The snowmobile fund supports the maintenance and development of 11,000 miles of snowmobile trails statewide.

Actions

- Continue to fully fund the EPF.
- Provide for a separate funding category within the EPF for trails.
- Encourage the federal and state governments to increase funding for outdoor recreation.
- Work towards the reauthorization of the LWCF.
- Work towards continued and increased funding of motorized and non-motorized trails projects, scenic roads and other eligible trail and historic transportation projects through the Transportation Enhancements, Recreational Trails Programs and other funding programs provided through the federal transportation bill.
- Give priority to projects through the grant rating systems to reflect specific needs such as the need for the acquisition and development

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of new trails and the protection of existing trails within areas experiencing rapid growth.

- Support and recognize the efforts of adopt-a-trail programs, friends groups and volunteers and expand their involvement in the maintenance, management and development of trail resources.
- Create and distribute educational materials for landowners concerned about liability and trespassing.
- Continue efforts through constituency groups to strengthen, as needed, provisions of the General Obligations Law, to protect landowners who allow responsible public recreational use of their lands.
- Update liability statutes to establish hold-harmless mechanisms, whereby the State underwrites a landowner's defense against personal injury suits and assumes costs for property damage and littering from public use.
- Provide incentives for landowners who allow responsible public use of their lands.
- Strengthen enforcement of trespass, littering and dumping laws.
- Encourage the acquisition of trail corridors through willing sellers.
- Support user based fee initiatives for snowmobile trails.
- Create regional advisory groups comprised of local governments, trail interest groups and other interested parties to coordinate and promote the development of regional trail systems.
- Annually convene an interagency working group to provide input on trail planning for New York State and coordinate trail development, operation, maintenance and promotion across all applicable state and federal government entities.

Goal

Strengthen the State Trails Planning and Development Program.

Accomplishments

- OPRHP has initiated the Statewide Trails Plan updating process.
- An Empire State Trails booklet has been produced that identifies trail opportunities on OPRHP and DEC lands and highlights selected trails throughout the State.
- A statewide snowmobile trails map is now produced every 2 years.
- The snowmobile plan for the Adirondack Park has been completed.
- Comprehensive trail plans are being prepared for Sterling Forest®, Trail View State Parks.
- Trails are being planned along the Robert Moses, Palisades, Bethpage and Ocean Parkways.
- Trail organizations are being included within the master planning process of State parks and the unit management planning initiative for DEC lands.
- 300,000 acres in fee title and easements have been acquired by OPRHP and DEC that provide trail opportunities.
- Sharing of GIS data has expanded the ability to obtain geographic information on trail corridors.
- Planning and development is continuing for the NCNST through the Adirondack Park.
- OPRHP has begun the development of a statewide trail inventory that will store data on local, regional, statewide and interstate (long distance) trails.
- OPRHP has started collecting data using Global Positioning System (GPS) units on trails within the State Park System.
- OPRHP is in the process of updating their rails-to-trails inventory.
- OPRHP has conducted a trails survey of trail maintainers, local municipalities and State Park managers.

Actions

- Continue to develop and maintain a statewide inventory of trails and recreationways.

- Update the Statewide Trails Plan every 5 years.
- Encourage public involvement in the planning and development of trails.
- Secure the public use of trails through the purchase in fee title or easements by state and local governments of trail corridors.
- Encourage the use of easements to maximize available funds.

Goal

Strengthen stewardship of the State's trails systems.

Accomplishments

- Formal agreements exist with trail organizations to maintain various trail systems such as the Finger Lakes Trail, North Country National Scenic Trail, Long Path, AT and various trail systems within OPRHP and DEC lands.
- Friends groups have been formed to assist with trail planning, development, and maintenance at various state parks such as Grafton Lakes State Park.
- A Snowmobile Trail Management Manual has been produced.
- Over 11,000 miles of snowmobile trails have been established and are maintained using state funds.
- DEC's Adopt-a-Natural Resource (AANR) program has involved numerous individuals, groups, and organizations in a variety of stewardship activities across the State. A number of projects have been advanced through DEC's AANR program.
- 296 miles of Hudson River Valley Greenway Walking trails have been designated.
- The Canalway Trails Association New York (CTANY), a voluntary organization dedicated to the completion and proper maintenance of the Canalway Trail, was established. CTANY acts as a coordination and communication group for Canalway Trail stakeholders, including State

agencies, local municipalities, civic organizations, individual volunteers and trail users. In cooperation with the Canal Corporation, CTANY also organizes and guides the Canalway Trail Adopt-A-Trail program.

- A draft State Park System Trail Signing Manual is being prepared that provides guidance to State Park managers on how to properly mark and sign trails within State Park facilities.

Actions

- Assess the trail conditions on public lands and develop a comprehensive program for management and protection.
- Support and recognize the efforts of adopt-a-trail programs, friends groups and volunteers and expand their involvement in the maintenance, management and development of trail resources.
- Foster partnerships or friends groups to help promote and maintain local trail systems.
- Encourage trail users to join trail organizations and friends groups.
- Develop a "Trail Management Manual" that incorporates policies, guidelines and standards for the planning, construction, operation and maintenance of trail systems.
- Improve trail information and signage to include accessibility information and multiple language text.
- Finalize the State Park Trail Signing Manual.
- Develop a unified Adopt-a-Trail Program that applies to OPRHP, DEC and Canal Corporation.

Goal

Encourage coordination of trail planning and development across lines of political jurisdictions, agencies and levels of the government.

Accomplishments

- Interagency efforts have been or are underway for various trail projects and planning processes that involve trails such as: the Sterling Forest®, Bethpage and Allegany State Parks Comprehensive Trails Plans and trail development along the parkways.
- A bi-state and international bike-way has been developed along the shores of Lake Champlain.
- The Niagara River Greenway Plan has been completed and adopted.

Actions

- Integrate trails into the regional, state and local planning processes, including zoning.
- Establish a federal and state interagency forum and encourage interagency efforts in trail planning and development.
- Improve intermodal transportation facilities to support trail user needs and improve accessibility.
- Encourage partnership agreements between trail user groups, private and not-for-profit organizations, and land management agencies to enhance or develop new trail opportunities.

Goal

Strengthen communication and cooperation among all types of trail users and providers.

Accomplishments

- The New York State Trails Council has been expanded to include more trail activities; produced a brochure; continues to be a forum to discuss major trail issues and take appropriate action; and functions as the trails organization for the Recreation Trails Program.
- Parks and Trails New York hosted its third Statewide Greenways and Community Trails Conference and published the 2nd edition of "Cycling the Erie Canal Guidebook".

- The Canal Corporation published the 3rd edition of the "The Cruising Guide to the NYS Canal System".
- OPRHP and Parks and Trails New York collaborated on and conducted a survey of trails organizations that maintain publicly accessible trails to help identify trail issues that need to be addressed in the Statewide Trails Plan update.
- The Governor issued a proclamation identifying the annual National Trails Day as the New York State's Trails Day.

Actions

- Improve recreation user education programs that focus on appropriate trail etiquette, use and maintenance.
- Maintain the New York State Trails Council to function as a forum to discuss trail related issues.
- Promote trail etiquette on trail systems, support facilities, and user groups.
- Promote trail use as a health benefit.
- Develop and disseminate a directory of trail organizations.
- Encourage growth of the New York State Trails Coalition.

Goal

Advance the development of a statewide system of interconnected trails and greenways and provide access to them.

Accomplishments

- Various trail initiatives are being advanced to link communities and trails such as: bikeways along the Robert Moses, Bethpage, Lake Ontario, Palisades, and Ocean Parkways; the Black Diamond Trail; the Catharine Valley Trail; the Black River Trail; the Hudson River Valley Greenway Trail System; the Hudson River Greenway Water Trail; the Genesee Valley Greenway; the Canalway Trail; and, the Harlem Valley Rail Trail.

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Actions

- Support trailway connections between urban and town centers, rural communities and places where people work or recreate. Include information about health improvement when advocating for trail connections to town and urban centers.
- Revise the Statewide Trails Plan.
- Assess the use of abandoned railroad lines in developing regional and statewide trail systems.
- Enhance trail connections and access to parks, historic sites, greenways, water routes, interpretive centers and other natural and cultural resources. Include health benefits when promulgating actions that will increase access.
- Encourage the development of community trails and their linkage to the statewide systems.
- Identify and coordinate linkages to long-distance land and water based trail systems in the State.
- Assess the potential use of parkway greenbelts, rail roads, utility rights-of-way, canals and other transportation systems in the development of shared use trails.
- Ensure maintenance of critical transportation systems that are part of a trail system, i.e. road shoulders and sidewalks.

Goal

Conduct research and education to improve the quality of user experiences and enhance resource protection.

Accomplishments

- GIS and Global Positioning System (GPS) units are being utilized by state agencies, trail organizations and volunteers collect better quality trail data such as location, surface material and trail/road intersections. Geographic Information Systems (GIS) are being used to map

- trails and make trail information more accessible to the public.
- The International Mountain Biking Association's (IMBA) Trail Care Crew, conducted a series of trail building workshops for State Park and DEC staff that develop and maintain trails on state land.
- The State's Natural Heritage Database has expanded during trail planning and design.
- A series of trail maps using GPS data is being developed for State Parks.
- A literature review has been conducted on the economic impacts of trails.

Actions

- Utilize technologies such as GIS and GPS to improve the gathering, analysis, and dissemination of geospatial data.
- Monitor trends in trail activities through surveys, registrations, sales figures, and the experiences of other states.
- Establish a clearinghouse for maps, plans, design standards and other trails information, highlighting the statewide land and water trailway system and neighboring states.
- Develop case studies on innovations and model demonstration projects.
- Sponsor workshops and educational programs on trail liability, accessibility for people with disabilities, trail design standards, maintenance and similar topics. Include health benefits of increased exercise as part of these workshops.
- Seek innovative solutions to foster multiple uses of trails.
- Collect, analyze and interpret data related to the primary and secondary economic benefits of trails.
- Continue the development of State Park trail maps utilizing GPS data.
- Establish a standardized trail count protocol that can be applied to multiuse trails throughout the state.

- Conduct economic impact study of trails and establish a model for other trail managers to use.

Goal

Increase public awareness of New York State's trails and greenway corridors and their economic, social, health, educational and environmental benefits.

Accomplishments

- National Trails Day/New York State Trails Day events were held across the State.
- An Empire State Trails booklet was produced that identified trail opportunities on OPRHP and DEC lands and highlights selected long distance trails.
- Official map and guide brochures have been produced for public lands in the Adirondack and Catskill Parks.
- OPRHP has begun development of a Statewide Trails Inventory database that will ultimately be used by the public to access trail information.

Actions

- Promote trail benefits and educate user groups to strengthen support for trail development and maintenance.
- Continue to develop and maintain a statewide inventory of trails and recreationways.
- Compile a bibliography on trails within New York State.
- Foster citizen participation in National Trails Day/New York State Trails Day activities or other events which encourage recognition and publicity of trails and trail projects throughout the State.
- Develop articles and multimedia presentations on trail benefits and opportunities for local media and civic organizations.
- Recognize opportunities for volunteers to initiate and participate

on trail projects and reward their accomplishments.

- Foster trails as an economic asset to the State and local communities, enhancing tourism.
- Promote trails in statewide and regional tourism campaigns.
- Develop a designated Trails website that includes information on the statewide system of trails on the OPRHP's website.
- Create a system of signage for trails along highways and state roads in partnership with NYS DOT.

Goal

Provide and improve trail systems for persons with disabilities.

Accomplishments

- Proposed accessibility guidelines for trails have been developed.
- Access Coordinators have been designated to educate staff on the trail guidelines and accessibility requirements.
- Staff from DEC and OPRHP have participated in Universal Trail Assessment Process (UTAP) training and support training programs to encourage the use of this process to identify access opportunities.
- DEC has constructed new accessible trails at locations across the state, including Little Pond Campground in the Catskills, Stony Kill Environmental Education Center, Lampson Falls in the western Adirondacks and Nelson Swamp in Central New York.
- OPRHP is developing new trailhead signs that provide information to the user about trail conditions, elevation changes, slopes, surfaces, etc, so that users of all abilities can make informed decisions about trail use.
- Parks and Trails New York has hosted three Universal Trails Assessment Process (UTAP) training programs, training 50 individuals so far.

Actions

- Conduct assessments of trails for accessibility.
- Improve current trail systems to increase accessibility.
- Encourage partnerships and continue education to improve trail accessibility.
- Direct efforts to prioritize assessments in areas of the state where there is either an accessibility-expectant population or a variety of hiking opportunities accompanied by a lack of accessible trails.
- Provide more information about the condition of trails at trailheads and through maps/brochures for users to make appropriated decisions.
- Conduct "train the trainer" workshops so that more UTAP training can be offered statewide.

Greenways

Greenways represent a broad spectrum of connectors for people and wild-life ranging from Genesee Greenway to the Hudson River Valley Greenway. Each greenway has a unique set of parameters, objectives and administrative structure. Therefore, each greenway is self defining with an overall objective of connecting people and places for a better quality of life.

Genesee Valley Greenway

The Genesee Valley Greenway is a linear corridor that follows the path of the former Genesee Valley Canal (1840-1878) and Pennsylvania Railroad, Rochester Branch (1882-1963), passing through five counties (Monroe, Livingston, Wyoming, Allegany, and Cattaraugus), seventeen townships, and several villages. Presently, there are 60 of its 90 miles that are open To the public.

It passes through scenic woodlands, river and stream valleys, rolling farmlands, steep gorges, and historic villages. As with most of these efforts, development of the Genesee Valley Greenway is being accomplished by local citizens, user groups, governments, and businesses working in partnership to create a resource that will:

- preserve a corridor of significant natural and historic features
- link local and state parks, cultural attractions, historic sites, quaint villages, and major educational institutions and state trail systems
- provide year-round educational, recreational, environmental, and economic benefits for the region
- complement regional efforts to improve water quality, increase tourism, and ensure natural, historic and cultural resource protection

The concept of a Genesee Valley Greenway was introduced to the region by the New York Parks and Conservation Association (NYPCA) (now Parks and Trails New York (PTNY)) in 1991 after Association personnel first established a positive level of interest among local government officials, user groups, environmentalists, and the business community. Under the direction of a 40-member steering committee and an NYPCA Local Coordinator, individual sections of the Greenway Trail were opened for public recreational use beginning in 1992. The Friends of the Genesee Valley Greenway, Inc. grew out of the interest and enthusiasm for the project generated by the initial trail development efforts.

The Greenway is owned by the City of Rochester, OPRHP and DEC. The Friends Group, in cooperation with the City, OPRHP and DEC are responsible for management and maintenance of the trail and support facilities. The Friends Group assists in marketing the Greenway and securing volunteers. A partnership agreement exists between the Friends of the Genesee Valley Greenway, DEC and OPRHP. This

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agreement outlines the responsibilities of the three "Partners" in the management and operation of the Greenway outside of the City of Rochester. The City operates and maintains its portion of the Greenway trail.

The management and operation of the remainder of the Greenway is guided by a Draft Management Plan developed by the "Partners". This management plan developed a vision and series of management goals for the Greenway.

Vision

The Genesee Valley Greenway is a natural and historic transportation corridor that will be preserved for and used by the public.

Management Goals

- Public Use
 - Provide the public with recreational experiences (opportunities for walking, hiking, jogging, bicycling, horseback riding, nature observation, snow shoeing, cross country skiing, and snowmobiling) involving the natural and historic character of the Greenway corridor
 - Increase access to and encourage recreational use of the Genesee River
 - Provide access to other public resources
 - Interpret the local and natural history of the Greenway corridor
- Community Resource Protection
 - Protect, preserve, promote, and link canal and other historic and cultural resources along the Greenway corridor
 - Protect, preserve and enhance natural resources and maintain habitat linkages in the Greenway corridor
 - Provide public outreach programs and educational opportunities

- Provide a safe, alternative transportation route between and within communities
- Community Involvement
 - Stimulate economic development through promotion of tourism and Greenway trail-related businesses
 - Encourage and coordinate individual, group, and business contributions to Greenway development and enhancement
- Alternative Transportation
 - Provide a safe, alternative transportation route between and within communities
 - Link with other regional trail systems
 - Link with other transportation systems
- Staffing and Support
 - Provide staffing for development, operation and maintenance of the Greenway
 - Establish operating budgets in DEC and OPRHP
 - Establish capital funding within each agency's capital plan as appropriate
 - FOGVG will seek additional funding in support of the Greenway

historic, cultural and recreational resources while encouraging compatible economic development and maintaining the tradition of home rule for land use decision-making. Through voluntary participation in the Greenway, communities in the Hudson River Valley can receive technical assistance and funding for local land use planning and implementation projects, trail development, and heritage promotion that support the goals of the Greenway program.

The Hudson River Valley Greenway Act of 1991 creates a process for voluntary regional cooperation among 320 communities within the Greenway area, which includes the counties of Saratoga, Washington, Rensselaer, Albany, Greene (outside the Catskill Preserve), Columbia, Ulster, Dutchess, Orange, Putnam, Rockland, Westchester and the waterfronts of The Bronx and Manhattan. The Act specifies five Greenway Criteria through which this goal can be achieved. The five criteria include: natural and cultural resource protection; regional planning; economic development; public access; and, heritage and environmental education. The Greenway works with local and county governments to enhance local land use planning pertaining to the five Greenway criteria, create a voluntary regional planning compact, promote the Hudson River Valley as a single tourism destination area, assist in the preservation of agriculture and, work with communities to strengthen state agency cooperation with local governments.

Hudson River Valley Greenway

The Hudson River Valley Greenway is an innovative state-sponsored, voluntary program created to facilitate the development of a regional strategy for preserving scenic, natural,

The Greenway is also charged with developing the Hudson River Greenway Trail System from the Adirondack Park in northern Saratoga County, and Lake Champlain in Washington County to

Table 5.2 - Hudson River Valley Greenway Trail System

Riverside Trails:	251.6 miles
Countryside Corridors/Connector Trails:	54.7 miles
NYS Bike Route 9:	147.0 miles
Hudson River Greenway Water Trail:	256.0 miles
Hudson River Valley Greenway Trail System Total:	709.3 miles

Manhattan. The trail system includes a water trail, a bicycling trail and a walking trail. The Greenway supports community trail initiatives in the development of a regional trail system. The Greenway offers an annual competitive small grant program to fund trail projects including trail planning and design, trail construction and rehabilitation and trail interpretation and education. The goal of this grant program is to help local trail groups and municipalities implement community trail systems and develop new segments of the Greenway Trail.

There are currently 709.3 miles of various types of trail that comprise the Greenway Trail System (See Table 5.2).

In April 2001 the Hudson River Valley Greenway was awarded \$1 million to develop a Hudson River Greenway Water Trail stretching from the Adirondack Park in the Town of Hadley, Saratoga County and from Whitehall, Washington County to Battery Park in Manhattan (256 miles). The Hudson River Greenway Water Trail has established canoe/kayak access points at least every 10 miles on each bank of the Hudson River. Campsites will be established at least every 15 miles along the Hudson River. The Water Trail includes on site interpretive centers and kiosks, parking and restroom facilities, potable water, and information on local and historical and cultural attractions depending upon the specific site location. Currently some 86 sites are designated as part of the Hudson River Greenway Water Trail.

Niagara River Greenway

The Niagara River Greenway is a world-class corridor of places, parks and landscapes that celebrates and interprets our unique natural, cultural, recreational, and scenic and heritage resources and provides access to and

connections between these important resources while giving rise to economic opportunities for the region. This Vision Statement has guided the development of the Niagara River Greenway, a regional planning initiative established by state legislation in September 2004. The legislation defines the Greenway as a linear system of state and local parks and conservation areas linked by a network of multi use trails within the established greenway area in Erie and Niagara counties. The stated purpose of the Greenway is to enhance waterfront access and complement economic revitalization of the communities along the river.

The Niagara River Greenway Commission was charged by the Legislature with developing a plan that includes:

- an inventory of existing parks and other lands under the jurisdiction of state agencies, public corporations and municipalities which may contribute to the purposes of the Greenway
- identifying other lands that through acquisition, dedication or redevelopment may contribute to the purposes of the Greenway
- identifying existing plans and plans under development that can contribute to the purposes of the Greenway
- considering how the region's industrial heritage can be celebrated and reflected along the Greenway
- recommending how the Greenway could be linked to upland and interior communities in order to promote linkages to the river
- considering how existing and proposed economic development activities in proximity to the Greenway can support and complement the Greenway
- identifying ways for the Commission to work cooperatively with municipal, state and federal agencies, the province of Ontario and nation of Canada, public and

private corporations, not-for-profit organizations, and private property owners to advance and complement the purposes of the Greenway

- recommending how portions of the Greenway would be managed including a plan for ongoing operation and maintenance that would make the Greenway self-supporting

The Niagara River Greenway Plan, adopted in April 2007, establishes a Greenway boundary that follows municipal lines, emphasizing a regional approach that focuses on the concept of a Greenway as an organizational structure for economic development and tourism. The Plan establishes the foundation that guides collective decision-making for the Greenway, so that all stakeholders will have a sense of how their specific actions contribute to the whole. The vision for the Greenway will become a reality through hundreds of incremental steps and individual actions. The Plan identifies criteria for evaluating and forming projects and activities within the Greenway in an effort to guide project development and design. The criteria will help sponsors determine if a project submitted to the Commission contributes to the Greenway and is consistent with the principles, priorities, focus area and economic vitality as set forth in the Plan. Projects may be eligible for funding through various State and Federal programs, as well as private foundations.

Five high-priority system-wide concepts that will help promote implementation of the Niagara River Greenway are identified as:

- Gateway Identification
- Accessing, Experiencing and Connecting to the River
- Protecting, Preserving, and Restoring Important Ecological Features
- Linking Special Places and Destinations
- Heritage Tourism and Economic Revitalization

East Coast Greenway

The East Coast Greenway is the nation's first long-distance urban trail system; a city-to-city transportation corridor for cyclists, hikers, and other non-motorized users. By connecting existing and planned trails, a continuous, safe, green route 3,000 miles long is being formed linking Calais, Maine at the Canadian border with Key West, Florida. It incorporates waterfront esplanades, park paths, abandoned railroad corridors, canal towpaths, and highway corridors, and in many areas it temporarily follows streets and roads to link these completed trail sections together. (ECGA, 2008)

When completed, the East Coast Greenway in New York will follow two separate routes, (Eastern & Western) which both end in downtown Manhattan. The route uses New York's Waterway ferry service to connect to the New Jersey section of the Greenway. The two routes are in various stages of completion using completed trail sections of the New York City Greenway System, Parkway trails, Westchester County Trail System and on-road sections.