

Prince William County Park Authority

# Trails and Greenways Master Plan 1993



**PRINCE WILLIAM COUNTY PARK AUTHORITY**  
**TRAILS AND GREENWAYS MASTER PLAN**

**Prepared by the**

**Planning and Engineering Department, PWCPA  
Trails Advisory Committee**

**March 22, 1993**

**Prince William County Park Authority  
14420 Bristow Road  
Manassas, Virginia 22111  
(703) 792-7060**



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# PRINCE WILLIAM COUNTY PARK AUTHORITY

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Personnel Director



## LIST OF PARTICIPANTS

Fish & Wildlife Service  
Fred Milton

Leesylvania State Park  
Jim Klakowicz  
Brendon Hanafin

Manassas National Battlefield Park  
Kenneth Apschnikat

Prince William Forest Park  
Phil Brueck  
Marcia Keener

Prince William County Park Authority  
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Duane York  
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Ekpenyong Edim

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Tom Blaser  
Tom Fahrney

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Virginia Department of Transportation  
Dan Liston  
Albert Rollins  
Sean Hosty  
Eddie Pruitt  
Angela Fogle

Citizen Representatives  
Elizabeth Cronauer, Nokesville  
Sandi Smith, Woodbridge  
Martha Hendley, Manassas  
Susan Henley, Haymarket  
Roger Anderson

## ACKNOWLEDGEMENTS

The Park Authority would like to thank all of those who participated in the planning process including those citizens who took the time to attend a meeting or call and comment on the plan. Also, we would like to thank the Leesburg/Loudoun County Greenways Advisory Committee who provided a great deal of the background information included in this report.

**PRINCE WILLIAM COUNTY PARK AUTHORITY**  
**TRAILS AND GREENWAYS MASTER PLAN**

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**MOTION:** Mr. James Evans

**RESOLUTION NO.:** 93-013

**SECOND:** Mr. Stephen Wassenberg

**DATE:** April 14, 1993

**RE: PRINCE WILLIAM COUNTY PARK AUTHORITY TRAILS AND GREENWAYS MASTER PLAN - ADOPTION**

**WHEREAS,** the Park Authority desires to provide the citizens of Prince William County the opportunity to enjoy non-motorized trails and greenways throughout the County; and,

**WHEREAS,** the purpose of the Trails and Greenways Master Plan is to provide County citizens with alternative forms of transportation and recreation; and,

**WHEREAS,** staff has been working with the Trails Plan Committee to prepare a draft of the plan; and,

**WHEREAS,** the plan was presented at a public hearing on February 24, 1993 for public review and comment; and,

**WHEREAS,** staff has gathered input/comments from County agencies, the development community, and the public and incorporated those comments into the "revised plan"; and,

**WHEREAS,** a second public hearing was held on April 14, 1993 to present the revised plan to the citizens;

**NOW, THEREFORE, BE IT RESOLVED,** that the Prince William County Park Authority Board does hereby adopt the Prince William County Park Authority Trails and Greenways Master Plan as presented at the April 14, 1993 public hearing, subject to the review and approval by the Planning Commission and the Board of County Supervisors.

**VOTE:**

**AYES:** Evans, Wassenberg, Christiano, Ebert, Johnson, Gardziel

**NAYS:**

**ABSTAIN:**

**ABSENT DURING VOTE:**

**ABSENT DURING MEETING:** Moseley, York

I hereby certify that the foregoing RESOLUTION was duly ADOPTED AND EXECUTED on behalf of the Park Authority on this 14th day of April, 19 93.

  
Betty Bolt, Secretary



## EXECUTIVE SUMMARY

### THE PRINCE WILLIAM COUNTY TRAILS AND GREENWAYS MASTER PLAN

*The Prince William County Park Authority is pleased to present the following trails and greenways master plan for Prince William County. The plan was developed by an ad hoc trails committee that included representatives from the Park Authority and County Agencies, Leesylvania State Park, Prince William Forest Park, the Manassas National Battlefield Park, the Virginia Department of Transportation and several interested citizens. This is a conceptual plan identifying potential greenway corridors and trail alignments, with proposed actions for implementing the plan along these corridors.*

#### **Introduction: What are greenways and trails?**

Greenways are areas of open space, usually linear, which connect and protect various natural, recreational, and cultural resources. They often follow linear landscape features such as streams, ridges, utility easements, or abandoned roads or railroads. Greenways can be publicly or privately owned, and may be open or closed to the public. Parts of a greenway may be simply a scenic resource or an important wildlife habitat, owned and maintained by a private landowner. Other parts may include public trails for hiking, biking, or equestrian uses. Greenways serve a variety of functions, including recreation, transportation, wildlife habitat, water quality protection, flood hazard reduction, aquifer recharge, erosion prevention, property value enhancement and scenic beauty.

Trails are linear corridors with public access for non-motorized recreation and transportation purposes. Trails may be surfaced with soil, sand, clay, stonedust, woodchip or asphalt materials depending on available funding and environmental conditions. Trails may also follow a natural land or water feature as well as utility easements, abandoned railroad beds or parallel local roads and highways.

#### **Purpose: What does this plan do?**

##### **The Prince William County Trails and Greenways Master Plan:**

Proposes policies, guidelines, and general standards for the future location of greenways in the County and for the location and construction of trails for hiking, biking, and equestrian purposes;

Proposes a comprehensive system of trails for recreation and transportation in stream valleys, local parks, and along roadways and utility rights-of-ways;

Recommends the inclusion of trails in all area master plans, the County Capital Improvement Program, the State Highway Improvement Program, and the Park Authority Budget; and,

Recommends the use of local, State, and Federal funds for trails development and land acquisition.

**Implementation: How will this plan be implemented?**

The Prince William County Trails and Greenways Master Plan proposes a variety of actions for implementation and management. These include:

Partnership -- Because of the complexity of land ownership, terrain, and proposed use of the greenways and trails network, the Trails Committee recommends that the network be owned and managed through a partnership effort rather than by a single agency or organization. The system would be established in pieces, over a long period of time, by a number of different entities using a variety of public and private conservation methods. State and local public agencies, private organizations and businesses, and civic groups, clubs and individuals should participate in the creation and management of the greenway system.

Land Trust -- The Trails Committee encourages the establishment of a private land trust for Prince William County as one of the first and most important steps toward implementing this plan. A land trust is a nonprofit organization for land conservation. A land trust can purchase or accept donations of land or conservation easements, manage land owned by others, advise landowners on land protection, and negotiate land transactions between other organizations or landowners.

Conservation Methods -- In some cases, outright purchase of land (by the Park Authority, County or a land trust) may be the best way to protect a greenway and provide a trail connection. However, there are methods of protecting land, such as private donations, voluntary easements, zoning, clustered development and use of existing public land. The Trails Committee recommends that a variety of these methods be considered and used to establish the greenways and trails network.

**Recommendations: What happens now?**

The Trails Committee recommends the following actions to follow-up on this plan and begin implementation of the plan:

**The Park Authority**

1. Build an advocacy group or coalition of agencies, clubs and citizens interested in providing a voice for implementation of the plan.

2. Review development proposals and recommend to the County that they secure the necessary land, easements, or improvements needed to implement the trails plan.
3. Explore the mechanisms of forming a land trust to acquire and manage lands not held by a public agency.
4. Choose one or two pilot greenways and trails projects to apply the methods of implementation explained in this report, pursue outside funding opportunities, develop design standards and provide a success story for further implementation of the plan.
5. Work closely with the Service Authority and other utility companies to collocate utility and trail easements.
6. Work closely with the Police Department and Park Authority Rangers to develop a security program for future trails including the possibility of a Trails Watch or Trails Patrol.

#### Prince William County

1. Review the Prince William County Trails and Greenways Master Plan and incorporate elements of the plan into the County's comprehensive plan.
2. Update the Design and Construction Standards Manual and Zoning Ordinance to incorporate changes needed to implement the trails plan.
3. Take into account the trails and greenways plan during the land development review process and negotiate improvements as appropriate.
4. Request that the Virginia Department of Transportation consider the inclusion of bicycle facilities on all road improvement projects consistent with their policy, the 1991 Intermodal Surface Transportation Efficiency Act, and the County's comprehensive plan.
5. Support legislative changes supporting planning, funding, and interjurisdictional use of trail systems.



### Private Sector

1. Individual landowners whose land could be part of the greenways and trails network are encouraged to donate land or easements to the system.
2. Developers are encouraged to contribute to the network by dedicating land, donating easements or funds, or building sections of the trails.
3. Homeowners associations, civic, church, and recreational groups are encouraged to develop and maintain segments of trails running through their communities or spur trails to connect with longer trails. Residents will also be encouraged to participate in an adopt-a-trail program to assist in the patrol and upkeep of the trail segments in their community.

The Trails and Greenways Plan is meant to serve as a guide for decision making. It is important to note that the actual location of trails may vary from the alignments shown in this plan. Individual land features, unsuitable terrain, property ownership, and citizen needs will all help to dictate specific alignments. The key objective is to create linkages and loops that provide safe, accessible and useful alternative forms of transportation and recreation. To assure that the plan is flexible and dynamic, it will be reviewed and revised every five years. This will allow the Park Authority and County to reassess its goals, needs, priorities, shortfalls, and accomplishments.

Citizens are the Park Authority's most valuable resource. Without their volunteer efforts, their input into the trail planning process, and their support of this effort, the Park Authority and County could not bring the plan to fruition. The Park Authority asks for the continued support of citizens and the Board of County Supervisors in making the Prince William County Trails and Greenways Master Plan the best it can be.

## CHAPTER 1

### INTRODUCTION: THE BENEFITS OF A COUNTY-WIDE TRAILS AND GREENWAYS PLAN

*The purpose of this plan is to provide a framework around which a comprehensive system of trails and greenways can evolve. The overall goal is to encourage the development of a system for non-motorized travel that will link neighborhoods, parks, schools, businesses and public facilities as well as link and protect important natural and cultural resources consistent with the County's Comprehensive Plan. The following chapter provides an overview of the need for and benefits of providing a county-wide greenways and trails plan.*

#### INTRODUCTION

Prince William County is a rapidly urbanizing jurisdiction located less than thirty miles from Washington, D.C. The County is part of the "Golden Crescent" of Virginia, the name given to the area that stretches from Washington, D.C. to Richmond and the Tidewater Region. In 1990, the "Golden Crescent" accounted for 90% of the state's overall population growth.

Figure 1 on page 7, shows that Prince William County is located south west of Washington, DC and bordered by the counties of Fairfax, Loudoun, Stafford and Fauquier and the Potomac River. Prince William County is part of the newly formed Washington-Baltimore Metropolitan Statistical Area.

The County's land area is 347 square miles with topography ranging from coastal plain at the Potomac River to 1,311 feet above sea level at Bull Run Mountain. Land uses in the County range from urban to rural. The diversity of land uses, population and topography provides an opportunity for a comprehensive system of trails to be developed that can serve many different functions including providing transportation and recreation opportunities to County residents and visitors. In 1990, the U.S. Census Bureau reported that the number of County residents that used a bicycle to reach their workplace increased by 186%.<sup>1</sup> Unfortunately, due to the lack of facilities for bicyclists, the bicycle enjoys only .2% of the modal share of means of transportation to work while the single-occupancy vehicle is 70% of that share.<sup>2</sup>

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<sup>1</sup>1980 & 1990 Census Tabulation by the Metropolitan Washington Council of Governments, January, 1993.

<sup>2</sup>Ibid.

In addition, the designation of a comprehensive system of greenways can help to stem the continuing loss of the County's open space and forests. In Prince William County, timberland decreased nearly 6.5% from 100,742 acres in 1986 to 94,125 acres in 1992. This is in comparison to a 3.7% decrease in timberland over the previous decade, 1976 to 1986.<sup>3</sup> This statistic is one indication that Prince William has been experiencing a change from a rural agricultural environment to a more urban setting. It will be necessary for Prince William to plan for open space and forest preservation as an integrated part of its growth.

In December 1990, the County's Commission on the Future released their report which described Prince William County in the year 2010. In the report, the Commission stated that, "(the) bike paths have been extended and linked with those of neighboring counties. These same paths link urban villages and serve as walking paths, connectors to core recreational facilities and wildlife refuges."<sup>4</sup> The Commission continues, "Most individual movement is done on foot, by bike, or convenient quick mass transit. The people of Prince William County welcome people-powered transportation.....Biking and walking trails form a network throughout the County, providing residents with the opportunity to travel from and to connect with trails in neighboring counties."<sup>5</sup> The purpose of this plan is to assist residents in achieving their vision of Prince William County in the year 2010.

This plan is consistent with the County's adopted Comprehensive Plan. Those elements that support the concept include environment, transportation, land use, cultural resources and parks and open space. In particular, Recreation Policy #4 from the Parks and Open Space Element, promotes and encourages the establishment of linear park systems along stream valleys where appropriate. Also, Policy 6, Action Strategy T7.1 of the Transportation Element directs County staff to "continue to aggressively promote extension of the Prince William County Park Authority Trails Plan." The appendix of this report provides a complete list of those policies, goals and strategies from the County's Comprehensive Plan that support this plan. It is the intent of the Park Authority that the Comprehensive Plan be amended upon adoption of this plan by the Park Authority Board. This is necessary in order for the recommendations of this report to be implemented and for consistency between County agencies.

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<sup>3</sup>Keith Hawkins, Community Forester, Virginia Department of Forestry, Manassas, Virginia August 31, 1992.

<sup>4</sup>Prince William County Commission on the Future Report, December 1990, pg. 14.

<sup>5</sup>Ibid, pg. 17.



Figure 1: Location Map



Source: Northern Virginia Planning District Commission

## THE BENEFITS OF TRAILS AND GREENWAY PLANNING

There are many different types of greenways and trails each designed to provide different benefits to a variety of users. In general, greenways are corridors of protected open space and forests that are managed for both conservation and recreation purposes. Greenways often follow natural land or water features such as a mountain ridge line or stream valley. Greenways may contain trails or they may be pure open space used as buffers from developments or designed as environmental conservation areas containing wildlife corridors. In turn, trails are linear corridors with public access for non-motorized recreation or transportation purposes such as biking, walking, hiking, horseback riding or jogging. Trails may be surfaced with soil, sand, clay, stonedust, woodchip or asphalt materials depending on environmental conditions and the proposed use of the trail. Trails may also follow a natural land or water feature as well as utility easements, abandoned railroad beds, or state roads and highways.

It is widely known that a comprehensive trail system provides convenient access to outdoor recreation attractions. In the Metropolitan Washington region, the popularity of the W&OD Trail, bisecting Loudoun and Fairfax Counties has caused the trail to be widened twice since it was first constructed by the Northern Virginia Regional Park Authority. However, a comprehensive system of trails can have many different types of benefits besides fulfilling basic health and fitness needs. Trails have the potential to provide several economic benefits; serve tourism markets; protect unique environments; improve air quality, aid in environmental education and generally increase the quality of life for residence and visitors.

The National Park Service recently concluded a study of the impacts of three trails, similar to the W&OD Trail, in Iowa, Florida and California. This study, The Impacts of Rail-Trails: A Study of Users and Nearby Property Owners from Three Trails, is the first to provide a national study that systematically examines both the trail users and nearby property owners of the same trails. The study concluded that trails can provide a wide range of benefits to users, local landowners, and trail communities and that they are not single use, single benefit resources. Residents and visitors in the study areas found that they enjoyed several benefits including:

- easy access to the trails for recreational purposes;
- aesthetic beauty and protected open space adjacent to their property; and,
- the steady increase of property resale values.

In addition to the benefits to the nearby residents, local communities found that they enjoyed bolstered economies and increased community pride among other benefits.<sup>6</sup> The importance of the National Park Service study can not be over-stressed. It has provided a confirmation of earlier, more localized studies that had similar results. An overview of the benefits of trails and greenways is provided in Figure 2 on the following page and a brief synopsis of the results from the National Park Service study is included in the appendix of this report.

The State supports local trails planning as well. In 1989, the State developed a statewide recreational plan that identified jogging, hiking and biking trails as priority needs for this region. The "1989 Virginia Outdoors Plan" identified a specific need for bicycling facilities both for pleasure and for commuting to work and to school. In Virginia, 10% of the population use a bicycle to commute to work and 33.5% of Virginians bicycle for pleasure.<sup>7</sup> The plan included the recommendation that an effort be made by all Virginia localities to link existing trails into a regional trail network. Prince William County has three regional trails listed in the "1989 Virginia Outdoors Plan." These include the Bull Run Mountain Trail, Potomac Heritage Corridor Trail, and the Maine to Virginia Bike Trail. This recommendation is supported by a poll conducted in 1991 for Bicycling Magazine that found that one in sixty Americans currently commute by bicycle, but that one in five would if bicycle facilities were improved.

## PROCESS AND ORGANIZATION

In early 1992, the Planning/Engineering Division of the Prince William County Park Authority convened a Trails Committee made up of representatives from local, State and Federal agencies and private citizens. The Committee was responsible for reviewing the draft trails map prepared by the Park Authority Staff and for developing the goals and strategies outlined in Chapter 2 of this report. The Staff promoted the plan at different community events and made several presentations to private organizations including civic associations, clubs and to representatives of the development community. Once completed, the draft of this report was widely reviewed outside the immediate circle of the Trails Committee. The result is a comprehensive trails and greenways plan that was developed in cooperation with various local, State and Federal agencies. Review by all major civic groups and three public hearings assured public input and acceptance.

Provided with this document is a map of proposed trail and greenway alignments. These alignments are generalized and represent desired linkages. Actual alignments will be determined during the development review process and may vary from those shown on the map. The remaining chapters in this report are designed to support the alignments shown on the map and to provide general guidelines for locating and constructing these and future trails and designating greenways in the County.

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<sup>6</sup>Roger L. Moore et al. The Impacts of Rail-Trails: A Study of The Users and Property Owners from Three Trails (Washington, D.C.: National Park Service, 1992) pg. iii.

<sup>7</sup>"The 1989 Virginia Outdoors Plan" prepared by the Virginia Department of Conservation and Recreation, pg. 186.



**Figure 2: Fact Sheet on the Benefits of Trails and Greenways**

Summary of Findings	
Real Property Values	Many studies demonstrate that parks, greenways and trails increase nearby property values. Inturn, increased property values can increase local tax revenues and help offset greenway acquisition costs.
Expenditures by Residents	Spending by local residents on greenway related activities helps support recreation oriented businesses and employment, as well as other businesses which are patronized by greenway and trail users.
Commercial Uses	Greenways often provide business opportunitis, locations and resources for commercial activities such as recreation equipment rentals and sales, lessons, and other related businesses.
Tourism	Greenways are often major tourist attractions which generate expenditures on lodging, food, and recreation oriented services. Greenways also helps improve the overall appeal of a community to perspective tourists and new residents.
Agency Expenditures	The agency responsible for managing a river, trail or greenway can help support local businesses by purchasing supplies and services. Jobs created by the managing agency may also help increase local employment opportunities.
Corporate Relocation	Evidence shows that the quality of life of a community is an increasingly important factor in corporate relocation decisions. Greenways are often cited as important contributors to quality of life.
Public Cost Reduction	The conservation of rivers, trails, and greenways can help local governments and other public agencies reduce costs resulting from flooding and other natural hazards.
Intrinsic Value	While greenways have many economic benefits it is important to remember the intrinsic environmental and recreation value of preserving rivers, trails and other open space corridors.
Adapted from: <u>Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors</u> , National Park Service, 1990	
For additional information contact: The Conservation Fund 1800 N. Kent Street, Arlington, Va. 22209, (703) 525-6300	

## CHAPTER 2

### GOALS AND OBJECTIVES CREATING A TRAILS AND GREENWAYS SYSTEM

*This report is designed as a living document that will evolve through the realization of the goals and objectives that are presented in this chapter. The goals and objectives are designed to implement the overall mission of the Trails and Greenways Plan. Action strategies are listed under each objective to provide specific recommendations for achieving each individual goal.*

**MISSION:** To establish a system of trails and greenways that link the County's natural, cultural, historic and recreational resources with residential, commercial and community facilities for the benefit of the citizens of Prince William County.

**GOAL 1:** Develop a comprehensive trails and greenways system that is attractive and convenient to use and links places people live to places they work, shop and recreate.

**Objective:** Identify and maintain an inventory of all major residential, commercial, recreational, natural, cultural, historic and public facilities in the County.

**Action Strategies:**

- Produce a comprehensive trails map that identifies major residential, employment and commercial centers; all park and recreation areas; sites of major historical and cultural significance with major components of the comprehensive trail system.
- Maintain smaller, section plan maps identifying specific sites and trail routes. Update periodically with new development and trail construction.

**Objective:** Link the County's comprehensive trails systems to greenway, equestrian, bicycle and pedestrian trails planned in neighboring jurisdictions to help create a comprehensive regional trails system.

**Action Strategies:**

- Provide connections in the County to the planned Potomac River Heritage Trail and existing trails such as the W&OD Trail in Fairfax and Loudoun Counties.

- Provide connections to trails planned in the Cities of Manassas and Manassas Park, the Counties of Fairfax, Loudoun, Fauquier and Stafford and regional planning authorities such as the Northern Virginia Regional Park Authority and Potomac River Greenway Coalition.
- Provide connections to trails existing and planned within state and federal parks and reserves such as Prince William Forest Park, Leesylvania State Park, Conway Robinson State Forest and Manassas National Battlefield Park.

**GOAL 2: Develop and construct a comprehensive trails and greenways system that is sensitive to environmental, cultural and historic resources.**

**Objective:** Protect the quantity and high quality of water sources for people, plants and wildlife.

**Action Strategies:**

- Select greenway locations which incorporate stream valleys, wetlands, public water supply impoundment areas and watershed areas, to enhance the attractiveness of trails and to ensure protection of the County's water supply.
- Encourage supplementary buffers in addition to Resource Protection Areas (RPA) to create broad greenways along stream valleys.

**Objective:** Protect environmentally important lands, native plants and animals during trail construction.

**Action Strategies:**

- Develop and officially adopt nationally-accepted trail construction methods (i.e., the National Park Service's Trail Management Guidelines) to ensure enjoyable trails for users while providing maximum protection for the natural environment.
- Adhere to federal, state and local environmental protection regulations to protect flora and fauna prior to the construction of trails.
- Identify and record threatened and endangered species within greenways corridors and avoid disturbance during trail design and construction.
- Discourage trail construction which would undermine slope stability.
- Construct trails in a manner which minimizes the potential impacts of flooding and erosion.

- Minimize disruption of the natural environment during the construction of trails.
- Design trails to protect hardwood forest areas by site selection of trail locations that preserve specimen trees.

**Objective:** Preserve the biological diversity of plant and animal species by identifying greenways that maintain the connections between natural communities and provide wildlife corridors.

**Action Strategies:**

- Designate specific wildlife corridors on the trails map.
- Utilize signage and educational materials to heighten the awareness of and notify the public of wildlife corridors.

**Objective:** Protect historic and prehistoric sites by increasing public awareness of these sites and protecting the areas from development.

**Action Strategies:**

- Adhere to federal, state and local archeological and historic preservation regulations prior to construction of trails to protect known and suspected archeological historic sites.
- Design and construct trails with archeological and historic sites as an important consideration both in terms of preservation and access to and linkage with other historic sites.
- Develop an educational program and materials to explain the significance of and encourage the protection of archeological and historic sites through interpretive trails and other media.

**GOAL 3: Promote awareness and maximum use of the trails and greenways system.**

**Objective:** Ensure that the system contains a variety of trail types to attract and serve a wide range of diverse users.

**Action Strategies:**

- Utilize a variety of natural and manmade features to include in the total system such as: 100-year floodplain and 100' Resource Protection Areas; land with slopes greater than 25%; existing parks (local, state, national); gasoline, powerline and sewerline easements; roadways and public transportation nodes.



- Design trails that are wide enough to accommodate multiple uses.
- Identify trails where requirements of the Americans with Disabilities Act for public recreation facilities can and should be met.

**GOAL 4: Develop a comprehensive trails and greenways system that is safe for all users.**

**Objective:** Separate trails along major arterial roadways to reduce conflicts between motorized and non-motorized uses.

**Action Strategies:**

- Provide for the purchase of adequate right-of-way in all County road projects to accommodate the construction of safe and proper trail facilities parallel to roadways.
- Utilize grade separations, physical barriers and/or the use of paved shoulders to separate trails from vehicles roadways if adequate right-of-way is not obtainable, though not as to prevent open visualization of the trail and its users.
- Mark designated bike routes with signage to promote use and warn drivers of bike traffic, crossings, etc.

**Objective:** Utilize CPTED (Crime Prevention Through Environmental Design) practices to enhance the physical safety of the trails and personal safety of the users, whenever possible.

**Action Strategies:**

- Natural Observation - Place the trails near roadways, commercial areas, and residential areas where natural observation of the trail and its users can deter criminal activity.
- Clear Zone - Clear brush away from the trail at least 20-30 feet to eliminate hiding places and to increase natural surveillance.
- Open Passageways - Minimize the need for tunnels by keeping road crossings at grade, if possible.
- Minimize isolated natural areas and promote appropriate crime prevention measures such as the "buddy system".

**Objective:** Prohibit motorized vehicular traffic on all trails.

**Action Strategies:**

- Utilize locked, single post barriers at trail ends to keep non-authorized motorized vehicles off the trails.
- Design barriers (grade separations, railings, low landscaping, etc.) and signage to prohibit cars, trucks, and motorcycles from using the trails without blocking the trail from sight.
- Amend Section 17-24(b) of the County Code regarding permitted vehicles in parks to include all greenways and trails as land that is "owned or leased by the authority or operated by the authority as a park or recreation area and open to the general public for park or recreation purposes" to allow the citation of drivers of motorized vehicles on trails designed for non-motorized traffic.

**Objective:** Design and construct hazard protections to ensure an accessible trail system.

**Action Strategies:**

- Develop a trail design manual that incorporates specific specifications for:
  - surface materials and trail widths
  - traffic control devices (eliminate road buttons, reflectors, rumble stripes)
  - safe drainage grate designs (small grid design or keep out of trail path)
  - adequate site distances to reduce accidents (see VDOT standards)
  - safe slope and drainage designs
  - railroad, bridge and waterway crossings
  - bikeway signage
  - intersection crossings
  - provisions for emergency access
  - provisions for accessibility

**Objective:** Provide structured access points to the trails system.

**Action Strategies:**

- Provide trail access points at park locations or other public facilities (schools, libraries, County offices, etc.) as well as from businesses when appropriate. Trail access points should have convenient parking, bike racks, lockers, shelters, and other facilities as needed to promote use of the trail system.
- Provide access points for equestrian trails, canoe and/or small boat drop-off areas with larger parking spaces to accommodate trailers.

- Provide public transportation facilities and all public buildings with facilities for bicycle parking and trail connections to encourage use of non-motorized transportation.
- Encourage businesses to provide for bicycle parking facilities and to utilize private trails to connect to the County system and encourage bike and pedestrian traffic.
- Designed trail entrances with slopes of 12% or less in compliance with the Americans with Disabilities Act to accommodate access to the maximum number of users.
- Place rules (hours, alcohol usage, etc.) as well as litter/recycling receptacles at main access points.

**Objective:** Develop a comprehensive educational and enforcement program to promote the safe operation and use of equipment and trails as well as enhance personal safety of the user.

**Action Strategies:**

- Amend Section 17-1 of the County Code regarding the definition of park or recreation area to include all greenways and trails owned or leased by the Park Authority or operated by the authority as a park or recreation area and open to the general public for park or recreation purposes to allow the enforcement of park authority rules and regulations by park authority personnel.
- Amend Section 17.23 of the County Code as needed to allow enforcement personnel to issue citations to users who disobey trail rules.
- Support the activities of the Prince William Community SAFE KIDS Coalition, Prince William Fire, Rescue and Police Departments and the Virginia Division of Motor Vehicles promoting bicycle and pedestrian safety.
- Prepare a brochure for distribution at safety programs, all park facilities, schools and libraries that emphasizes that ultimate safety depends on the judgement of the user and outlines the following:
  - proper clothing and equipment
  - trail edict/conduct
  - learning trail routes and access points
  - emergency response procedures
  - crime prevention procedures and information

**GOAL 5: Develop an implementation strategy that is cost effective, results oriented and produces an attractive, well-maintained trail system for citizens.**

**Objective:** Encourage private development of trails and utilize planned and existing utility easements, road acquisition and construction, etc. to minimize the public costs of trail construction.

**Action Strategies:**

- Solicit trail easements from private landowners that generally follow existing or planned utility easements to utilize existing corridors and minimize land disruption, clearing and maintenance costs.
- Promote the use of abandoned and/or discontinued roads and historic road beds as trail and greenway connections.
- Where trails parallel or share highway access, incorporate trail design into roadway designs including preliminary engineering, right-of-way acquisition construction and funding.
- Solicit proffers and donations for trail easements and construction whenever a proposed development abuts a planned greenway and trail.
- Communicate with developers in greenway areas during early planning phases to explain the benefits of greenways and to seek methods which will provide and/or protect greenways and/or provide public access.
- Encourage clustering and other incentives as planning tools to promote greenways throughout the County.
- Amend the County zoning ordinance to permit developers to utilize easements, floodplain, rights-of-way for density credits if he/she allows greenways to traverse the property.
- Encourage landowners to dedicate land as open space to utilize the tax benefits of the Virginia Conservation Easement Act and the Act for Special Assessment for Land Use Preservation.

**Objective:** Establish a Greenways and Trails Land Trust to solicit private donations and leverage scarce public funds to provide for land acquisition, construction and maintenance of existing and future trails.

**Action Strategies:**

- Form a steering committee to set criteria to recruit board members, research legal



documents, land protection strategies and funding sources available for land trusts in Virginia.

- Actively market the program through an aggressive public relations campaign that includes brochures and a video on the benefits of participation through monetary contributions, easements, estate bequests, bargain sales, donations, etc.

**Objective:** Establish maintenance responsibilities to maintain an attractive and useful trail system.

**Action Strategies:**

- Construct bicycle trails as part of County road projects to meet the standards and specifications of the Virginia Department of Transportation so that the trails will be accepted into the state system and maintained as part of that system.
- Develop an Adopt-a-Trail Program, similar to adopt-a-highway programs to allow private citizens, businesses and service organizations to keep the trails litter free and attractive as well as providing a means for letting the Park Authority know when greater maintenance efforts are required such as resurfacing, etc.
- Where trails cross through private developments, on land owned by homeowners associations, negotiate maintenance agreements where the HOA maintains that section of the trail which traverse the development but allow for access by the general public.

**GOAL 6: Provide for continued public participation in the planning, design, construction and maintenance of the Trails and Greenways Plan.**

**Objective:** Encourage the establishment of an area coalition to support implementation of the plan, provide a body of persons with first-hand knowledge of the needs of a trail system and provide candidates for the Adopt-A-Trail program.

**Action Strategies:**

- Build a coalition of government agencies, citizens, nature and service clubs and organizations to build an advocacy group to support implementation of the plan.
- Provide information at local community events, parades, fun runs and bike races for interested citizens.
- Produce a bi-annual newsletter to announce new trail openings, land acquisition, events, etc. to keep the advocacy group well informed and up-to-date.
- Produce a map or series of maps that shows existing and planned routes and are

easily reproduced to be carried by a person while on the trails themselves.

**GOAL 7: Coordinate planning activities for the Trails and Greenways Master Plan with those from neighboring jurisdictions, regional and state planning agencies as well as local service authorities.**

**Objective:** Work with neighboring jurisdictions to create a comprehensive system of greenways and trails throughout the Northern Virginia region consistent with the goals of the "1989 Virginia Outdoors Plan" advocated by the State and long-range plans of NVPDC, NVRPA and MWCOG.

**Action Strategies:**

- Connect greenways and trails, where appropriate and desirable, to greenways and trails planned within Loudoun, Stafford and Fairfax Counties, Manassas and Manassas Park Cities.
- Provide all neighboring jurisdictions, regional and state agencies and service authorities with copies of the adopted Trails and Greenways Master Plan and encourage them to provide linkages to the County's trail system.

**Objective:** Ensure that the design and construction of the Trails and Greenways Master Plan is eligible for all existing and future local, state and federal funding programs including monies available such as through the Inter-modal Surface Transportation Efficiency Act (ISTEA), the Clean Air Act Amendments 1990, Recreational Access Funds, the Virginia Outdoor Fund and Scenic Byways Act.

**Action Strategies:**

- Request that the adopted Trails and Greenways Master Plan be included within "The Bicycle Element of the Long-Range Transportation Plan for the National Capital Region" by the Metropolitan Washington Council of Governments for adoption by the National Capital Region Transportation Planning Board as part of the region's Long Range Transportation Plan.
- Submit priority trails projects that parallel or include highway access to the County Department of Public Works for inclusion in the VDOT Six Year Plan to be eligible for VDOT Revenue Sharing Funds and Secondary Road Funds.
- Prioritize and categorize trails projects depending on the specific funding source to be sought and identify projects, cost and funding in the County's Capital Improvements Program (CIP).

## CHAPTER 3

### THE TRAILS AND GREENWAYS MASTER PLAN

*The Trails and Greenways Master Plan describes and illustrates the proposed location of the trails and greenways in the system. For clarification, greenways and trails are divided into the following three categories: 1) greenways with no public access, 2) greenway trails that include public access and 3) asphalt trails that run parallel to roads. The accompanying master plan map illustrates the Prince William County Park Authority Trails and Greenways Master Plan.*

#### GREENWAYS

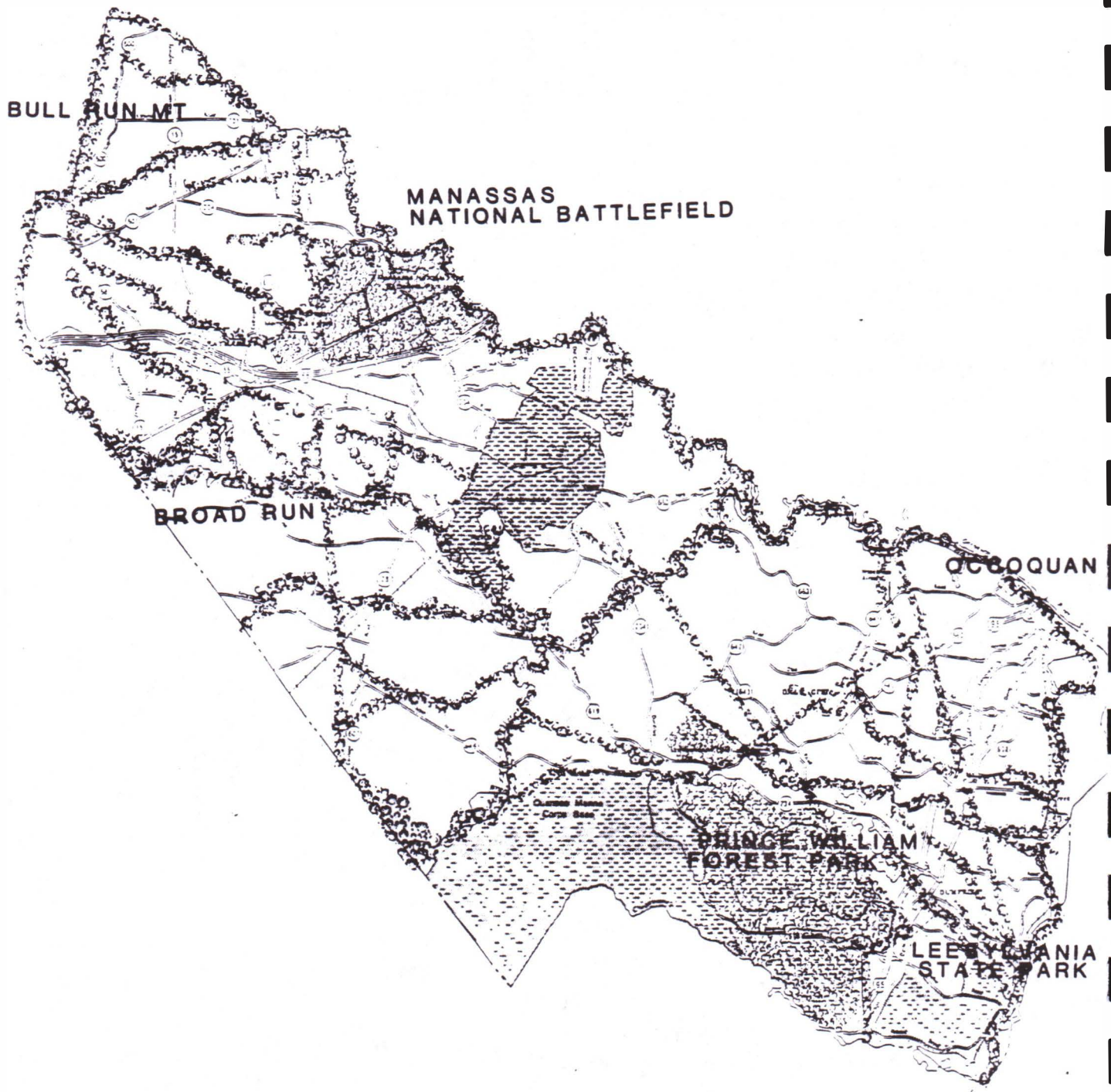
As explained in Chapter 1, greenways are areas of open space, usually linear, which connect and protect various natural and cultural resources. Figure 4 illustrates the Park Authority's proposal for a pattern of greenways throughout Prince William County that follow the County's ridgelines, stream valleys, utility easements and existing open space corridors. This greenways network includes all of the areas designated by the 1990 Prince William County Comprehensive Plan as "environmental resource" areas. The greenways identified in Figure 4 are intended to provide the basis for open space conservation and land preservation in Prince William County through both local ordinance and voluntary preservation programs. Greenways that are not designated for public access will serve to restrict development in sensitive environmental areas, provide wildlife corridors and areas of natural beauty.

**Figure 3: Greenways Can Help Protect Natural Habitats**





Figure 4: Proposed Greenways Map





## GREENWAY TRAILS

Figure 5 on Page 25 identifies those greenways that are proposed to have public access for transportation, recreation and educational purposes.<sup>8</sup> The types of activities proposed for the trails include walking, hiking, jogging, mountain biking and horseback riding. The trail routes were chosen based on one or all of the following criteria:

- Potential linkage between existing and planned residential communities, public facilities, parks and recreation facilities, historic and cultural sites.
- Opportunity to serve as transportation alternative between existing and future employment centers, residential developments and public transportation facilities.
- Surrounding land area is largely undeveloped.
- Existing public access easement or Park Authority control of land.

The following discussion provides a description of each of the trails identified on Figure 5 and amounts to an estimated 133.5 miles of trails. It is important to note that these trails are not property specific. While the intent of the greenway trails are to follow natural features, in some cases this is clearly not possible. Private property, fenced fields for livestock, unsuitable terrain due to flooding or steep slopes may cause the trail alignment to follow along a roadway.

#1 **Bull Run Mountain Trail** -- Part of the "1989 Virginia Outdoors Plan", this trail is consistent with that promoted by the Potomac-Appalachian Trail Club that follows a Civil War roadbed through land held in the public trust by the Virginia Outdoor Foundation.

#2 **Bull Run Trail** -- This trail generally follows Bull Run from the Bull Run Mountains past the Manassas National Battlefield Park to the Occoquan River providing connections to the Fairfax Bull Run Regional Park. (24 miles)

This trail connects to trails planned in Loudoun and Fauquier Counties, to the Manassas National Battlefield Park and through Union Mill Park in Manassas Park to Bull Run Regional Park in Fairfax County. The trail includes the consolidated

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<sup>8</sup> Note: The identification of this network does not prohibit future public access in other greenway areas highlighted on the illustrations either by the Park Authority or private development. The effort in this report has been to concentrate Park Authority resources on large, unbroken connections that have the ability to serve the most users. Also, the Park Authority does not intend to traverse private land except where proffered or voluntarily dedicated.

Mayhew, Linden, Gateway, Copeland and Ben Lomond linear park system. This trail will need to be designed carefully, taking into account the plans and policies of the National Park Service and neighboring jurisdictions.

- #3 **Chestnut Lick/Catharpin Creek/Little Bull Run Trail(s)** -- This network follows the Chestnut Lick from the Bull Run Trail to Waterfall and from Waterfall along the Catharpin Creek to Little Bull Run. (15 miles)

The trail links three historic resource areas in Waterfall with Long Regional Park, Conway-Robinson State Forest and the Bull Run Trail. The trails also provides the potential for horseback riding from either the equestrian ring at Long Park or local, private equestrian facilities.

- #4 **North Fork/Broad Run Trail(s)** -- This trail follows the North Fork from Waterfall through the Broad Run watershed to Lake Manassas and then along Broad Run to the Manassas Airport and Brentsville Historic Recreational Area. (20 miles)

This trail has the potential to not only links historic Waterfall with Brentsville but provides access to Lake Manassas and Nokesville from the western end of the County. In addition, there is interest from local equestrians located on Broad Run to have a connection to equestrian trails within the Manassas National Battlefield Park.

- #5 **Nokesville Trail(s)** - The Nokesville Trail system utilizes the Broad Run to Brentsville and then may branch off along the Kettle Run, Slate Run and Cedar Run stream valleys. The four stream valleys are connected through the use of an existing powerline easement from Cedar Run to Broad Run. (21 miles)

This trail system connects several historic resource areas in Nokesville with the Brentsville Historic Recreation Area. The system also provides another opportunity for horseback riding from the Nokesville Community Park/Equestrian Ring and local, private equestrian facilities.

- #6 **Occoquan River Trail** -- This trail follows the Occoquan River from the dam at Lake Jackson to the Occoquan Reservoir and downriver through Lake Ridge and the Town of Occoquan until it meets the Potomac Heritage Trail in the Belmont Bay area. Due to intense development of the Occoquan River this trail may depend heavily on connections from Yates Ford Road to Bull Run Regional Park and along existing bike paths to Occoquan. (12 miles)

- #7 **Potomac Heritage Trail** -- This trail is part of a regional trail system proposed to provide a trail connection from the headwaters of the Potomac River in West Virginia through Maryland and Virginia to the Tidewater area of Virginia Beach. The trail generally follows the Potomac River shoreline. The Potomac Heritage Trail has been

endorsed by the National Park Service, the Northern Virginia Planning District Commission and the Metropolitan Washington Council of Governments. (14 miles)

- #8 **Neabsco Creek Trail** -- This trail runs along Neabsco Creek from Leitch Regional Park through Dale City and portions of Woodbridge to the Potomac Heritage Trail. (9 miles)
- #9 **Powells Creek Trail** -- This trail runs along Powells Creek beginning at Minnieville Road and running east to Lake Montclair and Powells Creek inlet to the Potomac Heritage Trail and Leesylvania State Park. (10 miles)
- #10 **Quantico Creek Trail** -- This trail runs along Quantico Creek on the Cherry Hill Peninsula to connect the Potomac Heritage Trail with Prince William Forest Park. (5 miles)

Figure 5: Proposed Greenways Trail System

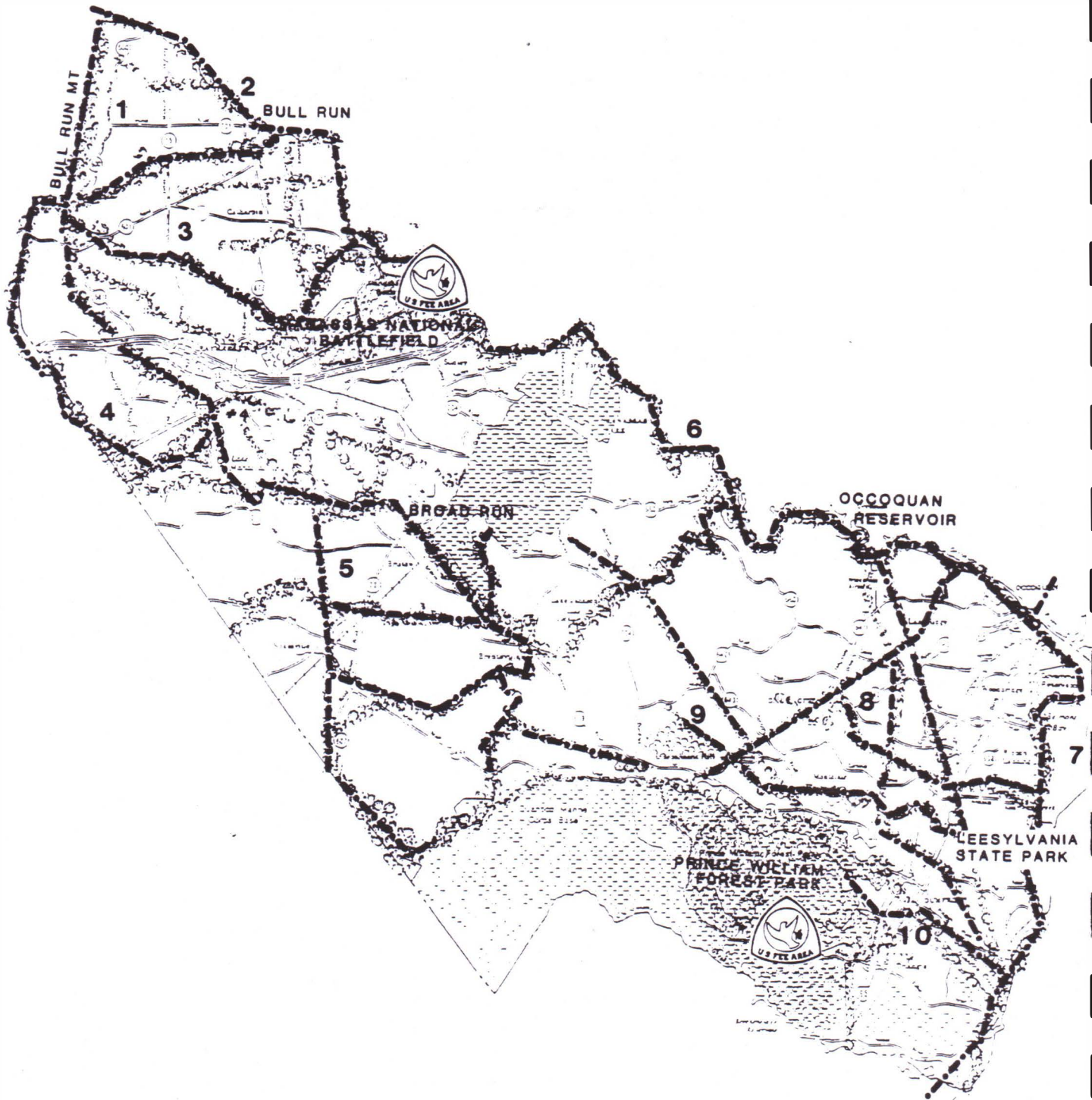




Figure 6: Trails Can Provide Many Benefits



**(A)** 10'-0"  
Hiker

**(B)** 10'-0"  
Bicyclist

**(C)** 10'-0"  
Horseback

## **BIKE TRAILS**

On August 20, 1991 four bicyclists were struck from behind by a tractor-trailer truck on Highway 17 South. Two of the bicyclists were killed and the remaining two were seriously injured. Highway 17 is similar to many roads in Prince William that have inadequate facilities for safe bicycle riding. In 1990, the Board of County Supervisors recognized the need to improve bicycle facilities in the County by adopting the current Comprehensive Plan which includes a section in the Transportation Element on non-motorized travel. As a result, the Prince William Parkway currently includes a Class I type of bicycle trail along the entire road. In addition, many private developers are recognizing the importance of planning bicycle facilities along interior roads and pedestrian networks.

To strengthen the non-motorized element of the County's Comprehensive Plan, the following network of designated bicycle routes is proposed for the County's existing and future road system. Designation means that the road will be posted for bicycle travel and consideration will be given during the design and construction of the road for bicycle access. In most cases, where a trail segment is part of an adopted, comprehensive trail system and at the request of the local jurisdiction, the Virginia Department of Transportation (VDOT) will include the cost of right-of-way acquisition, design, construction and maintenance of bicycle facilities within the total cost of a road project. If the proposed road project is along the route of Interstate Bicycle Route 1, VDOT will provide the necessary design features to facilitate safe bicycle travel. It should be emphasized that for VDOT to participate in the construction of a bicycle facility there needs to be active and vocal community support for the project. During the "value engineering" stage of a road design project, items are cut from the design that are deemed to be expendable by the highway department and participating jurisdiction in order to decrease spending are often eliminated if there is no public support for the facilities.

In general, all roads constructed in Prince William County should be designed to be bicycle and pedestrian friendly in accordance with the standards of VDOT and the American Association of State Highway and Transportation Officials (AASHTO). These standards are illustrated in Figure 7 and include the following types of facilities.

**Class I Bicycle Paths** - bikeways physically separated from motorized vehicular traffic by open space, landscaping or physical barrier.

**Class II Bicycle Lanes** - a portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. Bicycle lanes should always be one-way facilities and carry traffic in the same direction as adjacent motor vehicle traffic.

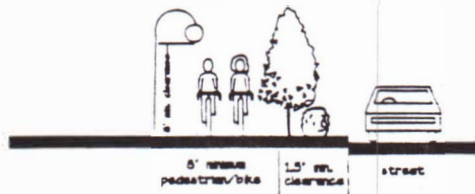
**Class III Bicycle Routes** - a segment of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers.

Figure 8 on the following page illustrates the principle routes of the proposed bike trail network. Additional Class III trail-types may be added to connect the network to specific points of interest such as parks and other public facilities.

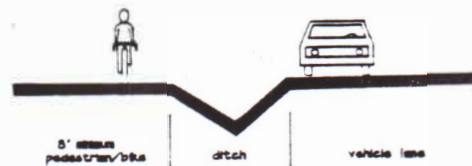
Figure 7: Bicycle Paths, Lanes and Routes

### Class I-II-III & Greenway Rural Standard Trails

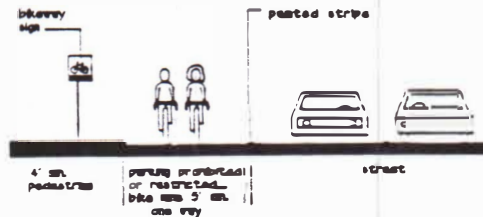
Class I (Bike Trail)  
Urban Standard



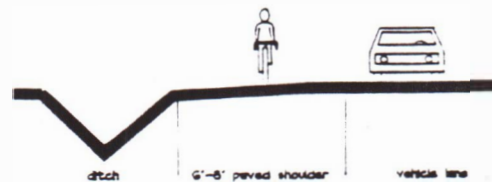
Class I (Bike Trail)  
Rural Standard



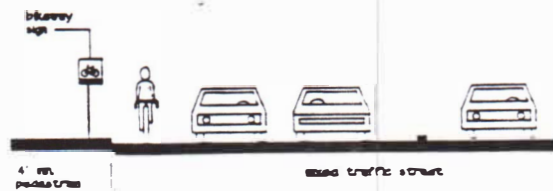
Class II (Bike Lane)  
Urban Standard



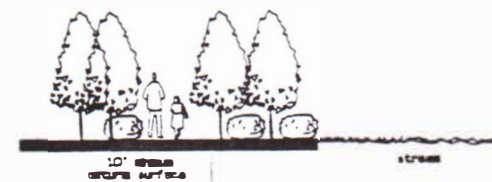
Class II (Bike Trail)  
Rural Standard Without Curb



Class III (Bike Route)  
Urban Standard



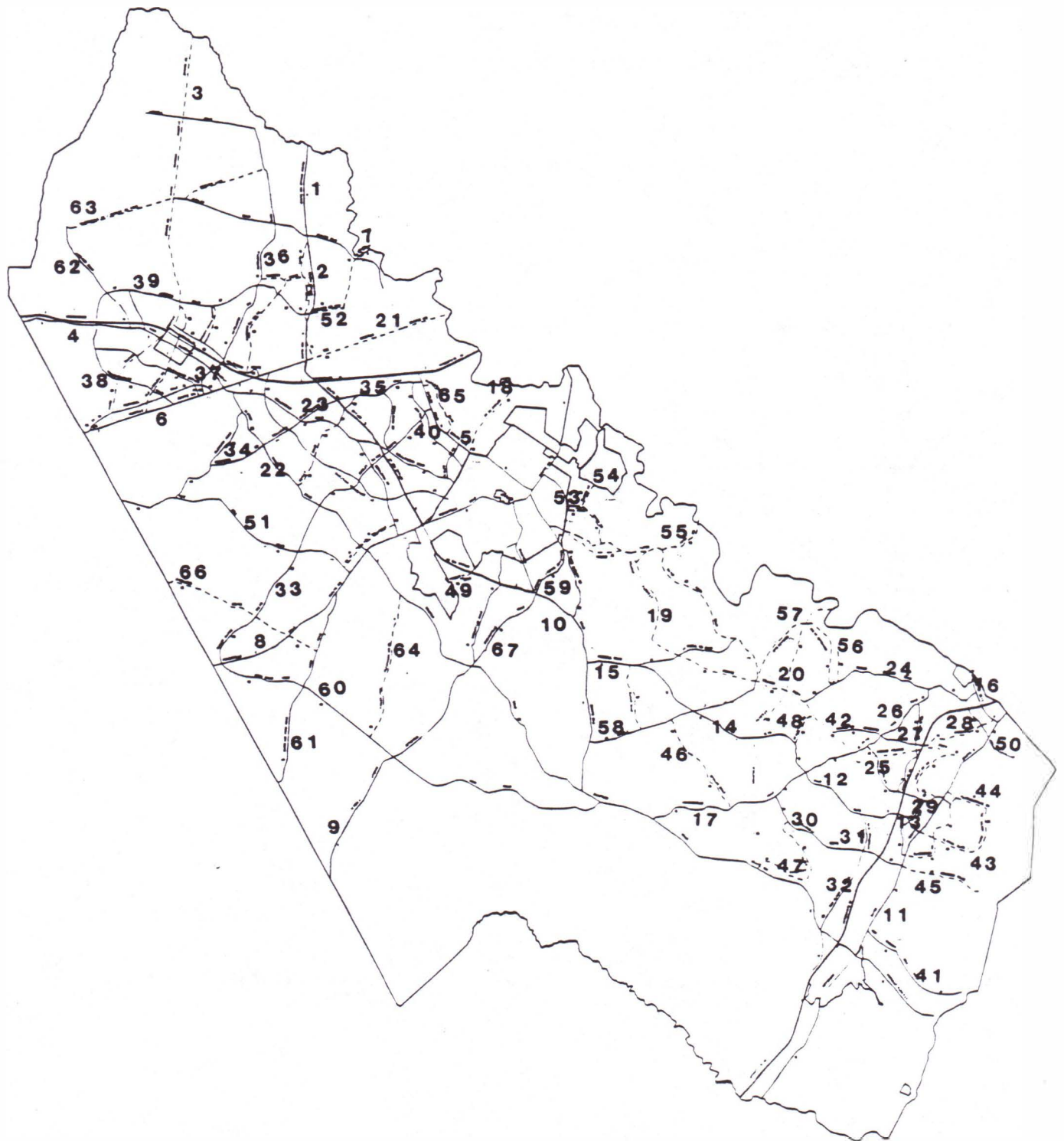
Greenway Trail



\* Note: R/O/W width will vary depending on the road type pursuant to the Prince William County Comprehensive Plan.



**Figure 8: Bike Trail Map**





**Table 1: List of Bike Trails**

<b>Key</b>	<b>Road Number/Name</b>	<b>Road Type</b>	<b>Trail Type</b>
1	Rt 234 Bypass	Freeway	Class I
2	Rt 234 Bypass N.	Freeway	Class I
3	Rt 15/James Madison Hwy	Principle Arterial	Class I
4	Rt 55/John Marshall Hwy	Principle Arterial	Class I
5	Rt 234/Sudley Rd	Principle Arterial	Class I
6	Rt 29/Lee Hwy	Principle Arterial	Class I
7	Gum Springs Rd	Principle Arterial	Class I
8	Centreville/Nokesville Rd		
	Fairfax/Manassas	Minor Arterial	Class I
	Manassas/Vint Hill	Principle Arterial	Class I
	Vint Hill/Fauquier	Principle Arterial	Class I
9	Liberia Avenue Ext	Principle Arterial	Class I
10	Dumfries Rd	Principle Arterial	Class I
11	U.S. Rt 1	Principle Arterial	Class I
12	Dale Boulevard	Principle Arterial	Class I
13	Dale Boulevard E.	Principle Arterial	Class I
14	Dale Boulevard W.	Principle Arterial	Class I
15	Purcell Rd	Principle Arterial	Class I
16	Gordon Boulevard	Minor Arterial	Class I
17	Minnieville Rd		
	PW Pkwy to Ridgefield Pkwy	Minor Arterial	Class I
	Ridgefield Pkwy to Rt 234	Minor Arterial	Class I
18	Route 28 Bypass	Freeway	Class I
19	Prince William Pkwy		
	Manassas/Hoadly Rd	Principle Arterial	Class I
	Hoadly Rd/Rt. 1	Minor Arterial	Class I
20	Ridgefield Pkwy	Principle Arterial	Class I
21	Rt 29/Lee Hwy		
	Rt 234 Bypass to Ffx	Principle Arterial	Class I
22	Linton Hall/Bristow	Minor Arterial	Class I
23	Piney Branch Rd Ext	Minor Arterial	Class I
24	Old Bridge Rd	Minor Arterial	Class I
25	Smoketown/Opitz Blvd	Minor Arterial	Class I
26	Davis Ford Rd		
	PW Pkwy to Gordon Blvd	Minor Arterial	Class I
27	Telegraph Rd	Minor Arterial	Class I
28	Horner Rd	Minor Arterial	Class I
29	Neabsco Mills Rd	Minor Arterial	Class I
30	Cardinal Dr	Minor Arterial	Class I
31	Benita Fitzgerald Blvd	Minor Arterial	Class I

Table 1 Continued.

Key	Road Number/Name	Road Type	Trail Type
32	Van Buren Rd N.	Minor Arterial	Class I
33	Sudley Manor Dr. West of Rt. 234	Minor Arterial	Class I
34	Glenkirk Rd	Minor Arterial	Class I
35	Balls Ford Rd	Minor Arterial	Class I
36	Catharpin Rd	Minor Arterial	Class I
37	Catharpin Rd W.	Minor Arterial	Class I
38	Thoroughfare Rd	Minor Arterial	Class I
39	Artemus Rd	Minor Arterial	Class I
40	Ashton Ave Ballsford/Godwin	Minor Arterial	Class I
41	New Cherry Hill Rd	Minor Arterial	Class I
42	Horner Road Ext	Minor Arterial	Class I
43	Rippon Blvd/Farm Creek	Minor Arterial	Class I
44	Featherstone Rd	Major Collector	Class I
45	Neabsco Rd U.S. 1/Newport Newport/Leesylvania	Minor Arterial Major Collector	Class I Class I
46	Spriggs Rd	Minor Arterial	Class I
47	Waterway Rd	Minor Arterial	Class I
48	Hillendale Rd	Major Collector	Class I
49	Cloverhill Rd	Major Collector	Class I
50	Dawson Beach Rd		Class I
51	Vint Hill Road	Minor Arterial	Class II
52	Artemus Road Ext	Major Collector	Class II
53	Signal Hill	Res. Minor Collector	Class II or III
54	Blooms Rd	Major Collector	Class II
55	Yates Ford Rd	Major Collector	Class II
56	Hedges Run/Cottonmill		Class II
57	Springwoods Dr Ext	Major Collector	Class II
58	Hoadly Road	Minor Arterial	Class II
59	Lake Jackson Drive	Minor Arterial	Class II
60	Aden Road	Minor Arterial	Class II
61	Carriage Ford Rd.	Minor Arterial	Class II
62	Antioch Road Waterfall/Artemus Artemus/Rt 55	Res. Minor Collector Minor Arterial	Class III Class I
63	Sudley Rd W/Waterfall Dr	Res. Minor Collector	Class III
64	Valley View/Fleetwood	Res. Minor Collector	Class III
65	Williamson Blvd	Major Collector	Class III
66	Fitzwater Road	Res. Minor Collector	Class III
67	Brentsville Road		Class II

## CHAPTER 4

### IMPLEMENTATION AND MANAGEMENT

*The greenways and trails system outlined in this report is very complex. The system traverses over both private and publicly held lands through a variety of terrains. Therefore, it is expected that implementation of the system will happen slowly, over a number of years and will require the cooperation of the Park Authority, the County, surrounding jurisdictions, the Virginia Department of Transportation, local clubs and organizations and private citizens. The following chapter provides an overview of the partnerships that should be forged and the tools to be used to acquire land for the system as well as to design, construct and maintain the trails portion of the plan. In addition, strategies to address trail liability and security issues will be discussed at the end of this chapter.*

#### IMPLEMENTATION

The first step in implementing this plan will be acquiring the land or easement. Acquisition can occur through a variety of mechanisms including fee simple purchase, regulatory mechanisms and dedication mechanisms. Regulatory mechanisms include federal, state and local laws that require open space, parkland or recreation facilities from private developers for the health and welfare of the citizens as well as those regulations that protect natural resources and endangered species. Dedication mechanisms include voluntary gifts of land or easements for tax purposes, or as part of Virginia's conditional rezoning process through proffers. It is important to note that the use of both regulatory and dedication mechanisms by a public authority is limited by state statute.

The following is an overview of those most important state and local regulatory and dedication mechanisms available to local public authorities to acquire land for greenways and trails. For additional information, a more complete compendium of laws and regulations affecting greenways and trails is included in the appendix of this report.

#### State Regulatory Mechanisms

1. Section 15.1-427 VA Code Ann. Planning, Subdivision of Land and Zoning - encourages local governments to improve the public health, safety, convenience and welfare of its citizens and to plan for the future development of communities to the end that transportation systems be carefully planned; that new community centers be developed with adequate highway, utility, health, educational, and recreational facilities; that the needs of agriculture, industry and business be recognized in future growth; that residential areas be provided with healthy surrounding for family life; that agricultural and forestal land be preserved; and that the growth of the community be consonant with the efficient and economical use of public funds. More specifically, Section 15.1 enables local governments to develop comprehensive plans, zoning and subdivision ordinances as well as accept

and enforce reasonable conditions related to specific rezonings (proffers).

2. Section 10.1-2100 VA Code Ann. Chesapeake Bay Protection Act - establishes a cooperative state and local government program to protect water quality in the Chesapeake Bay and its tributaries through improved land use management. Requires that local governments located within the watershed of the Chesapeake Bay and its tributaries, including Prince William County, incorporate specific regulatory measures to protect the Bay into their comprehensive plans, zoning and subdivision ordinances.

### **Local Regulatory Mechanisms**

1. Comprehensive Plan and Long Range Future Land Use Map - provides policy for the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the county which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity, and general welfare of the county's citizens. Within the comprehensive plan, Environmental Policy 11, AS 5 specifically states that the County will continue the progress towards establishing a County-wide greenway and path system while a variety of recreation policies provide how that would be done.

2. Zoning Ordinance - provides specific rules and regulations for land use and development within the county including provisions for open space, parkland and recreation acres as required. Zoning techniques for acquiring land for greenways and trails include:

Sec 300.18 - Cluster Development - allows residential development to be placed more closely together on the most buildable portion of the site leaving more land as designated open space.

Sec 305.00 - RPC Residential Planned Community District - sets out special criteria for residential development on no less than 500 acres promoting the economical and efficient use of the land, an improved level of amenities, environmental protection, resource enhancement, and creative design.

Sec 500.30 - Wetlands Protection - protects wetlands of primary ecological uses by defining those uses that are or are not permitted within an area designated as a wetland. The code recognizes the unique character of wetlands as irreplaceable environmental resources.

Sec 500.10 - Flood Hazard Overlay District - controls uses in flood hazard areas, such as fill, dumping storage of materials, structures and any other land disturbing activity which would tend to increase flood heights. Flood hazard areas include areas subject to inundation by the waters of the one hundred year flood.



3. Design and Construction Standards Manual - contains provisions which relate to the requirements which apply to the review and approval of site development plans and construction in the County.

Sec 750.00 Chesapeake Bay Preservation Area Overlay District - applies to all lands identified by the County as a Resource Protection Area or Resource Management Areas. Code requires an RPA buffer of not less than 100 feet in width adjacent to and landward of other RPA components and along both sides of any tributary stream. This effectively creates greenways along all of the County's major stream valleys and tributaries. The uses permitted in a RPA are limited to new or expanded water-dependent facilities and passive recreation facilities such as boardwalks, trails and pathways. While nondisturbance of the buffer is desired, paths can be constructed and surfaced if erosion is effectively controlled.

Sec 903.00 - A Subdivision Control Policy for Park and Recreation Land Requirements - provides standards for land dedication for open space, park land and recreational facilities required per the County's Comprehensive Plan, Capital Improvements Program and Official Land Use Map.

Sec 600.00 - Street Design Standards and Specifications - provides standard for the construction of streets including on-road pedestrian and bicycle walkways.

#### State Dedication Mechanisms

1. Section 10.1-1700 VA Code Ann. Virginia Open Space Land Act - enables public landholding bodies to acquire land or easements for the preservation of open space and to obtain and spend money to develop and maintain facilities on land acquired.

2. Section 10.1-1009 VA Code Ann. Virginia Conservation Easement Act - authorizes charitable organizations to acquire and hold conservation easements to protect natural or open space values and assure availability for agricultural, forestal, recreational, or open-space use, protect natural resources, maintain or enhance air or water quality, or preserve historical, architectural, or archeological aspects.

3. Section 15.1-1228 VA Code Ann. Park Authorities Act - enabling legislation to form a park authority for the purpose of acquiring and managing park lands.

4. Section 58.1-3229 VA Code Ann. Special Assessment for Land Preservation - allows localities to adopt ordinances to provide for certain lands to be assessed at their value under existing use, rather than at fair market value (a higher value resulting from potential for development). This law applies to agricultural and forestal districts, lands under open space easements, or lands subject to a recorded commitment between a landowner and the local governing body.

## **Local Dedication Mechanisms**

1. Deed of Easement - an alternative to fee-simple acquisition for conservation and/or trail construction purposes, a deed of easement is a legal instrument designed to restrict certain activities in a particular area or to permit public access over private land without a transfer of property title from the property owner to the public authority. In this case the property owner retains certain property rights as may be mutually agreed upon, and may be eligible for tax benefits under the Land Use Assessment Law.
2. Deed of Dedication - a transfer in ownership of a parcel of land from a property owner to the public authority, the property owner does not retain any rights to the parcel that has been transferred.
3. Conditional Zoning/Proffer System - Section 15.1-491(a) of the Code of Virginia allows localities to accept and enforce reasonable conditions related to a specific rezoning as long as they have been freely given, or proffered, by the applicant such as land for parks and open space in excess of what is required within the County Zoning Ordinance.

In addition, fee simple purchase by the County or the Park Authority is an option of land acquisition which guarantees full public control and use of the property. Private land owners or non-profit organizations can also hold title to a greenway with or without public access.

A key component to implementation of the trails and greenways master plan through both regulatory and dedication mechanisms will be the Park Authority's review of proposed development plans in terms of trails and greenways development. All proposed development plans are sent for review by the Park Authority's Department of Planning and Engineering. Comments regarding site plans, subdivisions and rezonings are sent to the County Office of Planning and, in the case of comments concerning trails that parallel roads, copied to the Department of Public Works. The following parameters should be used in considering the merits of land acquired through any of the above listed mechanisms:

**Connections and Consistency** -- proposed trails and greenways should be consistent with the County's Comprehensive Plan and Map as well as the Park Authority's Trails and Greenways Master Plan and Map. The proposed trails and greenways should provide connections to existing or future proposals.

**Accessibility** -- for trails, proposed land and improvements should serve multiple needs and be fully accessible to the public. Trails should be judged on location criteria that includes linkages to existing trails, trip origins, service to the greatest number of users and linkages to facilities such as parks, etc.

**Surfacing and Width** -- proffered improvements such as trail surfaces and width should be appropriate to the expected user types, intensity of use and maintenance levels expected.

Related Improvements -- drainage structures, retaining walls, curb cuts, crosswalks, privacy fences, landscaping, etc. should all contribute to an attractive, well-maintained trail system.

### Trail Construction Costs and Responsibilities

A survey of surrounding jurisdictions and local contractors shows that a typical asphalt trail can cost from \$26 to \$35/linear foot for a Class I Bike Path constructed independent of a road improvement project. The construction of off-road, natural surface trail costs much less, \$3.50 to 4.00/linear foot. These figures assume an 8' to 10' wide trail over reasonable terrain. The actual costs of constructing a trail can vary depending upon the amount of clearing, grading and fill regarding to provide a reasonably level trail surface. The minimum cost per mile for providing a Class I Bike Trail, independent of a road improvement project, would be \$137,280. The minimum mile cost to provide a natural surface trail would be \$21,120. Figures 9 and 10 on the following pages provide construction standards for a Class I Bike Path per AASHTO standards and Equestrian/Hiking Greenway Trail. These standards are to be made a part of the County's Design and Construction Standards Manual.

**Table 2: Trail Costs and Mileage<sup>9</sup>**

Type	Size	Cost/Mile	Total
Class I	8' Asphalt	*\$63,150/	x 165 miles = 10.4 million est.
Class II	5' Asphalt Paved Shoulder	*\$61,000/	71 miles = 4.3 million est.
Class III	Signage	200/mile	
Greenway	Trail	**\$21,120/	x 133 miles = 2.8 million est
		Total	= 17.5

Due to the high cost of providing independent bike trails, it is recommended that the bike trail system of the plan, trails that are to parallel roads, be phased in with scheduled road improvement projects in the County. There are substantial savings in engineering, labor, excavation, grading and materials costs to planning a bike facility as part of a road project. For example, a Class I Bike Path built as part of a road construction project could decrease the per mile cost of construction from \$137,280 to \$63,150.<sup>10</sup>

The party responsible for constructing the trail will depend on who has ownership of

<sup>9</sup>Notes: \*Reflects net additional material cost when constructed with road improvement project; \*\*Reflects contracted price, much less if completed by in-house staff.

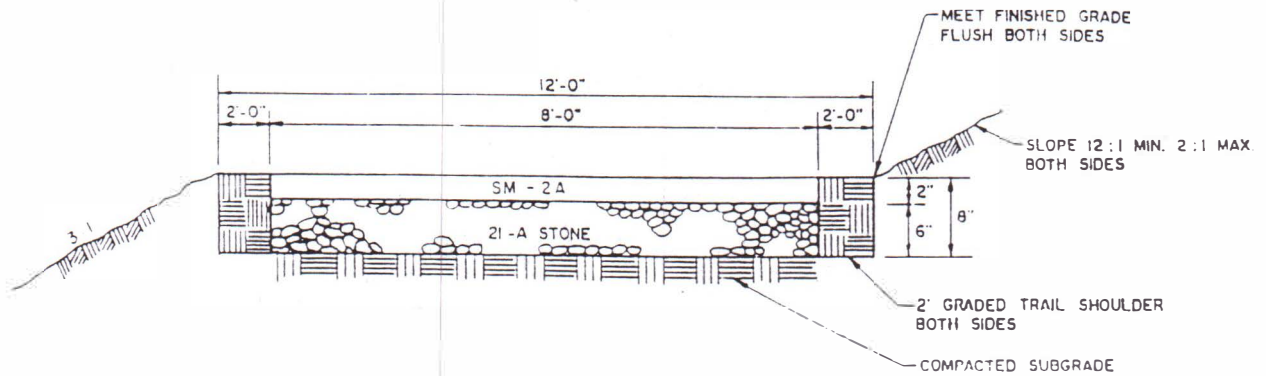
<sup>10</sup>Figures based on 1992 estimate of mile cost to provide Prince William Parkway Trail from Manassas to Hoadly Road.

the land or easement that the trail traverses. In the case of the on-road, bike trail system, it is recommended that the Virginia Department of Transportation provide the engineering and construct the trail as part of a scheduled road improvement project. In December, 1990, the Commonwealth Transportation Board adopted a new policy on bicycle facilities that generally encourages local governments to provide bicycle facilities and explains the role of the Department of Transportation in the construction of those facilities. In general, VDOT will provide technical assistance in plan development, design assistance and participate financially when the following criteria are met by the local jurisdiction.

1. The proposed facilities must be constructed with roadway improvements as part of a highway construction project.
2. The proposed facilities will not impair the safety of the bicyclist, motorist, or pedestrian and is designed to meet current AASHTO guidelines and/or VDOT guidelines.
3. The proposed facilities will be accessible and form a segment located and designed pursuant to a comprehensive bicycle plan adopted by the local jurisdiction
4. The proposed facilities will be sufficiently used to justify the expenditure.



**Figure 9: Bike Trail Standard**



GENERAL NOTES:

- 1) Minimum easement width shall be fifteen (15) feet. Additional easement width may be required due to steep land topography and/or stream valleys.
- 2) Subgrade to be compacted to 95% maximum density per AASHTO T-99 or ASTM D-698 standards at the optimum moisture content.

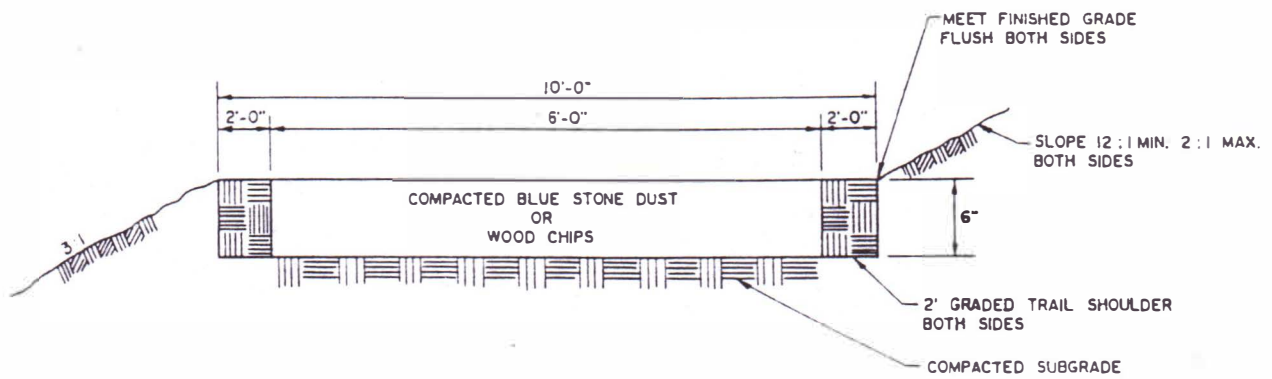
650.34

**BT-2**

COUNTY OF  
PRINCE WILLIAM  
VIRGINIA

BIKEWAY TRAIL STANDARD

**Figure 10: Equestrian/Hiking Trail Standard**



**GENERAL NOTES :**

- 1) Minimum easement width shall be fifteen (15) feet. Additional easement width may be required due to steep land topography and / or at stream valleys.
- 2) Subgrade to be compacted to 95% maximum density per AASHTO T - 99 or ASTM D - 698 standards at the optimum moisture content.

650.35	<b>E/HT-1</b>	COUNTY OF PRINCE WILLIAM VIRGINIA	EQUESTERIAN/HIKING TRAIL STANDARD
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VDOT will initiate a bicycle facility construction project only at the request of the governing body of a local jurisdiction and retains the right to approve all design plans. In all jurisdictions, where VDOT maintains the Primary System Highways, all additional preliminary engineering, right-of-way, and half of the construction costs for the bicycle facility may be borne by the primary system highway construction funds allocated for the construction district. In counties and towns where the department maintains the Secondary System Highway, all additional preliminary engineering, right-of-way, and half of the construction costs for the bicycle facility may be borne by the Secondary System Highway construction funds allocated for the county. Costs for preliminary engineering, right-of-way, and construction of an AASHTO approved interstate bicycle route, such as Interstate Route 1 which runs through the County, may be borne totally by the funds allocated by the law for those systems. In addition, VDOT has just approved a new policy that will provide for paved shoulders as standard on rural, ditch-section streets which will provide Class II Bike Lane access on a majority of the County's rural roads.

In the case of greenway trails, it is expected that the Park Authority will either construct the trails or arrange for construction through the proffer system. It is also expected that the development community will construct private connections to the County system at their own expense.

### **Funding Sources**

There are several sources of funds for the design and construction of trail facilities. These include:

1. 6 Year Road Plan (Primary state funding source for roads, if trails are included in the comprehensive plan and there is public support for trail construction, VDOT will consider building and maintaining bike trails parallel to roads.)
2. Bond Referendum (i.e. Prince William Parkway Road Bond includes the cost to construct a Class I Bike Path along the entire north side.)
3. Proffers (Commitments from developers for both greenway and bike trails.)
4. State Grant Funds (\$6 million thru ISTEA; \$15 million nationwide thru SYMMS; \$3 million thru Recreational Access Funds)
5. Capital Improvement Program (For greenways, bridges, grant matching funds, etc.)
6. Private Donations (Private foundations such as the Conservation Foundation or local land trust.)

## **MANAGEMENT OF TRAILS AND GREENWAYS**

The management of both trails and greenways includes maintenance, liability and security where public access is allowed and encouraged. Greenways with no public access require very little maintenance with the exception of annual inspections to determine that there has been no illegal dumping and use of the open space.

### **Maintenance**

The responsibility for maintenance of public access trails will depend on the ownership of the trail. For example, the Virginia Department of Transportation will consider maintaining approved bicycle facilities located with-in the right-of-way for roadways which are under its operation control except for snow and ice removal. If the trail is outside of the public right-of-way or along a private road then the bicycle facility must be maintained by others. Where trail connections are made from private developments to a section of the county system, it is expected that the local homeowners association or development company will maintain the trail just as they would any other recreation facilities and open space contained within the development. Where a greenway trail is part of the comprehensive network detailed in this report and an easement is owned by the Park Authority or traverses land owned by the Park Authority, it is expected that the Park Authority will be responsible for maintenance of the trail. In no instances should the Park Authority or the County be responsible for maintenance of asphalt trails along roadways.

The Park Authority currently maintains 7 miles of stonedust trail, 1.25 miles of woodchip trail and .75 miles of natural ground based trail. Maintenance of these trails includes a weekly inspection of the trail at 2/hours per mile to remove fallen trees, trash and brush and repair holes and an annual inspection at 25/hours a mile to rebuild the base of the trail. Hourly costs for an outside contractor are estimated at \$20-25/hour. It is estimated that the Park Authority spends from \$1,740 to \$2,175/mile annually on trail maintenance for greenway trails. However, these figures can be decreased through the utilization of in-house staff during the winter months and the initiation of a citizen's Adopt-A-Trail Program. This program is similar in scope to standard adopt-a-road programs where private citizens and service clubs take over the routine maintenance of the trails. Such a program could potentially save the Park Authority more than half of the annual cost of maintaining the trails by relieving the Park Authority of a majority of the weekly inspections. To implement the program, it will be necessary for the Park Authority to develop maintenance and procedures standards for citizens and Park Authority staff.

### **Safety and Security**

It is important that the trails are designed to be safe and secure. Consideration of sight distances, slopes, trail surfaces, bridges, road crossings and signage must all be carefully detailed during the design stage of trail construction. Many security problems, such as vandalism and crimes against a person, can be minimized by correct design and the identification of "high risk" areas. In addition, the following



security measures should be taken:

1. Lighting -- light areas such as under bridges and around neighborhoods to discourage people from congregating and minimize the possibility of a violent crime.
2. Patrols -- establish patrol procedures by neighborhood watch organizations, local police and park rangers in potentially high-crime areas.
3. Visibility -- provide visibility for trail users by minimizing blind curves and separated grade crossings (underpasses).
4. Emergency Access -- provide emergency access and egress areas for use response by fire, rescue and police personnel that is well-marked and easy to locate.
5. Education -- widely distribute general and emergency information to trail users and property owners located within close proximity to a trail.
6. Promotion -- widely promote the trails to attract a maximum of users, potential crimes and vandalism happen on less-used sections of trails that do not have a great deal of on-going activity. Plan special events to utilize all sections of the trails.

### **Liability**

The imposition of liability is, by definition, fact specific in nature and determined only on a case-by-case basis. Sometimes liability may emanate from mere ownership of property that the landowner or easement holder knows is being put to a certain use. Sometimes that liability will result from design or maintenance of the facilities that are being used on the property. Therefore, determination of ownership of the easement being used for the bike trail will not always be dispositive of liability. Regardless of who or what owns the easement, those who designed and maintained the bike trails may be sued by persons contending that they had a duty to design or maintain the paths in a way that would have avoided the injury. Because of this, it is very important that any trails be constructed to meet or exceed an accepted standard such as those of the American Association of Transportation Officials and that all trail standards be addressed in the County's Design and Construction Standards Manual.

**APPENDICES**

COMPREHENSIVE PLAN ACTION STRATEGIES AFFECTING GREENWAYS  
IMPLEMENTATION

I. ENVIRONMENT PLAN

- EN-POLICY 3, AS 10. Encourage VDOT and developers to preserve vegetative buffers along arterial roadways as a means of filtering and absorbing pollutants.
- EN-POLICY 3, AS 11. Reduce pollution from automobiles by encouraging the use of alternative modes of transport, including public transit, van/carpooling, bicycles, light rail and pedestrian paths.
- EN-POLICY 4, AS 1. Unless the applicant can demonstrate that mitigation measures can and will be used so that there will be no adverse impacts, prohibit clearing areas that have a high potential for erosion (i.e., where soils have "severe limitations" and slope is greater than 15 percent).
- EN-POLICY 4, AS 2. Unless the applicant can demonstrate that mitigation measures can and will be used so that there will be no adverse impacts, preclude development or disturbance of soil on slopes of 25 percent or greater.
- EN-POLICY 4, AS 7. Request that areas that will not be cleared or will be left in their natural state be identified to the extent practical in applications for rezoning and special use permit applications.
- EN-POLICY 4, AS 10. Minimize clearing of vegetation and disturbance of soils.
- EN-POLICY 5, AS 1. Encourage the use of "no-net gain" standards to prevent nutrient loading, and sedimentation runoff to adjacent waters that result from development related practices.
- EN-POLICY 5, AS 6. Develop design guidelines and techniques that promote preservation of natural landscapes, especially those that tend to be drought resistant.
- EN-POLICY 5, AS 8. Establish and promote "Adopt a Stream" program.
- EN-POLICY 5, AS 9. Encourage leaving a natural undisturbed buffer along all waterways.
- EN-POLICY 5, AS 10. Develop and apply criteria in appropriate areas for establishing conservation overlay districts in order to protect surface and groundwater quality.
- EN-POLICY 6, AS 1. Encourage the minimization of the amount of impervious surfaces of development and redevelopment in order to minimize stormwater runoff.
- EN-POLICY 6, AS 2. Encourage the use of semi-pervious or pervious surfaces.

- EN-POLICY 7, AS 3 Maintain or establish areas of natural vegetation downstream of disturbed soils to help filter sediments and other pollutants.
- EN-POLICY 8, AS 12 Ensure that any construction in a flood hazard district (as identified by the Federal Emergency Management Act) is consistent with both the Flood Hazard Overlay District and Chesapeake Bay Preservation Overlay District requirements as identified in the Zoning Ordinance. Expansion of any nonconforming use or structure in a flood hazard district shall be permitted only as set forth in the Zoning Ordinance and the DSCM.
- EN-POLICY 10, AS 1 Encourage the minimum density/intensity of development as reflected by the appropriate and use classification shown on the Long Range Future Land Use Plan Map around the shore of the reservoirs.
- EN-POLICY 10, AS 3 Require a minimum 100 foot setback from shorelines of public water sources for development related ground disturbance activities. If contiguous slopes greater than 20 percent are adjacent to shorelines, and extend beyond the 100 foot setback, then disturbance activities shall not occur thereon.
- EN-POLICY 10, AS 6 Promote open space uses and, where practical, acquire land along the Occoquan Reservoir for special use parks that are designed to promote an appreciation of the natural environment and facilitate passive recreation (e.g., fishing, hiking, and nonmotorized boating).
- EN-POLICY 11, AS 3 Permit clustering within a variety of residential land use categories to further environmental and open space policies.
- EN-POLICY 11, AS 5 Continue the progress toward establishing a Countywide greenway and path system.
- EN-POLICY 11, AS 6 Coordinate with the Department of Forestry to implement an urban forestry program as authorized in the Virginia Code
- EN-POLICY 11, AS 8 Consider acquisition of select sites for public parks/forests.
- EN-POLICY 12, AS 4 To protect the biological diversity, processes and functions of natural habitats, identify a network of preservation corridors to be incorporated into an overall habitat protection network.
- EN-POLICY 12, AS 5 Investigate the benefits of establishing a private conservancy fund for the purpose of purchasing privately held lands for preservation purposes and seeking perpetual conservation easements to preserve open space.
- EN-POLICY 13, AS 1 Seek funding from Federal, State, local, and private organizations in order to secure professional services needed to conduct a Countywide viewshed inventory.



EN-POLICY 13, AS 2

Develop an incentive system for preservation of viewsheds.

## II. CULTURAL RESOURCES PLAN

CR-POLICY 2, AS 13

Develop a County viewshed policy and the criteria for implementing that policy.

## III. SCHOOLS PLAN

ED-POLICY 5, AS 3

Implement the 1990 Comprehensive Plan baseline LOS standards and criteria guidelines as outlined below based on a combination of the size, type, and location of proposed development and its impact on the available capacity and proximity of existing and proposed schools. ...

### ■ SCHOOL LOCATION AND DESIGN CRITERIA:

School sites should be designed to provide undisturbed buffers of existing tree cover and natural vegetation between the school and adjoining properties.

School sites should have safe access for pedestrians, and motorized and nonmotorized vehicles.

School sites should not contain major utility easements or major drainageways or floodplains except in the provision of connecting elements of the greenway system.

### ■ OUTDOOR FACILITIES OPEN SPACE

Beyond the physical school building, school sites need 90 to 95 percent of the site's acreage devoted to outdoor facilities and open space, such as athletic and recreational playfields, school bus loading and unloading areas, parking, environmental study areas, and natural buffers.

ED-POLICY 6, AS 2

School locations should be coordinated with other agencies to consider shared use of sites and facilities.

ED-POLICY 6, AS 3

Collocate schools and parks to optimize the shared use of facilities.

## IV. PARKS AND OPEN SPACE PLAN

REC-POLICY 1, AS 5

Assist the Prince William County Park Authority in soliciting funding from appropriate governmental agencies for the purpose of acquisition, development, renovation and maintenance of County parks, open space, and recreational sites and facilities.

REC-POLICY 1, AS 6

Where feasible, coordinate park and facility planning with recommendations of the Virginia Outdoor Plan to optimize the informational gains and other benefits associated with coordinated intergovernmental planning.

- REC-POLICY 1, AS 7 Coordinate interagency planning efforts to develop a comprehensive trails system, including trails for pedestrian, nonmotorized vehicle, equestrian and proposed greenways segments.
- REC-POLICY 2, AS 4 Accept only those proffers for public park sites and facilities that are readily accessible to the general public and not just to residents of the proposed development.
- REC-POLICY 2, AS 6 Encourage the use of "conservation easements" or "restrictive covenants" as appropriate, by private landowners in order to protect and preserve historic sites and sensitive environmental areas.
- REC-POLICY 2 AS 7 Designate identified areas of environmental, recreational, historical, or cultural significance as "Open Space" in order to utilize the benefits of the "Land Use Assessment Law".
- REC-POLICY 2, AS 8 Utilize the property tax benefits indicated in the "Land Use Assessment Law" to encourage landowners to designate their property as "Open Space". Where such property abuts designated public park and open space land, the "Open Space" designation will help to protect public park and recreation land from potentially incompatible development on adjacent lands.
- ~~REC-POLICY 3, AS 6 Provide convenient points of access for "greenways".~~
- REC-POLICY 3, AS 7 Provide limited ingress/egress points for "greenways" that traverse private neighborhoods.
- REC-POLICY 3, AS 11 Collocate parks and schools to optimize the shared use of facilities.
- ~~REC-POLICY 4, AS 1 Establish a "greenways" program.~~
- REC-POLICY 4, AS 2 Identify all floodways, existing utility and conservation easements, bicycle trails, abandoned railroad beds, and other appropriate sites as potential "greenway" segments.
- ~~REC-POLICY 4, AS 3 Create designated stream-valley parks to be incorporated into the County's proposed "greenways" program.~~
- REC-POLICY 4, AS 4 In the future, designate areas or sites identified as "greenways" as "Open Space" on the Long Range Future Land Use Plan Map.
- REC-POLICY 4, AS 5 Coordinate efforts between the Park Authority and the County in the preparation of standards and guidelines for the acquisition of sites for the County's proposed "greenway" program.

**REC-POLICY 4, AS 6**

Establish standards and criteria for the acceptance of floodplain property as an easement from private property owners. Such standards should include but not be limited to the following:

- the location of the potential easement in relation to the proposed "greenways" system
- the suitability of the site for the construction of a primitive trail network
- the relation of the site to public access points
- the proximity of the site to regional trail systems
- maintenance and liability responsibilities

**REC-POLICY 4, AS 7**

Devise standards governing construction of "greenways" that recognize trails as not only recreational resources and environmental protection areas but also as modes of non-motorized transportation (e.g., bicycle, equestrian, etc.). Standards would consider, but not be limited to, the following factors:

- the width and necessity for paving of the trail
- frequency of public access points in relation to activity centers and transportation facilities
- lighting

**REC-POLICY 4, AS 8**

Encourage the use of "conservation easements" or "restrictive covenants", as appropriate, to protect and preserve historic sites and sensitive environmental areas as potential sites for inclusion within the County's proposed "greenways" system.

**REC-POLICY 4, AS 9**

Utilize the "Land Use Assessment Law" to create perpetual open space in order to protect "greenways" from potential incompatible development on adjacent lands.

**REC-POLICY 4, AS 10**

Study the feasibility of designating the Potomac River Corridor along Prince William County's eastern boundary as a "greenway" segment.

**REC-POLICY 4, AS 11**

Provide parks for passive recreational purposes along the Occoquan Reservoir. Such parks will provide for passive recreation needs with the added benefit of protecting the public drinking water supply of Prince William County.

**REC-POLICY 4, AS 12**

Encourage Class I bicycle trails (as identified in the Transportation Plan Chapter of the 1990 Comprehensive Plan, Nonmotorized Action Strategy 3a, Table 2) when developing trails along transportation corridors.

- REC-POLICY 4, AS 13 Promote cooperation with surrounding jurisdictions to provide an interjurisdictional "greenways" system. (An example would be development of trails along Bull Run and the Occoquan River across from Fairfax County's Bull Run/ Hemlock/ Fountainhead Regional Parks.)
- REC-POLICY 4, AS 14 Work with local private organizations with an interest in "greenways" to develop and maintain the system.
- REC-POLICY 4, AS 15 Consider viewsheds as identified through the Environmental Plan Chapter of this Comprehensive Plan (EN-Policy 13) as appropriate in the proposed "greenways" program.
- ~~REC-POLICY 4, AS 16 Amend the appropriate components of the 1990 Comprehensive Plan to incorporate the results of the "greenway" planning effort.~~
- REC-POLICY 4, AS 17 Encourage hiking and non-motorized trails within sewer and water line easements.
- REC-POLICY 4, AS 18 Encourage residential and nonresidential development to provide trails for the greenways program in exchange for development intensity increases.

## V. HOUSING PLAN

- H-POLICY 1, AS 3 Promote the formation and use of neighborhood watch and McGruff-type programs as well as close neighborhood liaison with local law enforcement agencies.
- H-POLICY 1, AS 13 Identify those neighborhoods in need of new or repaired sidewalks, curbs, gutters and street pavement and initiate a repair and replacement program for these areas through appropriate private or public means.
- H-POLICY 2, AS 1 Permit and encourage a variety of housing types and densities in individual subdivisions through the Zoning Ordinance, in a manner that ensures compatibility and additional open space. Planned communities should be encouraged through appropriate incentives in the Zoning Ordinance and subdivision regulations. Cluster and planned unit development zoning and subdivision provisions should be implemented to provide necessary flexibility to accomplish this goal.
- H-POLICY 2, AS 2 Ensure that housing and subdivision design with regard to lot size, layout, street design, open space and undisturbed area is compatible with the 1990 Comprehensive Plan.
- H-POLICY 2, AS 3 Encourage the development of future housing with supporting infrastructure such as mass transit, schools, parks, emergency services, water and sewer services and utilities.



**H-POLICY 2, AS 12**

Create appropriate review mechanisms and standards to allow for the development of housing for the elderly (subject to definition) which could exceed the maximum density of the land use classification. Such development would only be allowable when said housing is located that the impacts to roads, fire and rescue services, parks and schools would not exceed the impacts to these facilities that would be initiated by any other type of residential development occurring at the maximum density with the affected land use classification.

**VI. TRANSPORTATION PLAN**

**TR- TABLE 1 URBAN TRANSPORTATION ROADWAY COMPOSITION GUIDELINES**

**TR- FIGURE 1 GENERAL ROADWAY COMPOSITION: PRINCIPAL ARTERIAL**

**TR- FIGURE 2 GENERAL ROADWAY COMPOSITION: MINOR ARTERIAL**

**TR- FIGURE 3 GENERAL ROADWAY COMPOSITION: MAJOR COLLECTOR**

**TR- FIGURE 4 GENERAL ROADWAY COMPOSITION: MINOR COLLECTOR**

**TR- TABLE II BIKEWAY AND TRAILS COMPOSITION GUIDELINES**

**TR- CHART 2 BIKEWAY AND TRAILS LOCATIONS**

(NOTE Changes to the Transportation Chapter will need to made based on the results of the forthcoming amendments to the Comprehensive Plan.)

**POLICY 1, AS N1.1**

Encourage a safe and continuous system of sidewalks or paths/trails along arterial and collector roads.

**POLICY 1, AS N1.2**

Plan and promote the development of pedestrian/bike compatible roadway facilities for all new arterial and collector roads.

**POLICY 1, AS T1.6**

Integrate the location of "greenways" with major transit facilities.

**POLICY 2, AS N2.1**

Develop a detailed sidewalk plan which will demonstrate how to expand and improve, in an affordable manner, the use and safety of sidewalk and trail facilities within and among residential, employment, retail and recreational areas.

**POLICY 4, AS N4.1**

Assure that sidewalks or pedestrian/bike trails are available to all transit facilities.

**POLICY 5, AS R5.1**

Plan and promote the construction of roads consistent with the intent of the Comprehensive Plan when all other relevant Comprehensive Plan components have, on balance, been met.

- POLICY 5, AS N5.1 Strongly encourage private commercial/employment oriented development to provide bicyclist and pedestrians with necessary support systems such as trails, sidewalks, and greenways.
- POLICY 5, AS N. 6.1 Research and apply for all available State and federal assistance in developing a trails and sidewalk system.
- POLICY 6, AS N6.2 Develop and coordinate a neighborhood trails maintenance program whereby homeowner associations can fund the upkeep of trails traversing their areas.
- POLICY 6, AS T7.1 Continue to aggressively promote extension of the Prince William County Park Authority trails plan. Expand upon this plan as reflected by TR-Policy 4 Non-Motorized Action Strategy N4.1.

## VI. LONG RANGE FUTURE LAND USE PLAN

- PARKS/OPEN SPACE** The purpose of this classification is to illustrate a number of existing parks, greenways and recreational areas of the County. The Parks and Open Space Plan Chapter contains a complete inventory of existing and planned parks within the County. (LAND USE CLASSIFICATION DESCRIPTION ON PAGE LUP-7)
- LAND USE OBJECTIVE 3** To protect existing and planned land uses from the encroachment of incompatible land uses.
- LAND USE OBJECTIVE 4** To protect environmentally sensitive land and maintain open space.
- LAND USE OBJECTIVE 5** To encourage the development of neighborhoods and planned communities throughout the County that promote a variety of residential opportunities and neighborhood scale public utilities and facilities, convenience oriented goods and services, open space, recreational opportunities, and related employment potential.
- LAND USE OBJECTIVE 7** To encourage the provision of adequate utilities and facilities to serve existing and anticipated populations and businesses in a manner consistent with the Long Range Future Land Use Plan Map.
- RESIDENTIAL AS 1** Encourage the use of the "Clustering" and the "Planned Unit Development" concepts when developing residential acreage so as to, in part, enhance environment protection, achieve historic/cultural preservation, maintain open space, develop County "greenways" system provide for public benefit, and reduce capital, operating, and maintenance costs of supportive infrastructure.

## NON-RESIDENTIAL AS 6

Mixed use projects should be encouraged to develop within Regional Employment Centers, Regional Commercial Centers and Community Employment Centers. All Mixed Use Projects may have a high density residential component, should reflect two or more primary uses (including the residential component) and should include lodging, office and/or retail component. The residential use should not be the predominant land use in the Mixed Use Project. Developers of mixed use projects are strongly encouraged to provide trails and "greenways" that permit pedestrian traffic within and among developments.

## NON-RESIDENTIAL AS 7

Encourage developers of nonresidential projects to provide land for inclusion within the County's "greenway" system.

## DEVELOPMENT EVALUATION CRITERIA

**ENVIRONMENTAL RESOURCE** The protection of environmental features is another important evaluation criteria. Items for consideration should include, but not be limited to, the following:

- reduced surface runoff
- reduced erosion potential
- increased pollutant removal potential
- nutrient management
- control of toxic substances
- protection of rare, and threatened or endangered species
- protection of habitat function
- avoidance of direct disturbance of aquatic habitats
- protection of aquatic habitats
- clustering of residential units
- tree coverage preservation

**PLANNING AND DESIGN** Innovative and sensitive design features are also a consideration in reviewing development proposals.

**Commitment to Development Plan.** Does the developer commit to an overall master development?

**Compatibility.** Does the proposal recognize existing land uses surrounding the proposal and positively address potential incompatibility through the use of screening, buffers, architecture, setbacks, building orientation, traffic circulation patterns, loading area location, operating hours, or other measures that exceed minimum requirements?

**Site Assembly.** Is the development site large enough to provide design elements, or uses in a manner that will ensure functional success and compatibility with existing or planned uses.

## **APPENDIX B: LAWS AND REGULATIONS AFFECTING TRAILS AND GREENWAYS<sup>1</sup>**

### **Federal**

**National Environmental Policy Act of 1969** - Requires all federal agencies to prepare an environmental impact statement for proposed actions and permits that may affect the environment. This includes projects that are funded, even in part, by federal dollars. An environmental impact statement documents the impacts which an action may have and may lead to mitigation of those impacts.

**Clean Water Act of 1972** - Purpose is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters by regulating discharge into rivers from point and non-point sources. States are required to identify water quality problems and develop plans to mitigate them. The Environmental Protection Agency regulates municipalities and industries to use waters of the United States through a permit process.

**Emergency Wetlands Resources Act of 1986** - Requires the states acquiring land through the Land and Water Conservation Fund give priority to wetlands.

**National Flood Insurance Program** - The Federal Emergency Management Agency (FEMA) works with state and local governments to develop floodplain management plans to reduce flood losses. Typically, these include zoning regulations which restrict the use of floodplains to agriculture, parks, or similar use. FEMA also has funding available to assist local governments to acquire floodplain properties which have been repeatedly or severely damaged by flooding, to eliminate the cycle of repeated flood damage and government-assisted repair of structures in the floodplain. Floodplain lands which are acquired can be converted to open space.

**Farmland Protection Policy Act of 1981** - Requires federal agencies to identify and take into account the adverse effects of federal actions on the preservation of farmland and to consider alternative actions that would lessen the effects. This may preclude the construction of, for example, a highway or sewer line using federal grants through farmland.

**Food Security Act of 1985** - Protects highly erodible land and wetlands by cutting off federal financial assistance to farmers who cultivate these areas. The Act also subsidizes farmers who agree to take these lands out of agricultural production.

**Endangered Species of 1973** - Requires all federal agencies to take whatever action is necessary to ensure that their actions and the programs that they fund do not jeopardize endangered species or habitat critical to their survival. State agencies cooperate with the U.S. Fish and Wildlife Service to identify endangered species and assist in their recovery. Recovery plans may include protection of critical habitat for threatened or endangered species.

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<sup>1</sup>Source: This information was compiled by the Leesburg/Loudoun County Greenways Advisory Committee



**National Wild and Scenic Rivers Act of 1968** - Protects rivers through special designation which possess outstanding remarkable values from federal actions and federally-funded actions. The Act authorizes the federal government to acquire land or easements along their banks.

**National Trails System Act of 1968** - Purposes is to establish and protect a nationwide system of recreation, historic, and scenic trails through special designations by Congress and the Secretary of the Interior. The Act also encourages the conversion of abandoned railroads to trails for recreation. The Act establishes several designations to recognize trails, including National Scenic Trails and National Recreational Trails.

**National Natural Landmarks Program** - The National Park Service administers this program which identifies and encourages the preservation of nationally significant examples of the full range of ecological and geological features that constitute the Nation's natural heritage. The Secretary of the Interior designates these sites which are required to be taken into account when preparing an EIS.

**National Historic Preservation Act of 1966** - Authorized the National Register of Historic Places which is administered by the National Park Service. The National Register designates nationally significant historic and archeological resources and authorizes federal matching grants for their restoration, although these funds are not currently available. Federal agencies and programs must take the impacts of their actions on listed properties into account.

### State

**Land Use Assessment Law** - Under this law, certain lands are assessed at their value under the existing use, rather than at fair market value (a higher value resulting from potential for development). Applies to (a) agricultural and forestal districts, (b) lands under open space easements, or (c) lands subject to a recorded commitment between a landowner and the local governing body.

Lands must be devoted to open space (5 acres, in some cases 2 acres), forest (20 acres), agricultural (5 acres), or horticultural use (5 acres). "Open space" use includes park/recreation use, conservation/natural resources, floodways, historic or scenic areas, and shaping community development through greenbelts, trailways, stream valleys, mountaintops or mountainsides, forests, farmlands, or scenic vistas. There is no requirement for public access.

If a landowner chooses to subdivide land so that it no longer meets requirements, he must pay retroactive "rollback" taxes at the higher assessed rate for the subdivided property for the previous five years.

**Virginia Open-Space Land Act** - Authorizes all public landholding bodies to acquire land or easements for preservation of open space, to obtain and spend money to develop and maintain facilities on land acquired. Prohibits public bodies from using eminent domain (condemnation) to acquire land or easements for open space.

**Virginia Conservation Easement Act** - Authorizes charitable organizations to acquire and hold conservation easements to protect natural or open space values, assure availability for agricultural, forestal, recreational, or open-space use, protect natural resources, maintain or enhance air or water quality, or preserve historical, architectural, or archeological aspects. Also authorizes third party rights of enforcement of easements to be granted to charitable organizations or public bodies, for easements they do not hold.

**Agricultural and Forestal Districts** - Temporary, renewable agreements between landowners and local governments in which landowners commit to maintain land in agricultural or forestal use and to limit development. Minimum of 200 acres in contiguous parcels. Lands are then assessed for property taxes at use value rather than (higher) fair market value.

**Virginia Scenic Rivers Act** - Protects rivers with outstanding scenic, historic, natural or recreational values. Requires that planning for designated Scenic Rivers fully consider these values before proposals are approved which will alter them. Also directs that dams can only be constructed on Scenic Rivers if specifically authorized by act of the General Assembly. Currently, the County has no designated Scenic Rivers.

**State Policy on Stream Access** - Through a cooperative agreement between the Department of Transportation, the Department of Conservation and Recreation, and the Department of Game and Inland Fisheries, all three agencies review proposals for highway construction and bridge replacement to determine the feasibility of using portions of state-owned highway right-of-way for recreational access to streams. The Department of Game and Inland Fisheries may have funds available for stream access sites. Grants from the Virginia Outdoors fund could also be used for stream access, a high priority for the Department of Conservation and Recreation.

**Threatened and Endangered Species** - Virginia has two state laws on rare species, the Endangered Species Act (which concerns mammals, birds and fish), administered by the Department of Game and Inland Fisheries, and the Endangered Plant and Insect Act, administered by the Department of Agriculture and Consumer Services. These agencies cooperate with the U.S. Fish and Wildlife Service and the Virginia Natural Heritage Program to identify endangered species and assist in their recovery. The laws require that these agencies be consulted to ensure that state projects and actions not jeopardize the continued existence of these species. In some cases the state may acquire land or easements to protect critical habitat for endangered species through the Natural Areas Preservation Fund. This Fund, however, is currently exhausted and lacks a long-term funding source.

**Landowner Liability Law** - Exempts landowners from liability, except for gross negligence, for injuries sustained by recreationists using their property without charge. When a landowner enters agreement with state or local government or authority allowing public use of his land, the government will be responsible for any legal services required to defend the landowner against liability lawsuits.

**Scenic Highway and Virginia Byways Act** - Authorizes State Highway and Transportation Board, in cooperation with the Department of Conservation and Recreation, to designate roads as Virginia Byways. These are corridors with significant aesthetic and cultural values, leading to or lying within areas of historical, natural or recreational significance. The law primarily provides recognition rather than regulation, but does require government agencies to consider scenic and other values of a road in the planning process.

**Park Authorities Act** - Authorizes one or more local jurisdictions to form a Park Authority for the purpose of acquiring and managing park lands within the cooperating jurisdictions. Prince William County Park Authority was authorized by this Act.

## **APPENDIX C: SOURCES OF FUNDING FOR BICYCLE, TRAILS AND GREENWAY PROJECTS<sup>2</sup>**

### **Federal/State Funding Sources**

#### **National Park Service/Virginia Department of Conservation and Recreation Land and Water Conservation Fund/Virginia Outdoors Fund**

Grants go to cities, counties, and recreation and park districts for acquisition, development, or rehabilitation of neighborhood, community, or regional parks, or facilities supporting outdoor recreation activities. Federal Land and Water Conservation funds go into the Virginia Outdoors Fund, which is supplemented by additional funds appropriated by the Virginia General Assembly. The state then allocates money from the Virginia Outdoors Fund to individual communities. To be eligible, projects must be in accord with priorities identified in the Virginia Outdoors Plan. A 50% local match is required. Past projects include the W&OD Trail. In the past the maximum grant has been \$200,000, with a local match for a total of \$400,000. Contact: Angela LaCombe, VA Department of Conservation and Recreation, (804) 786-4493.

#### **Agricultural Stabilization and Conservation Service/Virginia Department of Forestry Stewardship Incentives Program/Forest Stewardship Program/Community Forestry Program**

Cost sharing and technical assistance to landowners to develop and implement forest plans for a variety of objectives, including forest improvement, soil and water conservation, recreation, wildlife, forest products, fisheries, threatened and endangered species, and wetland protection. For the Stewardship Incentives Program, landowners may receive cost sharing up to 75% or \$10,000 for multiple use conservation practices, in exchange for making a ten-year commitment to maintain these conservation practices. Contact: Dana Malone, VA Dept of Forestry, (703) 777-0457

#### **Soil Conservation Service/Agricultural Stabilization and Conservation Service Agricultural Conservation Program**

Agricultural landowners receive payments for taking erodible lands out of crop production and establishing conservation practices, including permanent vegetative cover. Landowners receive assistance to develop a conservation plan from SCS, and cost share payments, up to 75%, from ASCS. Landowners sign up annually. Minimum acreage requirement is 25 acres. Contact: Bev Shaw, Agricultural Stabilization and Conservation Service, Leesburg (703) 777-3261

#### **National Endowment for the Arts Design Arts Program**

This program funds projects to promote excellence in design fields, including architecture, landscape architecture, urban design, historic preservation, and planning. Land acquisition/capitol improvement are not eligible. Grants range up to \$15,000 for individuals and \$50,000 for organizations. A Design Arts Grant was used to fund the design of the Colorado Riverfront

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<sup>2</sup> Source: This information was compiled by the Leesburg/Loudoun County Greenways Advisory Committee



Project in Grand Junction, Colorado in 1988. Contact: National Endowment for the Arts, Design Arts Program (202) 682-5437

### **Virginia Department of Transportation/Federal Highway Administration Federal-Aid Highways Program**

The Federal Highway Administration provides highway funds to Virginia Department of Transportation, who then allocates them. These funds may be used for highways as well as bikeways. FHWA policy is that the funds may be used for either bikeways in conjunction with highway projects, or independent bikeways. Any state may spend up to \$4.5 million of its Federal-aid highway funds in any fiscal year for bicycle and pedestrian facilities, provided the nationwide total does not exceed \$4.5 million. For independent facilities, federal funds may cover 100% of the cost for land acquisition, construction, and projects related to safety, such as maps, brochures, and public service announcements. No state or local matching funds are required. Current Virginia Department of Transportation policy is that bikeways must be part of highway construction or reconstruction to be eligible for these funds. An additional Virginia requirement is that proposed bikeways must be part of a comprehensive bikeway plan adopted by the locality. Contact: Richard Lockwood, VDOT State Bicycle Coordinator (804) 786-2964.

### **Virginia Department of Transportation/Transportation Enhancement Program**

Under the 1991 federal Intermodal Surface Transportation Efficiency Act (ISTEA), ten percent of the states highway funds must be set aside for "enhancement" projects. Transportation enhancement projects can be a stand-alone project but must relate to the intermodal transportation system in function, proximity or impact. This is a competitive grant program administered by VDOT which includes the provisions of facilities for bicycles and pedestrians. Up to 80% of the project can be financed by the highway funds. A minimum of 20% must come from other public or private sources. All or part of the 20 percent local match may be in-kind contribution of tangible property such as donations of land or materials. Contact: D.L. Eure, VDOT Programming and Scheduling Division (804) 786-0765 or 1-800-44ISTEA.

### **Virginia Department of Transportation/Virginia Department of Conservation and Recreation Recreational Access Program**

This program provides funds for roads and bikeways. Current VDOT policy states that to be eligible, a bikeway must provide access to a recreational or historic site, not provide a recreational facility in itself. Bikeways either combined with, or separate from, roads may be eligible. Maximum allocations are \$60,000 for local bikeways, with an additional \$15,000 if matched on a dollar-for-dollar basis by the locality. Contact: Dave Camper, Va Department of Transportation, (804) 786-2745

### **Virginia Department of Conservation and Recreation Symms National Trail Act Program**

This program is in the process of being developed by VDCR. As of the writing of this report a statewide trails advisory committee had been formed to develop the program which relies on monies appropriated by Congress through the Symms National Trails Act. Contact: Angela LaCombe, VA Department of Conservation and Recreation, (804) 786-4493.

**Virginia Natural Heritage Program/The Nature Conservancy  
Natural Areas Preservation Fund**

Finances purchase of land or easements to protect critical Natural Heritage sites. Currently the Fund is exhausted and lacks a long-term state funding source.

Contact: Michael Lipford, Virginia Natural Heritage Program (804) 786-7951

**Private Funding Sources**

**Virginia Environmental Endowment**

Grants for a variety of studies, public participation, and design in the areas of land management, water resources management, local environment improvement, and environmental law and public policy. Land acquisition is not eligible. The Northern Virginia Regional Park Authority recently received a grant for greenway planning. Contact: Virginia Environmental Endowment (804) 644-5000

**Conservation Foundation Innovation Grants**

These grants, up to \$5,000, go to local non-profit organizations to help communities implement innovative strategies for integrating conservation and sustainable development. A variety of activities, including planning, technical assistance and legal costs to facilitate land acquisition, administrative cost, education, and fundraising campaigns are eligible. Grants may not be used for land acquisition or political activities. Contact: World Wildlife Fund and The Conservation Foundation 1250 24th St., N.W. Washington, DC 20037

**REI River Conservation Seed Grants**

These grants fund state and local conservation groups in river conservation. Eligible projects include those which promote state or federal legislation to facilitate federal, state or local river protection, and those which support increased funding of the National Park Service Rivers, Trails, and Conservation Assistance Program. Grants generally range from \$200 to \$1,000. Contact: Suzi Wilkins, American Rivers (202) 547-6900

**Other Foundation Grants**

Numerous foundations make grants for conservation purposes. More information is available from the Environmental Grantmakers Association (1290 Avenue of the Americas, Suite 3450, New York, NY 10104 (212) 373-4260

VIRGINIA DEPARTMENT OF TRANSPORTATION  
BIKEWAY FACILITIES

Moved by Mr. Musseiwite, Seconded by Mr. Wells, that

WHEREAS, a September 16, 1974, memorandum by Mr. J. E. Harwood, Chief Engineer, initiated general guidelines covering Department participation in the construction of bikeways; and

WHEREAS, the July 23, 1981, Department Policy Memorandum (DPM 4-33) titled "Control and Use of Right-of-Way and Adjacent Land - Bicycle Facilities" was prepared which has guided the Department in the development of bicycle facilities; and

WHEREAS, Section 33.1-223 of the Code of Virginia relating to the fund for access roads and bikeways to public recreational areas and historic sites was amended and reenacted by the 1989 session of the General Assembly; and

WHEREAS, Section 15.1-16.2 of the Code of Virginia permits local jurisdictions to adopt ordinances to establish bicycle paths and regulate their use; and

WHEREAS, in 1981 State laws were amended which gave bicyclists basically the same rights and duties as motorists when operating on the highways; and

WHEREAS, increased public demand for bicycle facilities and changes in concepts as to how to best accommodate bicyclists has necessitated a reevaluation of the Department's current policies and procedures;

NOW THEREFORE, BE IT RESOLVED, that the guidelines contained in Mr. J. E. Harwoods September 16, 1974, memorandum and DPM 4-33 dated July 23, 1981, be and hereby are rescinded and the Commonwealth Transportation Board adopts the following policy relative to bicycle facilities:

I. GENERAL GUIDELINES FOR BICYCLE FACILITIES

- a. Local governments are encouraged to develop bicycle facilities on a local and regional basis in order to satisfy the demands within each geographic area.
- b. The Department's participation in bicycle facilities is principally oriented toward facilities that may be constructed with a roadway improvement as part of the highway construction project.

- c. Bicycle facilities can include shared wide highway lanes, paved highway shoulders, bicycle lanes, bicycle paths, multipurpose paths, and other physical improvements to better accommodate bicyclists.
- d. Bicycle facilities may be constructed for access purposes when the conditions under Section V are met.

## II. COMPREHENSIVE BICYCLE PLAN DEVELOPMENT

- a. The Department will participate in comprehensive bicycle facility planning in the urbanized areas of the State (population greater than 50,000) as part of the Continuous, Comprehensive, and Cooperative ("3C") transportation planning process.
- b. The Department may assist all other local governments and Planning District Commissions in developing a comprehensive bicycle facility plan when requested. This may be either technical or financial assistance.

## III. DEPARTMENT PARTICIPATION IN BICYCLE FACILITIES

- a. The Department will consider financially participating in the construction of a bicycle facility where all the following conditions are satisfied:
  - 1. The bicycle facility will not impair the safety of the bicyclist, motorist, or pedestrian, and is designed to meet current AASHTO guidelines and/or VDOT guidelines.
  - 2. The bicycle facility will be accessible to users and will form a segment located and designed pursuant to a comprehensive bicycle plan that has been adopted by the local jurisdiction or is part of the AASHTO approved Interstate Bicycle Route System.



3. It is reasonably expected that the bicycle facility will have sufficient use in relation to cost to justify expenditure of public funds in its construction and maintenance, or the bicycle facility is a significant link in a comprehensive bicycle system that is needed for route continuity.
  4. The Department will initiate bicycle facility construction only at the request of the affected local government, with the exception of the AASHTO approved Interstate Bicycle Route System. Local government is defined as follows:
    1. Primary System Projects
      - a. County Boards of Supervisors
      - b. City/Town Councils
    2. Secondary System Projects
      - a. County Boards of Supervisors
    3. Urban System Projects
      - a. City/Town Councils
  5. Bicycle facility design plans must be coordinated with the affected local government and approved by the Department prior to any official implementation by the Department.
  6. The bicycle facility is constructed concurrently with a highway construction project with the exception of the conditions in sections V and VI.
- b. All proposed highway projects involving major construction or redevelopment along the AASHTO approved Interstate Bicycle Route System should provide the necessary design features to facilitate bike travel along those routes.
  - c. The Department may elect not to participate in the construction of a bicycle facility even if all the conditions in IIIa and IIIb are met.

IV. FINANCIAL PARTICIPATION

a. For a Department approved bicycle facility project that is constructed concurrently with a highway project, the Department may financially participate as follows:

1. Primary System - in all jurisdictions, except towns under 3,500 population where the Department maintains the Primary System highways, all additional preliminary engineering, right-of-way, and 1/2 of the construction costs for the bicycle facility may be borne by the Primary System highway construction funds allocated for the Construction District. For the following exceptions, the additional costs may be borne totally by the Primary System funds allocated:

- . Towns under 3,500 population
- . Relocated Existing Bicycle Facilities
- . Paved Shoulders and Shared Roadways where provisions for such are necessary to provide for proper motor vehicle traffic service
- . AASHTO Approved Interstate Bicycle Route System (Item IV a.4)

2. Secondary System - In counties and towns where the Department maintains the Secondary System highway, all additional preliminary engineering, right-of-way, and 1/2 of the construction costs for the bicycle facility may be borne by the Secondary System highway construction funds allocated for the county. For the following exceptions, the additional costs may be borne totally by the Secondary System funds allocated:

- . Relocated Existing Bicycle Facilities
- . Paved Shoulders and Shared Roadways for highways functionally classified as Arterials or Collectors where provisions for such are necessary to provide for proper motor vehicle traffic service
- . AASHTO Approved Interstate Bicycle Route System (Item IV a.4)

3. Urban System - In all cities and towns that maintain their own highways, the cost for additional preliminary engineering, right-of-way, and construction of bicycle facilities may be borne by the Urban System construction funds allocated to the locality with the same local match required by law for construction of the highway project.
4. AASHTO Approved Interstate Bicycle Route System - For all bicycle projects located along the AASHTO approved Interstate Bicycle Route System on the Primary and Secondary Systems, the additional costs for preliminary engineering, right-of-way, and construction of the bicycle facility may be borne totally by the funds allocated by law for those systems. The additional costs for those Interstate Bicycle System projects on the Urban System may be borne by the urban funds allocated to the locality with the same local match required by law for construction of the highway project.

V. BICYCLE ACCESS FACILITIES

- a. The Department may participate in the development of bicycle access facilities to serve public recreational areas and historic sites based upon the current Recreational Access Fund Policy.

VI. EXISTING ROADS

In some instances, for route continuity, bicycle facilities may be routed over existing facilities which are not planned for expansion. In these cases, these facilities are an operational feature and usually result in the identification of a bike lane, restriction of parking, or some other physical modification to accommodate bicycle travel. It is necessary for the Transportation Planning Engineer to coordinate with the District Administrator, the District Traffic Engineer, and appropriate Divisions in the Central Office to assure agreement on the method of treatment for a bikeway over an existing route. All of the conditions of Sections III and IV need to be met except for III.a.6: Financial participation will be the same as in Section IV.

## VII. MAJOR DEVELOPMENTS AND SITE PLANS

- a. When bicycle facilities are considered as a part of the total development of a tract of property where the road system will be maintained in the future by the Department and the local government requires bikeways in new developments, the following conditions must be satisfied:
1. The bicycle element of the entire plan for the development must be reviewed and approved by the local government prior to final approval by the Transportation Planning Engineer. Appropriate review must be made, and communication regarding the resolution of bicycle facility systems must be carried on between the Resident Engineer, District Traffic Engineer, and the Transportation Planning Engineer.
  2. Along any roadways identified in the site plan, which will be maintained in the future by the Department, a bike trail may be incorporated into the development parallel to but off of the right-of-way dedicated for street purposes. The maintenance and the responsibility for operating the bike trail would fall on the owner which would be either the locality, the developer, or other entity with the responsibility of maintenance of the common land of the development and not the responsibility of this Department. The bike trail right-of-way will be exclusive of the road right-of-way; thus, future changes and/or modifications in the bike trail would not be the responsibility of this Department.
  3. Bikeways within the roadway right-of-way shall be designed to meet AASHTO guidelines and/or VDOT guidelines.
- b. For major developments and site plans where the road system will not be maintained in the future by the Department, all bicycle facility connections to Department maintained facilities shall be subject to review and approval by the District Administrator.



VIII. MAINTENANCE

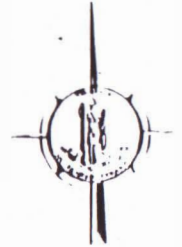
The Department will maintain approved bicycle facilities located within the right-of-way for roadways which are under its operational control, except for snow and ice removal. If the Department does not maintain the adjacent road then the bicycle facility must be maintained by others.



Motion carried.

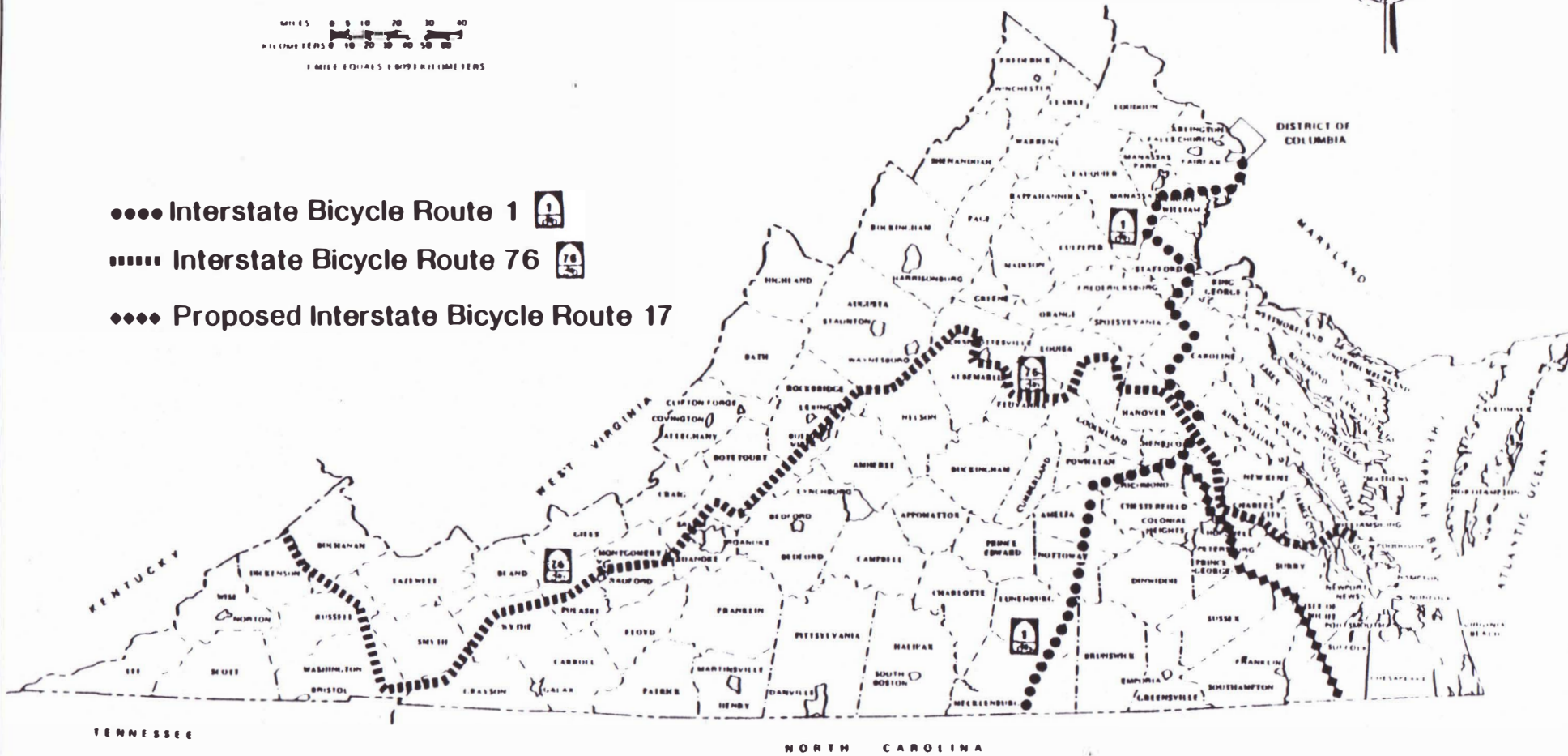
12/20/90

# GENERAL LOCATIONS

## COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION



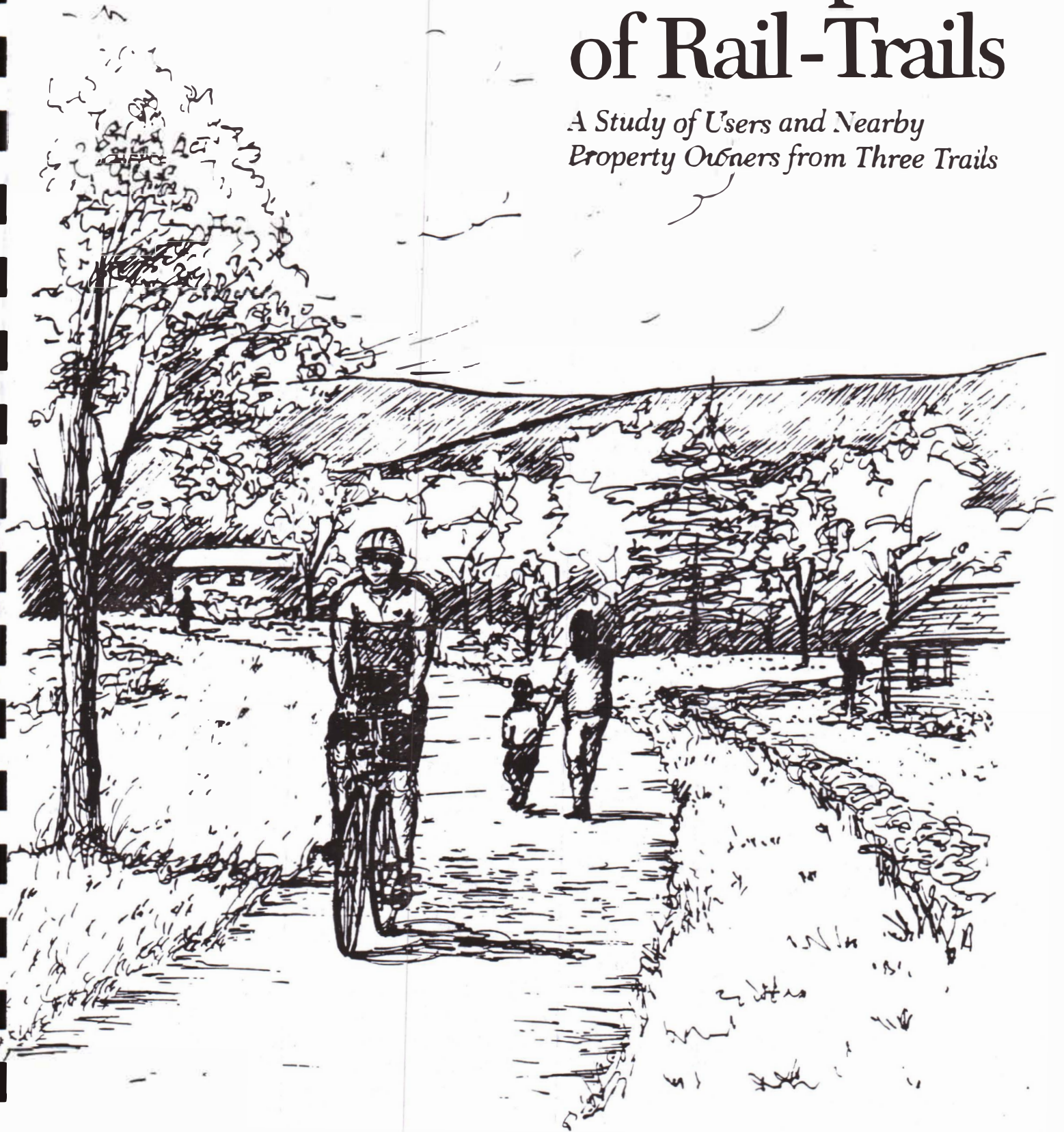
- Interstate Bicycle Route 1 
- Interstate Bicycle Route 76 
- ◆◆◆ Proposed Interstate Bicycle Route 17



The detailed locations of Interstate Bicycle Routes 1 and 76 are marked on county maps.

# The Impacts of Rail-Trails

*A Study of Users and Nearby  
Property Owners from Three Trails*



Conducted by:

U.S. Department of the Interior  
National Park Service  
Rivers & Trails Conservation Program  
1992

In cooperation with:

The Pennsylvania  
State University



## EXECUTIVE SUMMARY

### Background and Methods

This *Impacts of Rail-Trails* study was the first extensive study to examine the benefits and impacts of rail-trails and the first, to our knowledge, to systematically examine both the trail users and nearby property owners of the same trails. It was a cooperative effort of the National Park Service and Penn State University carried out in 1990 and 1991. Its purpose was to furnish information to assist in the planning, development, and management of rail-trails, public recreation trails constructed on the beds of unused railroads rights-of-way. The study's objectives were to: 1) Explore the benefits of rail-trails to their surrounding communities and measure the total direct economic impact of trail use; 2) Examine what effects rail-trails have on adjacent and nearby property values; 3) Determine the types and extent of trail-related problems, if any, experienced by trail neighbors; and 4) Develop a profile of rail-trail users. This report summarizes the study's methods and findings.

A sample of three diverse rail-trails from across the U.S. was studied: The Heritage Trail, a 26-mile trail surfaced in crushed limestone which traverses rural farmland in eastern Iowa; the St. Marks Trail, a 16-mile paved trail beginning in the outskirts of Tallahassee, Florida and passing through small communities and forests nearly to the Gulf of Mexico; and the Lafayette/Moraga Trail, a 7.6-mile paved trail 25 miles east of San Francisco, California which travels almost exclusively through developed suburban areas. At the time of the study, the Heritage Trail was eight years old, the St. Marks two, and the Lafayette/Moraga was fourteen years old.

Users were systematically surveyed and counted on each trail from March, 1990 through February, 1991 and were then sent follow-up

mail surveys. A sample of residential landowners owning property immediately adjacent to the trails and a sample of those owning property within one-quarter mile of the trails (one-half mile in Iowa) were also surveyed by mail, and real estate professionals in communities along the trails were interviewed by phone. Usable mail surveys were obtained from 1,705 trail users and 663 property owners, and interviews with 71 realtors and appraisers were conducted. Major findings from the analysis of these responses and counts are summarized at the conclusion of this executive summary.

### Study Findings

#### *Trail Users and Use*

- 1) Demographically, the samples of rail-trail users were much like the populations of the communities through which the trails passed.
- 2) The study trails were quite heavily used, with most users living nearby and visiting frequently. This pattern was most pronounced on the suburban Lafayette/Moraga Trail.
- 3) The study did not find a "typical" mix of activities that might be expected on rail-trails. Although bicycling and walking were the most common activities on all the study trails, they occurred in very different proportions on each.
- 4) Having no motorized vehicles allowed was the most desirable trail characteristic expressed by the users of each trail. Other important characteristics were: natural surroundings, quiet settings, safe road crossings, smooth trail surfaces, and good maintenance.



5) Users reported no serious complaints with any of the trails. Insufficient drinking water and restroom facilities were the biggest concerns overall, with rough trail surfaces and reckless behavior of other users reported as problems on the Lafayette/Moraga Trail.

#### *Economic Benefits of Rail-Trails*

1) Use of the sample trails generated significant levels of economic activity. These economic benefits were from two major sources: total trip-related expenditures and additional expenditures made by users on durable goods related to their trail activities.

2) Users spent an average of \$9.21, \$11.02, and \$3.97 per person per day as a result of their trail visits to the Heritage, St. Marks, and Lafayette/Moraga Trails, respectively. This resulted in a total annual economic impact of over \$1.2 million in each case. Expenditures on durable goods generated an additional \$130 to \$250 per user annually depending on the trail.

3) The amount of "new money" brought into the local trail county(s) by trail visitors from outside the county(s) was \$630,000, \$400,000 and \$294,000 annually for the Heritage, St. Marks, and Lafayette/Moraga Trails, respectively.

4) Restaurant and auto-related expenditures were the largest categories of trip-related expenses and visitors that spent at least one night in the local area were the biggest spenders. Equipment (such as bicycles) was the largest category of durable expenditure.

#### *Landowner and Property Characteristics*

1) Property size and distance from homes to trail varied from trail to trail as expected with the largest properties and distances between homes and the trail occurring along the rural Heritage

Trail and the smallest properties and those closest to the trail occurring along the suburban Lafayette/Moraga. Relatedly, it was far more likely for a landowner's property to be severed by the Heritage Trail than by the other two.

2) The vast majority of landowners were trail users and visited the trails frequently.

#### *Problems Experienced by Landowners*

1) Overall, trail neighbors had experienced relatively few problems as a result of the trails during the past twelve months, but the types and frequencies of these problems varied from trail to trail.

2) The problems reported by the most landowners were: unleashed and roaming pets, illegal motor vehicle use, and litter on or near their property. The problems that were most likely to have increased for adjacent owners since the opening of the trail were: noise from the trail, loss of privacy, and illegal motor vehicle use.

3) The majority of owners reported that there had been no increase in problems since the trails had been established, that living near the trails was better than they had expected it to be, and that living near the trails was better than living near the unused railroad lines before the trails were constructed. Although owners along the Heritage Trail were the least positive and those along the Lafayette/Moraga the most positive, the majority sampled along each trail was satisfied with having the trail as a neighbor.

#### *Rail-Trails' Effects on Property Values*

1) Landowners along all three trails reported that their proximity to the trails had not adversely affected the desirability or values of their properties, and along the suburban Lafayette/Moraga Trail, the majority of owners felt the

presence of the trail would make their properties sell more easily and at increased values.

2) Of those who purchased property along the trails after the trails had been constructed, the majority reported that the trails either had no effect on the property's appeal or added to its appeal.

3) The vast majority of real estate professionals interviewed felt the trails had no negative effect on property sales and no effect on property values adjacent to or near the trails. However, those who felt the trails increased property values outnumbered those reporting decreased values. This positive effect was most pronounced on the Lafayette/Moraga Trail and for nearby, as opposed to adjacent, property.

#### *Other Benefits of Rail-Trails*

1) Trail users and landowners alike reported that the trails benefited their communities in many ways. Health and fitness and recreation opportunities were considered to be the most important benefits of the trails by the landowners. The trail users felt the trails were most important in providing health and fitness, aesthetic beauty, and undeveloped open space.

#### **Study Conclusions and Implications**

1) Rail-trails can provide a wide range of benefits to users, local landowners, and trail communities. They are not single use, single benefit resources. Residents and visitors enjoy the benefits of trail use, aesthetic beauty, protected open space, and in some instances higher property resale values, while local communities enjoy bolstered economies and increased community pride among other benefits. These benefits should be presented as a package when discussing the merits of rail-trails with the diverse constituencies affected by proposed trails.

2) Levels of economic impact varied considerably across the three study trails. This was due principally to the fact that the Lafayette/Moraga Trail was used almost exclusively for short trips by nearby residents while the other two trails attracted more visitors from beyond the local neighborhoods. If economic benefits are an important community objective marketing efforts should be developed aimed at attracting out-of-town visitors and getting many of them to make overnight stays.

3) The study rail-trails were found to have a dedicated core of users who visited frequently and were committed to "their" trails. This finding represents an opportunity for managers of existing trails and planners of new trails to tap into a potentially rich source of trail supporters and volunteers for assistance on a number of appropriate planning and management activities.

4) Although negative aspects of living adjacent to rail-trails were reported by some landowners, the rates of occurrence and seriousness of problems were relatively low and advantages of living near the trails were reported as well. This finding should be encouraging to trail planners and advocates. While all existing and potential problems need to be identified and addressed quickly, trail planners and advocates should not be timid about presenting the positive impacts of rail-trails to landowners along the proposed trails and putting them in contact with their peers along existing trails.

## Summary and Comparison of the Study Trails

	Heritage	St. Marks	Lafayette/Moraga
<i>Description</i>			
Length, miles	26	16	7.6
Surface	Compacted limestone	Asphalt paved	Asphalt paved
Year established	1982	1988	1976
Nearest Metropolitan Area	Dubuque, IA	Tallahassee, FL	"East Bay" Metropolitan Area
Population	62,000	82,000	2 million in the metropolitan area
Distance from trail	2 miles	Begins at city outskirts	2 miles from the metropolitan area
Fees charged	\$5/year or \$1/visit	\$0	\$0
Operating agency	Dubuque County Conservation Board	Florida Department of Natural Resources	East Bay Regional Park District
Trail landscape	Open farmland to rocky, wooded river valley	Small towns and undeveloped forest land	Developed suburban areas
<i>Trail User Survey</i>			
Survey response (%)	89	71	83
Usable surveys	329	600	776
Calculated yearly (visits)	135,000	170,000	400,000
Major uses (%)			
- Bicycling	65	81	20
- Walking	29	9	63
- Jogging	3	4	12
Male/Female (%)	56/44	51/49	43/57
Mean age (years)	46	38	50
Income, under \$40,000 (%)	55	56	21
College graduates (%)	40	66	68
Race, white (%)	98	93	94
Reporting a disability (%)	7	7	7
Trail visits in last year (median)	7	10	100
Miles from home (median)	7	8	1.5
% who lived 20 miles or more from trail	31	18	4
Time spent on trail (average minutes)	150	141	68
<i>Adjacent/Neighboring Landowner Survey</i>			
Survey response (%)	75	58	71
Usable surveys	107	226	330
Male/female (%)	54/46	41/59	56/44
Mean age (years)	50	53	54
Average distance from home to trail (feet)	2434	1822	890
Land owned (average acres)	101	6	0.5
% with properties severed by trail	20	2	0
Trail used by household member in last year (%)	88	76	99
Days used by household in last year (average)	47	67	141
<i>Trail Benefits</i>			
Highest benefits perceived by trail users	<ul style="list-style-type: none"> <li>• Health and fitness</li> <li>• Aesthetic beauty</li> <li>• Preserving open space</li> <li>• Community pride</li> </ul>	<ul style="list-style-type: none"> <li>• Health and fitness</li> <li>• Aesthetic beauty</li> <li>• Preserving open space</li> <li>• Recreation opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Health and fitness</li> <li>• Aesthetic beauty</li> <li>• Preserving open space</li> <li>• Community pride</li> </ul>
Highest benefits perceived by landowners	<ul style="list-style-type: none"> <li>• Health and fitness</li> <li>• Recreation opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Health and fitness</li> <li>• Recreation opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Health and fitness</li> <li>• Recreation opportunities</li> </ul>

## Summary and Comparison of the Study Trails (Continued)

	Heritage	St. Mark's	Lafayette/Moraga
<p><i>Trail User Perceptions</i></p> <ul style="list-style-type: none"> <li>• Most important trail characteristics</li> <li>• Trail characteristics perceived as problems</li> </ul>	<ul style="list-style-type: none"> <li>• No motorized vehicles</li> <li>• Good maintenance</li> <li>• Natural surroundings</li> <li>• Lack of drinking water</li> <li>• Lack of restrooms</li> <li>• Rough trail surface</li> </ul>	<ul style="list-style-type: none"> <li>• No motorized vehicles</li> <li>• Good maintenance</li> <li>• Natural surroundings</li> <li>• Lack of drinking water</li> <li>• Lack of restrooms</li> <li>• Lack of services</li> </ul>	<ul style="list-style-type: none"> <li>• No motorized vehicles</li> <li>• Natural surroundings</li> <li>• Quiet settings</li> <li>• Lack of drinking water</li> <li>• Rough trail surface</li> <li>• Reckless behavior of users</li> <li>• Lack of restrooms</li> </ul>
<p><i>Landowner Perceptions</i></p> <ul style="list-style-type: none"> <li>• Landowner's personal support for trail when proposed                             <ul style="list-style-type: none"> <li>- Very supportive (%)</li> <li>- Very opposed (%)</li> </ul> </li> <li>• Attitude about living near trail now compared to initial reaction                             <ul style="list-style-type: none"> <li>- Much better (%)</li> <li>- Much worse (%)</li> </ul> </li> <li>• Current satisfaction with trail                             <ul style="list-style-type: none"> <li>- Very satisfied (%)</li> <li>- Very dissatisfied (%)</li> </ul> </li> <li>• Most commonly reported problems (% of all owners reporting)</li> <li>• Most frequently occurring problems (average times in last year for all owners)</li> <li>• Problems that have decreased or not changed since before trail opened (% of adjacent owners reporting improvement or no change)</li> <li>• Problems most likely to have increased since before trail opened (% of adjacent owners reporting more of a problem now)</li> </ul>	<ul style="list-style-type: none"> <li>17</li> <li>39</li> <li>27</li> <li>2</li> <li>27</li> <li>15</li> <li>• Illegal motor vehicle use (39)</li> <li>• Cars parked on/near property (24)</li> <li>• Litter (21)</li> <li>• Illegal motor vehicle use (2.1)</li> <li>• Litter (2.1)</li> <li>• Cars parked on/near property (2.0)</li> <li>• Dog manure (100)</li> <li>• Burglary (94)</li> <li>• Animals harassed (94)</li> <li>• Users ask to use phone, bathroom, etc. (94)</li> <li>• Drainage problems (94)</li> <li>• Loss of privacy (38)</li> <li>• Illegal motor vehicle use (32)</li> <li>• Cars parked on/near property (25)</li> <li>• Noise from trail (24)</li> </ul>	<ul style="list-style-type: none"> <li>47</li> <li>7</li> <li>33</li> <li>5</li> <li>47</li> <li>11</li> <li>• Illegal motor vehicle use (39)</li> <li>• Litter (21)</li> <li>• Loitering on/near property (20)</li> <li>• Cars parked on/near property (5.1)</li> <li>• Loss of privacy (3.9)</li> <li>• Illegal motor vehicle use (3.0)</li> <li>• Vandalism (95)</li> <li>• Burglary (95)</li> <li>• Rude users (94)</li> <li>• Users ask to use phone, bathroom, etc. (93)</li> <li>• Illegal motor vehicle use (35)</li> <li>• Loss of privacy (23)</li> <li>• Noise from trail (21)</li> <li>• Litter (19)</li> </ul>	<ul style="list-style-type: none"> <li>37</li> <li>7</li> <li>28</li> <li>1</li> <li>54</li> <li>6</li> <li>• Unleashed/roaming pets (43)</li> <li>• Noise from trail (27)</li> <li>• Litter (27)</li> <li>• Dog manure on/near property (8.8)</li> <li>• Cars parked on/near property (6.5)</li> <li>• Noise from trail (6.0)</li> <li>• Animals harassed (96)</li> <li>• Burglary (96)</li> <li>• Users ask to use phone, bathroom, etc. (96)</li> <li>• Trespassing (95)</li> <li>• Illegal motor vehicle use (95)</li> <li>• Noise from trail (36)</li> <li>• Loitering on/near property (30)</li> <li>• Loss of privacy (25)</li> <li>• Cars parked on/near property (17)</li> </ul>
<p><i>Economic Impact</i></p> <ul style="list-style-type: none"> <li>• Average trip expenditure (\$ per person per day)</li> <li>• Total trips/year</li> <li>• Total annual expenditures by users</li> </ul>	<ul style="list-style-type: none"> <li>\$9.21</li> <li>135,000</li> <li>\$1,243,350</li> </ul>	<ul style="list-style-type: none"> <li>\$11.02</li> <li>170,000</li> <li>\$1,873,400</li> </ul>	<ul style="list-style-type: none"> <li>\$3.97</li> <li>400,000</li> <li>\$1,588,000</li> </ul>



**Summary and Comparison of the Study Trails (Continued)**

	Heritage	St. Mark's	Lafayette/Moraga
<b>Additional Trip Expenditure Information</b>			
• Accommodations used by overnight visitors			
- Hotel/Motel (%)	53	28	0
- Friends/Relatives (%)	24	39	100
- Campground (%)	15	14	0
• Major direct expenditures made by all visitors (average \$/person/day)			
- Restaurants	\$2.99	\$3.94	\$0.78
- Gas and oil	2.08	3.72	1.33
- Lodging	1.46	0.44	0.28
• % of direct expenditures made in county(s) trail is located in	66	42	41
• Major direct expenditures made in county by visitors to county (\$/person/day)			
- Restaurants	\$5.21	\$4.70	\$1.34
- Gas and oil	2.14	2.42	0.82
- Lodging	2.56	1.98	0.00
- Retail purchases	1.36	2.27	3.37
• Average total expenditures made in trail county(s) by visitors to county (\$/person/day)	\$13.22	\$15.18	\$6.86
<b>Expenditures on Durable Goods</b>			
• Average amount spent in last year within the county that was influenced by trail existence (\$)			
- Equipment—bikes, etc.	\$ 68.67	\$127.05	\$41.25
- Accessories	21.88	34.87	19.75
- Clothing	21.25	28.25	48.80
- Other	7.67	5.35	3.69
- Total spent in county	\$119.47	\$195.52	\$113.49
• Total amount spent in last year that was influenced by trail existence (average per-person)	\$173.99	\$250.64	\$132.69
<b>Effect on Real Estate</b>			
• Adjacent owner's opinion about effect of trail on resale value			
- No effect (%)	73	74	44
- Increased value (%)	14	16	53
• Real estate professionals surveyed	20	25	26
• Realtors' and appraisers' conclusion about effect of the trail on adjacent residential property			
- No effect (%)	82	80	52
- Increased value (%)	12	20	24