

## Operations

The operation of a trail consists of the day-to-day management of trail use. These tasks includes law enforcement, marketing, special events, fee collection, map and brochure updates, and other functional considerations. The specific policies regarding the operation of a trail, such as permitted uses and user cost (if any), will most likely be decided in advance of trail construction. After construction, a large part of trail operation consists of the day-to-day execution of those policies.

## Maintenance

The maintenance of a trail includes the various activities involved in keeping the trail in a safe, usable condition. This includes numerous efforts ranging from mowing and brush removal to replacement of damaged signs or benches to reconstruction of the trail. Lifetime trail maintenance will place ongoing costs on the operating agency, and this should be considered during the trail planning and funding process.

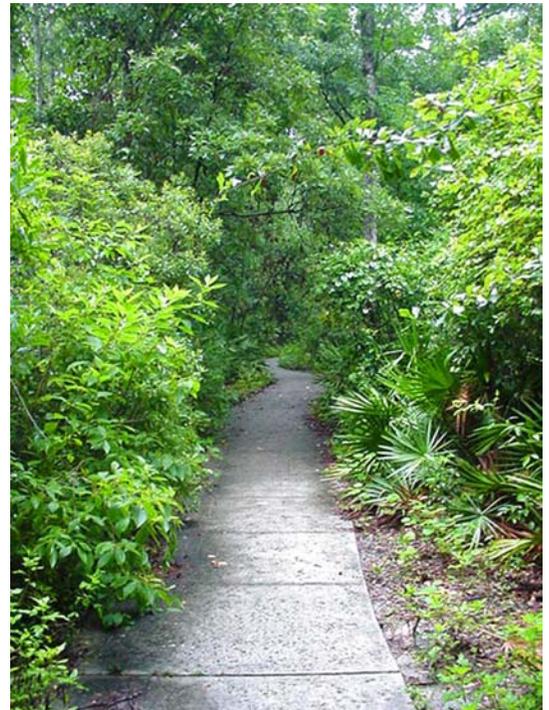
Before a trail or greenway opens, the implementing group should set forth a policy document outlining specific rules pertaining to the greenway. The Operations and Maintenance Policy may cover a wide range of issues. The following items should be major considerations in the policy:

Permitted uses on the trail - Conflicts between different trail users can be minimized through proper trail design and trail user education. By defining the particular uses allowed in certain parts of the system and user education on the matter conflicts will be minimized.

Issues related to crossings of the trail - This may apply to agricultural accesses, new residential driveways, connections to easements and linkages to the trail. It should be determined whether new crossings will be allowed, whether a permitting process will exist, who maintains such crossings, and who assumes responsibility or liability associated with such crossings.

Public outreach – The public can be involved through the development of brochures, events, volunteer demonstration projects, clean-ups, etc.

Volunteer opportunities -The use of volunteer citizen groups will be strongly encouraged for a variety of activities. This includes; trail construction and maintenance, trash and litter control, exotic vegetation removal, safety patrols, and educational outreach. They can work with the municipalities and other stakeholders to promote collaborative management of the greenway and blueway systems and make



development decisions. By implementing this type of organized volunteer program it will allow people, organizations and business to get involved with implementation and up-keep of the greenway/blueway trails. Individuals, community organizations, civic groups, corporations and businesses are a good source of volunteers for trail development and maintenance. A few examples of volunteer opportunities that could be pursued are as follows:

- Civic groups, youth organizations, or businesses might want to adopt a section of trail and assume responsibility for litter patrol and light maintenance.
- Youth corps can provide assistance either free of charge or at significantly reduced costs and can support a variety of labor-intensive projects including trail construction, streambank restoration, habitat improvement, and tree planting.
- Volunteer business work parties could help build, install and maintain signs and benches (according to standard design – haphazard development should not be allowed).
- Prison crews and juvenile and adult offenders required to perform community service are another potential source of assistance at significantly reduced costs. This can be a win/win situation because many social workers believe that positive work experiences involving conservation and recreation projects play an important role in juvenile rehabilitation programs.
- Schools and historical societies could help create and manage web pages, interpretive materials, curriculum guide, etc.
- High school and college students seeking recreation or conservation internships could be recruited to provide a somewhat longer-term commitment.
- Law enforcement agencies could train volunteer ‘trail stewards’ to serve as their eyes and ears while assisting in educating the public about rules and policies.

Cooperative maintenance agreements - In some cases, trail owners may wish to explore the possibility of partnering with other government entities or private organizations in the operation and maintenance of a trail. Any operations or maintenance agreements should be articulated in the operations and maintenance policy.

Evaluation of trail condition - Every trail should be evaluated on a regular schedule to identify the need for major and minor repairs. The operations and maintenance policy should delineate how often trail evaluations take place, preferably once per year.

Encroachment - Some local agencies may take ownership of a corridor that is being encroached upon by adjacent landowners. This is particularly true of railroad corridors bounded by agricultural uses. The implementing agency should set forth definitive policies relating to existing and future encroachments.

Liability – Liability issues are addressed in the 2000 Florida State Statutes Chapter 260 which generally state, “Any private landowner who consents to designation of his or her land as part of the statewide system of greenways and trails pursuant to s 260.016(2)(d) without compensation shall be considered a volunteer, as defined in s 110.501, and shall be covered by state liability protection pursuant to s 768.28

including s 768.28 (9)". For further information on liability issues, see **Appendix B** included in this document. As a safety measure the public operating agency should fully understand the liability associated with the trail and verify that insurance is adequate. By creating an undeveloped buffer of land between trails and private property St Johns County can minimize liability concerns. Designating private property buffers can be utilized as a tool to help keep trail users off of private land. This can be done through the use of signage, vegetative screening, or fencing.

The following are techniques that can be employed to limit liability issues:

- Limit trails to non-motorized use only.
- Implementation of a volunteer 'trail steward' program.
- Education about private property rights including signs, brochures, and outreach.
- Keeping the lines of communication open between managers and adjacent landowners
- Establish a private property buffer zone
- Notify all adjacent landowners of any development plans or changes in policy.

Law Enforcement -Law enforcement within the greenway and blueway systems should be dealt with in the same manner as on any other public or private lands in the county. One way to expand law enforcement along newly designated portions of trails would be to establish a volunteer 'trail stewards' program. These volunteers can monitor the trails and work in conjunction with local, county and state law enforcement agencies. People who recreate along greenway and blueway trails generally inspire a peaceful, safe, and attractive environment.

In conjunction with the design and construction of the trail system, it is also recommended that the county should develop a maintenance manual outlining specific tasks that need to be performed for the trail operation and maintenance. The manual should be updated annually and should be used as a guide to administer the trail as an on-going process. The trail maintenance manual should address the uniqueness of each route relative to its particular surfacing, signage, railings, trash removal, tree and shrub pruning, mowing of vegetation and edging, drainage control and re-vegetation needs. Several of the issues that need to be addressed on a scheduled or as-needed basis include the following:

*Performed on a Scheduled Basis*

**Trail user safety.** Safety is essential to all maintenance operations and is the single most important trail maintenance concern. Items for consideration include scheduling and documentation of inspections, the condition of railings, bridges and trail surfaces, proper and adequate signage, removal of debris, and coordination with others who may be associated with trail maintenance.

**Trail inspection.** Trail inspections are also an integral task to all trail maintenance operations. Inspections should occur on a regularly scheduled basis, the frequency of which will depend on the amount of trail use, location, age, and the type of construction. It is recommended that all trail inspections be documented.

**Trail sweeping.** Trail sweeping is one of the most important aspects of trail maintenance, helping ensure trail user safety. The type of sweeping to be performed depends on trail design and location. Sweeping should be performed on a regular schedule.

**Trash removal.** Trash removal from trail corridors is important from both a safety and an aesthetic viewpoint and includes the removal of ground debris and emptying of trash containers. Trash removal should take place on a regularly scheduled basis, the frequency of which will depend on trail use and location.

**Tree and shrub pruning.** Tree and shrub pruning should be performed for the safety of trail users. Pruning should be performed to established specifications on a scheduled and as-needed basis.

**Mowing of vegetation.** Trail maintenance personnel should mow vegetation along trail corridors on a scheduled basis.

**Scheduling maintenance tasks.** Inspections, maintenance and repair of trail-related concerns should be regularly scheduled. Inspection and repair priorities should be dictated by trail use, location, and design. Scheduling maintenance tasks is a key item towards the goal of consistently clean and safe trails.

*Performed on an As-Needed Basis*

**Trail Repair.** Repair of asphalt or concrete trails should be closely tied to the inspection schedule. Setting priorities for repairs is part of the process. The time between observation and repair of a trail will depend on whether the needed repair is deemed a hazard, to what degree the needed repair will affect the safety of the trail user, and whether the needed repair can be performed by the trail maintenance crew or if it is so extensive that it needs to be repaired by contracted services.

**Trail Replacement.** The decision to replace a trail and the type of replacement depends on many factors. These factors include the age of the trail and the money available for replacement. Replacement involves a new crushed limestone surface, completely overlaying a crushed limestone or asphalt trail with a new asphalt surface, or replacement of an asphalt trail with a concrete trail.



**Weed Control.** Weed control along trails can be limited to areas in which certain weeds create a hazard to users. Environmentally safe weed removal methods should be used, especially along waterways.

**Trail Edging.** Trail edging maintains trail width and improves drainage. Problem areas include trail edges where berms tend to build up and where uphill slopes erode onto the trails. Removal

of this material will allow proper draining of the trail surface, allow the flowing action of the water to clean the trail and limit standing water on trail surfaces.

**Trail Drainage Control.** In places where low spots on the trail catch water, trail surfaces should be raised, or drains built, to carry water away. Some trail drainage control can be achieved through the proper edging of trails. If trail drainage is corrected near steep slopes, the possibility of erosion must be considered.

**Trail Signage.** Trail signs fall into two categories: safety and information. Trail users should be informed of their location, where they are going, and how to safely use trails. Signs related to safety are most important, thus they should receive the highest priority. Information signage can enhance the trail users experience. A system of trail information signage should also be a high priority.

**Re-vegetation.** Areas adjacent to trails that have been disturbed for any reason should be re-vegetated to minimize erosion.

**Habitat Enhancement and Control.** Habitat enhancement is achieved by planting vegetation along trails - mainly trees and shrubs. This can improve the aesthetics of the trail, help prevent erosion and provide habitat for wildlife. Habitat control also involves mitigation of damage caused by wildlife.

## Maintenance Costs

Maintenance costs will vary greatly depending on the type of trail, amount of volunteer labor use, available services, and geographic location of the trail. These costs, however, must be considered during the trail planning process, to ensure that trail owners can pay for the ongoing maintenance of the trails they develop. Maintenance costs are rarely broken down into specific tasks such as those above. Most trails will be maintained by an existing agency, such as a local or state park, public works, or maintenance department. Estimated costs, therefore, are broken down by the type of maintenance performed. Maintenance can be viewed as three different types:

- *Routine maintenance* includes all the general activities stated earlier -- such as brush clearing, trash collection, and sweeping — that may take place on a regular basis throughout a season.
- *Minor Repairs* refer to activities that can be expected every five years or so, such as amenity replacement, trail seal-coating, repainting, or restriping.
- *Major Reconstruction* refers to significant expenditures involving resurfacing or reconstruction. These activities are the most costly trail maintenance activities and should be planned for in advance.

### *Routine Maintenance*

An existing agency or a volunteer group should perform most of the routine maintenance procedures of a trail facility. Local trail owners should be well equipped to include trail

maintenance into their parks or public works maintenance budgets and activities. Activities that should be considered as routine maintenance include:

- Yearly facility evaluation to determine the need for minor repairs
- Tree/brush clearing
- Mowing
- Map/signage updates
- Trash removal/litter clean-up
- Repair flood damage: silt clean-up, culvert clean-out, etc.
- Patching, minor regrading, or concrete panel replacement
- Planting, pruning, and general beautification
- Installation and removal of seasonal signage

The yearly cost for routine maintenance depends on the maintenance capabilities already in place and the amount of volunteer labor used. In general, yearly routine maintenance costs can be estimated at \$1,500 per mile for performing the tasks described above. This figure will vary depending on the location of the trail, materials used and intensity of its use.

### *Minor Repairs*

The need for minor repairs should be determined by a yearly facility evaluation (see routine maintenance above). Minor repairs may include the following activities:

- Replacement, repair, or repainting of trail support amenities, such as restrooms, signage, benches, trash receptacles, or hitching posts
- Replacement of a portion of the trail
- Restriping of trails
- Sealcoating of asphalt trails

The cost for replacement, repair, or repainting of trail amenities is based on the initial cost of those amenities. Trail operators should maintain records of the general costs of trail amenities as a means of estimating future repair and replacement costs. If custom elements, such as lighting, decorative railings, or benches, are used in trail design, the trail owner should consider ordering extra elements at the time of construction and storing them for future use, thereby defraying the cost of single-runs later.

Replacement of a portion of a trail may be necessary if severe flooding, continual erosion, or weak soils cause periodic difficulties with trail maintenance.

Restriping of trails will cost the same as the original striping. The trail owner should keep a record of the original bid to determine the price of restriping a trail using contracted labor. In many cases, it is cost effective to perform restriping along with other trail or highway maintenance. In such instances, the trail owner itself will be the best source of costing information.

Sealcoating of asphalt trails should take place approximately every five years. This will increase the longevity of the trail and provide a quality riding surface. When performed, sealcoating will cost approximately \$3,500 per mile for a 6-foot pedestrian trail and approximately \$5,800 per mile for a 10-foot multi-use trail. A periodic cost such as this should be included in the trail owner's Capital Improvement Program, in order to ensure that adequate funding is available.

### *Major Reconstruction*

There are essentially two activities that are considered to be major reconstructions:

- Resurfacing of asphalt trails
- Complete replacement, regrading, and resurfacing of all trails

Asphalt trails will need to be resurfaced approximately every 10 years, depending on how well they have been maintained. A resurfacing typically involves placing an asphalt overlay on an existing asphalt surface in order to erase cracks and bumps. It is not a perfect solution, as weak underlying soils or tree root penetration will eventually affect this top layer, but it does offer a lower cost means of extending a trail's life. Asphalt surfacing costs approximately \$1 per square foot for a 4-inch depth. Asphalt overlays should have a depth of 1 to 2 inches. The table below offers some sample costs for asphalt resurfacing.

Trail Type	1-inch overlay	2-inch overlay
6-foot pedestrian trail	\$7,920 per mile	\$15,840 per mile
10-foot multi-use trail	\$13,200 per mile	\$26,400 per mile

Complete replacement of a trail involves removing the existing trail, regrading the trail base, and resurfacing the facility. This kind of comprehensive maintenance will be necessary approximately every 20 years, regardless of trail type. Even natural surface trails may need to be fully regraded after 20 years of use. Trail costs for reconstructions are the same as the cost of a new trail plus the cost of demolishing the existing trail. As with any major trail project, however, a detailed cost estimate should be performed during the project planning stages. The best guide for estimating the replacement cost of a trail is to consider the original construction cost.

A major cost such as trail replacement should be considered well in advance. It may be more difficult to secure large state or federal grants for trail reconstruction. Therefore, a trail owner should consider the eventual cost of trail replacement and work to "save up" for that significant maintenance activity.

## Management

In most cases, the agency or group that constructed the trail will have primary responsibility for its operation and maintenance. Because the trail system will be viewed as an important resource to the citizens, county and state, the groups should coordinate as much as possible in order to maintain the quality of the overall system. Potential partners in maintaining the county's trail system and the responsibilities and roles they should incur as part of the management component of the plan are listed below:

- Local communities are the primary operating agents of the trails they implement. They remain close to the trail, both physically and functionally, and are best equipped to market, improve, maintain, and evaluate the trail. They also typically have full ownership of the trail and access to local police, fire, and public works departments, thereby allowing easy policing and maintenance of the trail. Trail owners should provide annual funding for the basic maintenance needs of their trails.
- Local non-profit or private organizations may implement trails through partnerships with local communities. When this is the case, such groups may also take a role in the operation and maintenance of trails. In addition, these groups may be a source of volunteers for trail maintenance.
- The Division of Planning and the Division of Recreation & Parks may offer guidance and expertise on trail operation and maintenance.
- Florida Department of Transportation (FDOT) should be involved in the operation and maintenance of trails constructed within FDOT along highway rights-of-ways and/or future roadway corridors.
- The St. Johns River Water Management District (SJRWMD) maintains, operates and improves several miles of trails within its recreation and conservation areas. The SJRWMD should work with the local communities to create, operate and maintain trail links from their areas.

## Safety and Liability Issues

**Safety.** The owner of a greenway, whether a public or private owner, must provide a safe facility for those who use it. The publication titled, *Greenways: A Guide to Planning, Design, and Development*, provides minimum standards for the design and development of greenway facilities and identifies the basic components of a risk management program. These components include:

- 1) *Identification* – identifying potential risk through regular inspections and noting where hazardous situations may occur, the type of hazard, and the most likely user group;
- 2) *Evaluation* – evaluating the risk to determine the likelihood of an accident due to the age of the facility, amount of use, or poor design;
- 3) *Treatment* – treating the risk or notifying the user. Treating the risk can entail prohibiting the use of the area or reducing or eliminating the risk through repair, redesign, increased maintenance, or lowering the intensity of use. Notifying the user can be accomplished by posting signs which

notify the user of the problem, or obtaining waivers from greenways users. Implementation of such risk management program minimizes safety problems.

One of the objectives of the St. Johns County's Park and Recreation Department is minimizing safety problems through risk identification, evaluation, and treatment. A County program to develop greenways will need to include this same commitment to safety.

**Liability.** Of Concern to local government and private landowners who wish to provide public access to greenways for recreational pursuits is the liability of the landowner for an injury or death sustained while using the greenway. Understanding the extent to which the landowner is liable is important to a discussion of safety and liability issues, particularly to private landowners interested in providing access to greenway users.

The Florida Legislature has waived, by statute, sovereign immunity for the state and its political subdivisions (which include the counties). The waiver applies to claims that arise in connection with personal injury, injury or loss of property, or death, caused by the wrongful act or omission of an employee who is acting within the scope of his office or employment. The waiver only applies to situations where the County, if it were a private person, could be held liable for the injury.

Generally, the determination of whether the County or private person can be held liable for negligence turns on whether there is a "duty of care" owed to the injured party. There are two main considerations in determining whether a duty of care exists:

1. The legal status of the greenway user, and
2. Whether the County's act or omission is one for which liability can legally attach.

As to the legal status of the greenway user, most users will be classified as invitees or invited licensees, which receive a highest duty of care. The landowner's duty to such persons is to keep the property reasonably safe, and to protect the visitor from dangers of which the landowner is, or should be, aware.

### *County's Liability*

As to whether the act or omission on the part of the County is one for which liability can attach, the courts have separated government functions into two categories:

1. Planning or policy-making functions, and
2. Operational functions.

There is no duty of care associated with planning and policy-making functions, and hence no liability. Examples of these functions include the decisions of the Board of County Commissioners to adopt or not adopt an ordinance, or the decision to build and operate a recreational facility such as a greenway. Once a government decides to build a park or greenway, it enters into the operational arena and assumes a duty to:

1. Properly construct the improvements;
2. Maintain the land and improvements in a reasonable safe condition; and
3. Warn of or correct any known dangerous conditions.

Past cases provide specific examples of the standard of care to which counties have been held to by the Florida courts. Those cases touch upon the concepts of unforeseeable and causation, which are often the key issues in personal injury litigation. If an accident is completely unforeseeable based on a standard of

reasonableness, or if the County's act or omission did not cause or contribute to the injury, then a finding of negligence would be improper. Such determinations are fact specific.

#### *Private Landowners Liability*

As to the liability of private landowners who donate the use of their land for greenway purposes, the Florida Legislature has adopted Sec. 375.251, F.S., which limits liability. The purpose of the act is to encourage citizens to make land, water areas, and park areas available to the public for outdoor recreational use by limiting their liability to people going on the property and to third persons who may be damaged by the acts of people going on the property.

The protection extends to situations where the private owner has leased the recreational property to the government. However, the liability protection does not apply if admission is charged, or any other profit-making activity is conducted on the property, or if the owner deliberately, willfully, or maliciously causes the injury. The courts have declared that this statute is not intended to and does not protect the state or its political subdivisions from liability.