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CURRENT TRAIL ISSUES AND NEEDS

Since the 1980s, when the previous trails plan was developed, economic conditions, user recreational trail preferences and regulatory requirements have changed the needs for trail development. Some issues discussed in the 1982 plan have changed significantly and are discussed in more detail in this plan. Other issues are basically the same, but with minimal changes in circumstances affecting their management and development. These are:

Liability

The New Jersey Landowner's Liability Act (N.J.S.A. 2A:42 A-2 et seq.) was enacted in 1968, yet, despite its 26 year existence, few landowners know of its existence, or use the fear of being held liable as a reason to object to public recreational facilities on or near their property. Under that statute, liability is limited for the landowners, except "which would otherwise exist for willful or malicious failure to guard, or to warn against, a dangerous condition, use, structure or activity." Many property owners, both public and private have stopped allowing some recreational activities to occur on their lands because of rising insurance costs and the liability issue. However, in efforts to stem the tide of increased suits, some states have passed legislation removing the burden of liability for certain "inherently dangerous" activities, such as horseback riding. Besides immunity for landowners, volunteers on public lands have become concerned about their protection for work they perform, such as trail or bridge construction and repair, worker's compensation to cover injury treatment for work performed, and protection of club members from suits and payment of attorney fees.

Management and Enforcement

As long as a trail exists, these considerations will exist also. Trail management includes several factors, including trail construction,

placing signs with information or instructions, locating ancillary facilities such as parking lots, trailheads, and restrooms, inspection for condition, and deciding on when to expand, relocate, or close a trail. Management also includes maintenance, in grooming trails so that they do not become overgrown, making repairs to bridges or bedding, or controlling erosion and drainage to keep a trail open or to prevent damage to the adjacent lands. Enforcement activities center on the presence of personnel to insure the safety of the users and adjacent lands, and also prevent vandalism, and to prevent illegal uses that are either unlawful or detrimental to the trail and legitimate users. Both management and enforcement require funding to hire staff who will establish a guaranteed presence on the trail at all reasonable times of the day. The Issue section "Funding Sources for Trails" includes additional considerations about management and enforcement.

One potential partial solution to the problem of both maintenance and enforcement is the establishment of a ridgerunner program. A ridgerunner program has been instituted along the Appalachian Trail, including New Jersey's section, in a cooperative effort of the State Park Service, Appalachian Trail Conference and the New York-New Jersey Trail Conference. The ridgerunner is trained by the ATC, employed by the state, and managed by NY-NJ Trail Conference. Runners provide assistance and education on allowable and illegal activities to hikers, and provide light trail maintenance. The program could be employed elsewhere for trails.

Public Use of Private Land

Providing access to private land and the fear of liability of landowners have been addressed by state programs which provide incentives to private property owners to open their lands to the public. The Green Acres Tax Exemption Program provides a renewable three-year

limited term of property tax exemption to non-profit organizations making their land available for public use. The New Jersey Open Lands Management Program can provide grants to private property owners to develop the land for specific recreational activities. Incentives for private landowners should be investigated so that they would be more willing to open up their land to the public. Purchase or donation of easements by a land trust or governmental agency are a means of sharing or shifting the liability if a lawsuit arises.

Multiple Jurisdictions

Regional trails crossing jurisdictional boundaries, such as Patriots' Path passing through county and federal lands, are frequently subject to different regulations under those jurisdictions. Some of the trail systems included in this plan cross jurisdictions, and designation to the trails system would help to ensure a certain standard of continuity of use and facilities. With the advent of regional trails being planned, which rely on existing trails for some of their length, a new type of jurisdictional issue will arise. Because these trails, e.g., the Highlands Trail, are still in the planning stages, planning coordination will be important to ensure the integrity of the existing trails and their management as well as serve a need in the regional trail network.

Recreation and Transportation

Transportation is being cited more by trail planners as a purpose for creating trails, since the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which provided a new funding source for trails. Where trail planning and development was primarily the responsibility of recreational planners, that is now changing, as transportation planners see trails as non-motorized corridors between population centers and points of interest, such as shopping centers, businesses and recreation areas. One part of ISTEA included the Congestion Mitigation and Air Quality Program, which was established to help states attain the National Ambient Air Quality Standards under the U.S. Clean Air Act

Amendments of 1990. As non-motorized corridors, trails will be planned and studied further for their ability to help reduce air pollution by reducing dependency on the automobile. This will be accomplished by incorporating a long-range plan for bicycle transportation and pedestrian walkways into the long-range transportation plan for each state. Other provisions of ISTEA affecting trails included the requirement of a state bicycle and pedestrian coordinator, for promoting and developing increased use of non-motorized modes of transportation, and the Scenic Byways Program, which provides funds to construct facilities along designated highways for use of pedestrians and bicyclists. Route 29, next to the Delaware River and Delaware and Raritan Canal, is the first designated Scenic Highway in New Jersey.

Rights-of-Way

Use of rights-of-way may be changing over the next few years. With decreased development in the 1990's, many "paper streets" planned for developments that never occurred, or for portions of state highways that are not planned to be completed, exist as public thoroughfares. Many of these rights-of-way are used by motorized trail vehicles. They serve as potential sources of trails and can link with existing trails. However, some utility rights-of-way are being viewed more cautiously for trails than in 1982. Where overhead transmission lines were once considered for potential trail routing, some citizens have voiced their concern for using them because of electro-magnetic fields (EMF). The effects of EMF on trail users are not known, and future research may provide more information on their suitability as trail routes.

What also should be considered for trails in the future are rails-with-trails and shared use of highway rights-of-way. Individual circumstances, including the amount of train traffic, availability of adjacent land to the tracks for a trail, need for any barrier between the tracks and trail, and agreement with the railroad company, will determine the feasibility of using active rail lines for trails. Highways are frequent routes for recreational biking, and can be used as connectors between recreational trails. Wide road shoulders are best for this purpose to provide safety for the user.

Urban Trails

Urban trails are still needed for the 1990s, but they are assuming a more encompassing role for open space protection as part of greenway planning. In a greenway, a trail or waterway provides the connecting link between parks and provides habitat for plants and animals with its adjacent open space. In some cases, the greenway is planned first and a land trail is designed later to fit into the purpose of the greenway. With river-based greenways, access points for boating or canoeing are added after the greenway is established. Fee simple title or easements are generally purchased from landowners in a corridor, for example, of 200 feet in width in each side, to form a greenway.

For existing trails, adjacent parcels of land are protected in some manner to provide scenic buffers for the trail, rare and endangered species protection, or non-specific open space protection. Urban trails are also being created from abandoned railroad rights-of-way that formerly serviced businesses and industries no longer in existence.

User Education

How the many and varied users of a trail conduct themselves is important in providing for a high quality trail experience. Users must be reminded that they should be courteous of others using the trail, provide for their own safety, and not irritate adjacent private landowners by trespassing onto or vandalizing their property, or making requests to use the telephone or bathrooms. This applies to all trail enthusiasts, not just those on multi-use trails. With a variety of users on our trails, each of the other type of trail user should know something about the others. A prime example is how cyclists and hikers should approach horses on the trail. New Jersey horse trail clubs can follow the example of their counterparts in Colorado, who give demonstrations or workshops to other trail user groups on horse psychology and behavior, so the others know how to react when confronting a horse on a trail. Other education tools include listing the "rules of the trail" in brochures and on signs at trailheads and parking areas. Yield signs showing how types of trail users yield to each other can be posted. Each time a bicycle is rented, the store should provide the rules to each renter. Equipment manufacturers can produce videos that provide examples of how to use and share the trail.

As we approach the twenty-first century, new issues and circumstances will arise which may demand more in-depth analysis and solutions recommended than can be provided at this time.

Two added issues, which will warrant more investigation in the future, are:

Safety for Trail Users

Our society is becoming more safety conscious, with the legislated requirement for children to

wear helmets when bicycling, horseback riding helmets now designed for head protection and not just appearances, and requirements that canoeists wear life jackets/personal flotation devices. Faster methods of communication to access emergency services are possible with cellular telephones. Trail design to accommodate more use, both by a single use type and multiple use, is more aware of safer surfaces, lines of sight, passing widths and removal of obstacles. Trail users are warned not to stray from maintained paths, to prevent users from contracting Lyme's Disease from deer ticks in high grass areas. On public trails, park patrolling is becoming more important as a preventive measure to identify hazardous conditions, to assist legitimate trail users against criminal activities and to provide emergency medical assistance and communications for users. Each one of these subsets of safety could become more important in the future and require additional protection measures.

River Trail Access

Access to river corridors from private and public lands is an ongoing issue. Ongoing restrictions exist and continue to be a problem, especially along river trails where more access points are needed for put-in, take-out, resting, portaging and parking. In addition, long expanses of riverbanks are privately-owned throughout the state. Some landowners are reluctant to permit access because of fears of trespassing and potential vandalism, liability, as well as management and maintenance concerns. Another issue concerns that of river passage and the legality of blocking river use, as with fencing across a stream, for private interests. The relationship of landowners' and boaters' rights and needs will require further investigation.

TRAIL ACCESS FOR PEOPLE WITH DISABILITIES

The Americans with Disabilities Act (ADA) of 1990 (PL 101-336) extends civil rights protection against discrimination to individuals with disabilities. The purpose of the law is to eliminate discrimination against people with disabilities and to overcome physical barriers that prevent individuals from accessing programs, activities and services, which are available to the general public. The ADA is divided into sections, or titles, that apply to private sector employment, state and local government services and programs, private and public mass transportation facilities, and telecommunications. The provisions of the ADA affect all activities and services, while other laws only apply anti-discrimination requirements to federal agencies and contractors who receive federal funding.

The focus of Title II of the ADA is to secure for people with disabilities, access to programs, activities and services of state and local governments and all other public entities. This includes trails and other recreational facilities. Although a public agency is not required to take action that would alter the nature of the service or program, other means must be effective in achieving equal treatment and providing opportunities in the most integrated setting.

In conformance with the ADA, a priority in developing the State Trails System is to provide opportunities to people of varying abilities to participate in outdoor activities that are available on trails. To accomplish this, efforts are being made in the planning process to accommodate disabled individuals, older adults and families with young children. Those who may be considered disabled include people with permanent or temporary mobility, visual, hearing or developmental limitations as well as those with internal disabilities, such as cardiac or respiratory conditions. In state parks and recreation areas, barrier free facilities for disabled persons are in place. Such facilities include parking areas, trail surfaces and grading to accommodate wheelchairs, rest areas, lavatory facilities, water fountains, benches and picnic tables.

However, not all trails begin or end close to state park and recreation facilities, nor are all trails suited for all users. For long distance trails, modifications may be made to sections of the trail depending on the topography and the type of natural environment through which the trail passes. For example, sections of abandoned railroad rights-of-way that are being converted to trails may be designed and developed to accommodate a wide cross section of users including those with disabilities. The relatively straight, flat surfaces with packed bedding material pass through diverse landscapes, and therefore make these corridors conducive to a variety of trail uses and users. However, wilderness trails with steep, rough terrain in northern New Jersey or even heavy sand in the Pine Barrens, by their nature may not be suitable for all trail users and may not be appropriate to convert for special needs.

Although specific criteria directly addressing trails have not been finalized, the Uniform Federal Accessibility Standards (UFAS) (41 CFR 101-19.6) can be used as a basis for trail accessibility. The standards are the results of research conducted to determine the specifications needed to make travel routes accessible to a majority of disabled people. The draft Design Guide for Accessible Outdoor Recreation, developed by the U.S. departments of Agriculture and Interior, provides specific guidance in developing accessible trails. For example, to be accessible a trail must meet basic standards which address appropriate passing space, rest areas, width, surface, signage, slopes, edging, headroom and information points. Although the emphasis is on access for mobility limitations, there are criteria to address the needs of the visually and other impaired as well. This may be in the form of large print material, raised characters and color contrast on signs, among others. The Design Guide also recommends that at trailheads, level of difficulty information be provided for the trail user. This information may include the trail length, distance between rest areas, safety features, width, slope and type of trail bed. Rating each trail by degree of difficulty or

physical challenge needed to negotiate the corridor, would allow each individual to determine which trails would be suited to his or her abilities.

General and specific information regarding trail use and related activities that are available to individuals with disabilities needs to be developed and disseminated if efforts in implementing the ADA are to be effective. Descriptive brochures can specify the physical, topographic, natural and cultural features of the trail. Trained trail managers, staff and volunteers can serve as interpreters and important sources of public information, responding to special needs of users with various disabilities. In developing a trail system for all users it is important to consider a distribution of trails throughout the state for travel convenience, accessible trail routes, and also the trail environment - topography and natural and cultural attractions for enjoyment of the trail experience. Trails with varying degrees of physical challenges, dispersed throughout the different geographic regions of the state, would provide choices of trail experiences to most users.

MOTORIZED TRAILS

The needs of motorized off-road vehicle (ORV) users have long been overlooked in New Jersey.

Off-road vehicles (also referred to as off-highway vehicles or OHVs) are motorized vehicles intended for use off paved roads. ORVs included in this report are snowmobiles, all-terrain vehicles and off-road motorcycles. Other ORVs include four-wheel drive vehicles and dune buggies. An all-terrain vehicle (ATV) is a motorized vehicle designed to travel over any terrain and having from three to six low-pressure rubber tires. There are currently limited signed public ORV routes for all-terrain vehicles (ATVs) and off-road motorcycles on public recreational land. There are, however, mapped snowmobile routes in several state parks and forests including Ringwood, High Point, and Wawayanda state parks and Stokes and Lebanon state forests. Some snowmobile trails in Ringwood and Stokes are also marked. Many miles of woods roads are also available, although not marked, through state parks and forests, particularly in the Pine Barrens, for licensed motorcycles. There are also a number of sanctioned one-day enduro races on state park property where a special-use permit is given to the organization holding the event. Much of the off-road vehicle use is on private lands where it is condoned, tolerated or illegal.

Providing trails for motorized vehicles has been a controversial issue in New Jersey. In the past, motorized vehicles have been responsible for creating severe erosion problems in forests and wetlands, decimating vegetation and leaving deep scars on hillsides. Conflicts can also arise with other trail users, including equestrians and hikers, being overtaken or passed by vehicles. Many other trail users find the noise from vehicles offensive. Without a maintenance program performed by either volunteers or the staff of the park's managing agency, these conditions only worsen. National programs such as the **Tread** Lightly Program, initiated by the U.S. Forest Service, are trying to correct these problems. The five principles are: Travel only on designated routes; respect the rights of others; educate yourself; avoid streams, meadows, wildlife, etc.; and drive responsibly. In November 1991, legislation was enacted

(N.J.S.A. 39:3C-1 et seq.) that requires snowmobiles and all-terrain vehicles to be registered by the state's Division of Motor Vehicles when the vehicle is operated or permitted to be operated on or across a public highway or on public lands or waters in New Jersey. Currently, there is no registration or licensing procedure available for strictly off-road motorcycles although "dual purpose" motorcycles can be registered with the Division of Motor Vehicles and have a license plate if they are considered "street legal." A licensing mechanism similar to the ATV/snowmobile legislation has been discussed with user groups for off-road motorcycles not allowed on public roads. As in the all-terrain vehicle legislation, any new legislation for off-road motorcycles should provide for a portion of the registration fee being used for vehicle safety education and training courses. Another portion of the proceeds from fees could be used to help fund facilities and hire staff to maintain any future designated motorized routes. An alternative to registration is a Division of Parks and Forestry recreational use permitting system similar to that established for four-wheel drive vehicles using Island Beach State Park or the Division of Fish, Game and Wildlife's permit system for horseback riding on selected Wildlife Management Areas. Under Island Beach State Park's system, called Mobile Sportfishing permits, users must pay a fee for a seasonal or three-day permit and adhere to restrictions, which include seasonal access to certain areas of the beach and a limit on the number of vehicles per day. On Wildlife Management Areas, horseback riders must pay an annual fee, and have personal liability insurance; they are also limited to selected parts of the wildlife management area in which they may ride.

The National Recreational Trails Act (NRTA) of 1991 (Symms Fund) established a program for allocating funds to all the states for recreational trails and trail-related projects. At least 30% of funds received annually by a state must be reserved for uses relating to motorized recreation. With the re-formation of the New Jersey Trails Council, including a representative from the motorized trail community, and input

from the public and private sectors, there will be recommendations for the best use of the available NRTA funds. Because, however, funds have only been appropriated for one year, the full impact on motorized trail use as a result of the act cannot be determined.

The needs of off-road vehicle users are not unlike those of other trail users. The most important need is the designation of ORV routes that are open to the public. With that comes good signage, maps and adequate trailhead facilities. These facilities should include parking that will accommodate vehicles and trailers that may haul the ORVs, sanitary facilities, signs, unloading ramps, trash receptacles, a bulletin board with a map and rules for the particular area and, if possible, a source of potable water. A campground and/or picnic area along a route or near the trailhead is another attractive facility for motorized recreationists. Facilities for snowmobile routes should also include winterized restrooms and shelters with windbreaks. Because of how quickly ORVs cover ground, an adequate amount of mileage (at least ten miles) with multiple loops is desirable as part of an ORV route.

Any off-road motorized route should try to satisfy the user, minimize conflicts with other trail users, be developed and managed in a cost effective manner, and prevent environmental degradation to the greatest extent possible. Not all ORV routes have to be the same width, length or have the same surface. In fact, a variety of routes with different degrees of difficulty is desirable. However, while a rough or uneven surface may be challenging for an off-road motorcycle or ATV, it could be dangerous for a snowmobile on the same terrain. As smooth a trail surface as possible is desirable for snowmobiles. For user safety and the prevention of environmental degradation, state parks and forests have guidelines requiring at least 3 inches of snow for forest roads to be usable for snowmobiles, and fields should have at least 8 inches of snow. During extended periods of snow cover, snowmobile routes may have to be groomed if use is heavy. On any designated route, critical plant and wildlife habitats must be avoided. Steep sustained grades (over 15% sustained incline) must also be avoided to prevent erosion. Other design criteria include trail width and height clearance,

trail routing considerations, adequate drainage and, if necessary, methods for crossing streams and wet areas. An ORV route can be as narrow as two feet on more difficult motorcycle trails, but to accommodate the wider ATVs and snowmobiles, a width of at least four feet is necessary. A minimum clearing height is at least seven feet to allow clearance for riders of off-road motorcycles. The trail route should follow contours and avoid sharp angular turns; in hilly areas, it should follow the crest of the hill and when that is not possible, angle across the natural slope versus perpendicular hill-climbing. Proper drainage is also essential for good ORV routes. Allowing for natural drainage and avoiding boggy and wet areas are the best means to alleviate problems. However, if drainage is a problem, water bars, drain dips and culverts with collector ditches might be solutions. When ORV routes must cross wet areas, bridges, puncheons, turnpike or corduroy construction may be effective methods to protect the underlying soils and vegetation. Seasonal closures at times of high soil sensitivity may also be necessary.

Potential public off-road vehicle routes already exist in New Jersey, but they must be identified and designated. Consideration should be given to existing forest roads, unmarked trails, and fire-breaks. An example of this is in Belleplain State Forest where almost 30 miles of various routes are being made available for licensed motorized recreationists. If all off-road vehicles become registered and routes in different areas of the state are designated and made public, the sport will become better regulated, with hopefully less enforcement problems, and its users and the entire trail community will benefit.

A possible solution to illegal ORV use of trails is the establishment of ORV "parks" or courses. These parks would provide a confined, monitored space, which could take some of the stress off of trails and trespassing onto private property. In confined areas, such as abandoned gravel pits, tracks or routes can be established where users could experience varied terrain and tread conditions. Programs can be developed for teaching safe riding techniques and courtesy. If accidents do occur, emergency aid would not have to travel long distances to inaccessible locations in order to reach and treat accident

victims. At the same time, many motorcycle users or other ORV users would use these areas and would not have to use trails as the only available location for their sport. The Egg Harbor Township Police Athletic League is developing such a program for children and teenagers within the township. Having just begun in 1994, the program is still in its infancy, and it will be watched closely as it develops over time.

Volunteer safety patrols, similar to those established by the U.S. Forest Service, can also be used to help control illegal use. Patrol members undergo a training course and CPR certification. As the patrols ride on ORVs, they can better track and not lose illegal users, since they can go to the same places and use the same routes. They can also assist other trail users who might require directions or emergency medical care. The program can also be established in a manner similar to that of the ridgerunner program for hikers, which uses paid seasonal workers.

OFF-ROAD BICYCLING/MOUNTAIN BIKES

Mountain bikes are the most recent addition to trail use. Also called fat tire or all-terrain bikes (ATB), these non-motorized bicycles have appeared to surge onto hiking and horseback riding trails. From California, where the bike originated, to Maine, there are over 11 million mountain bikers, as reported in 1989 by the Bicycle Institute of America. Unlike the street or racing bike, a mountain bike can traverse varied terrain, water, and a variety of trail surfaces. But with it has come new demands and problems on and for trails. To some enthusiasts it provides the opportunity to cover open space at a pace faster than hiking, opening up more opportunities for enjoyment of the outdoors. To others, it presents a challenge with elements of risk in covering dangerous territory.

As a new trail activity, mountain biking has created a new set of problems concerning safety, user conflicts, and environmental degradation. If using existing trails, conflicts and problems can arise with current trail users, hikers or equestrians, concerning basic trail etiquette: speeding, getting too close to other users, and because the bikes cannot be heard, creating the "startle factor," in which a mountain biker suddenly encounters an unsuspecting trail user. This can be a great problem when encountering horses, who could do damage to themselves, their riders, and the cyclist. Increased use of trails by mountain bikes can create furrows or channels in which water can travel downhill, thus causing soil erosion over time. Erosion can be especially severe on trails traversing steep slopes without gradual inclines. Skidding and poorly executed braking when stopping can also increase erosion. Any extensive trail use will cause erosion, but certain precautions can be taken to lessen the damage caused by bikes.

How a trail is designed can either increase problems or prevent them from happening at all.

In designing new trails or modifying existing trails to be used by mountain bikes, clearing of standing or protruding vegetation should be a minimum of three feet, with a path of at least one foot. Care must be taken to remove any

obstacle approaching existing curves. Curves should be gradual and form a wide arc to prevent sharp turns, in order to provide a greater field of vision for both the cyclist seeing others on the trail, and the other users seeing the bike.

Mountain bike trails should be located on lands suitable for mountain bikes and constructed to prevent water runoff and erosion. If this is not possible, then switchbacks should be employed to lessen the angle of descent. Fencing or crib walls should also be erected on switchbacks to prevent crosscutting between portions of the same trail. Crossing of wetlands, as well as erodible stream banks, should be avoided at all times, unless bridged or boardwalked. Abandoned railroad rights-of-way provide safe riding conditions because of their gradual turns and lack of steep slopes.

Besides changes to the trail, a program to educate mountain bikers can help prevent conflicts with other users and maintain environmental quality. For example, park rangers can distribute brochures, and cooperative programs between bicycle shops, mountain bike clubs, and schools can be developed, emphasizing environmentally sound riding techniques, safety, and etiquette. However, not all riders pick up brochures, let alone read and remember them. For this reason, the most important source of information on what can and cannot be done on trails is signage at the trailhead and along the trail. Trail signs should be erected specifying where mountain bikes are allowed and advising riders at certain critical locations to reduce speed, go slow and avoid skidding. Other signs may ask cyclists to "portage" by walking or carrying their bikes in certain dangerous or steep areas. In parks with a combination of hiking trails and multiuse trails, signs or barriers should be erected to prevent the cyclist from entering onto the hiking trail. If excluding mountain bikers from certain trails is not desirable, then a compromise may be worked out on loop trails, which can be marked and signed as "one way only" trails. Making trails one way can help avoid high speeds and skidding on dangerous slopes, and on multiple use trails, prevent

confrontations and accidents with other trail users. Trail mileage should also be posted on one-way trails so that users can estimate time to complete a trail.

The International Mountain Bike Association (IMBA) has been working to educate cyclists on their responsibilities for safe and shared use of trails. They provide "rules of the trail" to cyclists:

1. Ride on open trails only.
2. Leave no trace, with no evidence of passing on the trail and no littering.
3. Control your bike and obey any speed regulations.
4. Always yield the trail by slowing or even stopping when approaching other users.
5. Never spook animals, using special care and following directions from horseback riders.
6. Plan ahead, and know your equipment, abilities, and area in which you are riding.

Just as courses or parks are suggested for motorized trail vehicles, they also can apply to mountain bikes. Most cyclists do not have the opportunity under ideal or good conditions, to learn what they can experience with a mountain bike before going out on a trail. And although cyclists will eventually go out on trails, proper instruction and training beforehand can help prevent accidents on the trail, either to the cyclists or to other trail users. These parks or courses could be developed in existing parks which allow mountain biking, or conducted, like for ORVs, in areas such as abandoned quarries or gravel pits. Training sessions could be sponsored by the park, a mountain bike club, or bicycle shop.

MULTIPLE USE AND COMPATIBILITY

Multiple use, also referred to as multi-use or multiuse, refers to using one trail for many trail types of uses. It is employed more and more to provide trails for all types of trail users. Trails are being designed or routes selected which provide the safest conditions for various users. The idea of "multiple use" in regard to trail facilities has been around for many years. As a way to get more use from limited resources it has wide appeal. If a trail can be constructed that serves more than one user group, it will be less expensive than creating two or three separate trails for the different activities. One trail will use less material and take less land area. It will also require fewer personnel to maintain and patrol than several separate trails. Wherever multiple use trails are being planned, the land manager and users should work together in selecting those trails.

Issues

There are, however, four important issues, which must be taken into account in considering multiple use, and indeed in all trails planning. These issues, quality of experience, use pre-emption, user safety, and natural resource protection, are closely related.

The quality of a trail experience is used here to mean how well the experience satisfies all the users' needs and expectations. For many trail users, a primary need and expectation is to enjoy their chosen activity in natural or scenic urban surroundings. Another "quality" factor is the density of use on a trail. The primary quality factor for other uses may be degree of challenge, nature of trail surface, facilities available, etc. Conflicts in speed differences and amount of noise also influence the quality experience.

Use pre-emption occurs when one use of a trail becomes so dominant that it lowers the quality of the trail experience for another use enough to drive the second use elsewhere. If every trail use had an equal quality-lowering effect on every other trail use, this would not be too bad,

since the most popular use would automatically "acquire" the trail. Unfortunately this is not the case - no two use-groups have equal effects on each other, and the motorized/non-motorized conflicts are especially one-sided. Reports from user-groups indicate that the use pre-emption problem is widespread. Whenever multiple use of a trail area is considered, careful thought should be given to the quality of the trail experience for each group, and the possibility of use pre-emption.

Unsafe conditions, caused either by other trail users or by trail factors, keep visitors from achieving a quality trail experience. Threats to user safety include collisions and near misses, reckless and irresponsible behavior, lack of preparation, trail conditions, poor trail design, and crime.

Protecting or maintaining natural resources is often regarded as a high priority among trail users, and when destruction of natural resources on or adjacent to a multi-use trail occurs, user types point the finger at the other user type for its cause. Resource damage on trails is influenced by the soil characteristics, slope, type of ecosystem, trail design and construction, level of maintenance, amount of use, season of the year, and user techniques.

Types of Multiple Use

Many trail activities may be compatible with bicycle use provided only that use levels are not so high that one activity crowds out the other. Walking, jogging, and running are generally the most compatible uses with other uses at all seasons of the year. In winter when trails are snow covered, ski-touring, snow-shoeing, and snowmobiling can easily be accommodated. In general, snowmobiles should be separated from cross-country skiers when both occur at the same time. Many surfaces suitable for bicycles can also be used for wheelchairs. Paved bike paths are becoming popular with in-line skaters.

On a shared hard trail surface, horseback riding

is not compatible with bicycling as paved parts are not desirable for horses, and cyclists tend to ride faster on the paved surface, thus creating the potential for increased accidents.

Horseback riding may be compatible with bicycling, hiking, and jogging on a cinder surface. If a trail corridor is wide enough to accommodate more than one trail surface, the horses and other users can share the same right-of-way without conflict. However, horses may not be compatible with mountain bikes on narrow twisted trails with no sight lines.

Because there is no noise from the mountain bike, a cyclist may unintentionally spook a horse, which could cause it to run off or throw the rider.

High speed vs. low speed user conflicts most often involve trail motorcycles, mountain bikes, and snowmobiles, but may also arise where fast moving bicyclists ride up behind walkers and joggers on a paved trail. Many compatibility problems stem from use of motorized recreational vehicles on non-motorized trails or in areas where noise creates a disturbance for other recreationists and for nearby residents and businesses. Conversely, walkers in pairs or groups who take up the full width of bike-paths, horsetrails, or woods roads present hazards to mounted and motorized trail users who need to pass them. These kinds of conflicts often occur because of a lack of sufficient single use trails to meet the demand and because of inconsiderate behavior due to users' lack of knowledge of trail etiquette.

Some of New Jersey's river trails also have conflicts between different types of users. Canoes, sculls, sailboats, and tubes as the non-motorized types of river use, and motorboats, motorboats with water skiers, and jet skis, the motorized types, frequently share the same water body. Again the conflicts of high speed vs. low speed and amount of noise produced from the motorboat or jet ski are the issues. If people are fishing in a river, it can possibly lead to further conflicts in using a river. In some rivers, the conflict is not with different types of craft, but in the quantity and experience of the many users. The Pine Barrens' rivers receive many canoeists during the spring and summer months, making some of the rivers akin to highways. Many people canoeing have little or no experience canoeing. The type and quantity of use can cause damage to the water body and its adjacent lands. High speeding boats produce wakes, which can cause erosion along the shoreline. Large numbers of boats and canoes traveling in shallow waters (which can frequently be found on weekends in the Pine Barrens) will skim the bottom of the stream, destroying any bottom vegetation; they can also stir up river bottom sand and dirt, which can kill aquatic species. Educating users in proper techniques and operation of the craft, as well as employing common courtesy and respect for the other user, will solve many conflict problems on waterways.

In other cases, only patrol and enforcement will work.

Ways to Minimize Conflicts

Despite these problems, multiple use can be enjoyable and contribute to a high quality trail experience for all types of users on a single trail under proper circumstances. Land managers and users should work together in planning for cooperative use of the land by different trail types. If there is a fairly equal distribution of uses over a long length of trail, the perceived impact of user preemption is lessened. The trail should be wide enough to adequately allow faster users, such as cyclists, pass slower users, such as hikers. Sharp turns and blind turns should be eliminated so that the faster users can anticipate slower movers ahead of them and be able to safely move around them; also users in opposite directions will not be startled or run into other users. This can occur on single use trails as well, not just multiple use trails. To slow down excessive speeding, some design features can be used, including placement of speed bumps, varying the surface grading, which may not be applicable for trails to be used for the wheelchair disabled, and installing bollards or pass-throughs next to gates at road crossings to discourage speeding across roads, which could also cause accidents. On hills, trails should be designed to follow the contour of elevation with as little vertical rise as possible. This will not only reduce erosion but also help prevent downhill speeding, and lessen accidents with other trail users.

Posting signs for proper use of multiple use of trails and trail etiquette is one of the first steps in promoting mutual satisfaction, a high quality trail experience, and user safety. To prevent excessive speeding that can be harmful on single use as well as multiple use trails, signs can be posted to slow down. Some trail jurisdictions across the country have posted signs with speed limits. However, they are only good if everyone has a speedometer, which most people do not have, and limits are enforced. Also, trail yielding signs should be posted, in which cyclists yield to hikers, and both yield to horses. If people take their dogs with them, dogs should be leashed. Passing should always be on the left, just as on highways. In known congested areas, bicyclists may be required to walk their bikes and riders their horses. Although these are common sense solutions, they are frequently not used or

forgotten. Therefore they bear repeating.

Management standards can also be used in combination with any of the above user standards and design techniques. Land managers might consider closing trails or trail sections during sensitive seasons, e.g. times of heavy rainfall or wildlife nesting seasons. In this case, users should be directed to use other trails, appropriate for their use. A volunteer trail patrol can be initiated, which would be able to warn abusers or potential abusers. Less popular access points could be encouraged, for example by closing off parking areas to certain types of users, which would in effect, establish different trailheads. Designating certain parking areas for horsetrainers and other parking areas for mountain bikers and/or hikers will lessen the likelihood of everyone meeting or starting at the same time and place. This would have the effect of staggering the amount of use on different segments of a trail, and reducing wear and tear at trailheads. Managers can alternate the time of use (by time of day, days, weeks) for certain types of use. This can be particularly effective when trails are snow-covered, in having the snowmobiles allowed on trails in the morning, and cross-country skiing in the afternoon. In some cases, bicycle bell give-aways can be instituted. This would be effective on trails with cyclists and hikers, but not necessarily for trails allowing horses, as many horses may become alarmed by the sound of a bell, which is unfamiliar to them. In this case, bikers should speak out their position and intent to pass. This is the recommended approach by the International Mountain Bike Association. In fact, any trail user overtaking and passing another should announce their passing on the left side of the other.

Education of trail etiquette and passing procedures can help resolve many problems. Brochures with this information can be placed at horse tack, bike and sporting goods stores, park offices, schools and libraries. Many user organizations print these types of brochures, or if not available, the printing expenses can be covered by a club. In some cases, horse club members gave clinics to mountain bicyclists on the do's and don'ts of safe trailsharing techniques. Such outreach efforts not only help to reduce accidents and conflicts, it lessens the "we versus them" mentality between different

types of users.

Abandoned railroad rights-of-way are by their original design well-suited to multiple use. The paths remaining after the rails and ties have been removed can provide a suitable width for passing. Turns are gradual curves, which allow for good viewing of what is ahead and what is approaching from the opposite direction. Any encroaching vegetation must be removed for safe passage. Because they are on a relatively level plane, they are not as subject to erosion as trails on any amount of slope. In New Jersey, many of the lines have a compacted cinder base, providing good footing for horses and hikers, and an adequate surface for street bicycles and cross or hybrid bicycles. In situations where a paved path is desired on a line, the rights-of-way are frequently 66 feet in width, allowing for two paths, which can be separated by fencing or vegetation.

Converting single-use trails for multiple use must only be done after careful consideration of the factors of amount of use, surface conditions and topography, potential for erosion, and safety of the users. Often, the single-use trail would have to be greatly changed to adequately provide an enjoyable experience for all trail user types.

Provision of equal opportunities for all kinds of trail users, especially near population concentrations, will go a long way toward solving compatibility problems. More local trails of all kinds also ease the pressure on trail facilities in the more remote areas and ensure that at least some of the state's parks and forests will continue to provide natural surroundings where people can enjoy the peace, beauty, and solitude that so many trail users are seeking.

A recent review of the literature on multiple use was completed for the Federal Highway Administration and the National Recreational Trails Advisory Committee in 1994. That publication, **Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice**, was compiled because of a national concern over multiple use of trails.

METHODS OF LAND PROTECTION FOR TRAILS

There are several strategies that can be applied to protecting land for trail corridors. Depending on the specifics of each situation, the most frequently used methods include fee simple acquisition, easements, and agreements.

should be considered in the decision process to acquire land.

Fee Simple Acquisition

Acquisition of land can be achieved through purchase or donation. This is an effective method of securing land for trail purposes by government and non-profit organizations such as land trusts because of the long-term nature of the protection. However, purchasing land can be expensive and prohibitive in tight fiscal times.

Direct donations to a land managing agency may solve problems of costs associated with purchasing property for trails. In addition to a direct gift of land to a qualified agency, donations can also be achieved by a bequest through a will. The will may include a provision for a life estate in which a donor chooses to maintain use and benefit of the land throughout the lifetime of the family. Whatever the method of donation, there may be tax benefits for the donor in the form of an income tax deduction, or estate or property tax relief.

In conjunction with property transfer, a landowner may elect to place restrictions in the deed for specific purposes. In effect, the owner is placing conditions on future property use to follow the title no matter who owns the land. Enforcing the restrictions may be difficult if the transfer is not to a land managing agency or if a third party is not involved in the monitoring. The market value of a piece of property and tax advantages when selling or donating land may be affected by deed restrictions.

Acquisition of land by a trail managing agency is a way to assure that the land is protected for long term trail use. However, ongoing management and maintenance expenses must be a well planned consideration with any acquisition option. In this regard, support from user groups for purchase and maintenance

Easements

Corridors and adjacent areas of open space that remain in private ownership may also be protected for trail use through easements. An easement is created by an agreement in which a landowner restricts certain land uses and another party who accepts and holds the easement, enforces its terms. This method applies to a variety of situations and allows a landowner to protect land while still retaining ownership. If the land on which there is an easement is sold, the restriction would pass to the new landowner, thereby ensuring ongoing protection. Granting an easement can be accomplished by sale or donation.

A conservation easement may protect land for its natural resources or open space values, which include public recreation. Like acquisition, it is another long-term device in securing lands for trails. Granting a conservation easement may have income, property and estate tax benefits. Estate and property taxes may be reduced because development restrictions could decrease the assessed value of the property. In addition, an easement donation to a government or non-profit organization may qualify for an income tax deduction. Conservation easements have been utilized by the state for sections of properties along the Appalachian Trail. An organization, which holds an easement, is responsible for monitoring and enforcing its provisions. Since an easement follows the transfer of property with the title, it becomes more likely that the terms of the easement can be overlooked the further in time the property passes from the original grantor. An ongoing relationship with the property owner and regular monitoring can help prevent violations and subsequent costly enforcement actions.

In the New Jersey statutes, an easement is the same as a conservation restriction, which includes a right, covenant or condition in a deed (N.J.S.A. 13:8B-1 et seq., P.L. 1979, c. 378). It may be acquired and enforced by the New Jersey Department of Environmental Protection (NJDEP), a local government entity or by a non-profit land trust/conservancy. The holder of the conservation restriction is also entitled to inspect the land to assure compliance with the provisions of the easement. A listing of land trusts active in New Jersey is included in

Appendix 4.

Agreements

A formal agreement may be used for trail management. It is a cooperative contract between at least two parties in which one agrees to manage or perform services on the property of another. An agreement is used to plan, manage and protect trails that cross political boundaries. For example, a Memorandum of Agreement has been signed by the National Park Service, New Jersey Department of Environmental Protection, New Jersey Department of Transportation, New York/New Jersey Trail Conference and the Appalachian Trail Conference, whereby the state has agreed to manage the section of the Appalachian Trail, which passes through New Jersey. This type of agreement fosters coordination and cooperation among user groups and government agencies so that limited financial resources can be used efficiently.

FUNDING SOURCES FOR TRAILS

Once a public agency has decided on developing a new trail, the need then arises for funding the planning of the route, acquisition of land for the trail, development of the path and its facilities and landscaping, maintenance to assure a high quality of trail surface and user safety, and patrolling to protect trail users and prevent illegal uses and abuse of surrounding properties. Maintenance of existing trails has become a major problem throughout the state for all public trails, due to increased use of trails by the public, and simultaneously, decreased numbers of staff to perform the maintenance required. In the past, funding came largely from state or local appropriations for parks, and trails were just one segment of the park. As appropriations continue to dwindle, other sources must be sought out and creative new sources explored. Various funding sources can be combined to enhance the trail opportunities. In some cases this is required when matching funds are obtained from grant programs. Some federal and state programs may not offer funding directly, but may provide a justification for funding from another agency. For example, designation of a trail as a national recreation trail can be used as a justification for receiving federal funding from the Land and Water Conservation Fund.

Federal Government Sources

The primary federal source of trails funding used by states has been, in the past, the Land and Water Conservation Fund. This fund is administered at the federal level by the National Park Service with a yearly appropriation determined by Congress. The program is administered at the state level by the Green Acres Administration. A requirement for receiving Land and Water Funding is the preparation of a State Comprehensive Outdoor Recreation Plan. To qualify for funding a project must meet the state's overall plan. New Jersey has used these funds to acquire land for the Appalachian Trail in Sussex County, Hunterdon County used funds for acquiring land for its

South Branch Linear Park, and Morris County used these funds to acquire land for Patriots' Path. However, the amount of this funding source has been decreased recently by Congress and the President.

In December 1991, Congress passed and the President signed into law the federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). This act set precedents in providing transportation funding for trails that did not necessarily have to be part of a transportation network. Provisions for bicycle and pedestrian planning, and enhancement funding have the most impact on trails. Transportation enhancements include bicycle and pedestrian facilities and the protection of abandoned railroad rights-of-way as trails. It has funded trail projects that have identifiable starting and ending points, which have a transportational and not strictly recreational use. This could be a major source of funding for the acquisition and development of lines in New Jersey. Funds are available on an 80% basis, with states to provide the other 20%. ISTEA is administered by the Federal Highway Administration, through the New Jersey Department of Transportation.

The Symms National Recreation Trails Trust Fund established funding for both motorized and non-motorized trails from the gas tax on off-road motor vehicles. This is the first federal act to establish a funding source exclusively for trails and that is available for acquisition, development and maintenance. To qualify for funding, states must, within three years of the date of enactment, establish an advisory committee and initiate a separate trust fund from state taxes on gasoline for off-road vehicles. Funding was only awarded to states for the 1993 fiscal year, the only year out of the five years the act was in effect. With only \$7.5 million appropriated nationwide, New Jersey's share was approximately \$124,000. Projects were recommended by the New Jersey Trails Council, the advisory committee to the DEP on trails. Other parts of the act address trail issues as well.

The National Park Service provides technical assistance for planning and management of trails through its Rivers and Trails Conservation Assistance Program. Staff or funds can be used by state agencies, local agencies, and private groups to develop plans for a trail route, its development and management, public workshops, and public information such as brochures and maps. Application is made to the regional office, which for New Jersey is located in Boston, Massachusetts.

Other federal programs can be used to provide funds for trail planning, acquisition, or development; however, they too are subject to annual appropriations. They include: Community Development Block Grants, Entitlement Program - U.S. Department of Housing and Urban Development; Economic Development, Grants for Public Works and Development - U.S. Department of Commerce, Economic Development Administration; and Urban Park and Recreation Recovery (UPARR) Program - U.S. Department of Interior, National Park Service.

For local governments, federal funding for trails can come from Community Development Block Grants, administered by the Department of Housing and Urban Development. Proceeds from block grants may be used to establish parks and neighborhood centers, of which trails are eligible funding items.

Special legislation approved by Congress has been used for the Pinelands National Reserve to acquire lands for a wide variety of uses, from natural resource protection to passive recreation. Section 502 of the National Parks and Recreation Act of 1978 authorized over \$20 million for land acquisition in the Pinelands National Reserve. Most of the land acquired with these funds does not have marked trails, such as in Wharton State Forest; however, hiking and other trail uses are permitted.

State Government Sources

New Jersey's Green Acres Program has been a mainstay in funding open space preservation since 1961. Through several bond funds, approved by voter referendums, the Green

Acres Program has funded a wide variety of outdoor recreational projects, including trails. Funds have been used at the state, county and municipal level for acquisition and development. Green Acres funds are being used to acquire connector parcels for the Batona Trail in Burlington County. These acquisitions will put all of the trail on public land. Green Acres funding along with federal funding was used to acquire the Bel Del Railroad Right-of-Way next to the Delaware and Raritan Canal State Park in Hunterdon and Mercer counties.

General revenue funds approved by the state legislature have been the primary source of funding for trail and trail facility planning, development and maintenance on state lands. The funding to pay the cost of supplies for building bridges, parking lots, information boards, equipment used throughout a park to construct facilities, and labor costs for the State Park Service has come directly from appropriations approved in annual budgets. Because these funds are approved annually, the amount of funding available changes from year to year. In recent years, there have been no capital monies available for trail maintenance or other park improvements. At the same time, maintenance staffs have decreased. Consequently, much funding for parks has been used to repair or upgrade other facilities, particularly those involving health and sanitation, and trail development and maintenance have not been performed as often as needed. Therefore, this source of funding can only be relied upon for emergencies or for the purchase of supplies and equipment.

The New Jersey Youth Corps, administered by the New Jersey Department of Education, provides work crews at a reduced cost for community service projects. Corps members work in crews of five to ten members on trail-related projects such as landscaping, trail construction, and public park beautification.

Another limited source of state funding for trails on private property is the Open Lands Management Program. This program provides funding for passive recreational facilities, including hiking, horseback riding, picnicking, nature observation and primitive camping, among others. Funding can be used to link a

trail on private property with a larger network of trails on public land. The program is administered by the Division of Parks and Forestry and is funded by an annual appropriation.

Local Funding Sources

A county board of freeholders can approve appropriations for trail use. Morris County has expended its own funds, either alone or in combination with state and federal grants in purchasing land for and developing Patriots' Path. Some counties have also developed their own taxing mechanism for funding the acquisition and/or development of open space. For example, Atlantic County has recently begun a property tax surcharge in which the funds are used for open space acquisition. Other counties using open space taxes to purchase land include Morris, Monmouth, Somerset, and most recently, Gloucester.

Other Sources of Funding

User fees can also be used to fund trails. Fees can be targeted to specific areas or trails or they can be assessed to specific user groups. Wisconsin offers trail passes for either one day or one year. In New Jersey, the Division of Fish, Game and Wildlife charges an annual fee to horseback riders wishing to ride on designated trails or within unmarked trail areas in selected wildlife management areas throughout the state. Fees can be used to offset the costs of facility development and trail maintenance. In New Jersey, fees assessed for trail use, particularly for corridors not located within a larger park, may not always be appropriate because of the great number of road crossings and access points. Fees have been most successful along rural and regional trails, rather than trails used by local residents. The advantage to fees is that the people who use trails are the ones who pay for their maintenance. Private concessionaires can also maintain trails for a specific purpose. For example, groomed cross-country ski trails with either natural or man-made snow can be maintained throughout the winter months using

the fees charged for their use.

Another alternative for trail funding used for other recreational activities is an equipment and supply tax. This could, for example, be a surcharge on the purchase of hiking boots, bicycles, or canoe rentals.

Private donations of land, equipment and labor have always occurred, but solicitations to the general public and corporations have increased with less public funding available. Volunteers of clubs, organizations and businesses have been major contributors as volunteers for cleanups along trails and rivers, and for trail maintenance and construction. The most active groups working on trails within New Jersey have been the New York-New Jersey Trail Conference, which develops, monitors and maintains trails in northern New Jersey and the Batona Hiking Club, which has assumed management and maintenance responsibilities for the Batona Trail in the Pine Barrens of southern New Jersey. Cooperative efforts with nonprofit organizations can be used where nonprofits can match public funding with foundation grants that are not available to public agencies.

Although no formal "Adopt-a-Trail" currently exists within the state parks, programs have recently been initiated in Monmouth and Morris Counties. Trails can benefit from an adopt-a-trail program with clubs, organizations and businesses providing maintenance, development, interpretation of the resources found along a pathway, and in some cases emergency response for injured trail users. The State Park Service can expand its Volunteer in Parks (VIP) Program to trails as well. Through this program, individuals apply to the State Park Service to conduct various tasks. Functions can include interpretation, public information, maintenance, gardening, crafts, and camp host program. For trails, interpretation of natural and cultural features, developing public information, and maintenance of a trail surface can be applied under the program. With proper supervision, community service workers can sometimes be used for trail development. Some states have also used the National Guard to do construction projects.