

Section II-Trail Development

The Park Authority develops planned trails in several different ways. As previously mentioned, internal park trails may be a part of the larger development plan for a park and be constructed as part of the park development. Trails are contributed to the Park Authority as part of the development process – either through proffers or as development requirements. Stream valley trails may be stand-alone projects and constructed through the bond development process or with funds from other sources. Volunteer groups may work with the Park Authority to improve or define routes that will be used as natural surface trails or may be improved by adding an alternative surface. The Park Authority may construct hard surface trails, such as asphalt, gravel or stonedust, as part of its construction program.

Project Priorities

The Park Authority maintains a list of possible new park trail projects in consultation with the Park Authority Board and the representatives on the Non-Motorized Transportation Committee. The priority of trail construction projects is determined by the following factors.

1. Projects located within major trail corridors that have existing trails with missing gaps and can be constructed without additional land acquisition.
2. Trails in secondary trail corridors or those that require substantial land acquisition to complete.
3. Trails within staffed parks
4. Trails within community and neighborhood parks, and small, isolated stream valleys without the potential for major connections as defined in the *Countywide Trails Plan*.



Funding

Trails are constructed on Park Authority land through several different methods as previously noted. Developers in the County are required to build trails included in the countywide trail plan as part of the development process. Volunteer groups may build sections of trail having very little funding support. Park Authority staff repairs trails and constructs small connector trails with annual appropriations. The Park Authority constructs other needed trails within parks through a variety of funding sources.

- **Bond Referenda**

The County will present a bond referendum for park acquisition and improvement to the citizens for their consideration. These referenda are approved or denied by the citizens by majority vote. Resulting funds from these General Obligation Bonds allow the construction of large trail projects, as well as smaller repair and replacement projects. These projects are prioritized as noted above.

- **Grant Support**

To supplement bond funds, grant funding is often sought. Most trail grant programs are from reimbursable sources, with a portion of the money spent during design and construction of the project submitted for reimbursement upon project completion. Review of grant funding sources is ongoing and accomplished with the cooperation of the Park Authority Grants Administrator.

- **Donations**

Volunteer groups frequently make donations to the Park Authority for trail construction. Homeowners associations and/or other organized citizen groups desirous of a trail connection will approach the Park Authority with the offer of funds to assist in the construction of a trail. The Park Authority's Mastenbrook Grant Program provides a matching amount from Park Authority bond funds set aside specifically to assist volunteer groups in funding park projects. Individual donations are also accepted as a contribution towards trail improvements.

- **Proffers**

During the rezoning process, proffers may be offered by individual developers to provide amenities in parks nearby or within the new development. These proffers may be designated for specific improvements, may be general in nature, may be in the form of a cash set aside, or may be actual construction of the amenity. Trails may be built with proffered funds designated for trails or with funds that are only specified for a park or area.

Siting Considerations

Many factors guide the location of trails. The various trail plans mentioned in Section I are used as a general guide for identifying a trail's general location. A staff team determines the final layout by evaluating a variety of field conditions. Trail locations are affected by some of the following factors:

- Unique Natural and Cultural Resources
- Proximity to streams, floodplains and Resource Protection Areas
- Soil Types
- Existing Vegetation
- Steepness of slopes
- Distance from neighboring properties

These factors must be considered in order to minimize potential impacts to natural resources and the future management of those resources. Trails are a valuable tool to educate the public about these resources and to provide numerous recreational opportunities. However, trail construction can introduce new problems or compound existing impacts on the natural resources through which they pass. Trail location, surface type, construction methods, and management practices all influence the impact a trail has on the immediate area. The primary goal in locating a trail is to minimize disruption to existing vegetation and hydrology.

For trail siting in sensitive areas, the agency utilizes the *Stewardship Resource Guide: Trails in Natural Areas* to provide guidance on environmental issues. This guide outlines how trails affect habitat and resources; including the creation of "edge" effect, habitat fragmentation, introduction of exotic invasive plants, compaction of soil, trampling of vegetation, soil erosion, disturbance of wildlife and other affects.

Design Considerations

A variety of issues are considered during trail development. Careful and diligent design will lengthen the life of a trail and minimize annual maintenance costs. Many site factors noted above contribute to the construction of an easily maintained trail - minimal slopes, reasonable distance from streams, stable soils, etc.

Surfacing should be selected to provide as much stability and as low maintenance cost as possible. Generally, asphalt trails are preferred in areas where washouts or flooding may be possible.

Trails should be wide and strong enough to allow use by small to medium-sized construction and maintenance equipment. On sections of trail with only one point of maintenance access, turning



radii and stream and culvert crossings should allow for maintenance vehicles, with turnarounds provided where possible. Multiple access points are desirable on trails greater than 1,000 feet in length. Provisions should be made during design to block all vehicular traffic (other than maintenance vehicles) from entering a trail from public streets, interior park roads or parking lots. Both sides of stream crossings should be accessible to equipment, it therefore is not necessary to have all trail entrances accessible to vehicles.

Design standards are defined in the Fairfax County Public Facilities Manual (PFM). Graphic depictions of these standards can be found in *Appendix A-Trail Maintenance Standards*.

Stream Crossings

It is important that the all stream crossings be adequately sized to handle the normal flow of the water through the channel or stream. Bridges and other stream crossings should be designed to be low maintenance. It is important to recognize that each stream crossing is unique and there are not specific rules for a choice of stream crossing. Numerous factors dictate the type of crossing chosen, including use demographics, the steepness of streambanks, normal water volume levels, the presence of trees and root systems at the crossing and the length of the crossing.

Bridges are generally used when the stream banks are very steep and the normal flow of water volume in the creek is high. During a major storm event, bridges allow large debris to pass underneath without blocking the crossing. Crossing points should be located in relatively flat areas of the stream. Natural fords are the most ideal locations for stream crossings.

Fair weather crossings are generally used when the stream banks are gently sloped, the normal flow of water volume is light, and the impact on trees in the area is minimal. These crossings are designed to allow maintenance vehicles to cross, as well as all trail users. Water flows over a concrete pad at a general depth of one-half inch. Cylindrical stepping stones are placed in the crossing to allow pedestrians to cross the stream above the water level. Horseback riders and bicyclists are encouraged to dismount and walk across these stepping stones, as the concrete pads can become slick due to algae growth during wet periods. A typical fair weather crossing is shown here.



Open-box culverts are also used in certain locations where high water volume is generated during a storm event. Larger stream systems such as the Accotink Creek, Pohick Creek, Cub and Holmes Runs have large volumes of water normally. During major storms, this volume may increase 5 to 50 fold. Open box culverts allow for all trail users to cross the stream, allow for a free flow of water at the crossing during normal periods, allow aquatic life to pass the crossing, and allow large debris to flow over the crossing during storm events. The Park Authority has begun to use these type of crossings, and will continue to refine their designs to provide for future use. A depiction of an open-box culvert is shown below.



Trail Accessibility & Amenities

A variety of factors add to the accessibility and enjoyment of a trail. In addition to mapping the trail and providing signs so that the trail is visible, the following factors increase the level of use and enhance the recreational experience of a trail.

Parking

Parking may be provided at a park adjacent to or nearby the trail. A trail connection should be constructed between the parking lot and the main trail. Parking will be shown on trail maps and the website.

Entrances

Trail entrances are generally located off public streets or through adjacent parkland. Trail entrances are marked by a sign and shown on trail maps and the website.





Kiosks

Kiosks provide valuable information for all users. Kiosks are located at areas central to a major trail system to serve as a focal and starting point for as many users as possible. Depending on the size and other characteristics of the trail system, more than one kiosk may be necessary to address the entire trail system. The kiosk will typically contain a map of the trail system, as well as trail use guidelines, information about user groups, emergency information, and other information helpful to a user. A typical kiosk design, constructed of wood, is shown here.

Accessibility

Accessible entrances allow users in wheelchairs or other assisting devices access to the trails. The guidelines for trail access are somewhat flexible and it is not possible for all trails to be accessible for all users. However, it is the goal of the Park Authority to provide access for as many trails or sections of trails as possible.

Drinking Water and Food Sources

Water and food are frequently co-located with restrooms in staffed parks. The availability of vending machines or a snack bar allows users to extend their time on the trail. The location of food and water sources will be noted on trail maps.

Restrooms

Permanent restroom facilities are located at various parks. Some other parks, such as athletic field complexes, may have seasonal portable restrooms. Restroom locations are noted on trail maps.

Benches

Benches can be an asset and increase trail use by adding a place for respite. Senior citizens or persons with physical disabilities find that proper placement of benches allow them to use trails with greater comfort. Along stream valley trails and other connecting trails, benches may be provided every ½ mile. Certain bench locations are driven by user demographics. Benches are located more often within staffed parks and in open areas where user safety is easy to determine. Six foot benches with backrests are the Park Authority standard.



Benches are anchored in concrete and are constructed of steel and coated with molded PVC, or can be constructed of recycled plastic. A typical park bench is shown here.