

# MAINTENANCE OF NETWORK

## OVERVIEW

Maintenance is critical to the success of any greenway system. Maintenance refers to the specific tasks and programs performed to keep facilities functional, operational, and safe, including trail surface material, pavement stabilization, landscape and vegetation management, sign replacement, facility upkeep, and litter removal. Routine maintenance improves the safety of greenways and trails, prolongs the life of the facilities, and makes the system more appealing to the public. Effective maintenance requires high levels of community involvement in order to ensure that this public resource serves the community for many years to come. In most cases each municipality will be responsible for the maintenance and upkeep of each greenway and trail within their jurisdiction. However, in instances where a municipality lacks sufficient resources to perform maintenance, it will be necessary to develop innovative arrangements, such as entering into partnerships with neighboring municipalities and/or community-based organizations

As this greenway system will become infrastructure like streets and utilities are, it is important to set a few guiding principles to assure the preservation of a functioning trail system:

- Good maintenance begins with good design
- Maintain the trails to protect public safety, property, and the environment
- Promote quality, sustainable outdoor recreation and active transportation
- Develop a maintenance plan with policies, standards, and goals that is easily updated
- Maintain quality control and conduct regular inspections of the trails
- Include maintenance crews, as well as emergency response personnel, in the design and management processes
- Promote public participation and feedback
- Be a good neighbor
- Operate a cost-efficient program and identify sustainable funding sources

## ROUTINE OPERATIONS

Safety is central to the success and longevity of the greenways system and should continuously be considered through systematic risk management. The following guidelines provide a good framework for ensuring a safe greenways system:

- Regularly scheduled and documented inspections are a core preventative measure. Inspections can determine the amount of use and condition of bridges, trail surfaces, striping, signage, amenities etc. It also is needed in order to identify and remove any obstacles or objects impeding safe use, such as debris, erosion, or vandalism.
- Implement a database management system for tracking specific locations and details of any reported cases of crime, such as vandalism. A follow-up task force may be created to address any problems if needed.
- Work with local law enforcement and emergency response personnel to implement an emergency response protocol that includes up-to-date mapping of trail access points and mile markers to identify locations of off-road facilities. Emergency 911 phones should be installed in areas where needed and appropriate.

Basic maintenance operations are the day-to-day tasks required throughout the year to maintain aesthetic and functionality standards. They can be broken down into the following three categories:

- Sweeping and removing of trash/debris/graffiti should be conducted periodically throughout the month on all trails. Areas of high use should be given priority over less used areas of the trail system. Programs similar to the “Adopt-a-Trail” program should be utilized to have volunteers help with these operations.
- Vegetation Management is important in keeping up the aesthetic quality of the trail system, as well as improving the users’ sense of safety. Generally, plants should be allowed to grow naturally, until they interfere with safety, visibility and function. Under-story vegetation within the varied trail right-of-way should not be allowed to grow more than 36 inches (3 feet). Tree and shrub branches should be periodically pruned to maintain a minimum vertical clearance of 10 feet. Invasive species should be identified and controlled as needed during regularly scheduled inspections. Fences should be installed around sensitive or newly planted vegetation. State-approved herbicide should also be used when needed to address any issues with invasive species or encroaching vegetation along trails.
- Signage should be replaced as-needed throughout the trail system.

Remedial maintenance operations include repairing significant defects in the trail system, as well as repairing major components that have been destroyed or damaged. All facilities will need to be repaired at some point during their useful life. The degree of the damage and the risk the damage poses will determine how urgent the repairs and/or replacements are. In most cases, in-house maintenance crews will conduct these operations. However, if the damage is too significant and outside the capabilities of these crews, outside entities will conduct the repairs. When possible, repairs will be done in conjunction with other adjacent projects, such as street repaving. Some of these remedial maintenance operations include the following:

- Replenish gravel, mulch, or other surface cover
- Repaint or restripe
- Repave, seal, and spot fix asphalt and concrete
- Replace asphalt or concrete
- Regrade trails to eliminate drainage issues
- Install culverts, pipes, bridges, boardwalks, and retaining walls to prevent or eliminate drainage and erosion issues
- Removal of mud, dirt and debris along creek based routes after flooding or peak storms.
- Reroute trails when necessary to address any environmental or safety issues

Seasonal maintenance operations should be performed as needed. Heavy leaf and debris removal and ice control/removal are especially important. If conditions do not allow for the safe use of the trails (i.e. ice storms, tornadoes, etc.), facilities should be temporarily closed to prevent injury.

## JURISDICTIONAL RESPONSIBILITIES

In most cases, each municipality will be responsible for the maintenance and repair of facilities in their jurisdiction. Some facilities will have overlap where a greenway or trail may meander in and out of a municipality. Inter-municipality agreements can occur in such cases to clarify who is responsible for maintenance.

Ultimately, it would be prudent to establish a central office with a database that includes mapping for maintenance operations, problem areas for repair, accessibility for emergency vehicles and plans for expansion of the Bike-Ped Network. The GIS mapping included in this master plan can serve as the foundation for such a data base.

## MAINTENANCE COSTS

Annual maintenance costs will vary, depending on the type of facility, level of use, and location, as well as outside factors such as water availability/costs and labor rates. Estimated costs include field labor, materials, equipment, and administrative costs. The following list shows some basic routine operations, their frequency, and their estimated costs per mile for greenways.

### ESTIMATED MAINTENANCE COSTS

| Maintenance                | Frequency (per year) | Estimated Cost (per year) |
|----------------------------|----------------------|---------------------------|
| Drainage Maintenance       | 4 times              | \$750                     |
| Sweeping/Blowing Trails    | 20 times             | \$1,500                   |
| Pick Up & Trash Removal    | 20 times             | \$1,500                   |
| Weed Control               | 10 times             | \$1,250                   |
| Mowing -3 foot safe zone   | 20 times             | \$1,800                   |
| Minor Repairs              | Annual               | \$1,200                   |
| Maintenance and Supplies   | Annual               | \$500                     |
| Equipment fuel and repairs | Annual               | \$1,000                   |

### NATURAL SURFACE GREENWAYS

Volunteers should be used, if possible, to provide most of the manual labor involved in maintenance of natural surface greenways. Regional numbers estimate the annual cost of maintenance for these trails to be plus or minus \$1,000 per mile. Remedial work on natural surface trails is assumed to be negligible.

### SHARED-USE GREENWAYS

Annual routine maintenance costs for shared-use greenways vary greatly, ranging from less than \$3,000 to over \$7,000 per mile. Volunteers should be utilized as much as possible in these efforts, but at least one full-time employee per 15 miles of trail should be hired to provide reliable maintenance of the greenway trail system. Asphalt and crushed fine stone trails are assumed to require additional overlay after 10 to 12 years. A complete resurfacing is anticipated after 20-25 years; 50 years for concrete surfaces. Most bridges, tunnels, and other retaining walls are assumed to have a lifespan of over 100 years.

### STREET-BASED FACILITIES

Each involved municipality, Jefferson County, and the Alabama Department of Transportation will be responsible for the routine maintenance of the street-based bicycle and pedestrian facilities. Sidewalks constructed with concrete will require replacement every 50 to 75 years. Asphalt repaving and curb repair will be completed when other roadway pavement is improved, or as needed. Repainting pavement markings for bike lanes and sharrows will also be completed in conjunction with other roadway improvements.