

# Design Guidelines

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## Introduction

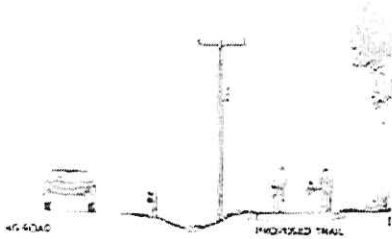
When making recommendations for the design and implementation of a trail, it is important to first understand what purpose the trail is being developed for or what the projected user group will be. It was previously discussed that the users for this system will include many types of individuals (see user needs and assessment). The trail will accommodate pedestrians and bicyclists and will be considered a non-motorized, "multi-use" trail. This multi-use trail will serve as a recreational outlet for the community. The trail will provide access to and will enhance many community amenities such as historical sites, residential areas, and parks. It is important to note that this system will be more than a connection between places. It will serve as a linear park and center of community activity. The trail will serve a broad cross-section of the community. Because of this, the trail must be designed to provide a pleasing and safe experience for all users.

Multi-use trails accommodate a variety of users and are typically designed to satisfy a broad range of requirements. The trail must be wide enough to accommodate two-way traffic and several people across its width. The trail will need to be designed with appropriate curves or radius and with proper slopes and clear zones.

The following guidelines are based on design standards established by the Federal Government and others. The following design reference material should be used for designing a multi-use trail:

- ✎ The American Association of State Highway and Transportation Officials (AASHTO), provides specific guidelines for the design of bicycle trails.
- ✎ The Manual on Uniform Traffic Control Devices (MUTCD) provides guidelines for signage and pavement markings.
- ✎ Americans with Disability Act (ADA) provides guidelines for accessibility.
- ✎ Local and State codes and ordinances.
- ✎ Trails for the 21<sup>st</sup> Century, published by the trails to trails conservancy, provides general guidelines for the planning and implementation of multiuse trails.

## Trail Types



*A trail placed next to a street*

Trails developed in the Harrisonburg area will be of two distinct location types. One is off-street or in open areas not within road rights-of-way or alongside of roads. The other is a trail located within the road right-of-way and alongside the road. It is important to note that the latter option is not located within the pavement section and must be separated from the physical road by some space or barrier. It is also important to note that bicyclists using the trails system should never be directed to or placed onto street bike lanes. Corridors shown in the plans along roads should always be developed with separation from the road and high-traffic volume situations should be separated with a barricade of some sort.

## Accessibility

Design of trails must consider the use or accessibility of many users with varied physical abilities. The Americans with Disabilities Act (ADA) became law in 1990. The Act creates responsibility of employers, building owners, and municipalities to provide adequate facilities to disabled persons. However, it does not require or mandate absolute standards. The U.S. Forest Service has also developed a design guide for Accessible Outdoor Recreation. These guidelines and others establish criteria for minimum and maximum dimensions, slopes on paths and ramps, and for the design of other amenities. The following are criteria for longitudinal slopes along the centerline of a trail:

- ☒ People in wheel chairs: 0-5% preferred, 8% maximum (for distances under 30').
- ☒ Pedestrians: 0-5% preferred, there is no maximum slope.
- ☒ Bicyclists: 0-3% preferred, 8% maximum.
- ☒ Equestrians, 10% maximum.

Given the multi-use nature of trails to be developed in Harrisonburg, it is recommended that all trails be developed with slopes not exceeding 5%.

## Alignment

The AASHTO Guide for the Development of Bicycle Facilities sets standards for the vertical and horizontal alignment of bicycle facilities. This guide should be followed when developing detailed alignments for the trail.

### Horizontal Alignment

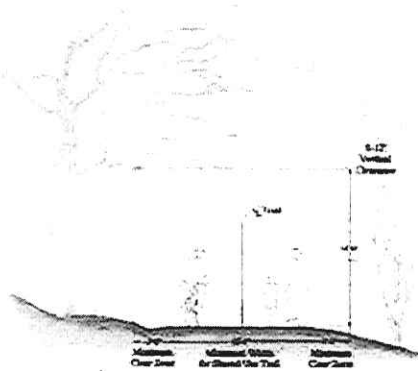
This has to do with the design and relationship of curves and tangents of the centerline of the trail as well as inside and outside radii of trail curves. The horizontal alignment will change in order to avoid problem situations, create interest, and variation or to minimize construction costs.

### Vertical Alignment

This involves the relationship of slopes and slope transitions along the centerline of the trail. The vertical alignment will change in order to minimize construction costs, impacts, and accommodate changes in design speed. The AASHTO Guide establishes criteria for minimum vertical curve lengths required for changes in slope and design speed.

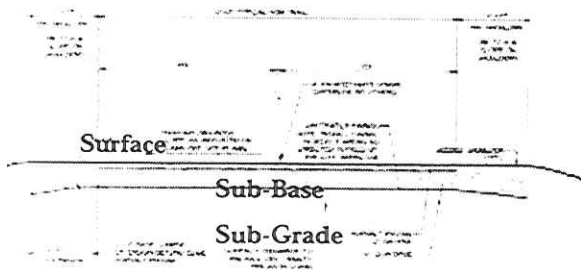
### Trail Dimensions

This involves the width of the trail and zones for horizontal and vertical clearance. Trail width varies depending on the type of user or users. A single use trail for pedestrians may be only 5' or 8' wide. A trail designed for bicycles only may be 5' or 10' wide depending on one-way or two-way traffic. It is generally recommended that trails be a bare minimum of 10' wide where two-way traffic is expected and where multiuse is expected. A 12' width is recommended as a more accommodating alternative. A 14' width is recommended where use is expected to be more frequent and higher volume. Clear zones are required along the trail for safety purposes. A clear zone ensures that people will have enough room to move out of the way or off the trail if they need to without colliding with a fixed object or structure. Vertical clearance is also required for safety purposes. In most cases this will require the limbing of trees and ensuring that overhead wires and underpasses are at the appropriate heights. The AASHTO Guide for the Development of Bicycle Facilities recommends standards for widths and clear zones for multiuse facilities.



*Typical multi-use trail*

## Materials



Many materials are available for the construction of trails. Generally these include concrete, asphalt and aggregates such as crushed gravel or cinders placed over a compact sub-base. Each material has its own appropriate use depending on the application.

### Sub-Base

The sub-base is typically composed of large aggregates placed over compact fill or undisturbed earth. Sub-bases are designed to provide support for the trail and will vary in materials and thickness per soil conditions.

### Aggregates

This usually consists of crushed gravel or cinders and fines spread over a compacted base material. This application is generally the least expensive to install and can have a natural appearance. However, aggregates wear easily, are prone to washouts and weeds, and are not suitable for skaters. The top surface will need to be repaired often and replaced every few years.

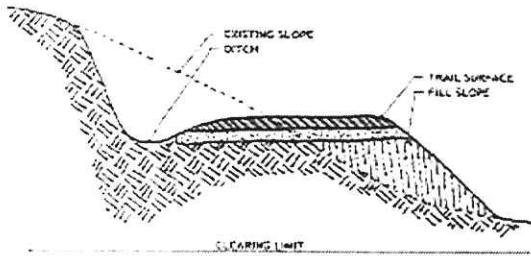
### Asphalt

This usually consists of small aggregates mixed with tar that is placed and rolled over a compacted sub-base. This application is generally moderate in installation and maintenance cost. Asphalt is relatively easy to install and can provide a smooth continuous surface. However, asphalt is prone to heaving, root damage, is hot, can soften, and is prone to flood damage. Asphalt should not be used in flood way areas where higher velocities of flow are expected.

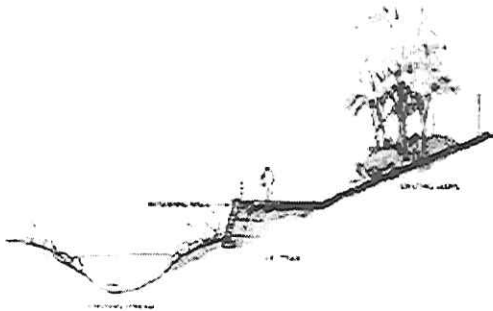
### Concrete

This usually consists of a reinforced slab formed and poured over a compact sub-base. Concrete is typically the most expensive to install and replace. Maintenance costs are generally low and this material can be used in a variety of situations. Concrete should be used in flood way areas where high velocities of flow are expected. Concrete is non resilient, requires properly placed control joints and can crack and heave at joints.

## Grading



*Section, balanced cut and fill*

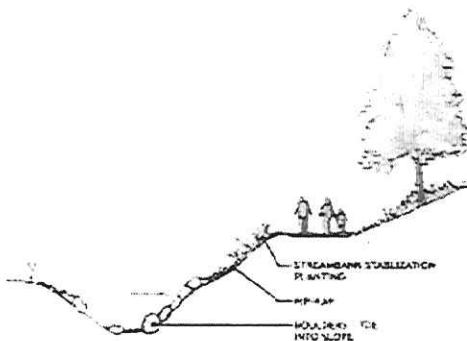


*Use of retaining wall to avoid fill in creek*

The construction of a trail requires moving of earth. This is achieved by both cut and fill. Standard engineering practices for earthwork and erosion control need to be followed to ensure that proper drainage, slopes, stabilization and erosion control is provided for the trail. The following items should be considered when preparing grading plans for trails:

- ✂ Cut and fill should be balanced along individual segments of the trail to avoid costly charges associated with hauling soil away or bringing soil to the site.
- ✂ Soil conditions should be considered. Specifically the soil's ability to bear the proposed facility. This will affect the design of the sub-base and surface in situations such as wet areas.
- ✂ Surface drainage must be carefully considered so that water always drains off the trail and so existing drainage patterns are not impacted.
- ✂ Impacts on existing vegetation should be limited by keeping grading out of the drip line of trees where possible.
- ✂ Erosion and sediment control measures should be implemented per local and state standards.
- ✂ The path of least resistance should be selected where possible to reduce overall earthwork volumes.
- ✂ The Virginia Department of Transportation and the Virginia Erosion and Sediment Control Manual provide specific methods and guidelines for grading and erosion and sediment control.

## Stabilization



*Stabilization of a streambank*

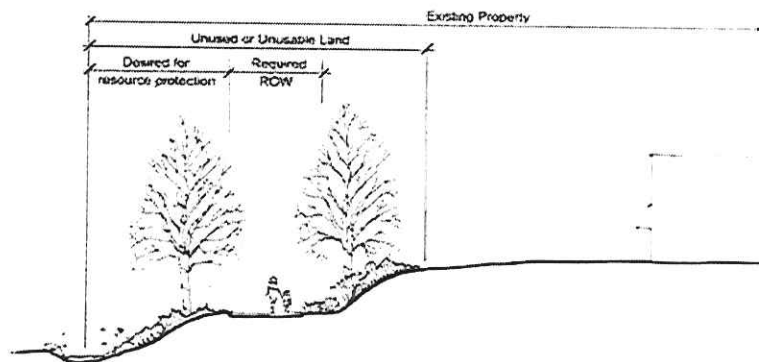
There are several locations where the trail will be close to Blacks Run. In some of these locations the embankments of Blacks Run are deteriorated due to erosion from storm water. This creates an opportunity to stabilize embankments in conjunction with the construction of the trail. Typically bank stabilization consists of "armoring" the embankment. Where the trail is close to the creek it may become necessary to use some of that armoring structure to retain the edge of the trail. It is desirable to use low-tech or natural materials where possible in order to help naturalize the stream bank. The following methods are appropriate for Blacks Run:

- ✂ Use of large boulders to protect the toe of the embankment.

- ☒ Use of fibrous, deep-rooted plantings to re-vegetate exposed soil embankments.
- ☒ Benching of the embankment in conjunction with armoring and plantings.
- ☒ Use of large riprap to armor the embankment in conjunction with toe protection and plantings.
- ☒ Use of erosion control fabrics to retain soil on embankments.

## Environmental Resource Protection

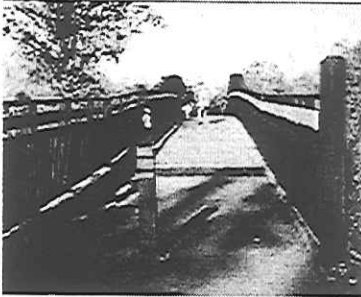
Environmental resources along the Blacks Run Greenway corridors include habitat for flora and fauna such as meadows, woods, wetlands, marshlands, and the riparian environment. These areas are often located within the flood plains and floodways of creeks and streams. The quality of habitats depends on the overall health of the ecosystem and the types of species it supports. The quality of the habitat provides a gauge for how sensitively development of trails should proceed. No endangered species are known to inhabit the Blacks Run corridors. However, an environmental inventory should be performed for each corridor before final design plans begin (see the environmental section of this report). The floodplain is also an environmental resource in that it can absorb volumes of water created by storm events thus reducing flooding in downstream areas. It will be desirable to maintain the maximum distance possible between environmental resources such as creeks and streams and the trail. This is so that proper biological buffers can be established and so people are not encouraged to walk in areas where they can cause damage such as erosion of embankments. In many cases the flood plain will be the only available land to develop a trail. In these cases, care should be taken to minimize impacts and to avoid constructing in portions of the flood plain where the water will be at higher velocities. The following guidelines should be followed when designing the trail:



- /// Avoid areas known to contain endangered species of plant and animal life.
- /// Avoid high sensitivity habitats such as wetlands, marshlands, riparian thickets, woodlands and riverbanks.
- /// Avoid further impact to degraded habitats such as creek channels, woodland and wetland.
- /// Avoid development of trail right up to the top of bank of rivers and creeks.
- /// Avoid development of trail infrastructure within the floodway.
- /// Avoid large amounts of fill material in flood plains and floodways.
- /// Create opportunities for habitat restoration and creation where degraded habitats or no habitats exist.
- /// Create biological buffer zones between resources and the trail construction. Buffer zones should increase in depth as the sensitivity of the resources increases.
- /// Provide the maximum distance possible, given easement and space restraints, between streams or creeks and the trail.

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## Trail Infrastructure



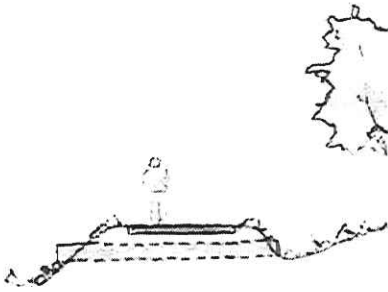
*Pedestrian bridge with bollard and rub-rail*

### Bridges

Pedestrian bridges are typically needed on trail projects where interruption or fill of drainage channels is not possible, or conflicts with major roads exist. The pedestrian bridge can provide uninterrupted travel along a trail corridor and can provide viewing opportunities of natural and cultural resources. They can also provide a way to avoid impacts to environmental resources.

- ✘ Locate bridges perpendicular to features to be crossed and at the shortest point in order to reduce span lengths.
- ✘ Locate trails above the one hundred year floodplain where possible. If placed below the 100-year flood plain and within the flood way a flood study should be performed per local ordinances.
- ✘ When crossing wetlands or state waters, clear all applicable permits with the Department of Environmental Quality, the Virginia Marine Resources Commission, the Department of Game and Inland Fisheries, the Army Corps of Engineers and local government.
- ✘ Provide loading for maintenance vehicles where applicable.
- ✘ Provide vehicle access control with bollards or other non-restrictive measures.
- ✘ Provide appropriate rail heights for bicyclists and pedestrians. 54" is typically required for bicyclists.
- ✘ Provide appropriate rail spacing meeting local safety codes. Typically gaps must be equal to or less than 4".
- ✘ Provide "rub rails" at handle bar height for bicyclists.
- ✘ Provide approach railings to guard users from steep grades.

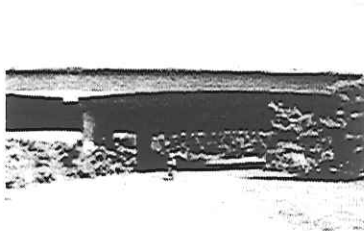




*Trail over a culvert crossing*



*A tunnel constructed under a fill slope*



*A trail developed under a highway overpass*

## Culverts

In many areas, drainage swales and small creeks can be crossed using a culvert crossing. This typically consists of a concrete or metal pipe with fill material placed and compacted on top in order to bridge the drainage way. The following items should be considered when designing a culvert crossing:

- ✘ Drainage calculations will be required to determine flow volume, velocity and appropriate pipe size and materials.
- ✘ The drainage feature should not be a natural system with valuable habitat.
- ✘ It must be appropriate to place fill material within the channel. Drainage channels with high volumes and velocities should be avoided.
- ✘ Provide the proper scour protection and outfall protection.
- ✘ Provide appropriate cover for pipes.
- ✘ Provide pedestrian railings where fill slopes are steep or difference in elevation is greater than 24".

## Underpasses

Fill embankments of roads and railroads and existing bridges can create barriers in many instances along a trail corridor. It is desirable to pass under these in most cases so that at grade crossings of busy streets can be avoided. This also provides uninterrupted use of the trail. Existing bridge underpasses and box culverts can be used for this purpose but typically require significant and expensive retrofits. In some cases, it may be appropriate to "tunnel" through an existing fill bank using a box culvert type structure. This is expensive and should only be examined when other alternatives are not feasible. The following items should be considered when designing an underpass:

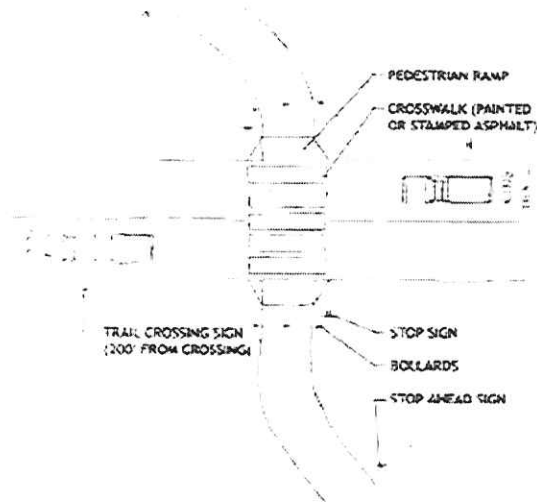
- ✘ Provide the proper vertical clearance; 9' is recommended for pedestrians; 10' is required for maintenance vehicles.
- ✘ Provide adequate width considering the proposed use. The trail should not be narrowed unless absolutely necessary.
- ✘ Provide adequate lighting in longer spans where natural light is not available.
- ✘ Provide a shelf and railing above mean high water under bridges and in existing box culverts.

- ☞ Consult a qualified engineer to determine if the proposed retrofits will create a problem with flow capacity and characteristics of existing structures.
- ☞ Consult a qualified engineer to design any new tunnels.

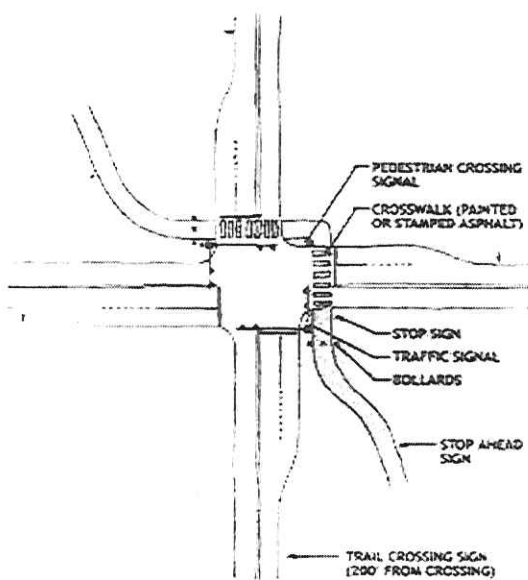
### At Grade Crossings

At grade crossings are required when the trail must cross an existing street. This creates an interruption in the continuity of the trail and creates a conflict point between trail users and vehicles. It is very important to provide the appropriate safety measures in these areas and to create awareness of drivers and trail users of the situation and of who has the right-of-way. The following items must be considered when developing an at grade crossing:

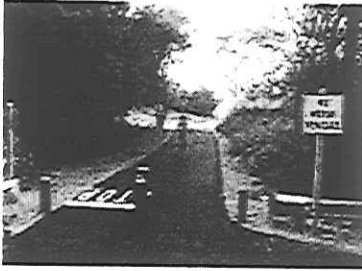
- ☞ The trail should intersect perpendicular to the roadway.
- ☞ The trail should be separated from the road until they meet.
- ☞ Provide the proper sight distances for drivers and trail users so that the crossing is clearly visible and appropriate stopping distances are provided. Consult the AASHTO Guide for Development of Bicycle Facilities.
- ☞ Consider retrofitting existing low volume bridges or building grade separated overpasses on bridges where high volume of traffic and multiple lanes must be crossed.
- ☞ Always utilize existing intersections where possible. Signaled intersections are preferred.
- ☞ Provide the appropriate signalization, signage and pavement markings. Consult the AASHTO Guide for Development of Bicycle Facilities and the Manual for Uniform Traffic Control Devices (MUTCD).
- ☞ Provide bollards to restrict motor vehicle access.
- ☞ Do not allow "right on red" turns at crossings.
- ☞ Provide appropriate handicapped ramps and features per ADA.



Typical mid block road crossing



Typical urban intersection crossing



*Trail entrance with regulatory sign and pavement markings*

## Signage

Signage is required in many forms and locations along a trail to appropriately instruct users of trail rules, give information and direction and give warning of potential hazards. Sign categories include: Regulatory signs, Warning signs, Directional signs and Informational signs.

- ☒ Follow MUTCD standards for warning and regulatory signs where applicable.
- ☒ Locate signs outside of safety clear zones of trails.
- ☒ Install signs at the proper heights; 5' is typically desired.
- ☒ Provide appropriate "universal" colors for signs.

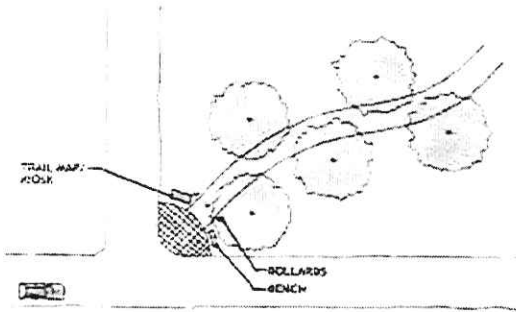
Orange	Construction
Black/white	Regulatory
Yellow/green	Vehicle crossing
Brown	Recreational information
Blue	Service information

- ☒ Use durable, vandal resistant materials that are easy to maintain and replace.

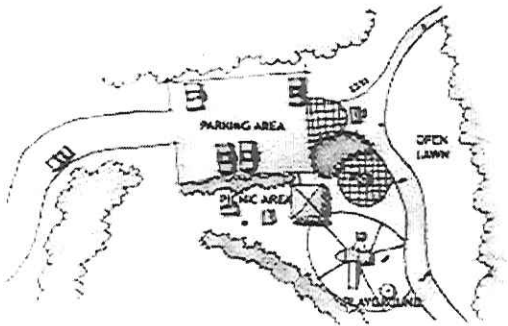
## Site Furniture

Site furniture will be required at rest stops, neighborhood access areas, trailheads, and pocket parks and along the trail where appropriate. Types of furnishings include: benches, trash receptacles, bike racks, fountains, bollards, picnic shelters, picnic tables, lights, fitness and play equipment and enclosed restroom facilities.

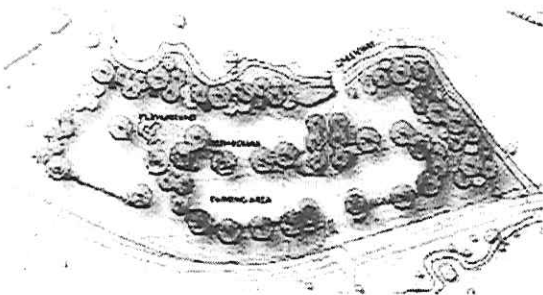
- ☒ Provide low maintenance vandal resistant furniture.
- ☒ Provide architectural consistency among different types of furniture in specific areas. For example, furniture at trailheads may be of a consistent style and quality while furnishings along the trail may be of a different style for that area. Consider themes related to the culture and history of distinct areas along the trail.
- ☒ Provide simply constructed and designed furniture.
- ☒ Anchor all furniture to the ground to protect from theft and flooding.
- ☒ Develop design and construction specifications for site furniture that allows for control over appearance and quality when future implementations or donations occur.
- ☒ Locate furniture in accessible and visible areas.
- ☒ Provide shade where site furniture is located for human use.



*Typical Neighborhood Entrance*



*Typical Trailhead*



*Typical Trailhead developed as a pocket park*

### Trailheads and Pocket Parks

Trailheads are typically located at beginning and end points of trails and at intermediate access points. Intermediate points are typically located in areas where they are expected to serve a large neighborhood population or would attract users of other amenities such as historic sites, schools, parks and urban areas. The following items should be considered when developing trailheads:

- ✘ Locate trailheads where vehicular and pedestrian access is convenient.
- ✘ Design and locate trailheads so that visibility and passive surveillance from roads and adjacent buildings is possible.
- ✘ Create a simple and straightforward design that is easy for vehicles and pedestrians and bicyclists to navigate.
- ✘ Locate trailheads on relatively level ground in order to reduce construction costs.
- ✘ Develop trailheads in conjunction with other amenities such as pocket parks, parks or cultural centers.

Trailheads should include appropriate infrastructure and amenities designed to accommodate the level of use expected. This includes:

- ✘ Parking, typically 10-20 spaces with handicapped parking depending on level of use.
- ✘ Trail stop with bike racks.
- ✘ Directional and informational signage.
- ✘ Educational signage for cultural, historic and environmental resources where appropriate.
- ✘ Play equipment.
- ✘ Benches.
- ✘ Picnic tables and shelters.
- ✘ Trash receptacles.
- ✘ Male and female restroom facilities.
- ✘ Drinking fountains.
- ✘ Adequate site lighting designed to eliminate spill over.
- ✘ Emergency telephones.

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## Crime Prevention and Liability Management

### Liability

There are inherent risks to operating a trail and to the users of the trail. These stem from the nature of placing people in a designed environment where they must move about and interact with each other and respond to changes in the environment. Liability risks on trails are typically increased when the facility is poorly designed or is not maintained properly. It is important to design all features of the trail with the health, safety and welfare of the public in mind. The following items should be considered when developing a trail system:

- ✍ Consult with a qualified design professional who understands trail design, trail design standards and regulations.
- ✍ Follow nationally accepted design standards and regulation and follow local codes and ordinances.
- ✍ Develop a well thought out, staffed and funded maintenance program. The program should identify responsible organizations and specific tasks and schedules.
- ✍ Provide clear and concise warning, hazard and trail use rules signs to eliminate misunderstandings.
- ✍ Restrict use of areas under construction or repair.
- ✍ Develop a security plan that provides structure for law enforcement. The plan should identify agencies providing staff, hours of service and emergency response procedures.
- ✍ Establish specific hours of use for the greenway.

### Security

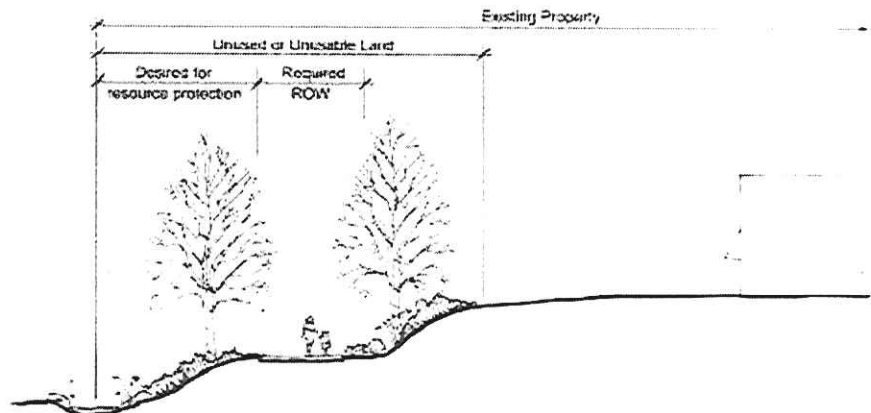
Greenways and trails often provide access of many types of individuals to spaces and places. Typically greenways and trails reduce crime by creating more activity and surveillance of forgotten or out of the way spaces. However, areas of lesser activity may attract individuals of ill repute. These areas may also create an environment that creates off-hour “hang outs” where a variety of activities might occur. It is a natural and desirable situation when spaces become attractive as gathering places. However, the presence of security measures is desirable so that inappropriate activity can be curbed. The following items should be considered when developing a trail:

- /// Develop a security plan that provides structure for law enforcement. The plan should identify agencies providing staff, hours of service and emergency response procedures.
- /// Provide clear and concise trail rules and penalty signs.
- /// Provide adequate lighting.
- /// Provide emergency call boxes.
- /// Provide multiple access points for response teams.
- /// Provide clear lines of sight to and from the trail and to areas adjacent to the trail.
- /// Follow guidelines established for reducing crime in designed spaces. The national program Crime Prevention Through Environmental Design (CPTED) offers training and design guidelines in this area. Contact the Virginia Crime Prevention Association for more information. In some instances it will be desirable to use designers who have CPTED training.
- /// Increase user-ship by encouraging use during all days of the week.

## Right-of-way Acquisition

### Trail Right-of-Way

Trail right-of-way (ROW) is both the right to pass over someone else's land and the path or area on which such passage is made. Typically, a linear strip of land ranging from 10 to 25 feet wide is needed for the creation of a path or trail, drainage ways, structures, and buffers. Depending on the abutting land use, a narrow strip, or wide and densely planted buffer, may be suitable. In most cases, the right-of-way corridor would be confined to an edge of the property. The sketch below illustrates a right-of-way corridor on a typical land use. The sketch shows that in many cases the trail will be located within portions of undeveloped or undevelopable land and that space can be left over between the trail and an environmental edge such as a habitat or creek. This situation is awkward for maintenance and access reasons. It is recommended that the trail right-of-way include this land so that maximum environmental buffers can be established and so access conflicts are minimized. This also allows more room for locating and constructing the trail.



In areas of transition, intersection, or at the beginning of a trail, it can be desirable to obtain larger portions of land for trailheads and other facilities. In these conditions, the entirety of a property may be considered for right-of-way acquisition. The following section explains that right-of-way can be attained through a number of methods.

### Acquisition of Trail Right-of-Way

Right-of-way acquisition is the process through which trail developers will gain access to use desired lands. Before an offer of

acquisition is made, specific properties and owners must be identified. Additionally, it is recommended that trail developers obtain assistance from an attorney who is experienced with right-of-way acquisition and is knowledgeable of local real estate law. There are many methods of right-of-way acquisition, and some may be more appropriate than others.

Properties containing the desired lands for these greenways should be identified. Overlaying the greenways design with the City Real Estate Assessors' tax maps can do this. These maps identify Parcel ID numbers for each property, which can be used to gather the names and addresses of the property owners. Further research can be done to identify any existing conditions of deeds, or easements, that may be attached to ownership of these properties.

In order to boost public support and ease the acquisition process, it is ideal to hold a public meeting to introduce each of the greenway projects. Each of the landowners along a proposed greenway should be invited. In most cases, it will also be important to meet with the landowners individually. According to state law, a greenway cannot cross private property without the consent of the landowner. Therefore, the benefits of the greenway project should be explained in order to gain needed support. Landowners should be made aware of the likelihood of increased property values and the benefit of direct access to the greenway trails. The advising attorney should also be on hand to discuss possible tax benefits for property owners and the various methods of easement acquisition. The landowners should also be made aware that their property would be assessed for its fair market value.

It may be useful to develop a strategy for easement acquisition. In order to gain the confidence of the public, certain areas may be initially focused on for acquisition and trail implementation. Areas of intended high use, public visibility, and ease of acquisition may be considered first. It may also be useful to decide which method of acquisition will best benefit the trail developer and the landowner before approaching the landowner. This may be in part determined by the existing land use, topography or amount of land desired.

There are a variety of methods of land acquisition ranging from temporary to permanent, and from donation to for a fee. It should be noted and explained to property owners that there are legal mechanisms that can limit and indemnify liability of landowners when they grant easements for recreational uses to specific entities and they may be covered under the greenway's insurance program. Following are some methods of acquisition:



A *donation* of land is the most ideal scenario, and the landowner will receive an income tax credit for this charitable gift.

*Land dedication* is often associated with the subdivision of property. In this case, the sub divider, or developer, dedicates certain portions of land for greenway use. Some localities mandate this action in order to comply with zoning ordinances. This type of zoning ensures future green spaces and possible opportunities for trails.

A *lease* or *license* will convey almost all rights, control, and liability from the landowner to the trail developer. Ideally a lease will be enacted for a minimum of 99 years. Upon its termination, the lease may be renewed or the land may be purchased or donated. The owner is compensated for the terms of the lease.

*Revocable permits, access or use agreements* are similar to a lease; however, the landowner may revoke access if the terms of the agreement are not being met. Breach of terms may include improper trail maintenance, unauthorized activities or vandalism. Termination may also occur due to land use changes or the sale of the land.

An *easement* may be donated, sold, or traded. This legally binding agreement typically grants right of public access, and the landowner maintains ownership of the land. If this agreement is granted in perpetuity, the easement is attached to the title of the land if it is sold. Income tax incentives are sometimes provided to encourage such easements.

Easements are ideal for properties that include a floodplain, or otherwise unusable land. The property owner can receive tax benefits from temporary and permanent easements from land that may have been providing no other value.

Often, utility corridors provide opportunities for easements as thoroughways have been created. Sometimes the utility companies lease the land they are using. These will need to be looked into on a case-by-case basis. Existing sewer easements provide the best opportunity because they are often located in gradually sloping areas and are wide enough for trail development.

The *purchase of a title* is another means of land acquisition. A fee-simple purchase is the purchase of the land for its fair market value. A bargain sale is when the owner sells the property for less than full value in exchange for income tax credits. The purchase of a title can include the entire, or only part of, the property.

In areas where railroad lines are or are soon to be abandoned, a method called *rail banking* could be useful. Rail banking is a process where rail corridors, bridges and trestles can be secured for use in the trail system. Generally the railroad will want compensation for this land, and it may be restored to rail use in the future.

Once the landowner has accepted the acquisition offer, transfer documents (titles, easements, etc.) need to be created in compliance with the format and procedures of the local courts. These papers need to be signed and filed with the court for recording in the deed books. The task here is to acquire title, leases, easements and access agreements to parcels or portions of parcels that include the greenway. The boundaries can include just the land to the trail edge or land that contributes to the overall character of the greenway itself.

In some cases, where the greenway follows a creek or stream, it will be wise to acquire a permanent easement or acquire property from the edge of the trail to the water line. This includes and preserves land that increases the environmental quality of the greenway and removes land that is typically unusable for development from individual's taxable holdings.

Several steps will be required to acquire land for use for the greenway:

- ~~☒~~ Identify subject parcels of land.
- ~~☒~~ Make offers of acquisition of right-of-way.
- ~~☒~~ Transfer the proper documentation.
- ~~☒~~ Record the proper documentation.