

Section IV-Trail Maintenance

Trail maintenance is essential to assuring the safety of the trail user as well as extending the useful life of the trail. The Park Authority maintains planned trails that are either developed or accepted by the Park Authority - these trails are inventoried and entered into the maintenance management system database for accountability by the Park Authority. As new trails are planned and developed, Park Authority staff work internally to define trail additions, trail types and linear feet of trail to be added to the inventory database.

Trail maintenance is dependant upon a variety of development and use factors. Therefore, it is essential that each trail be identified by its type and that a trail classification system is in place to direct the maintenance program.

Trail Types

Trails are classified primarily in two ways, those with multiple uses and those with special uses:

Multiple Use Trails

Asphalt
Gravel/Stonedust
Concrete
Wood Chip/Mulch
Natural

Special Use Trails

Boardwalks
Mountain Bike Trails

A third category: Unofficial Trails, is discussed at the end of this section.

Asphalt Trails

Asphalt trails are the most prevalent type of trail in the park system. They provide the largest number of use opportunities for walkers, runners, bikers and skaters. These trails are at least 6 feet in width and frequently 8 feet or more. No motorized vehicles are permitted.

Gravel/Stonedust Trails

Gravel and stonedust trails serve as the preferred surface in park areas that are difficult to access with paving equipment. They serve multiple users: runners, walkers, bikers and horseback riders. These trails are generally 6 feet in width. No motorized vehicles are permitted.



Concrete Trails

Concrete trails generally are found in older parks or are sidewalks within parks adjacent to buildings. The Park Authority does not design or construct concrete trails unless the location is in a very high traffic area near a building, or serving as a sidewalk to a building. Other surfaces are used in the remainder of the parks. No motorized vehicles are permitted.

Wood Chip/Mulch Trails

Wood chip and mulch trails serve a smaller user base than hard or semi-hard surface trails. Walkers, runners, mountain bikers and horseback riders are the most common users of these trails. Wood chip and mulch surfaces are appropriate in small lengths interior to parks. They require a high level of maintenance due to the natural degradation of the material, and should only be constructed in small segments. No motorized vehicles are permitted.

Natural Trails

Natural trails may be comprised of dirt, turf or other earthen materials. They are appropriate for most uses, vary in width and are preferred by horseback riders. No motorized vehicles are permitted.



Boardwalks

Boardwalks are used in wetland areas to provide access and opportunities to experience the wetland environment. One boardwalk at Huntley Meadows Park is used extensively as a resource interpretation tool. Boardwalks are used by pedestrians and are wheelchair accessible.



Mountain Bike Trails

Mountain Bike trails are unique within the Park Authority's trail system. They have a very specific use and may contain obstacles such as downed trees, gullies, and humps that enhance the mountain bike experience. These trails are natural surface and may be very steep, traverse hillsides and may cross streams or stream tributaries. The Park Authority recommends that the use of mountain bike trails be limited to accomplished mountain bikers.



Unofficial Trails

The Park Authority highly discourages the forging of new trails within the park system. These trails are generally created by foot or bicycle traffic through areas of a park not designated for that type of use. The forging of these types of trails has significant environmental impacts, causing soil compaction, damaging root zones of flora, contributing to erosion and sedimentary runoff and other negative impacts on natural resources. The Park Authority does not recognize these types of trails as official and does not maintain them.

Trail Maintenance Standards

The Park Authority adopted Maintenance Standards for all aspects of park maintenance in 1988. The standards are time and task specific for each maintenance activity performed by Park staff. The trails portion of the standards has been used as a model for other jurisdictions and the National Park Service in the development of their own standards.

The Park Authority's Maintenance Standards are essential in assuring the safety and continued life of the trail system. Trail repairs may be as minor as fixing a pothole in an asphalt trail or as major as the complete renovation of an entire trail section. Low areas that hold or channel water need to be repaired as soon as possible. Areas that have not held or channeled water in the past may begin to due to increased runoff from nearby development. If not addressed immediately, these areas can spread and damage large sections of trails. *Appendix A-Trail Maintenance Standards* lists detailed maintenance standards for all types of trails in the system. The standards outlined in this document will be incorporated into the Agency's existing standards and will be effective immediately.



Routine Trail Tasks

Park Authority staff perform a wide variety of routine maintenance tasks within the trail system. These tasks are all directed to extending the life expectancy of trails, providing the highest quality product to the citizens of the County, and ensuring the safety of trail users. Routine maintenance and inspection of the trail system also minimizes repair and renovation costs. For more specific information see *Appendix B-Routine Trail Tasks*. The tasks are coded for ease of recognition.

Trail Inspection (RTT-1)

Trails must be inspected on a routine basis. Inspections should include the trail surface, any culverts and water crossings, all amenities, signs, and surrounding vegetation.

User safety should always be the primary consideration of any inspection. Potential safety problems should always take precedence when scheduling maintenance. Vandalism left unattended encourages more of the same and should likewise be a high priority for maintenance. Gang graffiti and “tagging art” should be documented with incident reports and police should be notified, then the graffiti removed or covered as soon as possible.

Inspections may also need to be done after severe weather events or storms. The Park Authority staff is trained to inspect trails during the performance of routine maintenance activities along trails.

Mowing (RTT-2)

Mowing is done on a regular basis to prevent trails from becoming overgrown. Brush and grass that grow along trails should not be allowed to grow to excessive heights within two feet of the edge of the trail surface.

Tree and Brush Pruning (RTT-3)

Pruning is performed for the safety of the trail user and to protect the trail and other assets located along the trail. Proper pruning also allows mowing operators to do a thorough and safe job. Inspectors need to be trained to identify potential hazards and to determine what can be handled by Park Authority staff and what will require the attention of a private contractor.

Leaf and Debris Removal (RTT-4)

Keeping the trail surface clean is one of the most important aspects of trail maintenance. Mud and other sediment needs to be removed along with fallen leaves and branches to ensure the safety of the users and to increase the life expectancy of the trail itself. This maintenance task is required for all trail surfaces. Debris removal from the trail surface should also follow all mowing operations along trails.

Snow and Ice Removal (RTT-5)

Some trails need to be cleared of snow and ice. Snow and ice should be removed from trails used by children going to and from school sites, trails leading to Park Authority RECenters or rental facilities.

Cleaning and Replacement of Culverts (RTT-6)

Culverts often become clogged with trash and debris that must be removed to prevent flooding and undercutting of trail surfaces. Culverts may also need to be upgraded in size or replaced because of deterioration or increased storm water flow due to increased surrounding development.



Maintenance of Water Crossings (RTT-7)

Water crossings can be bridges, fair weather crossings, or open box culverts. Debris needs to be removed on an as-needed basis from these structures to allow for free flow of water and to reduce the risk of flooding. These structures need to be inspected on a regular basis for erosion control and action taken accordingly to preserve or replace the structure.

Repairs to Signs and Other Amenities (RTT-8)

These repairs may include kiosks, wood and metal signs, benches, etc. These amenities need to be kept in safe and esthetically pleasing condition. Items that fall into disrepair often become the target of vandals. Repairs should be completed as quickly as possible to discourage vandalism.

Projects and Life Cycles

Trail repairs must be planned and coordinated for the repairs to be successful. As a general rule, trail repairs will not change the surface of the trail (asphalt trails repaired with asphalt, gravel with gravel, etc.). However, there may be a need to make a change in surface types if the existing surface is inadequate for the surrounding conditions or if the use of the trail has changed significantly. If this type of change is necessary due to citizen input or staff recommendation, it must be reviewed and approved by the agency prior to renovation.

The Trail Renovation Plan

The Trail Renovation Plan is a multi-year program designed to ensure the continued up-keep, repair and necessary replacement of large trail sections. The Plan is updated annually from trail inspections occurring throughout the year.

Life Cycles

In the Trail Maintenance Standards, (*Appendix A*) references are made to trail deterioration by trail type. The deterioration factor is determined by the level of required renovation for 1,000 linear feet of trail on an annual basis. This figure is used as a starting point to determine what the actual life cycles are for different trail types, but actual replacement costs cannot be determined until further inspection has been completed. When financially possible, these projects are included in the Trail Renovation Plan. For more costly replacements, planning must be done well in advance and included in a bond program.

Maintenance Tools

Trail Inventory

A trail inventory is maintained for all recognized trails within the County. The inventory is utilized to develop maps, identify budgetary needs and plan maintenance work.

- Location
- Class of trail
- Overall length of trail. If it has multiple surface types, include the lengths and width of each surface type
- Type, size, and location of all culverts and stream crossings. Note if the crossings will support a maintenance vehicle
- Location and type of major signs
- Location and type of other amenities, such as kiosks, benches, etc.
- Entry points for maintenance and emergency vehicles



This information will be gathered using GPS in combination with the GIS. The information will be stored in a database for an overall inventory of all Park Authority trails. After being gathered using GPS, the data will be transferred onto GIS ortho-photography, resulting in a highly detailed maintenance map of each trail. Each new trail should be entered as it is accepted.

Maintenance Management System

The Maintenance Management System is a database that retains maintenance records for all Park Authority facilities and maintainable assets. The system generates work orders and allows managers to track hours, costs, and resources used to perform maintenance tasks. A variety of reports can be produced to assist managers in their day-to-day and long term planning of maintenance. In addition to processing reports, the system allows users to produce work orders and to view current and past work orders and determine work order status.

The Park Authority uses the system to track trail inventory and produce and monitor preventative maintenance (PM) work orders for specific maintenance tasks. The database also accounts for curative maintenance tasks and renovation projects. Work orders can be initiated in several ways. A citizen may contact the Park Authority to report a problem or issue and a work request will be generated and sent to the appropriate crew for action. Preventive maintenance work orders are generated on daily, monthly and yearly schedules, based on the frequency required. Maintenance staff can generate their own work orders for curative or non-preventive related tasks. Other Park Authority staff can request work to be performed and send the request directly to the appropriate crew through direct access to the system.

Maintenance Maps

These maps include an aerial photo of the site, along with information on type of trail, length of trail segments, number of culvert pipes, bridges and fair weather crossings. This information is beneficial when planning maintenance activities on a particular trail system. The maps can also be distributed to the maintenance crews to help identify the exact area that needs to be maintained or repaired. An example of a typical maintenance map is shown below.

