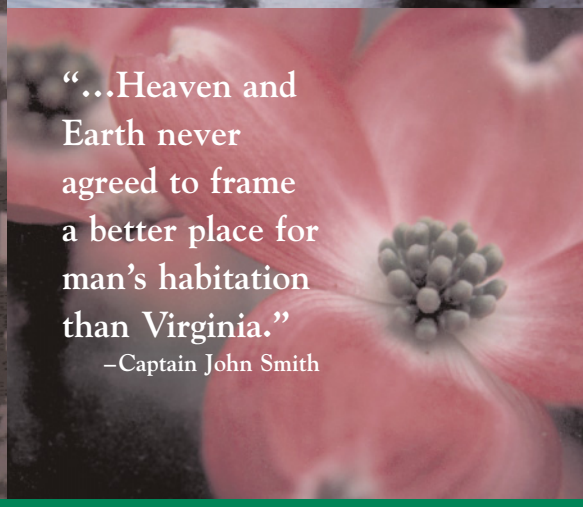
VIRGINIA OUTDOORS PLAN

OUR COMMON WEALTH



"...Heaven and Earth never agreed to frame a better place for man's habitation than Virginia."
–Captain John Smith

VIRGINIA'S 2002 CONSERVATION AND COMPREHENSIVE OUTDOOR RECREATION PLAN

OUTDOORS PLAN 2002 VIRGINIA

A plan for meeting Virginia's outdoor recreation and open space needs and conserving the environment

Commonwealth of Virginia
Department of Conservation and Recreation

Director
Joseph H. Maroon

The Virginia Department of Conservation and Recreation,
Division of Planning and Recreation Resources,
would like to thank the citizens of Virginia, private and
public agencies and organizations for their help in creating
The 2002 Virginia Outdoors Plan.

John R. Davy, Division Director
Planning and Recreation Resources

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Virginia is a "place." It is characterized by a rich tapestry of lands and waters, which define its character and form. These resources support a host of human and natural communities – interconnected and linked by nature, culture and social need. The development of its resources relies on a framework of open space – open space to define and enhance our communities. Open space to provide for food, recreation, timber, and other natural resource necessities to ensure economic prosperity and progress. Open space to sustain and provide a quality of life that offers a healthy environment for our citizens now and into the future. This open space, composed of water, land, natural and man-made environments, makes up the common wealth of our citizens. The Virginia Outdoors Plan is a guide and reference to all its readers on the value of Virginia as a place. The plan also serves as a guide for how we, collectively, as citizens can manage our resources to ensure a rich heritage for future generations.

" In utilizing and conserving the natural resources of the Nation, the one characteristic more essential than any other is foresight."

President Theodore Roosevelt
June 10, 1907

CHAPTER I

2002 Virginia Outdoors Plan

Purpose

The *Virginia Outdoors Plan (VOP)* is the state's official conservation, outdoor recreation and open space plan. It is intended to serve as a guide to all levels of government and the private sector in meeting the conservation, outdoor recreation, and open space needs of Virginia. Implementing recommendations in this plan can ensure that the rich outdoor heritage for which Virginia is known is passed on to future generations. In addition, the *VOP* meets the criteria the National Park Service requires for Virginia to participate in the Land and Water Conservation Fund program. This program provides 50% matching funds to state agencies and localities for the acquisition and development of outdoor recreation resources.

The plan also serves as a guidance document for protection of lands through actions of the Virginia Land Conservation Foundation. Important natural, cultural, and open space resources are identified in each of the 21 planning regions of the state. Identification of these resources in the *Virginia Outdoors Plan* is one of the tools that assists foundation trustees in ranking and selecting projects for funding. It also helps conservation organizations working with the foundation to target those areas and resources that are most important or threatened as they develop land conservation strategies.

Finally it is hoped that this plan, through its identification of resources and those who play a role in managing them, can contribute to a seamless delivery of outdoor recreation services. The public does not often distinguish between the levels of government that provide parks and open space. It is, therefore, most important that citizen expectations be met in the care and management of these resources with respect to allowable public utilization. This goal necessitates similar management approaches and coordination among the various governmental providers. The *Virginia Outdoors Plan* will help make this goal a reality.

Introduction

Virginia has been blessed with a magnificent tapestry of open space, scenic vistas and outdoor recreation resources. The textural richness in the landscape ranges from the flat Coastal Plain through the fall line and the rolling Piedmont to the dramatic Blue Ridge Mountains – the scene of early westward expansion. Traversing every part of this landscape are beautiful rivers creating glistening ribbons of water that serve to connect communities, forests and fields, and provide beautiful scenery and opportunities for recreation. Settling like a multipatterned quilt over the land is a richness of vegetation, ecological diversity and land uses. Adding to the state's outdoor treasures are an extensive coastline, beautiful beaches, rich tidal wetlands, the unique Chesapeake Bay, a variety of habitats, and a plethora of plant and animal species. As it is often referred to, Virginia's outdoors is a common wealth.

It is in part because of the Commonwealth's tremendous natural and cultural resource base that Virginia is such a special place to live, work, recreate and visit. Virginians value highly their outdoor environment and its quality. They, along with visitors to the Commonwealth, cherish the opportunity to enjoy the great outdoors by visiting parks and historic sites, traveling over scenic byways, fishing in beautiful rivers and lakes, viewing farms and forested land, learning about the environment through education and interpretation, and enjoying the beaches and mountains. It is no wonder then that the protection and conservation of these resources has become the critical conservation issue in Virginia.

The unique qualities of Virginia have been recognized in numerous ways. The Department of Conservation and Recreation's Division of Natural Heritage has been recognized as one of the best in the Western Hemisphere by The Nature Conservancy. Through the work of that agency, Virginia's important natural resources and communities are protected and managed to ensure the natural legacy that past generations enjoyed are available for future citizens and visitors to the Commonwealth.

In the same manner, Virginia's state park system has been established on sites that possess scenic, historic, natural and recreational resources of state significance. It provides recreation and educational opportunities for the state's residents and non-residents. In 2001, Virginia's state park system was awarded the National Gold Medal Award for "Excellence in the Field of Parks and Recreation Management by the Sports Foundation, Inc. of the National Sporting Goods Association. This is the most prestigious award a state park system can receive. These are two examples of the types of recognition accorded to national, state and local government agencies, conservation interests, and private citizens that protect and make Virginia's outdoor resources available for enjoyment. It is a "place" where the natural world and the man-made elements merge to create a unique environment for habitation.

The importance of protecting our land and water resources was clearly demonstrated in three different polls conducted in 2000 and 2001. The first is the 2000 *Virginia Outdoors Survey* conducted by the Virginia Department of Conservation and Recreation. This survey of 3,400 Virginia households has a margin of error of +/- 2%. It showed that 93% of Virginians felt it was somewhat or very important to protect our open space resources; 72% ranked it as very important.

The second survey was conducted by The Trust for Public Lands, The Chesapeake Bay Foundation, and The Nature Conservancy in 2001. This poll of 750 randomly selected registered Virginia voters again showed strong public support and interest in the protection of land and water resources. This poll, with a +/-3.6% margin of error, noted that 89% of Virginia voters felt that preserving and protecting the state's open space resources should be an important state priority. This purpose is so important that 65% felt that a permanent state funding source should be established to protect forests, farms, clean water and open space.

Also in 2001, the Tarrance Group conducted a poll of 600 randomly selected registered voters – this survey's margin of error was +/- 4.1%. In looking at the issue of sprawl and overdevelopment, 77% of the voters favored a proposal to establish protected areas outside of cities and suburban areas that would be off limits to development. Of that number, 51% said they strongly favored that proposal. This poll noted that 59% of voters favored the use of public funds to protect open space and farmland from development. The overall results of the polls indicate that Virginians now rank preserving and protecting open space nearly as high as

reducing crime and improving education, and actually higher than transportation needs.

One tangible result of this strong public concern and interest in the protection of the state's open space resources is the recent 2000 Chesapeake Bay Agreement and the land conservation commitments it contains. One of the most important is the commitment to permanently protect 20% of the land in the bay watershed by 2010. Achieving this goal will require the cooperation of both the public and private sector and the development of partnerships between agencies, localities, private landowners and land conservation organizations. It will also require a stable and reliable state funding program to leverage funds from other sources, both public and private.

Another important commitment of the Chesapeake Bay Agreement is to increase the number of public water access sites in the bay area by 30%. For Virginia, this will mean the development of approximately 60 new sites by the commitment date of 2010. Many of these projects will involve the acquisition and protection of riparian lands. This commitment will also play a major role in helping to meet the number one ranked outdoor recreation need of Virginians: more public access to state waters for fishing, boating, swimming and sunbathing. Again, the importance of sound land use planning, funding and partnerships at all levels will be the key to success.

How the plan is used

So that the *Virginia Outdoors Plan* (*VOP*) is user-friendly, it is divided into three sections. The first part of the plan discusses the major issues facing the Commonwealth with respect to the conservation and use of our outdoor recreation and open space resources. Each chapter in this section begins with a brief introduction. The introduction is followed by a listing of the major findings and recommendations from that chapter. This format was developed to allow for the easy extraction of key information by plan users. Recommendations are followed by a narrative discussion of the topic.

The second part of the *VOP* is the Regional Analysis and Recommendation section. This part of the plan examines each of the state's 21 planning districts and provides specific recommendations on what needs to be done in each of them to meet identified needs. A map is provided of each planning district that shows existing outdoor recreation and open space resources. In addition, resources that could help meet specific needs are identified and keyed by number to the recommendations in the text. This section, therefore, provides a detailed overview of outdoor recreation and open space resource needs throughout Virginia.

The third section of the plan is the Appendix. This contains background reports, legal information, planning standards and other material supporting data in the text.

By going to any of the three sections, the reader can quickly find information on a variety of issues and topics important to the conservation of Virginia's important outdoor recreation and open space resource base. This information should be most helpful in making both resource management decisions and in determining how best to use limited financial resources in accomplishing the most important resource goals.

Conservation policy

The official position of the Commonwealth of Virginia, with respect to its natural resources, public lands and historic sites, is clearly expressed in the State Constitution. Article XI, Conservation, was adopted by the people in 1970 as recommended in the first *Virginia Outdoors Plan* (*VOP*).

ARTICLE XI – Section 1 Constitution of Virginia

"To the end that the people have clean air, pure water, and the use and enjoyment for recreation of adequate public land, waters, and other natural resources, it shall be the policy of the Commonwealth to conserve, develop, and utilize its natural resources, its public land, and its historical sites and buildings. Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction for the benefit, enjoyment, and general welfare of the people of the Commonwealth."

Article XI is a strong statement of Virginia's public policy to protect air, water, and other natural resources of the commonwealth for the benefit of the people. It provides direction to the courts to construe state statutes and administrative acts in light of this constitutional postulate.

It is the objective of this article to ensure that the people of Virginia have the opportunity to live in, utilize and enjoy a natural environment that can be passed on to future generations with satisfaction and pride.

Legal authority

The legal authorities for Virginia to develop a broad-based land conservation and recreational usage plan may be found in multiple locations within both federal and state code.

The Federal Land and Water Conservation Fund Act of 1965 (Title 16 U.S.C., Chapter 1, Subchapter LXIX, Part B, 460l-4 et seq.) establishes the Land and Water Conservation Fund. Section 4601-8(d) specifies "[a] comprehensive statewide outdoor recreation plan shall be required prior to the consideration by the Secretary [of Interior] of financial assistance for acquisition or development projects." The plan shall contain "an evaluation of the demand for and supply of outdoor recreation resources and facilities in the State" as well as "a program for the implementation of the plan."… "For fiscal year 1988 and thereafter each comprehensive statewide outdoor recreation plan shall specifically address wetlands within that State as an important outdoor recreation resource." Payments may be made to the States for outdoor recreation for the following activities: (1) planning, (2) acquisition of land, waters, or interests in land or waters, or (3) development. The Land and Water Conservation Fund program provides 50% matching money to state agencies and localities for the acquisition and development of outdoor recreation areas.

The legal authority for Virginia to participate in the Land and Water Conservation Fund program was originally contained in § 10-21.8(3) of the *Code of Virginia*, which created the Commission of Outdoor Recreation. This authority was transferred to the Department of Conservation and Recreation in July of 1983. Section 10.1-200 of the *Code of Virginia* calls for the department to "establish and implement a long-range plan for acquisition, maintenance, improvement, protection and conservation for public use of those areas of the Commonwealth best adapted to the development of a comprehensive system of outdoor recreational facilities in all fields, including, but not limited to: parks, forests, camping grounds, fishing and hunting grounds, scenic areas, waters and highways, boat landings, beaches and other areas of public access to navigable waters." It also states that the department shall have the power and duty to "study and appraise on a continuing basis the outdoor recreational needs of the Commonwealth; assemble and disseminate information on outdoor recreation; and prepare, maintain and keep up-to-date a comprehensive plan for the development of outdoor recreational facilities of the Commonwealth."

The Virginia Department of Conservation and Recreation, through its Division of Planning and Recreation Resources, is the official state office to "create and put into effect a long range plan for the acquisition...and development of a comprehensive system of outdoor recreation facilities." As this document is the comprehensive outdoor plan for the commonwealth, § 10.1-207 of the *Code of Virginia* specifies that "[a]ll departments, commissions, boards, agencies, officers, and institutions of the Commonwealth, or any political subdivision thereof and park authorities shall cooperate with the Department in the preparation, revision and implementation of a comprehensive plan for the development of outdoor recreational facilities, and such local and detailed plans as may be adopted pursuant thereto." The *VOP* constitutes the official State Comprehensive Outdoor Recreation Plan for Virginia.

In addition to the federal and state code authorities outlined above that originally guided the development of the plan from an outdoor recreational perspective, the *Code of Virginia* has provided additional guidance in recent years to expand the scope of this plan, calling for the development of a comprehensive land conservation plan. The essence of this plan is embodied in Title 10.1, Chapter 10.2 of the *Code of Virginia* entitled "Virginia Land Conservation Foundation" (§§ 10.1-1017 et seq.). The foundation was established to administer a fund for the purpose of "[a]cquiring fee simple title to or other rights, interests or privileges in property for the protection or preservation of ecological, cultural or historical resources, lands for recreational purposes, state forest lands, and lands for threatened or endangered species, fish and wildlife habitat, natural areas, agricultural and forestal lands and open space" and for "[p]roviding grants to state agencies, including the Virginia Outdoors Foundation, and matching grants to other public bodies and holders for acquiring fee simple title to or other rights, interests or privileges in real property for the protection or preservation of ecological, cultural or

historical resources, lands for recreational purposes, and lands for threatened or endangered species, fish and wildlife habitat, natural areas, agricultural and forestal lands and open space."

In an effort to ensure that funds are expended in a guided manner, § 10.1-1021 subsection 1 of the *Code of Virginia* directs the Virginia Land Conservation Foundation to prepare a comprehensive plan "that recognizes and seeks to implement all of the purposes for which the Foundation is created." In the process of developing this comprehensive plan, the *Code of Virginia* directs the foundation to:

1) develop a strategic plan for the expenditure of unrestricted moneys;
2) develop an inventory of those properties in which the Commonwealth holds a legal interest "for the protection or preservation of ecological, cultural or historical resources, lands for recreational purposes, state forest lands, and lands for threatened or endangered species, fish and wildlife habitat, natural areas, agricultural and forestal lands and open space"; and
3) develop a needs assessment for the future considering the reports and information listed in subsection 1c. Subsection 1c specifies that "In developing the needs assessment, the Board of Trustees shall consider among others the properties identified in the following: (i) *Virginia Outdoors Plan*, (ii) Virginia Natural Heritage Plan, (iii) Virginia Institute of Marine Science Inventory, (iv) Virginia Joint Venture Board of the North American Waterfowl Management Plan, and (v) Virginia Board of Historic Resources Inventory. In addition, the Board shall consider any information submitted by the Department of Agriculture and Consumer Services on farmland preservation priorities and any information submitted by the Department of Forestry on forest land initiatives and inventories."

The foundation determined that an expanded *Virginia Outdoors Plan* would substantially meet the requirements of the comprehensive plan it is directed to prepare under § 10.1-1021 of the *Code of Virginia*. The *Virginia Outdoors Plan*, prepared by the Department of Conservation and Recreation, was therefore selected to become the foundation document for the development of the state's official plan for the protection and conservation of Virginia's important natural, outdoor recreational, and open space resources.

The elements of this plan are developed with assistance from a task force. Section 10.1-1018(E) of the *Code of Virginia* states that "[t]he Board shall seek assistance in developing grant criteria and advice on grant priorities and any other appropriate issues from a task force consisting of the following agency heads or their designees: the Director of the Department of Conservation and Recreation, the Commissioner of Agriculture and Consumer Services, the State Forester, the Director of the Department of Historic Resources, the Director of the Department of Game and Inland Fisheries and the Executive Director of the Virginia Outdoors Foundation. The Board may request any other agency head to serve on or appoint a designee to serve on the task force." Additionally, § 10.1-1026 of the *Code of Virginia* establishes that "[a]ll state officers, agencies, commissions, boards, departments, institutions and foundations shall cooperate with and assist the Foundation in carrying out its purpose and, to that end, may accept any gift or conveyance of real property or interest therein or other property in the name of the Commonwealth from the Foundation. Such property shall be held in possession or used as provided in the terms of the trust, contract or instrumentality by which it was conveyed."

In addition to the authorities outlined above for agencies of the Commonwealth to participate in the development of the plan, many of these agencies also have individual land and cultural preservation legislative authorities that may be utilized for implementation of the plan's components. These primary legislative authorities may be found in Part B of Appendix J: State Agencies with Land Acquisition and/or Land Conservation Protection Programs on page 425.

Beyond the legal authorities to develop this plan, the increasing desire of the citizenry of Virginia to preserve the Commonwealth's natural and historic landscape is a fundamental factor in the development and continued evolution of this document. Virginia's land trusts have called for the development of a land conservation plan to aid them in the planned preservation of land. This document addresses those growing needs and will provide a substantial foundation that can be built on in future versions in a cooperative effort with these conservation organizations.

Summary

The *2002 VOP* is a product of input from numerous agencies, appointed technical advisors, individuals, and organizations. The information was received during presentations at more than 60 public meetings held across the state and from the review of several draft editions of the plan text. These issues, goals, objectives, and recommendations represent the ideas and aspirations of the people of the Commonwealth with regard to the protection of the state's resource base, Virginia's common wealth, and the provisions of recreation services to meet the needs of citizens and visitors.

The *2002 Virginia Outdoors Plan* provides guidance and direction to the public and private sector in Virginia.

CHAPTER II-A

Land Use Planning And Open Space

Land-use planning is critical to the social, cultural, environmental and fiscal well-being of every community. Effective, well-developed land use plans result in communities of compatible structures and functions, efficient transportation networks, appropriate public facilities, ample open space and safe environments. Consideration for the preservation and protection of natural and cultural resources is assured. The *Code of Virginia Title 15.1, Chapter 11, Article 4, Section 15.1-446.1* requires that every local government "prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction."

The *Virginia Outdoors Plan (VOP)* is a significant planning resource. Focused on open space, conservation and outdoor recreation planning, the *VOP* includes current supply and demand data and timely information on recommendations for open space resources and their use. Revised every five years, the *VOP* is advisory in nature and designed to provide guidance and information for communities as they strive to resolve the issues associated with the simultaneous impacts and demands of growth, economic development and environmental protection. Success in addressing these concerns requires that a community or region develop strategies to achieve the following goals:

- Spatial efficiency in land use development to include sustainable, balanced growth consistent with the carrying capacity of the natural environment
- Preservation of sensitive environments and open space
- Economic development and fiscal responsibility
- A stable and satisfying quality of life for all residents

As demands upon open space increase and land management issues become more complex, it is increasingly important to identify or develop planning strategies that will preserve, protect and enhance resources within a framework of well-managed growth. Challenges to effective land management and comprehensive resource protection in Virginia are summarized next.

Findings

- The identification, recognition and conservation of significant open space and environmental resources are critical to the Commonwealth and the jurisdictions where they are located.

- Identifying, protecting, preserving and developing green infrastructure, as a first step in the land use planning process, will encourage decision makers to recognize the value of natural systems, assure conservation of existing resources, establish links between significant resource nodes and enhance overall environmental quality.

- Improperly planned transportation infrastructure significantly impacts the integrity of natural and cultural resources.

- A significant increase in impervious land cover and the loss of forest has created the potential for flooding in areas not previously identified.

- Current coastal zone management strategies offer few alternatives to the costly practice of subsidizing beach replenishment and property loss due to natural processes and storm events.

- Conflicts result from the juxtaposition of incompatible land uses.

- Effective planning and management of all resources is dependent upon the development and maintenance of an efficient and accurate database that is easily accessed by those involved in making land use decisions.

- Historic resources have a positive impact on local and regional economies. Property values in historic districts traditionally grow faster than those in non-historic sections of the same communities.

- Historic and cultural sites are primary attractions to visitors to the Commonwealth.

- Battlefield preservation optimizes the economic benefits of a historic resource along with the protection of a community's open space.

- Rapid population growth in certain localities challenges the carrying capacity of existing outdoor recreation facilities.

- The loss of open space in urban and suburban areas is a growing quality-of-life concern, as well as a conservation issue. Greenways, trails, parks and playgrounds close to home are essential for the physical, social and psychological well-being of all citizens.

Recommendations

- Localities should identify, recognize, protect and preserve significant open space, scenic and environmental resources through the development of an objective procedure that will include nomination, evaluation and designation with input from both the private and public sectors.

- Planning districts should identify resource/scenic overlay districts where appropriate.

- Localities should consider adding an open space district class to the existing land use tax program.

- Virginia Department of Conservation and Recreation DCR, working with planning district's localities and private land conservation organizations, should develop the initial phase of a statewide green infrastructure plan by identifying and mapping all significant open space areas throughout Virginia.

- Links, such as stream valleys and greenways, between significant open space nodes should be identified, preserved, and, where needed, restored to provide connections from one open space to another.

- State, regional and local planning agencies should evaluate areas within the contexts and confines of natural systems, not political boundaries.

- Regional and state planning agencies should work with localities to anticipate and accommodate impacts of urban pressures on rural parks and resources.

- Local governments and the Virginia Department of Transportation (VDOT) should evaluate, analyze and coordinate transportation infrastructure needs among jurisdictions to develop a true understanding

of real needs and implement strategies to moderate potential impacts to proposed corridors and adjacent properties.

- State and federal agencies should identify the location of the 100-year flood plain to reflect current conditions.

- State and federal agencies should identify sensitive coastal areas subject to progressive erosion from normal wave and current action, as well as storm surge events, and encourage localities to limit construction to those areas outside of the zone of potential impact.

- Localities are encouraged to develop strategies, such as memoranda of understanding (MOU) between user groups and public safety officials, to deal with inevitable conflicts that arise between incompatible uses of public areas.

- Planning district commissions and state agencies should provide assistance to all localities where land use planning support may be limited.

- Agencies at the federal, state, regional and local level are encouraged to develop plans for open space and recreation with citizen guidance in a manner consistent with the objectives of local comprehensive plans.

- State and federal agencies should cooperate to develop and facilitate accessibility to a universally compatible GIS resource planning base.

- Highly urbanized localities should seek nontraditional opportunities to increase open space and/or outdoor recreation amenities for growing populations. Creative adaptation of abandoned or unused sites can help meet the increasing need for such resources.

- Localities should identify significant historic and cultural resources and develop strategies to preserve and protect them.

- Localities should map all significant greenways for inclusion within a local and state greenways plan.

Narrative

The planning process –
local and regional comprehensive planning

As stated previously, the *Code of Virginia Title 15.1, Chapter 11, Article 4, Section 15.1-446.1* requires that every local government "prepare and recommend a comprehensive plan for the physical development of the territory within its jurisdiction." According to the *Code*, the comprehensive plan:

"Shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory 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 inhabitants."

"Such a plan...shall show the [planning] commission's long-range recommendations for the general development of the territory covered by the plan...It may include, but need not be limited to:

- The designation of a system of community service facilities such as parks, forests, schools, playgrounds, public buildings and institutions, hospitals, community centers, waterworks, sewage disposal or waste disposal areas and the like.

- The designation of historical areas and areas for urban renewal or other treatment.

- The designation of areas for the implementation of reasonable ground water protection measures."

Although the requirement for a local comprehensive plan identifies the necessity for planning for a variety of natural, historic and cultural resources, it does not describe the elements needed to identify, protect or manage these resources. Such planning detail can be accommodated in a community-specific open space, conservation and recreation plan that identifies significant resources as determined by the community. As part of a local comprehensive plan, the open space, conservation and recreation plan is critical to the identification, development and management of community resources, and to the quality of life for all residents.

Comprehensive planning at the local, regional, state or national level requires three steps:

- the creation of a vision or statement of the desired goals;
- the preparation of the plan, including a comprehensive inventory of existing conditions and the strategies to be used in achieving the goals; and
- implementation of the plan.

Once identified, the vision will determine the steps to be used in achieving desired goals and developing a well-integrated land use plan. Major tasks incorporated within the Commonwealth's continuing planning process and used in developing and implementing the *Virginia Outdoors Plan* include the following:

Inventory: Open space and recreation facilities should be identified and quantified to assist localities in determining future needs. The Virginia Department of Conservation and Recreation (DCR) maintains an inventory of such resources and facilities. Critical to the planning process, the inventory is updated every five years.

Demand/need: This is identified by determining the difference between the existing supply and present/future needs as revealed through survey information and census data. Through the development of the *Virginia Outdoors Survey*, DCR maintains data on the demand for many types of outdoor recreation facilities.

Opportunities: Programs and resources are assessed to determine their ability to meet identified needs. Among those areas evaluated are:

Water-based recreation: Water-based recreation accounts for a significant amount of the outdoor recreation activity in Virginia with fishing, boating and swimming among the most popular activities.

Linear recreation and open space resources: Greenways and blueways may include a combination of land and/or water trails, stream valleys, parks and scenic roads. Throughout the state, Virginia's developing trails system links residents and visitors with unique outdoor experiences and significant destinations. Water trails add to the more traditional hiking, biking and horseback riding activities enjoyed by most trail enthusiasts. Virginia's Byway Program identifies significant road corridors that offer unique cultural and recreational experiences. All qualifying roads should be considered for destinations and included in the comprehensive open space and recreation planning process.

Scenic Rivers: Virginia's rivers are valued for their ecological and economic significance, as well as their aesthetic qualities and recreational potential. The state, localities and citizens work together to evaluate rivers for state Scenic River designation and implement appropriate protection and management strategies. (See Chapter III-A-1, Scenic Rivers on page 66).

Cultural features and landscape resources: Virginia is characterized by a wealth of historic and cultural features. Such features, as well as the landscapes that accommodate them, should be assessed and managed for their economic, educational and resource benefits. Strong partnerships between the private and public sector are needed to maximize the value of these resources to individual property owners and the public.

Natural Areas: Environmentally unique resources are to be accommodated within comprehensive plans. DCR's Natural Heritage Program maintains a database identifying the location, characteristics, specific flora and fauna and the management requirements of each of these areas. Efforts continue to develop a system to identify, classify and protect these unique resources. (See Chapter III-B-2-d, Natural Areas/Natural Heritage Resources on page 133).

The plan should identify the elements contained in the **Standards for Classification of Real Estate** as devoted to open space use under the *Virginia Land Use Assessment Law*, which requires consistency with the land use plan. In this regulation, "land" includes water, submerged land, wetlands, marshes and similar properties. The regulation identifies the following five major open space categories:

Park and recreation use lands: Public, semi-public or privately owned parks, playgrounds or similar recreational areas operated for public or community use, but not facilities operated for profit.

Conservation or other natural resource lands: Lands protected for the preservation of forest and wildlife resources, watersheds, nature preserves, arboretums, marshes, wetlands and similar natural areas.

Floodways: Lands subject to periodic or occasional flooding that accommodate the passage or containment of floodwaters. These may include areas adjacent to floodplains reserved as additional channels for future floods. The U.S. Army Corps of Engineers and the Virginia Department of Conservation and Recreation are sources of specific floodplain and floodway information.

Historic or scenic areas: Includes properties on the Virginia Landmarks Register or the National Register of Historic Places, properties protected by scenic or open space easements, sites designated or recommended as *scenic* by the Departments of Conservation and Recreation, Historic Resources, Transportation or some other state or local agency.

Character landscapes: Lands determined to be of value in shaping the character of the region or the direction and timing of community development.

In addition, the *Chesapeake Bay Preservation Act* and the *Chesapeake Bay Preservation Area Designation and Management Regulations* require tidewater areas to include within their comprehensive plans water quality protection measures that are consistent with the goals of the Act. Public and private access to waterfront areas must also be considered. Thus, through the planning process, localities can enhance water access opportunities and identify locations for future access where impacts to water quality will be minimized. Including the above listed land categories in the comprehensive plan, or community-specific open space and recreation plan, allows local governments to maximize the advantages of the Special Use Tax provisions of the *Code of Virginia, Article 4 of Chapter 32, Title 58.1* and focus on the significance of natural areas and open space as a community resource.

Planning models

Planning models provide guidance for the development of comprehensive land use, as well as open space and recreational planning. The following models were selected for discussion because they best address the issues confronting land use planners in Virginia today.

Development model

Edward McMahon's *Better Models for Development in Virginia*: This model provides a concise guide to accommodating development in a manner that respects and preserves community character, encourages the protection of natural and cultural resources and acknowledges the value to all communities of balancing growth with conservation. The model that offers a thoughtful approach to better development focuses on six principles. These are:

1. Conserve Virginia's natural and scenic assets
The first principle of better development is identifying where not to develop. Successful communities always identify areas that are most important to preserve, whether they are farmland, forests, riparian corridors, natural areas, scenic views, or wildlife habitats. Every community needs an open space protection plan and resources to implement it. Communities that have a blueprint for conservation are more amenable to accommodating growth in areas where it is most appropriate. On the other hand, when citizens think all land is up for grabs, they often oppose develop-

ment everywhere. Conserving natural and scenic assets is also important because farmland, forests and scenic landscapes contribute to the economic vitality of our communities.

2. Maintain a clear edge between town and countryside
Safeguarding the rural character of Virginia means maintaining a clear edge between cities, towns, and countryside. This can be done by protecting open space while encouraging more compact, walkable communities. It also means encouraging infill development on vacant, underused or overlooked land, including brownfields. By maintaining this clear edge, Virginia can preserve its rural landscape and at the same time enhance the vitality of its existing communities.

3. Build livable communities
Attractive and livable communities are the flip side of protecting rural character. Livable communities have a balance of jobs, homes, services and amenities. Livable communities are walkable and pedestrian-friendly. They're also well designed and attractive. Healthy downtowns are especially important because they are the heart and soul of Virginia communities and the distinctive image that people take with them. Whenever new development occurs, location, scale, siting and design decisions should be carefully considered.

4. Preserve historic resources
Virginia's rich history is still evident in the wealth of historic and archeological sites found in cities, small towns and rural areas throughout the state. Developers should be encouraged to rehabilitate and reuse historic structures. Protecting historic resources such as Civil War battlefields or small town main streets is also important because historic preservation is a powerful tool for economic revitalization that generates jobs, and attracts tourists and investors.

5. Respect local character in new construction
Eighty percent of everything built in America has been built since the end of World War II, and much of it is cookie-cutter, off-the-shelf junk. New buildings can either complement the character of Virginia communities, or they can turn the state into "Anyplace USA." Virginia communities should do more to ensure that new construction – particularly chain stores, shopping centers, and franchises – respect local character. By identifying what makes each community unique, and what harms that uniqueness, localities can develop standards that encourage new construction to complement existing community character.

6. Reduce the impact of the car
Reducing the impact of the automobile means providing more transportation choices. It also means designing transportation facilities that are beautiful as well as functional, that meet the needs of people as well as those of motor vehicles, and that respect local communities. Standards for neighborhood streets, roads and bridges should be re-examined to make them more human-scale and community-friendly. Even minor design improvements can lessen the negative visual and environmental impacts of new roads and bridges. Transportation choices can be expanded by providing better public transportation and building more sidewalks and bike paths. Communities can also foster healthy neighborhoods by considering traffic-calming measures to slow down traffic.

Six Principles for Better Development (From *Better Models for Development in Virginia*, by Edward T. McMahon, The Conservation Fund, 2001)

Recreation opportunity spectrum

Consideration of user experience is essential to the effective planning, development, design and maintenance of recreational areas, facilities and open space. The Recreation Opportunity Spectrum (ROS), devised by the USDA Forest Service, states that "options to realize the number of recreational experiences sought by users are best assured by providing a diverse set of recreation opportunities. A recreation opportunity is a chance for a person to engage in a specific recreation activity within a specific environmental setting to realize a predictable recreation experience." The ROS approach to recreation planning and management is best described as a behavior-based production process, with three distinct demand elements:

- opportunities to participate in certain activities;
- access to certain recreational settings; and
- realization of a "desired experience."

By offering diverse settings where participants may pursue various activities, the broadest range of experiences may be realized. Thus, the task of the recreation planner and manager is to formulate various combinations of activities and settings to facilitate the achievement of the greatest number of desired experiences and to preserve options for future opportunities.

Thus, the development of an effective recreational plan requires that the planner:

- Conduct a comprehensive site assessment to determine resource limits and opportunities.
- Consider needs beyond those generated in response to the typical demand/supply/needs assessment. Seek citizen input to identify new trends, innovative approaches to facility development, and to determine desired recreational opportunities.
- Consider all possible experiences appropriate to the setting.
- Consider the often overlooked value of wilderness. As an environment to be experienced by the urban/suburban resident, as habitat for numerous plant and animal species, as visual relief in a developing landscape, the benefits of wilderness lands are without number. Planning for their preservation and continued protection is critical.

For more information on the Recreation Opportunity Spectrum (ROS), see Appendix A: Guidelines for Outdoor Recreation Planning on page 353, or contact:

USDA Forest Service
George Washington and Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019-3050

E-Way planning model

Representing an educational, ecological, esthetic, exercise and environmental regional design system, the E-Way process provides a systematic and flexible guide to land use, design, development and restoration. It addresses such environmental problems and pressures as rapid population growth, resource depletion, urban sprawl and landscape degradation. It considers the relationship between people and nature, and the need to accommodate growth by identifying development opportunities and constraints. As a process for sustainable design, the E-Way model includes regional values and visions as determined by interdisciplinary teams who conduct inventories of resources and identify options that:

- sustain and restore the life-support system of the community;
- enhance the quality of life for area residents;
- preserve and add to residents' sense of place;
- include an awareness of, and respect for, natural and cultural diversity;
- permit beneficial choices among alternatives.

The E-Way design process identifies and accentuates a community's natural and cultural resources for inclusion within its development and management plan. The E-Way is, in effect, a community-wide corridor linking these features as unique aspects of the community that define its cultural, historical and environmental character. By means of existing public roads, walkways, trails and open space systems, the E-Way connects and unifies a locality's key focal points while providing an enjoyable recreation corridor. The role of such focal points may be enhanced by using them as centers for local events and interpretive programs.

As a composite of public and privately owned properties, the E-Way reflects the cooperative efforts of government and the private sector. Community benefits are many. Corridor selection and development, enhancement of designated nodes and promotion of the E-Way concept has proven effective in enhancing local awareness of natural and cultural resources, while the finished product allows users to fully enjoy the attributes of the region. The E-Way provides linkages between various landscape personalities (wilderness, wilderness fringe, recreation, agriculture, suburban, urban, core) preserving many options from which to choose. An example of an effective E-Way, the Nine-Springs E-Way in Madison and Dane Counties Wisconsin, is described in the book, *Tomorrow By Design* by Philip H. Lewis Jr., FASLA.

Green infrastructure – a strategic approach to land conservation and management

Green infrastructure is a natural life support system; an interconnected network of natural areas, conservation lands and working landscapes that supports native species, maintains natural ecological processes, sustains air and water resources and contributes to the health and quality of life for Virginia's communities ("Green Infrastructure: A Strategic Approach to Land Conservation," by Dr. Mark Benedict, PAS Memo, a publication of the American Planning Association, October 2000).

Virginia's Land Conservation Challenge

With a population of more than 7 million people recorded in the 2000 census, up 14.4% from the 1990 census, Virginia faces an increasing challenge in conserving and managing its open space while accommodating the need for residential and commercial development. The sprawling, scattered, low-density growth patterns typically found throughout the state have significantly impacted open space. Currently, rural land is being developed at a rate of about 70,000 acres per year, about 2.5 times that of population growth. Northern Virginia and localities along the I-95 corridor from Richmond, north, lead the state in population increase. As might be expected, conversion of land use from agricultural to residential and commercial is greatest in these areas. However, other localities adjacent to Virginia's major population nodes are experiencing significant growth, as well. Reaction to what Virginians observe statewide is reflected in the results of a survey conducted in April 2001 (News release, Trust for Public Land, May 10, 2001). Key findings of the poll reveal:

- 89% of Virginians rate "preserving and protecting open space" as important.
- 82% believe that Virginia's natural areas soon will be lost forever unless we act now to save them.
- 96% of voters believe that Virginians owe it to future generations to "protect the land, water, and wildlife for their use and enjoyment."

Development of open space without consideration for its impact on natural systems has resulted in habitat fragmentation, loss of bio-diversity, increased runoff with accompanying impacts to rivers and streams and loss of groundwater recharge, disruption of significant viewsheds and increased infrastructure costs. Although national, state and local governments have developed a variety of location and goal-specific programs, policies, and plans to conserve, protect and manage natural resources, none, either alone or in combination, has successfully balanced the simultaneous need for well planned growth and wise resource management.

As communities must address the negative impacts of haphazard development, so must they resolve the effects of heretofore unfocused conservation initiatives that are reactive, site-specific, narrow in scope, and/or disconnected. Development must be guided by the thoughtful evaluation of need within the community, anticipated economic benefit to its residents and the immediate, as well as long-term, impacts to its resource base. Similarly, conservation efforts must be managed in a comprehensive manner. By actively integrating green infrastructure planning strategies into the land development process, the value of natural systems to the design and function of sustainable communities will be realized.

As an interconnected network of protected natural areas, public and private conservation lands, private working lands and other open spaces, green infrastructure supports native species and habitats, maintains ecological processes and functions, sustains air and water resources and contributes to the overall quality of life for all life forms. Green infrastructure planning acknowledges the need to link open space planning with the development of gray infrastructure into an effective, economical and livable network. In built environments, the green infrastructure planning process identifies opportunities for the restoration and/or enhancement of natural systems, while in rural areas vital ecological nodes and links are identified for protection and preservation before development takes place. As detailed comprehensive planning and assured public financing is required for the development of highways, water, sewer and power systems, so should the same be required for the identification, protection and management of green space.

The value of green infrastructure planning lies in its logical, scientific approach to land management as it:

- helps guide and integrate the conservation actions of diverse people, organizations and agencies while supporting managed and comprehensive conservation at all scales.
- recognizes and addresses both natural and human needs, encouraging and enabling planners at all levels to think strategically in addressing multiple purposes and values.
- helps provide a framework for conservation and resource management for communities and regions facing dramatic growth and its accompanying impacts while assuring development opportunities for private property owners and commercial interests.
- provides a broad, unifying vision for the future of a community or region that reflects the diverse interests of residents and organizations.

Green infrastructure's guiding principles

Green infrastructure's guiding principles are a work in progress. In August 1999, the Green Infrastructure Working Group, composed of individuals representing local, state and federal government agencies as well as nongovernmental organizations, was formed to design a training program to help communities and regions integrate green infrastructure planning into their local, regional and state planning strategies. Based on the experiences and observations of the Working Group's members, the guiding principles continue to be refined. Developed as a guide for green infrastructure initiatives, they are as follows:

1. Embrace green infrastructure as the framework for conservation. Historically, land conservation programs have focused on the protection of individual parks, preserves or other areas of natural resource value. Due to the isolation of their wildlife populations and the elimination of essential ecological processes that cross entire landscapes, wilderness islands such as these are unlikely to be effective as conservation tools. Planning must include the identification, protection and preservation of interconnected green space systems. Where isolated wilderness islands already exist, measures must be taken to restore the vital ecological connections that are necessary for their survival.

2. Finance the protection and management of green infrastructure as a primary public investment. Highway systems and public utilities are financed as primary budgetary line items. Green infrastructure planning, protection, management, and/or restoration must be similarly financed. Creative and innovative funding methods must be developed. In addition to environmental benefits, localities will benefit from the reduced need for, and costs of, gray infrastructure.

3. Design and plan green infrastructure before development. Critical ecological sites and linkages must be identified before development takes place. As the ecological framework for the sustainable use of land, green infrastructure must be identified, preserved and maintained. The high cost of restoration and the difficulty of replicating natural systems require that green infrastructure come first in the planning process. Where development has already taken place, it is vitally important to determine where green infrastructure must be re-established. This will help identify public acquisition priorities and ecological restoration opportunities to reconnect isolated habitat islands as developed areas become available.

4. Understand that linkage is key. The desired outcome for all green infrastructure initiatives is a network of green spaces that functions as an ecological whole. For an ecologically viable green infrastructure system, the interconnection of different system components is critical to maintain vital ecological processes and to maintain the health and vitality of wildlife populations. Green infrastructure must be designed holistically, physically connecting green space systems through the protection and/or restoration of vital ecological areas and linkages.

5. Provide an open forum to engage key partners and create a shared green infrastructure vision that excites people with diverse backgrounds and interests. To be successful, green infrastructure initiatives must excite and engage many people. It is critical to provide an open forum that brings together key individuals, organizations and agencies to coordinate and help guide the activities that will make green infrastructure a reality. It is important to involve participants early in creating a shared vision that reflects their collective hopes and desires and engages them as active participants in ongoing efforts.

6. Design a green infrastructure system that functions across multiple landscapes and scales and is grounded in scientific fact and sound land planning theories and practices. As is already the case with gray infrastructure, green infrastructure systems must be designed strategically to connect across urban, subur-

ban, rural and wilderness landscapes. They must incorporate elements and functions of green infrastructure at all scales. As gray infrastructure systems are grounded in the theories and practices of diverse professional disciplines, so must we must design and plan green infrastructure. Disciplines to include in the planning process are conservation biology, landscape ecology, urban and regional planning, landscape architecture, geology and geography.

7. Engage the public in developing a green infrastructure plan that stimulates action by all participants. Strategic plans for green infrastructure that match implementation actions to available resources must be developed. This will create opportunities for individuals, organizations and agencies to coordinate programs, skills and activities needed to transform green infrastructure visions into reality.

8. Document and promote the diverse benefits of green infrastructure. Benefits of green infrastructure must be documented, both in terms of their ecological values for people and the environment and their economic values to society. As all forms of built infrastructure are promoted for the wide range of public and private benefits they provide, so must green infrastructure systems be promoted for the wide range of essential ecological and social functions and benefits that accrue to all living systems.

These eight green infrastructure principles provide a framework for conservation strategies that can advance the sustainable use of land while providing an interconnected system of green spaces that benefit wildlife and humans alike.

Examples of green infrastructure initiatives

There are many statewide, regional and local green infrastructure projects that embody these guiding principles. Representative examples of green infrastructure can be found in the unedited text of "Green Infrastructure: A Strategic Approach To Land Conservation" which appeared in the October 2000 issue of the PAS Memo, a publication of the American Planning Association (312/431-9100; www.planning.org).

Conclusion

Green infrastructure provides a comprehensive, strategic approach to land conservation that benefits all life systems and the environment. It focuses on the land conservation/land development puzzle, addressing the interrelationships and interactions between humans and the natural world. Green infrastructure provides a critical link between resource conservation and responsible development and serves as a fundamental building block for sustainable land use that is good for our environment, good for our economy, and good for our communities.

This discussion of green infrastructure (pp. 16 – 17) references ideas taken from "Green Infrastructure: A Strategic Approach to Land Conservation," by Dr. Mark Benedict, PAS Memo, a publication of the American Planning Association, October 2000. DCR appreciates the opportunity to include this information in the *Virginia Outdoors Plan*.

Implementing the plan

Planning goals must be supported by policies containing specific recommendations for managing an area's resources while providing direction for programs and initiatives. Successful implementation of the *Virginia Outdoors Plan*, or any regional or local plan, requires the cooperation and coordination of private and public entities. Adequate funding from a dedicated source is critical to the success of a project throughout its planning and development phases, and to assure its efficient operation and proper maintenance. Although public funds are essential to the success of any open space and recreation project, the total needs within the state or locality cannot be met without the substantial involvement of private enterprise. Commercial recreational facilities, swim and racquet clubs, homeowner association facilities, donations of money and/or land by individuals and the public use of private and corporate lands are all invaluable to meeting open space and recreation needs throughout the state.

Some of the programs and methods used to implement the *Virginia Outdoors Plan* are detailed below:

Federal programs: Historically, federal programs have provided parks and recreational facilities as well as financial assistance and advisory services. Funding is available through grants to state and local governments (see Chapter II-I, Funding for Outdoor Recreation and Open Space on page 58).

State programs: Programs offering facilities, funding and technical assistance are available at the state level.

- The Department of Game and Inland Fisheries (DGIF) (See Chapter III-B-2-b, State Fish and

Wildlife Management on page 125.) manages Virginia's wildlife and wildlife management areas, freshwater fisheries and many waterway access sites.

- The Department of Forestry (DOF) (See Chapter III-B-2-c, State Forests on page 129.) enforces Virginia's forestry laws, manages state owned forests, and protects and restores forestlands. Virginia's forests provide wildlife habitat and recreational opportunities.

- The Virginia Outdoors Fund (VOF), administered by DCR, provides available federal matching funds from the Land and Water Conservation Fund (LWCF) and state general funds for the acquisition and development of state, regional and local outdoor recreational facilities. Gifts and funds for state parks constitute the Conservation Resources Fund established in *§10.1-202 of the Code of Virginia*

(COV). These special funds come from several sources, including revenues generated by state parks, timber sales and mineral sales, entrepreneurial contracts and leases, and sales of surplus personal and real property. Funds from the sales of surplus properties may be used only for the acquisition and development of state parks. All other fund sources are to be used for the conservation, development, maintenance and operations of state parks.

- The Department of Conservation and Recreation (DCR) provides guidance and technical assistance to public and private entities in matters of open space planning and recreational resource management.

Local governments: Virginia's political subdivisions have the legal authority to acquire, develop and operate open space and recreation sites. They may secure scenic easements and develop zoning to protect flood plains, wetlands, unique natural areas and other significant natural and cultural resources. They can encourage the preservation of open space through preferential taxation. Individual localities may provide park systems or they may cooperatively form a regional park authority.

Local governments usually finance park and recreation activities from general funds, which may be supplemented by grants-in-aid, special revenues or borrowing. The private sector may contribute funds and/or land to add to local or regional holdings or assist with park and recreation facilities development. Through agreements with the appropriate government agency, private interests may develop and operate facilities on public lands.

Private sector: Nonprofit group and individual activities contribute substantially to the preservation of natural and historic resources and outdoor recreational opportunities. Such groups include the Trust for Public Lands, The Nature Conservancy, The Conservation Fund, National Audubon Society, Izaak Walton League, local and regional land trusts, the Boy Scouts and Girl Scouts, service clubs and others. Historic preservation organizations, such as the Colonial Williamsburg Foundation and the Association for the Preservation of Virginia Antiquities, provide opportunities for recreational enjoyment through historic interpretation and education at such locations as Monticello, Mount Vernon, Ash Lawn and Montpelier.

The *VOP* supports private investment in open space and recreation and encourages the development of quality facilities and services. An excellent example of effective private sector involvement is the protection of significant Civil War battlefields by the Civil War Trust. This nonprofit organization has acquired significant acreage plus grant funds to protect several battlefields. In 1988, the Virginia General Assembly passed legislation authorizing DCR to establish long-term contracts for development of fee facilities by the private sector on department lands. This legislation has facilitated increased public/ private cooperation in the development of open space and recreational opportunities in the Commonwealth.

Other implementation tools: Most open space and recreation planning needs are met through the public and private efforts described above. Implementation of local, regional and statewide plans may be facilitated through the use of the following:

Cooperative agreements: Used effectively between two or more entities, cooperative agreements may be established to set land aside for a specific future use or to gain the use of land for a specific period for a particular purpose.

Volunteerism: Volunteer services provide important benefits to agencies and organizations while fostering within the volunteer a sense of ownership and stewardship in the resource being served. Citizen volunteers frequently develop a true commitment to the grassroots efforts that are essential to conservation.

Partnerships: Combining the efforts and abilities of federal, state and local land planners along with the talents of those in the private sector can result in a more efficient use of resources to complete projects that serve the whole community.

Chotank Creek Natural Area Preserve Case Study:

1,400 acres along the Potomac River preserved

Reflecting the combined efforts of nonprofit organizations and state and federal agency partners, 1,400 acres of hardwood forest, eagle habitat, farm fields, creeks and marshes along the Potomac River will be preserved in perpetuity. Conservation easements that prohibit future subdivision of the privately owned farm and limit building while allowing continued agricultural use were successfully negotiated by the Trust for Public Land. Made up of 250 acres of tidal marsh along Chotank Creek, 350 acres of open fields and pasture and over 830 acres of mixed upland and bottomland hardwood forests, the property is owned by a lifelong conservationist and resident of the site since the early 1940s. As a conservation area, the site will include:

- the 1,107 acre Chotank Creek Natural Area Preserve;
- thirty-five acres of restored wetland;
- a significant American bald eagle habitat which, when added to the area already preserved at nearby Caledon Natural Area, will result in more than 4,000 acres of contiguous protected land;
- protected status for an additional two miles of Potomac River shoreline, a significant step in helping Virginia meet its land preservation goals as set in the *Chesapeake Bay 2000 Agreement*.

Partners with the *Trust for Public Land* and their roles are:

- The *Virginia Outdoors Foundation* and the *Chesapeake Bay Foundation* will monitor and enforce easements;
- The *Virginia Department of Conservation and Recreation* will develop and implement a resource management plan for Chotank Creek Natural Area Preserve;
- *The Nature Conservancy* in collaboration with the *U.S. Army Corps of Engineers* will restore 35 acres of pasture to wetlands;
- The *U.S. Army Corps of Engineers* will administer funds from the Virginia Wetlands Restoration Trust Fund to be used in the wetlands restoration project.

CHAPTER II-B

Outdoor Recreational Resources and Livable Communities

In livable communities, citizens of diverse cultures and backgrounds can walk, bike, play and recreate together. Livable communities are places where green spaces and forests thrive, where people can work in the community in which they live; spend less time in traffic and more time with their families, friends and neighbors. Strategies to create more livable communities may include efforts to preserve green space, secure safe streets, strengthen local economies, reduce traffic and air pollution, provide transportation choices, create community-centered schools, foster citizen and private sector cooperation and promote collaboration among neighboring communities.

Findings

- Open space, natural communities and park lands provide places to recreate and relax, and to re-establish the connection to land and nature.
- There is a wide disparity in the quality and variety of recreational offerings among localities in the state.
- There is a shortage of developed recreational and athletic facilities in most parts of the state.
- Citizen parks and recreation commissions or boards can be the most effective tool to gain local support for the enhancement of parks and recreation facilities and programs.
- Natural spaces also provide a variety of environmental benefits, such as flood reduction, ground water recharge, scenic landscapes and wildlife habitat. In addition, they provide human health benefits through clean water and air.
- Liability can be a major concern for landowners who consider allowing public access to their property. However, the Commonwealth of Virginia does have a Landowner Liability Law, which protects landowners who agree to share access to their property with the public.
- Localities can enhance their recreational trail opportunities by participating in long-range trail projects for hiking, horseback riding, bicycling and boating. Communities can realize economic benefits and tourism dollars when trail users visit the local area.

Recommendations

- Public agencies should continually seek out partnerships to develop and enhance the parks, recreation and open space systems. Sharing the sponsorship of programs and services with both private and public organizations can stretch tax dollars.

- Parks and recreation departments and schools are urged to develop school/park agreements to maximize the benefit of public recreation and facilities to local citizens. When new schools and gymnasiums are built, designs should consider how the public would access the facilities after hours, weekends and during the summer months.

- Where possible, developers should construct neighborhood trails as a part of the housing development infrastructure prior to home construction.

- Consideration should be given to the demand for trail access and use by street-legal and other motorized vehicles.

- Localities are encouraged to enter into agreements with private landowners and recreation providers to enhance the quality and quantity of recreation programs and park spaces available to the public. Landowners providing public access on their properties can receive some relief from liability under Virginia law.

- Localities should conduct recreation surveys and needs assessments to attain vital decision-making data with regard to local demand.

- Local parks and recreation commissions should be provided regular training and guidance on how to perform their duties, and should be heavily involved in local land and resource planning.

- Inactive or under-utilized military lands and other lands in public ownership can be premier recreational sites, and should be considered as potential park and open space sites providing opportunities such as equestrian trails, hiking trails, bicycling trails, off-road vehicle trails and multi-use trails.

- Communities should take steps to identify those geographic areas of the community, as well as groups within the population, that are not utilizing available parks and recreational activities and create incentives to increase participation. Developing transportation alternatives to access park and open space resources to include mass transit systems and the elimination of barriers to participation is an example of one such incentive.

- Accessibility to lands and facilities by persons with disabilities must be considered. Appendix D of the *2002 VOP* further explores and provides resources that address this area.

- In urban areas, pocket parks and green spaces should be created on abandoned/unused properties or when brownfields are reclaimed. Localities should resist pressures to develop remaining open space thus enhancing their green infrastructure.

- Localities should participate and coordinate regional trail opportunities.

- DCR and other natural resource agencies should explore additional innovative methods of preserving open space and other critical resource areas to give the General Assembly, legislators and localities better tools for open space planning and management.

- State natural resource agencies should clearly define green and gray infrastructure and identify the value and interrelationship between the two as they relate to local comprehensive planning.

Narrative

Virginia's precious outdoor recreation resources have a variety of owners and managers. Both private and public, these lands need to be assessed for the benefits they bring to Virginians and their guests. Some local governments are committed to providing parks or recreational services and do a more than adequate job of providing outdoor spaces and programs to citizens and visitors.

Local governments in Virginia are not mandated to provide parks and recreation services to their citizens. In fact, there are 22 counties and many other localities in Virginia without parks and recreation departments. Furthermore, funding from locality to locality varies a great degree. Some localities spend a few dollars per capita on these programs and facilities, while others

spend more than $100 per person. Parks and recreation departments across Virginia vary in size and mission. Some smaller departments, generally in rural areas, offer basic sports programming that normally emphasizes youth sports, while larger departments have world-class facilities and a wide range of programs and services for all ages and abilities.

Localities, through their schools and parks, provide the major share of local athletic fields and facilities. The public supply of recreation facilities is, however, supplemented by private schools, clubs, associations, civic groups and local colleges. Local governments have had a difficult time keeping up with the demand for athletic fields and facilities. Many are being used at or near capacity. In Virginia, schools and parks departments often share recreation and athletic facilities. Cooperative-use agreements between local governments and local school boards are widely accepted as a means of encouraging shared use of facilities. Some localities in Virginia have no park athletic facilities and are totally dependent upon the school system for holding league play. Many localities have a shortage of athletic fields and facilities to service both school teams and local recreational leagues. There is normally heavy competition between user groups for access to quality athletic fields. Gym space in the evenings and weekends is rarely unscheduled.

In urban areas, lands for open space and parks are at a premium. Trees and green spaces benefit the community in many ways. They help clean the air and water; help cool the city; lessen dependence on energy resources; provide groundwater recharge by absorbing storm water runoff; help lessen erosion impacts; soften the urban landscape and make a city beautiful. Trees and green spaces are an important part of the infrastructure of any city.

Local park and recreation citizen groups can provide leadership to a community that is interested in improving its parklands and recreation programs. Approximately 80% of local parks and recreation departments in Virginia have a volunteer citizen board to help guide their programs and future direction. Around 20% of these boards are policy-making, while the rest are advisory boards. The average size of the board is 9 members and the typical board meets monthly. While some boards have had great success in improving parks and recreation services in their community, many of these boards have been ineffective in providing leadership to their departments and citizenry. Reasons given for ineffectiveness include: poor communication, poor attendance at meetings, lack of a clear purpose and no enthusiasm or commitment from members.

Private land for public recreation: liability for private landowners

The *Code of Virginia* limits the liability of private landowners who allow others to use their property for recreational purposes. Also included is a provision that limits the liability of private landowners who enter into a lease agreement with agencies of the Commonwealth. In 1994, the code was amended to include easements for access to public parks, historic sites or other public recreation.

This legislation provides that "A landowner shall owe no duty of care to keep land or premises safe for entry or use by others…" for a variety of recreational uses. It limits landowner liability with the exception of "gross negligence or willful or malicious failure to guard or warn against a dangerous condition, use, structure or activity." A landowner who receives a fee for the use of their property would not be exempt from liability, as outlined in the code.

The legislation also protects landowners whenever "… any person enters into a lease agreement with agencies of the Commonwealth concerning use of his land by the public" for a variety of recreational purposes. Local or regional agencies created for public park and recreational purposes are authorized to enter into lease arrangements to protect landowners also.

These lease agreements protect the leaser from liability and the Commonwealth or other authorized agencies provide "all necessary legal assistance and the cost thereof for any leaser…"

For more specific information on this legislation see §29.1-509 of the *Code of Virginia* on page 408.

In some areas of the state, private landowners experience encroachment from individuals seeking an outdoor recreation experience. Lands in close proximity to a park or recreation area may be more likely to experience this problem as parks become more crowded and individuals seek additional open space. The determination of carrying capacities for certain sites can assist in the planning process and help determine the need for better management of resources.

While local trails provide many individuals with the opportunity to hike and bike, it is important that local governments participate in planning for long distance trails, multistate bikeways and other joint projects involving hiking trails, horse trails, bike trails, water trails and multi-use trails. Multi-state and multijurisdictional trails and facilities should be incorporated into state and local planning documents as well as improved design standards.

There are many benefits to a sound system of parks and open space lands and community recreation programming. Studies have consistently demonstrated the personal, social, economic and environmental benefits of sound recreational planning. Recreation and fitness contribute to a healthy and meaningful lifestyle, and parks provide places for communities to gather and for families to grow strong. Open space lands contribute to the environmental health of a community by cleaning the air and reducing pollution. Communities can reap the economic benefits of visitors who come to use the local park areas, facilities and programs. Parklands and recreational services are essential when a locality evolves into a truly "livable community."

CHAPTER II-C

Access to and Availability of Outdoor Recreation Water-Related Resources

Whether on Virginia's Chesapeake Bay, Atlantic Ocean, or the Commonwealth's lakes, rivers or streams, recreational waters are places of solitude, restful settings for picnicking, walking, jogging, sunbathing, swimming, fishing, surfing, sailboarding and camping. Because Virginia is so geographically diverse, the *Virginia Outdoors Plan* accounts for the many recreational areas in and along natural and man-made bodies of water.

Local governments should be more involved in providing water access opportunities. City, county, and town governments should take the initiative to provide access areas and facilities on those bays, rivers and streams of primary interest to their own citizenry. State and federal agencies could concentrate on access to rivers constituting recreational resources of greater than local significance. A significant opportunity exists locally for public/private cooperation in the provision of water access. Park and recreation planning officials should identify corporate owners of riparian lands in their localities and determine their willingness to make land available for the development of water access facilities.

Findings

- The 2000 *Chesapeake Bay Agreement* calls for an additional 66 public water access sites in Virginia by 2010 and 500 miles of water trails throughout the bay region by 2005.

- Swimming, fishing, sunbathing, and boating are the 3rd, 4th, 7th, and 8th most popular outdoor recreational activities, respectively, according to the 2000 *Virginia Outdoors Survey*.

- A 2001 Board on Conservation and Development of Public Beaches (Public Beach Board) survey identified the need for $80 million to maintain and manage locally owned public beaches for the next 10 years. The survey further indicated the need for an additional $6 million for the acquisition of beach-related linear parks, trails, docks/piers and other improvements during the same period of time.

- There are currently 29 miles of public tidal beach-front land in Virginia. The Public Beach Board administers a 50/50 matching grant fund to localities for enhancing public beaches.

- Availability and protection of public access to the Commonwealth's waters is a priority to meet citizens' recreational demands.

- Less than 1% of shoreline is in the public estate.

- Increasingly heavy use of popular water resources is beginning to result in conditions of overcrowding, overfishing, trespassing, littering and conflicts between user types.

- There are many opportunities for water access utilizing abandoned ferry landing sites and old bridge crossing areas.

Recommendations

- Federal, state and local governmental agencies should continue acquiring and developing regionally significant water and beach access sites for the public's use and enjoyment.

- Cooperative agreements among localities and other agencies, as well as private landowners, are encouraged in order to meet the increasing need for public access to beaches and other water-related recreational resources.

- State natural resource agencies, in cooperation with localities, should identify management strategies to make additional waterfront resources available for public use.

- All agencies should provide adequate support facilities and services, such as restrooms, concessions, parking and maintenance at existing public water and beach access areas.

- Wherever a renovation or relocation project is planned for a highway that crosses a body of water, the provision of parking areas and boat and fishing access should be incorporated into the road improvement project.

- Areas where public access to water has historically existed but is temporarily hindered by road improvement should remain open to public access after the road improvements are in place.

- Users need to cooperate with one another to resolve conflicts and maximize use of the water resource. Outfitters, users and local government officials should consider developing management plans to address problems such as: user conflicts, trespassing, litter, noise and sanitation issues.

- The Virginia Department of Health recommends that existing water access points be retrofitted with potable water supplies and appropriate sanitary facilities. All future water access points should include these features in development plans where feasible.

- The Virginia Department of Health recommends that solid waste collection containers be placed at access points to discourage littering of the commonwealth's streams, waterways, and adjacent properties. Educating users to "pack it in, pack it out" can be an effective way of controlling litter. Dumping trash cans daily is also helpful in controlling scattered trash.

- Encourage coordination with all federal agencies, including the Department of Defense, to open additional federal lands for appropriate public use.

- Public agencies need to maintain access to existing public beaches that may be jeopardized by changes in land use or development activities.

- Local and state agencies should explore the use of small publicly owned parcels for beach use, such as the small sections of shoreline located at the end of road rights-of-way.

- The navigable rivers of the state should be managed as water trails. Public access areas and appropriate support facilities should be developed at appropriate intervals along these rivers.

- Produce brochures for each river showing access points, day use and camping areas, hazards and historical structures along the river.

- Develop an improved system for reporting river levels throughout the state. Post signs at each public access area showing the range of safe river use by experience class.

- Identify old ferry crossing/landing sites and bridge sites that might provide opportunities for water access and water-related recreation.

- Install signs for boaters on waterway bridges that identify the road crossing the bridge.

- Provide an additional 66 water access points in the Chesapeake Bay watershed in Virginia to meet the commitments of the *Chesapeake Bay 2000 Agreement*.

- Identify and increase access opportunities to Virginia's southern rivers.

Beaches

Beaches are places of solitude, restful settings for picnicking, walking, jogging, sunbathing, swimming, fishing, surfing, sailboarding and camping. Because Virginia is so geographically diverse, the *Virginia Outdoors Plan* accounts for coastal beaches, as well as man-made beaches on ponds, lakes and along natural bodies of water.

Availability and protection of public access to the Commonwealth's beaches is a priority to meet citizens' recreational demands since numerous activities complement their use. The statewide beach inventory shows approximately 2,047 acres of beach available for public access, including beaches in coastal areas, as well as those located on lakes, streams and rivers west of the fall line. Man-made and natural beaches, including those enhanced by beach nourishment, are also included.

A beach is defined as a strip of sand or gravel along the shore separating land from water. According to the standards listed in the *Virginia Outdoors Plan*, a piece of land greater than 25 feet in width between the dune or bank and landward of the mean high tide or normal high water may effectively function as a recreational beach. Due to their dynamic nature, most beaches do not maintain a constant shoreline profile.

Virginia's tidal beaches are predominantly on the lower Chesapeake Bay and Atlantic Ocean. Beaches on the bay and on lower sections of rivers tend to be sandy, while those on the upper reaches of the rivers may have a thin layer of sand over a mud bottom. Other beaches listed in the Virginia inventory include a few sand and gravel bars along river corridors and man-made beaches created on lakes and ponds. Standards for beach design for public access are available in the *Chesapeake Bay Area Public Access Technical Assistance Report* published in October 1990 and available from the Department of Conservation and Recreation.

Beach resources are limited and ever-changing. Because beaches are in high demand for human recreational uses and also provide habitat for a variety of species, balanced planning efforts for beaches are essential. Management of beach resources for environmental and recreational reasons becomes increasingly important as more development occurs along Virginia's shoreline.

The dynamics of non-coastal beaches are not as intense as those beaches located along the Atlantic Ocean, the Chesapeake Bay, and the Commonwealth's tidal tributaries. Often these beaches are in recreational areas and parks that also offer camping, boating, fishing and hiking. The design of man-made beaches should consider the optimum use of the planned facility, and safe swimming conditions should be a priority. Avoiding potential use conflicts between boaters and fishermen is essential in locating swimming beaches in recreational areas.

The 2000 *Virginia Outdoors Survey* indicates that 39.1% of the Commonwealth's population sunbathe and relax at the beach. Though the statewide inventory of beaches is 2,047 acres and statewide demand is over 1,883 acres, which shows a surplus of beach access, the surplus of beaches in the Commonwealth does not take into account that access to beaches such as Back Bay National Wildlife Refuge, Fort Story and other military sites, as well as False Cape State Park, is very limited. Of the people using the beaches, 73% require a public beach. Sunbathing at beaches is ranked as the seventh most popular outdoor recreation activity in Virginia.

Beaches open to the public include those located in state parks and on federal properties. State parks with natural or man-made beaches are: Douthat, Hungry Mother, Bear Creek Lake, Twin Lakes, Fairy Stone, Smith Mountain Lake, Lake Anna, Breaks Interstate Park, Holliday Lake, Westmoreland and First Landing. Kiptopeke State Park's beach provides much-needed public access on Virginia's Eastern Shore. Chippokes Plantation State Park, Bethel Beach, Hughlett Point and William B. Trower Bayshore Natural Area Preserves, and Parkers Marsh Natural Area also have beaches; however, recreational use is not encouraged at these sites because of the sensitivity of the beach environments. Maintaining the maximum beach access and increasing the beach size in Virginia's state parks ensures maximum accessibility to state-owned beaches.

By all accounts, there is much less public access to beaches than needed to meet demand indicated in the survey's demand/supply/needs analysis. Much of the suitable beachfront in the Tidewater, Virginia area is private or in military use, and is unavailable for general public use. The only regions in which the supply of beaches meets the demand of residents is in regions 17 (Northern Neck), 18 (Middle Peninsula), 22 (Accomack), and 23 (Hampton Roads) which make up the coastal regions. Even here, there is actually a deficit in available beach when one considers the large influx of seasonal tourists specifically visiting to enjoy the shore and its adjacent waters. Virginia Beach leads the Commonwealth with more than 13 miles of the state's total 29.3 miles of public tidal beaches.

Shoreline erosion of beaches may affect their suitability for recreation. The Department of Conservation and Recreation lends technical assistance for reducing shoreline erosion and enhancing recreational beach quality. If a beach is a locally owned public beach as defined by the *Code of Virginia*, assistance is provided by the Board on Conservation and Development of Public Beaches. The beach board was created by the 1980 General Assembly to administer a 50/50 matching grant fund to localities for enhancing public beaches. DCR staff provides scientific, engineering and administrative assistance to the board. There are approximately 29 miles of public tidal beach identified by the board, as shown in the following table.

TABLE I

PUBLIC TIDAL BEACHES*

LOCALITY	SITE/LOCATION	MILES	FEET
Cape Charles	Cape Charles	0.500	2,640
Colonial Beach	Castlewood Park Central Beach Total:	 2.500	 13,200
Gloucester	Gloucester Point	0.18	975
Hampton	Buckroe Grandview Salt Ponds Total:	0.760 2.460 .760 3.980	4,000 13,000 4,000 21,000
King George	Wayside Park Beach	0.27	1,400
Mathews	Diggs	0.10	500
Middlesex	Canoe House Landing	0.04	185
Newport News	Anderson Park Hilton Riverfront Park Huntington Park Lincoln-King Park Total:	0.280 0.100 0.100 0.280 0.580	1,500 500 550 1,500 4,050
Norfolk	Willoughby Spit to East Ocean View	 7.40	 39,072
Northumberland	Vir-Mar Beach	0.02	80
Stafford	Aqua-Po Beach	0.300	1,580
Virginia Beach	Croatan Beach Ocean Park Resort Beach Resort Beach, North Total:	0.82 1.03 3.330 2.670 13.05	4,330 5,438 17,600 14,080 68,904
West Point	Beach Park	0.01	50
York	Yorktown Beach	0.23	1,215
TOTALS:	**14**	**29.34**	**154,851**

***Public beaches as defined under the Public Beach Conservation and Development Act.**

Tidal water access

Almost 2,400 square miles of the Chesapeake Bay, several smaller bays and estuaries, and Virginia's 115-mile Atlantic Coast have a total of more than 5,300 miles of shoreline. Collectively, this represents one of the state's most important resources. It would seem that this abundance of water in the bay and its major tributaries would provide more than adequate area to meet recreational demand. However, only 1% of the shoreline is publicly owned and available for public use. While commercial marinas provide the bulk of boating access facilities, there are still not enough access points, including those in the public sector, to meet the increasing demand.

The 1992 *Water Access Inventory* identified existing public landings and private fee ramps that provide access to Virginia's water resources. Despite the addition of some access points since 1992, there continues to be a shortage of such facilities. This is identified as a continuing problem in the 2000 *Virginia Outdoors Survey*.

In June 2000, governors of the bay states signed the 2000 *Chesapeake Bay Agreement* to improve the quality of the bay and its tidal tributaries. One of the agreement's major initiatives is improving public access to the tidal waters of the bay. This commitment calls for a 30% increase in enhanced or new access sites, including boat ramps to the waters of the bay region. This commitment will require substantial resources for the future improvement of water-dependent and water-enhanced recreational opportunities. An integral component of that initiative was the 2000 *Chesapeake Bay & Susquehanna River Public Access Guide*, which contains maps and matrices showing the location of public access sites along with the facilities available at each. This will serve as the baseline from which progress is measured in meeting the increased or enhanced access commitment.

Inland water access

Virginia's large lakes provide a myriad of recreational opportunities, including power boating, sailing and water skiing. The 2000 *Virginia Outdoors Survey* measured more than 10.2 million annual activity days of demand for the combined fresh water activities. This represents a dramatic increase in use from that reported in the '92 survey. More than 1.1 million of those activity days are attributed to jet skis/personal watercraft (PWC) use, which was not measured in the previous survey. In Virginia, nearly 41% of all boats are registered within inland localities. By the end of 1999, there were 98,327 crafts registered in non-tidal localities – an increase of 7% since 1995. Counties closest to the large lakes have the greatest number of boats registered.

Based on information found in the 2000 *Virginia Outdoors Survey*, more than 55% of Virginians participate in some form of water-related outdoor recreation on the free-flowing streams of the Commonwealth. The popularity of sports like canoeing, kayaking, tubing and rafting has increased greatly over the past decade. River running, in its various forms, has moved from a barely perceptible participation rate in 1972 to one of the 20 most popular outdoor recreational activities, generating more than 9 million activity days according to the 2000 *Virginia Outdoors Survey*. In addition, there is significant interest in paddle-in riverside camping and minimal impact camping opportunities.

Historically, a majority of the public's recreational access to rivers and streams has been informal, consisting primarily of road rights-of-way at bridge crossings and some access across private lands with owners' permission. In the past, these informal sites, in combination with facilities provided by the Virginia Department of Game and Inland Fisheries and other providers, were adequate to satisfy the demand. However, dramatic increases in use during the last few years coupled with the loss of a number of the key informal access sites has resulted in increased crowding and diminished use of certain key stream segments.

Water trails

Virginia is blessed with hundreds of miles of high-quality recreational streams and rivers. Most of the streams that carry enough water to be useful during the prime recreational season are considered by law to be navigable. This designation makes them, for all intents and purposes, roads, or public thoroughfares. The only limitation to the public's use of these waterways is access. Where the lands along these waterways are privately owned, access is only afforded by land with the permission of the landowner. To address the access need, public agencies have acquired land along these waterways for public access purposes. For more information on the Commonwealth's water trail system, see the Greenways, Blueways, and Trails section on page 78.

By all accounts, there is much less public access to water resources than needed to meet demand indicated in the demand/supply/needs analysis. Much of the suitable waterfront is private and unavailable for general public use. To aid necessary planning for continuing an effective access provision program, DCR completed a statewide inventory of both formal and informal access sites in 1993; the inventory of formal sites is continually updated. With a comprehensive picture of access locations on Virginia's major rivers and streams, it is easy to locate gaps in the system. Identifying these gaps will help formulate priorities for spending limited funding. Additional information on Virginia's water access sites may be obtained by contacting:

Virginia Department of Conservation and Recreation
Division of Planning and Recreation Resources
203 Governor Street, Suite 326
Richmond, Virginia 23219
www.dcr.state.va.us

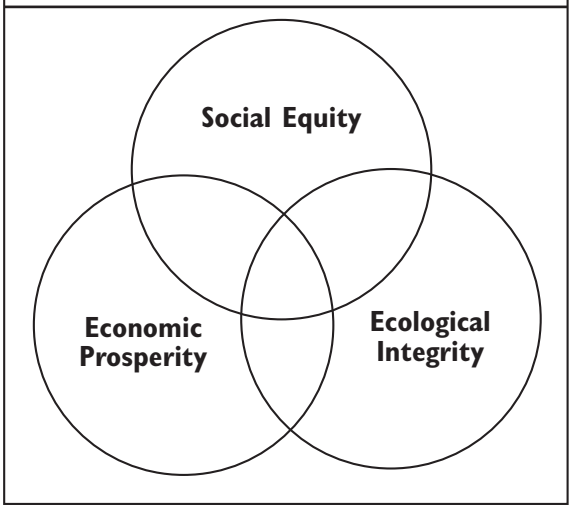
Or

Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, Virginia 23230
www.dgif.state.va.us

Sustainable Development

Sustainable development, as articulated by Douglas R. Porter in *The Practice of Sustainable Development*, is "a two word phrase with a thousand meanings." According to Porter, the terms combine to describe a "balancing of economic and social forces against the environmental imperatives of resource conservation and renewal for the world of tomorrow." Or, as more commonly stated, it is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Thus, sustainable development as a concept is complex. As a goal, its implementation will require a thoughtful, integrated approach to resource management and conservation, a clear understanding of environmental opportunities and constraints, and the will to function within recognized physical, biological and economic limits.

The Concept of Sustainable Development



Findings

- Virginia lost more than 467,000 acres of farm and forestland between 1992 and 1997, an average of 93,440 acres annually; double the rate of land conversion between 1982 and 1992 (McMahon, *Better Models for Development in Virginia*, p.12).
- In Virginia, rural land is being developed at a rate 2.5 times that of population growth.
- In 2000, 78% of Virginia's 7,078,515 citizens lived in the state's Metropolitan Statistical Areas, well over half of them in the suburbs.
- Virginia's population increased by 14.4% between 1990 and 2000.
- Farms and forests generate tax revenue surpluses. Residential development costs more for required services and infrastructure than it generates in tax revenue.
- In 1997, Virginia's northern piedmont was ranked the second most threatened farmland region in the United States by the American Farmland Trust (McMahon, *Better Models for Development in Virginia*, p.12).
- In Virginia, almost 12 million tons of topsoil is lost to erosion by wind and water each year.
- As is the case throughout the nation, new development in Virginia is occurring in areas increasingly distant from urban centers. As populations and employment opportunities shift outward from urban cores, maintenance and improvements to existing infrastructure is compromised to provide new, more costly services to developing regions.

- The shift in employment centers from the inner city to the suburbs has resulted in lost job opportunities for city residents, increased traffic congestion and increased vehicle miles traveled.

- A Chesapeake Bay Program study found that choosing compact development over sprawl could save more than $11 billion in road construction in the Chesapeake Bay region over a 30-year period.

- In 1998, of the 30% of Virginia streams monitored, Virginia's Department of Environmental Quality listed 2,166 stream/river miles as impaired.

- Virginia's waterways are threatened by pollutants carried by runoff from residential and commercial development, and agricultural and urban areas. The construction of dams, dikes and channels results in the destruction of aquatic habitats.

- Most current storm-water management systems simply move surface water from one point to another without any attempt to replicate a natural cycle, accommodate impacts from multiple sources or consider aesthetic effects.

- Current development patterns result in habitat fragmentation and subsequent loss of bio-diversity.

- Over the last decade, air pollution has dramatically reduced visibility from the Skyline Drive and Blue Ridge Parkway.

Recommendations

- Localities should strongly consider using *Green Infrastructure* planning strategies (see Land Use Planning, Chapter II-A, p. 8) to identify, restore, protect and manage open space.

- Localities should consider the full menu of planning tools, including the development of agricultural and forestal districts, the purchase of development rights, the transfer of development rights, sliding-scale zoning, easements and others (see Planning Tools, Appendix E, p. 403) to effectively protect, preserve and manage open space.

- Localities should consider mandatory open space requirements as a condition for development in certain areas. In rural areas in Fauquier County, development is allowed only if 85% of the tract is retained as permanent open space.

- The Virginia Department of Conservation and Recreation, along with state soil and water conservation districts and the USDA Natural Resources Conservation Service, should work with all landowners and developers to educate them in the benefits of best management practices to assure improved surface and ground water quality, reduce erosion and minimize topsoil loss.

- DCR, the Virginia Department of Environmental Quality and watershed interest groups should work together to develop a standardized comprehensive statewide water quality monitoring program.

- DCR and the U. S. Army Corps of Engineers should establish a 100-year floodplain that reflects current conditions.

- State and federal agencies should cooperate to develop and facilitate accessibility to a universally compatible GIS resource-planning base.

- Localities should develop effective storm-water management strategies. This should include consideration for groundwater recharge, filtration and collection of surface pollutants and the design of storm-water management ponds as aesthetic elements in the landscape.

- Localities are encouraged to consider infill development, residential as well as commercial, to promote viable urban communities, reduce sprawl and take advantage of existing infrastructure.

Narrative

Throughout the Commonwealth, public recognition of the accelerating loss of open space and growing frustration with longer commutes, increasing traffic congestion and leapfrog development have been expressed in widespread interest in, and support of, traditional neighborhood design, "walkable communities" and "stop sprawl" initiatives. While it is clear that Virginia will continue to grow, the manner in which that development will occur remains in question. Development that is sustainable requires that community growth be maintained by a prosperous economy that supports environmental quality and social equity, a considerable

challenge. It challenges local governments to develop rational strategies for using already-developed land more efficiently and to make thoughtful decisions about where future development should and should not go. It requires localities to develop and adopt planning mechanisms that are consistent, clear and far-sighted.

Sustainable development and smart growth

Sustainable development requires the implementation of smart growth strategies. Such strategies recognize the inevitability of growth and the necessity to accommodate it in a manner that will preserve the character of the community, protect its environmental resources and enhance its economic vitality. By focusing resources, incentives and policies to promote development where it will be an enduring asset to all, the Commonwealth will continue to grow in a manner that is fiscally responsible, respectful of good stewardship and environmental quality and mindful of obligations to future generations. Effective strategies include:

- Development that is economically viable and preserves open space, natural resources and habitats for indigenous species.
- Certainty and predictability in the development process.
- Expedited approval for development projects that enhance the economy, the community and the environment.
- Maintenance and enhancement of existing infrastructure with expansion when appropriate to serve existing and new residents.
- Mutually beneficial collaboration among the community, the nonprofit sector, and the public and private sectors.
- Redevelopment, including the infill of residential development, the reuse of brownfields and the recycling of obsolete buildings is actively pursued.
- Commercial development that is focused on existing commercial centers, new town centers and existing or planned transportation facilities.
- Development that is limited in the most ecologically sensitive areas (*EPA, www.epa.gov/owow/info*).

Smart growth initiatives support the efficient use of existing infrastructure and the employment of incentives to shift new growth away from undeveloped areas, thereby minimizing the need, and capital costs, for new roads, waterlines and sewer systems. Zoning ordinances may be crafted to promote high-density development near existing infrastructure, encourage mixed use, or charge developers the full cost of infrastructure expansion. Such measures can help lower capital and operating costs for public services, conserve open space, and create pedestrian-oriented communities reflecting high quality-of-life values.

Environmental elements of sustainable development

Basic to development of any kind is the environment in which it is designed to occur. Sustainable development principles require that the physical and biological aspects of the site provide the framework that determines the development type and its location. A site's terrain and character, hydrology, vegetation and wildlife must be carefully evaluated. Significant features including woodlands, wetlands, unique ecological niches, extreme slopes and erosive soils should guide the development of the site, determining its size, configuration and overall impacts. Maintaining, enhancing, restoring and connecting natural systems to the greatest extent possible should be the primary goal in accommodating development. The *Green Infrastructure Model* for development (see Chapter II-A) should be applied as a first step in the planning process. On occasion, community needs and objectives may require that on-site natural attributes be compromised in some way. In such instances, conservation efforts might be directed to a location, or mitigation site, elsewhere in the region.

Complex natural landscapes and their hydrologic and ecologic functions are often best understood in terms of their respective watersheds rather than in the more traditional context of political boundaries. Composed of multiple ecosystems linked by the dynamics of nutrient and energy exchange, watersheds define logical planning units, the elements of which should be carefully evaluated in preparation for development.

As a critical resource, water must be managed in a manner that assures standards of quality and quantity sufficient to meet the needs of all life forms dependent upon it. Rivers and streams, surface impoundments, wetlands and ground water must all be considered in

evaluating and maintaining a dependable water supply. Use must not exceed the rate of replenishment. The development of the built environment, therefore, must be planned to accommodate existing hydrologic regimes. Disruption of surface flow, introduction of pollutants, degradation of wetlands and barriers to groundwater recharge must be avoided in order to assure a sustainable water supply and to support the living communities associated with each unique environment.

Building for sustainable development

Attaining sustainability in the built environment, as in resource management, must be viewed as a continually evolving process. As technology, markets and regulatory practices change, so will the capacity to develop the built environment in a sustainable manner. Alternatives to conventional development practices must be considered. From project conception to site selection, building design and construction, developers have a number of options, many of which support the principle of sustainability. Development options include:

- **Project conception:** Sustainable development is best expressed in projects that are compact in layout and include a variety of uses. Successful mixed use projects typically include mixed-income residential and commercial uses with significant destinations such as parks, shopping opportunities and entertainment centers easily accessible to area residents by walking, cycling or mass transit.

- **Site selection:** Adaptive reuse of structures and building lots maximizes the use of existing infrastructure, reduces impacts to undeveloped natural landscapes, and contributes to the vitality of urban areas. Consideration for the compatibility of the proposed project within the selected setting assures continuity of land-use types, linking of natural areas and appropriate siting with regard to terrain, hydrology and vegetation.

- **Site development:** Terrain, hydrology, vegetation and wildlife are natural capital that should determine the location of appropriate development. On-site storm-water management and the use of wetlands for wastewater treatment effectively reduce impacts to surrounding watersheds and provide recharge to groundwater systems. The conservation or restoration of native vegetation and habitat adds to long-term sustainability.

- **Building design and construction:** The selection of energy efficient mechanical systems, the use of low-energy lighting, incorporation of alternative energy sources within building design and the selection of appropriate materials reduce resource use.

Promoting the sustainable community

Sustainable development can succeed only if supported by citizen interest and public policy. Such support might be generated through:

- **Education:** The general public must understand the principles of sustainability and be able to make meaningful decisions as they interact with, and impact, both the natural and built environments.

- **Changes in public policy:** Planning and zoning should be structured to promote compact, mixed-use development, support growth management techniques and identify significant resource areas in need of protection.

- **Incentives:** Building codes should be adjusted to encourage energy-efficient, land-conserving designs. Density bonuses might be offered to developers using sustainable concepts, while tax incentives might be offered to those involved in redevelopment and infill projects.

- **Public investments and public projects that promote sustainability:** Creating attractive urban spaces that people enjoy, constructing energy-efficient public buildings, supporting safe, clean public transit and engaging volunteer groups in riparian buffer installations allow citizens to experience sustainable development practices and develop an appreciation for their value.

With rural lands disappearing at a rate four times that of Virginia's population growth, the costs of expanding infrastructure, compromising the ability of localities to maintain existing roads and public utilities, and the undermining of older communities by out-migration of jobs and population, it is time to evaluate past practices and formulate a vision for the future. The goal of sustainable development, supported by smart growth initiatives, provides a model for economic development that will renew older urban areas, reduce subsidies for urban sprawl and preserve open space and farmland, the true common wealth.

Carrying Capacity of Recreation and Open Space Resources

Few concepts within the field of outdoor recreation management have attracted as much attention and persisted as long as that of carrying capacity. The notion of carrying capacity is based on the premise that a recreation or natural area can only sustain a certain type of use and number of users before the resources themselves begin to be degraded. This issue is of the utmost importance to planners and resource managers. As undeveloped land and natural areas become less abundant, it becomes more important than ever to insure that these resources are managed in such a way as to preserve them for current and future generations of Virginians.

Findings

- With more people doing many different things outdoors, competition for available lands and waters is increasing; to accommodate these pressures without degrading the resource, existing resources have to be better managed.

- Inadequate funding for staff, development of facilities and maintenance hinders the ability of recreation and open space managers to preserve the character of natural resources and meet visitor's expectations of their recreation experience.

- When assessing the carrying capacity of recreation and open space resources, there are three factors to consider: natural resource factors, social factors and managerial factors.

- Carrying capacities cannot be established until objective, quantifiable management objectives have been written. There is a need to initiate an aggressive program of formulating management objectives for all recreational and open space areas so that carrying capacity can become a management tool.

- Research has shown that important differences exist between the perceptions, expectations and opinions of managers and those of visitors. These differences often relate to such things as appropriate levels of use and impact. The quality of the recreation experience may not meet the visitor's expectations when planning and design is done without public input.

Recommendations

- Federal, state and local agencies should ensure that recreation and open space are equal partners with other uses in budgeting, staffing and planning. A dedicated funding source for the management and maintenance of recreation areas and facilities should be considered a priority.

- Park, recreation and open space planners and managers need initial and continuing career education programs. These programs would provide skills that will not only allow them to devise management plans specific to their areas, but include indicators and plans of action to identify and resolve resource degradation associated with increased use beyond the land's carrying capacity.

- Limits of acceptable change should be developed and expressed as management objectives. Management objectives should identify and describe, explicitly and quantifiably, the natural resource, social and managerial conditions to be maintained or restored for each management unit.

- The public sector should give consideration to the acquisition of additional lands and facilities as well as the application of new design, maintenance and management technology upon reaching the optimal carrying capacity of an individual site or system.

- Recreation management should be considered within a broad approach that considers each recreational area as a component of the larger system of areas, and a range of experiences should be planned with specific carrying capacities developed and implemented for each.

- Public input needs to be formally and systematically incorporated into the process of establishing management objectives to guide carrying capacity decisions based on user expectations and the capability of the resource to meet that need.

Narrative

The concept of carrying capacity was first coined as an idea pertaining to wildlife and ecological areas: the maximum number of individuals (plant or animal) that an area can support without degradation of the resources. Consideration of carrying capacity in the management of recreation areas can be traced back as far as the mid-1930s, but became quite prominent in the '60s and '70s when the overuse of the nations recreation areas began to draw attention to the effects that this extensive use had on the areas themselves. As most resource managers at the time had come from a background in science and biology, it was not illogical for this concept to take hold in the realm of recreation resources. Although most attempts to address the issue of the carrying capacity of recreation areas were well intended, they were based on the ability of pasture and range lands to support animal populations and did not address the specific issues related to human recreational uses of natural resources.

Then emerged the Limits of Acceptable Change (LAC) planning system that was developed by George H. Stankey et. al. in conjunction with the Recreation Opportunity Spectrum in 1985 for the U.S. Department of Agriculture's Forest Service (ROS – See Chapter II-A: Land Use Planning on page 8 and Appendix A: Guidelines for Outdoor Recreation Planning on page 353). Stankey's research discovered that while carrying capacity was fundamentally a quantitative term, many of the problems of recreational use were not so much an issue of the numbers of participants, but their behavior. This led Stankey to focus not on the question of "How many is too many?" but instead to ask, "What resource and social conditions are appropriate (or acceptable), and how do we attain those conditions?" Thus, Limits of Acceptable Change as a planning system was viewed as a way for managers to confront and resolve the complex issues of managing visitors to not only provide for the experiences they seek, but to deal with the problems of their social and biophysical impacts.

The LAC planning system model is based on consideration of the following three essential factors:

Natural resource factors – The physical and biological characteristics of the natural resource base greatly influence the degree of change in the environment that results from recreational use. Although recreational use inevitably causes change in the environment, some resource bases are inherently more fragile than others.

Social factors – The needs and wants of people are important in determining appropriate uses of natural resources. User's perceptions and opinions of what types and level of use are appropriate are an essential element of carrying capacity prescriptions (see Recreation Opportunity Spectrum on page 353).

Managerial factors – Legal directives and agency missions often play major roles in determining appropriate resource, social and management conditions. These factors prescribe what conditions should be maintained and what actions are needed to achieve those conditions.

In order to devise management objectives and an associated plan for a recreation area, it is essential to consider these factors as they relate specifically to the affected area. A different set of management objectives may be necessary for individual subsections of a larger resource base to accommodate the different types of users in each area. Management objectives provide an answer to the question of how much

change is acceptable by deciding what types of recreation experiences a particular recreation area should provide, the natural feel of environmental conditions, the kind of experience offered and the intensity of management practices.

One common misconception of the carrying capacity issue is that controlling or limiting numbers of users is the key to limiting impact. This is by far one of the most intrusive resolutions to the problem. It introduces a whole new set of problems such as choosing appropriate allocation and rationing techniques and often carries with it the potential of alienating users. One alternative is education and informative programs and regulations aimed at changing visitor behavior. Such initiatives serve to alter the user's perception from one of being a customer to be served, to one of being a steward of natural resources and taking ownership for their preservation and protection.

There are, however, options that exist that will allow a resource manager to increase the carrying capacity of a recreation area without limiting visitor access. One such alternative is site hardening. This entails defining the impact area with a border of some type (railroad ties, wood 4"x4"s or railings) and hardening the impact area with gravel, crushed stone, sod, wood chips or asphalt—all of which direct the footprint of the user's activities to stay within that defined impact area. Some examples of site hardening are cordoned off, hardened campsites, recreational vehicle (RV) camping sites, and paved walking paths. It is important to note that though hardening of sites can increase carrying capacity, it may also potentially change the recreation experience for the user by modifying the natural setting. For this reason, it is imperative that site hardening and resource modification be designed and implemented in such a way as to keep the setting as natural as possible. Prohibiting campfires can also reduce the impact of human presence in an area. The less restrictive alternative is to construct fire rings and limit fires to only those designated areas. The application of an effective communication program between managers and visitors is needed to ensure guest compliance with safety standards and Leave No Trace ethics.

When resource modification is insufficient or inappropriate to address carrying capacity issues, there are avenues that allow a resource manager to direct users so as to reduce the long-term impact of recreational use on the resources. The goal of such management practices is not to increase the carrying capacity of the resources to support more use, but to limit recreational participation in that area, or section of an area, so as not to detract from the user's expectation of their recreation experience (i.e., a backcountry or wilderness experience) or exceed the user's desired level of social interaction. Limitations on the size and quantity of camping parties in any one area at any given time allow managers to control the numbers of participants in an area and reduce recreation impact. When the predetermined limit on camping parties has been reached in a particular area, participants are then directed to another area within the resource management system. Reservation systems that issue permits for specific dates and use areas are the most effective tools for ensuring high-quality backcountry experiences. This gives a manager the ability to control how many visitors are present in a particular area and where they are permitted to go, which helps maintain an appropriate level of social interaction between participants and allows them to maintain a log of where visitors are located in the event that a rescue ensues. As was mentioned before in this chapter, these practices are more intrusive to the user group and more likely to draw criticism. They are more appropriate in most cases to backcountry recreation areas where the solitude and lack of social interaction are part of the mystique of the experience.

After establishing objectives for the management of an area, it is essential to monitor progress of the management plan. Monitoring is the periodic and systematic evaluation of biophysical and social conditions, and serves two major functions. First, it allows managers to maintain a formal record of natural resource and social conditions over time. Monitoring allows the manager to see the bigger picture of changes that occur which might be less noticeable with an informal observation process. Second, it helps to assess the effectiveness of management actions and to evaluate whether or not a change in management practices is warranted.

One important aspect of the Limits of Acceptable Change model that cannot be overlooked is funding. Implementation of LAC practices, as with other planning systems, requires funding. While this may constitute the directing of monies away from other activities initially, its payoff is increased protection of important resources and the values associated with them. Coupled with an active public involvement program,

it also results in increased public support for implemented management actions.

Practically all recreation, open space and protected natural resource management agencies in the U.S. have recognized that developing a systematic approach to resource management is the most effective way to identify and resolve preservation/restoration issues and ensure that the characteristics for which these areas were established are conserved. The challenge that exists for resource managers is to clearly understand the principles and concepts underlying the LAC planning system and to design and implement management plans that are specific to their resources.

Finally, with the rising focus on sustainable development practices and green infrastructure, it is important to consider the part that carrying capacity plays in the development, management and maintenance of sustainable communities. In the book *The Living Landscape: An Ecological Approach to Landscape Planning* by Frederick Steiner, the author describes a concept developed by the Tahoe Regional Planning Agency called "environmental threshold." It is defined as "an environmental standard necessary to maintain a significant scenic, recreational, educational, scientific, or natural value of the region or to maintain public health and safety within the region." Thomas Dickert and Andrea Tuttle of the University of California, Berkeley, advocate this concept as a means of controlling cumulative environmental impacts. They describe cumulative impacts as "…those that result from the interactions of many incremental activities, each of which may have an insignificant effect when viewed alone, but which become cumulatively significant when seen in the aggregate." They suggest an alternative approach whereby the "rate or total amount of development is managed to stay below pre-stated threshold levels, and halted when such thresholds are reached."

For more in-depth information on the Limits of Acceptable Change (LAC) planning system and the Recreation Opportunity Spectrum (ROS), both developed by the USDA Forest Service, please contact the Forest Service at the address listed in Appendix J: Organizational References on page 425.

Quality of Life

The quality of life enjoyed by the citizens of the Commonwealth of Virginia is enhanced by the wealth of natural, cultural, historic and open space resources in the state. Here in the Commonwealth, people benefit from a wide variety of natural settings; few other areas of the country enjoy such diverse geographic features. From sandy beaches to lush green mountains, Virginia communities are surrounded by unrivaled splendor. There are many reasons that protecting these resources and pursuing conservation-minded community planning is important. The benefits associated with physical and mental health are substantial; from the personal physical fitness gained through active outdoor recreation to the mental benefits of passive recreation, parks and open space are major contributors to personal health. Additionally, the daily lives of the citizens of Virginia are enriched by the natural setting in which they live, work and play. Sustainable community design ensures that our neighborhoods and towns are attractive places to live with parks and open spaces for exercise, recreation, and enjoying nature (see Chapter II-D). Finally, local economies prosper as businesses and economic investments are drawn to attractive, high-quality living environments that utilize sustainable design and manage sprawl.

Findings

- A healthy environment (i.e., clean air and clean water) supports the well-being of all living things.
- Attractive natural settings, landscapes, open space and forests are pleasing to look at and to live in, and contribute to mental well-being.
- Parks, preserves and natural areas close to home provide opportunities to recreate mind and body (The 2000 *Virginia Outdoors Survey* indicated that 70% of Virginians recreate within 15 minutes of their homes).
- Increased physical activity has been proven to decrease obesity, blood pressure and cholesterol, and decrease overall risk of most chronic diseases.

- Sustainable development conserves and protects adequate open space, parks and natural areas while protecting air and water quality (see Chapter II-D, Sustainable Development, on page 31).

- Economic benefits accrue in communities and businesses from the presence of attractive, healthy places to live and work. The many recreational and natural resource amenities enhance quality of life and prosperity of the community (see Chapter II-H, Economic Benefits of Recreation, Tourism and Open Space, on page 49).

- Improper design and development of transportation infrastructure can negatively impact the quality of life.

Recommendations

- Develop concrete economic data that planners and resource managers can use to quantify the benefits of open space and natural resource protection that would allow them to leverage support for sustainable development and conservation initiatives.

- Revisit the *Code of Virginia* planning requirements for localities to require a green infrastructure approach to comprehensive planning.

- Recent physical activity recommendations suggest that good physical fitness can be achieved by accumulating shorter bouts of moderate intensity physical activity (for example: 15 minutes in the morning and 15 minutes in the evening) on most days of the week. Neighborhoods with adequate park space and play facilities would enhance community members' ability to be physically active.

- Consider impact on quality of life when designing transportation infrastructure; avoid the fragmentation/disruption of communities.

Narrative

The Surgeon General of the United States cites correlation between obesity and lack of exercise and high blood pressure, diabetes and heart attacks and calls for increased recreation opportunities close to home where all Americans can play, exercise and improve their health. The National Center for Chronic Disease Prevention and Health Promotion cites that percentages of obese adults in the Commonwealth went from 10.1% in 1991 to 17.5% in 2000. Nationwide, statistics show that obesity in children ages 6 to 19 went from 4% in 1963 to 14% in 1999. In Virginia, approximately 55.4% of Virginians lead a sedentary life (according to the 1998 Behavioral Risk Factor Surveillance Survey from the Centers for Disease Control and Prevention).

Topping the list of benefits provided to us by natural areas, parks and open spaces are those associated with health, fitness and wellness. A healthy diet and daily exercise promotes strong physical condition and can ensure that lives are filled with youthful play. Better sleep, more physical energy, and prolonged life are but a few of the benefits associated with healthy living. When parks and recreation areas are close to home, physical activity can become a part of daily life, and enhance everyday living. Individuals and families can be active, both safely and conveniently. Local parks and recreation areas are home to a plethora of opportunities. From jogging and walking to playgrounds, athletic playing fields and tennis courts, parks support a variety of activities that are monumental contributors to improved quality of life. Youth sporting leagues and adult teams alike utilize public playing fields for softball, baseball, soccer, football and the list goes on. Basketball courts and open fields are just a pick-up game waiting to happen for those interested in football, basketball, roller hockey or ultimate Frisbee. The benefits of close-to-home recreation areas are endless, and would-be participants are limited only by their imagination and passion for play.

Outdoor adventure sports such as hiking/backpacking, canoeing/kayaking, swimming, rock climbing, cycling, hunting and fishing allow people to work on physical conditioning in an environment that is both dynamic and exciting while nurturing an appreciation for the environment and cultivating a conservation ethic. As a general rule, participants in outdoor activities are very environmentally conscious and tend to encourage the same in other participants. Such activities, when conducted in a low impact manner, can be good for promoting conservation ideals and encouraging a future generation of environmentally friendly users.

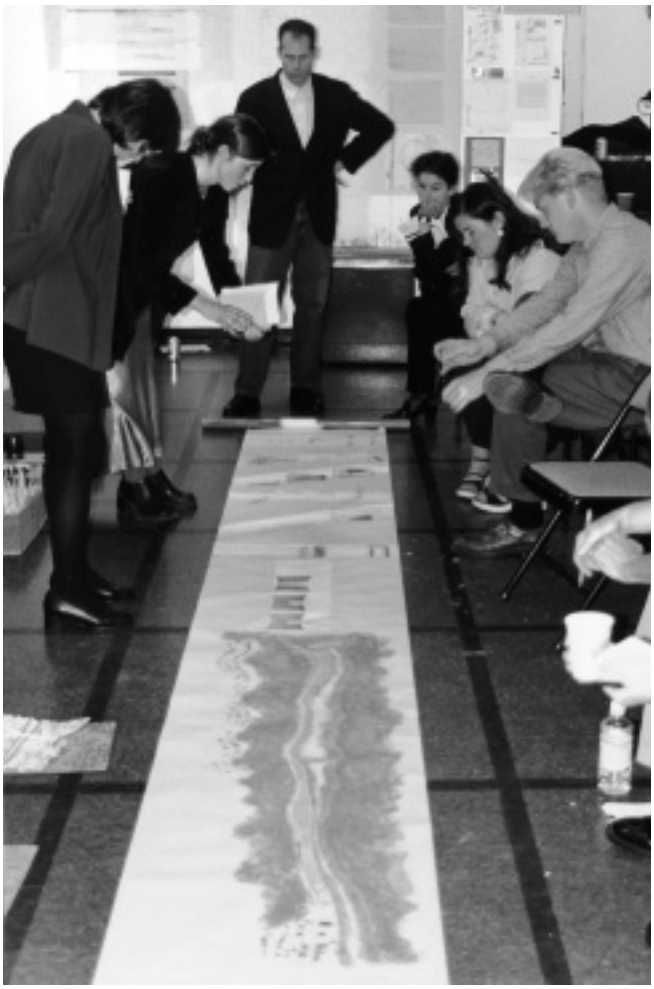
The importance of good physical health is obvious, but don't forget a healthy mind. Exercise can be a great reliever of stress; it can improve sleep patterns, increase mental sharpness, focus and motivation, and provide the fortitude to overcome the roadblocks that life presents in the arena of work and personal life. A healthy body improves self-image and increases self-confidence. Being physically active can assist weight loss and reduce the risk of chronic diseases. The mental and spiritual gains achieved in good personal health can rival that of the most substantial life accomplishment. Recreation and play pursued in the out-of-doors offers fresh air and sunshine which are fundamentally good for the mind and body, thus working towards the ultimate goal of improving the quality of life.

In addition to the health and wellness benefits provided by the preservation of open space and natural areas, the gains afforded to family and community are substantial. Neighborhood parks and play lots exhibit a level of pride in the community and encourage the shared responsibility of maintaining a safe, crime-free environment. Time spent with family out-of-doors in parks and natural areas not only promotes bonding and stronger family relationships, but contributes to passing down an appreciation for nature and the conservation ethic to the next generation of citizens. Parents modeling physically active lives can create a new healthy heritage for their children. Youth sports and recreational activities promote self-confidence, teach teamwork and provide alternatives to delinquency and youth crime. The cultivation of family values is by far the best way to ensure a generation of contributing adults and prosperous communities; parks and open space are an ideal theater for the cultivation of such values.

Beyond the quality-of-life enhancements related to physical and mental fitness, family and community values, and the cultivation of a conservation ethic, there are those associated with the prosperity of communities. Successful sustainable communities instill a sense of value and ownership to the local citizenry, while the green spaces that are a part of the concept of sustainability contribute to improved air and water quality. The pride associated with a healthy living/working community encourages those that live there to play an active role in the upkeep of their neighborhoods, parks, and open spaces; the refurbishment of brownfields and preservation of historic areas, and the development of attractive, livable communities. Such a community is attractive to businesses and families alike and encourages the further pursuit of the sustainable community vision. The Virginia Economic Development Partnership recognizes this in its certification program, which assesses the parks, recreation and open space opportunities in a locality. Likewise, The Virginia Tourism Corporation has established The Virginia Tourism Accreditation Program. This program provides a framework within which Virginia communities can measure their potential for tourism development. One of the objectives of the program is to encourage localities to invest in tourism and to allocate resources for local efforts directed toward tourism development. This would include management and promotion of open space and recreation resources.

The following is a list of a few steps that can be helpful when considering quality-of-life enhancements such as park and open space development and community revitalization:

Involve the neighborhood in the design, planning and maintenance of parks, recreation areas/centers and open space. Neighborhood involvement will result in the kind of product that the citizens envisioned. This will ultimately draw more of a commitment from the community and instill a sense of ownership that will encourage responsibility for the continued care of the area. Cleaner, safer spaces are more likely to be used rather than avoided or abandoned. Finally, community involvement wins support for funding requirements, which can be matched by private or federal grants.



Design with a vision: Visionary, creative or artistic design can affect the parks' safety, viability and usability, and can have an impact on the long-term success of the area. Designing communities with adequate space and facilities for physical activity promotes healthy lifestyles in the surrounding neighborhoods. Well thought-out design, landscaping and use patterns can prevent or reduce safety issues in newly developed recreation areas, while changes in existing resources can work to revitalize an underused or unsafe area that is experiencing a waning of participation.

Revive unused/underused space: Capitalize on the character of old structures for the purpose of providing entertainment, leisure or meeting places for the community. Incorporating old areas and structures into new development works towards the goal of sustainability while encouraging an appreciation for historic resources. This building on the history of a site can provide an unusual and interesting theme to neighborhoods and parks, and may be less expensive than clearing a site and building from scratch. Be creative in the planning of parks and recreation areas by utilizing wasted space atop building structures, parking facilities/lots and unutilized open space on corporately owned land.

Program parks and open space: A high level of activity in a park or recreation area is the best security there is. Programs and special events conducted in parks and community areas increase the awareness of existing facilities, improve participation rates and encourage a sense of ownership in the community. This type of use lowers security concerns and vandalism in the program areas, has the potential to stimulate revenue-generating mechanisms and increases Virginians' physical activity opportunities while enhancing quality of life. This type of activity creates community gathering places that can have a positive effect on building stronger neighborhoods.

Cleanliness equals respectfulness: Users tend to respond to a pleasing, well-designed space with pleasant, orderly behavior. Maintaining a clean park or recreation area encourages visitors to participate in a respectful manner as well as reduce long-term maintenance costs.

Be creative in funding: Creative funding outlets such as public/private partnerships, community events that raise money as well as support, and federal grants with seemingly unrelated objectives are but a few examples of resourceful options for funding parks, recreation areas/facilities and community revitalization. Large national organizations and local businesses alike are sometimes willing financial supporters of sustainable

development, and will help build momentum for later efforts. Establishment and/or revitalization of local comprehensive land use plans can enhance communities' capability to apply and compete for funds.

Consider using parks as organizing elements: Urban parks and open space can create a sense of place and act as a community focal point while increasing property value, attracting new businesses, and connecting communities.

Parks departments, community organizations, and local businesses must play an active role: Local parks and recreation departments, organizations and businesses can often provide planning vision and expertise, financial support, or both for the elements that improve the quality of our lives. Whether an individual or a community organization, a private business or city/county government, these entities have the power to take a leadership role in protecting our community's most valuable assets.

Create new partnerships with traditional and non-traditional partners: Establishment and maintenance of adequate parks and recreational facilities requires collaborations and partnerships at the state and local levels. Schools, faith organizations, governmental, nonprofit agencies and businesses are but a few of the potential sources of support for efforts to design and expand the parks and open space in communities.

The aforementioned elements are but a few of those that make up a long list of quality of life enhancements that are afforded the citizens of Virginia by the

state's wealth of natural, cultural, historic and open space resources. Let them, as well as the many other issues addressed in the *2002 Virginia Outdoors Plan*, be an example of the motives that exist for the pursuit of natural resource protection, conservation and sustainable community design in the Commonwealth. For a more in-depth discussion of sustainable design, refer to Chapter II-D, Sustainable Development on page 31, or Edward McMahon's *Better Models for Development in Virginia; Ideas for Creating, Maintaining and Enhancing Livable Communities*. Chapter II-A, Land Use Planning on page 8, is a wealth of information on green infrastructure, preservation of wilderness and the wilderness experience, and a discussion of the E-Way Planning Model as well as other planning considerations that have a major impact on the quality of life in Virginia and shape the future of the Commonwealth.

CHAPTER II-G

Conservation Ethics

Virginia is fortunate to have an enormous quantity of natural resources. The record of how well these natural resources have been used is not always commendable. The overclearing of the forests, the overfishing of the state's waters, the loss of fertile top soil to poor farming practices, the extirpation of species, the poisoning of lands and waters with hazardous chemicals, the disaster of DDT, the overpumping of aquifers and the acidification of streams are examples of poor stewardship. The list is long, and yet, for every item on the list, there is a modern remedy actively being pursued by people committed to correcting these mistakes and preserving a natural legacy for future generations. Their commitment, their enthusiasm, comes from their embrace of a conservation ethic – a belief that a healthy functioning natural world is critical to the well-being of the citizens of the Commonwealth.

Ethics is the discipline of dealing with right and wrong – a theory or system of moral values that govern the conduct of an individual or group. Conservation includes the careful management and stewardship of natural resources to prevent exploitation beyond capacity, degradation and waste. By the late 1890s the term ecology meant the study of how organisms (of any sort) interacted with each other and with their total environment. From its inception, ecology encompassed whole community systems, which allowed the discipline to be a fertile ground for environmental ethics. Aldo Leopold, one of the pioneers in American wildlife ecology, was among the first to see the connection clearly. "All ethics," he wrote in 1949, "rest upon a single premise: that the individual is a member of a community of interdependent parts."

Today, evidence that a conservation ethic is being embraced at the government level can be seen in the application of the principles evolving from the green infrastructure and sustainable development planning models. At the community and individual level, the responsible actions of many people demonstrate their understanding and support for conservation principles. The findings, recommendations and text that follow support this conclusion.

Findings

- As the social and economic fabric of Virginia has changed over time so, too, has the public's attitude toward land conservation and stewardship.

- Protection of open space, productive farmland, green infrastructure and forestland is a multi-faceted process that requires both government cooperation and strong advocacy groups.

- A comprehensive range of educational media is required to get the conservation message to all who have yet to hear and adopt it.

- Many users of parks and open space resources are finding that enjoyment of their activity conflicts with other user groups' enjoyment of their activity.

- Operation Spruce-Up, a month-long campaign to encourage Virginians to learn about, enjoy, and care for the state's natural resources, receives support from around the Commonwealth each year.

- Virginia had increased its emphasis on environmental education through the Virginia Naturally campaign that enhances the depth and breath of current efforts.

- Fall River Renaissance, a month-long campaign to encourage Virginians to learn about, enjoy, and care for our state's rivers, streams, and adjacent lands, is supported in conjunction with Virginia's Adopt-A-Stream and other clean-up programs each year.

Recommendations

- Foster conservation of open space and prime farm and forestland through a range of land protection strategies such as conservation easements, purchase of development rights, establishment of agricultural and forestal districts, tax incentives and the granting of powers to localities to implement their comprehensive plans with the full range of land protection tools at their disposal.

- Encourage responsible use of public lands through the teaching of Leave No Trace skills.

- Educate outdoor recreation enthusiasts to be cognizant of the impacts they have on others to minimize conflicts and to increase the social carrying capacity of outdoor resources.

- An educational program that conveys the principles and practices of sustainable development and the furtherance of green infrastructure should be developed and widely disseminated to every community in the state.

- Work with partner states to implement the goals identified in the Chesapeake Bay Program's *2000 Chesapeake Bay Agreement*.

Narrative

In 1948, when Aldo Leopold published *A Sand County Almanac and Sketches Here and There*, America had been settled. The overwhelming task of carving a homestead out of the wilderness had been accomplished and, for the most part, the country was stabile and prosperous. Americans had time to pursue interests other than the source of their next meal. The second World War had ended and the exodus of people from the countryside to the industrialized cities was in full stride. Advances in agriculture meant that fewer farmers were needed to feed the American population. Workweeks were shortened and leisure time was increasingly spent on outdoor recreation activities that once were part of the process of putting food on the table. Hunting and fishing became sports for people of leisure. Hiking and camping, once a means of gathering game, became popular diversions. Government agencies acquired lands for parks and public forests within which they developed facilities to accommodate these outdoor activities. Public hunting lands were acquired and modern game management activities ensured adequate game populations. People began to appreciate the land for its intrinsic values, not just its economic value.

Leopold's book was a call to action – the beginning of what was to become the conservation movement. Since its publication, many voices have joined the call for sound management of the country's rich heritage of natural resources. A conservation ethic has evolved that is generally accepted as the path to a sustainable future. Communicating the ethic and winning understanding and commitment remain the challenge.

As increasingly more people are born and spend their lives in metropolitan areas, the danger that they will lose their affinity for the land increases. In some populations it is evident that attachment to, and understanding of, the land and natural processes is diminished. This weakening of the traditional attachment to the natural world has implications in how people view natural areas, behave in natural settings, and how well they understand natural processes and the effects of their daily activities on the health and appearance of the natural systems that are their community's green infrastructure.

In public opinion polls that have been conducted across the state, it has been found that the public values open space and has an appreciation for the need to conserve natural systems. The *Virginia Outdoors Survey* found that 94% of Virginians felt that it was important for them to have access to outdoor recreation opportunities. Ninety-three percent felt that it was important to protect open space resources. Of those responding, 88% felt that the state should spend public funds to acquire land to prevent the loss of exceptional natural areas. Obviously, in Virginia, the problem of a populace detached from a kinship with the land has not reached acute levels.

The efforts of organizations such as the National Geographic Society, the Wilderness Society, The Nature Conservancy, Audubon, Ducks Unlimited, Isaak Walton League of America, National Wildlife Federation and others have been successful in bringing the need for conservation to the public's attention. Likewise, the continuing efforts of conservation organizations to incorporate conservation ethics, and an understanding of each individual's role in conservation into the curriculum of public schools has been successful. Programs such as Woodsy Owl, Smokey Bear, *Your Backyard Classroom* and others have carried the message to children who then share it with their families. Water quality improvement and water conservation programs have had a broad following, as stenciled messages over storm drains throughout the state attest.

Virginians have embraced many public campaigns to improve stewardship of our natural, cultural, historic and scenic resources. Anti-litter campaigns, the Adopt-A-Highway Program, community recycling efforts, and many others sponsored by a myriad of agencies and organizations are working hard to involve everyone in the maintenance of the common wealth. Still there are many people that have not yet joined in the effort. Litter still clogs roadways and streams; used oil is poured down storm drains, excessive fertilizer washes off subdivision lawns into creeks unprotected by filter strips or riparian buffers. There is still a long way to go to get everyone conscious of the need, and committed to doing their part, for conserving our natural resources for the future.

In suburban areas the impact of land use practices by well-intentioned but ill-informed people has a detrimental effect on water quality, ground water, wildlife habitat and natural processes. Suburban homeowners, golf courses, office parks and other landowners apply pesticides and fertilizers in quantities that exceed recommended levels and are subsequently washed into adjacent surface waters.

It is important that farmers, forestland owners and those who earn their living working on the land continue to develop and maintain a strong conservation ethic. Most people who own and work the land have a strong tie to the land and want to ensure that it is managed in a sustainable way so that it can be passed on unimpaired to their heirs. However, not all farmers or forestland owners are knowledgeable about the best practices to ensure protection of soil fertility, protection of ground and surface water quality and management of forestlands for multiple human and natural benefits. Many government programs provide information, incentives and funding to encourage stewardship, and offer guidelines on best management practices on farm and forestlands. Still, the programs don't reach everyone, and many lands are owned by absentee landowners who contract with others to manage them. Thus, there are still many challenges in incorporating a conservation ethic in all landowners and users.

The protection of large blocks of forest and farmlands is essential to the future health of the farm economy in

Virginia. A critical mass of active farms is needed to support the equipment, feed and seed and other farm service industries. As land ownership changes and farms are sold to nonfarming buyers, or are subdivided into parcels too small to support commercial agriculture, the maintenance of a farm economy becomes more tenuous. One method being employed to prevent the loss of productive farmlands is to form agricultural and forestal districts. Additionally, agencies such as the Virginia Outdoors Foundation and the Virginia Land Conservation Foundation, and organizations such as the Piedmont Environmental Council, Valley Conservation Council and many other land trusts are actively working with landowners to protect farms and forestland by placing conservation easements on them. Several localities have passed or are contemplating "purchase of development rights" ordinances to protect areas they identify in their comprehensive plans as essential open space and green infrastructure. As the concept of permanently protecting the essential components of farmlands, forests and open space becomes clearer in the minds of elected officials, administrators, landowners and taxpayers, the amount of land under easement should grow substantially. Fostering this essential conservation ethic is a major challenge.

There is another component of conservation ethics that plays out in outdoor recreation settings every day. Too often, people participate in outdoor activities with no thought given to others who may be using the same resource at the same time. User conflicts have increased exponentially as many different user groups try to use the same limited resources at the same time. For example, trails once built for hikers are now carrying mountain bicyclists and equestrians. The speed of the bicycles offends hikers and scares horses. The impact of horses detracts from the enjoyment of hikers. On waterways, the problem has become acute in areas where personal watercraft, also known as jet skis, have a significant impact on human-powered watercraft such as canoes and kayaks. Fishermen also feel impacted by the noisy, fast-moving jet skis. Teaching user groups how to share limited outdoor recreation areas with competing user groups in a responsible, least impactive manner is a major challenge of resource managers today. Educational efforts by responsible user groups are trying to get the message across to their memberships, but many users fall outside of their communication channels.

The challenge of teaching people how to use the outdoors responsibly and without impact is being addressed on several fronts. National efforts are underway to teach outdoor recreationists to "leave no trace." The Leave No Trace program employs a "teach the teacher" approach to spread the message of how backcountry and frontcountry recreationists should use and enjoy outdoor areas without having a detrimental impact on the area. For many years, the Isaak Walton League of America has taught sportsmanship to successive generations of hunters and fishermen. Organizations like the International Mountain Biking Association (IMBA) encourage responsible riding and "share the trail" etiquette. The conservation ethics and recreation etiquette messages are being widely distributed through many channels.

The recently signed *2000 Chesapeake Bay Agreement* demonstrates how committed the bay states are to furthering the stewardship of the bay resources by all persons living in the Chesapeake Bay watershed. The goals of the Agreement are as follows:

- Restore, enhance and protect the finfish, shellfish and other living resources, their habitats and ecological relationships to sustain all fisheries and provide for a balanced ecosystem.

- Preserve, protect and restore those habitats and natural areas that are vital to the survival and diversity of the living resources of the bay and its rivers.

- Achieve and maintain the water quality necessary to support the aquatic living resources of the bay and its tributaries and to protect human health.

- Develop, promote and achieve sound land use practices which protect and restore watershed resources and water quality, maintain reduced pollutant loadings for the bay and its tributaries, and restore and preserve living resources.

- Promote individual stewardship and assist individuals, community-based organizations, businesses, local governments and schools to undertake initiatives to achieve the goals and commitments of this agreement.

CHAPTER II-H

Economic Benefits of Recreation, Tourism and Open Space

Recreation and tourism are many times synonymous. Both bring enormous economic value to the locality and the state. The value of these programs varies with the effort and the commitment made to ensure that they are an integral component in the planning and economic strategies of the government. In order to maximize the impact of recreation and tourism to the political unit, specific goals and objectives should be included in the comprehensive plan for the governmental unit and in the strategic plans and budgets that facilitate the accomplishment of the plans.

Tourism is one of Virginia's largest industries. In 2000, travel expenditures contributed nearly $1.1 billion to state and local taxes. This represents a $406 million increase from 1994. Programs encouraging Virginia residents to remain in the Commonwealth instead of traveling out-of-state will further enhance the state's tourism revenue.

Findings

- Natural open space and trails are prime attractions for potential homebuyers. American Lives, Inc. conducted a study of homebuyers for the real estate industry. They found that 77.7 % of all homebuyers and shoppers that participated in the study rated natural open space as "essential" or "very important" in planned communities. Walking and bicycling ranked third.

- In 2000, tourism involved more than 32.8 million visitors who stayed overnight in Virginia or for whom Virginia was their destination. These visitors supported more than 200,000 jobs for Virginians. In addition, travelers in the Commonwealth spent nearly $13 billion.

- The Commonwealth is planning a major statewide commemoration known as Celebration 2007 which is designed to enhance tourism and lead to a expanded economic development and quality-of-life events.

- Open space has a greater positive effect on property value in neighborhoods where it was purchased prior to house construction and included in the neighborhood design than it did where it was purchased after construction and separated from the neighborhood by a major limited-access highway.

- One-third of the land area of a typical U.S. city is covered by tree crowns. The American Forestry Association estimates that a 50-year-old urban tree provides benefits equal to the following: saves $73/yr. worth of air conditioning; $75/yr. worth in stormwater and soil erosion control; $75/yr. in wildlife shelter; and $50 /yr. in air pollution control.

- Direct expenditures by birders visiting 8 selected national wildlife refuges in the United States ranged from $0.5 million to $14.4 million/refuge/year.

- A land developer from Front Royal, Virginia, donated a 50-foot-wide, seven-mile-long easement for the Big Blue Trail in Northern Virginia after volunteers from the Potomac Appalachian Trail Club approached him to provide a critical trail link along the perimeter of his second home subdivision. The developer recognized the amenity value of the trail and advertised that the trail would cross approximately 50 parcels. All tracts were sold within four months (American Hiking Society, 1990).

- The 1998 study, titled "Report on Rural Economy and Implications on Future Land Use" commissioned by Loudoun County, Virginia, estimates direct economic impact of the rural economy at between $730 million and $791 million including the hospitality and tourism benefits. This value is expected to reach $1 billion and $1.2 billion by the year 2010.

- Properties within historic districts have not experienced diminished property values. In historic downtown Fredericksburg, the average value of residential properties rose from $17,902 to $138,697 between 1970 and 1990. Between 1987 and 1995, residential property values in Staunton, Virginia, appreciated an average of 51.1% while property values in the city's historic districts rose at an even faster rate to 66% over that period.

- Abingdon's "Ultimate Challenge" is a successful outdoor swim meet that attracts teams and their families from as far away as Tupelo, Mississippi, and Terre Haute, Indiana.

- One major component of ecotourism is education about the local culture and/or aspects of the natural environment. In the 2000 *Virginia Outdoor Survey*, 88% of Virginians felt that it was either "very important" or "somewhat important" to provide environmental education in Virginia state parks.

- Parks and open space bring quality-of-life enhancements, and are attractive to businesses and community growth.

- A study of five parks in Columbus, Ohio, found a 7%–23% increase in property values for properties that faced open space.

- In Boulder, Colorado, properties adjacent to greenbelts in the three neighborhoods studied were worth an average of 32 % more than those 3,200 feet away.

Recommendations

- The Virginia Department of Conservation and Recreation should establish a plan to include Celebration 2007 activities in its state parks, historic sites and public resource areas.

- The Virginia Tourism Corporation should continue its *Virginia Visitor Survey* to provide data on types, destinations and expenditure trends of travelers to Virginia.

- The Commonwealth of Virginia should complete an economic impact assessment of outdoor recreational and leisure activities for Virginia.

- The Virginia Tourism Corporation should continue to expand programs to encourage Virginians to travel and visit within the Commonwealth.

- The Virginia Tourism Corporation, the Departments of Conservation and Recreation, Transportation, and Agriculture and Consumer Services should develop a series of regional Virginia Byway and back-road tour brochures or booklets to highlight the state's public and private recreational, scenic, historic, cultural and natural features.

- As appropriate, government agencies in Virginia should enhance their programs to provide public information about the locations of their facilities and the types of services and activities available at each site.

- Public agencies need to acquire and develop lands and facilities to support adventure based outdoor recreation and attract additional tourism to Virginia.

- Land-use decisions should consider potential impacts to natural, historic, scenic and cultural resources that are important tourist and economic attractions, which will result in the maintenance of the landscape character and "sense of place" of the locality.

- Feasibility studies should be conducted to learn more about the scuba industry and potential Virginia diving sites.

- The findings of the Virginia Department of Historic Resource's Virginia History Initiative should be provided to private and public interests to facilitate the development of preservation and economic strategies related to enhanced tourism and related local business interests.

- The Virginia Tourism Corporation should be encouraged to assist with investments in natural resource protection to ensure the resources important to the tourist interests are protected and enhanced.

- Virginia agencies should continue development of theme trails such as the Virginia Birding Trail and Civil War Trail due to their positive impact on state and local economies.

- Virginia's state parks should recognize localities' right to implement a local option "lodgings tax" and negotiate an agreement to collect it on the localities, behalf.

- Agencies of the Commonwealth providing technical assistance to local governments and the private sector should encourage participation in Celebration 2007 by adopting and implementing projects and programs that will accomplish identified goals.

Narrative

Virginia has the strategic objective of becoming the fifth most popular destination for travelers in the United States. This includes a number of new initiatives and programs as well as the continued development and expansion of theme trails.

Virginia is a popular vacation destination for many because of its unique blend of recreational and historic sites, natural areas, beaches and mountains, all of which offer opportunities for various forms of outdoor recreation. The 2000 *Virginia Outdoors Survey* indicated that 40% of Virginians visit an average of seven historical sites each year. This activity was ranked as the 5th most popular recreational activity. Visiting natural areas, preserves and refuges was an activity enjoyed by 26.9% of those surveyed, and participants indicated that visiting gardens was the 14th most popular activity. Many of these opportunities result from resources available to the public through the efforts of federal, state and local agencies.

A community that wants to expand its tourism base must enhance its competitive position. In 1992, the Virginia Tourism Corporation (formerly the Division of Tourism) initiated a Virginia Tourism Accreditation Program. This program provides a framework within which Virginia communities can measure their degree of readiness for tourism development and take action for such endeavors. (See Appendix I, Recreation and Tourism Economics on page 422.)

Limited development and local infrastructure often inhibit many rural localities' ability to attract industry and other investments traditionally associated with economic development. However, outdoor recreation flourishes in these undeveloped areas of Virginia. This is especially significant for the most economically distressed rural counties that receive little tourism aside from that which is associated with outdoor recreation. Many hunters, wildlife watchers, hikers, campers and boaters bring much-needed revenue to the state's isolated, low-income regions.

Advertising Virginia's outdoor resources and providing directions and means of accessing them should be a priority for the tourism and recreation industry. More than 20% of all pleasure visitors to Virginia visit a city along the I-81 corridor. It becomes important for those communities along the corridor, as well as state and

regional marketers, to direct advertising to the populations using the highway. Outdoor advertising (along roads) has to be designed to meet the service needs of the traveler while maintaining the scenic qualities of the highway corridor. This can be accomplished through the consolidation of advertising messages on kiosks or signs, the use of information centers, radio broadcasts and computer information systems or outlets.

The Virginia Tourism Corporation has data that identifies individual destination trips to Virginia for participation in outdoor recreation activities including outdoor events, golf, tennis, skiing, and visits to national and state parks. This data is useful to the private and public sector when marketing individual attractions or developing a regional tourist initiative. In addition, specific programs are being developed which focus on the outdoors and the private and public attractions visitors might enjoy for a particular region of the state. Both the "Co-op and Matching Grant Marketing" programs provide marketing grants to public and private organizations and provide opportunities for expanded tourism marketing partnerships.

In order to maximize the economic benefit of tourism in the Commonwealth, there needs to be an increased amount of information exchanged between the public and private sector. The Visitor Information System for the Interactive Traveler (VISIT) was initiated in 1995. This website promotes all regions of the state. It can be accessed at http://www.virginia.org and is continually updated by the private and public sectors.

Outdoor recreation also offers much in the way of supplemental income and small-business opportunities to entrepreneurial residents of rural communities, including: land-leasing for hunting, hunting preserves and hunt clubs, fee-fishing, fish farming, canoe liveries, raft and tube rentals, hunting and fishing outfitters and guide services, campgrounds, lodge rentals, sporting supply stores, bait shops, gun shops, sporting clay ranges, shooting ranges, archery ranges, concessions at popular lakes and other recreational areas, marinas and boat ramps, marine product supply, wildlife-watching, equestrian events, vineyards, pick-your-own farms, farmers' markets, bed-and-breakfasts and handicrafts such as custom fishing flies and hand-carved duck decoys. Economic development and tourism officials in rural Virginia are increasingly aware of the economic potential associated with promoting outdoor recreational opportunities and related services.

In the year 2007 Virginia will be in the national and international spotlight, attracting waves of visitors who have heard the call to "come home to Virginia" to partake in community programs and events in all regions of the state. Virginia will be the focus of the commemoration of one of the seminal events in American history: the 400th anniversary of the beginning of the United States with the founding in 1607 of Jamestown, the first permanent English settlement in the New World. Major events of the year will include participation of national and international figures in commemorative events, major media productions, new publications, significant seminars and commissioned performing arts presentations. The year will be a time for festive and solemn reflection on the meaning an importance of the beginnings of Virginia and the nation.

The goals of the celebration focus on tourism, economic and educational development. The programs and events have statewide value.

The goal of the Celebration 2007 statewide program is to ensure there is involvement by all Virginians in every corner of the state. Potential community programs could include: establishment of heritage trails, commissioning of public art, identification of local noteworthy Virginians and the planning of mini-regional celebrations.

Celebratory activities could include: visits by members of the British Royal Family and other world leaders, a major exhibit at Jamestown Settlement, and national and international conferences and conventions.

Interim outreach activities are planned and could include: a Virginia Heritage Genealogical Project, Jamestown performing arts project, Jamestown Rediscovery Project and a National Education Outreach Program.

Finally, there will be a number of cultural and education programs and events. These are designed to attract the participation of scholars, teachers, students, colleges and universities as well as general audiences and state and national organizations. Among those being considered are the following: meeting Standards of Learning (SOL) goals, new scholarships, film and video productions, commissioning of new works of art and travel programs.

The plan will be based on partnerships with tourism organizations, convention and visitor bureaus, attractions, chambers of commerce and others. Three promotional themes have been identified for the celebration. These are "The Spirit of Discovery," "The Spirit of Freedom," and possibly "Come Home to Virginia." The formation of effective, mutually supportive partnerships will be required for Celebration 2007 to meet its goals. Celebration 2007 seeks to be a catalyst in bringing public, private and corporate entities together to undertake elements of the commemoration projects.

For further information you may contact:

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Web site: *http:\\www.Jamestown2007.org*

A number of national and regional studies have recommended using recreation and tourism as a major strategy for economic development in rural areas. Specifically, the former Virginia Council on the Environment, in cooperation with five other state agencies, prepared a study to assess the recreational potential of Southside Virginia. Some key findings, also applicable to other rural areas in Virginia, are as follows:

- Rural environments should be viewed as assets.
- Development and promotion of recreation resources should be an important element in an economic development plan.
- The Commonwealth should commit funds to improving state-owned resources.
- The Commonwealth should provide leadership for tourism promotional campaigns.
- Localities and the private sector should participate fully in resource and campaign development.
- Private sector infrastructure development is necessary for an effective economic development plan.

The 2000 *Virginia Outdoors Survey* identified a number of factors that limited the public's participation in outdoor recreation activities. Seventy-two percent of the public found that time was a limiting factor, 87 % indicated money, 88% identified the availability of facilities and finally 88% indicated that a lack of information limited their participation.

Virginians cite a lack of information as the primary reason for not utilizing public recreational facilities. Therefore, a concerted effort must be made among public and private organizations to develop, maintain and promote this important segment of the tourist industry.

The *2000 Virginia Outdoors Survey* indicates that there is a need for strong partnerships to provide facilities as well as the information to allow the pubic access to areas and programs. This partnership should include the public and private sector. Common goals and strategies should be identified that will result in increased public visitation and use of the Commonwealth's outdoor resources. A portion of available financial resources should be directed to achieving the goal of enhancing public use and understanding of the state's recreation and open space resource base.

Winter recreation has become an important component of Virginia's economy. The commonwealth currently has four ski resorts operating December through March, depending on weather conditions. In 1999, the Department of Economic Development reported that Virginia's ski resorts host approximately 300,000 visitors each year; more than half are not Virginia residents. Since the state cannot always be assured of a reliable winter snow cover, these resorts offer a variety of outdoor activities to enhance their attractiveness as year-round vacation destinations.

The national parks and forests located in Virginia provide more than 2 million acres for almost every outdoor recreational activity, from walking on a scenic mountain trail to swimming at a national seashore or visiting an historic site. Federal sites in Virginia rank third in the nation for recreation attendance, with more than 23.4 million visits in 1999. Only California (34.6 million visits) and the District of Columbia (28.6 million visits) ranked higher than Virginia.

Virginia's state parks have sites distributed throughout the state, providing facilities for any of the most popular types of outdoor recreation. As of the writing of the *2002 Virginia Outdoors Plan (VOP)*, the 45 state parks and natural areas have an annual attendance of approximately 6.3 million. Many state parks, such as Chippokes Plantation, Hungry Mother and Claytor Lake, host festivals each year that alone attract thousands of visitors.

Approximately 90% of state park visitors are considered day-use visitors; they contribute significantly to the state's economy. Past survey results indicate that each of these visitors spends approximately $16 per day. When applied to current visitation patterns, this constitutes a $90.9 million contribution annually to Virginia's economy.

A 1998 survey from the Virginia Tourism Corporation to determine visitation and spending habits for overnight guests to state parks found that Virginians spent an average of 2.8 days visiting a state park. In 2000, 638,941 guests stayed overnight in Virginia's state parks. They spent an average of $54-58 dollars per person per day in the park and in the community surrounding the park. The total economic value of overnight visitation to state parks is an estimated $35 million.

Money spent by visitors within state parks is allocated to the following sources: parking, camping, admissions, concessions, interpretive programming, cabins, picnic shelters and donations. In 2000, this totaled $6.6 million in revenue; camping fees and cabin rentals provided more than 52% of that total. From these figures, the estimated total economic value of the state park system to the Commonwealth is in excess of $128 million.

Virginia also has a comprehensive system of local and regional parks that provide opportunities for all types of recreational activities. This system includes sports complexes for softball, tennis, basketball and swimming, as well as a variety of programs to meet other recreational needs. These complexes often generate revenue for local economies when used for tourna-

ments or special functions. Richmond-area softball complexes are used each year for one of the largest softball tournaments in the nation, which attracts teams from all over the East Coast.

In addition to direct tourism revenue generated by state, regional and local parks, these facilities are also economically viable long-term on a basis of:

- taxes resulting from goods and services sold in the park.
- taxes resulting from supporting services and industries developed in the surrounding community.
- taxes resulting from high-quality residential development around the park.
- increased employment in the area. It is estimated that a typical water-oriented state park results in more than 23 permanent jobs.
- short-term and long-term expenditures for goods and services in the development and operational phases of a park.
- expenditures from out-of-town visitors in the host community.

In fiscal year 1999, Virginia localities committed more than $305.5 million to public parks and recreational services. More than 99% of the funding came from local sources, while less than 1% came from state and federal sources. Following education and public works, local parks and recreation departments generate more revenue than any other local services. Local parks and recreation departments collect millions of dollars in fees and charges annually, recouping a large percent of their total expenditures. However, expenditures for parks and recreation services on average represent only slightly more than 4.0% of total spending for local services.

Many federal, state and local governments contract with the private sector for concession and maintenance services, thus contributing to employment and business opportunities within the state.

According to a 1996 report by the American Sportfishing Association (ASA), America's nearly 50 million anglers are responsible for more than $108 billion in economic output. The ASA indicated that sportfishing is extremely important to local, state and federal economies. Individual anglers buy goods and services, pay extra taxes and purchase fishing licenses that amount to nearly $38 billion nationwide.

Virginia has more than one million anglers. ASA's figures showed that $812 million was spent on fishing tackle and related items in Virginia alone generating $1.6 billion in economic output. Sportfishing was responsible for more than 20,000 jobs and $441 million in income. As a result, the Commonwealth realized $28 million in state sales tax and received another $15 million in state income tax. For more information, visit the American Sportfishing Association's statistics page at www.asafishing.org.

The study indicates that state governments are beginning to recognize the economic payoffs of attracting more fishermen and increasing good fishing opportunities. This value is realized by investing in boat ramps, fishing piers, aquatic habitats, angler education, fish stocking and similar programs. Localities are actively marketing their fisheries resources and seeing significant increases in money spent for goods and services.

A 1988 study done in Virginia by American Sports Data, Inc. showed that almost $493 million was spent on fishing and related items; Virginia businesses earned nearly $217 million and almost 16,000 jobs were provided for Virginians. The study revealed that almost $231 million was spent on items directly associated with fishing — $29 million by non-residents. As a result, the Commonwealth realized $16.1 million in sales tax, received another $9.3 million in state income tax, and generated $4.3 million in license revenue, as well as receiving more than $500,000 in Wallop Breaux funds. For more information on the economic impact of sportfishing, contact the SportFishing Institute, 1010 Massachusetts Ave, N.W., Washington, DC 20001.

The settings and the resource values, which attract tourists to Virginia, must be maintained and enhanced to realize their full economic potential. An example of resource enhancement took place on the Staunton River. The water release schedule was changed from a major hydroelectric project, resulting in a constant volume of water with fewer water level fluctuations. The bank vegetation was restored, the quantity and variety of fish increased, and there were enhanced

recreational boating opportunities. As a result, local organizations were able to host local river festivals, new parks were created along the river and local merchants increased their sales of fishing and boating-related items. Because of the recognition of the river's value for a variety of uses, the area now enjoys a greater level of economic activity. Efforts should be made to ensure development is planned to enhance economic benefits of natural and recreation resources.

Virginia has a wide variety of tidal public beaches that are used in a variety of ways. These range from small (50-feet-wide) grassy areas on the shoreline like that found at Beach Park in West Point to the Resort Strip in Virginia Beach, which attracts visitors from all over the country. It has been estimated that the economic impact of the beaches in the City of Virginia Beach in May, June, July and August 1998 was $350 million dollars as a result of expenditures by 1.7 million visitors. The Commonwealth of Virginia received 19,000 jobs, $678.9 million in expenditures, and $24.2 million in direct taxes due to Virginia Beach's involvement in tourism. Hampton Roads garnered 176,561 jobs and $664.6 million in expenditures. The City of Virginia Beach procured 11,500 jobs and received $26.7 million in direct revenue. All of this revenue was not without costs. The City of Virginia Beach spent $18.7 million in visitor-related expenditures. It should be noted that the net dollar return was $8 million or 43% before consideration of any multiplier effects. Protection and wise management of the Commonwealth's beach resources is an important objective to ensure their availability for local residents and citizens. Their value as an attraction has important economic implications when developing a tourism-based economy.

Historical re-enactments take place along Virginia's rivers. To date, more than 40 bateaux, 40- to 60-feet long, have been constructed in Virginia. These historic replicas of early flat-bottomed watercraft are used regularly on the James River below Lynchburg. They have also navigated other rivers in Virginia, such as the Jackson, Upper James, Dan, Staunton, New, Appomattox, Rivanna, Shenandoah, Goose Creek and the Potomac. River festivals have been created because of these craft. The James River Bateaux Festival is the oldest, and involves most of the localities along the river from Lynchburg to Richmond. Bateaux have been featured in films and are also used extensively for recreation by their crews.

Tourists also come to Virginia to study the Civil War and visit important battlefield sites. The Association for the Preservation of Civil War Sites has acquired a number of sites and provides access to the public. Localities are including these in the regional package of attractions they offer to tourists. The association also provides grants to localities to preserve and interpret these resources. A most complete description of this program can be found in Chapter III-A-2, Historic and Landscape Resources on page 71.

Additional Civil War trails will be identified and promoted at the local and state level. Civil War Trails, Inc. is a 501(c)(3) organization. The organization, in cooperation with the Virginia Tourism Corporation, has developed six Civil War Trail brochures covering the major campaigns in Virginia.

The Virginia Department of Game and Inland Fisheries (DGIF) began developing a statewide Birding and Wildlife Trail in 1999. It is being promoted by a number of state agencies and the Virginia Tourism Corporation. Virginia has one of the highest diversities of birds in the eastern United States, boasting nearly 400 resident and migratory species. According to the most recent survey of fishing, hunting, and wildlife-associated recreation (1996), more than 2.2 million individuals are spending nearly $700 million annually on wildlife-watching recreation in Virginia. In addition, DGIF now sells hunting and fishing licenses by toll-free phone number (1-800-986-2628), which provides busy persons and non-residents the opportunity to save time while securing necessary licenses.

Another thematic trail is the African-American Heritage Trail. It is being studied at the state and local level to determine its feasibility and program elements. For additional information on this initiative, see Chapter III-A-3, Greenways, Blueways, and Trails on page 78.

All of these hold promise for economic advancement for the localities they pass through by attracting tourists and scholars. Goods and services will have to be provided to those who travel these trails and visit the sites identified along each course. The two most popular activities according to the 2000 *Virginia Outdoors Survey* are driving for pleasure and walking for pleasure. More than 67% percent of the population participates in these activities and will purchase their goods and services in the local markets.

Ecotourism is a relatively new initiative being developed by the Commonwealth. Ecotourism is defined by The International Ecotourism Society (TIES) as "responsible travel to natural areas that conserves the environment and improves the well-being of local people." Martha Honey, in her book *Ecotourism and Sustainable Development*, defines it in this manner: "travel to fragile, pristine, and usually protected areas that strives to low impact and small scale." The development of ecotourism programs requires balancing the need to protect fragile ecosystems with the needs of the developers and the native people who have historically lived in the area. Ecotourism opportunities have to be developed in a manner that benefits local communities, respects their culture, helps with conservation and is economically profitable for the developer.

The TIES definition implies that successful characteristics of ecotourism include:

- Minimizing the negative impacts on nature and culture that can damage the destination.
- Educating travelers on the importance of conservation.
- Stressing the importance of responsible business that works in cooperation with local authorities and people to meet local needs and deliver conservation benefits.
- Directing revenues to the conservation and management of natural and protected areas and biological diversity.
- Emphasizing the need for both regional tourism zoning and visitor management plans designed for either regions or natural areas that are slated to become eco-destinations.
- Emphasizing use of environmental and social base-line studies, as well as long-term monitoring programs to assess and minimize impacts.
- Maximizing economic benefit for the host country (locality), local businesses and communities, particularly peoples living in and adjacent to natural and protected areas.
- Supporting the economic empowerment of communities through training and hiring local people, paying fair wages and benefits, buying supplies locally, and supporting local ownership or joint ventures with outside business or non-governmental organization (NGO) partners of tourist facilities and concessions.
- Ensuring that tourism development does not exceed the social and environmental limits of acceptable change as determined by researches in cooperation with local residents.
- Relying on infrastructure that has been developed in harmony with the environment, minimizing use of fossil fuels, conserving local plant and wildlife, and blending with the natural and cultural environment.

Ecotourism programming is usually applied to a broad area or region. It encompasses the natural, historic, recreational and cultural resources of an area. In Virginia, recent studies by the Virginia Tourism Corporation have focused on the Great Dismal Swamp and the surrounding communities. The goal of the assembled team was to develop marketing strategies to encourage visitation, while allowing the managing entities to apply the necessary practices to ensure the sustainability of the resource base. Successful ecotourism programs require partnerships between the public and private sector. This partnership extends to the development of new facilities and the marketing of the regional resource.

Ecotourism and nature tourism offer economic opportunities while helping protect important resources. While ecotourism is generally associated with areas of the globe such as South America, Central America and the Pacific Rim, conservative estimates place the total value of the world's ecosystem services and natural capital in ranges of between $16 and $54 trillion per year, with an average of $33 trillion per year. For comparison, global gross national product is estimated to be $18 trillion per year.

There is no reason why a form of ecotourism could not flourish in Virginia. With its diverse landscape, abundant rivers, physiographic regions, and biological diversity, the Commonwealth has much to offer. However, the natural resources that would support ecotourism-type activities must be protected. Active ecotourism efforts would have both economic and biological benefits to Virginia, as it ties into the stewardship ethic, of a maturing population.

CHAPTER II-I

Funding for Outdoor Recreation and Open Space

The challenge today, as in the past, is to secure the necessary funding resources that will provide Virginians with opportunities for wholesome outdoor recreational experiences and conserve significant open space resources. In order to achieve this, like any other function of government, public recreation and open space resources must compete for available tax dollars to meet its goals. Virginia's funding history can best be described as moderately successful when an examination is made of prior funding history for outdoor recreation and open space.

Findings

- Public funding, using bonds, loans and other initiatives, for state and local outdoor recreation and open space resources is a widely accepted approach toward meeting the recreational needs of citizenry.
- Most federal, state, local and private funding sources require a matching funding source.
- When available, funding for outdoor recreation areas and facilities has had a major impact on the successful acquisition and development of state and local park and recreation facilities.
- The Virginia Outdoors Fund is a major source of funding assistance for state and local parks and recreation facilities.
- Historically, the lack of sustained funding sources for the Virginia Outdoors Fund has slowed acquisition and development of new state and local parks in the Commonwealth.
- Renewed federal interest in funding for state and local outdoor recreation could stimulate an upsurge of new state and local public parks and provide assistance for the rehabilitation of existing parks.
- Other funding sources would help to reduce the demand for funding from the Virginia Outdoors Fund, and would offer prospective park developers other alternatives in seeking funding assistance for public parks and open space.
- More than $37 million in Virginia Outdoors Fund dollars has been provided to local parks and recreation agencies for the acquisition and development of outdoor recreation areas and facilities.
- More than $28 million in Virginia Outdoors Fund dollars has been provided for the acquisition and development of state parks and state water access areas.
- Since the reinstitution of federal Land and Water Conservation Fund (L&WCF) dollars to the state in FY-2000 and FY-2001, Virginia has received local grant requests totaling $2.7 million.

- The backlog of needed state park acquisition and development projects and critical state water access area funding needs is estimated at more than $3 million.

- Virginia localities spend nearly $520 million annually for maintenance and management of park and recreation facilities. Cities spend approximately $95.6 dollars per capita, while counties spend $65.5 dollars for an average locality spending of $75.5 dollars per capita.

- Agencies do not always consider the maintenance and management costs associated with the operation of a park prior to its acquisition and availability to the public.

Recommendations

- The state should consider re-establishing annual appropriation to the Virginia Outdoors Fund.

- The Commonwealth and its localities should establish a dedicated funding source for parks, land conservation and open space.

- Developers of state and local parks should seek any alternative sources of funding available for acquisition and development projects.

- The Commonwealth of Virginia should publish a technical assistance manual that would serve as a source of information on services and grants that could be made available to public and private entities involved in open space, parks and natural and cultural resource management and development.

- Park master plans should be continually updated to reflect the maintenance and management requirements for the park to include staffing needs and itemized cost estimates.

- To ensure appropriate resource management and public enjoyment and safety of the recreation; resource park maintenance and operation costs should be considered a high priority in all agency budgets.

- A permanent funding source should be identified in each provider's budget for the maintenance and management of park and recreation resources.

Narrative

"Recent activities of government in the field of recreation have not been undertaken for the purpose of interfering with the rights of individual citizens; but with the objective of expanding the scope of recreational experiences available to the people and equalizing opportunities for wholesome recreation. Many activities of recognized wide interest and value require facilities beyond the power of the individual citizen to command." A long-standing recognition by leaders of the Commonwealth for public recreation and needed facilities is illustrated by these words from the report, *Recreation as a Function of Government in Virginia*, presented to former Governor John S. Battle on January 20, 1953.

Even before the report to Governor Battle, Virginia was already committing public funds for state parks and in 1950 operated nine parks in different parts of

the state. This report was the first time the state began to recognize local recreation services as an important part of Virginia's governmental function. While the report stressed local recreation as a function of local government, it also identified the need for state technical assistance to meet the growing demand for public facilities and programs. Virginia has undertaken the task of providing assistance to localities and others through funding, information and planning activities. These are related to the provision of outdoor recreation opportunities, as well as the inventory, management and protection of the open space and natural resource base.

The Virginia Outdoors Fund

Virginia citizens passed the 1992 Parks and Recreational Facilities Bond Referendum, which provided $95.3 million dollars for the acquisition and development of state parks and natural areas. The monies from the bond referendum resulted in the acquisition of four new state parks and 19 natural areas. More than $63 million dollars was spent on adding new facilities to existing and newly acquired state parks, as well as renovating older facilities in more than 25 parks. The more than 275 projects resulted in more efficient and effective service to the visiting public, as well as enhanced protection to the parks, natural and cultural resource base. It was a contributing factor to the recognition in 2001 of Virginia by the Sports Foundation Inc. and the presentation of the National Gold Medal Award for the best state park system in the nation.

In 1965 the federal government created the Land and Water Conservation Fund (L&WCF). This fund provided 50% matching federal grant dollars for the acquisition and development of public outdoor recreation areas and facilities. Receipt of these funds required each state to develop a comprehensive outdoor recreation plan and to set up an action plan for fund distribution. In 1966 the state created the Virginia Commission of Outdoor Recreation. This commission's work resulted in the creation of The *Virginia Outdoors Plan*, and the institution of the Virginia Outdoors Fund to channel federal and state funds into state and local park and recreation areas. During the period of 1966–1982, the commission distributed nearly $100 million in grants for state, regional and local parks. This action had a major impact on the development of new state park facilities, access to public waters, and developing local parks.

By 1983, federal and state funding for the Virginia Outdoors Fund had begun to diminish and the General Assembly of Virginia dissolved the Commission on Outdoor Recreation, and responsibilities for statewide outdoor recreation planning and grant assistance were transferred to the Virginia Department of Conservation and Recreation. State funding support for the Virginia Outdoors Fund remained somewhat in place during 1984–1987, but the program became almost totally sustained by a then-diminishing federal L&WCF grant program. Grants during this period were small and available dollars failed to meet state and local needs.

Concern for the lack of Virginia Outdoors Fund funding prompted the Virginia General Assembly to pass *House Joint Resolution 204*, establishing a joint subcommittee in 1987 to study the outdoor recreation needs of the Commonwealth and to recommend stable long-term funding sources. In 1988, the subcommittee provided several recommendations for future review and action in their report (*House Document* 40) to Virginia's executive and legislative branches of government.

Financial assistance for public outdoor recreation areas was considered a high priority by the 1988 session of the Virginia General Assembly. The General Assembly appropriated $4.2 million in the 1988-90 biennium for the Virginia Outdoors Fund Grant Program. In addition to these grant funds, the General Assembly, in the 1988–1990 biennium, appropriated $2.8 million for a new revolving–loan program. However, a statewide economic downturn in the first year of that biennium forced major reductions in state program funds, and none of these program-funding initiatives have been restored to the Virginia Outdoors Fund program.

From 1990–1994, available Virginia Outdoors Fund Grant Program dollars were sustained with federal L&WCF monies. During the period of 1995–1999, Virginia received no funds from this program. In FY-2000 the L&WCF Program received renewed appropriations from the U. S. Congress. This enabled the Virginia Outdoors Fund to receive $850,000 for grants. In FY-2001 the L&WCF appropriation was

increased to $2 million. This consecutive yearly appropriation by Congress has raised expectations. Several local, state, and national parks and recreation officials are now optimistic that funding will continue to rise. Congress is currently looking at several funding proposals that would stimulate more dollars for parks and recreational facilities. Many of these proposals would have a positive impact on the Virginia Outdoors Fund Grant Program.

Other financial assistance programs

Virginia Department of Conservation and Recreation
The Virginia Department of Conservation and Recreation (DCR) also administer other programs that provide financial assistance for outdoor recreation. The agency administers the **Virginia Recreational Trails Program**, which offers 80% grants for the development and rehabilitation of trails. Funding for the program comes from federal highway appropriations over a six-year period. Virginia's share currently averages about $1 million per year.

The DCR also administers the **Virginia Land Conservation Foundation Grant Program**. Funded with state funds, the program provides preservation grants for open space and parks, natural area protection, historic preservation, and farmland and forest preservation. Available annual appropriations are divided equally in each of the four categories. The program allows for a 50% matching grant. While a small portion of the fund may be used for facility development, its prime focus is to acquire parks and open space areas. In the two-year history of the program, the VLCF board has approved 30 project proposals that have resulted in the acquisition and protection of 2,340 land acres and the protection through easement of an additional 2,187 acres of land. In FY-2000 and in FY-2001 there was a combined total of $5,670,000 in grant funds made available.

In addition, the DCR administers a small short-term loan program that allows for low-interest loans of $25,000 to $75,000, which help fund small outdoor recreation proposals that need short-term cash assistance.

Virginia Department of Transportation (VDOT)

VDOT administers the state **Recreational Access Roads Program**. This program provides state funds for the construction of recreational access roads to public recreational areas and parks. Proposals must include verification by the director of the DCR that the area is a public recreation area. Many proposals are funded at 100% of cost and the Virginia General Assembly sets funding limits for the program at $3 million per year.

The Virginia Department of Transportation also administers the **Transportation Equity Act for the 21st Century (TEA-21)** Program. Under the program, 80% matching grants are awarded to proposals in various eligibility categories and outdoor trails and greenways may qualify. In FY-2000 the agency administered grants totaling $19.4 million.

Funding greenway and trail initiatives

The Transportation Equity Act for the 21st Century (TEA-21), initially established as the Intermodal Surface Transportation Equity Act of 1991, provides impetus for trail development and maintenance through several programs.

Funded by the National Recreational Trails Act, a component of TEA-21, the Virginia Recreational Trails Fund Program was established to provide and maintain recreational trails and related facilities. Administered by DCR, grant funding may be provided to private individuals, organizations or government agencies, but must consider guidance from DCR. The Recreational Trails Fund Advisory Committee evaluates the grant applications and recommends those to be funded. Committee members represent trail-user groups including: ATV, bicycle (off-road and paved surface), four-wheel drive, hike (close-to-home and long-distance), equestrian, motorcycle, cross-country ski, and water-related trail use. A minimum of 30% of funding annually must be used for motorized recreational trail uses, 30% must be used for non-motorized recreational trail uses, and the remaining 40% is discretionary in that it can be used for any type of trail project. However, preference must be given to projects with the greatest number of compatible recreational purposes and/or that provide for innovative recreational trails corridor sharing. Program funding is not guaranteed and may not be available each year. Since the program was first funded in 1992, grants to trail organizations, localities and public land managing agencies have equaled $4.9 million awarded for 150 projects in 89 localities. Hundreds of miles of new trail have been constructed and many more miles renovated. Parking

areas, signage, bridges, rest rooms and trail shelters have been constructed to support trail users around the state.

Other provisions in the TEA-21 legislation encourage bicycle and pedestrian facilities and a scenic byways program. Renewed interest in, and increased funding opportunities for, youth service programs, youth conservation corps and urban renewal projects offer great opportunities for affordable greenways development, especially in urban areas. The Transportation Enhancement Program has also been used for greenways and trails projects.

Other agency and organizational funding sources

The National Park Service Rivers, Trails, and Conservation Assistance Program provides technical assistance and grant funding for greenways. The National Park Service Gateways and Water Trails Program provides funding assistance as well. Some nonprofit organizations such as The Conservation Fund's American Greenways Program provide funding assistance for trails and greenway projects. The Rails-to-Trails Conservancy has grant programs that can be used for the funding of greenways.

In addition to the federal agencies identified in this section, there are others that serve as funding sources for the acquisition of lands and interests (easements), development and education of the public for open space, natural areas and recreation resource protection. These are found in the publication, *Catalog of Domestic Assistance*, published by the Government Printing Office.

A major issue that must be addressed by providers of recreation facilities and programs is related to funding for maintenance and management. The majority of the grant programs do not allow the use of the funds for maintenance or management of a facility. Grants are available for acquisition, development, and interpretive features, however maintenance and management funding generally is derived from the general fund budgets of the providers.

Maintenance and management costs must be identified at the beginning of the planning process for a park. It should be accounted for in the master plan and subsequent development plans. During the acquisition phase of the park program, detailed maintenance and management requirements should be identified to meet the needs of the resource base and the public's use of the property.

Planning for the park should include: designs that include maintenance and management considerations, plans which facilitate sustainable development and management of the site and the defining of special staffing needs to support the public recreation program and site management requirements.

The provider should request and ensure that the necessary maintenance and management monies are available to meet the program requirements of the site upon ownership and availability to the public. The public and management too often assume that if the park is acquired and developed that the governing body or the responsible budget programmers will provide funding for sustaining the facilities and programs. Many times sites are acquired and developed without consideration of the maintenance and management costs. When this occurs, funds and staffing are generally reallocated from existing parks to the new facility. This sometimes results in the degradation of the existing park and the new facility.

Funds need to be identified in existing budgets to allow for maintenance and management of park and recreation facilities. This would include the monies necessary to provide for the enjoyment and safety of the visiting public. It should also accommodate the necessary dollars to ensure the sustainability of the resource base. This requirement translates into the need to establish a permanent source of funding. Grant and loan programs that could provide a one-time funding opportunity to meet operating expenditures should be considered.

For information related to additional funding sources for conservation and related programs, see Appendix J, Organizational References on page 425.

Changing Demographics and their Impact on Recreation Resources

As Virginia's population increases and the demographics alter, changes are needed in the way in which recreational resources are provided. Within the last 10 years, Virginia's population has increased by nearly 900,000 individuals. Demographically, Virginia has seen tremendous growth in its Asian, American Indian, African American and its Hispanic and Latino populations. These population and demographic changes require increased awareness of the needs and expectations differing cultures place on recreational facilities.

Findings

- As of April 1, 2000, Virginia's population was 7,078,515 individuals according to the United States Census Bureau.
- The Commonwealth's population grew 14.4 % from 1990 to 2000 and Virginia ranks 12th in population nationally.
- According to Census Bureau estimates, in 2000, there were slightly more females (3,514,343) living in Virginia than males (3,358,569).
- According to 2000 estimates, individuals younger than age 18 comprised 24% of the total population and individuals older than age 65 comprised 11% of the total population.
- While Virginia's population is growing numerically, it is also becoming increasingly diverse.

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- Using 2000 estimates for Virginia, Caucasians comprised 72% of the total population, African Americans comprised 20%, Asians comprised almost 4%, Hispanics comprised almost 4%, and American Indians comprised less than 1% of the total population.

- Minorities are under represented in the outdoor recreation and natural resource management fields.

- Swimming, fishing, sunbathing, and boating are the 3rd, 4th, 7th, and 8th most popular outdoor recreational activities for Virginians. As the population increases so, too, will demand for facilities to meet these needs.

Recommendations

- Resource managers should determine the carrying capacity for individual parks, recreation and open space resources to avoid overuse and environmental degradation.

- Federal, state and local agencies should be more aggressive in their efforts to encourage multicultural and ethnic diversity in the professions of outdoor recreation and natural resource management.

- Due to the increase in cultural and ethnic diversity in the Commonwealth, consideration should be given to making state park literature available in other languages.

- State and regional agencies should place a high priority on providing recreation opportunities to the Commonwealth's urban population in "close-to-home" settings to avoid overuse of facilities planned for rural populations.

- All urban localities need to develop and implement plans to add green space and other livable community infrastructure in the redevelopment of commercial, industrial and residential areas.

- Public and private sector providers of water-related recreation opportunities should recognize the affect an increasing population and disposable income will have on existing support facilities for swimming, boating and beach use. There will be a strong demand for more of these facilities.

Narrative

Virginia's population, both as a whole and within individual localities, is becoming increasingly diverse. This diversity is demonstrated through differing cultural backgrounds and values, age, education levels, and income and financial status. These varying social, cultural and economic characteristics are creating a new and different type of society with many complex issues and concerns.

One of the more apparent issues is the "aging" of Virginia. Based on 2000 estimates by the Census Bureau, children younger than age 18 still comprise more than 24% of the population, while older adults, ages 65 and older, comprise slightly more than 11%. An aging population has differing recreational needs and desires than a younger population. As our society becomes more aware of the physical benefits of exercise, especially among older adults, there is great potential for an increased need for walking/hiking, fitness and nature trails. Recreation centers can provide leisure activities for the young and old alike, while environmental learning facilities offer educational programs for a diverse population as well. These types of facilities are invaluable for their ability to serve many different age groups, interests, and demographics from one central resource. Golf is an activity that offers recreational opportunities for all age and cultural segments of the population, and as such will continue to be in demand. According to the 2000 *Virginia Outdoors Survey*, swimming, fishing, sunbathing and boating are the 3rd, 4th, 7th, and 8th most popular outdoor recreational activities, respectively. This interest in water-related recreation opportunities will undoubtedly call for increased access to boat launches, fishing piers and beaches for sunbathing and fishing. As more adults retire and have more leisure time, there is expected to be an increased demand for "local" travel and tourist destinations. Destinations such as botanical gardens, museums and historical sites that are close enough to be day trips rather than extended journeys will be increasingly sought after. Enhancing the quality of a community through the availability of open space and recreational resources will become a pressing issue for many localities in the very near future.

Many individuals have more disposable income and leisure time than they previously did. This has led to an increase in the ownership rates of recreational

vehicles, including motor homes, camping trailers and boats. Recreational facilities now face increased demand for amenities that accommodate the use of these types of vehicles. Similarly, the rising interest in equine activities calls for the development of facilities that will accommodate horses and their owners.

Another issue confronting Virginia is the diverse cultural backgrounds and values of its citizens. According to the USDA Forest Service, with respect to the use of urban forests, "user expectations are often based upon cultural experience gained in other countries. The user population is extremely diverse…[and] different cultures have different resource ethics, which often conflict with Forest Service resource practices" (www.fs.fed.us/). While the statements are directed strictly to urban forests, they hold true for any natural area facility located near a diverse population. Cultural differences also affect the use of a park or any type of open space. Some cultures are accustomed to smaller open spaces than Americans. Americans hold dear the wide-open landscape provided by many of our parks and open spaces. When designing open spaces and parks, planners and landscape architects must be aware of the populations that will utilize the facilities. Even such rudimentary items as location of benches in proximity to each other and the width of paths and walkways need to be addressed.

Few natural resource and outdoor recreation management agencies enjoy a multicultural and ethnically diverse staff. Aggressive efforts need to be made to interest young minorities in a career in these fields. A successful program may need to start at the elementary school age. Incentives may need to be used to attract minorities to the study of the natural resource sciences and outdoor recreation in college.

While as a whole Virginia's population is growing, there are localities that are losing population. Rural Virginia, such as in the southwestern area of the state, is losing population as the mining and farming opportunities decrease. Large farms are being subdivided into smaller farmettes and vacation estates. Similarly, other cropland is being converted to pasturelands and pasturelands are being converted to forestlands. However, as environmental awareness increases, there are tremendous opportunities for resource-based ecotourism and rural resource-based recreation opportunities.

CHAPTER III-A-I

Responsibilities: Existing Institutions and Their Role

Virginia's rich heritage of open space, natural and recreational resources are managed by a variety of programs and agencies. Many resources require cooperative actions between public and private interests, which include government actions at the local, state and federal level. Examples of this type of resource would include the state byways, scenic rivers, historic and landscape resources, and greenways.

Management of many of the state's important open space, recreation and natural resources rests with a specific local, state or federal agency. This would include local parks, state parks, forests and wildlife management areas, and the important resources contained within the national parks and forests, and wildlife refuges. The information in the following chapter will provide details related to the programs and agencies that have management responsibilities for the state's resource base.

Scenic Rivers

The Virginia Scenic Rivers Act was passed in 1970 to protect and preserve certain rivers or sections thereof possessing natural or pastoral beauty. Since that time, many river sections have been studied and found worthy of this status. The first designation was in 1975. Since then, 19 rivers or river segments have been designated, including one identified as a State Historic River. Ten more, which have been evaluated and found to quality for designation, are identified in this plan. Local support is necessary for the introduction of scenic river legislation for rivers that are qualified but not designated. The following is a more detailed discussion of Virginia's Scenic Rivers Program.

Findings

- Virginia's river system, one of our state's most precious natural resources with more than 49,000 miles of rivers and streams, provides drinking water, recreational opportunities, habitat for fish and wildlife and some of our most scenic vistas.

- Rivers provide water for scenic enjoyment, industry, irrigation, commercial fisheries, recreational businesses and hydropower.

- Virginia's rivers are facing increasing threats from rainfall runoff and pollution from sprawl development, farms and urban areas, as well as habitat destruction from the diking, damming and channelizing of waterways.

- Recreational access to Virginia's rivers continues to dwindle as more river miles are posted and rural land is converted to urban uses.

- Through citizen involvement, Virginia residents can do much to help preserve and protect Virginia's water resources.

Recommendations

- The Department of Conservation and Recreation (DCR) should expand its base of information about Virginia's rivers through a continuation of the Scenic River Evaluation Program.

- DCR should assist citizens and local governments interested in adding qualifying rivers and streams to the system.

- DCR should continue to work with private riparian landowners to make available public access and recreation sites on designated Scenic Rivers.

- DCR should encourage partnerships through the establishment of private/public conservation easements along designated Scenic Rivers.

- DCR should continue to review and comment on various permit applications to state and federal regulatory agencies with respect to possible impacts to existing and potential components of the Scenic River system.

- DCR should ensure that recreational, scenic and historic values of a river are included in the analysis of all water management issues studied by the Commonwealth when determining priorities for use and development.

- DCR should assist local governments with development of planning tools (e.g., land-use overlays) that will afford special recognition and protection to Virginia's Scenic Rivers.

- Localities should adopt the special use assessment — open space class — as a tax incentive for local recognition and protection of a Scenic River.

Narrative

The Virginia river system is made up of more than 49,000 miles of rivers and streams. The river system is one of our most precious natural resources and provides drinking water, recreational opportunities, habitat for fish and wildlife, and some of the most scenic vistas the state has to offer. The rivers also provide water for industry, irrigation, commercial fisheries and hydropower.

The rivers in Virginia are facing increasing threats from rainfall runoff, pollution from sprawl development, farms and urban areas, as well as habitat destruction from diking, damming and channelizing of our waterways. Recreational access to Virginia's rivers continues to dwindle as more river miles are posted and rural land is converted to urban use.

The scenic rivers system comprises both tidal and nontidal rivers, and extends from the coastal region of Virginia to the mountains. The fabric of the system includes rivers whose corridors are rich in history, natural resources and recreational opportunities. Many of the rivers flow through rural and undeveloped areas of the state. However, portions of the Falls of the James, Appomattox, and Rappahannock rivers trace their course through more developed environments and cities. Each river is unique, but all possess qualities that make them worthy of protection through the application of appropriate planning and preservation techniques.

The Virginia General Assembly and the governor must approve each addition to Virginia's Scenic River system. The inclusion of a river in the scenic rivers

system provides a framework whereby the preservation of that river is encouraged. The elements of this protective framework are delineated below in the order in which they appear in the Scenic Rivers Act.

The *Code of Virginia* §10.1-401, assigns the following duties to the director of the Department of Conservation and Recreation:

- Identify rivers or river segments, including shores and natural environs, to be considered for designation.
- Conduct evaluations of rivers or segments to be considered for designation.
- Recommend rivers or segments to be considered for designation to the governor and General Assembly.

Should a river be designated, the director may acquire real property or interest in lands which offer protection to the Scenic River, but eminent domain cannot be exercised in acquiring any such property or interests.

The *Code of Virginia*, §10.1-402, requires the review of all projects involving the planning for use and/or development of water and related land resources. The river will be evaluated as a scenic resource when reviewing alternative plans for use and development.

The Scenic Rivers Act prescribes the designation of an administering agency (§10.1-405). The duties include:

- administration of the scenic river or section thereof to preserve its natural beauty and to ensure its use and enjoyment for its scenic, recreational, geologic, fish and wildlife, historic, cultural or other values and to encourage the continuance of existing agricultural, horticultural, forestry, and open space land and water uses;
- periodic surveying of the Scenic River and its immediate environs;
- monitoring of all existing and proposed uses of the Scenic River and its environs;
- assisting local governments with problem-solving associated with the scenic river.

The *Code of Virginia*, §10.1-406, states that an advisory board be appointed by the governor for each designated Scenic River. Each board consists of area residents and includes at least one riparian landowner in the locality of the Scenic River. Their responsibility is to consider all plans and proposals that could alter any aspect of the river and to advise the director and the administering agency on such matters. Advisory boards, working closely with local government agencies and area citizens, provide great expertise regarding resource values and have been instrumental in developing Scenic River databases containing important information.

An example of the impact that an advisory board can have is the input of the Rappahannock Scenic River Advisory Board into the design of the Kelly's Ford Bridge over the Rappahannock River. Through cooperation between the board and the Virginia Department of Transportation the bridge was designed in a manner that protected the historical character of the river.

The *Code of Virginia*, §10.1-407, states that after the designation of a Scenic River, no dam or other structure that impedes natural flow thereof shall be constructed, operated or maintained in such river unless specifically authorized by an act of the General Assembly.

River resources protection and management rests with local governments. Current water laws add to the protection of the state's river resources. Through comprehensive planning, zoning, and special-use tax incentives, localities are able to maintain the quality of their scenic river resources while allowing continued development and other important landowner activities. Although the above five key *Code of Virginia* sections do not protect a system component absolutely, they do work together to call attention to the resource's importance.

The Department of Conservation and Recreation (CDR) works with local governments and citizens to study potential scenic rivers and encourages their participation in the evaluation process. Following evaluation, the locality is notified whether the river does or does not qualify. If the river does qualify, DCR informs citizens and government officials about the program and their roles in resource management.

A methodology for river evaluation has been developed to determine the relative significance of individual rivers and streams to maintain program viability and facilitate future system implementation. Making such a determination, by objectively evaluating various quality factors, has several beneficial applications. First, it enables DCR to establish criteria regarding the qualification of streams for inclusion in the Scenic Rivers system, thereby enhancing the probability that it will be composed of only high-quality rivers. Second, it allows for objective input into the water resource planning and allocation decisions that face the Commonwealth in the future. Third, the evaluation and ranking procedure provides raw data necessary for DCR to formulate goals, objectives and priorities for its program.

Virginia's Scenic Rivers Program *does*:

- establish an advisory committee comprised of local citizens appointed by the governor to provide local governments a greater voice in federal or state projects, which may impact the river.
- allow riparian landowners to continue using their land as they did before designation.

- provide an opportunity to consider scenic and other values of the river in the comprehensive planning process.
- provide a multipurpose planning document used by the Federal Energy Commission in its consideration of the potential impacts of proposed hydropower or related projects.

Virginia's Scenic Rivers Program *does not*:

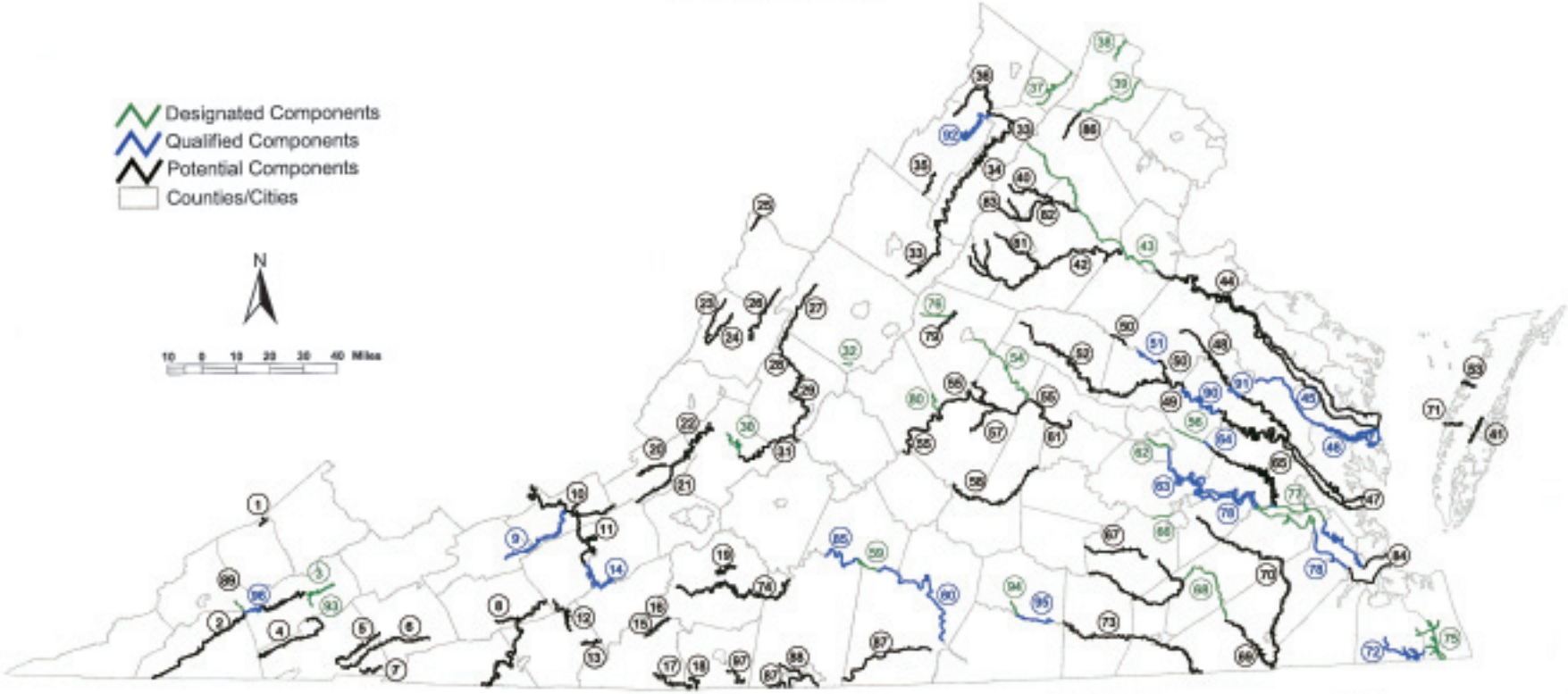
- affect a riparian landowner's right to use the river and its banks.
- impose any federal controls, rules, or regulations.
- impose any land-use controls or regulations.
- authorize state agencies to condemn land for the acquisition of real property or interests therein for the purpose of providing additional access to the river, nor does it allow the general public the right to use privately owned riparian lands.
- promote an increase in the recreational use of the river.
- affect tributary streams or branches.
- have a direct bearing on other state water quality programs, such as the Tier III Exceptional Waters designation or the establishment of Surface Water Management Areas.

Specific scenic river recommendations can be found in the regional analysis section of the Virginia Outdoors Plan. For further information on scenic rivers you may write:

Department of Conservation and Recreation
Division of Planning and Recreation Resources
203 Governor Street, Suite 326
Richmond, Virginia 23219
www.dcr.state.va.us

The following map illustrates existing components of the system, as well as those rivers and streams that have been evaluated and found to be eligible for inclusion.

Scenic Rivers



1. Russell Fork
   Entire River in Breaks Interstate Park
2. Clinch River
   Tennessee line to Cleveland
3. Clinch River
   Confluence with Little River to Nash Ford
4. North Fork Holston River
   North Holston to Tennessee line
5. Middle Fork Holston River
   Seven Mile Fork to Holston River
6. South Fork Holston River
   Sugar Grove to South Holston Lake
7. Whitetop Laurel Creek
   Creek junction in vicinity of Damascus
8. Cripple Creek
   Speedwell to New River
9. Walker Creek
   Point Pleasant to New River
10. Little Stony Creek
    Headwaters to New River
11. New River
    Buck Reservoir to Allisonia
    Whitethorne Landing to W. Virginia line
    North Carolina to Virginia line to Buck Reservoir
12. Big Reed Island Creek
    New River Confluence to Near Route 693
13. Laurel Fork
    Headwaters to Big Island Creek
14. Little River
    Route 610 to New River
15. Smith River
    Route 8 to Route 794
16. Smith River
    Route 794 to Philpott Reservoir
17. South Mayo River
    Stuart to North Carolina line
18. North Mayo River
    Route 697 or North Carolina line
19. Blackwater River
    Route 330 to Smith Mountain lake
20. John's Creek
    Craig Springs to New Castle
21. Craig Creek
    Headwaters to Montgomery County line
22. Craig Creek
    New Castle to Strom
23. Back Creek
    Boiling Springs to Lake Moomaw
24. Jackson River
    Route 623 to Lake Moomaw
25. Laurel Fork
    Headwaters to West Virginia line
26. Cowpasture River
    Route 614 near Palma to Route 42 in Bath County
27. Calfpasture River
    Marble Valley to Goshen Pass
28. Maury River
    Head of Goshen Pass to Line Lin Bridge
29. Maury River
    Lexington to the James River
30. James River
    Below Eagle Rock to Springwood (Rt. 630)
31. James River
    Springwood to Rocky Point
32. St. Mary's River
    Headwaters to George Washington Nat. Forest boundary
33. South Fork Shenandoah River
    Port Republic to Goods Mill
    Overall to Front Royal
34. South Fork Shenandoah River
    Goods Mill to Overall
35. North Fork Shenandoah River
    New Market to Riverton
36. Cedar Creek
    Headwaters to the North Fork Shenandoah River
37. Shenandoah River
    Warren-Clarke County line to the West Virginia line
38. Cacotin Creek
    Waterfall to the Potomac River
39. Goose Creek
    Fauquier-Loudoun County line to the West Virginia line
40. Thornton River
    Rappahannock and Culpeper Counties
41. Machipongo River (Eastern Shore)
    Entire River
42. Rapidan River
    Headwaters to the Town of Rapidan
    Germanna Ford to the Rappahannock
43. Rappahannock River
    Headwaters (Chester Gap) to Ferry Farm - Mayfield Bridge
44. Rappahannock River
    Ferry Farm - Mayfield Bridge (Fredericksburg) to Chesapeake Bay
45. Dragon Run
    Headwaters to Piankatank River
46. Piankatank River
    Dragon Run to Chesapeake Bay
47. York River
    Entire River
48. Mattaponi River
    Entire River (see item 90)
49. Pamunkey River
    Entire River (see item 91)
50. North Anna River
    Lake Anna to Route 738
    Route 1 to Pamunkey River
51. North Anna River
    Route 601 to Route 1
52. South Anna River
    Entire River
53. Cincocock Creek (Eastern Shore)
    Entire River
54. Rivanna River
    Woten Mills in Albemarle County to James River
55. James River
    Lynchburg to Maidens
56. Chickahominy River
    Route 360 to New Kent, Hanover, Henrico County line
57. Slate River
    Route 20 to James River
58. Appomattox River
    Route 613 to Cumberland County line
59. Staunton River
    Long Island to Brookneal
60. Staunton River
    Brookneal to Kerr Reservoir
61. James River
    Maidens to Watkins Landing
62. James River
    Bosher's Dam to Almond Street in Richmond
63. James River
    Almond Street in Richmond to Hopewell
64. Chickahominy River
    New Kent, Henrico, Charles County line to Bottoms
65. Chickahominy River
    Bottoms Bridge (Rt. 60) to James River
66. Appomattox River
    Abutment Dam below Lake Chesdin to Route 36
67. Nottoway River
    Dinwiddie, Sussex and Greenville Counties
68. Nottoway River
    Stony Creek to Cary's Bridge
69. Nottoway River
    Cary's Bridge to North Carolina line
70. Blackwater River
    Headwaters to North Carolina line
71. Occohannock Creek (Eastern Shore)
    Entire River
72. Northwest River
    Entire river
73. Meherrin River
    Brunswick, through Greenville - Southampton line
74. Pigg River
    Entire River in Franklin and Pittsylvania Counties
75. North Landing River and it's tributaries
76. Moormans River
    Charlottesville Reservoir to Wechum's junction
77. Lower James Historic River
    Surry and James City Counties
78. James River
    Hopewell to Surry Court and Surry County to Newport News
79. Mechums
    Entire River
80. Roanoke
    Schyler to the James River
81. Robinson
    Madison County
82. Hazel
    Rappahannock County to Rappahannock River
83. Hughes
    Rappahannock County
84. James River
    Newport News to Chesapeake Bay
85. Staunton River
    Town of Altavista to Long Island
86. Goose Creek
    Fauquier County
87. Tarr River
    Entire River
88. Sandy River
    Pittsylvania County
89. Guest River
    Near Route 70 bridge to the Clinch River
90. Mattaponi
    Monday Bridge to Walkerton Bridge
91. Pamunkey River
    Route 614 to Pampatika Landing
92. North Fork Shenandoah
    Burnshire Bridge to Route 648 (Front Royal)
93. Big Blackley Creek
    Hidden Valley Lake to North Fork of Holston
94. North Meherrin River
    Route 712 to Meherrin River junction
95. Meherrin River
    North Meherrin River junction to Route 138
96. Clinch River
    Confluence Guest River to St. Paul
97. Smith River
    Confluence Reds Creek to Starlings Crossroads

CHAPTER III-A-2

Historic and Landscape Resources

The national movement to recognize America's heritage and make it an important part of the future began in Virginia. It has been the Commonwealth's official policy to confirm the importance of historic places and to provide information, recognition and incentives to support private stewardship. The state's historic preservation program began with the creation of the Virginia Landmarks Commission in 1966. Since then, the Landmarks Commission has been succeeded by the Board of Historic Resources, and the program has grown to protect more than 250 Virginia historic landmarks. The resources that are protected range from great Colonial mansions, Federal town houses and vernacular village dwelling to slave quarters, archaeological sites with information on Native American, European and African-American heritage and commercial buildings. The lands that make up the settings of these structures include tidal river marshes, farmland, battlefields, forests and urban gardens.

Findings

- The Department of Historic Resources (DHR) administers easements on more than 16,665 acres and 250 historic properties.
- The Commonwealth Statewide Strategic Plan directs the preservation and enhancement of Virginia's natural and historic resources through a cooperative system of well-managed and high-performing agencies.
- Reusing the existing built environment eliminates waste, reduces sprawl, conserves green and open space, creates housing, renews declining neighborhoods and attracts visitors. Sustaining historic resources promotes five community goals: economic development, heritage tourism, education, community identity and smart growth.

- Visiting historic sites is the 5th most popular outdoor recreation activity for Virginians with at least 40.4% of the population participating in the activity, according to the *2000 Virginia Outdoors Survey*.

- Within what is a $13 billion travel and tourism industry for the state, heritage tourism visitors spend 2.5 more times and stay longer than other travelers.

- Renewed historic resources strengthen local economies. Every million dollars spent rehabilitating historic sites creates 29.8 new jobs and generates $779,800 in household income.

- DHR's 137,000 records on historic structures and archaeological sites and collection of five million artifacts are valuable resources in great demand, used publicly for comprehensive land-use planning, building new highways, making zoning and land-use management decisions, and privately for a wide variety of land use and research purposes.

- State and federal agencies own and operate historic resources that can be used for a wide variety of educational and recreational purposes.

- The vast majority of historic resources are privately owned and face an uncertain future. In 2000, the Virginia Land Conservation Fund allocated $3.4 million in matching funds to localities and private preservation associations to protect four battlefields, all of which are now permanently protected and available to the public for educational and recreational activities.

Recommendations

- Each locality should make every effort to identify historic and archaeological resources within its jurisdiction that can be used for economic, tourism, recreational and educational benefits, and should include those resources in all local land-use planning and decision-making processes.

- Local historic attractions, historical societies, museums and other tourism organizations should build partnerships to enhance local heritage tourism, educational and recreational offerings.

- DHR should continue to sustain and support community, individual and organizational preservation efforts through all of its program activities – most notably those of survey, registration of historic properties and historic highway markers that help identify significant historic places, and through easements, project review, historic rehabilitation tax credits, and technical assistance that help localities and property owners make the best use of those historic places.

- DHR should practice good stewardship of the records, information and artifacts that it holds for the benefit and use of the citizens and communities of the Commonwealth including initiatives to increase accessibility of that information for all state, federal and local planning purposes.

- DHR, the Preservation Alliance of Virginia, and all related organizations should continue to enhance educational efforts to get the word out about preservation benefits, resources and tools to include such activities as Virginia Archaeology Month, the Community Awareness Campaign and other educational efforts.

- All state, local and federal entities with an interest in heritage tourism, education and preservation should explore ways in which their organizations, localities, and regions can contribute to, and benefit from, the upcoming activities in 2007 commemorating 400 years since the founding of Virginia at Jamestown in 1607.

- DHR and DCR should work together to share information on the potential recreational use of historic properties and to ensure sensitive treatment of historic properties managed by DCR or affected through its grants and programs.

- State, federal and local agencies owning historic properties should be encouraged to manage those properties effectively for long-term protection of the public trust and to maximize public benefit consistent with the nature of the historic property.

- The Virginia Land Conservation Fund should be used effectively to purchase, protect and develop historic properties for public benefit.

Narrative

Virginia is blessed with possibly the richest and most diverse historic resources in the nation. These range from some of the earliest documented sites of human habitation in the western hemisphere to places that play a role in the ongoing exploration of space. The commonwealth's resources include artifacts from thousands of years of Native America culture in Virginia, mark the birth of a new nation, homes of the nation's founders, battlegrounds of both the American Revolution and Civil War, and public and private architecture that embodies the dynamic forces of immigration, frontier, and economic and industrial revolution and growth. Collectively, these resources help define Virginia's communities as places of character, texture and beauty. They are educational, cultural, and economic assets; they connect Virginians to their heritage, enrich the quality of their lives, and fuel the economic engine that keeps Virginia thriving.

Preserving these sites for future generations can play a vital part in building a sustainable future for the environment, businesses and communities. Development decisions to rejuvenate and reuse historic buildings conserve remaining open space and cultural landscapes, leaving Virginia's cultural legacy intact. Careful stewardship of historic resources creates communities with a strong sense of identity and place. That identity makes local heritage real and meaningful for the people who live in Virginia and for those who travel to visit.

Localities continue the process of maintaining the integrity of their communities by reusing the preexisting built environment. This has many advantages including the elimination of waste, reduction in sprawl development, restoration of neighborhoods and housing opportunities. Increasing their community's attractiveness to tourists strengthens local economies. This is evident by the creation of new jobs, as well as the generation of nearly $800,000 in household income for every million dollars spent rehabilitating historic sites. The preservation of historic properties provides accurate and meaningful educational opportunities.

Historic resources comprise different elements, including structures, buildings, sites, objects and districts that must be viewed within the context of the landscape. Collectively these historic features comprise a cultural landscape that is integrated with, and complementary to, the natural landscape. Cultural landscapes are expressions of human adaptation and use of natural resources. They range from formal courtyard gardens to rural tracts of land and from state, suburban and urban parks to areas with spiritual meaning for an ethnic group.

Virginia's historic resources contribute significantly to the richness and diversity of the Commonwealth. As a reflection of our cultural legacy that can educate and give a sense of place, community and citizenship, their stewardship is an important consideration.

Cultural landscapes are defined as complex resources that range from large rural tracts covering thousands of acres to formal courtyard gardens smaller in size. Natural features such as landforms, soils and vegetation provide a framework within which the cultural landscape evolves. It is an expression of human adaptation and use of natural resources and is often reflected in the division and organization of a property, the systems of circulation that allow movement through a landscape, the types of structures built, the types of use that influence texture and color in a landscape, and the purposeful planting of trees and shrubs (*Cultural Resource Management* NPS-28, U.S. Department of the Interior).

There are four types of cultural landscapes: historic designed landscapes, historic vernacular landscapes, historic sites and ethnographic landscapes.

Historic designed landscapes are deliberate artistic creations reflecting recognized styles and include those associated with important persons, trends or events in the history of landscape architecture. Many parks contain landscapes and related features designed by the National Park Service landscape architects between 1916 and 1942, including the Blue Ridge Parkway, Virginia's original six state parks and many others.

Historically designed landscapes include: estate or plantation grounds, arboreta, botanical and display gardens, zoological gardens/parks, church yards and cemeteries, monuments and memorial grounds, plaza/square/green/mall or other public spaces, campus and institutional grounds, city planning or civic design, planned communities/resorts, commercial and industrial grounds and parks, (local, state, and national) campgrounds,

battlefield parks and other commemorative parks, parkways, etc. (*National Register Bulletin* No. 18, U.S. Department of the Interior). Oatlands, in Loudoun County, is an example of a property with significant architectural and landscape gardening features.

Historic vernacular landscapes illustrate peoples' values and attitudes toward the land and reflect patterns of settlement over time. Chippokes Plantation State Park, for example, represents a continuum of land use spanning hundreds of years. Although the land has been continually reshaped by its inhabitants, the historic mix of farm, forest and shoreline remains. Vernacular landscapes are also found in small suburban and urban parks.

Historic sites are significant for their associations with important events, activities and persons. Battlefields and presidential homes are prominent examples of this landscape category in the national park system and in some Virginia park systems. At these areas, existing features and conditions are defined and interpreted primarily in terms of occurrences during particular times in the past. Historic canals and transportation systems, converted to trail or greenway corridors, exemplify this category.

Ethnographic landscapes are typically characterized by their use by contemporary ethnic groups for subsistence hunting and gathering, religious or sacred ceremonies, and other traditional activities. In the national system, the expansive Alaska parklands include ethnographic landscapes where residents hunt, fish, trap and gather, and where features are imbued with spiritual or mythological meanings. This same quality can be found in the lands occupied or used by Native Americans or specific immigrant groups.

The four cultural landscape categories are not mutually exclusive. A cultural landscape may be associated with a significant event, include designed and/or vernacular features and be significant to a specific cultural group. An example in Virginia is Sailor's Creek Battlefield State Park, an historic site of an 1865 Civil War battle. In addition, the park's historic farmlands exhibit vernacular landscape characteristics.

Historic landmark preservation

Private property owners/individuals, corporations and nonprofit organizations accomplish most historic preservation work in Virginia. This would include the efforts of the Association for the Preservation of Virginia Antiquities (APVA) and the numerous historical societies and individual historic property owners that have done so much to preserve Virginia's most important historic sites. Similarly, most decisions about the use of historic resources are made by property owners and through local land-use decision-making processes (zoning, comprehensive planning, building permits, tax abatements, etc.). For the most part, state and federal agencies are only involved as a primary party in the preservation of publicly owned properties or in publicly funded or permitted projects such as highway construction, wetlands permits, grants, etc.

Since 1966, the Virginia Department of Historic Resources (DHR) (formerly the Virginia Historic Landmarks Commission) has administered programs mandated by both state and federal law. The principal role of DHR is to identify and encourage the preservation of Virginia's historic, architectural, and archaeological resources. The department helps individuals and communities realize the benefits of preservation through the following broad range of incentives and services.

The Survey and Planning Program partners with localities to partially fund and administer surveys and

- supports, and is integral to, mandated local planning;
- spurs local and regional economic development, education, and tourism;
- identifies and evaluates historic buildings and sites;
- gives localities reports of findings, survey forms, maps, and scripted slide shows;
- aids general research; and
- added thousands of properties to state inventory.

The Virginia Landmarks Register publishes the official listing of buildings, sites, structures, and districts with local, state or national historic significance and

- formally recognizes and brings to public attention Virginia's most significant resources;
- represents more than 1,900 landmarks;
- is a key element of the state's tourism industry; and

- encourages stewardship of historic resources for urban renewal.

Project review reviews private and public projects for potential impact on historic resources and reviews and comments on any action sponsored or funded by the federal government that may impact historic resources and

- ensures public and private interests are fully considered and balanced with historic preservation issues;
- is integral to state and federal environmental review processes; and
- reviews thousands of projects yearly for impact on historic resources.

State Tax Credit Program evaluates the appropriateness of rehabilitation work to reduce the taxpayer's liability under the Virginia Rehabilitation Tax Credit Program and

- supports preservation and community revitalization through incentives;
- stimulates private investment;
- triggers reuse of historic structures;
- provides tax credit of 25% of eligible expenses: combined with federal tax credits, totals 45%; and
- serves as cornerstone of brownfield development process.

Easements Programs accept preservation easements on properties of historic significance and

- provide a potent tool for private stewardship of historic properties through public-private partnership;
- protect historic resources in perpetuity;
- preserve several hundred million dollars of historic properties in fair-market value; and
- encourage investment in local economy.

Preservation funding support through state grants administers the state General Assembly grants which provide funding for the operation, maintenance, and restoration of Virginia's historic sites and museums and

- creates major assets for education and tourism.
- DHR provides grant recipients extensive technical assistance, design assistance, interpretive and exhibit development support, and easement administration.

Threatened sites programs identify and encourage protection of endangered archaeological sites and

- provide emergency funding for threatened archaeological sites;
- document archaeological findings at 5 to 10 sites per year, such as the internationally significant Cactus Hill site in Sussex County; and
- generate specialized reports used by researchers.

Highway markers commemorates state and local history through a highly visible and popular tool and

- rank among the largest marker programs in the country.

Data and collections management

- DHR staff provides long-term care and maintenance of the state's principal archaeological collection (five million objects) used for educational and research purposes by colleges and universities, consulting firms and classrooms;
- loans objects for museum exhibitions throughout the state; clients include Virginia Historical Society, Jamestown Settlement, Francis Land House and Colonial Williamsburg;
- houses, and makes available to the public, information from the state's inventory of over 137,000 historic structures and archaeological sites – all now accessible through separate text and digital databases.

Education and outreach

- publications—distributes invaluable educational references for teachers, archaeologists, architects, historians and to all DHR clients
  - *Virginia Landmarks of Black History*
  - award-winning *First People: The Early Indians of Virginia*
  - *Guide to Virginia's Highway Markers*
  - *Virginia Landmarks Register* (flagship publication)
  - archaeology reports such as the internationally known *Cactus Hill* report
  - guidance and technical assistance publications

- teacher training: hosts the teachers institute "History Underfoot, Archaeology for Teachers" with the Virginia Historical Society

- statewide outreach: Coordinates Virginia Archaeology Month celebration with 40-70 tours, workshops, lectures and events every October

- community awareness campaign
  - catalyzes preservation on the local level (grassroots campaigns, etc.)
  - trained 170 Virginians to help communities put their history to work
  - aids leaders with a red toolbox, frequently updated, containing strategies, economic benefits of preservation, success stories, and more
  - utilizes leaders on advisory councils that work closely with DHR regional staff

- Virginia Time Travelers
  - stimulates visits from students K–12 to museums and historic sites
  - popular educational program
  - encourages heritage education in families and among communities

As the forgoing shows, DHR delivers programs and services to a wide range of customers. Staff members assist homeowners and investors in rehabilitation in applying for tax credits, help consultants, scholars and private citizens research historic sites, and work with citizens and communities to identify, use and protect historic resources. They partner with localities for survey and planning projects, maintain the state's archaeology collection of more than five million artifacts, many of which are loaned to museums, and partner with other public and private cultural institutions for education and outreach.

Special stewardship initiatives

In 1998, DHR, in partnership with the Preservation Alliance of Virginia, launched the Community Awareness Campaign, a grassroots campaign that is part of a statewide push to use historic resources for community benefit. At its center is a red toolbox which bears the legend, "To preserve Virginia's history, you'll need a few tools." The toolbox contains strategies, financial incentives and best practices for putting historic resources to work.

Communities around Virginia are taking stock of their historic resources through the Department's Survey and Planning Cost-Share Program. DHR partners with localities, partially funds the project, and is responsible for administration of the project. This program supports, and is integral to, mandated local planning and spurs local and regional economic development, education and tourism.

Virginians also have an economic incentive and powerful revitalization tool in the Virginia Rehabilitation Tax Credit Program, administered by the Department. This program, which began in 1997, offers a credit against a taxpayer's liability equal to 25% of allowable expenses incurred in rehabilitation of historic properties. State tax credits can be coupled with other incentives such as low-cost housing credits, enterprise zone credits and federal credits.

Virginia cultural institutions and organizations have a formal outlet for putting history to work to commemorate 400 years of Virginia history in 2007. As 2007 approaches, the Virginia Cultural Network (VCN), a consortium of 18 statewide organizations dedicated to program collaboration and 2007 promotion, is working to make it a statewide commemoration. The VCN, which is convened by DHR, has generated more than 75 program proposals leading up to, and culminating in 2007. Proposed VCN programs range from major archaeological excavations and nationwide genealogical programs to blockbuster exhibits and a host of local and regional events. First on the VCN's lineup is the 2007 Community Certification Program designed to help localities plan now for 2007. By creating a commemoration program or event that will have a lasting effect on their communities, localities can become "2007" certified. A Community Resource Guide, produced by the VCN, will explain the certification process, and provide sample program ideas and avail-

able resources, including those of VCN-member organizations. However communities may want to get involved, through preservation projects, a heritage trail or festival, or any other means to commemorate 400 years of history, the resource guide will provide valuable assistance.

The Shenandoah Valley Battlefields National Historic District Commission, created in 1997 by an act of Congress, leads the efforts to preserve Civil War heritage in the Shenandoah Valley. DHR's director, by appointment of the governor, serves on the commission. The commission is finalizing an action plan to protect, preserve, and interpret Valley region battlefields and to promote tourism within the historic district.

The year 2000 marked an important time for securing the future of Virginia's threatened battlefields. The General Assembly allotted $3.4 million for the final piece of a 2-to-1 match of funds appropriated by Congress in 1998. With private groups committed to covering one-half of the match and state funding secure, an innovative and precedent setting public-private partnership is now in place. The state appropriation was awarded to private institutions and local governments through grants managed by the Virginia Land Conservation Foundation. Created by legislation in 1999, the Land Conservation Foundation provides funding to conserve important properties, including historic and cultural resources. Over the past year, DHR participated in an interagency working group to develop guidelines for grant-making procedures and policies and reviewed proposals in the historic and cultural resources category.

The department continues to encourage participation in National Historic Preservation Week, sponsored by the National Trust for Historic Preservation. The department will expand its outreach further with a new exhibit to open in the fall of 2001. "Solving Histories' Mysteries: The History Discovery Lab" will be a permanent hands-on exhibit housed at the Virginia Historical Society. The exhibit will engage visitors in historical discovery, excite them about Virginia's rich collection of historic resources, and foster an understanding of the importance of resource stewardship.

DHR is working with the Virginia Department of Transportation and the National Park Service to make its database of historic resources available to local governments, businesses and agency users in an electronic format. Already in use at DHR's Richmond facility, this database will be migrated within the next two years to a new program compatible with the Geographic Information System into which the locational data is currently being entered. This program will combine the descriptive information and the location of the more than 137,000 historic sites and properties that have been identified in the state.

Organizations and groups throughout the commonwealth have identified potential national and regional heritage areas important for their variety of historic, cultural, natural and recreational resources. These resources combine to form a distinctive landscape arising from human activity shaped by geography. Preserving Virginia's open spaces will ensure that tourists continue to bring revenue to Virginia. Further information on cultural resources and resource preservation can be obtained by contacting:

Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221
(804) 367-2323
www.dhr.state.va.us

U.S. Department of the Interior
Cultural Resource Management
National Park Service
P.O. Box 37127
Washington, DC 20013-7127

CHAPTER III-A-3

Greenways, Blueways and Trails

Interest in greenways, blueways and trails has grown substantially over the 35-year period since the publication of Virginia's first *Outdoors Plan*. 1999 saw the state's first Governor's Conference on Greenways and Trails, held in Roanoke and attended by an enthusiastic crowd of 450 trail proponents. In 2000, Governor Gilmore sponsored his second Governor's Conference on Greenways and Blueways at Virginia Beach. Once again, the conference was well supported and the momentum was maintained with the 2001 Mid-Atlantic Governors' Conference on Greenways, Blueways and Green Infrastructure held in Arlington, Virginia. For the first time, trail advocates, government agencies, clubs, nonprofit organizations, planners, consultants, land managers, and university leaders from throughout the mid-Atlantic region joined together to create a vision of healthy communities connected by greenways and blueways, and have identified the tools needed to reach that shared vision. The synergy and momentum generated by these conferences have given attendees a common purpose of working together to make the goal of "connecting the Commonwealth" a reality.

Findings

- The 2000 *Virginia Outdoors Survey* found that 67.1% of the population of Virginia walks for pleasure.
- The same survey found that 39.7% of the population bicycles for pleasure.
- Industry data indicates that mountain-bicycle sales exceed street-bicycle sales.
- The demand for bicycle trails has been measured at 4,381 miles. While most bicycle riding takes place on roads, it is clear that with mountain bicycle sales exceeding those of street bikes, there is a strong need for off-road bicycle trails.

- 6.2% of the population participates in horseback riding on trails.
- In-line skates, scooters, skateboards and children's cycles use the same trails.
- Cross-country skiing is a popular use of rail-trails because of their gentle grade.
- Water trails are effective economic generators.
- There is a need for off-road trails for ATVs, dirt bikes, and four-wheel-drive, high-clearance vehicles. The few publicly managed motorized trails are located in the western part of the state.
- Greenways connect people, communities and countryside, contribute to air quality, and may provide for hiking, strolling, biking, riding, picnicking, fishing and other recreational activities that improve public health.
- Greenways provide important open space resources, which can link important cultural and historic sites, fostering greater awareness and appreciation for them.
- Greenways provide refuge and safe migration routes for wildlife.
- According to the 2000 *Virginia Outdoors Survey*, use of Virginia's rivers by watercraft has become the 8th most popular recreational activity.
- Public access is a significant problem in the development of water trails.
- Lack of public use facilities creates conflicts between boaters and private riparian property owners.
- Greenways can provide alternative transportation facilities for cyclists, pedestrians and equestrians, and provide close-to-home green space access to greater proportions of the population than that served by traditional parks.
- Greenways soften urban and suburban landscapes by providing visual buffers to developed areas and improve overall quality of life.
- Greenways improve water quality by buffering streams and trapping pollutants and reduce flood damage and costs related to damage, thereby increasing real property values.
- Greenways enhance economic development and tourism.

Greenways recommendations

- Economic impacts of greenways in Virginia should be documented so that related tourism can be encouraged.
- DCR should coordinate with greenway organizations and neighboring states to complete a state trails and greenways plan that will include linkages with greenways and trails in adjoining states.
- Efforts should be made to provide a stable source of funding for greenway projects.
- Local governments are encouraged to adopt a greenways element in their comprehensive plans to include connections to other localities and regions.

Trails recommendations

- There are numerous and readily available opportunities for extending and improving trails on public lands
- Federal, state, regional and local planners should coordinate trail planning efforts to ensure that trails are included in local comprehensive plans.
- Federal, state, regional and local governments and citizen organizations should cooperate to complete the East Coast Greenway through Virginia.
- Federal, state, regional, and local governments should cooperate to complete the Potomac Heritage National Scenic Trail.
- All jurisdictions should have a trails component in their comprehensive plan that includes bicycle trails, pedestrian trails, equestrian trails, and water trails. Communities should require developers to connect their planned developments to existing and proposed elements of community trail plans.

- Localities should evaluate railroads in their jurisdictions, and plan to obtain and manage abandoned right-of-ways for trails and other public uses. Where community trail plans could benefit from the use of an active railroad corridor, rails-with-trails proposals should be considered.

- Communities throughout the Commonwealth should make an effort to retrofit their transportation systems to include bicycle and pedestrian accommodations that are as accessible and as functional as their road systems.

- State and federal agencies should cooperate with trail support groups to identify opportunities for improving and enlarging trail systems on public lands.

- DCR should partner with other organizations to develop a state trail guide that lists trails, related organizations and resources.

- DCR should partner with others to develop a system of interconnected long distance trails throughout the Commonwealth.

Bikeways recommendations

- Interstate Bicycle Routes 1 and 76 should be enhanced with improved route signage.

- State tourism, transportation and bicycle interests should continue to cooperate in the development of bicycling guides to assist bicyclists traveling or vacationing in Virginia.

- Federal, state, regional and local planners should coordinate bicycle facility planning to ensure continuous systems. Bicycle plans, including on- and off-road accommodations, should be included in local, metropolitan and state comprehensive and/or transportation plans.

- The economic and environmental impacts of bicycling in Virginia should be documented.

- Funding to design and construct the Route 5 Capital-to-Capital Bikeway linking Williamsburg with Richmond should be obtained, and the bikeway should be constructed.

Mountain bicycling recommendations

- Mountain bicycles should be incorporated into new trail plans where appropriate.

- Existing trails should be adapted to multi-use to accommodate mountain bikes where appropriate. Proper planning, design and management would minimize conflict and environmental problems.

- State and local agencies should cooperatively develop an educational program directed toward mountain bicycle and multi-use trail users.

Equestrian trails recommendations

- Federal, state, regional, and local planners should coordinate trail planning efforts to ensure that equestrian trails are included in comprehensive plans. Emphasis should be placed on ensuring that equestrian trails are developed or retained in rural areas where farms are being converted to other uses and traditional inter-farm trails are being lost.

- Existing trails should be assessed for their suitability to conversion to equestrian use. Where multipurpose trails are planned, surfaces should consider appropriateness for horses, maintenance issues, environmental sensitivity and protection of resource values.

- On public lands where horse trails are provided, consideration should be given to providing camping facilities for equestrians. Provision of horse camping will encourage trail riders who must travel some distance to use the trails, thereby contributing to local tourism revenues.

- DCR, tourism officials and the Virginia Horse Council should develop marketing materials to encourage trail riders from the region to visit Virginia's quality equestrian trail systems. The economic benefits of this use should justify development of planned equestrian facilities in state parks where overnight facilities have been approved but not funded.

- In the Piedmont state forests, campgrounds and staging areas for equestrians should be developed within, or adjacent to, nearby state parks so that trail users will have necessary support facilities. This will encourage trail riders from throughout the mid-Atlantic region to visit these trail systems.

- The economic impact of trail riding in Virginia should be documented.

Motorized trails recommendations

- Consideration should be given to requiring registration and the display of tags for all motorized trail vehicles including dirt bikes and off-road or all-terrain vehicles. Registration fees could be used to acquire and develop off-road vehicle parks and trails, as well as provide educational programs and materials.

- DCR should work with organized motorized trail clubs to identify areas open for trail use. A brochure could be developed that identifies public or semi-public trails.

- Clubs and organizations should cooperate with dealers to inform new off-road vehicle buyers of their responsibilities and to encourage club membership. Clubs should provide education and organized rides, and may have access to riding areas unavailable to individuals. Clubs should partner with land managers to develop and maintain motorized trail systems.

- Public providers should evaluate their properties for their potential to meet the need for motorized trails. Special facilities should be acquired and developed in areas where demand is high but no facilities exist. A trail club partner should be identified for these projects.

- A demonstration project should be designed to examine the potentially positive economic impact of an ORV trail system in one or more economically challenged rural areas.

- Users should partner with public land managing agencies to develop motorized trail systems in the eastern portions of the state.

Water and river trail recommendations

- The navigable rivers of the state should be managed as water trails. Public access areas and appropriate support facilities should be developed at appropriate intervals along these rivers.

- Produce brochures for each river showing access points, day use and camping areas, hazards, historical structures along the river, etc.

- Develop an improved system for reporting river levels throughout the state. Post signs at each public access area showing the range of safe river use by experience class.

- In order to minimize conflict between personal watercraft ("PWC" i.e., jet skis) and human-powered watercraft users, measures should be taken to set a standard of educating users on acceptable participation and promote enforcement of those standards. Users should be encouraged to remain respectful of each other and of the natural and wildlife resources that exist within the environment in which they participate.

- The Virginia Department of Transportation should identify bridges with signs that would be visible from the water. These road markers, when used in conjunction with trail or road maps, would allow river users to better pinpoint their location.

- Local jurisdictions should encourage both private and public landowners to operate boat-in only campgrounds on those areas of Virginia rivers that are capable of accommodating such use.

Narrative

Greenways

Greenways are open-space corridors that can be managed for conservation, recreation, and/or alternative transportation. It is important to note that while all trails are greenways, all greenways do not necessarily include trails. Greenways often follow natural land or water features such as ridgelines, stream valleys, rivers, canals, utility corridors, abandoned rail lines and others. Although each greenway is unique, most connect recreational, natural, cultural, and/or historic areas. Some greenways are designed for recreational use or serve as transportation corridors. Others function exclusively for environmental protection, providing wildlife habitat, water quality buffers and areas of scenic beauty. Greenways may be publicly or privately owned, but are significant components of each community's green infrastructure.

Important resources in themselves, greenways may also serve as links, connecting schools, playgrounds, forests, parks, historic sites, rivers, neighborhoods, businesses and wildlife refuges. Connections may vary depending on the landscape and community preferences. Greenways may include hiking, bicycling and equestrian trails and sidewalks, as well as streams and rivers suitable for canoeing and boating. Abandoned railroad right-of-ways, utility right-of-ways, scenic roads, and scenic easements may be included within greenways.

Numerous studies have been conducted to evaluate the benefits and impacts of greenways. Foremost among these are *Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors* (see Table 4) and *The Impact of Rail-Trails*, produced by the National Park Service. Both studies conclude that there are various and numerous benefits to trail users, local landowners and trail communities. Although legitimate issues and concerns may be raised at the onset of many greenway projects, studies indicate that such apprehensions are unwarranted. Residents of trail communities, as well as visitors, enjoy the benefits of trail use, along with the aesthetic beauty, protected open space, and in some instances, the higher property resale values typically found adjacent to trails.

Besides providing physical connections, greenways serve as visual buffers. Under most circumstances, a 300-foot strip of forested area provides an adequate buffer to give a passerby or homeowner the sense that the area is preserved in its natural state. Furthermore, wildlife experts indicate that a 600-foot corridor is suitable for habitat and provides migratory paths for larger species (deer, fox, etc). Even smaller natural corridors, such as those found adjacent to a stream valley, provide significant visual relief. A greenway of adequate width can effectively hide and buffer residents from more intensive land uses, and can protect vital natural and wildlife resources. A good example of a public benefit greenway that is privately owned is the lands along the banks of the Chesapeake Bay and its tidal tributaries. The Chesapeake Bay Preservation Act requires (east of Interstate 95) that a riparian buffer be maintained to protect water quality. This riparian buffer (sometimes only 100 feet in width) provides multiple public benefits in that it protects water quality, provides wildlife habitat, is visually attractive, and helps to stabilize the shoreline in many cases.

Areas that lend themselves to greenway designations are frequently considered unsuitable or undesirable for development; therefore, these lands can often be made available by easements, zoning or by donation from the owner. This saves local governments from using scarce funding on fee-simple acquisition. In cases where fee-simple acquisition may be necessary, studies have found real property values adjacent to greenways and parks increased in value. Proffers from developers often are effective tools for greenway acquisition and development.

State and national surveys reveal that walking, bicycling, jogging, hiking and horseback riding are among the most popular forms of outdoor recreation. The 2000 *Virginia Outdoors Survey* ranked walking for pleasure as the most popular activity based on percentage of households participating (67%). Bicycling (40%), visiting natural areas (27%), jogging (22%), hiking/backpacking (18%), nature study, horseback riding and fitness trail use were within the top 30 activities. All may be accommodated in greenway areas. The 2000 *Virginia Outdoors Survey* determined that water-related activities are among the most sought after types of recreation in the state. The preservation and/or development of greenways may help meet this growing demand by protecting water resources and facilitating public access to these areas.

Greenway efforts around the state are increasing rapidly. Examples include: the Northern Virginia Greenways

project, Charlottesville's Rivanna River Greenway, Historic Rivers Greenway Initiative in the City of Williamsburg, James City and York counties, the Roanoke Valley Greenways Plan, the Giles County/New River Greenways Plan, Luray's Hawksbill Greenways Plan, the Potomac River Greenways Coalition, the West Neck Creek Greenway and the Virginia leg of the East Coast Greenway. Significant existing regional and state greenways include the Washington and Old Dominion Trail, New River Trail State Park and Virginia Creeper Trail. For detailed information related to greenway plans, contact the appropriate planning district commission or locality.

Greenway planning

Greenways are created primarily through local or regional initiatives reflecting community needs, and are defined by the people who create them. Greenways are best formed from cooperative public and private partnerships, including citizen and user groups, government agencies and private businesses. Greenway planning should begin by establishing a local or regional committee made up of a broad cross-section of the community. The committee may include representatives of potential user groups such as hikers, bikers, equestrians, nature study/birdwatchers, boaters, fishermen, swimmers, as well as businesses, utility companies, conservation groups and economic councils.

Successful greenway planning requires dedicated work with many diverse citizens and adjacent landowners, including those opposed to greenways or specific greenway projects. In addition, community leaders and citizens with expertise in planning, safety, security, environmental and liability issues should be included. Effective public involvement of landowners and professionals can address most issues and concerns resulting in a better project. Thorough planning involving all affected parties is the key ingredient to successful greenway projects.

ECONOMIC BENEFITS OF GREENWAYS

Real property values
Many studies demonstrate that parks, greenways and trails increase nearby property values. In turn, 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 users
Greenways often provide business opportunities, 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 improve the overall appeal of a community to tourists and prospective residents.

Agency expenditures
The agency responsible for managing a river, trail or greenway can 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 in a community.

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.

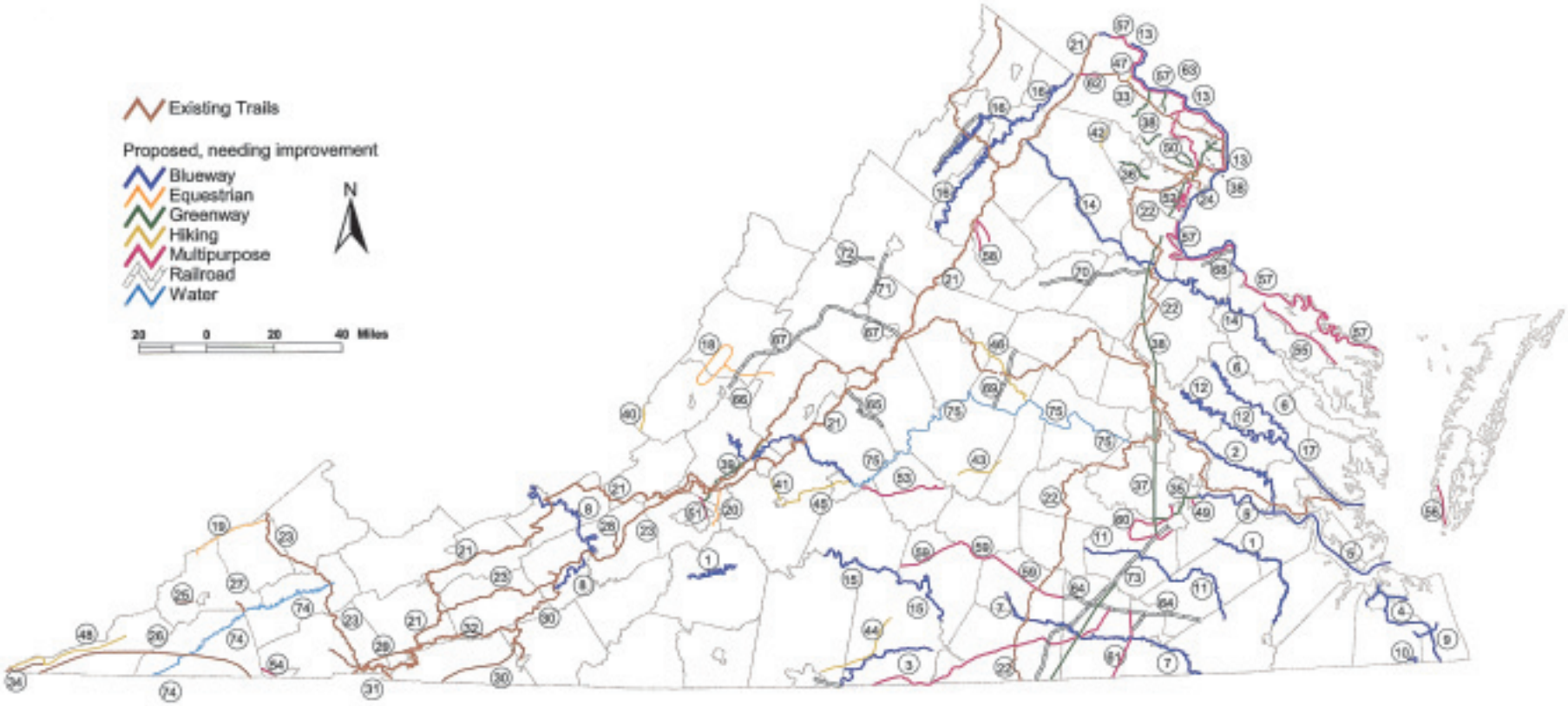
Sources: Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors; National Park Service, 1990.

Several publications and resource materials have emerged to deal effectively with greenways planning, design, and implementation, including the public involvement process. *Greenways: A Guide to Planning, Design and Development*, available through Island Press, is one such example. *The Virginia Greenways and Trails Toolbox* is another general information resource. Copies are available from the Department of Conservation and Recreation.

One method of greenway planning, the overlay method, begins with an inventory of social, historic, cultural and natural features. Available land, including utility and railroad right-of-ways, (existing and abandoned) is then inventoried to determine the most suitable methods for greenway dedications. Finally, soils and steep slopes are inventoried. The inventory layers are combined in a composite of the region to be used to identify linkages between communities, parks, schools, historic sites, open spaces and other resources. The final step identifies greenway routes based on linkages. Corridors are prioritized and included in the greenways plan to be adopted by local or regional governments.

Once planning is complete, implementation begins. Implementation strategies should be listed in the plan. A successful greenway planning committee can evolve into a strong support group to assist various partners in acquiring, developing and managing the greenways system.

Trails and Greenways



Blueways
1. Blackwater River
2. Chicahominy River
3. Dan River
4. Elizabeth River
5. James River
6. Mattaponi River
7. Meherrin River
8. New River Trail
9. North Landing River
10. Northwest River
11. Nottoway River
12. Pamunkey River
13. Potomac Water Trail
14. Rappahannock River
15. Roanoke (Staunton) River
16. Shenandoah River
17. York River

Equestrian
18. Alleghany Highlands Horse Trail
19. Pine Mountain Trail
20. Roanoke Lexington Horse Trail

Existing Trails
21. Appalachian Trail
22. Bike Route 1
23. Bike Route 76
24. Bull Run/Occoquan
25. Chief Benji Trail
26. Daniel Boone National Historic
27. Guest River Gorge Trail
28. Huckleberry Trail
29. Iron Mountain Trail
30. New River Trail
31. Virginia Creeper Trail
32. Virginia Highlands Trail
33. W&OD Trail
34. Wilderness Road

Greenways
35. Appomattox River Greenway/Blueway
36. Broad Run Stream Valley/Linear Park
37. East Coast Greenway
38. Greenway Parks
39. Tinker Trail

Hiking
40. Allegheny Trail
41. App. Trail Connector
42. Bull Run Mountain Trail
43. Cumberland-Appomattox Trail
44. Dan River Rail Trail
45. Pop. Forest-Blackwtr Crk.-Peaksview Pk
46. Rivanna River Trail
47. W&OD/White Ferry Connector
48. Wilderness Road Trail Addition

Multipurpose
49. Cabin Creek
50. Fairfax Cross County Trail
51. Hanging Rock Trail
52. Leesylvania/PWFP Connector
53. Lynchburg to Appomattox Trail
54. Mendota Trail
55. Northern Neck Heritage Trail
56. Penn Central Railroad
57. Potomac Heritage National Scenic Trail
58. Rapidan WMA/SNP Connector
59. Southside Trail
60. Trekking Dinwiddie Trail
61. VA Beach Pipeline Trail
62. W&OD App. Trail Connector
63. W&OD Potomac Connector Trail

Railroad
64. Abandoned RR Track
65. Blue Ridge Railroad Trail
66. C&O Line
67. CSX Railroad
68. Dahlgren Junction Railroad
69. Fluvanna Rail Line
70. Fredericksburg Orange Trail
71. Norfolk Southern Railroad
72. North River Trail
73. Seaboard Coast RR-East Coast Greenway

Water Trails
74. Clinch River
75. James River Trail

Trails

The *Virginia Outdoors Plan* defines a trail as a linear corridor, on land or water, with protected status and public access for recreation or transportation (excluding scenic byways and highways). This definition is adopted from *Trails for All Americans*, a report developed by the National Park Service and a coalition of private, nonprofit, broad-based trail organizations. *Trails for All Americans* examined trails issues from a national perspective to develop broad policies and the following goals for implementing a nationwide system of trails. These goals are also applicable in Virginia:

- Trail opportunities should exist within 15 minutes of most Americans' homes or workplaces.
- A nationwide system of trails should comprise federal, state, local and private trails, with all the entities working together for an interconnected system.
- In addition to their recreational value, trail corridors should be recognized as important resource conservation mechanisms and as routes for alternative transportation.
- Trails should be planned as part of the infrastructure, as are highways and utilities.
- Planning for trail corridors and networks should be a grassroots effort to gain adequate support for their development, long-term maintenance and protection.
- Funding must be provided to ensure adequate resources for designing, constructing, managing and maintaining the components of the trail system.

There are many types of trails developed with specific user groups in mind. Some trails are single purpose and others are multi-use. As the number of trail users and the variety of use types increases, the luxury of single-purpose trails becomes less practical in many congested areas. The last decade has seen sales of mountain bikes surpass those of street bikes. Other new uses develop frequently to compete for available trail resources. Some of the current developments are off-road inline skates, off-road skateboards, llama trekkers, extreme sports racers and other competitive events that use trails as their base resource.

The majority of trails lie on public lands—in parks, forests, refuges, on abandoned railroads acquired for the purpose and along roads. In some localities trails have been developed in stream valleys and across private lands through the use of easements and lease agreements. Corporate landowners have often provided trails on their lands. Timber companies in particular have been generous with the public use of their lands for hiking and trail uses. The 2000 *Virginia Outdoors Survey* indicates that many Virginians recreate within 20–30 minutes of their home. Trails can provide close-to-home, accessible recreation with health benefits, non-polluting transportation routes and more. The Surgeon General of the United States has reported that obesity in America has become a major public health issue. The provision of recreational trails close to home will provide everyone a convenient resource for exercise.

The American Association of State Highway and Transportation Officials (AASHTO) guidelines and publications such as *Greenways: A Guide to Planning, Design and Development* and *Trails for the Twenty-First Century*, both available through Island Press, have emerged to address designing, planning, and managing multi-use trails and greenways.

Trail users, environmental groups, local businesses and the community should be included in new trails development or existing trail maintenance. Adjacent landowners must be included early in the planning stage and often can help identify concerns and issues

and develop potential solutions for effective implementation. Many trail projects have utilized volunteers significantly in planning and implementation. Examples are: the Willis River Trail in Cumberland State Forest, the Zoar Trail in Zoar State Forest, the Virginia Highlands Horse Trail in Mount Rogers National Recreation Area, the trails system in Richmond's James River Park, The Tuscarora Trail in Northwestern Virginia and the Bull Run Occoquan Trail in Northern Virginia.

Federally managed trails

Most of Virginia's long-distance hiking and horseback riding trails are in the George Washington and Jefferson National Forests and Shenandoah National Park. These two resources provide more than 2,000 miles of backcountry trails preferred by backpackers, hikers, mountain bikers and horseback riders. Also, hundreds of miles of multipurpose, primitive roads accommodate foot, mountain bicycle and equestrian travelers. The only public off-road motorized trails in the state are provided in the national forests.

In Eastern Virginia, Assateague Island National Seashore, the Great Dismal Swamp National Wildlife Refuge, Back Bay National Wildlife Refuge, Prince William Forest Park and the larger national battlefield parks all offer opportunities for trail users. The Colonial Parkway and the George Washington Memorial Parkway are popular bicycle trails.

The National Park Service works with trail clubs, local and state governments to develop or designate nationally significant trails. Some of these are under development, like the Potomac Heritage Trail and the East Coast Greenway. Others have been developed and have been designated as National Recreation Trails, National Historic Trails or National Scenic Trails. Some examples of National Recreation Trails in Virginia are the Virginia Creeper Trail in Washington and Grayson counties, the Cascades Trail in Giles County, and the Blackwater Creek Trail in the City of Lynchburg. Some designated National Historic Trails include the Overmountain Victory Trail in Washington County and the Daniel Boone National Historic Trail in Southwestern Virginia. The Appalachian Trail is a designated National Scenic Trail.

The Appalachian National Scenic Trail enters the state from the north near Harpers Ferry. This 2,100-mile Maine-to-Georgia foot-trail winds its way down the crest of the Blue Ridge Mountains and then southwest through the George Washington and Jefferson National Forests before leaving the state near Damascus. The majority of the 540 miles of Appalachian Trail in Virginia lies on public land and is consequently protected to some degree. Several stretches of the trail corridor that cross through private land, however, are experiencing incompatible encroachments and increasing conflicts regarding use. Even where the trail seems secure on public land, activities adjacent to or within this land may adversely affect the scenic and physical character of the trail. Efforts should be made to seek the voluntary cooperation of landowners and stakeholders to resolve these issues. State and local governments may consider these issues in planning and zoning decisions that affect lands in the vicinity of the trail.

The Appalachian Trail is unique because of its history of cooperative management. For more than 75 years the many representatives of the Appalachian Trail Conference (ATC) have worked voluntarily with federal, state and local governments, as well as numerous individual landowners, to solve problems associated with the acquisition, development, administration, management and maintenance of the trail. The Appalachian Trail Conference and its member clubs manage the trail. Recognizing its importance, the Virginia General Assembly in the *Code of Virginia*, Chapter 10.1-203, as amended, designated the Department of Conservation and Recreation (DCR) as responsible for acquisition, administration and management of the trail in Virginia. DCR has a signed agreement with the ATC wherein DCR agrees to: review the trail's location on state-owned lands; ensure widespread understanding of the significance of the trail and the components of good stewardship; acquire lands or interests in lands to conserve trail values; delegate to the ATC and trail-maintaining clubs responsibility for developing, maintaining and monitoring state-owned trail corridor lands; be a liaison between the ATC and other state agencies; and, meet annually with representatives of the ATC to discuss management and concerns.

State-managed trails

Virginia's state parks offer more than 350 miles of trails, many of which connect to the extensive trail and gated roads system in adjacent state and national forests.

New River Trail State Park is a 57-mile rail-trail stretching from Pulaski to Galax in Southwest Virginia. The park is a multi-use non-motorized trail for use by hikers, bicyclists and equestrians. It is connected to the trails in the Mount Rogers National Recreation Area and to the Virginia Creeper Trail that leads to Abingdon. This trail system is almost 175 miles long and intersects many side trails. The Wilderness Road Trail in Lee County joins the Wilderness Road State Park with the Cumberland Gap National Historic Park and uses portions of an abandoned railroad. Many parks have trails for horseback riding as well as trails designed specifically for mountain bicycling.

Virginia's Department of Game and Inland Fisheries, within its wildlife management area system, maintains numerous access trails for hunting, fishing and other wildlife-related outdoor recreation. These trails are also open for hiking and horseback riding although it is not recommended during hunting season except on Sundays.

The Virginia Department of Forestry also maintains many trails in state forests. The Zoar State Forest trails, the Willis River hiking and canoe trails in the Cumberland State Forest and the connector between the Cumberland and Appomattox-Buckingham State Forests are some of the more popular trails in use. Most state forests contain hiking trails and an infrastructure of forest roads and trails, totaling approximately 260 miles that are available for use by trail enthusiasts. Horseback riders have recognized the potential this system of gated roads offers and have worked with the state forester to build and maintain a system of horse trails in the Cumberland State Forest. Mountain bicyclists also use many of the same forest management roads as trails.

Other state-owned lands, such as colleges and universities, include trail systems. Many of these trails are heavily used by students and the surrounding community. University-owned lands that are not appurtenant to the main campus may have trail development potential and should be evaluated.

Locally managed trails

Local and regional parks have established lengthy multi-use trails, some of which take advantage of unique corridors in densely populated areas. The W&OD Railroad Regional Park, a National Recreation Trail, follows the bed of the abandoned Washington and Old Dominion Railroad. Administered by the Northern Virginia Regional Park Authority, it extends 45 miles from Alexandria to Purcellville in Loudoun County. The Virginia Creeper Trail, another National Recreation Trail, is a multipurpose trail constructed on an abandoned railroad right-of-way between the towns of Abingdon and Damascus and then through the National Forest to Whitetop Station. In the Roanoke Valley, trails have been developed along streams, utility corridors, abandoned railroads, and through every park and greenway in the region in their combined effort to connect their communities. In Fairfax and Arlington counties, many trails have been developed along stream valleys in designated environmental quality corridors and stream valley parks. Short foot trails, such as interpretive and walking trails five miles or shorter in length, are found in nearly all recreational areas and in many local parks throughout the Commonwealth.

Many jurisdictions have a trail system component of their comprehensive plan. In some localities developers are required to construct trails in subdivisions and other developments that connect those trails to existing or proposed trails within the area.

Trails on private land

Privately owned corporate properties also may help meet trail needs. In some cases, trail recreation may suitably interface with management activities on lands owned by forest product companies, utility companies or mining companies. Cooperative management programs for limited recreational use have been developed with Westvaco Corporation on some of its lands. For example, Westvaco Corporation maintains a 2.8-mile nature trail along Buffalo Creek in Bedford County that is used for recreational and environmental education purposes. Hundreds of miles of corporate forest roads, which provide access to timber, offer a wide variety of potential trail opportunities. User groups should work with the companies to help maintain these trails.

Many local businesses have developed trails through their properties to connect to existing trails and allow public access. With more businesses realizing the value of trails for employees' physical and mental health, private, corporate trails are more numerous and need to be included in comprehensive trail plans. In addition, many developers realize that the incorporation of

a trails system into their plans can help increase housing and office space values and/or increase sales. Where possible, private trails should connect into public systems.

Private individuals often voluntarily offer trails through their property. They may give an easement on a portion of their land or may allow access through an agreement with a governmental agency. In these instances, the landowner's liability is limited (§29.1-509 of the *Code of Virginia*). There are tax benefits associated with easements granted for trail purposes also. Please see Appendix E: Tools and Strategies for Protecting Open Space and Natural Resources on page 403 for further information on landowner liability.

From rails to trails

Some of Virginia's most popular and heavily used trails were once active railroads. As the automobile and the interstate highway system decreased use of railroads, unprofitable lines were abandoned. Once the rails and ties were removed, the gravel surface remaining was an excellent base on which to build multi-use trails. The Virginia Creeper Trail, New River Trail State Park and the Washington and Old Dominion Trail are all former railroads.

The recreational potential of railroad right-of-ways has long been recognized. Congress enacted the *National Trails System Act* in 1968 to establish a nationwide network of trails. The act provided direction to encourage use of abandoned rail corridors as trails. But, after 15 years, the number of rail trails developed on abandoned railroads was quite small, as most railroads don't own all the land where their tracks lie. Instead, the railroads often have legal rights, or easements, to use the land of adjoining property owners. When the railroad abandons the rail line, these easements often are revoked, and the property reverts to the adjoining landowners. Establishing a trail under these circumstances would require an agreement with the railroad and all adjacent landowners.

Congress addressed this problem in the *National Trails System Act Amendments* of 1983. Those amendments preclude a railroad's easement from lapsing if the right-of-way is used as a recreational trail. As a result, trail-use proponents now only must have a formal agreement with the railroad. Before an abandonment is granted to a railroad, posted notices tell the public and all potentially affected persons of the request so that comments and appeals can be solicited. Trail users should respond to the notice and tell the railroad of their interest in the right-of-way as a trail.

Crisscrossing Virginia is an extensive system of more than 3,000 miles of operating railroads. Over the last 30 years, a substantial amount of this railroad mileage has been abandoned. While a few have been acquired for trail use and become very popular recreation resources, the majority of these corridors weren't acquired for recreational use because property ownership reverted to adjacent landowners or because there was no support at the local level for converting them to trails.

The Trails System Map on page 85 identifies many rail lines that have been abandoned, as well as some operating lines that could become important components of a state trails network. Many of the lines still in service operate only on low tonnage and may soon become the subjects of abandonment applications. Another option on the less heavily traveled lines is "rails with trails." In many states, local governments and trail supporters working with the railroads have been able to design and operate trails that lie within the right of way of operating railroads. Where safety and liability issues once ruled out this concept, creative people have found ways to solve these problems and the corridors are now major attributes to the communities within which they lie. The Rails-to-Trails Conservancy is a national organization that provides assistance to anyone working on a rail-to-trail project.

Bicycling and bikeways

With the increasing interest in bicycling, many localities are beginning or expanding their efforts to include bicycle accommodations in their various planning documents. The Virginia Department of Transportation publishes a resource guide to assist local and regional planning agencies develop and implement bicycle plans.

A bicycle accommodation must be in an adopted plan in order for the Virginia Department of Transportation to consider participating in its design and construction as part of a highway project. The inclusion of bicycle projects in comprehensive or other plans is encouraged and helpful to obtaining other funding. Under the Transportation Equity Act for 21st Century (TEA-21), VDOT and the metropolitan planning organizations (MPO) are required to develop statewide and

metropolitan transportation plans. These plans are intermodal plans that need to address bicycling and walking facilities.

As with any planning process, the most important aspect of bicycle planning involves obtaining input from the public. Many areas in Virginia have organized bicycling clubs that can help gather and provide information. However, not all community bicycling needs will be represented by clubs. The chambers of commerce and local tourism advocates often want bicycle accommodations to link points of interest, attractions, accommodations and restaurants in their communities to foster tourism. Furthermore, local governments attempting to reduce the number of vehicle trips made each day will be interested in bicycle routes that link residential areas with schools, libraries, commercial centers, parks and employment centers.

Bicycle plans should be compatible with local comprehensive plans; transportation plans developed at the local, regional MPO, planning district commission (PDC), or state levels; transit plans; and parks and recreation plans.

The bicycle planning process begins by defining a public involvement process and setting goals and objectives for the plan. Performance measures, such as directness, continuity, mulitmodal coordination and safety, then need to be established to determine the effectiveness of a bicycle facility. The process then focuses on developing a local network by inventorying existing systems, identifying land opportunities and constraints, identifying and selecting potential corridors, selecting specific routes and facility types, and evaluating the overall network based on the performance measures. Potential supporting programs need to be identified and can include education, encouragement and enforcement programs as well as land use policies. To ensure that the improvements in the plan can be carried forward, implementation strategies must be developed, and the plan needs to be adopted. For projects being implemented, design guidelines are provided in the *VDOT Road Design Manual* and the AASHTO *Guide for the Development of Bicycle Facilities*.

Major bicycle routes traveling through Virginia

Virginia is crossed by sections of three of the country's major bicycle routes: the Trans-America Bicycle Trail from Virginia to Oregon, the Maine to Virginia Bicycle Route, and the Virginia to Florida Bicycle Route.

The 500-mile Virginia section of the **Trans-America Bicycle Route** runs from Yorktown to the Kentucky state line near Breaks Interstate Park.

The 150-mile Virginia section of the **Maine to Virginia Bicycle Route** runs from Richmond to Washington, D.C.

The 130-mile Virginia section of the **Virginia to Florida Bicycle Route** runs from Richmond to the North Carolina state line at Suffolk.

These routes were developed by Adventure Cycling Association.

Interstate Bicycle Routes 1 and 76 generally follow the same alignments as the routes offered by Adventure Cycling Association. The Interstate Bicycle Routes, designated by AASHTO, are signed along state roads and noted on official county road maps.

Mountain bicycles

The majority of bicycles sold today are designed for off-road use and are classified as mountain bicycles. The most obvious difference is the size of the tires. Unlike the skinny tire of street bicycles, mountain bicycles have fat tires, usually with a knobby or waffle pattern for traction. Newer models have shock absorbers and numerous improvements to help the rider and the bicycle stand up to the strains of rough terrain often

encountered in off-road bicycling. High-quality mountain bicycles are expensive and a good one can cost more than $3,000. With enthusiasts for the sport investing so much in their equipment, it is no surprise that they are often participants with public land managers in building and maintaining mountain bicycle trails.

The International Mountain Bicycling Association (IMBA) has been a leader in setting standards for mountain bicycling around the world. IMBA sponsors trail construction field schools to help users and land managers learn to build trails that are safe to use and gentle on the environment. User ethics and responsibilities as well as trail construction techniques are disseminated through publications and training seminars. Many mountain bicycling clubs have formed throughout the state, and are employing IMBA's teachings in working with their public land managers to develop trail systems.

Many of the existing trails in the state were once considered to be only hiking trails and too rough for use by skinny-tired bicycles. The mountain bicyclists, however, are quite capable of riding on many of these trails. The result of this new use has caused controversy on some trail systems. Trail users and managers must work together to decide the types of uses each trail is best suited to meet. Some can be upgraded to multi-use standards while others may be restricted to one use or the other. Some technical mountain bicycle trails are designed to be one way in direction of ride and are best not used by other types of trail users. Narrow tract hiking trails with tight switchbacks, steps, or other confining elements may not be suitable for bicycle use. Horses are sometimes spooked by a rapidly approaching bicyclist. Therefore bicyclists must learn how to react when they encounter horses on the trail. Many organizations have worked together to address issues of design, user conflicts and trail user ethics. The following chart includes The Bicycle Federation of America recommendations for managing multiple-use trails with mountain bicycles as published in *Mountain Bikes on Public Lands*.

Signage:

Post multiple-use trail signs at trailheads illustrating yield hierarchy.

Post safety and trail etiquette signs at trailheads.

Use signs to advise riders to reduce speed to avoid skidding.

Post other types of signs as needed.

User cooperation:

Emphasize user input at all phases, from trails planning, policy development and implementation, to trail maintenance.

Ask representatives of all trail user groups to walk or ride trails and to identify potential safety hazards and areas of environmental impact, and to discuss suitability of trail for multiple-use designation.

Encourage representatives of trail user groups to discuss concerns with trail managers.

Convene a local trails advisory council involving all user groups.

Partnership development:

Work in partnership with local bicycle shops and/or mountain bike clubs to develop brochures about safety, etiquette, and environmentally sound riding techniques, raise money for signs, conduct desensitization clinics for horses, build new trails and establish a volunteer mountain bike trail patrol to provide trail information to all trail users.

User education:

Educate all trail users to "tread lightly."

Use volunteer mountain bike trail patrols to educate trail users.

Educate users through interpretive rides.

Emphasize trail preparedness.

Trail maintenance:

Organize volunteer trail maintenance teams to erect fencing on switchbacks, repair existing erosion, maintain waterbars and use a *rolling dip* method rather than a rock or log waterbar when building new trails.

Trail regulations enforcement:

Issue citations for trail violations, when necessary, to cyclists who ride on closed trails or through meadows.

Encourage local judges to impose work service in the park as the penalty for trail violation citations.

Other measures:

Use temporary closures to protect the land and wildlife when necessary.

Design maps for mountain bicyclists that disperse use from trails heavily used by hikers and equestrians.

Consider seasonal closures of some high-use trails.

Equestrian trails

Trail riding is an increasingly popular recreational activity among Virginia horseback riders. The Virginia Horse Council appointed a committee to establish direction and coordination of statewide equestrian trail development and maintenance activities. Participating clubs have formed working relationships with public and private land managers across the state to improve and maintain existing trails, as well as to establish new trail riding opportunities. The results of this successful initiative can be seen in the national forest, many state parks, state forests, and in local parks. Several state parks have new master plans that include horse facilities including special campgrounds for horse campers as well as equestrian trails. Some of the most notable examples of these cooperative ventures are at Lake Anna, Andy Guest-Shenandoah River and James River state parks.

The Virginia Department of Forestry, in cooperation with the Powhatan Riding Association, has developed 31 miles of trails for horseback riding on the Cumberland State Forest and on the Appomattox-Buckingham State Forest. Other clubs ride identified trails on small state forests in their localities. The willingness of private organizations to assist in the maintenance of the trails has made them valuable volunteers in protecting the state forests.

Because there are many kinds of trail rides, a wide variety of options should be made available. Trails should be from two to 25 miles in length. A good planning length for a trail that will meet the needs of persons who will trailer their horses in to the trailhead is about 10 miles. Two trails of similar length should be provided if overnight accommodations are available nearby. Horse trails require careful design, layout, and construction techniques. The weight of the animal and rider in proportion to the size of the horse's hoof put a great deal of pressure on a small spot. Therefore, erodible soils, wetlands, stream banks, steep slopes and many other factors are all potentially limiting. There are techniques for overcoming these problems, but they are often costly. Proper layout and design to avoid sensitive areas will result in the best trail. In periods where wet weather has softened the trail tread too much to use without damage, temporary closures may be appropriate to protect the trail. Riders and land managers must have a close working relationship to ensure proper management and maintenance of horse trails.

Managing horse trails and facilities on public lands can create challenges for land managers. Conflicts between user groups often arise. Where trails are wide enough to have shared use by different user groups, conflicts can be lessened by ensuring that "share the trail" etiquette is taught and practiced by all users. Where conditions do not support multiple use, single-purpose trails should be developed. Not all trails can support equestrians, but where land conditions are adequate and a partnering riding club exists, horse trails should be provided on public lands.

Motorized trails

Thousands of Virginians head for the country each weekend to see the sights, camp, fish and enjoy nature. For many of these people, an off-road vehicle is an important part of their recreational experience. Four-wheel-drive utility vehicles, off-road motorcycles and dirt bikes, and four-wheeled all-terrain vehicles (ATVs) enhance the excitement of getting away from it all.

Four-wheel drive, high ground clearance utility vehicles have steadily grown in popularity over the last two decades. However, many are primarily family transportation, and off-road use is secondary. Dual sport motorcycles have similar use patterns to the high ground clearance utility vehicles as they are designed both for highway use and off-highway recreational riding. This dual on- /off-road use allows access to more than traditional trail areas while purely off-road vehicles (ORV) had to be transported separately to the riding area. On the other hand, dirt bikes and ATVs are almost entirely restricted to off-highway uses and are primarily recreational. These vehicles are referred to collectively as off-highway vehicles (OHVs). Planning for varied OHV trail use should reflect the different needs of each vehicle.

ATV sales and ridership continue to grow although not at as fast a pace as in the last planning cycle. These vehicles feature low pressure and high flotation tires, combined with a low profile, which makes them stable. When operated properly, the wide balloon tires impact the environment less than other ORVs.

While the demand for ORV trails is increasing, there are few suitable public ORV trails in Virginia. Consequently, people ride on private property, ORV club-leased or -owned land, some public forest trails or corporate timber lands, and occasionally on power

line right-of-ways, abandoned railroad corridors, old logging roads and beaches. Many of these places are not suitable because of trespassing laws, environmental impacts or the noise level of the vehicle. A history of improper riding by a few thoughtless people has given motorized trail users a bad name. However, the majority are responsible citizens concerned with the resources, and respect the property and privileges of others. The challenge to government, landowners, private industry and the users is to locate, acquire, and develop suitable ORV facilities. The most urgent need for ORV parks is in the more densely populated parts of the state. These parks would cater mainly to ORVs and should be carefully designed and constructed. Safety, challenge, diversity and scenery are all key design criteria when planning an ORV facility. Areas should be designated for different skill levels and types of vehicles.

In the more rural parts of the state, especially counties west of the Blue Ridge Mountains, opportunities for trail riding exist in national forests. The USDA Forest Service has a "closed unless designated open" policy concerning motorized trail use. The Forest Service classifies two major motorized trail types. The first include the extensive system of primitive roads with travelways larger than 50 inches wide that serve four-wheel-drive vehicles. These vehicles are mostly licensed and also can be used on hard-surface roads. The second type of motorized trail is an ORV trail primarily used by unlicensed off-highway cycles that are designed primarily for trail or cross-country use and have a tread 40–50 inches wide. There are 4 designated ORV trail systems on the George Washington and Jefferson National Forests. These trails are managed in partnership with an ORV trail club.

Dual-sport motorcycles designed for daily commuter riding are also excellent off-road. These motorcycles have made the trail systems far more accessible to riders seeking areas where ORV trails are linked by primitive roads such as in the national forests. The combination of greater mobility and larger rider population represent unique trail area design challenges. This type of motorcycle can benefit from trails typically used by the four-wheel-drive community.

Another component of the off-road vehicle trail user group is the four-wheel-drive vehicle. The traditional group, consisting of Jeeps and utility vehicles, has been expanded by the development of the oversized tire, high-suspension pickup trucks, dune buggies of various designs, and a number of other vehicles requiring a fairly wide trail resource. All national forest development roads are open unless designated closed to licensed vehicles and represents the primary trail resource available to these users.

Rural communities are beginning to recognize the economic development potential from establishing ORV trails on adjacent public or private lands. Other states have developed ORV trail systems as principle components of their tourist industry. Revenue producing trail systems offer excellent opportunities for improving the economic base of rural communities.

Thematic driving trails

Tourism development interests at the state and local level have long recognized the value of Virginia's historic landmarks for their attractiveness to tourists. In order to capitalize on the desire of tourists to visit these historic sites and the benefits of packaged tour plans, several thematic trails have been established. The Civil War Trails Guide is a very successful series that maps out a route for visitors who want to follow one or more of the campaigns. The Wilderness Road Trail follows Daniel Boone to Cumberland Gap and the settlement of the western parts of the state. The newest of these theme trails is the African American Heritage Trail. This trail will begin with the colonial history of Virginia and lead visitors across the state to explore the lives and accomplishments of key African Americans who lived in Virginia. The Department of Game and Inland Fisheries is providing leadership in the development of "birding and wildlife trails" throughout the state. The first of these trails, modeled after the popular birding trails in Texas, will be developed in the Chesapeake Bay region. Other regions of the state will follow. Each of these theme trails is being developed primarily as a driving tour. However, the same concept could be followed in the designation of parallel thematic bicycle trails.

Blueways

Virginia is blessed with hundreds of miles of high-quality recreational streams and rivers. Most of the streams that carry enough water to be useful during the prime recreational season are considered by law to be navigable. This designation makes them, for all intents and purposes, public thoroughfares. A significant limitation to

the public's use of these waterways is access. Where the lands along these waterways are privately owned, access is only afforded by land with the permission of the landowner. To address the access need, public agencies have acquired land along these waterways for public access purposes.

DCR, DGIF, various federal agencies, local governments and private commercial enterprises are developing a system of public access points along these navigable rivers and lake shores. Most include a parking area and a boat-launching ramp. In areas where motorboats are impractical, less-developed ramps are provided for canoe and light boat access. DGIF has developed 222 public boating access sites, 185 sites for power boating and 37 sites for nonpowered use. Fifty-four of these sites are barrier-free.

Mapping public access points along river corridors, lake shores and the Chesapeake Bay shore identifies opportunities for the establishment of water trails. Water trails are managed systems of access points and support facilities that allow trail users to plan multi-day trips with assurances that access points, camping sites, rest stops, and resupply sites are clearly identified on maps and on signs visible from the water. Many canoe liveries operating in Virginia rent canoes and kayaks and provide transportation to and from access points. Efforts are underway on several rivers and along the bay to develop water trails. The Potomac, Shenandoah, New, James, Pamunkey, Mattaponi, Rivanna and the North Landing rivers all have water trail planning efforts underway.

POTOMAC RIVER WATER TRAIL
CASE STUDY

The Potomac River Water Trail was a joint project of the Virginia Department of Conservation and Recreation and the Maryland Department of Natural Resources. The goal was to develop a user-friendly map of the tidal Potomac River from Washington, DC to the Chesapeake Bay. The success of this project was due not only to the rewarding partnership between the two states, but also to the support of other governmental and private sector entities critical to providing support facilities and services to trail users. The process used in completing this successful project is outlined below.

- State planners developed the initial format and criteria for the water trail map.
- Meetings were conducted with localities, chambers of commerce, and local interest groups to review the proposal and provide input.
- The theme "River of History" was selected for the trail map.
- A practical format for the map was devised. The river was divided into six strip map segments, each of which provided important information on safety, accommodations, services, and cultural and natural sites of interest.
- The importance of good stewardship and Leave-No-Trace ethics was stressed on each map.
- To assist map users, important landmarks were noted and GPS coordinates listed for key sites along the trail.
- Agreements were reached with localities along the trail to provide informational kiosks on support services and areas of interest.

Copies of the finished map package can be purchased from DCR. In addition, technical assistance in the development of water trails is also available. Contact DCR at (804) 786-5046.

Despite these efforts, there remains a significant shortage of access points to many good sections of streams. Many of the access points identified in canoeing guides are on private property or at bridge crossings with no authorized access or parking. A joint effort of resource agencies and blueway supporters needs to be initiated to identify locations of needed access points and public use areas along the suitable sections of the state's rivers. A source for funding acquisition and development of these areas is needed, as is a strong partnership between users, resource agencies, outfitters and local governments to operate, maintain and manage these water trails and the supporting land-based use areas. Further information on public access to Virginia's waterways can be found in Section II-C, pages 24, and regional maps in Chapter V.

Water trail guiding principles

North American Water Trails, Inc. (NAWT) is a coalition of organizations and individuals committed to opening recreational access to North America's wealth of waters. NAWT has developed a set of guiding principals for establishing effective water trails, which are outlined below. For more information on NAWT, go to their website at www.watertrails.org.

1) Partnerships: cooperating and sharing
A water trail is the product of partnerships among an array of governmental and nongovernmental entities. With volunteers as the key supporters and advocates of the trail, partnerships are developed among government land-managing agencies, private property owners, government regulatory agencies, user groups, and local businesses. Together, these groups can create and maintain a successful water trail with broad-based and long-term support.

2) Stewardship: "Leave No Trace"
Water trails promote minimum-impact practices that ensure a sustainable future for the waterways and adjacent lands. Water trails embrace the Leave No Trace Code of Outdoor Ethics that promotes the responsible use and enjoyment of the outdoors. A trail user who is educated to respect the quality of water, land, vegetation and wildlife habitat affected is a good caretaker. When users learn protection and restoration on the trail, they may be inclined to do likewise on the earth.

3) Volunteerism: experiencing the joy of involvement
Most water trails are created, promoted, and maintained through the energy and dedication of local citizens, working individually and through "friends" organizations. Community involvement and volunteerism are the keys to developing a sense of trail stewardship, promoting the trail within the community, encouraging respect for the trail's natural and cultural heritage and ensuring that local governments support the trail's existence. Through love of place and of good times, volunteers bring hard work and celebration to the water trail community.

4) Education: learning by experience
Through comprehensive trail guides, signage, public outreach and informative classes, water trail organizations encourage awareness of the natural, cultural, and historical attributes of the trail. Serving as outdoor classrooms, water trails teach through seeing, listening, touching and experiencing.

5) Conservation: protecting our natural heritage
Water trail activities support the conservation of the aquatic ecosystem and contiguous lands. Trail builders and activists are a respected constituency advocating for resource protection and participating in resource restoration. The water trail community is a watchdog for prevention of environmentally harmful acts, striving to sustain the natural integrity of the trail and preserving the quality of the trail experience.

6) Community vitality: connecting people and places
A water trail is a network of recreational and educational opportunities. Hiking trails, bikeways, greenways, museums, historic sites, parks and preserves are connected by water trails creating frontiers for exploration, discovery and enrichment. These connections build a sense of place and bind citizens in a love for their community. Water trails link families who grow together through work and play on the trail.

7) Diversity: providing opportunities for all Water trails are non-exclusive: They benefit the able-bodied and the disabled, the young and the old, the disadvantaged and the advantaged. Water trails welcome all those who want to respectfully enjoy and appreciate the trail experience. Through shared work and play, tolerance and understanding are fostered. Broad-based participation in trail activities is achieved through affirmative outreach and recruitment.

8) Wellness and well-being: caring for self and others
Water trails are wholesome; fresh air and exercise bring fitness and health to trail users. While actively promoting these benefits, water trail users need reliable and accurate safety information, and training to responsibly enjoy and appreciate water trails. Safe use requires a commitment to safe design and sound management. Awareness, education and skills training in health and safety promote the wellness and well-being of all water trail users.

Help for trails projects

The Department of Conservation and Recreation provides technical assistance to agencies and organizations interested in developing any of the different types of trails identified in this section. The Virginia Greenways and Trails Toolbox has been developed by DCR to assist trail proponents, planners and developers.

In addition to DCR's technical assistance, the Virginia Department of Transportation (VDOT) provides technical assistance in the development of pedestrian and bicycle accommodations and in planning the bicycle components of a community transportation plan.

The National Park Service's Rivers and Trails Conservation Assistance Program provides publications and technical assistance for blueway and trails projects.

Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219
(804) 371-6752 (Environmental Programs)
(804) 786-2264 (Enhancements)
www.vdot.state.va.us

National Park Service
U. S. Custom House
200 Chestnut Street, Fifth Floor
Philadelphia, PA 19106
(215) 597-7013
www.nps.gov

CHAPTER III-A-4

Scenic Highways and Virginia Byways

Driving for pleasure has long been recognized as one of the nation's most popular outdoor recreation pursuits. The *2000 Virginia Outdoors Survey* listed it as the second most popular outdoor recreation activity among Virginia residents, with more than 64% of the state population indicating that they participate. The Virginia General Assembly was cognizant of the importance of driving for pleasure when, in 1966, they passed the Scenic Highways and Virginia Byways Act authorizing the Commonwealth Transportation Board to recognize certain roads for their outstanding features. The scenic roads legislation required the Virginia Department of Conservation and Recreation to cooperate with the Department of Transportation in the designation process. According to the General Assembly's definition, a Scenic Highway is a road designed and built within a protected corridor. Virginia Byways are existing roads with significant aesthetic and cultural values, leading to or lying within an area of historical, natural, or recreational significance. Since Scenic Highway designations are limited to roads built in protected areas, Virginia Byways are the strongest element of Virginia's scenic roads program. The following discussions will address this program.

Findings

- In 1966, the Virginia General Assembly passed the Scenic Highways and Virginia Byways Act authorizing the Commonwealth Transportation Board to recognize certain roads for their outstanding features (*Code of Virginia* §33.1-62).
- A Scenic Highway is defined as a road designed and built within a protected corridor.
- Virginia Byways are existing roads with significant aesthetic and cultural values, leading to or lying within an area of historical, natural, or recreational significance.
- Driving for pleasure has been recognized as one of the nation's most popular outdoor recreation pursuits.
- The 2000 *Virginia Outdoors Survey* listed driving for pleasure as the second most popular outdoor recreation activity with 62.4% of Virginians participating.
- The first Virginia Byway was designated in 1974. Since then, more than 1,850 (as of January 2001) miles of roadway have been officially designated as Virginia Byways.
- The federal government administers 372 miles of parkways in Virginia, which meet the definition of a scenic highway.

Recommendations

- The National Park Service, VDOT, DCR, the Virginia Tourism Corporation and all affected local governments should work to get the federal parkways officially recognized as Virginia Scenic Highways.
- VDOT and the Virginia Tourism Corporation should seek opportunities to utilize the funds available through TEA-21 for additional promotion of the Scenic Highways and Virginia Byways, placement of information kiosks and other useful visitor aids.

- VDOT should establish a dedicated source of funding to maintain the scenic character of designated Scenic Byways.

- DCR and VDOT should assist local governments with the development of land-use planning tools (i.e., overlay zones) along scenic highways and byways to protect the attractive character of the scenic byways.

- VDOT and the Commonwealth Transportation Board should implement the recommendations of the 1995 report to the General Assembly on "Road Design Standards in Scenic and Historic Areas."

- Local governments and regional planning offices (PDCs), in cooperation with VDOT, Virginia Tourism Corporation, and DCR, should reevaluate the potential scenic roads in each region and develop recommendations for future additions to the Virginia Byways system.

- The 2000 *Virginia Outdoors Survey* identified driving for pleasure, visiting natural areas, and visiting historic sites as important outdoor recreational pursuits. The Virginia Tourism Corporation, DCR, VDOT and other partners should prepare a promotional document that recognizes all of the driving tours and consolidates them into a single brochure or booklet that outlines the various thematic trail opportunities, as well as identifies the state's scenic roads and serves to promote all the intriguing places that people can drive to in Virginia.

Narrative

When the Scenic Highways and Virginia Byways program was first considered, the Virginia Department of Transportation (VDOT) surveyed the more than 52,000 highway miles throughout the Commonwealth and developed an initial list of more than 1,600 miles of roads worthy of statewide recognition because of important visual qualities, historic interest and/or recreational opportunities. This list was adopted as the potential Virginia Byways system and has been periodically revised during the *Virginia Outdoors Plan* update process.

The first Virginia Byway was designated in 1974. Since then more than 1,850 miles of roadway have been officially designated. A variety of local land-use controls have conserved the scenic and historic

integrity of these roads while allowing compatible development. They include low-density residential zoning with frontage and setback requirements, agricultural or conservation zoning, outdoor advertising sign ordinances, special overlay ordinances, structural facade treatments and special landscape treatments. VDOT has occasionally provided additional assistance in the form of special plantings to screen undesirable views or otherwise beautify the roadside. In addition, waysides, scenic overlooks and pull-offs have been provided in some highly scenic areas.

The Commonwealth Transportation Board officially designates Virginia Byways and Scenic Highways, and VDOT has responsibility for managing the Virginia Byways program. DCR works with VDOT to identify and evaluate roads that qualify for designation. VDOT designed distinctive signs that are placed along officially designated byways. The designated roads are identified on the subsequent edition of the state highway map.

The four federal parkways that have been operated by the National Park Service since the mid-1930s were initially developed as a part of the federal government's effort to put people to work during the Great Depression. These unique roads were designed and built in protected corridors, and as such, fit the General Assembly's definition of Scenic Highways. The federal government administers 372 miles of parkways in Virginia. The National Park Service, in

cooperation with a number of partnering organizations, also promotes numerous driving loop tours through the many national battlefield sites.

Skyline Drive was constructed in conjunction with the acquisition and development of Shenandoah National Park. The park service also operates the Colonial National Historic Parkway connecting Jamestown Island, site of the first permanent English settlement, with historic Yorktown and Colonial Williamsburg. The George Washington Memorial Parkway in Northern Virginia provides visitors numerous opportunities to view the scenic and historic areas along the Potomac River, including Mount Vernon. The Blue Ridge Parkway traverses parts of the George Washington and Jefferson National Forests, but is operated by the National Park Service. Much of the corridor south of Roanoke does not have the protection of large tracts of forestland. Private developments are encroaching into the parkway's narrow linear corridor (200 feet on either side of the parkway). In 1995, the National Park Service, localities and private developers worked out a detailed plan to help protect the unique scenic areas traversed by the parkway, while permitting the orderly development of the lands in the viewshed.

In 1988, the Forest Service began recognizing scenic roads within its forests; some state roads as well as forest roads are identified as National Forest Scenic Byways. Since this program was initiated, three routes have been recognized in the George Washington and Jefferson National Forests. The program's purpose is to promote unique resources and explain forest management, identify forest recreational opportunities and interpret regional history.

Beginning in 1998, a number of new initiatives related to Virginia's scenic roads program were introduced. Carrying out the terms of the Transportation Equity Act for the Twenty-first Century (TEA-21), the Virginia Department of Transportation worked with a number of state agencies to produce and distribute a map that delineates the scenic and historic roads. This map, *Scenic Roads in Virginia*, has become a useful tool, helping to promote the natural, scenic and historic resources unique to the Commonwealth. TEA-21 also has provisions for funding scenic overlooks, information centers, and interpretive signs along designated byways. VDOT has a number of these facilities under design for placement at strategic locations along the byway network.

In response to a 1994 Senate Joint Resolution, VDOT's commissioner convened a committee composed of citizens and interested agencies to study the need to establish more flexible design standards in scenic and historic areas. DCR, the Virginia Outdoors Foundation, the state garden clubs and numerous other groups made presentations to the committee about the importance of scenic areas, easements and roadside beautification. Following the presentations, the committee began formulating recommendations for the consideration of the Commonwealth Transportation Board. The final report to the 1995 General Assembly was titled *Road Design Standards in Scenic and Historic Areas*. The report contains a number of recommendations that will benefit future design so those roadways are more in harmony with scenic and historic areas.

Many recommendations from previous *VOP*s were implemented as a result of hundreds of miles of Virginia Byways being designated by the Commonwealth Transportation Board in recent years. With the publication and distribution of *Scenic Roads in Virginia*, Virginia has moved from the "designation" mode to one of promoting and managing the significant scenic and historic resources along its highways and byways. Interest in designating certain routes as Virginia Byways is likely to continue. As qualifying roads are designated they will be included in future editions of Scenic Roads in Virginia.

As the *Scenic Roads in Virginia* map continues to gain popularity, there has been a demonstrated need to provide more detailed information about the recreation, scenic, historic and cultural resources that are available in given regions of the Commonwealth. There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state. VDOT, DCR, the Virginia Tourism Corporation, the planning districts and localities, in cooperation with the private sector, could develop a series of "Guides to the Back Roads of Virginia" that would provide a greater level of detail. Costs of production could be defrayed by offering advertising space to regional businesses and through corporate sponsorship.

CHAPTER III-A-5

The Private Sector

The private sector plays a major role in the provision of recreation opportunities, as well as in the management of the commonwealth's important open space and natural resources. This occurs as the result of individual, organizational and corporate action. The *Virginia Outdoors Plan* supports private investment in recreational endeavors and conservation, and encourages the provision of quality facilities and services.

Findings

- In Virginia and throughout the nation, land trusts and other private, nonprofit conservation organizations represent the fastest growing element of the land conservation movement today.

- Adequate funding for land conservation efforts is the top priority for private conservation organizations. A reliable source of public funding for open space and natural and cultural resource protection is essential to maximize opportunities for land conservation.

- In conducting public meetings for their Forest Legacy program, the Virginia Department of Forestry found that "over and above all other suggestions and concerns was the strong message that conservation easement organizations need to find a way to coordinate and collaborate their efforts."

- Private land trusts often share common goals and objectives with state natural resource management agencies and can be instrumental in helping public agencies implement recommendations set forth in this Virginia Outdoors Plan.

- There is a need for shared technical information and tools between public and private organizations to improve the technical capacity of private land trusts.

- There is an urgent need to educate landowners and the general public about private land conservation options.

- Public use of private lands and waters for fishing, hunting, hiking and other recreational pursuits is an important component of supply to meet recreation demand.

- Corporations provide recreation opportunity on their lands in partnership with public agencies.

- Tourism, history and recreation are important to the Virginia economy and produce the catalyst that brings millions of visitors to the commonwealth each year with the majority of support facilities provided by private enterprise.

- Nonprofit groups, individual, and historic preservation organizations contribute significantly to the preservation of the open space and natural resources that define the character of the commonwealth.

Recommendations

- Establish state-dedicated funding sources to support the activities of land trusts and other private conservation organizations.

- Develop a statewide conservation plan for coordinating private and public land protection efforts.

- State agencies should partner with private conservation organizations at the local, regional and state levels to coordinate planning for land protection, landowner education, and for sharing technical assistance, especially GIS capability.

- Use the Virginia Department of Conservation and Recreation's land conservation office as a clearinghouse for conservation information, programs and sources of assistance that can be used by landowners, conservation organizations, federal and state agencies and the general public.

- Strategies should be developed to implement increasing numbers of cooperative agreements between land holding entities and public recreation providers to make more private lands available for recreation.

- The Commonwealth should determine the quantity of private lands that are currently being made available for public recreation.

Narrative

Recreation services and opportunities: Private landowners will allow the public to use their lands and waters for fishing, hunting, hiking and other similar types of recreational pursuits. This has been confirmed by the Department of Game and Inland Fisheries' assistance to private landowners for the management of 12,000-15,000 acres of land for hunting, fishing and other wildlife recreation related activities. Also, the Virginia General Assembly passed legislation in 1988 authorizing DCR to establish long-term contracts to develop privately owned recreational facilities on department lands. This legislation will allow for increased public/private cooperation in the development of recreational opportunities in the Commonwealth.

Corporations also provide recreation opportunities on their lands. Many of the large paper companies like WESTVACO, Bear Island, International Paper, Georgia Pacific, Grelf Brothers and others provide access to their properties for hiking, hunting and nature study. Partnership agreements have been made with state agencies like the Department of Conservation and Recreation for the use of their properties. An example would be the memorandum of understanding for the use of the Smith Islands in the James River by canoeists, which is owned by WESTVACO.

Tourism, history and recreation are interrelated facets of the Virginia economy. Virginia's unique natural resources and abundant recreational opportunities coupled with the thousands of important historic structures and areas, both public and private, provide the catalyst that brings millions of visitors to the commonwealth each year. Private enterprise, however, provides most of the support facilities that serve, house and entertain visitors from across the state and around the world. Hundreds of millions of dollars have been invested in the development of golf courses, campgrounds, ski resorts and amusement parks. Fishing piers, marinas, charter fishing boats, beach resort accommodations and a myriad of other tourist attractions are major components of the state recreational delivery system.

Open space and natural resource management: Nonprofit groups and individual activities contribute much to the total effort of preserving natural and historic resources. Among such groups are The Nature Conservancy, National Audubon Society, Isaak Walton League of America, the Boy Scouts and Girl Scouts of America, service clubs and many others. Historic preservation organizations, such as the Colonial Williamsburg Foundation, the Association for the Preservation of Virginia Antiquities, and the

Civil War Trust also contribute significantly to the preservation of open space and natural resources that have public value and help to maintain the resources that define the character of the Commonwealth.

Since the enactment of the Conservation Easement Act in 1988, authorizing private, nonprofit organizations to hold conservation easements (easements in gross), a growing number of land trusts have been established. There are now more than 30 such private organizations operating in Virginia. In addition to national and statewide organizations such as The Nature Conservancy, Trust for Public Land, The Conservation Fund and the Land Trust of Virginia, there are several regional organizations, including the Piedmont Environmental Council, the Valley Conservation Council, the Western Virginia Land Trust and the James River Association. However, the majority of land trusts are locally based, focusing their land protection activities either on a specific resource, such as a watershed, or within a particular community.

The two hallmarks of private land trusts are: 1) the use of voluntary means of land protection and 2) direct involvement in land transactions at the local level. Because they are privately operated, land trusts can often respond more quickly than public agencies to take advantage of land saving opportunities; and because they are grounded in the local community, they frequently enjoy a high degree of trust and confidence among landowners and can therefore act as a conduit for dealings with state agencies.

The enabling legislation requires a land trust to be in operation in the commonwealth for five years before it can independently hold conservation easements. During this probationary period, and thereafter if they so choose, land trusts may collaborate with the Virginia Outdoors Foundation (VOF) and rely on VOF to hold their easements. Under the Open Space Lands Act, VOF holds some additional powers for protecting lands under easement against violations.

The Virginia United Land Trusts (VaULT) was formed in November 2000 as an umbrella organization to coordinate private land protection efforts in Virginia, and to increase the capacity of the individual land trusts to operate effectively. A conference co-sponsored by VaULT and the Virginia Department of Forestry (DOF) in June 2001 made a significant contribution to coordination and collaboration between public and private land conservation organizations. Attended by more than 100 representatives of private and public sector land conservation organizations, the conference set an agenda for "Visioning the Future of Land Conservation in Virginia," supporting many of the recommendations found in the beginning of this chapter.

It has been determined that adequate funding is the crucial factor of land conservation throughout the Commonwealth. A minimum of $40 million is needed annually to fund private land trusts, local governments and parks and recreation departments, statewide land conservation organizations (public and private) and for state resource protection agencies. DCR has developed a memorandum of understanding with VaULT. One component of the agreement is the commitment by the department to "assist VaULT in the development of a land trust conservation plan that will be used to enhance components of the 2006 *Virginia Outdoors Plan*." The land trust conservation plan, when integrated into the *Virginia Outdoors Plan*, should provide policy guidance for land trust standards and practices, and, in cooperation with state agencies, establish statewide and regional priorities for land conservation and facilitate development of funding. Partnerships between public agencies and private land trusts can significantly increase the effectiveness of open space protection and natural resource management throughout the Commonwealth. The clearinghouse should provide user-friendly, accurate and consistent information on voluntary land conservation options, location and contacts for all land trusts in the state, funding sources, etc.

The conservancy organizations can and do hold open space easements on properties with important scenic, natural, historic and recreational values. The Virginia Outdoors Foundation holds the most easements. They are in 68 jurisdictions across the state and protect more than 187,621 acres of important resource lands.

The private activities described above are critical to the provision of recreation opportunities and protection of open space resources necessary to meet the demands and expectations of Virginians for recreation and protection of the natural, scenic and historic resource base.

National Parks

The mission of the US Department of the Interior's National Park Service is *to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for future generations*. Virginia's National Parks offer the full range of natural, cultural and historic opportunities.

Findings

- The National Park Service provides 300,000 acres of recreational, cultural and natural resource land in Virginia.
- Shenandoah National Park and the Skyline Drive attract more than over 1.3 million visitors annually from all over America.
- The National Park Service has no authority to control activities on adjacent lands or within the viewshed of the Blue Ridge Parkway. The continued scenic quality of the parkway is dependent on compatible land-use planning and zoning by the localities through which it passes. More than 10 million visitors travel portions of the parkway in Virginia each year.
- The National Park Service administers many historic and cultural sites in Virginia, including battlefields, historic properties, commemorative sites and museums. Visitation to these sites exceeds 14 million per year.
- Prince William Forest Park, at 17,402 acres is the largest natural area in Northern Virginia, and protects most of the Quantico Creek watershed, as well as cultural resources relating to the Civilian Conservation Corps (CCC) and the Office of Strategic Services (OSS).

- Assateague Island National Seashore is enjoyed by more than 1.9 million visitors each year.

- The Civil War Battlefields in the Shenandoah Valley are losing their integrity and setting to changes in land use and new developments.

Recommendations

The National Park Service (NPS) should:

- Consider completion of the acquisition of the Appalachian Trail corridor and assist in establishing a commitment to compatible land-use planning in localities through which the trail passes.

- Complete the planning and construction of recreation areas identified in the Blue Ridge Parkway General Management Plan (GMP).

- Implement the 2000 General Management Plan for Booker T. Washington National Monument, especially the acquisition of additional acreage to preserve the agricultural and scenic landscape vital to the preservation and interpretation of the site.

- Assist adjacent landowners, localities and planning district commissions that are interested in developing an overlay zone adjacent to and within the viewshed of the Blue Ridge Parkway as part of a multi-regional parkway viewshed planning process.

- Revise and implement the General Management Plan for Appomattox Court House National Historic Park.

- Complete the upgrade of facilities in all NPS areas within the state.

- Work with trail clubs on the construction of additional loop trails and publish maps and descriptions of each trail within each of the National Park Service units.

- Work closely with private property owners, state and local land-use planning agencies and organizations to ensure that development adjacent to all national parks in Virginia is compatible with the public's desires to protect sensitive resources and maintain appropriate access.

- Continue to work with appropriate agencies and businesses to improve air quality in Virginia.

- Continue to work to implement the Colonial Parkway Master Plan and cooperate with state and local efforts for trail activities in the Colonial National Historic Park.

- Study the possibility of establishing Heritage Partnership Program areas in Virginia.

- Seek opportunities to enhance water access to and from National Park Service lands. This is especially important where National Park properties lie along water trails where visitation from the water is not currently available.

- Solicit offers from private investors as a way to complete the development and operation of recreational areas and hospitality facilities proposed in the General Management Plan for parks in Virginia.

- Change the name of Prince William Forest Park to reflect its unique history and its affiliation with the National Park Service.

- Continue cooperative efforts to define a corridor for the Potomac Heritage Trail.

- Complete implementation of the Shenandoah Valley Civil War Battlefields Protection Plan.

Narrative

The National Park Service administers 18 parks in Virginia with a combined acreage of almost 300,000 acres. Although the majority of sites are historic, the greatest percentage of this acreage is natural and recreational areas, including Shenandoah National Park, the Blue Ridge Parkway, Prince William Forest Park and the Assateague Island National Seashore. In 1976, more than 70,000 acres of the 195,000-acre Shenandoah National Park became components of the National Wilderness Preservation System, to be managed according to the Wilderness Act of 1964. Prince William Forest Park comprises 17,400 acres and is the third largest national park in Virginia, and the largest national park in the entire Washington, DC metropolitan area. The state's abundant colonial and Civil War heritage is the focus of many of the national parks in Virginia; these units conserve and interpret the state's rich cultural resources. Prince William Forest Park, for example, has four historic dis-

tricts and more than 150 historic buildings on the National Register of Historic Places, reflecting the Civilian Conservation Corps era. National Park Service areas in Virginia are depicted on Map 3 on page 107.

National parks are dealing with the same issues other parks and public lands face. A major concern for Shenandoah National Park and the Blue Ridge Parkway has been air quality. Increased haze in the air during most of the primary recreation season has severely reduced the distance visitors can see from overlooks on Skyline Drive and on the parkway. Also, acid rain appears to be impacting the vegetation and the pH of streams within the parks. The park staff is monitoring air quality and has been encouraging management of new emissions and cleanup of existing sources of air pollution in the region.

Private lands within the authorized boundary of Prince William Forest Park are under increasing threat of development. Federal, state and local government should work together to protect the park from incompatible development within the authorized boundary and to purchase lands from willing sellers in order to add them to the park. Among the protection tools available are inclusion of the park and its authorized boundary within the county comprehensive plan, development of a sector plan for the area surrounding the park, and continued protection of the park and its environs as a part of the rural crescent. Opportunities to connect Prince William Forest Park to Leesylvania State Park by trail should be pursued vigorously while undisturbed lands are still available for such a connection.

The Blue Ridge Parkway is one of the nation's premier scenic roads, drawing visitors from across the country and around the world. The character of the parkway is changing from the natural and pastoral experience it once was. In some cases, overlooks that viewed farmsteads and forests now reveal views of factories and suburban sprawl. This is particularly noticeable in the Roanoke area where changes in land use have the greatest impact on the narrow parkway corridor. Subdivisions are being developed on adjacent lands, placing closely spaced houses within a few hundred feet of the parkway. This increasing encroachment will impact the quality of visitors' recreational experiences. Localities that benefit from the presence of the parkway should be particularly thorough when developing comprehensive plans and zoning ordinances so the parkway's intrinsic values are protected and views continue to provide a natural and pastoral experience.

Assateague Island National Seashore will continue to feel the effects of increasing demand for beach use, sunbathing, and swimming. The feasibility of a transit system to enable more visitors to access these beaches without increasing impacts to the areas behind the dunes for more parking should be explored. Chincoteague National Wildlife Refuge should encourage public use of areas of the beaches of the national seashore.

A unique unit of the National Park System in Virginia is the Appalachian National Scenic Trail. More than 540 miles of the Appalachian Trail traverse Virginia, providing access to some of the state's most spectacular views and most remote terrain. Acquisition of the trail corridor is nearing completion as the optimum location for each segment is finalized. Changing land-use patterns and new development impact the trail experience on some segments of the trail. Efforts are being made to relocate the trail corridor to less developed areas where possible.

The National Park Service conducted a study of the Civil War sites in the Shenandoah Valley pursuant to *Public Law* 101-628, and a report was published in 1995. This study identified 15 major battlefields that were involved in the most significant fighting that took place in the Valley. Since publication of the report, a Shenandoah Valley Battlefields Commission was appointed to develop a management plan for the district. The Final Management Plan for the Shenandoah Valley Battlefields Historic District was

published in September 2000. The plan recommends the formation of a Shenandoah Valley Battlefields Foundation to coordinate the implementation of the many elements of the plan and calls for the creation of a new unit of the national park system at Cedar Creek. The battlefields are grouped geographically into five clusters or management units. The foundation will work cooperatively with citizens, local governments, and businesses within each cluster to foster stewardship, encourage appreciation and understanding, and to encourage activities that will lead to protection of battlefield elements. A Civil War orientation and visitor center will be developed in each of the five management units.

The 2000 *Virginia Outdoors Survey* indicates a continued increase in the demand for activities such as picnicking, walking for pleasure, bicycling, boating, swimming, nature interpretation, visiting historic sites, and other day-use activities provided at many of Virginia's National Park Service facilities. National Park Service planners should be aware of this increased demand and consider adding picnicking facilities and trail loops for walking and bicycling at those parks close to large population areas. Many national park lands in Virginia are located on major recreational water bodies. Opportunities to enhance access to these waters should be pursued in the development of plans and facilities on these units.

In addition to managing national park units in Virginia, the National Park Service offers a variety of technical assistance and grants programs. Many Virginia communities have benefited from technical assistance received from the River and Trails Conservation Assistance Program. Grants from the Land and Water Conservation Fund, provided through NPS, and administered by DCR have provided funding assistance for many of the parks that have been developed in Virginia. The Chesapeake Bay Gateways Program provides funding assistance for water trails in the bay watershed. The Maryland Coastal Bays program should be expanded to become the Maryland/Virginia Coastal Bays program to provide similar assistance to the Virginia portion of Chincoteague Bay. Jamestown and Yorktown have each been recently designated as Chesapeake Gateway sites and will be the focus, along with Colonial National Historic Park/Parkway, of the recognition of the 400th anniversary of settlement of Jamestown in 2007. Also, the National Park Service administers the National Wild and Scenic Rivers Program and the National Trails Program, and provides guidance on managing these important systems.

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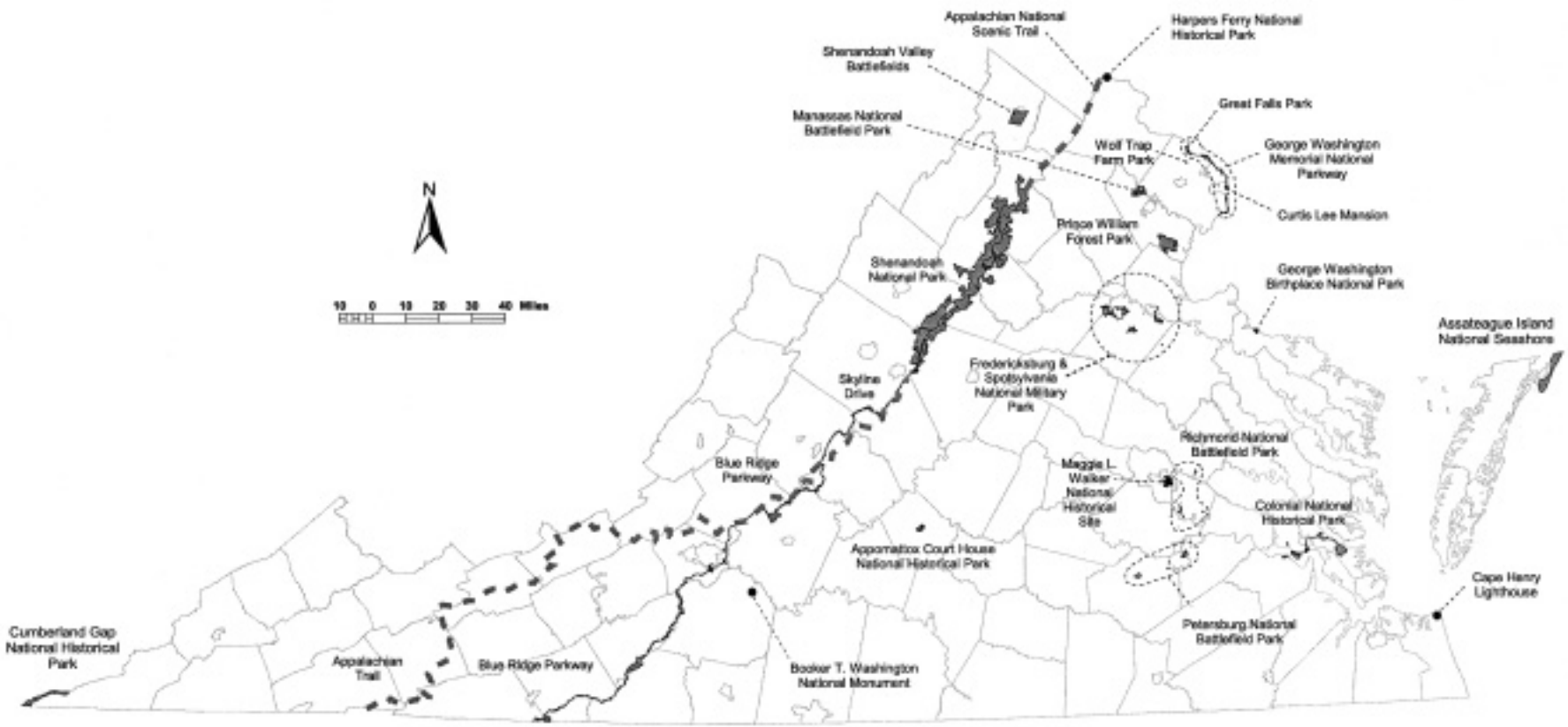
National Parks



CHAPTER III-B-1-b

National Forests

The United States Department of Agriculture (U.S.D.A.) Forest Service is the largest federal supplier of outdoor recreation in the nation. In 1999, the national forests in Virginia provided more than 5.7 million visitor days of use (one visitor day is a 12-hour period). The Forest Service has a strong commitment to meeting the recreation needs of forest users and they have intensified their management of outdoor recreational areas in an effort to increase the carrying capacity while protecting the resource. A focal point for outdoor recreation, the national forest lands are vital to satisfying the increasing demand for dispersed natural resource-based recreation opportunities.

Findings

- George Washington National Forest and Jefferson National Forests have been merged for administrative purposes. The headquarters for the George Washington and Jefferson National Forests is in Roanoke.

- The national forests are managed for multiple uses and sustained yield. This means that all approved uses will be accommodated to the capacity of the land to support these uses without degradation.

- Virginia's national forests provided 5.7 million visitor days of recreation in 2000.

- The 1.7 million-acre national forests are the primary provider of dispersed recreation opportunity in Virginia.

- The 17 designated wilderness areas in the George Washington-Jefferson National Forests provide the majority of wilderness opportunities in the state.

- The national forest provides the only publicly managed motorized trails in Virginia. The ATV trails are managed cooperatively by partner organizations.

- The George Washington-Jefferson National Forests provides comprehensive equestrian trail systems with campgrounds, a range of trail types and lengths and support facilities for horse riders.

Recommendations

The U. S. D. A. Forest Service should:

- Continue to develop new partnerships to market recreational opportunities and rural economic development through tourism; work with the Department of Conservation and Recreation, Virginia's Blue Ridge Travel Association, Shenandoah Valley Tourism Association, and the Virginia Tourism Corporation to develop regional and international marketing strategies to showcase Virginia's outdoor recreation opportunities.

- Outline the role of the National Forests as providers of recreation opportunities and encourage the agency to emphasize the economic benefits of such use to the communities dependent on tourism and outdoor activity generated revenue.

- Continue to place program emphasis on congressionally designated areas such as the Appalachian National Scenic Trail, Mount Rogers National Recreation Area, Mount Pleasant Scenic Area and wilderness areas.

- Update the Mount Rogers National Recreation Area Plan that was developed in 1980 and is now outdated. This will occur be updated as part of the Jefferson National Forest Land and Resource Management Plan revision now underway.

- Increase the development of and accessibility to four-wheel-drive off-road vehicle (ORV) trails in Virginia's national forests in a manner that is not detrimental to water quality or wildlife habitat; devise a partnership between public and private ORV constituents and the Forest Service in order to distribute the burden of trail building and maintenance responsibilities evenly among trail users and the managing agency.

- Identify opportunities to exchange land, which would consolidate public ownership and enhance access to the land and water resources within national forest boundaries.

- Study the potential for National Forest Scenic Byways to become part of the Virginia Byways system. The Forest Service should work cooperatively with local communities, the Virginia Departments of Transportation, Historic Resources and Conservation and Recreation to develop Virginia Byways that have historic, cultural, scenic and recreational themes.

- Continue to initiate partnerships to enhance the Heritage Program by preservation of historic and cultural sites; interpretation of cultural, historic and natural resources; and exchanging cultural resource information with the state historic preservation officer.

- Continue to plan for and develop outdoor recreational facilities that meet the needs identified in the *2002 Virginia Outdoors Plan*.

- Facilitate the activities of guide services and outfitters who provide equipment and access to the backcountry areas of national forests for persons who lack the gear, time or skills to access these areas on their own.

Narrative

The USDA's Forest Service administers the 1.7 million-acre George Washington and Jefferson National Forests in Virginia. This national forest constitutes nearly 50 percent of the public outdoor recreation land in the Commonwealth. The forest stretches the length of the western portion of the state and has acreage in 31 western counties. Virginia's national forests provide a magnificent variety of outdoor recreation settings, experiences, and levels of development.

National forests differ from national parks and other federal lands in their management concept. The multiple-use sustained yield concept ensures the continued provision of forage, recreation, timber, water, wilderness and wildlife resources needed by this and future generations. The recreation management objective of the Forest Service is to enhance public use and

enjoyment of its land. National forest wilderness areas provide unique primitive recreation experiences. Congressionally designated, these areas optimize the natural processes of the ecosystem with generally minimal human activity. There are 13 designated wilderness areas in Virginia's national forests. More than 23 other areas have been inventoried as having potential for designation as wilderness areas or as additions to existing designated wilderness areas. The national forest is the largest supplier of primitive, backcountry recreational opportunities in Virginia. The designated wilderness areas ensure that these opportunities will be available for future generations.

The Mount Rogers National Recreation Area (NRA) in Southwestern Virginia is a major recreational destination. The New River Recreation Area, a new facility under construction adjacent to the New River in Carroll County, contains a campground and picnic area that complements the New River Trail State Park. When completed, this facility will allow visitors direct access to the state park and to the river for hiking, bicycling, walking, fishing, tubing and boating. This facility also anchors the eastern end of the Virginia Highlands Horse Trail.

Horseback riding in Mount Rogers' crest zone is rapidly out-pacing the carrying capacity of the trails and the fragile alpine ecosystem. The Forest Service has conducted a "Limits of Acceptable Change" analysis of the crest zone to determine the best combination of management actions to accommodate appropriate levels of recreational use and to protect the resource. Some actions that have been undertaken to provide alternatives to trail riding in the crest zone are the extension of the Virginia Highlands Horse Trail to the New River Trail State Park and the ongoing development of the East End Horse Trail complex that contains several campsites and staging areas.

Mount Rogers NRA has the potential to be an even greater recreation magnet for the eastern United States. Unfortunately, because of limited funding it has never achieved its potential as envisioned by the enabling legislation. The revised plan will address the future of the NRA given changes in demographics, recreation activities, participation rates, and allocation of the NRA's special biological areas, sensitive crest zone, wilderness areas and public attitudes.

National Wildlife Refuges and Fish Hatcheries

The U.S. Fish and Wildlife Service (USFWS) manages 15 national wildlife refuges and one national fish hatchery in Virginia that comprise more than 158,500 acres. The refuges are managed primarily to provide habitat and to protect valuable ecosystems. They also provide significant outdoor recreational opportunities. For administrative purposes, some of the refuges are grouped together into complexes with one project leader managing two or more refuges. The following discussion provides additional information about role of the U.S. Fish and Wildlife Service in meeting Virginia's outdoor recreation and open-space needs. For the purposes of this document, the findings below apply to the 15 national wildlife refuges in Virginia and the Harrison Lake Fish Hatchery.

Findings

- The National Wildlife Refuge System Improvement Act of 1997 provides new guidance for management and public use of the refuge system.

- A key provision of the act defines compatible wildlife-dependent recreation as a legitimate general public use of the system, and establishes the following six activities as priority public uses: hunting, fishing, wildlife observation, photography, environmental education and interpretation.

- The act also requires each refuge in the system to prepare a comprehensive conservation plan within 15 years.

- The refuge system helps to fulfill the following conservation objectives:
  - to preserve, restore and enhance the natural ecosystem of all species of animals and plants, including endangered or threatened species;
  - to perpetuate migratory bird resources;

- to preserve the natural diversity of plants and animals;
- to provide an understanding of wildlife ecology while offering refuge visitors safe, wholesome and enjoyable recreational experiences.

Recommendations

- The Harrison Lake National Fish Hatchery should remain in operation and sufficient funding be provided in order to maintain its important function in restoring anadromous fish to the bay and its rivers, and to continue to contribute to the provision of public recreational opportunities.

- Continue maintenance of the agreement allowing access through Back Bay National Wildlife Refuge to False Cape State Park that accommodates the wildlife resources of the refuge and park visitors.

- Continue to explore opportunities for partnership between the U.S. Fish and Wildlife Service and others to provide compatible recreational and environmental education for the citizens of Virginia.

- Continue to explore opportunities to acquire additional sites along the Potomac River to help protect eagle habitat and other heritage resources.

- The proposed expansion of Plum Tree Island should be evaluated to possibly include public access to Back River and Lloyd Bay for fishing and wildlife observation.

- The westward expansion of Back Bay National Wildlife Refuge should include provisions for canoeing/kayaking and bank fishing, perhaps through renovation of the former boat ramps through partnerships with the Commonwealth and the City of Virginia Beach.

- High priority should be given to the relocation of the visitor center to the western side of Back Bay to improve accessibility to the refuge for environmental education.

- The *2002 Virginia Outdoors Plan* encourages the continued provision of wildlife-dependent recreational opportunities at refuges in Virginia. There are a number of significant areas where the U.S. Fish and Wildlife Service can increase the availability of its resources for compatible recreational uses.

- The USFWS should continue to work closely with National Park Service and private partners to optimize compatible recreational opportunities at Chincoteague National Wildlife Refuge and Assateague Island National Seashore while protecting sensitive beach habitat.

Narrative

The National Wildlife Refuge System Improvement Act, signed into law October 9, 1997, provides new guidance for the management and establishment of a national network of lands and waters deemed appropriate for conservation, and designed to encourage public access to the refuge system. As defined by the act, the mission of the refuge system is to a*dminister a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans*.

A key provision of the act defines compatible wildlife-dependent recreation as a legitimate general public use of the refuge system, and establishes the following six activities as priority uses: hunting, fishing, wildlife observation, photography, environmental education and interpretation. The act establishes a formal process for determining compatible public use and retains refuge managers' authority to use sound professional judgment in determining whether or not that use will be permitted.

The act also requires each refuge in the system to prepare a comprehensive conservation plan within 15 years after passage of the bill and to allow for active public participation during the preparation and revision of the plan.

In general, the refuge system helps to fulfill the following conservation objectives: 1) to preserve, restore and enhance the natural ecosystem of all species of animals and plants, including endangered or threatened species; 2) to perpetuate migratory bird resources; 3) to preserve the natural diversity of plants and animals; and 4) to provide an understanding of wildlife ecology while offering refuge visitors safe, wholesome and enjoyable recreational experiences. Planning for priority public uses should be based on the capacity of an area to provide a quality experience, not its ability to accommodate quantity.

Great Dismal Swamp and Nansemond National Wildlife Refuges

The Great Dismal Swamp National Wildlife Refuge was established in 1973 when the Union Camp Corporation donated approximately 50,000 acres to The Nature Conservancy. Today, the refuge is 109,000 acres in southeastern Virginia and northeastern North Carolina (84,000 in the cities of Chesapeake and Suffolk). The refuge's mission is to restore and maintain the natural biodiversity that existed prior to the last two centuries.

The refuge's water resources are vital to the native wildlife and varied plant communities of a swamp ecosystem. Water is conserved and managed by placing water control structures in the network of ditches and canals that were associated with earlier attempts to drain the swamp. Wildlife is managed by ensuring proper habitat types. Limited public hunting is used to balance some wildlife populations. Visitors to the refuge may participate in numerous recreational activities, including hiking, biking, photography, fishing, and boating. Resources include more than 80 miles of trails for hiking. The Washington Ditch Road is suitable for biking. A boat ramp is provided on the Dismal Swamp Canal, however boaters must portage around the water retention structure that controls the water level in Lake Drummond. Funds were appropriated in FY-2001 to begin the update of the Public Use Development Plan for the Great Dismal Swamp National Wildlife Refuge that was published in 1979.

The Nansemond National Wildlife Refuge, a satellite facility of the Great Dismal Swamp Refuge, is approximately 423 acres of marshland transferred from the U. S. Navy through the surplus property program.

Back Bay and Plum Tree Island National Wildlife Refuges

In 1989, the USF WS received approval to expand the Back Bay National Wildlife Refuge to the north and west of Sandbridge and along the western shore of Back Bay. When complete, the 6,340-acre expansion will provide additional protection for the marshes and fastlands surrounding Back Bay and help to initiate the recovery of this important resource. This refuge has an extensive environmental education program that promotes an appreciation for the resource and provides some appropriate public use of these federal lands. In 1999, 5,821 school children participated in outdoor classroom activities at the refuge. After acquiring the lands from willing sellers, the USF WS will evaluate the suitability of these areas for incorporating compatible recreational opportunities. Among the facilities under consideration are water-access points, fishing areas, wildlife observation decks, trails and environmental education centers.

A key issue concerning Back Bay National Wildlife Refuge is the matter of access to False Cape State Park through the refuge. It is extremely important that the agreement be maintained which allows access to False Cape State Park to accommodate park visitors and the wildlife resources of the refuge. The final Memorandum of Understanding relating to park access was finalized in the fall of 1996. Continued monitoring of that access will allow for enhanced educational and recreational opportunities at one of Virginia's most unique parks.

Managed from Back Bay National Wildlife Refuge, Plum Tree Island in Poquoson is an extensive marsh system of more than 3,275 acres. The island was an old Air Force bombing range, which, because of potential hazards is not available for public use. However, the USFWS has approved an expansion. By acquiring marsh systems to the west of Plum Tree Island, it will be possible to afford additional protection for critical habitat and provide opportunities for controlled public hunting and wildlife observation.

Mackay Island National Wildlife Refuge

Mackay Island NWR is located on the north side of Currituck Sound, straddling the Virginia-North Carolina border. The refuge was established to provide wintering habitat for greater snow geese and other waterfowl, and now totals 8,024 acres. Of this, 824 acres are in Virginia. Recreational opportunities include wildlife observation, wildlife photography, deer hunting and fishing.

Chincoteague National Wildlife Refuge

Chincoteague National Wildlife Refuge is one of the most-loved refuges in the entire country. More than 1.4 million people flock there each year to bird watch, photograph wildlife, walk or hike along a wild beach, utilize the 14-mile accessible trail system or participate in interpretive and educational programs. More than 320 species of birds occur on the refuge, which is also home to several threatened and endangered species.

Featuring more than 14,000 acres of beach, maritime forest, and freshwater and saltwater wetlands, Chincoteague Refuge is managed for migratory birds, native plants and animals, threatened and endangered species. Chincoteague also provides the public with unprecedented opportunities to enjoy wildlife-dependent recreation opportunities including hunting and fishing. A new educational and interpretive facility is scheduled to be completed by 2003 featuring exhibits, an auditorium and a classroom. The USFWS should continue to pursue funding sources to complete the facility as planned.

Eastern Shore of Virginia and Fisherman Island National Wildlife Refuges

Eastern Shore of Virginia National Wildlife Refuge was established in 1984 when the U.S. Fish and Wildlife Service obtained the old Cape Charles Air Force Base. This 752-acre refuge is located at the southern tip of the Delmarva Peninsula and is a hemispherically important stopover area for migrating neo-tropical bird species. The USFWS, with its partners (the Commonwealth, local governments and the private sector) are identifying critical areas for habitat conservation in Northampton County.

The refuge has a state-of-the-art visitor center, interpretive trails that include an historic coastal artillery site, wildlife observation areas and a photography blind. There is big game hunting for deer during the Virginia archery and gun seasons. The refuge has an extensive environmental education program and participates in a number of local festivals including the Eastern Shore Birding Festival. It has been identified as an anchor site in the *Birdwatcher's Guide to Delmarva*, and is a proposed site for the Virginia Coastal Birding Trail.

Fisherman Island National Wildlife Refuge was established in 1969 and has been managed by the Eastern Shore of Virginia National Refuge since 1984. This 1,800-acre refuge is a stopover area for neo-tropical bird species during the spring and fall migrations, and is a major nesting site for royal terns and brown pelicans. The refuge is closed to the public due to the sensitive habitat, but guided tours are conducted during the non-nesting season.

Eastern Shore of Virginia and Fisherman Island refuges began development of their Comprehensive Conservation Plan in 2000, in accordance with the 1997 Refuge Improvement Act. Public involvement has occurred throughout the process. The plan should contain recommendations for enhanced, wildlife-dependent, public recreational and educational opportunities.

Eastern Virginia Rivers National Wildlife Refuge Complex

In September 2000, James River, Presquile and Rappahannock River Valley national wildlife refuges were administratively consolidated as the Eastern Virginia Rivers National Wildlife Refuge Complex. The headquarters for the complex is located in Warsaw, Virginia. A comprehensive conservation plan for the complex is scheduled to begin in 2003 or 2004.

Presquile NWR is a 1,329-acre island in the James River, in the northeast corner of Chesterfield County. Historically, a USFWS-operated ferry to Presquile Island in Chesterfield County provided access for pre-scheduled groups to view wildlife, enjoy the 0.75-mile interpretive trail, and participate in a limited deer-hunting program. In 2001, concern for visitor safety prompted a thorough review of ferry operations by the USFWS and the U.S. Coast Guard. Until safety concerns are resolved, the ferry will be unavailable for public transportation.

James River NWR, established in 1991, currently consists of approximately 4,300 acres of primarily forested habitat in Prince George County. The refuge and surrounding area supports the largest summer juvenile bald eagle concentrations in the east. Visitor and education facilities that were proposed in a 1991 station management plan will be re-evaluated during the comprehensive conservation plan process. The refuge is currently open for limited deer hunting during the shotgun season.

Rappahannock River Valley NWR was established in 1996 along a 50-mile stretch of the lower portion of the river, and includes parts of seven riverfront counties. The refuge currently contains nearly 5,000 acres with a protection target of 20,000 acres. Refuge wetlands and associated uplands provide critical habitat to a variety of plants, migratory birds, fish and other wildlife, including the threatened bald eagle and sensitive joint vetch. In concert with establishing habitat and wildlife inventories, refuge staff are identifying potential public use sites to accommodate the priority

public uses of the refuge system. Currently, all public use of the refuge is scheduled in advance by contacting the refuge manager.

Potomac River National Wildlife Refuge Complex
Potomac River NWR Complex includes the Mason Neck NWR, Occoquan Bay NWR and Featherstone NWR. The three refuges comprise 3,247 acres located near the confluence of the Occoquan and Potomac rivers, 20 miles south of Washington, D.C.

Mason Neck NWR is located in Fairfax County and consists of 2,277 acres of mature oak-hickory forest, freshwater marshes, and almost 4.5 miles of shoreline. Mason Neck was established in 1969 as the first federal refuge specifically for the protection of nesting, feeding and roosting habitat for the bald eagle. Seven bald eagle nests occur on or near the refuge, which has a wintering population of 60 eagles. One of the largest great blue heron rookeries in the Mid-Atlantic area (1,600+ nests) is located on the refuge. The refuge has more than 4 miles of hiking trails, and in cooperation with the adjacent Mason Neck State Park, has a managed deer hunt each fall.

Occoquan Bay NWR was established in 1998 through the transfer of the Army's Woodbridge Research Facility to the FWS. Occoquan Bay NWR consists of 644 acres of native grassland, forest, and tidally influenced marsh and wetlands. The unique variety and location of habitats on this relatively small refuge provides outstanding birding opportunities. The bird species list exceeds 220. Refuge management focuses on grasslands and grassland nesting birds. Future plans include an auto tour loop, more than six miles of walking trails, and an office/visitor center complex.

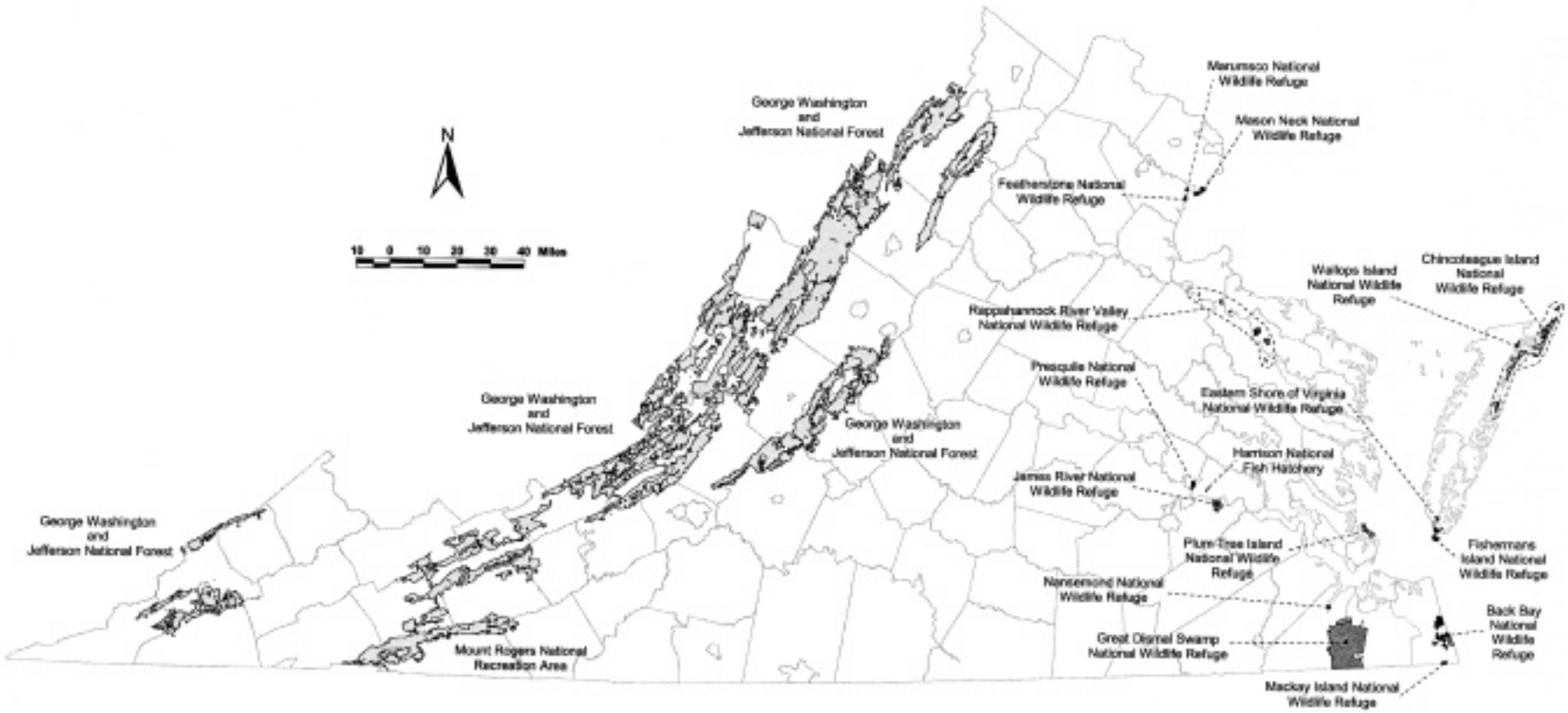
The USFWS has been seeking funding for the purchase of additional land along the middle section of the Potomac River to protect critical habitat for several natural heritage resources. This land in eastern Stafford County also provides additional nesting sites for the bald eagle.

The staff of the refuge complex also manages the 325-acre Featherstone NWR. Located near the confluence of Neabsco Creek and the Potomac River, this refuge currently has no public access.

Harrison Lake National Fish Hatchery
In 1992, the USF&WS entered into an agreement with Charles City County, the Department of Conservation and Recreation and other state agencies to explore providing additional opportunities for recreational and environmental education at the Harrison Lake National Fish Hatchery. As part of the challenge grant, the USFWS permitted construction of barrier free recreational fishing and picnic areas. This construction included two fishing piers, a boat dock, accessible asphalt paths and parking area and six picnic tables, two of which are handicapped accessible. In addition, a watchable wildlife area has been established, and a nature trail extension was made. These projects, most of which were cost-shared by state and local agencies, were found to be compatible with the mission of the hatchery and resulted in only minor environmental disturbance. Plans for additional facilities are dependent on funding, compatibility with the mission of USFWS and Harrison Lake National Fish Hatchery and environmental considerations. Any additional facilities constructed will be accessible in accordance with the Americans with Disabilities Act (ADA).

For a geographic representation of Virginia's Wildlife Refuges, see map 4 on page 116.

National Forests and Wildlife Refuges



CHAPTER III-B-2-a

State Parks

Introduction

The Virginia Department of Conservation and Recreation's state park system was authorized in 1926 by an act of the General Assembly which provided for the acquisition, preservation, development and maintenance of areas, properties, lands or estates of scenic beauty, recreational utility, historical interest, remarkable phenomena or other unusual features. To date, the state park system manages more than 61,000 acres and has grown in size to 34 state parks, historic sites, and natural areas. Many existing sites have expanded in acreage and several natural areas have received natural area preserve designation. Attendance at Virginia's state parks in 2000 exceeded 6.3 million as compared to 91,000 in 1936 and 5.9 million in 1999. The following discussions detail the state parks system's role in meeting the Commonwealth's demand for outdoor recreation opportunities and open space.

Findings

- The Virginia Department of Conservation and Recreation's state park system was awarded the 2001 National Gold Medal for excellence in the field of park and recreation administration and management, presented by the Sports Foundation, Inc. and co-sponsored by the National Recreation and Park Association. This followed recognition as one of the top four park systems in 1999–2000.

- According to the 2000 *Virginia Outdoors Survey*, 79% of respondents felt outdoor recreational opportunities should be provided by the public sector.

- The top four reasons for having a Virginia state park system, according to the 2000 *Virginia Outdoors Survey*, were providing family recreation opportunities in a natural setting, protection of natural resources, providing opportunities for environmental education and providing large areas of open space.

- Virginia state parks manage approximately 61,000 acres, which make up 34 parks, historical sites and natural areas.

- Attendance at Virginia's state parks exceeded 6.3 million in 2000.

- According to the 2000 *Virginia Outdoors Survey*, the six top rated facilities/activities that should be provided by state parks were: trails, campgrounds, water access, environmental education, play grounds and open play fields.

- Resource management plans have been developed for each state park to provide information and insight needed to effectively manage and protect the resources of that park.

- In 1998, the *Code of Virginia* was amended to add Section 10.200.1 regarding state park master planning, resulting in a process of developing and reviewing all master plans on a five-year cycle.

- More than 6,800 interpretive and educational programs were offered in 2000 at Virginia state parks with over 146,000 visitors attending.

- *Virginia's State Parks… Your Backyard Classroom* consists of 40 teacher-led science and social studies activities for grades K-12, and is designed to accommodate educational programming at any of Virginia's 10 Chesapeake Bay region state parks.

- Volunteer hours have increased by 25% since 1995 totaling more than 115,000 in 2000.

- Established in 2000, the Virginia Association for Parks is an advocacy group that fosters the development of support groups for state and federal parks in Virginia.

- Virginia state park visitors provide an estimated $128 million to the state's tourism industry.

- When asked how they learned about parks, respondents of the *2000 Your Comments Count Survey* listed other, friends, past experience, and ads or publicity as the top four means.

- In the 2000 *Virginia Outdoors Survey*, when asked to identify the reasons for not using Virginia's state parks, respondents identified the primary reasons as lack of information, lack of time, and too far away.

- In 2000, Virginia State Parks began taking camping reservations over the Internet.

Recommendations

The Virginia Department of Conservation and Recreation should:

- Continue to pursue stable funding to ensure adequate staffing and operation of existing, new and proposed state park facilities.

- Continue to pursue capital funds to implement the phased facility development identified in approved state park master plans.

- Continue to improve efforts to meet the demand for more and varied types of trails within the capabilities of the natural and cultural resources of the site.

- Continue to develop state park master plans in accordance with *Code of Virginia* Section 10.200.1 state park master planning process.

- Continue to develop Piedmont and Mountain versions of the *Virginia's State Parks…Your Backyard Classroom* program.

- Expand opportunities for providing interpretive and educational programming to park visitors and area students.

- Continue to pursue major opportunities for expanding visitor services and facilities at state parks through a combination of fee-based programming, private/public cooperative programming and development initiatives.

- Continue to expand the use of the Internet for disseminating information and for taking reservations for state park facilities, program offerings and activities.

- Continue to acquire the 9,000+ acres of additional state park land to meet the needs of a growing population in the Commonwealth. Key regions of the state lacking state park sites are:

- Middle Peninsula (Chesapeake Bay)
- James River (Richmond region)
- Potomac River (Stafford County)
- Rapidan River (Madison-Orange County)
- Rappahannock River (non-tidal)
- Northern Piedmont (Central Virginia)
- Central Shenandoah Valley (Staunton-Harrisonburg area)
- North Fork Shenandoah River (Seven Bends area)

Narrative

On June 15, 1936, in one day, Virginia opened an entire state park system consisting of six parks totaling nearly 19,000 acres. Facilities in those first six parks were developed by the Civilian Conservation Corp. (CCC)

The state released *Virginia's Common Wealth* in 1965, its first comprehensive study of outdoor recreation. That study stated, "Virginia's land and waters have abundantly nourished its citizens, in body and spirit, for nearly four centuries. To neglect these resources – to abandon their conservation – to let heedless exploitation consume them or remove them from the reach of the great majority of our citizens – is to sell their birthright for a mess of pottage. Once sold, it cannot be recovered." *Virginia's Common Wealth* served as an evaluation of Virginians' demand for outdoor recreation and an assessment of the state's resources for meeting those demands. It stated that the state park system fell far short of meeting the demands of Virginia's citizens and visitors.

Strong support continues to exist for recreational opportunities to be provided by the public sector. In the 2000 *Virginia Outdoors Survey*, 79% of the population felt outdoor recreational opportunities should be provided by the public sector. Ninety-four percent felt that it was somewhat to very important (30% and 64% respectively) to have access to outdoor recreation opportunities. Virginians identified the following top four reasons for having a Virginia state park system: providing family recreation opportunities in a natural setting (90%); protection of natural resources (89%); providing opportunities for environmental education (62%); and providing large areas of open space (60%). As Virginia's recreational and open space needs increased over the years, the state park system has expanded and developed. By 1992, the state park system had expanded to 24 state parks, six historic sites and seven natural areas that encompassed more than 57,000 acres. Virginians voted to expand and improve the state park system by approving the 1992 Parks and Recreational Facilities Bond Referendum. The funded $95 million referendum helped DCR acquire four new state parks and 10 new natural area preserves, and funded 225 projects to provide additional facilities, repair aging infrastructure, and expand environmental programming in existing state parks. New developments included environmental education and nature discovery centers, visitor centers, interpretive exhibits, cabins and campgrounds, staff residences, roads, parking lots, water and sewer system upgrades, water front improvements and various resource management projects.

Beginning in 1997, Virginia State Parks implemented the *Your Comments Count* customer satisfaction survey program, which was designed to obtain information on how park users felt about their state park experience. Supporting the responses to the *Virginia Outdoors Survey*, respondents to the 2000 *Your Comments Count* survey felt the top priorities for park improvements should be bathhouses/restrooms, nature/hiking trails, campsites and swimming areas. The 2000 *Virginia Outdoors Survey* asked how important it was for Virginia State Parks to provide certain facilities or activities. The top rated items in order of importance were: trails (97%), water access (92%), camping facilities (91%), environmental education (89%), playgrounds (88%), and open field areas for games (86%). The importance of trails as an outdoor recreational need has increased from the 1992 *Virginia Outdoors Survey*. As the expectation for accessible and well maintained trails increases, Virginia State Parks needs to enhance its efforts to meet this need while properly addressing the capacity and needs of the natural and cultural resources of the site.

The mission of the Virginia state parks system is to conserve the natural, scenic, historic and cultural resources of the Commonwealth, and provide recreational and educational opportunities consistent with

the good stewardship of these lands, waters and facilities that leaves them unimpaired for future generations. This is accomplished through active cultural and natural resource management and by providing recreational facilities and programs that compliment these resources. The system's three major goals are to:

- manage natural and cultural resources entrusted to its care to provide a natural setting for quality, family-oriented outdoor recreation;
- reflect the Commonwealth's wide diversity of landscapes; and
- promote appreciation for the state's natural and cultural wonders through recreational offerings, programming and by example.

Maximizing public enjoyment of state park lands, while minimizing impacts on the resources requires careful planning. The department accomplishes this through the use of resource management and master plans. Such plans allow effective management of the natural and cultural resources while providing recreational opportunities for Virginians. These tools also program compatible facility development and recreational use tailored to the resource's capabilities and limitations. A park's resource management plan and master plan are the basis for future park development. The inventory information of the resource management plan is used to determine constraints on development or areas of interest that might be appropriate for trails, recreational facilities or program activities.

In 1998, the *Code of Virginia* was amended to add Section 10.200.1, state park master planning. With the passage of this amendment, DCR began the ambitious process of developing new and revised master plans over a five-year period for all state parks. In harmony with the legislative intent, DCR has developed an open planning process that assures multiple opportunities for public involvement and participation. This has guaranteed that the new or revised park plans are truly reflective of, and have the support and input of the public.

The natural and cultural resources in the state park system provide excellent opportunities for interpretation and environmental education. As a component of the Virginia State Parks mission to provide educational opportunities consistent with good stewardship, interpretation helps promote public understanding of that mission. State parks have long provided both personal and non-personal interpretive services in the form of programs, as well as interpretive exhibits and self-guided trails. In 2000, more than 6,800 interpretive programs were delivered to more than 146,000 visitors. This represents a 28% increase over 1999 totals and a 136% increase over the last five years. The "traditional" interpretive season (June-August) accounted for only 52% of the annual attendance, while spring (April, May) and fall (September, October) accounted for 39%.

In the 2000 *Virginia Outdoors Survey*, the third ranked reason for having a Virginia state park system was for "providing opportunities for environmental education" (62%). In response to a separate question, 89% of respondents felt it was somewhat or very important for state parks to provide environmental education. During 2000, 24,387 students attended 608 environmental education programs. A significant component of the state parks environmental education offering is the program entitled *Virginia's State Parks…Your Backyard Classroom*. Updated in 1999, the program consists of 40 teacher-led science and social studies activities, for grades K-12, and is designed to accommodate educational programming at any of Virginia's 10 Chesapeake Bay region state parks. A Mountain version of this program is scheduled for release in the fall of 2001 with a Piedmont version targeted for 2003.

Through the 1992 Parks and Recreational Facilities Bond Referendum, Virginia State Parks constructed or enhanced visitor centers in nine parks. Environmental education/multi-use centers were constructed at two parks and nature discovery centers were built at four parks. In 2000, the inaugural Governor's Academy for Environmental Stewardship hosted 32 specially selected high school students from across the commonwealth at the Cove Ridge Center at Natural Tunnel State Park in Scott County. The new visitor, environmental education and nature discovery centers have significantly enhanced the opportunities for providing interpretive and educational programming to park visitors and students.

Volunteerism is vital to the support of our state parks. In the last five years, volunteer hours have increased 25% to more than 115,000 in 2000. AmeriCorps (the National Civilian Conservation Corps), college-level

alternative spring break groups, and various camp host programs supplement volunteers who live near parks. Twenty-three parks now have a "friends" group that organizes volunteer efforts under park staff guidance. At the state level, the Virginia Association for Parks is an organization that fosters the development of support groups for state and federal parks in Virginia. They focus their efforts on recruiting and training park volunteers, and advocacy for state and national parks.

State parks add to the overall quality of life in every community where they exist by attracting new businesses and tourists and creating numerous benefits to localities throughout Virginia. Visitors to state parks have a significant impact on local economies, primarily to merchants and service providers in the communities surrounding the parks. It is estimated that state park visitors add $128 million to the state's economy. The state park system offers recreational opportunities and support facilities that provide local communities with a wide range of recreational and educational experiences. Major opportunities exist to expand visitor services and facilities at state parks through a combination of fee-based programming, private/public cooperative programming, and development initiatives. Examples include: the Cultural Arts Program offered at Pocahontas State Park is cosponsored by the Chesterfield County Parks and Recreation Department; the annual Bay Seafood Festival at Belle Isle State Park; and the Chesapeake Bay Center at First Landing State Park, which is cooperatively managed by the City of Virginia Beach and the Virginia Marine Science Museum. The Chesapeake Bay Center is unique in that the facility is staffed by the city and it provides self guided exhibits and information about the park, ecotourism opportunities within Virginia Beach, and the museum offers hands-on experiences for area students and visitors with the bay lab and education programs.

A major opportunity exists for the establishment of a federal/state partnership with the Lorton-Meadowood land exchange. The Department of Interior (DOI), Bureau of Land Management (BLM) and the U.S. General Services Administration (GSA) are working together through a land exchange of federal land for about 905 acres at Meadowood Farm on Mason Neck in Fairfax County, Virginia. The land exchange will result in protecting significant open space for recreation, environmental education and wild horse and burro interpretation. The Meadowood Farm property adjoins Mason Neck State Park and will provide opportunities for cooperative recreation and education programming. This partnership would enhance not only the state park but the other partnerships that exist on Mason Neck with the Northern Virginia Regional Park Authority, U.S. Fish and Wildlife Service, Gunston Hall and various private sector interests.

The sources of funding for state parks have shifted over the past several years. Until the 1980s, operational funds for parks came entirely from tax sources, with park fees being kept at minimal levels. During the past two decades, changes have taken place that have increased the importance of funding routine operations from user fees. From 1991 to 2000, park-

generated revenues grew from $2.3 million to $6.5 million, a 175% increase. Fee revenues were redirected into the park budgets to pay for routine operating costs and major maintenance projects. During the same period, general funds spent on parks actually decreased when adjusted for inflation. These funds recovered somewhat in 2001 when approximately $2 million in new general funds were added to state park budgets.

The creation of dedicated non-user revenues for state parks has also been considered for many years in Virginia. According to the 2001 National Information Exchange of the National Association of State Park Directors, 25 states receive a portion of their operating funds from dedicated funds such as taxes on real-estate transfers, lottery funds, etc. Currently, Virginia State Parks receives a portion of the proceeds from the sale of surplus state property, but the amounts generated by these sales are highly variable from year to year and cannot be used for routine operating costs. Various ideas to create a source of dedicated funds have been brought forth, but none have been enacted.

The key to getting people to appreciate and enjoy Virginia's state parks is providing them with information about state park facilities and activities. When asked to identify the reasons for not using Virginia state parks, respondents of the 2000 *Virginia Outdoors Survey* identified lack of information (41%) and other reasons (32%) – with the overwhelmingly predominant written comment being time, and too far away (25%). However, as a comparison, elsewhere in the *Virginia Outdoors Survey*, respondents identified lack of information about outdoor recreational activities as not limiting (52%), but time was limiting to strongly limiting (76%). When asked how they learned about parks, respondents to the 2000 *Your Comments Count* survey listed other (30%), friends (23%), past experience (15%), and ads or publicity (12%) as the top four means. Virginia state parks have implemented a more intense advertising campaign over the past seven years in cooperation with the Virginia Association of Broadcasters. The use of the Internet has proven to be another popular source of information on state parks. In 2000, the state park web page had 216,271 hits. General park information and availability of program offerings can be updated more frequently on the DCR website than with printed publications. Also, the ability to make camping reservations over the Internet has expanded options for potential park users. Efforts should continue to expand Internet reservation capabilities to include other facilities, program offerings and activities.

The Virginia Department of Conservation and Recreation has continued efforts to acquire and protect significant natural and cultural resources and meet recreational needs. *Code of Virginia* Section 10.1-200 *Item 8* required that Virginia state park planning standards be developed by July 1999 for the purpose of enabling the public to determine the extent to which the commonwealth is meeting park and recreational usage. The objective of developing these standards was to provide a specific protocol for determining the number of acres needed in the state park system to address outdoor recreation needs. While the standards focus on the population and existing state park acreage within the planning district, it is important to consider significant resource sites that will attract visitors from across the state and the value of these resources to the entire park system. Based on the state park standard of 10 acres of state park land per 1,000 population, there is a current need of about 9,000 acres of additional parkland in order to meet the needs of the current population of greater than seven million people (based on 2,000 Census). During the coming decade, the state's population is expected to increase by about 14%, creating additional demands on the available facilities. Potential sites should meet other basic criteria to qualify for acquisition as a state park.

These criteria can be found in Appendix A: Guidelines for Outdoor Recreation Planning on page 373.

Based on the findings of the 1999 *Report on Virginia State Park Planning Standards and Status*, out of the 21 planning (or recreation) districts in the Commonwealth, 10 districts were determined to be deficient in state park lands. Four of these districts are located in southwest Virginia. Two are located in the Piedmont. One district is in the Middle Peninsula. Three planning districts are in urban areas Northern Virginia, Richmond region and Tidewater.

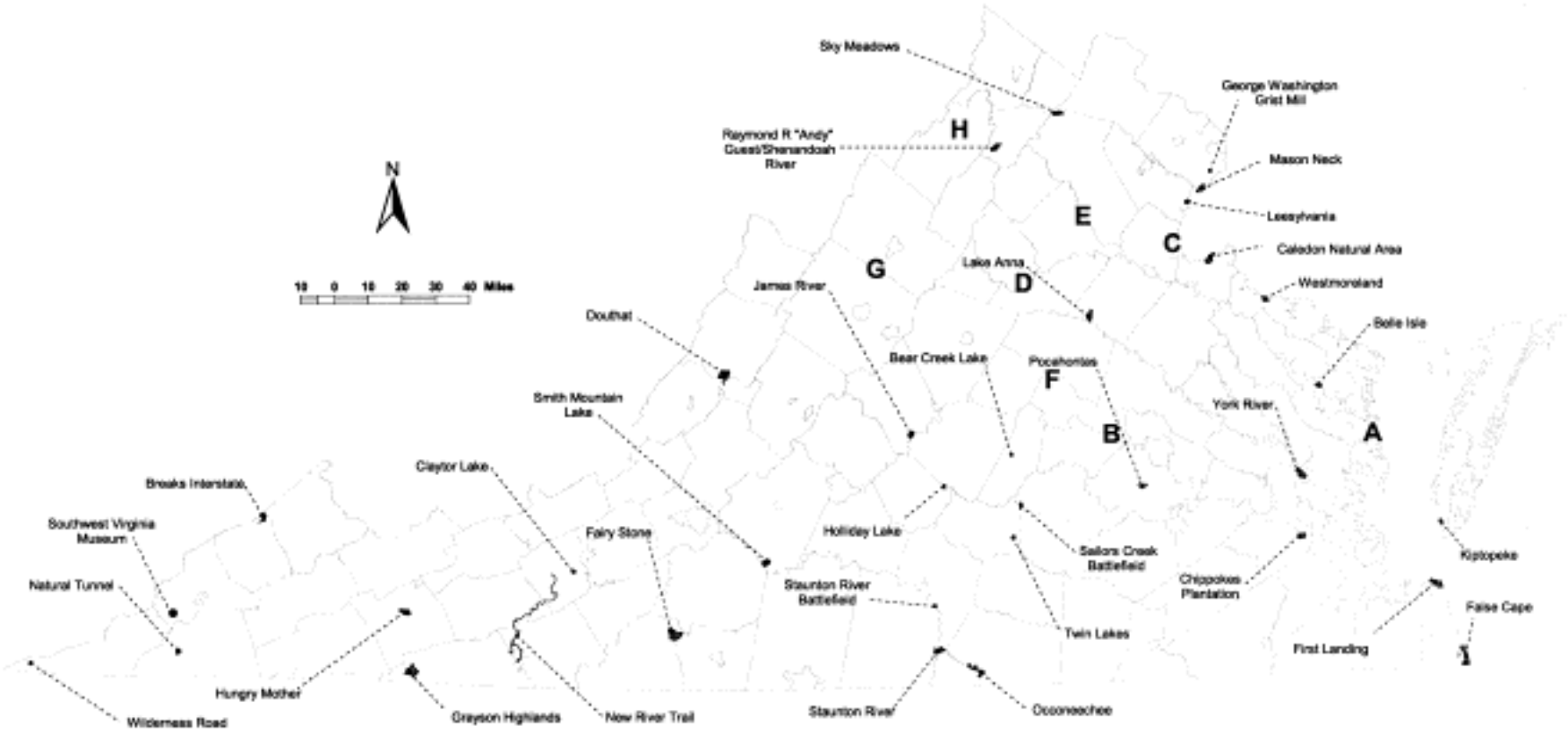
Key regions of the state lacking state park sites are:

- Middle Peninsula (Chesapeake Bay)
- James River (Richmond region)
- Potomac River (Stafford County)
- Rapidan River (Madison-Orange County)
- Rappahannock River (non-tidal)
- Northern Piedmont (Central Virginia)
- Central Shenandoah Valley (Staunton-Harrisonburg area)
- North Fork Shenandoah River (Seven Bends area)

Recommendations in this report for future state park acquisition sites are based on identified planning district deficiencies, as well as, the availability of other state, local or federal recreational offerings.

Virginia Department of Conservation and Recreation
Virginia State Parks
203 Governor Street, Suite 306
Richmond, VA 23219
www.state.va.us/dcr/parks/index.htm

State Parks



Proposed State Parks

A. Middle Peninsula (Chesapeake Bay)
B. James River (Richmond Region)
C. Potomac River (Stafford County)
D. Rapidan River (Madison/Orange County)
E. Rappahannock River (non-tidal)
F. Northern Piedmont (Central Virginia)
G. Central Shenandoah (Staunton/Harrisonburg)
H. North Fork Shenandoah River (Seven Bends area)

CHAPTER III-B-2-b

State Fish and Wildlife Management –

Virginia Department of Game and Inland Fisheries

The Virginia Department of Game and Inland Fisheries (DGIF) has statutory responsibility to manage the Commonwealth's wildlife and inland fisheries, and to protect state and federally threatened or endangered species (excluding plants and insects). The mission of DGIF is *to maintain optimum populations of all species of wildlife and fish to serve the needs of the Commonwealth; to provide opportunities for all to enjoy wildlife, inland fish, boating and related outdoor recreation; and to promote safety for persons and property in connection with boating, hunting, and fishing.* Additionally, DGIF has specific authority to acquire and develop lands and waters for public hunting, fishing, and public boating access to enhance recreational use of fish and wildlife resources. DGIF is an whose operational and capital revenue is generated through the sale of hunting and fishing licenses, boat titling and registration fees, boat sales and use taxes, a portion of federal taxes on related outdoor recreational equipment and a portion of the state sales tax on hunting, fishing and recreation-related outdoor equipment purchases.

Findings

- Virginians spend almost 7.5 million activity days sport hunting annually.
- Fishing is the 6th most popular outdoor recreational activity in Virginia.
- The fishery resources include more that 3,000 miles of trout streams and 25,000 miles of warm water rivers and streams.
- The 2000 *Virginia Outdoors Survey* indicates that boating is the 8th most popular activity among Virginians.
- The 2000 *Virginia Outdoors Survey* found that 55.7 percent of Virginians felt that public access to water for boating, fishing and beach use was the most needed recreation facility in the Commonwealth.
- Virginia maintains a list of 63 state endangered and threatened species, some of which are listed under the Federal Endangered Species Act.

- More than 942,000 individuals, almost 15% of the state's population, participate in wildlife-watching activities in the Commonwealth, and Virginians are spending more than 5.8 million activity days watching wildlife annually.

- Approximately 80% of Virginia's wildlife habitat is in private ownership.

Recommendations

The Virginia Department of Game and Inland Fisheries should:

- Establish long-term monitoring areas in each major habitat type in partnership with other agencies or organizations wherever appropriate.

- Expand educational programs offered to the public that will emphasize environmental awareness.

- Continue conservation and management of quality wildlife habitats through public and private cooperative efforts that include conservation easements, leases, gifts and acquisitions.

- Evaluate biannually strategies to manage specific populations of waterfowl, fish, big game, small game, non-game, furbearers and exotic species.

- Develop more shoreline fishing and picnicking areas on warm water streams and department lakes, handicapped-accessible facilities at trout fishing areas where conditions are suitable, and overnight camping areas accessible only by water for boaters.

- Complete recovery plans for state-listed threatened and endangered species, and establishing public outreach programs with citizens' advisory groups.

- Continue to provide a professional law enforcement presence through effective conservation law enforcement training.

- Develop a statewide Virginia Birding and Wildlife Trail in cooperation with other public and private entities.

- Continue surveys and inventories documenting distributions and habitat associations for non-game wildlife species.

Narrative

In the execution of its statutory responsibilities, the Virginia Department of Game and Inland Fisheries provides access to lands owned by public and private entities through a combination of cooperative management agreements; and by acquiring and managing wildlife management areas. The commonwealth owns, through DGIF, 29 wildlife management areas comprising 176,041 acres. The department also helps manage wildlife on an additional two million acres of land owned by the U.S.D.A. Forest Service, U.S. Army Corps of Engineers, U.S. Department of Defense, Virginia Department of Forestry, Virginia Department of Conservation and Recreation, and a number of private entities. DGIF also maintains four wildlife refuge areas totaling 1,060 acres of wildlife habitat where hunting is not permitted.

DGIF has constructed and maintains 35 public fishing lakes totaling some 3,318 acres. In addition, the department has agreed to manage fishery resources through contractual arrangements with public entities on 24 large reservoirs and 166 small impoundments that comprise more than 173,000 acres of impounded water.

Approximately 1.2 million trout of catchable size are stocked annually in more than 600 miles of streams and 400 acres of lakes. The nine DGIF fish hatcheries produce 10–20 million stockable fish each year. DGIF has, along with partners on Virginia rivers, also been active in the restoration of anadromous fish. Most notably, DGIF, the James River Association, and the City of Richmond with public and private support completed the Boshers Dam Fish Passage in early 1999. For the first time in almost 200 years, the James River between Richmond and Lynchburg is open to migratory fish, such as shad and river herring, to spawn in their historic habitat. DGIF is now working with several partners to remove the Embry Dam on the Rappahannock River to reopen historic spawning grounds above Fredericksburg. This represents an outstanding example of public/private partnerships to enhance and protect fish and wildlife habitat.

The Boating Access Program provides 219 boating access sites across the Commonwealth. Types of boating access provided include boat ramps, boat slides, low-water ramps, and shoreline access depending on the site characterizations and water quality. The program

also manages and operates these facilities. The department's programs in wildlife education and aquatic resource education reach approximately 20,000 students annually. *Virginia Wildlife* magazine is published monthly and offers an array of information about hunting, fishing, boating and wildlife-related recreation.

The Department of Game and Inland Fisheries has the responsibility to enforce all laws for the protection, propagation and preservation of wildlife species including all fish in the inland waters of the Commonwealth. DGIF also enforces the boating laws of the state for compliance and safety.

In 1981, the Virginia General Assembly passed legislation giving taxpayers the option to donate a portion of their tax refunds to The Endangered Species and Non-Game Wildlife Fund. Administered by the Department of Game and Inland Fisheries, this tax program is directed to the goal of speeding the recovery of endangered and threatened wildlife.

DGIF also participates in the interagency review and coordination of environmental permit applications and project assessments submitted by any private or public interest or agency. This review process is linked to the computerized Fish and Wildlife Information System (FWIS), which contains information about more than 2000 vertebrates and invertebrates. The review process serves as a means for compiling data related to wildlife and habitat resources of the Commonwealth.

The *Virginia Outdoors Survey* indicates that Virginians spend 7.5 million activity days hunting. Fishing is the 11th most popular activity, some of which occurs on the more than 3,000 miles of trout streams and 25,000 miles of warm water rivers and streams. Boating is the 7th most popular recreation activity, and more than 55% of the population felt that more public access to the state's waters is needed.

DGIF recently implemented the Wildlife Information Online Service, which provides Internet access to these wildlife and habitat databases through the department's web site (*www.dgif.state.va.us*). It also contains information on the Watchable Wildlife Program.

The department continues to support and to participate in numerous events, such as the popular Eastern Shore Birding Festival, while developing and implementing its own activities. Most notably, DGIF has initiated the statewide Virginia Birding and Wildlife Trail, a driving trail that links together some of the state's best wildlife viewing areas. The Coastal phase, covering areas in the vicinity and east of Interstate 95, should be completed in early 2001. The Mountain phase, covering areas in the vicinity and west of Interstate 81, will be planned for in 2000-2001 and should be completed in 2002. Connecting east-west corridors are scheduled for completion in 2003.

Specific site recommendations for additional water access and wildlife management areas will be found in the Regional Analysis Section of the Plan. See map 6 on page 128. For further information related to the Department of Game and Inland Fisheries programs, strategic plans or sites write, call or visit their web site at:

Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
(804) 367-1000
E-mail: dgifweb@dgif.state.va.us
Internet Address: www.dgif.state.va.us

Public Fishing Lakes and Wildlife Management Areas

State Wildlife Management Areas

1. Amelia
2. Briery Creek
3. C.F. Phelps
4. Chickahominy
5. Clinch Mountain
6. Crooked Creek
7. Dick Cross
8. Fairystone Farms
9. G.R. Thompson
10. Game Farm Marsh
11. Goshen-Little Mountain
12. Hardware River
13. Havens
14. Hidden Valley
15. Highland
16. Hog Island
17. Horsepen Lake
18. James River
19. Kittewan
20. Lands End
21. Mockhorn
22. Pettigrew
23. Powhatan
24. Princess Anne
25. Ragged Island
26. Rapidan
27. Saxis
28. Stewarts Creek
30. T.M. Gathright
31. The Big Survey
32. Turkeycock Mountain
33. Weston
34. Whitecoak Mountain

Public Fishing Lakes

37. Airfield Pond
38. Bark Camp Lake
39. Briery Creek Lake
40. Chandlers Millpond
41. Fluvanna Ruritan Lake
42. Game Refuge Lake
43. Gardy Millpond
44. Hidden Valley Lake
45. Horsepen Lake
46. Keokee Lake
47. Lake Albemarle
48. Lake Amelia
49. Lake Brittle
50. Lake Brunswick
51. Lake Burke
52. Lake Burton
53. Lake Connor
54. Lake Curtis
55. Lake Fairfax
56. Lake Frederick
57. Lake Gordon
58. Lake Nelson
59. Lake Nottoway
60. Lake Orange
61. Lake Robertson
62. Lake Shenandoah
63. Lake Thompson
64. Laurel Bed Lake
65. Pete's Pond
66. Phelps Pond
67. Powhatan Lakes
68. Powhatan Ponds
69. Rural Retreat Lake
70. Mountain Run Lake

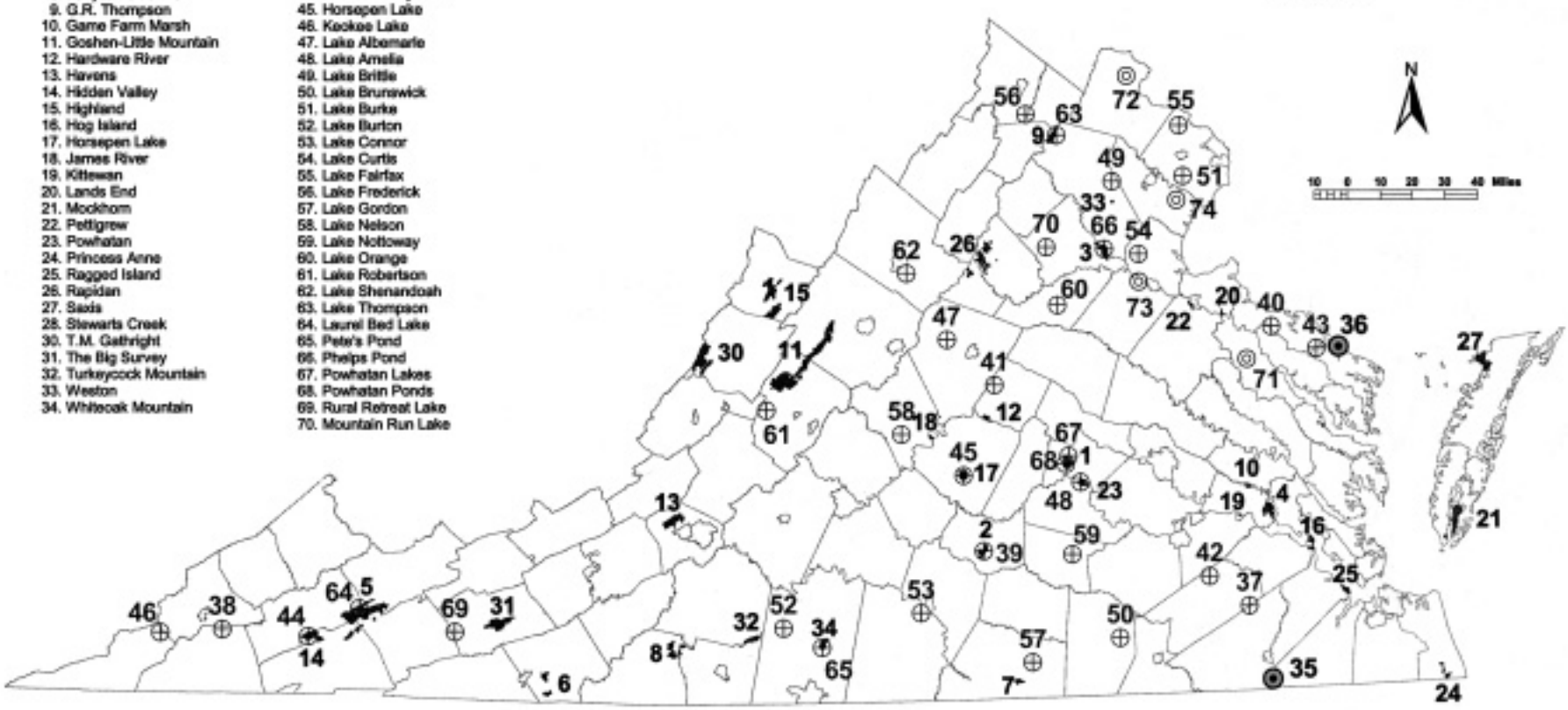
Potential Wildlife Management Areas

35. Blackwater WLMA
36. Northern Neck WLMA

Potential Public Fishing Lakes

71. Essex Co. Lake
72. Louduon Lake
73. Motts Reservior

1-33 State Wildlife Mgmt Areas
34-35 Proposed Wildlife Mgmt Areas
36-69 Public Fishing Lakes
71-73 Potential Public Lakes



State Forests – Virginia Department of Forestry

Virginia's state forest system had its beginning in 1919 with the bequeath of 589 acres of land in Prince Edward County. In the mid-1930s, additional land was added as a result of federal government acquisitions under the Bankhead-Jones Farm Tenant Act. Virginia's state forests are managed for multiple uses. The original purpose of the state forests was for public use, recreation, wildlife management and forest production to: (1) demonstrate good forest practices for private landowners to observe and follow, (2) provide educational opportunities for the public and (3) establish and maintain long-term research efforts.

Findings

- Urban and suburban sprawl areas are causing significant loss of Virginia's commercial forestlands.
- An on-going state forestry study estimates that between 20,000 and 37,000 acres of forest lands are being lost annually to development.
- It is estimated that 17% of Virginia's land base, 4.3 million acres of forest land, will be absorbed by commercial and residential use over the next 20 years.
- Growing fragmentation of forest cover due to an increased number of landowners and press of population is associated with the loss of total acreage. The transition from rural to urban forests occurs when the population rises from 20 to 70 people per square mile.
- Parcels of no less than 40 acres are the smallest units that can be managed for sustained timber products. The number of 40-acre tracts is rising and stands are at an all-time high of 37 percent.
- The loss of timberland has an adverse impact on the timber economy, but the economic impact of tree loss on storm-water management and clean air are apparent as well.
- To be environmentally healthy, the tree cover of an area should be at least 40 percent.

Recommendations

The Virginia Department of Forestry should:

- Continue to emphasize best management practices and stewardship of forestland for properties adjoining the recreation systems identified in the *Virginia Outdoors Plan (VOP)*, e.g., Scenic Rivers, Virginia Byways, natural areas.

- Coordinate with, and seek the assistance of, trail- and river- user organizations to develop forest trails and publish maps for each state forest.

- Continue to acquire inholdings and other properties to straighten forest boundary lines, improve management, and add environmentally diverse property to the state forest system.

- Initiate or maintain cooperative agreements to support the Natural Heritage Program's natural resource database.

- Initiate a cooperative agreement with the Appalachian Trail Conference (ATC) to provide technical assistance and support for managing the forest resource base on ATC-managed lands.

- Work with other natural resource agencies to promote good resource stewardship principles on state forest land.

Narrative

Starting with a gift of 589 acres in 1919, Virginia's state forest system now consists of more than 50,000 acres in 15 forest units. The majority of this land has been donated to the state by the federal government and private individuals. The system is managed by the Virginia Department of Forestry (DOF), which became a department-level agency in 1987. DOF operates three tree nurseries that produce in excess of 48 million seedlings annually.

Development across the Commonwealth is consuming significant quantities of agricultural and forest lands. Studies indicate that in excess of 20,000 acres of forest land may be lost annually to development. Parcels of no less than 40 acres are the smallest units that can be managed for sustained timber products. This standard is becoming harder to maintain because of fragmentation due to the transition in many areas from rural to urban land uses. The loss of forestland has an adverse impact on the economy of the state as it relates to timber production, but equally important is its impact on water quality, recreation, and other environmental and quality of life resources.

Although the focus of the state forest system is the practical application of sound forestry practices, approximately 17 percent of the total area has been set aside for purposes other than timber production. The forest is used for long-term research efforts. This includes manipulation of the forest cover to study changes in water quality, studies on the reintroduction of the American chestnut into the forest setting, and programs, which support stewardship of our forest and land resources. The department also assists landowners with demonstrations of wetland practices, coastal plain and steep mountain water quality practices, hardwood improvement practices and other projects. An urban forestry program will offer cities and smaller communities the expertise to maintain a forest canopy over their community and take advantage of the environmental and aesthetic benefits provided by the tree cover.

The 15 state forests and three nurseries contribute substantially to meeting educational and recreational demand. They are managed for multiple uses, including watershed protection, recreation, timber production, applied forest research programs, and wildlife and fisheries management. The four largest forests provide the resource base for the state parks within them, which round out recreational opportunities by providing camping, picnicking, interpretive and swimming facilities.

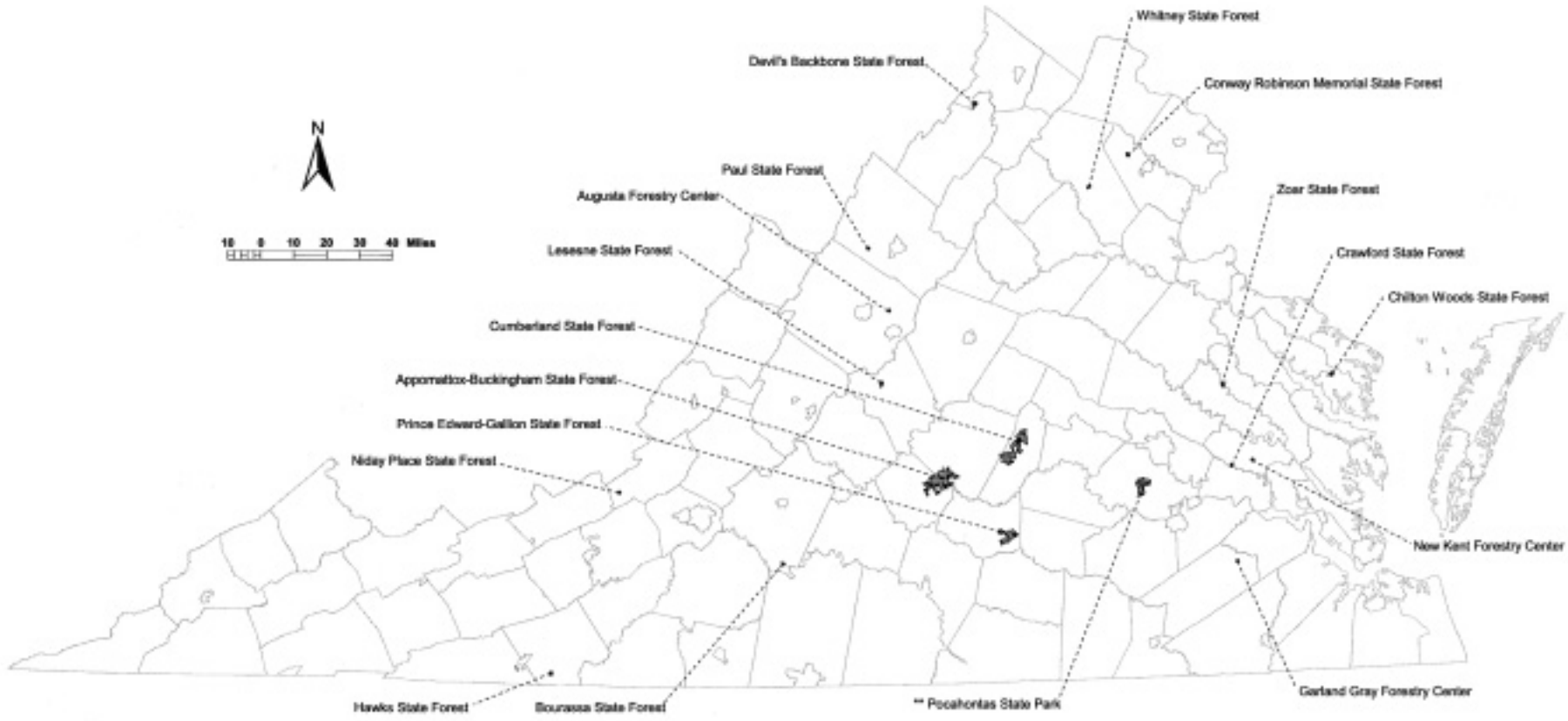
Natural areas have been designated at 13 locations in the forest system. These areas, comprising more than 320 acres, are used for environmental studies and management.

The wildlife and fishery resources in state forests are managed with the assistance of the Department of Game and Inland Fisheries. This successful partnership is evident by the popularity of Virginia's forests with hunters, fishermen and nature lovers throughout the state.

The majority of state forest acreage is in the central Piedmont region between Richmond and Lynchburg. Acquisition of additional units throughout Virginia is being considered. Existing areas are shown on Map 7, on page 132.

Virginia Department of Forestry
Fontaine Research Park
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903
(804) 977-6555
www.dof.state.va.us

State Forests and Forestry Centers



** Deed held by the Department of Conservation and Recreation. 5,823 acres of the park are managed for multiple use forest by the Department of Forestry.

CHAPTER III-B-2-d

Natural Areas/Natural Heritage Resources

Virginia's natural resource base is disappearing or at a minimum is being altered to meet the needs of the human population. The natural environment has and still provides the resources necessary for human survival and progress. It is from this base that water, food, and materials to create shelter and the myriad of products that Virginians have come to depend on for quality of life is derived.

Its value to humans is only one aspect of the great contribution the natural world makes to society. It provides the habitat for all of the flora and fauna that make up the world, the plants and animals that provide diversity to the landscapes and the "place" called Virginia, and it provides a responsible mechanism to direct man's efforts to settle and develop the lands and waters. All levels of government, in partnership with the private sector, must undertake development in a manner that sustains the natural resource base. The establishment of natural areas and the protection of Virginia's natural heritage resources is a small but important step in the management of plants, animals and habitats that will allow for the protection of natural resources and the advancement of humankind.

Findings

- Virginia ranks 4th among eastern states for the number of federally endangered and threatened species. However, fewer than 8% of Virginia's 1,400 rare plant and animal species are legally protected under federal or state endangered species acts.

- Virginia is rich in karst resources, with more than 4,000 known caves. More than 150 cave organisms are considered biologically rare; many have distributions restricted to only one or two caves.

- Southwest Virginia is the country's leading hotspot of aquatic diversity; unfortunately many of the freshwater mussels and fish found there are at risk. Virginia lacks an aquatic community classification, and little is know about the aquatic biological diversity of the state's streams and rivers.

- Private lands will play a critical role in the protection of Virginia's natural heritage resources. At least 60% of identified conservation sites occur on private lands.

- Based on the number of currently known, unprotected conservation sites, sites likely to be lost over the next 20 years, and new sites to be discovered during that time, at least 350 sites (not including aquatic conservation sites) totaling more

than 250,000 acres will warrant formal protection through conservation easement or acquisition. The estimated total cost over 20 years is approximately $410 million.

- A statewide land conservation survey of 750 registered Virginia voters found that the two highest rated outdoor recreational activities are those most conducive to natural areas: hiking and bird watching or wildlife viewing.

- The Virginia Department of Conservation and Recreation's Natural Area Preserve system (Map 8 on page 138) is a statewide network of 33 dedicated natural areas totaling 20,154 acres. All or portions of 18 natural area preserves were protected using funds from the 1992 Parks and Recreational Facilities Bond.

- Invasive exotic species have become the second greatest threat (after habitat loss) to biological diversity. More than 300 exotic species have been reported in Virginia.

Recommendations

DCR, in conjunction with other managing agencies, should:

- Expand biological inventory efforts across the state.

- Ensure statewide representation on protected lands for all natural community types and rare species.

- Increase awareness of the environmental significance of Virginia's karst regions through the Karst Groundwater Protection Program and Project Underground.

- Increase assistance to localities in their planning efforts for the protection of natural areas, and expansion of this critical recreational component in their portfolios.

- Expand efforts to create and provide natural area conservation information and make it available to a diverse group of clients and users.

- Develop an aquatic ecosystem classification system to better understand the biological diversity and conservation needs of the life found in Virginia's streams and rivers.

- Provide conservation tools and tax incentives for private landowners who voluntarily conserve priority conservation sites or manage their land to benefit rare species and natural communities.

- Increase capability to assist public and private land managers and owners with the management and/or restoration of natural heritage resources on their properties.

- Secure stable funding to provide protection to Virginia's highest priority natural areas through natural area dedication, conservation easements and land acquisition.

- Dedicate an additional 80 high-priority natural areas as natural area preserves across Virginia by 2006.

- Secure the resources necessary to meet the stewardship needs of an expanded system of DCR lands supporting natural heritage resources.

- Enhance efforts to determine the distribution and status of invasive exotic species and to devise effective measures for their control, particularly where they threaten rare species or unique natural communities.

Narrative

The Virginia Natural Heritage Program is part of an international network of natural heritage programs and conservation data centers called the Natural Heritage Network. The Natural Heritage Network consists of natural heritage programs in all 50 U.S. states and the Navajo Nation and Conservation Data Centers operating in six Canadian provinces and 14 Latin American and Caribbean countries. The Virginia Natural Area Preserves Act of 1989 established DCR's Natural Heritage Program, and created new powers and authorities within the Department of Conservation and Recreation and for natural area protection. The Virginia Natural Heritage Program became a formal component of the department as the Division of Natural Heritage. The Division of Natural Heritage mission is to conserve Virginia's biological diversity through inventory, protection and stewardship.

The work of the Natural Heritage Program is carried out through its four sections: Natural Heritage Inventory, Information Management, Natural Area Protection, and Natural Area Stewardship. Central to this mission is the identification and protection of natural areas, areas supporting habitats for rare species and significant natural communities. Natural areas are significant for the living resources they support, but it is well documented that they are also important for their outdoor recreation values and are a critical component of a comprehensive outdoor recreation system. An April 2001 statewide land conservation survey of 750 registered Virginia voters found that the two highest rated recreational activities are those most conducive to natural areas: hiking and bird watching or wildlife viewing. Many of the nation's state natural heritage programs were launched with Land and Water Conservation Funds, based on the recognition that natural areas provide a critical component to any outdoor recreation portfolio. Virginia has at least 2.5 million acres that are considered valuable for natural resource conservation, outdoor recreation and open-space protection (see Appendix D, Natural Heritage Data on page 396).

The Natural Heritage Inventory section conducts the only comprehensive statewide inventory documenting the location and ecological status of natural communities and rare plant and animal species. This ongoing inventory is conducted by staff ecologists, botanists and zoologists, contract staff, volunteers and cooperators. Virginia has more than 1,400 plant and animal species that are rare within the state. Five plants, four vertebrates and many invertebrates are found only in Virginia. At least 26 species of vertebrates, plants and freshwater mussels have been extirpated from Virginia. Due to habitat alteration from dam construction, water withdrawal, sedimentation, pollution and introduction of non-native species, 75% of Virginia's freshwater mussels are at risk. Southwest Virginia is the country's leading hotspot of aquatic diversity, but more understanding of Virginia's aquatic species and communities is needed.

Natural heritage inventory staff assist private and public land managers and local governments with regional and county natural area surveys. Recent inventories have included all National Park Service lands, the Appalachian Trail, major Department of Defense facilities, national forest lands, and selected state parks. Inventory biologists play a key role assigning global and state rarity ranks to all of Virginia's native species. These ranks reflect a species' risk of extinction throughout its entire range (global rank) and within Virginia (state rank). With this ranking system, Natural Heritage Program staff are able to prioritize inventory and protection needs by identifying those natural heritage resources, defined as the habitat of rare, threatened, or endangered plant and animal species, rare or significant natural communities or geologic sites most likely to be lost without conservation action. Inventory ecologists have also completed the first phase of a multiyear natural community classification project with the publication of descriptions for Virginia's 120 natural community types, including state and globally rare limestone barrens, shale barrens, sea-level fens and tidal freshwater marshes.

The Information Management section uses GIS display and analysis techniques to develop planning tools for the protection and management of natural heritage resources (see Appendix D). Data is widely used by division staff, other land and resource managers, and citizens in the Commonwealth to:

- establish and refine the lists of Virginia's rare natural heritage resources;
- set protection and management priorities for roughly 1,500 identified conservation sites;
- provide a scientific basis for land management planning;
- review potential impacts of individual projects on natural heritage resources; and
- fill requests for information from teachers and students, naturalists and other interested citizens.

The Natural Area Protection section focuses on natural area conservation planning and land protection. Natural area conservation planning involves evaluating information relevant to a natural area such as rare species and natural communities, geology, hydrology, past and present land use, ecological processes, influencing economic and cultural factors, and existing and potential threats to the site in order to develop site-specific protection and management recommendations. Natural area protection staff use both non-binding agreements and stronger tools such as conservation easements and fee-simple acquisition of

land to protect the rarest and most threatened examples of our natural heritage. Protection methods are chosen to best meet the specific conservation goals for each natural area. Examples of tools for protecting biodiversity include dedication of natural areas into a legally established system of state natural area preserves, acquisition of land, acquisition of conservation easements, establishment of management agreements, and voluntary protection by the landowner through the Virginia Registry of Natural Areas. (For more information on these protection tools, visit the website at *www.dcr.state.va.us/dnh/*)

An important component of Virginia's natural heritage is supported by the surface and subsurface communities in cave and karst habitats in the counties west of the Blue Ridge. Karst landscapes are characterized by sinkholes, sinking streams, springs and caves that have formed in areas where mildly acidic groundwater has dissolved soluble rocks such as limestone, dolostone, marble, or gypsum. Virginia is rich in karst resources and is known to have more than 4,000 caves. More than 150 cave organisms are considered rare; many have distributions restricted to only one or two caves. Because of the biological diversity importance of cave and karst communities, the unique hazards of development on karst, and ease of movement of contaminants into karst groundwater systems, DCR's Natural Heritage staff developed the Karst Groundwater Protection Program and Karst Education Program in Southwest Virginia. These programs work very closely with the state and national cave conservation and education programs, the Virginia Cave Board, karst landowners and local governments to increase the awareness and support for karst conservation.

The Natural Area Stewardship section is responsible for maintaining or enhancing natural heritage resources on natural area preserves owned by the Department of Conservation and Recreation. A dedicated natural area is one where future uses have been limited through a legal deed of dedication. Dedicated natural areas become part of Virginia's Natural Area Preserve System, which consists of 33 preserves totaling 20,154 acres. Stewardship staff also offer expertise and assistance in natural area management to federal, state, and local agencies, as well as to private landowners and land managers. Key components of natural area stewardship include development of site-specific management plans, site security and operations management, prescribed fire management, biological resource management, research and monitoring. A copy of Natural Area Preserve Management Guidelines, developed by stewardship staff, can be obtained by contacting the Natural Heritage Program.

Through the cumulative efforts of the Inventory, Information Management, Protection and Stewardship staff, the Natural Heritage staff has identified more than 1,500 conservation sites (i.e., sites containing one or more natural heritage resources) on both private and public lands. At least 763 are considered globally significant, over half of which occur on private lands. Clearly, both public and private lands will play a critical role in the protection of Virginia's natural heritage resources.

The Virginia Natural Area Preserves Act directs DCR to "develop a natural heritage plan which establishes priorities for the protection, acquisition, and management of registered and dedicated natural areas and natural area preserves." The first natural heritage plan for Virginia will be available in late 2001. The plan discusses the status of Virginia's natural heritage resources and addresses both the existing level of protection and unmet natural area protection needs in the Commonwealth. The plan also explains the methods used by Natural Heritage staff to select and prioritize natural areas for protection. Information in this report will assist private landowners, local, state and federal agencies, and private conservation organizations in identifying protection priorities and implementing policies and management practices to conserve the full range of natural biodiversity in Virginia. Future updates, which are anticipated to occur every five years, will monitor changing natural heritage resource priorities and report the progress on meeting natural heritage resource protection goals.

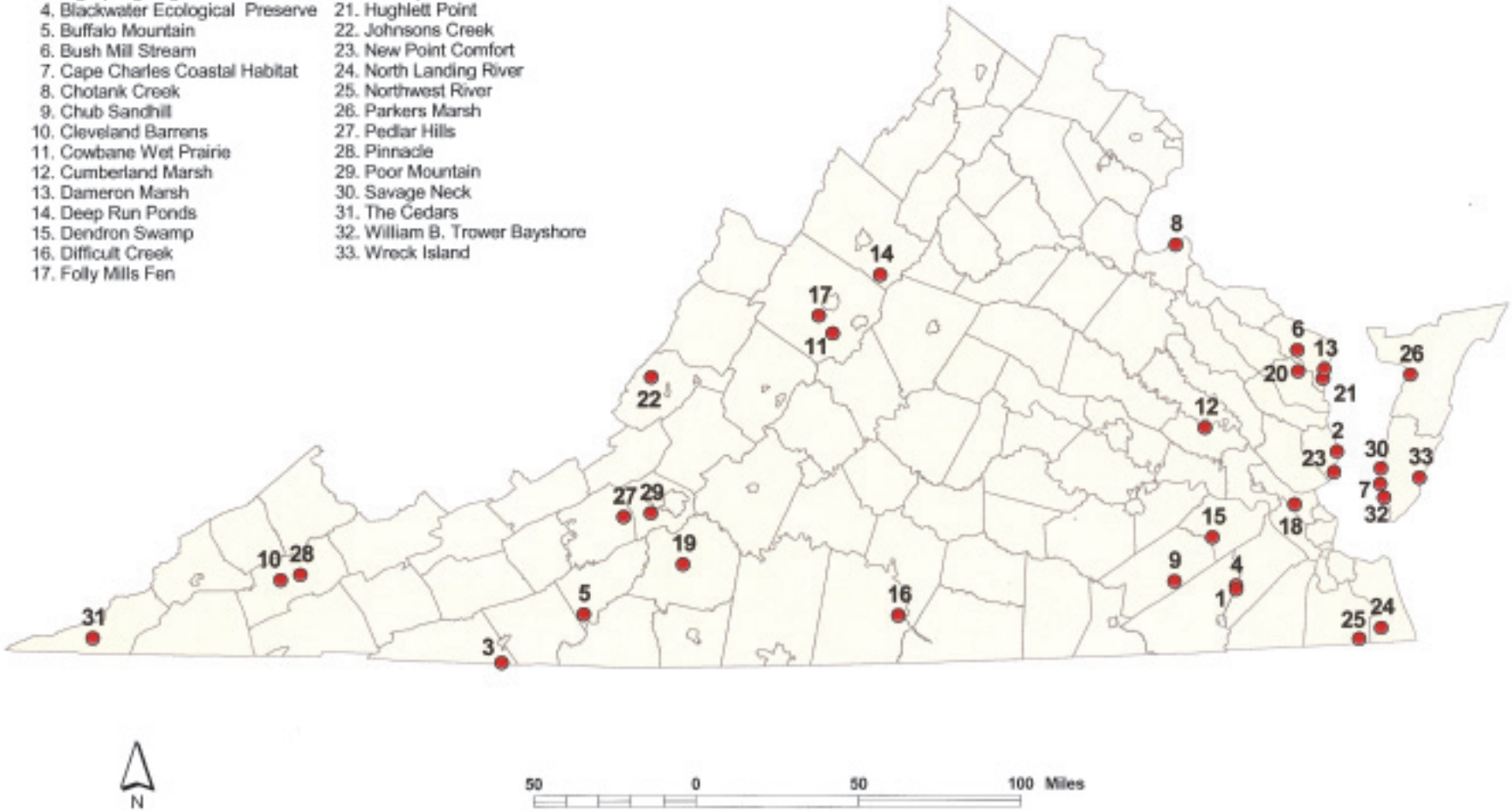
For further information related to the Department of Conservation and Recreation's Division of Natural Heritage, its programs and publications, call, write, or visit their website at:

Department of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 3rd floor
Richmond, VA 23219
Phone: (804) 786-7951
Internet address: *www.dcr.state.va.us/dnh/*

VA Department of Conservation & Recreation

Natural Area Preserve System

1. Antioch Pines
2. Bethel Beach
3. Big Spring Bog
4. Blackwater Ecological Preserve
5. Buffalo Mountain
6. Bush Mill Stream
7. Cape Charles Coastal Habitat
8. Chotank Creek
9. Chub Sandhill
10. Cleveland Barrens
11. Cowbane Wet Prairie
12. Cumberland Marsh
13. Dameron Marsh
14. Deep Run Ponds
15. Dendron Swamp
16. Difficult Creek
17. Folly Mills Fen
18. Grafton Ponds
19. Grassy Hill
20. Hickory Hollow
21. Hughlett Point
22. Johnsons Creek
23. New Point Comfort
24. North Landing River
25. Northwest River
26. Parkers Marsh
27. Pedlar Hills
28. Pinnacle
29. Poor Mountain
30. Savage Neck
31. The Cedars
32. William B. Trower Bayshore
33. Wreck Island



Map 9 - Of the more than 1,500 conservation sites identified in Virginia to date, fewer than 25% occur on protected lands such as national wildlife refuges, national, state and county parks, and private and state preserves.

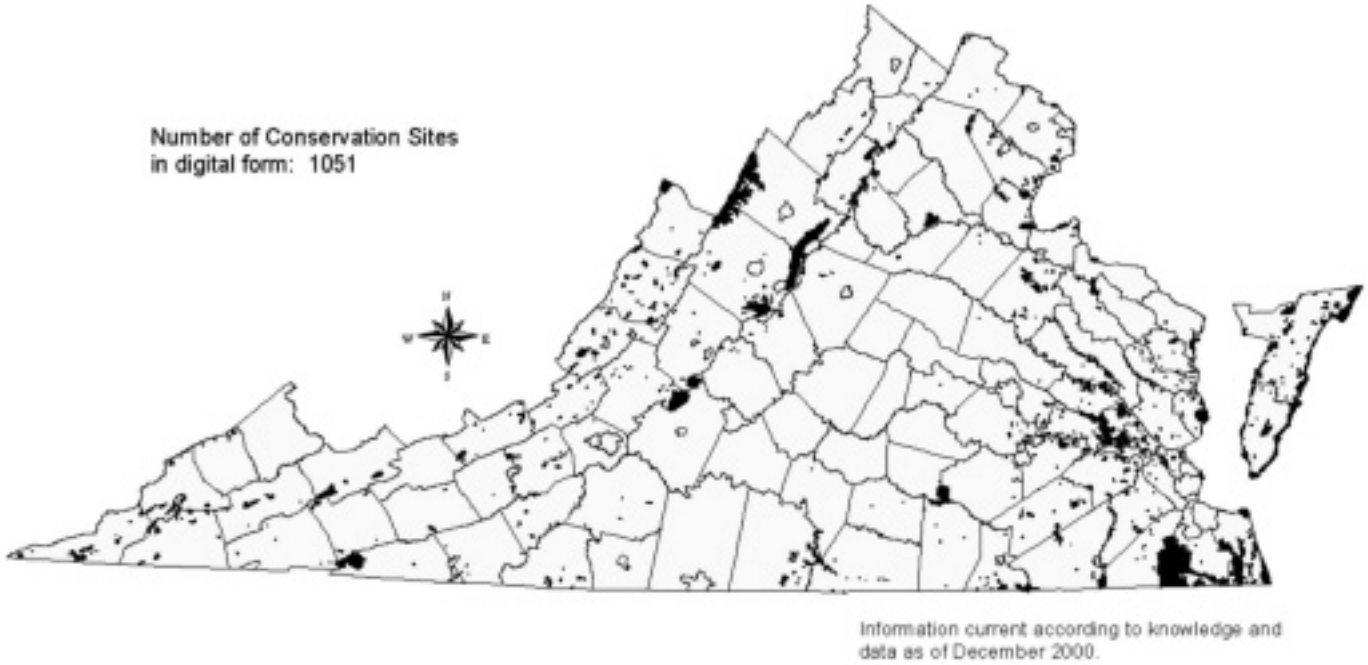
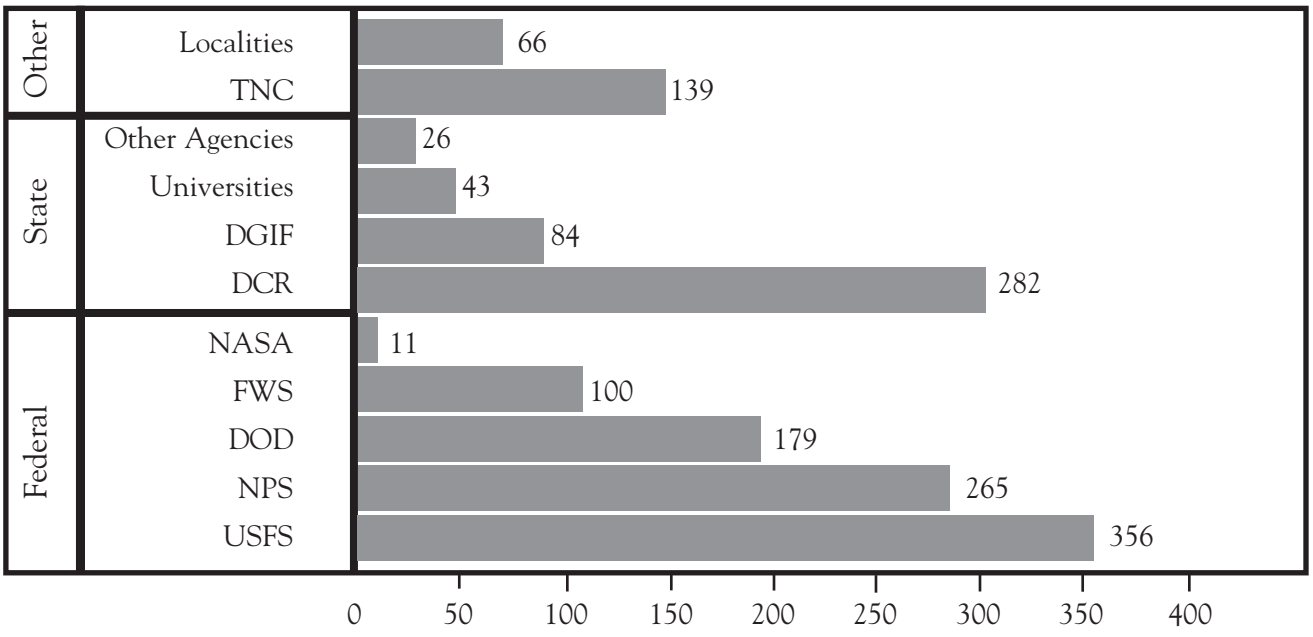


Table 2 - Natural area preserves and state parks managed by DCR support the 2nd greatest total number (282) of natural heritage resources found on any type of managed area.

Natural Heritage Resources on Virginia Managed Areas



Local and Regional Parks and Open Spaces

Introduction

Local and regional parks and recreational facilities are the foundation of an effective outdoor recreation system for the Commonwealth. Citizens want recreational opportunities close to where they live, and providing close-to-home park and open space areas is a basic responsibility of local government. There is normally an opportunity for citizens to be involved in the process of providing these services and areas. Citizens want places to play and socialize, but also natural places that provide other benefits to the community.

The benefits of parks and recreation have been documented through various studies, including a national study conducted by Drs. Geoffrey Godbey and Alan Graefe. Their report, *The Benefits of Local Recreation & Parks Services: A Nationwide Study of the Perceptions of the American Public*, is available from the National Recreation and Park Association (NRPA), (703) 820-4940.

The major conclusions of this report are: recreation and park services are used by the vast majority of the public; use continues across the life-cycle; a community benefits from local recreation and park services; the majority of respondents believe that recreation and park services are worth as much or more than they are currently paying in taxes; and recreation and parks services provide benefits to users and non-users. This is in harmony with the findings of the 2000 *Virginia Outdoors Survey* in which nearly 90% of Virginians said outdoor recreational opportunities were important to them.

Findings

- Americans use city or community parks more than any other outdoor recreational areas.
- Seventy-five percent of all people use local parks and recreational services, and more than 40% visit local parks more than 10 times per year.
- There are 150 local parks and recreation (P&R) departments operating in Virginia. Only a small percentage of the state's population remains unserved by a local recreation program.
- The majority of local P&R departments consider providing recreational programs and activities a greater priority than acquiring park properties.
- Recent studies have indicated that people want more parks and recreation areas near large cities with more facilities for both organized sports and for unscheduled free-play.

- According to the 2000 *Virginia Outdoors Survey*, 89% of Virginians consider outdoor recreation an important or very important aspect of family life. This emphasizes that there is a significant demand for recreation resources and programs in Virginia.

- Based on National Recreation and Parks Association (NRPA) standards, a locality should provide a minimum of 10 acres of parkland per 1,000 citizens.

- According to NRPA standards, neighborhood park ratios should be three acres of parkland per thousand citizens, and not more than 15 minutes or one to two miles walking distance of those it is intended to serve.

- Community parks are designed to serve two or more neighborhoods and generally provide facilities requiring more space than can be accommodated in a neighborhood park.

- The district park is the largest of the three parks at four acres per thousand citizens (minimum 50 acres) is the planning standard.

- Regional parks, for which several localities may share responsibility, are also important elements of an effective outdoor recreation system. With a recommended service radius of 25 miles and a minimum size of 100 acres, regional parks are larger in scope.

- Local parks and recreation departments are in need of additional funding sources, and an interest in friends groups and park foundations is on the rise in Virginia.

Recommendations

- Recreation providers should work to increase public awareness of the recreational opportunities available in their localities, and both the individual and community benefits of park spaces and recreation programs.

- Localities should use available state planning and technical assistance in their efforts to maximize the use of existing public and private resources.

- Preparing and adopting an open space and recreation plan is a key element of the local planning process. Planning for a localities, green infrastructure and recreational programs is important to overall quality of life in a community. These plans should be consistent with the *Virginia Outdoors Plan* (*VOP*).

- When they do not exist, localities should appoint a parks and recreation commission to provide citizen leadership with regard to parks and recreation issues and concerns has been effective in many localities.

- Localities should participate in a 100-year plan for interconnecting Virginia's special lands and places with those of the rest of the nation.

- Commitments to the maintenance, management, and development of local parks and recreational systems are necessary. Localities should explore alternative methods of funding, such as set-aside ordinances, fees and charges and private partnerships.

- Cities and urban areas should consider use of public transit as one method by which they can ensure all citizens accessibility to outlying parks.

- All localities should develop and implement hiking and bicycling plans which connect parks, schools and neighborhoods. Encouraging biking and walking within the community can enhance community health and spirit.

- Parks and programs need to be accessible to special populations, including senior adults and persons with disabilities.

- Consideration by localities of the benefits of a school/park cooperative agreement could enhance use of school and park facilities. School systems and local parks and recreation departments should cooperate in the design of new or renovated facilities.

- In order to increase local access, localities should consider cooperative management for the recreational use of private, corporate, state or federally owned lands.

- Localities should consider adopting special tax assessment ordinances for areas adjacent to public parks, significant open space resources and recreational areas in order to encourage landowners to maintain their properties as open space.

- The establishment of a "friends group," which could possibly evolve into a "park foundation," should be considered for the local parks and recreation department. This citizens group could be a source of volunteers, as well as a source for community support and other resources.

Narrative

Eighty of the state's 95 counties have P & R departments, as do 23 incorporated towns, and all cities. These departments serve a vast majority of citizens across the state. The largest void in service is in the southern and southwestern regions of the state. New parks and recreation departments are formed each year across the state, and it is probable that all localities will have a parks and recreation department in the future.

Although specific local park sites are not identified in the *Virginia Outdoors Plan* (*VOP*), they are included in the Department of Conservation and Recreation's facility inventory. The *VOP* does identify several general areas of opportunity for localities to consider when planning the development of a park and recreation system. These areas include stream valleys, landfills, flood plains and abandoned railroad right-of-way corridors. Because development is usually restricted, stream valleys often are excellent opportunities for trail construction. Utility corridors and abandoned railroad right-of-ways also should be considered for trail development. These linear corridors provide opportunities for communities to work together to provide greenway parks. Greenways can enhance the resource base by linking cultural, historical, recreational and natural areas into a unified open space system.

Citizen involvement is a key component to the development of a comprehensive parks and recreation program for a community. Parks and recreation commissions may be established to serve in either an advisory or policy-making capacity. Commissions offer localities a unique resource to help determine the direction that parks and recreation should take in the future and provide the leadership necessary to achieve this vision. Board and commission members should be provided with orientation and ongoing training to support their board activity. Boards can provide the parks and recreation department with strong ties to the local business community, which can result in private funding of recreation programs and facilities and opportunities for beneficial private/public partnerships.

Recreation budgets, when compared to other local services, often are very limited. Park land acquisition and development often depends upon state and federal funding and private donations. Local parks and recreation departments are in need of alternative funding sources, and an interest in friends groups and park foundations is on the rise in Virginia. While a friends group is a less formal citizen group, a park foundation is a legal mechanism created by dedicated people to benefit the parks and recreation system. Citizens can form a foundation by creating a nonprofit corporation and applying for nonprofit status with the appropriate state office and the Internal Revenue Service. Park foundations are normally established due to: the need for alternative funding; rising costs of land acquisition; the public's developing sense of stewardship toward land and cultural resources; and the public's willingness to give to charitable causes. Park foundations in Virginia have raised money to build athletic fields, plant trees, purchase benches and other park amenities, provide scholarships to disadvantaged youth and to provide funding for special events.

Preparing and adopting an open space and recreation plan is a key element of the local planning process. Planning for a locality's green infrastructure and recreational programs is important to overall quality of life in a community. These open space and recreation plans should be incorporated into the overall comprehensive plans of localities. It is very important that the plan include a walking and bicycling trail component. Having an improved bicycle trail component is essential if VDOT is to include each locality when improving or building roads.

Due to the heavy use of athletic facilities, it is vital that schools and parks develop cooperative agreements for the use of these public facilities. While many P & R departments already work cooperatively with school systems to provide community-level programs throughout the jurisdiction, more localities need to consider the implementation of the school-park concept. The school-park concept promotes the schools and surrounding land and facilities as community recreation centers during non-school hours. The concept requires close cooperation between school and recreation personnel throughout facility planning, development and renovation to ensure that a balance of recreational and educational features is provided. An operating agreement between the school board and the governing body should encourage full use of all available resources.

Park and recreation departments should initiate contact with colleges and universities to determine the feasibility of creating partnerships with the institutions to make recreational facilities and programs more accessible to local citizens. Further, local governments can and should enter into agreements to access or manage private facilities, where possible, for the public's use and enjoyment.

Individuals of varying abilities desire access to recreation programs and facilities. Attention must be given to assure that programs and facilities are accessible, when possible, to persons with disabilities. By making programs accessible to persons with disabilities, access to programs improves for everyone.

Based on NRPA standards, a locality should provide a minimum of 10 acres of parkland per 1,000 citizens. But acreage alone should not indicate adequacy; distribution also is important. A properly planned park and recreation system should serve a variety of needs through three types of recreation areas: neighborhood parks, community parks and district parks. These parks, developed to complement existing private and public facilities, make for an effective system of meeting local recreation demand.

Neighborhood parks are noted for their intense development and should include playground equipment, game courts and play fields. If possible, neighborhood parks should be near a school and/or a neighborhood center. Smaller parks also could be developed to meet the needs of a specific population.

Community parks have a planning standard of three acres per 1,000 citizens and a minimum of 20 acres is recommended for community parks. Facilities should include lighted game fields and court complexes, a swimming pool, a picnic area, and walking and jogging trails. Community parks should be within 15 minutes' drive of the client population. They should be near the center of the community and be easily accessible by public transportation. In combination, neighborhood and community parks that complement private recreation offerings provide for a majority of citizens' close-to-home recreational needs.

District parks should provide substantial undeveloped open space to accommodate passive or unstructured recreational opportunities and enhance the area's visual quality. A district park should be a 15 to 20-minute drive from the target population, a minimum of 50 acres in size, and also should be accessible by public transportation, pedestrians and bicyclists.

Just as the *Virginia Outdoors Plan* looks to the future of parks and open space for the Commonwealth, each locality should begin to develop its own blueprint for future park spaces and recreation programs. The process of developing a local parks, recreation and open space plan can serve to enlighten citizens to the need for proper planning, as well as to mobilize resources to enhance the quality of life in a community. With proper planning, a clear path can be established to developing a strong parks and recreation system to serve the public.

A comprehensive parks and recreation system serves to enhance the quality of life of all the citizens in the community. The best parks and recreation departments are those where the citizens feel a sense of ownership and are involved in the park system. Communicating the individual, community, economic and environmental benefits of a system of parks and recreation is critical to maintaining and building community support.

Related resource agencies

National Park Service
1849 C Street, NW
Washington, DC 20240
(202) 208-4747 Fax (202) 219-0910
www.nps.gov

National Recreation and Park Association (NRPA)
22377 Belmont Bridge Road
Ashburn, VA 20148
(703) 858-0784 Fax (703) 858-0794
www.activeparks.org

NRPA Southeast Service Center
1285 Parker Road
Conyers, GA 30094
(770) 760-1668 Fax (770) 760-9427
www.activeparks.org

The Trust for Public Land
116 New Montgomery
4th Floor
San Francisco, CA 94105
(415) 495-4014
www.tpl.org

Virginia Recreation and Park Society
6038 Cold Harbor Road
Mechanicsville, VA 23111
(804) 730-9447 Fax (804) 730-9455
www.vrps.com

Virginia Department of Conservation and Recreation
203 Governor Street, Suite 326
Richmond, VA 23219
(804) 786-2556 Fax (804) 371-7899
www.dcr.state.va.us

Virginia Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
(804) 367-1000 Fax (804) 367-9147
www.dgif.state.va.us

Virginia Department of Transportation
Bicycle and Pedestrian Program
1401 East Broad Street
Richmond, VA 23219
(800) 835-1203
vabiking@vdot.state.va.us
www.vdot.state.va.us

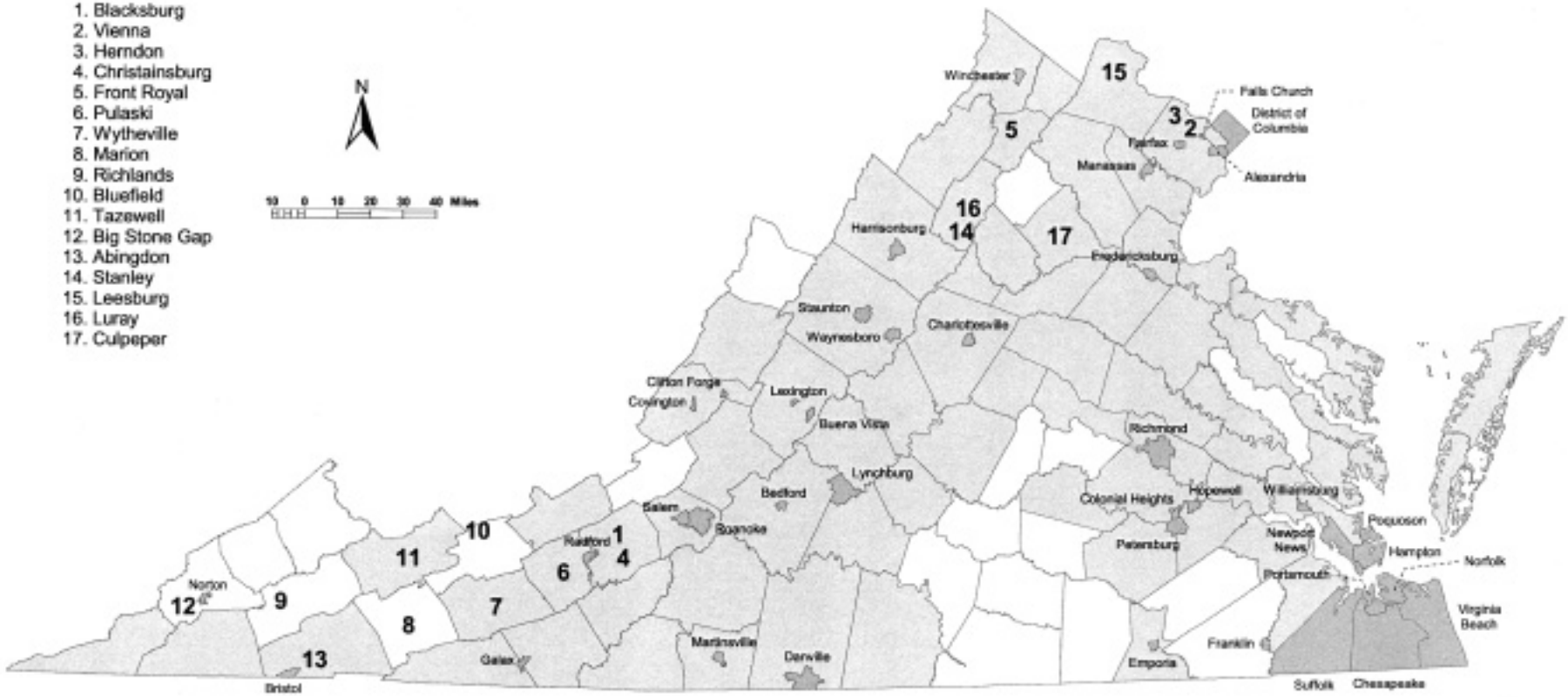
The Conservation Fund
1800 North Kent Street, Suite 1120
Arlington, VA 22209-2156
(703) 525-6300
www.conservationfund.org

Full-Time Parks and Recreation Departments

City
County

NOTE: County Departments are shaded, and towns are indicated by number.

1. Blacksburg
2. Vienna
3. Herndon
4. Christainsburg
5. Front Royal
6. Pulaski
7. Wytheville
8. Marion
9. Richlands
10. Bluefield
11. Tazewell
12. Big Stone Gap
13. Abingdon
14. Stanley
15. Leesburg
16. Luray
17. Culpeper



Regional Analysis and Recommendations

Introduction

The 2002 Virginia Outdoors Plan divided the Commonwealth into 21 outdoor recreational planning regions. These regions coincide in name, area, number and boundaries with existing planning district commissions (PDCs) shown on the ensuing table and map. This differs from previous *VOP*s that divided the state into 11 outdoor recreational planning regions. The new format can more effectively address local and regional issues.

The advantages associated with revising the recreational regions are the ability to depict greater detail in the mapping, the availability of local and regional plans that address outdoor recreation, open space protection and conservation efforts, which should facilitate coordination with similar planning elements at the state level, and greater value of the 2000 *Virginia Outdoors Survey* data. Because demand-supply-needs assumptions were based on larger regions in the past, it often was difficult to apply the survey findings. The data used in each of the planning regions was based on the survey and inventory data.

As the outdoor recreational planning regions reflect the established PDCs, Hampton Roads combines the Southeastern PDC with the Peninsula PDC to address the planning issues for the entire Hampton Roads area. Chesterfield County and Colonial Heights are involved with both the Richmond Regional PDC and the Crater PDC to address the planning-related matters along the Appomattox River in the Tri-Cities area.

The purpose of this chapter is to examine each of the 21 recreational planning regions (Virginia Planning Districts) and evaluate them according to their particular needs as determined by the 2000 *Virginia Outdoors Survey* and 1999 Outdoor Recreation Areas and Facilities Inventory. Following each regional discussion is a set of recommendations that, if implemented, would help meet major state recreational needs. These recommendations are keyed by number to the regional maps, which show both existing and potential facilities for meeting recreation and open-space needs.

The specific proposals contained in this chapter relate primarily to those public facilities that are considered to be of national, state or regional significance. Items of purely local nature are felt to be the responsibility of local government and should be included in local recreation plans. General recommendations for local facilities are made, and a chart ranking activities by percent participation and broken down by PDC, is included in each regional narrative. This should aid planners in prioritizing needs at the local level.

In addition, the *VOP* has been enhanced by a discussion of private-sector opportunities. These references are found throughout the document. There are also recommendations for opportunities in the private sector found in each of the regional narratives in this chapter. The recommendations may be generic or specific, and are based on input from localities as well as a review of recreational needs that

CHAPTER IV

could be met by the private sector. The 2000 *Virginia Outdoors Survey* identified visiting historic sites, natural areas, and gardens as favored visitor activities. This information provides an opportunity for the private sector to examine its resources and determine if any can be made available to meet public demands.

Finally, one should recognize that although a recreational region or PDC may have a sufficient number of facilities, there might be deficiencies at the local level. Not only are the numbers of facilities important, but also equally as important are their location and distribution. People are not willing to travel more than 10 or 15 minutes to participate in many activities and therefore need to have a variety of opportunities in close proximity to their home as recommended in this chapter.

Demand/supply/needs calculations are based on the 2000 *Virginia Outdoors Survey* and the *Virginia Outdoor Plan* Inventory. Detailed discussion of the development of the demand/supply/needs data can be found in Appendix B.

PDC 1 - LENOWISCO
The counties of Lee, Wise and Scott; the City of Norton; the towns of Appalachia, Big Stone Gap, Pound, St. Paul, Coeburn, Wise, Jonesville, Pennington Gap, St. Charles, Gate City, Weber City, Dungannon, Duffield, Nickelsville, and Clinchport

PDC 2 - CUMBERLAND PLATEAU
The counties of Buchanan, Dickenson, Russell and Tazewell; the towns of Grundy, Clinchco, Clintwood, Haysi, Castlewood, Cleveland, Honaker, Lebanon, Bluefield, Cedar Bluff, Pocahontas, Richlands, and Tazewell

PDC 3 - MOUNT ROGERS
The counties of Bland, Carroll, Grayson, Smyth, Washington and Wythe; the cities of Bristol and Galax; the towns of Abingdon, Marion, and Wytheville

PDC 4 - NEW RIVER VALLEY
The counties of Floyd, Giles, Montgomery, and Pulaski; the City of Radford; the towns of Blacksburg, Christiansburg, Dublin, Floyd, Glen Lyn, Narrows, Pearisburg, Pembroke, Pulaski, and Rich Creek

PDC 5 – ROANOKE VALLEY-ALLEGHENY
The counties of Alleghany, Boutetourt, Craig and Roanoke; the cities of Clifton Forge, Covington, Roanoke, and Salem; the towns of Iron Gate, Fincastle, Troutville, Buchanan, New Castle and Vinton

PDC 6 - CENTRAL SHENANDOAH
The counties of Bath, Rockbridge, Rockingham, Highland, and Augusta; the cities of Buena Vista, Lexington, Staunton, Waynesboro and Harrisonburg; the towns of Bridgewater, Broadway, Craigsville, Dayton, Elkton, Glasgow, Goshen, Grottoes, Monterey, Mt. Crawford, and Timbersville

PDC 7 – NORTHERN SHENANDOAH VALLEY
The counties of Clarke, Frederick, Page, Shenandoah and Warren; the City of Winchester; the towns of Berryville, Boyce, Middletown, Stephens City, Luray, Shenandoah, Stanley, Edinburg, Mount Jackson, New Market, Strasburg, Toms Brook, Woodstock, and Front Royal

PDC 8 - NORTHERN VIRGINIA
The counties of Arlington, Fairfax, Loudoun and Prince William; the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park; the towns of Herndon, Leesburg, Vienna, and Dumfries

PDC 9 - RAPPAHANNOCK-RAPIDAN
The counties of Culpepper, Madison, Orange, Rappahannock, and Fauquier; towns of Culpeper, Gordonsville, Madison, Orange, Remington, and Warrenton.

PDC 10 - THOMAS JEFFERSON
The counties of Albemarle, Fluvanna, Greene, Louisa and Nelson; the city of Charlottesville

PDC 11 - CENTRAL VIRGINIA
The counties of Amherst, Appomattox, Bedford, and Campbell; the cities of Bedford and Lynchburg; the towns of Altavista, Amherst, Appomattox, and Brookneal

PDC 12 - WEST PIEDMONT
The counties of Franklin, Henry, Patrick, and Pittsylvania; the cities of Danville and Martinsville; the town of Rocky Mount

PDC 13 - SOUTHSIDE
The counties of Brunswick, Halifax, and Mecklenburg and the towns of South Boston, South Hill, Alberta, Brodnax, Lawrenceville, Clover, Halifax, Scottsburg, Virgilina, Boydton, Chase City, Clarksville, and LaCrosse

PDC 14 - PIEDMONT
The counties of Amelia, Buckingham, Charlotte, Cumberland, Lunenburg, Nottoway, and Prince Edward; the towns of Dillwyn, Phenix, Drakes Branch, Keysville, Charlotte Court House, Kenbridge, Victoria, Crewe, Burkeville, Blackstone, Farmville, and part of Pamplin

PDC 15 - RICHMOND REGIONAL
The counties of Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, and Powhatan; the city of Richmond, and the town of Ashland

PDC 16 - RADCO
The counties of Caroline, King George, Spotsylvania, and Stafford; the city of Fredericksburg; the towns of Bowling Green and Port Royal

PDC 17 - NORTHERN NECK
The counties of Lancaster, Northumberland, Richmond, and Westmoreland

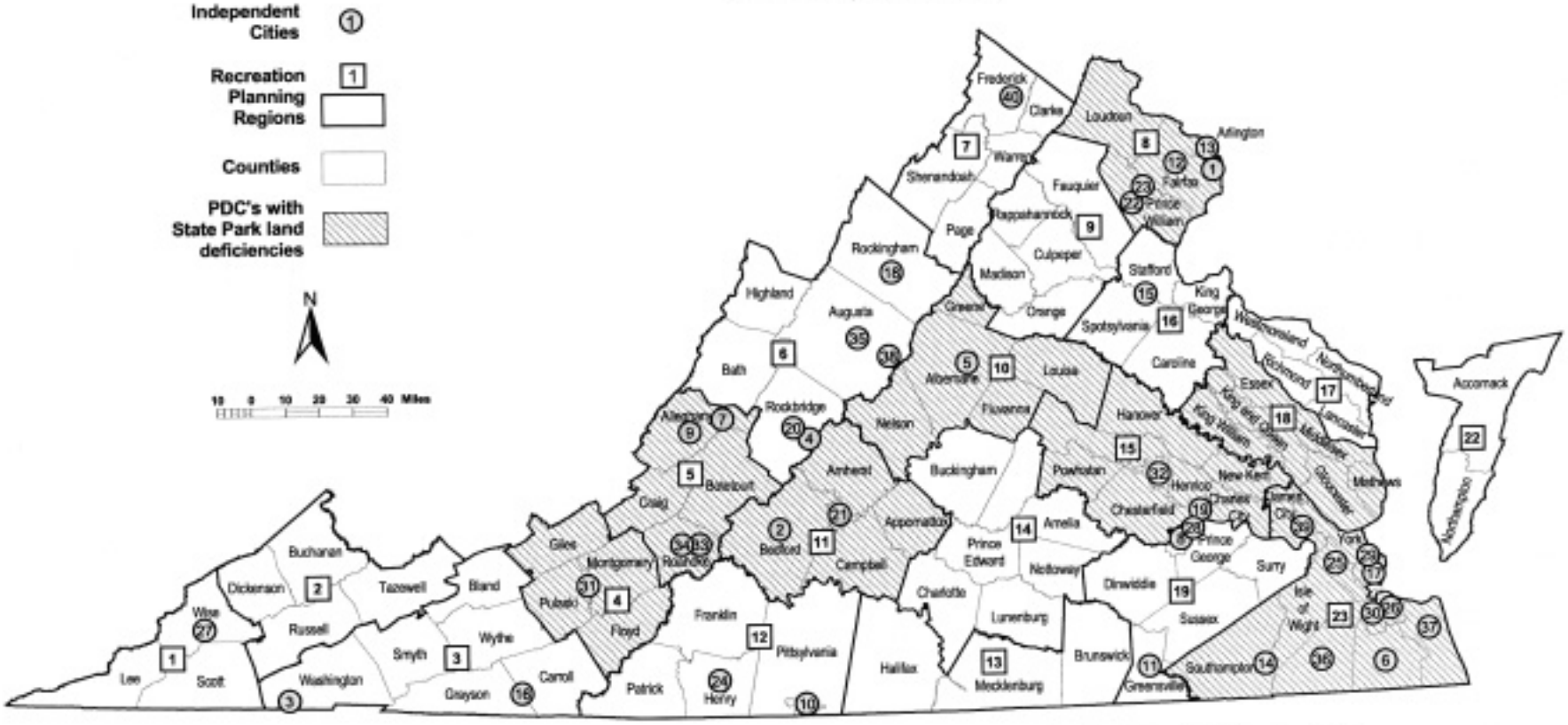
PDC 18 - MIDDLE PENINSULA
The counties of Essex, Gloucester, King and Queen, King William, Mathews, and Middlesex; the towns of Tappahannock, West Point, and Urbanna

PDC 19 - CRATER
The counties of Chesterfield, Dinwiddie, Greensville, Prince George, Surry, and Sussex; the cities of Colonial Heights, Emporia, Hopewell, and Petersburg; the towns of Claremont, Dendron, Jaratt, McKenney, Stony Creek, Surry, Wakefield, and Waverly

PDC 22 - ACCOMACK-NORTHAMPTON
The counties of Accomack and Northampton; the towns of Accomac, Belle Haven, Bloxom, Cape Charles, Cheriton, Chincoteague, Eastville, Exmore, Hallwood, Keller, Melfa, Nassawadox, Onancock, Onley, Painter, Parksley, Saxis, Tangier, and Wachapreague

PDC 23 - HAMPTON ROADS
The counties of Gloucester, Isle of Wight, James City, Southampton, and York; the cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Virginia Beach, Williamsburg, Suffolk, and Franklin; the towns of Windsor, Smithfield, Boykins, Branchville, Capron, Courtland, Ivor, and Newsoms

Planning Districts - Recreational Planning Regions



Independent Cities

1. Alexandria
2. Bedford
3. Bristol
4. Buena Vista
5. Charlottesville
6. Chesapeake
7. Clifton Forge
8. Colonial Heights
9. Covington
10. Danville
11. Emporia
12. Fairfax
13. Falls Church
14. Franklin
15. Fredericksburg
16. Galax
17. Hampton
18. Harrisonburg
19. Hopewell
20. Lexington
21. Lynchburg
22. Manassas
23. Manassas Park
24. Martinsville
25. Newport News
26. Norfolk
27. Norton
28. Petersburg
29. Poquoson
30. Portsmouth
31. Radford
32. Richmond
33. Roanoke
34. Salem
35. Staunton
36. Suffolk
37. Virginia Beach
38. Waynesboro
39. Williamsburg
40. Winchester

Planning Districts - Recreation Planning Regions

1. LENOWISCO
2. Cumberland Plateau
3. Mount Rogers
4. New River Valley
5. Fifth
6. Central Shenandoah
7. Lord Fairfax
8. Northern Virginia
9. Rappahannock-Rapidan
10. Thomas Jefferson
11. Central Virginia
12. West Piedmont
13. Southside
14. Piedmont
15. Richmond Regional
16. RADCO
17. Northern Neck
18. Middle Peninsula
19. Crater
22. Accomac-Northampton
23. Hampton Roads

Region 1: Lenowisco Planning District

The Lenowisco Planning District includes Lee, Scott and Wise counties, and the City of Norton. Located in far southwestern Virginia, it is bordered by Tennessee to the south and Kentucky to the west. The mountainous land is a beautiful setting for living and recreation. Coal, natural gas, forestry and agriculture provide the economic base for this region's 91,019 residents.

Natural beauty is abundant in this region and can be enjoyed in the many public recreational areas, parks and forests. For instance, the 1,700-acre Cumberland Gap National Historic Park in Lee County offers camping, picnicking, interpretive displays, hiking and nature study opportunities. There are 82,187 acres of U.S.D.A. Forest Service land in the region that provide opportunities for developed, as well as dispersed outdoor recreation. One lake, the North Fork of the Pound reservoir, provides for power boating and sailing. Rivers and streams in the region support fishing, canoeing and other water-based recreational activities. Horseback riding, hiking and bicycling trails crisscross the national forest lands offering visitors access to breathtaking scenic vistas and remote mountain hideaways. The Guest River, from the Route 72 bridge to the confluence with the Clinch River, is a state Scenic River.

Wilderness Road State Park will provide visitors to the area with information on regional attractions and points of interest. The park will also offer picnicking, trails, open play areas and an area to be used for local events. The abandoned section of railroad right-of-way that runs through the park is being developed into a trail that will connect local communities with the park and with Cumberland Gap National Historic Park. The trail has been named the Wilderness Road Trail.

The supply of facilities for picnicking, camping, swimming, hunting and fishing is adequate or exceeds local demand in this region. There is a considerable amount of imported demand for the campsites, picnic areas and miles of horse and hiking

trails provided in the national park and national forest recreational areas. "The Heart of Appalachia" marketing campaign is capitalizing on these surpluses to attract ecotourism to the region.

Although the supply of recreational areas and facilities is adequate for many activities, there are several areas where additional facilities are needed to meet measured demand. The *Virginia Outdoors Survey* has indicated the need for additional playgrounds, tennis courts, soccer fields, basketball courts, softball fields, football fields, baseball fields and golf courses. See Table 3 on page 155.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private facility opportunities

This region has few developed recreation areas. There is a need for a golf course, tennis courts and a swimming pool. A development that includes all three should be very popular.

Consideration should be given to the development of softball field complexes in or near industrial complexes. Other localities have found these facilities to be profitable investments and good morale builders for local businesses whose teams compete with each other. Tournaments with teams competing from throughout the region can bring hospitality dollars into the community as many players bring their families to the two-three day tournaments.

The large acreage of federal lands in this region should support the establishment of guide and outfitter services. Hunting, fishing, backpacking, canoeing, camping, pack animal excursions and horseback riding services should all be popular business opportunities.

Federal facilities

1. The George Washington and Jefferson National Forests should continue development of its support facilities for the **Guest River Gorge Trail**. When completed, visitors will be able to access the rail-to-trail conversion from several locations. The Guest River Gorge is a spectacular scenic area that should attract visitors from throughout the country.

2. A portion of the **Guest River** in Wise and Scott counties has been designated a state Scenic River. This beautiful river flows through a spectacular gorge on its way to join the Clinch River. The Forest Service should evaluate the Guest River's potential as a National Wild or Scenic River.

3. Horseback riding enthusiasts are working with the Forest Service to develop an equestrian trail on **Pine Mountain** linking recreational facilities at Pound Reservoir with those at Breaks Interstate Park.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the original master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

4. The state has developed plans for use and management of **Wilderness Road State Park** site in Lee County. Efforts should be made to connect the Wilderness Road Trail with the northern end of the Cumberland Gap National Historic Park through Hensley Settlement and looping back to the Wilderness Road at Cumberland Gap.

5. **Natural Tunnel State Park** in Scott County has been expanded to provide ample facilities to meet local demand as well as that of visitors to the region. The park should increase its involvement in special events, in meeting day use needs of the surrounding communities as well as serving overnight visitors. The Cove Ridge Environmental Education Center has been a positive addition to the park and is helping to meet the need for residential educational opportunities in the region. A new master plan for the park was approved in 2000. The plan calls for expansion of the campground, addition of housekeeping cabins, new day use and picnic facilities, and a lodge and restaurant.

Natural areas

The **Cedars Natural Area Preserve** is located in Lee County.

As of March 2001, 1,374 occurrences of 237 rare species and natural communities have been documented in the LENOWISCO Planning District by the Department of Conservation and Recreation. Ninety-four species are globally rare and 25 are federally

threatened or endangered. Ninety-nine conservation sites have been identified in the district; only 35 (35%) have received any level of protection through ownership or management by state, federal and non-government organizations.

DCR recommends that the 64 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage staff. For a discussion of the Natural Heritage Program, see page 133.

Other state property

6. **Mountain Empire Community College** in Wise County has 100 acres of land, some of which is suitable for recreational use. Some facilities have been developed that help to meet local demand.

Public water access

The rivers and lakes of far southwestern Virginia are popular recreational resources. Access to the developed lakes adequately meets demand. The major rivers are served by public access areas in some segments, but additional access is needed where existing sites are too far apart. To best meet current and projected demand, sites should be developed approximately every five miles and, where appropriate, portages should be created around dams and other river obstacles. Specifically, priority for developing access sites should be given to the following:

7. The **Powell** and **Clinch** rivers support recreational flows throughout most of the recreational season and therefore should have priority for the development of access sites. Natural Tunnel State Park staff conduct interpretive trips on the Clinch River in Scott County. The shortage of public access sites limits the duration and types of trips that can be offered. Facilities for canoe-in camping and public rest stops are also needed at appropriate distances along the river. State and local officials should work with river user groups to develop a canoe trail for the Clinch and the Powell rivers. Also, a management plan should be developed for each canoe trail that addresses law enforcement, education, camping, sanitation, access management and maintenance.

Scenic Rivers

The following river segment should be evaluated to determine its suitability as a Virginia Scenic River:

8. The **Clinch River** in Scott County — a segment of this river in Russell County was designated in 1992, and consideration should be given to extending that designation to the Tennessee state line. The Clinch River supports some of the most significant freshwater mussel populations in the country.

Historic resources

9. The **Daniel Boone National Historic Trail** passes through Scott and Lee counties and exits the state at the Cumberland Gap National Historic Park. The route enters the state from Tennessee on Route 23 and joins Route 58 near Duffield. It then follows Route 58 west to the Cumberland Gap. Historically significant sites along the route should be identified with interpretive signage and informational material. There is an overlap with the Wilderness Road Trail, with major elements of the Daniel Boone Trail incorporating the route and historic features that are considered components of the Wilderness Road Trail.

Trails and greenways

Locally and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. DCR recommends that each locality develop a trail and greenway plan as part of their comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network to connect existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive

pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following is a trail/greenway proposal for this region:

10. A greenway with a multi-use trail called the **Wilderness Road Trail** is being developed between Cumberland Gap National Historical Park and the Wilderness Road State Park using the abandoned railroad. The greenway may be extended east from the state park and then looped back through the national park to rejoin the trail at Cumberland Gap. The abandoned railroad corridor continues east of the trail terminus. This should be extended and other abandoned railroad segments in the region should be incorporated into this trail system where linkages are practical.

11. The **Chief Benje Trail** is being developed from Flag Rock, near Norton, to Appalachia in Wise County.

Scenic Highways and Virginia Byways

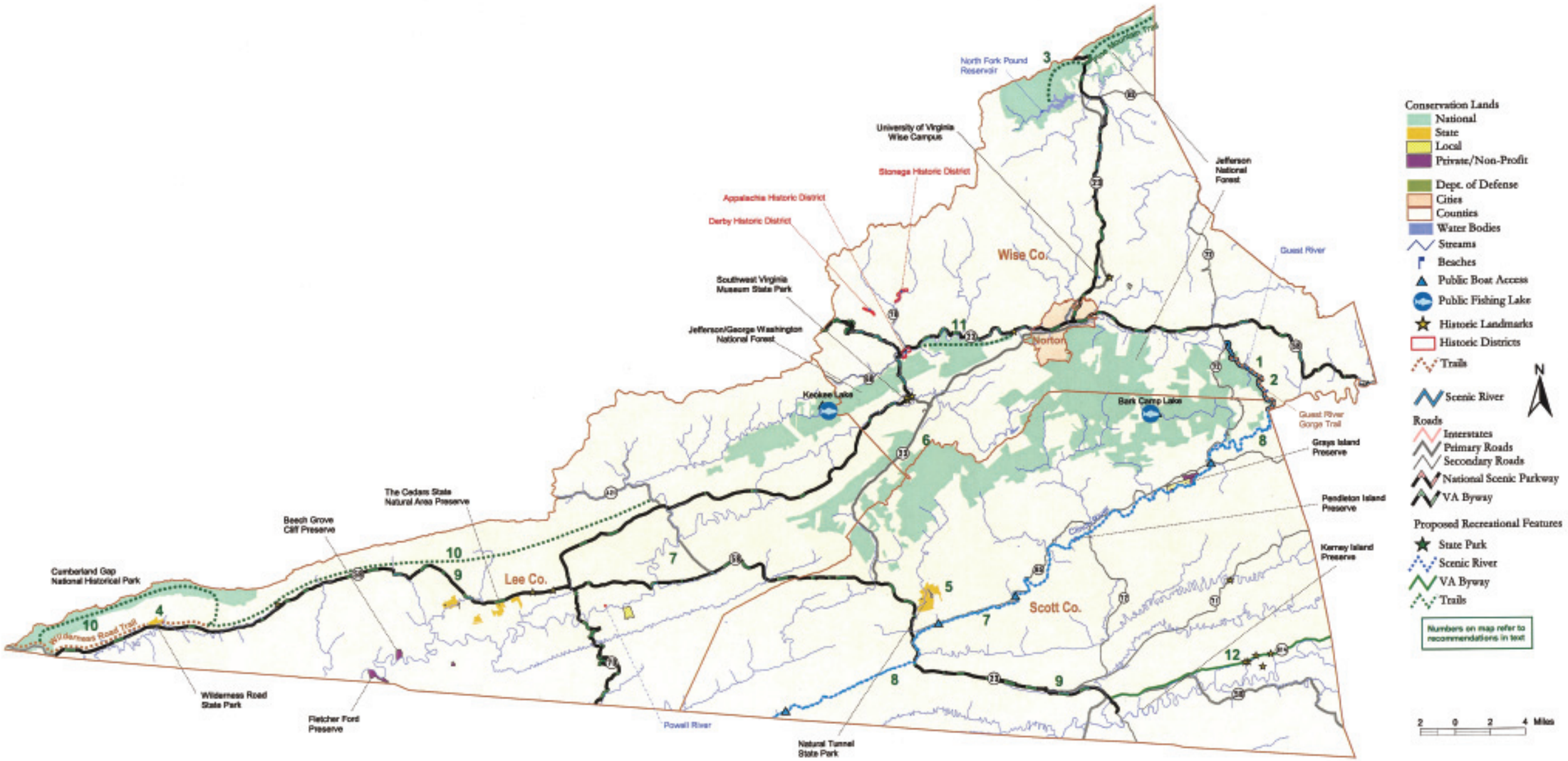
There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system and other driving tour routes. Within the Planning District, the Wilderness Road Trail from Cumberland Gap up the Route 11 corridor to the lower end of the Shenandoah Valley, the Daniel Boone National Historic Trail, the Wildlife and Bird Watching Trail, and the Civil War Trail should all be considered. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following road has been recommended for consideration as a Virginia Byway:

12. **Route 614** from Weber City in Scott County to the Washington County line.

Lenowisco

PD I



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 3
Existing and Projected Needs
LENOWISCO (PD #1)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	177,487	35	fields	19	0	16	36	17
Basketball	322,207	76	goals	14	0	62	78	64
Bicycling	821,902	58	miles	NI			60	
Lake, River, Bay Use (combined)	545,386	6,679	water acres	496		6,183	6,816	6,320
Power Boating	122,876	2,962	water acres	S			3,023	
Sailing	83,737	725	water acres	S			740	
Lake Fishing	263,591	1,483	water acres	S			1,513	
Salt Water Fishing	16,930	95	water acres	S			97	
Jet Ski/ Personal Watercraft (PWC)	26,213	411	water acres	S			419	
Water Skiing / Towed on Water	32,039	1,004	water acres	S			1,025	
Camping (*)	243,385	1,435	sites	679		756	1,465	786
Tent camping	68,810	406	sites	365	0	41	414	49
Developed camping	174,574	1,030	sites	314	270	716	1,051	737
Fitness Trail use	28,216	2	mile trails	4	0	-2	2	-2
Fields (combined)	180,673	38	fields	5	0	33	39	34
Football	69,630	15	fields	NS			15	
Soccer	111,043	23	fields	NS			24	
Stream Use (combined)	336,497	201	stream miles	21		180	205	184
Stream Fishing	263,591	185	stream miles	S			189	
Human-powered boating	47,785	12	stream miles	S			12	
Rafting	10,922	2	stream miles	S			2	
Tubing	14,199	2	stream miles	S			2	
Golfing	317,474	11	courses	4	3	7	11	7
Hiking/ Backpacking	212,984	109	trail miles	157	0	-48	111	-46
Horseback Riding	38,228	17	miles	56	6	-39	17	-39
In-Line Skating	25,485	2	miles	NI			2	
Jogging/Running	650,786	52	mile trails	NI			53	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions

Existing and Projected Needs
LENOWISCO (PD #1) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	30,582	4	sites	1		3	4	3
Picnicking Away from Home	162,014	421	tables	746	27	-325	429	-317
Skateboarding	24,575	8	sites	NI			8	
Snow Skiing or Snowboarding	37,136	1	ski lifts	0	0	1	1	1
Softball	171,116	30	fields	12	0	18	31	19
Sunbathing/ Relaxing on Beach	222,359	16	beach acres	7	0	9	16	9
Swimming Outdoor Area	155,096	16	beach acres	7		9	16	9
Swimming Outdoor Pools	213,440	9	pools	14	2	-5	9	-5
Swimming Indoor Pools	73,907	1	pools	0	0	1	1	1
Tennis	113,774	71	courts	28	3	43	73	45
Used a Playground	294,902	42	sites	22	1	20	43	21
Visiting Gardens	25,121	3	sites	NI			3	
Visiting Historic Sites	124,150	11	sites	NI			11	
Visiting Natural Areas	118,325	20	sites	NI			20	
Volleyball	23,210	7	courts	4	0	3	7	3
Went Hunting	216,625	35,524	acres	51,687		-16,163	36,256	-15,431
Went Shooting Total	163,106	92	fields	NI			94	
Target	72,451	41	fields	NI			42	
Skeet or Trap	37,136	21	fields	0		21	21	21
Other	18,204	10	fields	NI			10	
Drive for Pleasure	888,801	na	na	NI			na	
Motorcycle/ATV (combined)	81,462	37	miles	0	0	37	38	38
Driving All-Terrain Vehicle	58,252	27	miles	NS			27	
Driving Motorcycle Off-Road	23,210	11	miles	NS			11	
Driving 4-Wheel-Drive Off-Road	61,711	na	na	NI			na	
Walking for Pleasure	2,735,121	na	na	NI			na	
Other	61,893	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 2: Cumberland Plateau Planning District

The Cumberland Plateau Planning District in southwestern Virginia encompasses the counties of Russell, Dickenson, Buchanan and Tazewell. This rugged and beautiful mountainous area contains some of the most spectacular scenery in the state, as well as some of the most unique natural habitats. Inhabitants and visitors to the area enjoy a variety of natural resource-based recreational opportunities, as well as developed facilities at several parks and forest recreation areas.

The region's population is approximately 118,279 and has declined 5,300 since 1990. The Cumberland Plateau Planning District Commission is very active in economic development in the area. In the last several years, road construction and industrial park development have led infrastructure enhancements. The attractiveness of the area to tourism and the revenues that come with it has been enhanced through the establishment of the Pinnacle Natural Area Preserve and the designation of the Clinch River and Big Cedar Creek as state Scenic Rivers in Russell County.

Rivers and streams in the region offer excellent fishing and water sport opportunities, while large tracts of forest lands provide hunting, hiking and backcountry recreation. Camping, cabins and swimming are available to visitors to Breaks Interstate Park in Dickenson County. Camping and boating are available at the John W. Flannagan Dam and Reservoir Recreation Area. Interpretive and educational programs are offered at both areas. The Clinch Mountain Wildlife Management Area in Russell County provides primitive camping, hunting, fishing and hiking opportunities. The 2000 *Virginia Outdoors Survey* indicates a regional shortage of campsites, playgrounds, football/soccer fields, baseball fields, basketball goals, tennis courts and golf courses. There also appears to be an inadequate supply of available resources to meet certain boating and water-based activities. In all other measured activities,

the region appears to have an adequate supply to meet current demand. See Table 4 on page 163.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector opportunities

The identified need for golf courses, swimming pools and tennis courts would suggest that a recreation development that offered these features should be a profitable investment.

Local citizen groups may want to form soccer, football, baseball or other support organizations to raise funds for the development of fields for these sports. Many youth leagues around the state have developed quality sports complexes where a range of activities takes place. Adult leagues are also prevalent in some areas with similar success in field development.

The shortage of adult softball fields may offer an opportunity for an entrepreneur to develop a softball sports complex for adult league play. These complexes are especially profitable if tournaments are held which attract teams from a wide area to compete.

The large acreages of forest lands and the many miles of free flowing rivers and streams suggest that the area will support outfitter and guide services, such as a canoe livery on the Clinch River and a rafting service between Pucketts Hole and Nash Ford. Access to prime areas of the river is good. By working with riparian landowners, a series of canoe campsites could be developed along the river, thereby offering customers a choice of trip lengths. The potential for developing profitable adventure vacation businesses is high in southwestern Virginia where the scenery and natural diversity are great and the access is good. A rafting industry may also be profitable on Russell Fork through the Breaks if Haysi Dam is constructed to provide water releases.

Federal facilities

1. The **John W. Flannagan Dam and Reservoir** recreation area provides the only opportunities for power boating and sailing in the region. Because the demand for flat-water recreation in the region exceeds supply, plans for other activities involving the use of water from the reservoir, such as electric power generation and whitewater releases, should consider the importance of this resource.

2. The **George Washington and Jefferson National Forests** and horseback riding enthusiasts are working to develop the Pine Mountain Horse Trail. When completed, this trail will link Breaks Interstate Park with the Pound Reservoir in Wise County.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

3. **Breaks Interstate Park** should investigate opportunities to acquire lands along the Russell Fork that would facilitate the development of a white water rafting industry on the river. The park should also make an effort to trade lands with the U.S.D.A Forest Service to acquire the towers in the park's viewshed.

4. Consideration should be given to acquiring developable land in the vicinity of the **Pinnacle Natural Area Preserve** that can accommodate the development of day use and overnight facilities to augment the natural and scenic attributes of the preserve. Any recreation facility developed in the area could increase the supply of canoeing opportunities through canoe livery services on the Clinch River.

Natural areas

Both **Cleveland Barrens Natural Area Preserve** and **Pinnacle Natural Area Preserve** are located in Russell County.

As of March 2001, 667 occurrences of 166 rare species and natural communities have been documented in the Cumberland Plateau Planning District by the Department of Conservation and Recreation. Fifty-six species are globally rare and 15 are federally threatened or endangered. Fifty-six conservation sites have been identified in the district; only 13 (23%) have received any level of protection through ownership or management by state, federal and non-government organizations.

DCR recommends that the 43 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of DCR's Natural Heritage Program, see page 133.

5. The **Pinnacle Natural Area Preserve** is in Russell County at the confluence of Big Cedar Creek and the Clinch River. Improvements have been made to access of the site, but the development of visitor support facilities needs to be completed.

Other state property

6. **Southwest Virginia Community College** in Tazewell County has a 100-acre tract suitable for some recreational development.

Public water access areas

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

7. Access to the **Clinch River** is fairly good where the Tennessee Valley Authority and Virginia Department of Game and Inland Fisheries collaborated in the development of a series of access sites. Additional public access is needed on the river and other streams in the region for fishing and boating access while minimizing the potential for trespassing. Where appropriate, portages should be created around dams and other river obstacles. Canoe-in campsites and managed rest stops should also be added to enjoy the benefits of a managed canoe trail on these waterways.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

8. The **Clinch River** in Russell County from Nash Ford to the Scott County line.

9. The **Russell Fork** in Breaks Interstate Park.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

10. **Route 611** and **Route 80** between Breaks Interstate Park and John W. Flannagan Dam and Reservoir and Route 80 between Breaks Interstate Park and Route 19 in Russell County.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities these desirable resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network to connect existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Localities, cities and counties should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are trail/greenway proposals for this region:

11. When complete, the **Pine Mountain Horse Trail** will connect Breaks Interstate Park with The Pound Reservoir in Wise County.

12. Sections of the **Appalachian National Scenic Trail** need additional protection and improvements. A permanent safe crossing of I-77 should be developed.

13. **Interstate Bike Route 76** should be enhanced and properly identified.

14. The **Clinch River**, from the confluence with the Little River in Russell County to the Scott County line, should be developed and managed as a canoe trail.

Cumberland Plateau

PD 2

Table 4
Existing and Projected Needs
Cumberland Plateau (PD #2)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	230,644	46	fields	19	0	27	46	27
Basketball	418,708	99	goals	50	1	49	99	49
Bicycling	1,068,059	76	miles	NI			76	
Lake, River, Bay Use (combined)	708,728	8,679	water acres	1,760		6,919	8,680	6,920
Power Boating	159,677	3,849	water acres	S			3,849	
Sailing	108,817	942	water acres	S			942	
Lake Fishing	342,536	1,927	water acres	S			1,927	
Salt Water Fishing	22,000	124	water acres	S			124	
Jet Ski/ Personal Watercraft (PWC)	34,064	534	water acres	S			534	
Water Skiing / Towed on Water	41,634	1,305	water acres	S			1,305	
Camping (*)	316,278	1,865	sites	510		1,355	1,865	1,355
Tent camping	89,419	527	sites	69	10	458	527	458
Developed camping	226,859	1,338	sites	441	260	897	1,338	897
Fitness Trail use	36,666	3	mile trails	14	0	-11	3	-11
Fields (combined)	234,784	49	fields	8	0	41	49	41
Football	90,483	19	fields	NS			19	
Soccer	144,300	30	fields	NS			30	
Stream Use (combined)	437,277	262	stream miles	45		217	262	217
Stream Fishing	342,536	241	stream miles	S			241	
Human-powered boating	62,096	16	stream miles	S			16	
Rafting	14,193	3	stream miles	S			3	
Tubing	18,452	2	stream miles	S			2	
Golfing	412,557	14	courses	4	4	10	14	10
Hiking/ Backpacking	276,773	142	trail miles	87	10	55	142	55
Horseback Riding	49,677	21	miles	33	5	-12	21	-12
In-Line Skating	33,118	2	miles	NI			2	
Jogging/Running	845,695	68	mile trails	NI			68	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Cumberland Plateau (PD #2) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	39,742	6	sites	0		6	6	6
Picnicking Away from Home	210,537	547	tables	1,005	59	-458	547	-458
Skateboarding	31,935	10	sites	NI			10	
Snow Skiing or Snowboarding	48,258	1	ski lifts	0	0	1	1	1
Softball	222,365	40	fields	35	0	5	40	5
Sunbathing/ Relaxing on Beach	288,956	21	beach acres	1	1	20	21	20
Swimming Outdoor Area	201,547	21	beach acres	1	0	20	21	20
Swimming Outdoor Pools	277,364	12	pools	14	7	-2	12	-2
Swimming Indoor Pools	96,043	1	pools	2	0	-1	1	-1
Tennis	147,849	92	courts	57	10	35	92	35
Used a Playground	383,224	55	sites	32	1	23	55	23
Visiting Gardens	32,645	4	sites	NI			4	
Visiting Historic Sites	161,333	14	sites	NI			14	
Visiting Natural Areas	153,763	26	sites	NI			26	
Volleyball	30,161	9	courts	1	0	8	9	8
Went Hunting	281,504	46,164	acres	27,553		18,611	46,167	18,614
Went Shooting Total	211,956	120	fields	NI			120	
Target	94,150	53	fields	NI			53	
Skeet or Trap	48,258	27	fields	1		26	27	26
Other	23,656	13	fields	NI			13	
Drive for Pleasure	1,154,994	na	na	NI			na	
Motorcycle/ATV (combined)	105,860	48	miles	0	0	48	48	48
Driving All-Terrain Vehicle	75,699	35	miles	NS			35	
Driving Motorcycle Off-Road	30,161	14	miles	NS			14	
Driving 4-Wheel-Drive Off-Road	80,193	na	na	NI			na	
Walking for Pleasure	3,554,284	na	na	NI			na	
Other	80,430	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 3: Mount Rogers Planning District

The Mount Rogers Planning District is comprised of the counties of Bland, Carroll, Grayson, Smyth, Washington and Wythe, and the cities of Bristol and Galax. The population of the district is 190,020 and growing. Recreational delivery systems in this area are well developed with the cities, towns and counties providing recreational facilities and leisure services through professionally staffed parks and recreation departments. The supply of parks and recreation areas and developed facilities within those parks meets much of the demand for recreational facilities in the district.

Large tracts of national forest lands provide dispersed recreation close-to-home for residents of this scenic area. The most significant area is the Mount Rogers National Recreation Area (NRA), offering several developed campgrounds, picnic areas, many miles of hiking, bicycling and horseback riding trails, fishing lakes, trout streams and wilderness. Mount Rogers and Whitetop Mountain are the highest peaks in Virginia, and provide terrain and habitat features uncommon to the state and the East Coast. Horseback riders, mountain bicyclists and hikers, in particular, find Mount Rogers' high country attractive for its similarity to western terrain.

Efforts have been made to attract tourists to this part of the state. Local governments and area businesses have joined the U.S.D.A. Forest Service in vacation-planning efforts that highlight area attractions. Tourism plays an increasingly important role in the economics of Southwestern Virginia.

The supply of recreational areas and facilities in this region is adequate to meet measured demand in many activities. However, shortages of the following facilities were identified by the 2000 *Virginia Outdoors Survey:* tennis courts, basketball goals,

a golf course and football/soccer fields. There is a very large demand for water-based recreation such as power boating, sailing, fishing and water-skiing. Most of this demand is exported to the large lakes outside of this region. Demand for stream fishing and canoeing/kayaking/jon boating also exceeds existing supply, indicating a need to improve access to rivers and streams in the region. See Table 5 on page 175.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector opportunities

There is a great opportunity for private investors to develop and operate facilities within the Mount Rogers NRA that the Forest Service does not have funding to develop. A good example is the Fairwood Valley Horse Camp. Dispersed camping in this area is exceeding carrying capacity of the valley and a full service horse camp would be a popular attraction. Coupling the campground with a livery operation would round out a full-service facility.

The Mount Rogers NRA Master Plan contains proposals for a number of additional facilities that would be profitable enterprises for investors.

Adventure vacation scenarios on trails and rivers in this area have unlimited potential. Support facilities, existing interconnected multi-use trail system, accessible rivers, blue ribbon trout fisheries and spectacular scenery make this part of Virginia a natural for guide and outfitter services to offer a wide range of services to the millions of urban-suburban dwellers on the Atlantic seaboard. Although the primary means of transport in this area is the automobile, transportation is afforded by rail and air as well. The potential is very good for operators at any level to do well in this business field.

There is a need for additional public access on some very attractive stretches of rivers in this region. Private canoe livery operators should obtain launching rights from riparian landowners in stretches that have limited public access. Also, canoe-in campsites should be arranged with riverfront landowners to increase the length of trips that operators could offer customers.

There are many opportunities along the New River, identified as an American Heritage River, for private investment to take advantage of the combination of attractions created by the river and the New River Trail State Park. The river and the trail share the same valley for nearly 30 miles. Bicycling, horseback riding, hiking, canoeing, camping, nature study, fishing and scenic viewing are popular activities. Visitors are learning of this unique attraction but finding accommodations and services in short supply. The opportunity to meet the need for camping, bed and breakfasts, hotels, hostels, canoe, bicycle, or horse liveries, shuttle services and equipment rental is very good at this time.

Federal facilities

1. The **New River Recreation Area** of the Mount Rogers National Recreation Area should be completed as soon as is practical. This facility will anchor the eastern end of the NRA, provide access for water-based recreation on the New River, and overnight and day use facilities for users of New River Trail State Park which passes through the recreation area. DCR and the Forest Service should work together to see that services are enhanced and that resources are shared to provide adequate maintenance, management and operation of the area.

2. **Fishers Peak Recreational Area** in Carroll County is being developed by the National Park Service as part of the Blue Ridge Parkway. Local governments need to support efforts to encourage adjacent landowners, localities and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of the Blue Ridge Parkway as part of a multi-regional parkway viewshed planning process.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

3. **Grayson Highlands State Park** and the **New River Trail State Park** have been connected by an extension of the Virginia Highlands Horse Trail executed by the Forest Service. This combined trail system includes more than 300 miles of trails, and links the New River

Trail State Park in the north and east with the Virginia Creeper Trail on the southern end of Mount Rogers National Recreation Area. This trail system affords visitors an opportunity to explore hundreds of miles while traversing some of the state's most spectacular scenery and enjoying amenities provided in national forest and state park campgrounds and facilities along the way. The city of Galax and the towns of Pulaski, Damascus and Abingdon anchor the termini with high quality hospitality amenities.

4. At **Hungry Mother State Park** many facilities have been refurbished and upgraded. The cabins have been winterized to extend availability during shoulder seasons. The Hungry Mother Restaurant has been enlarged and renovated and now can serve large groups and Hemlock Haven visitors. A new Discovery Center enhances the educational programs at the park. In 2000, the master plan for the park was revised and updated. The plan calls for the renovation of campgrounds, bathhouses, cabin interiors, a new park office, acquisition of in-holdings and the adjacent privately owned Hungry Mother Campground, and the conversion of the old CCC Camp to an environmental field school. A residential environmental education center is proposed as an addition to Hemlock Haven, as are replacement cabins and six new lodges.

5. **New River Trail State Park** is rapidly becoming a popular destination area for trail enthusiasts from all over the Mid-Atlantic region. Visitation in 2000 exceeded 400,000. The trail has been designated by the president as a National Millennium Trail. A new master plan for the park, adopted in 2000, calls for the provision of campsites along the trail that can be used by both trail users and canoe campers. A new equestrian campground will be constructed at Jackson's Ferry, and canoe-in sites will be developed on Baker Island and Hiwassee Island. Foster Falls is being developed as the main park headquarters and will include a historic interpretive village, hotel, concessions, day use picnic area, new park office and a new maintenance yard.

Natural areas

Big Spring Bog Natural Area Preserve is located in Grayson County. **Piney Creek Bog**, which also occurs in Grayson County, will be dedicated as a natural area. As of March 2001, 949 occurrences of 255 rare species and natural communities have been documented in the Mount Rogers Planning District by the Department of Conservation and Recreation. Sixty-nine species are globally rare and 17 are federally threatened or endangered. Eighty-seven conservation sites have been identified in the district; only 24 (27.6%) have received any level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 63 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see page 133.

Other state property

6. **Virginia Highlands Community College** in Washington County has a 100-acre tract with potential for the development of recreational facilities.

6a. The Department of Game and Inland Fisheries has acquired the 8,300-acre **Big Survey** property near Wytheville for a wildlife management area. This property has great potential for a wide variety of dispersed recreation opportunities.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

7. Access points at five-mile intervals are needed along the **New River** and other major rivers and canoeable/fishable streams in the region. In an innovative program, the Appalachian Power Company, with the Departments of Conservation and Recreation and Game and Inland Fisheries, has developed several access sites on the New River along New River Trail State Park. These sites will enhance the multipurpose utility of the trail, while increasing the public's access to more miles of the New River. Where appropriate, portages have been created around dams and other river obstacles. The New River Canoe Trail will be

extended upstream into North Carolina and downstream from Claytor Lake into West Virginia.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

8. **New River** from Buck Hydro Dam to Allisonia.

9. **Big Reed Island Creek** from Route 753 to near Route 693 in Carroll and Pulaski counties.

10. **Whitetop Laurel Creek** from Creek Junction in Grayson to Damascus in Washington County.

11. The **North Fork of the Holston** from the community of North Holston to the Tennessee state line in Scott County.

12. The **Middle Fork Holston River** from Chilhowie to South Holston Lake in Washington County.

13. **South Fork Holston River** from Sugar Grove to South Holston Lake.

14. **Cripple Creek** from Speedwell to the New River in Wythe County.

15. **Laurel Fork** from the headwaters to Big Reed Island Creek in Carroll County.

16. **New River** from the North Carolina/Virginia line to Buck Hydro Dam.

17. **Big Brumley Creek** from Hidden Valley Lake to its confluence with the North Fork of the Holston in Washington County.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

18. **Route 75** in Washington County from Abingdon to the Tennessee state line.

19. **Route 58** in Washington and Grayson counties between Abingdon and Volney.

20. **Route 42** in Smyth and Bland counties between Route 16 and the Giles County line.

21. **Route 52** from Fort Chiswell to Poplar Camp in Wythe County including Route 608 to Foster Falls.

22. **Route 61** in Tazewell and Bland counties from Tazewell to the Bland/Giles County line.

23. **Route 619** from Route 52 to Route 749 to Route 680 and back to Route 52.

24. **Route 21** from Wytheville to Speedwell.

25. **Route 610** and **Route 121** from Wytheville through Max Meadows to Fort Chiswell.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these desirable resources. DCR recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network to connect existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Localities, cities and counties should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are trail/greenway proposals for this region:

26. The **Appalachian National Scenic Trail** traverses the area through public and private land. Sections are in need of additional protection. Every effort should be made to avoid impacts to the trail in planning for public projects such as roads, pipelines and power lines.

27. **Connector trails** joining New River Trail State Park to other parks and towns along the corridor should be developed.

28. **U.S. Bike Route 76** should be enhanced and properly identified.

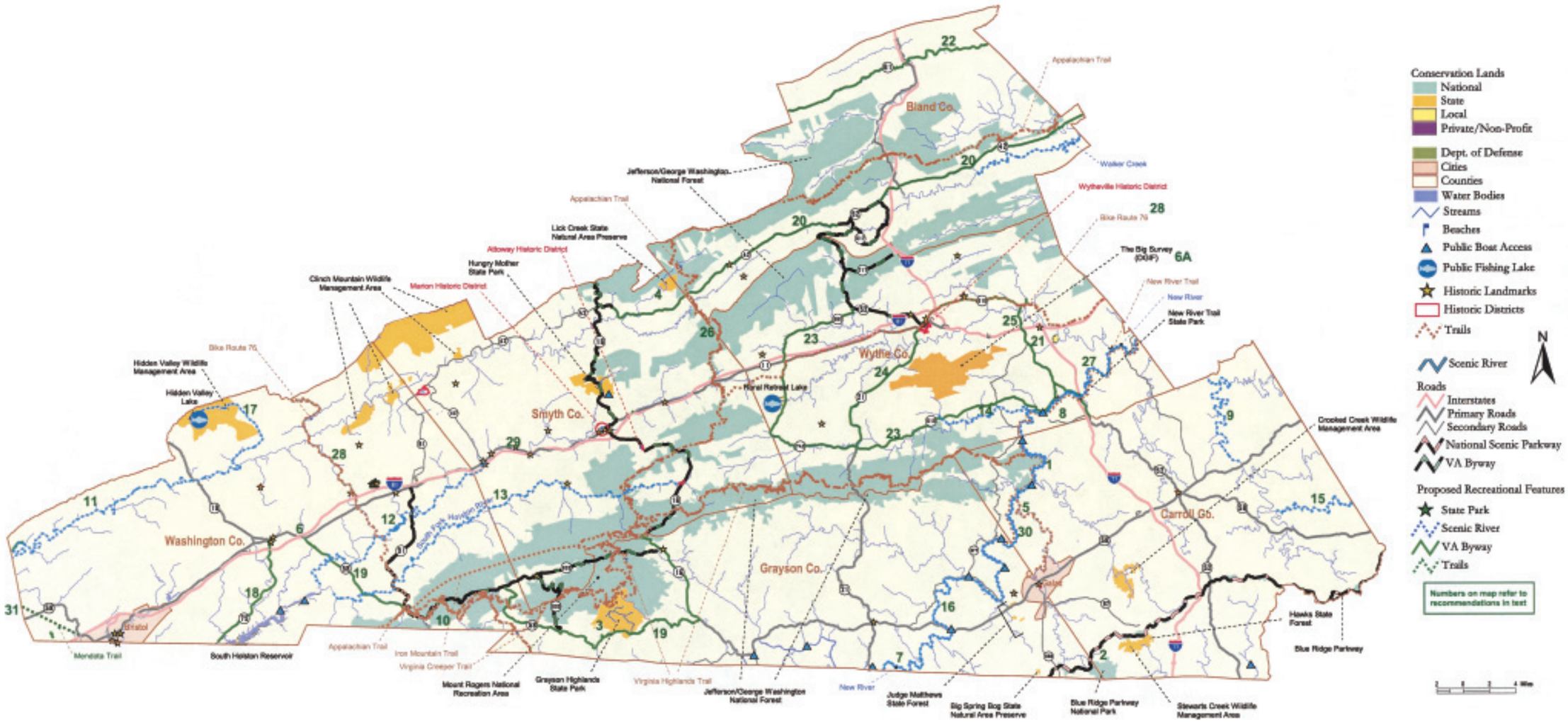
29. The **Wilderness Road** should be identified in the region, and properly signed and marketed.

30. A detailed plan for the **New River Canoe Trail** should be fully developed and missing elements should be constructed. A framework for managing and operating the trail should be agreed upon by interested parties along the corridor.

31. The City of Bristol has purchased portions of the abandoned Southern Railroad corridor between Bristol and Moccasin Gap. This 29-mile corridor will be known as the **Mendota Trail**.

Mount Rogers

PD 3



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 5
Existing and Projected Needs
Mount Rogers (PD #3)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	370,539	73	fields	35	0	38	76	41
Basketball	672,671	160	goals	44	3	116	165	121
Bicycling	1,715,881	122	miles	NI			126	
Lake, River, Bay Use (combined)	1,138,600	13,943	water acres	1,348		12,595	14,420	13,072
Power Boating	256,527	6,183	water acres	S			6,395	
Sailing	174,818	1,513	water acres	S			1,565	
Lake Fishing	550,298	3,095	water acres	S			3,201	
Salt Water Fishing	35,344	199	water acres	S			206	
Jet Ski/ Personal Watercraft (PWC)	54,726	857	water acres	S			887	
Water Skiing / Towed on Water	66,887	2,096	water acres	S			2,168	
Camping (*)	508,113	2,997	sites	3,022		-25	3,099	77
Tent camping	143,655	847	sites	399	188	448	876	477
Developed camping	364,458	2,149	sites	2,623	1,667	-474	2,223	-400
Fitness Trail use	58,906	5	mile trails	15	2	-10	5	-10
Fields (combined)	377,190	79	fields	32	0	47	82	50
Football	145,365	31	fields	NS			32	
Soccer	231,824	49	fields	NS			50	
Stream Use (combined)	702,504	420	stream miles	122		298	435	313
Stream Fishing	550,298	387	stream miles	S			400	
Human-powered boating	99,761	25	stream miles	S			26	
Rafting	22,802	4	stream miles	S			4	
Tubing	29,643	4	stream miles	S			4	
Golfing	662,790	22	courses	14	16	8	23	9
Hiking/ Backpacking	444,647	228	trail miles	739	7	-511	236	-503
Horseback Riding	79,808	35	miles	391	6	-356	36	-355
In-Line Skating	53,206	4	miles	NI			4	
Jogging/Running	1,358,643	109	mile trails	NI			113	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Mount Rogers (PD #3) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	63,847	9	sites	1		8	9	8
Picnicking Away from Home	338,236	878	tables	2,157	375	-1,279	908	-1,249
Skateboarding	51,305	16	sites	NI			16	
Snow Skiing or Snowboarding	77,528	2	ski lifts	2	2	0	2	0
Softball	357,238	64	fields	38	2	26	66	28
Sunbathing/ Relaxing on Beach	464,219	33	beach acres	87	80	-54	34	-53
Swimming Outdoor Area	323,794	33	beach acres	87		-54	34	-53
Swimming Outdoor Pools	445,597	19	pools	27	10	-8	20	-7
Swimming Indoor Pools	154,296	2	pools	3	0	-1	2	-1
Tennis	237,525	148	courts	78	29	70	154	76
Used a Playground	615,665	88	sites	84	7	4	91	7
Visiting Gardens	52,446	6	sites	NI			6	
Visiting Historic Sites	259,187	22	sites	NI			23	
Visiting Natural Areas	247,026	42	sites	NI			43	
Volleyball	48,455	14	courts	12	1	2	15	3
Went Hunting	452,248	74,164	acres	250,332		-176,168	76,702	-173,630
Went Shooting Total	340,516	192	fields	NI			199	
Target	151,256	85	fields	NI			88	
Skeet or Trap	77,528	44	fields	1		43	45	44
Other	38,004	21	fields	NI			22	
Drive for Pleasure	1,855,545	na	na	NI			na	
Motorcycle/ATV (combined)	170,068	78	miles	112	0	-34	80	-32
Driving All-Terrain Vehicle	121,613	56	miles	NS			57	
Driving Motorcycle Off-Road	48,455	22	miles	NS			23	
Driving 4-Wheel-Drive Off-Road	128,834	na	na	NI			na	
Walking for Pleasure	5,710,101	na	na	NI			na	
Other	129,214	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 4: New River Valley Planning District

The New River Valley Planning District lies in the ridge and valley province of Virginia. It is comprised of Floyd, Giles, Montgomery and Pulaski counties, and the City of Radford. The 2000 Census recorded a population of 165,146 persons. Approximately 33,500 of these are students at Radford University and Virginia Tech.

The region's terrain is characterized by long, parallel ridges and intervening valleys. National forest lands blanket the ridges while picturesque farms and towns dot the valleys of the Allegheny Mountains in the west. To the east, the Blue Ridge Parkway follows the crest of the Blue Ridge Mountains. The New River, as it flows north through the center of this area, provides quality fishing and boating opportunities.

The New River Valley region is home to the first phase of the Wilderness Road Trail and was the doorway to the westward expansion of the United States. The valley's historic heritage is a source of pride for residents and a growing impetus for tourist travel. To date, several historic districts and numerous historic register structures have been designated. The Blacksburg, Newbern and Pulaski Historic Districts contribute significantly to the valley's quality of life. The Dublin, Newport and Pearisburg Historic Districts are three of the most recent National Historic Register additions in the region. As indicated by the 2000 *Virginia Outdoors Survey*, visiting historic sites is a popular recreational activity for many Virginia residents. Thus, plans at all levels of government should strive to protect the integrity of these significant regional historic resources.

The character of the region is defined by the New River, recently designated an American Heritage River. This most ancient of American rivers is unique from a number of perspectives; geological, biological and historical. As a recreational resource, the river is invaluable, providing a wide range of experiences for fishermen, boaters of all kinds, swimmers, and for those who enjoy the scenic beauty of the river and the environment it creates. The river also is important from an industrial perspective; Claytor Lake, a hydroelectric power impoundment, is on the New River. This lake provides a 4,475-acre supply of flat water for power boating, sailing, water skiing, fishing and other water sports. Claytor Lake State Park provides overnight and day use recreational facilities that enhance the public's enjoyment of the lake.

Public access to the New River is insufficient to meet measured demand, but a joint effort of Appalachian Power Company and the state are improving access through the Partners in River Access Program. This innovative program has been used to acquire and construct public access sites on the New River, as well as the James and the Roanoke rivers.

Three regional recreational sites serve the New River Valley. Three regional parks provide recreational amenities to area residents. Mid-County Park in Montgomery County is a 90-acre park that has a variety of facilities including a swimming pool, picnic areas, play fields and nature trails. The Ellett Nature Area is a 106-acre conservation area that offers a variety of trails and nature study opportunities. In Pulaski County, the Gatewood Reservoir site offers boating, fishing, camping, trail use and nature study opportunities.

The George Washington and Jefferson National Forests manage 102,137 acres within this district. Developed recreation areas at the Cascades, Pandapas Pond, White Rocks, Walnut Flats and Interior provide day-use and camping opportunities. Trout streams and warm water fisheries provide excellent angling and the diversity of habitats ensure productive hunting. Many miles of trails, including the Appalachian Trail, serve hikers and backpackers in the region. Mountain bicycle and horse trails are also provided in the national forest.

The New River Trail State Park is one of the region's recent greenway success stories. However, linear parks and greenways have been an important part of the New River Valley's quality of life since the development of the Appalachian Trail and the Blue Ridge Parkway. Community-based efforts are now underway to link these established greenways with smaller trail systems in the region's towns and with trails in the national forest. One example of the ongoing effort is the extension of the Blacksburg Trail System to the Town of Christiansburg via the Huckleberry Trail. This project has resulted in the creation of a significant new linear park through a strategic, public/private initiative organized by Montgomery County. Similar trail systems are being developed in Radford.

For the most part, the supply of recreational areas and facilities is adequate to meet resident demand in developed areas of the region. In the more rural areas and in small towns, there is a need for some types of developed recreation facilities. Moreover, when the demand placed on some dispersed recreational resources by college students is added, shortages of trails, camping and water sport opportunities are more evident. The 2000 *Virginia Outdoors Survey* indicates a need for additional campsites, playgrounds, softball fields and tennis courts. When evaluated on a community basis within the region, there are significant recreational shortfalls. Also, there are specific demands for golf and pool swimming in several area localities. See Table 6 on page 183. It is important to note that the outdoors survey did not capture imported or seasonal demand of college students or the impact of tourism on the region's recreational opportunities. For example, the Cascades Trail is one of the most heavily visited hiking trails in the Commonwealth and, likewise, the Blue Ridge Parkway receives heavy use not generated in the region. More than 20 million visitors enjoy outdoor recreational opportunities located in the New River

Valley each year. Appropriate management and infrastructure development are critical to ensuring that the region's outdoor resources are not impaired by overuse.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector opportunities

The private sector provides a diversity of recreational opportunities in this region and there are few market niches that have not been investigated and pursued. However, this region has a rapidly growing population and an increasing commercial base, which should expand the need for the development of additional outdoor recreation offerings.

There appears to be adequate demand to support a dry storage boat facility and marina at Claytor Lake. Boating is a popular activity in this region and additional quality facilities will attract further interest.

The support base for a wide range of outdoor adventure vacation combinations exists in this region. Exciting rivers for canoeing, kayaking and rafting flow through large expanses of public lands where hiking, backcountry camping, trout fishing and hunting are outstanding. Guide and outfitter services should be profitable ventures.

Federal facilities

The George Washington and Jefferson National Forests provides much of the public open space and dispersed recreational opportunities in the region. The forest plans include upgraded facilities at **Pandapas Pond** and at the **Cascades Recreation areas**.

The **Blue Ridge Parkway** is one of the most successful linear parks in the nation. More than 10 million visitors used the parkway and associated facilities in Virginia in 2000. The Rocky Knob multi-use facility, a cooperative effort between the National Park Service and Floyd and Patrick counties, is in preliminary planning. Its completion will greatly expand the recreational opportunities available to parkway users in the region. Protection of its viewshed and appropriate use of adjacent lands is crucial to its long-term viability.

3. The U.S.D.A. Forest Service has recently acquired the Glen Alton property in Giles County. This property has potential for meeting a variety of developed recreation and environmental education needs for the region. Consideration should be given to the inclusion of **Glen Alton** in the Giles County Development Plan as a major regional recreation area.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

4. **New River Trail State Park** ends at Dora Junction. The Town of Pulaski has converted the old Norfolk and Western Railroad Train Station in Pulaski to a visitor center. The Town is working on a plan to extend the New River Trail State Park to the train station, thus establishing a terminus within a municipal area on the western end of the trail.

5. The revised **Claytor Lake State Park** Master Plan was adopted in 2000. The plan calls for improving campsites, renovating the marina, construction of five family lodges, a 130-room lodge and overnight complex with restaurant and an aquatic research center.

Natural areas

Natural area Preserves within the district include **Buffalo Mountain** in Floyd County and **Pedlar Hills Glades** in Montgomery County.

As of March 2001, 611 occurrences of 203 rare species and natural communities have been documented in the New River Valley Planning District by the Department of Conservation and Recreation. Forty-six species are globally rare and six are federally threatened or endangered. Eighty-five conservation sites have been identified in the district; only 23 (27%) have received any level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 62 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust,

acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see page 133.

6. Efforts should be made to insure the protection of habitat in **Wildwood Park** in Radford including the acquisition of available buffer lands.

Other state properties

7. The **New River Community College** in Pulaski County has 100 acres of land that may be suitable for the development of recreational facilities.

8. The **Fishburn Tract**, a Virginia Tech property in Montgomery County, consists of 1,200 acres located on Prices Mountain. The tract is suitable for a variety of activities including outdoor education and numerous university missions. The 1994 Virginia Tech Master Plan update provides an opportunity to assess its value for outdoor recreation.

9. **Whitethorne Plantation**, a 900-acre Virginia Tech property located on the New River in Montgomery County, has considerable outdoor recreational potential. Nature study, hiking, fishing, river use and other dispersed recreation may be compatible with the property's primary function as an agricultural research station. The 1994 Virginia Tech Master Plan update provides an opportunity to assess its value for outdoor recreation.

10. Virginia Tech owns a 120-acre site located east of Whitethorne Plantation near **Price's Fork**. This site should be evaluated for its recreational potential.

11. In addition to Radford University's primary campus properties and the numerous on-campus sports facilities in the City of Radford, the Radford University Foundation owns Selu, a 200-acre parcel of undeveloped land along the **Little River** in Montgomery County. This property is currently used as an outdoor educational facility and has dispersed recreation potential.

Regional parks

12. It is recommended that the 200+/- acres of the Montgomery County Landfill site be added to the **Montgomery County Mid-County Regional Park** when the landfill is closed. Landfills have been successfully converted to parks in many communities and the additional acreage will allow the park to increase the range and quantity of facilities needed to meet a growing community's demands for recreation.

13. It is recommended that the **Castle Rock Public Recreation Area** in Giles County be considered for facility development initiatives, including swimming pool improvements, land acquisition, access to the New River and expansion to the buildings and grounds.

14. Consideration should be given to the development of an amphitheater to support "*The Long Way Home*" and other arts and cultural plays in the region.

15. A regional park should be developed at **Browns Farm** in Blacksburg. Development plans should be sensitive to the special biological areas on the property.

16. **Randolph Regional Park** in Dublin is currently under development.

17. Further effort should be given to the development of **Whitt River Bend Park** as a component of the **New River Blueway**.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

18. Access sites are needed at appropriate distances along the **New River**, the **Little River** and along stretches of major streams suitable for encouraging boating and other water sports. There is also a need to improve public access to stocked trout streams in the region. Inadequate parking and access trails create congestion, resource degradation and unsafe conditions during popular fishing days.

19. **Gatewood Park** is a regional park operated by the Town of Pulaski's Parks and Recreation Department. It is a multi-use facility for fishing, boating, picnicking, camping and trail use. Because the reservoir serves as the Town of Pulaski's water supply, land-disturbing activities on lands around the reservoir should not impact water quality.

Scenic Rivers

The following river segments have been evaluated and qualify as Virginia Scenic Rivers:

20. The **Little River** from Route 8 to New River in Floyd and Montgomery counties.

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

21. **Craig Creek** from the headwaters to the Montgomery County line.

22. **New River** from Whitethorne to Bluff City in Giles and Montgomery counties.

23. **Little Stony Creek** from its headwaters to the New River in Giles County. The Forest Service is also evaluating this stream to determine its eligibility for designation as a federal Wild, Scenic or Recreational River.

24. **Big Reed Island Creek** from the Pulaski County line to Route 693.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following road segments have been recommended for consideration as Virginia Byways:

25. **Route 8** from Christiansburg to the Patrick County line in Montgomery and Floyd counties.

26. **Route 693** and **Route 672** from Route 8 in Montgomery County to I-81 near Pulaski.

27. **Route 635** in Giles County from the New River to White Rocks and the West Virginia line.

28. **Route 61** in Giles and Bland counties from Narrows to Rocky Gap.

29. **Route 42** in Giles County from the Bland County line to Route 100.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities these desirable resources. DCR recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network to connect existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The New River Valley localities have developed a regional bikeway and walking trails plan. This plan will outline the trails needed to meet both recreational and alternative transportation objectives. Envisioned is a comprehensive network of shared roadways, bike lanes and independent trails that would meet these needs. New facilities will be developed in coordination with road improvements, land development projects and through individual project initiatives. The implementation of this plan will require the participation of all affected localities.

The following are trail/greenway proposals for this region:

30. Sections of the **Appalachian Trail** need additional protection and improvement. An alternative to crossing the Route 460 Bridge in Bluff City should be found to address unsafe conditions.

31. The **Huckleberry Trail** should be included in a comprehensive greenway plan to connect residential areas and regional park and recreational facilities within the Virginia Tech, Blacksburg, Christiansburg and Montgomery County area. Consideration should be given to connecting this trail/greenway to **Claytor Lake State Park** and to **New River Trail State Park**.

32. Further consideration should be given to expanding the **Radford Pathways Project**; a community greenway system of trails that is supported in large part by **Bisset** and **Wildwood parks**.

33. The extension of **New River Trail State Park** into the Town of Pulaski will enhance access to the trail, provide a good orientation to the area for visitors who take advantage of the museum being developed in the Pulaski train station and increase the local residents' opportunities for recreation.

34. Efforts should be made to link trails in the **Blacksburg** area to those in the **George Washington** and **Jefferson National Forests**.

35. Initiatives that combine access to the **New River** with the region's historic heritage, and are used as sustainable economic development tools to enhance tourism in the region, are central to regional recreational objectives. Such efforts could include a series of public use areas and parks along the river to afford access opportunities while providing regional hiking/biking opportunities substantially along the route of Mary Ingles' journey from captivity in Kentucky. The **New River Canoe Trail** plan helps to meet these objectives and should be implemented. The New River Canoe Trail is being planned in Virginia, North Carolina, and West Virginia as a full-service water trail with access, rest areas, camp sites, re-supply areas and maps to assist users.

36. With the abandonment of rail lines in the New River Valley, particularly in stretches that link the region's communities, public/private initiatives to

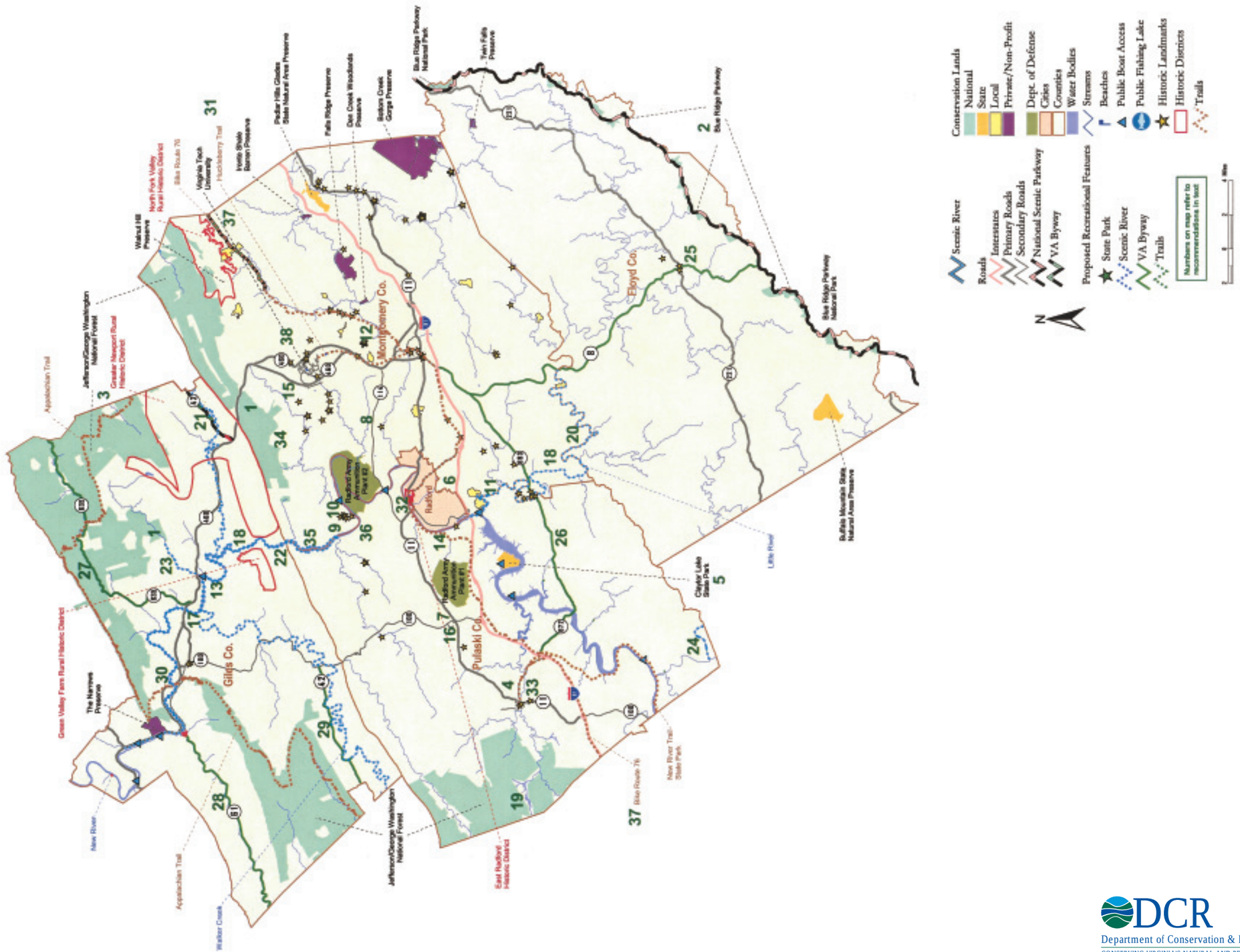
develop steam excursion experiences should be fostered. Such efforts would build on the region's unique railroad heritage, and link numerous historic sites providing both recreational and educational benefits to the region and commonwealth. Consideration should be given to co-use of these corridors for trail purposes if commercial rail service is terminated. The infrequent passage of excursion trains would facilitate rails with trails use of these rights of way.

37. **Interstate Bike Route 76** should be enhanced and properly identified.

38. Support should be given to the development of the **Ellett Valley Nature Trail** in Montgomery County.

New River Valley

PD 4



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 6
Existing and Projected Needs
New River Valley (PD #4)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	322,035	64	fields	66	0	-2	64	-2
Basketball	584,617	139	goals	93	2	46	140	47
Bicycling	1,491,268	106	miles	NI			107	
Lake, River, Bay Use (combined)	989,555	12,118	water acres	4,918		7,200	12,232	7,314
Power Boating	222,947	5,374	water acres	S			5,424	
Sailing	151,934	1,315	water acres	S			1,327	
Lake Fishing	478,263	2,690	water acres	S			2,715	
Salt Water Fishing	30,717	173	water acres	S			174	
Jet Ski/ Personal Watercraft (PWC)	47,562	745	water acres	S			752	
Water Skiing / Towed on Water	58,131	1,821	water acres	S			1,839	
Camping (*)	441,600	2,604	sites	1,937		667	2,629	692
Tent camping	124,850	736	sites	397	20	339	743	346
Developed camping	316,750	1,868	sites	1,540	1,248	328	1,886	346
Fitness Trail use	51,195	4	mile trails	39	30	-35	4	-35
Fields (combined)	327,815	69	fields	65	1	4	70	5
Football	126,337	27	fields	NS			27	
Soccer	201,478	42	fields	NS			43	
Stream Use (combined)	610,545	365	stream miles	21		344	369	348
Stream Fishing	478,263	336	stream miles	S			339	
Human-powered boating	86,702	22	stream miles	S			22	
Rafting	19,818	3	stream miles	S			4	
Tubing	25,763	3	stream miles	S			3	
Golfing	576,029	19	courses	11	11	8	20	8
Hiking/ Backpacking	386,442	198	trail miles	194	12	4	200	6
Horseback Riding	69,361	30	miles	46	14	-16	30	-16
In-Line Skating	46,241	3	miles	NI			3	
Jogging/Running	1,180,794	95	mile trails	NI			96	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
New River Valley (PD #4) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	55,489	8	sites	1		7	8	7
Picnicking Away from Home	293,960	763	tables	1,140	89	-377	770	-370
Skateboarding	44,589	14	sites	NI			14	
Snow Skiing or Snowboarding	67,380	2	ski lifts	0	0	2	2	2
Softball	310,474	55	fields	36	1	19	56	20
Sunbathing/ Relaxing on Beach	403,452	29	beach acres	8	4	21	29	21
Swimming Outdoor Area	281,409	29	beach acres	8		21	29	21
Swimming Outdoor Pools	387,267	16	pools	22	11	-6	17	-5
Swimming Indoor Pools	134,099	2	pools	1	0	1	2	1
Tennis	206,433	129	courts	127	17	2	130	3
Used a Playground	535,073	76	sites	57	2	19	77	20
Visiting Gardens	45,580	5	sites	NI			5	
Visiting Historic Sites	225,259	19	sites	NI			19	
Visiting Natural Areas	214,690	36	sites	NI			37	
Volleyball	42,112	12	courts	6	2	6	13	7
Went Hunting	393,047	64,456	acres	116,749		-52,293	65,061	-51,688
Went Shooting Total	295,942	167	fields	NI			169	
Target	131,456	74	fields	NI			75	
Skeet or Trap	67,380	38	fields	0		38	38	38
Other	33,029	19	fields	NI			19	
Drive for Pleasure	1,612,651	na	na	NI			na	
Motorcycle/ATV (combined)	147,806	68	miles	0	0	68	68	68
Driving All-Terrain Vehicle	105,693	48	miles	NS			49	
Driving Motorcycle Off-Road	42,112	19	miles	NS			19	
Driving 4-Wheel-Drive Off-Road	111,969	na	na	NI			na	
Walking for Pleasure	4,962,637	na	na	NI			na	
Other	112,299	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 5: Roanoke Valley-Alleghany Regional Commission

The Roanoke Valley Alleghany Regional Commission had a 2000 population of 264, 541, more than half of which is concentrated in the Roanoke and Salem metropolitan areas. The district comprises Alleghany, Botetourt, Craig and Roanoke counties, the cities of Clifton Forge, Covington, Roanoke and Salem; and the towns of Iron Gate, Fincastle, Troutville, Buchanan, New Castle and Vinton. The remainder of the region is sparsely populated, with land use devoted primarily to agriculture and forestry. Currently, the Virginia Outdoors Foundation holds 1,799 acres in easements to protect the scenic quality of the region.

The Blue Ridge Parkway is one of the nation's premier scenic roads and is a major artery for transportation and recreation in this district and any other district through which it passes. This major attraction draws visitors from across the country and around the world. The parkway's character is changing from a natural and pastoral experience to one marked often by incompatible development. Overlooks that once looked down on farmsteads and forests now reveal factories and suburban sprawl. This is particularly noticeable in the Roanoke area, where the narrow parkway corridor passes through private land. Here subdivisions are being developed that place closely spaced houses within a few hundred feet of the parkway. This increasing encroachment will have a major impact on the quality of the visitor's recreational experience. Localities that benefit from the parkway's presence should be particularly thorough in the development of comprehensive plans and zoning ordinances that take into account the intrinsic value of the parkway and its viewsheds. The parkway, with a total visitation of 25 million (10 million of which occur in Virginia), is a cornerstone for statewide tourism and development of economic initiatives and other regional and local open space, recreational and educational programs. There is a need to develop appropriate and acceptable protection techniques for property adjacent to the Blue Ridge Parkway and other recreational resources in the region.

A significant percentage of the land in this region lies within the George Washington and Jefferson National Forests. For this reason, the region as a whole contains an adequate or nearly adequate supply of horseback and hiking trails and hunting acreage. However, significant facility and/or acreage shortages exist for five of the 12 most popular outdoor recreational activities. See Table 7, page 195.

According to the Demand-Supply-Needs Analysis, the Roanoke Valley-Alleghany Regional Commission has an adequate supply of local and regional park acreage. The city of Roanoke has recently prepared a new comprehensive plan for the management and use of lands surrounding the reservoir. The recommendations in the plan should be examined to determine how they could be implemented to increase opportunities for recreation and public use. Therefore, there is a deficit in the supply of local and regional park acreage and recreational facilities. Programs should be initiated to acquire regional and local park lands that can be developed to meet a variety of outdoor recreational needs. A priority exists for facility development on additional existing properties to meet the current and future demands for recreational opportunities.

The most acute shortages in the supply of outdoor recreational opportunities exist in the Roanoke/Salem metropolitan area where the majority of the population is located. The greatest need is for close-to-home activities requiring special areas and/or facilities, such as swimming, playgrounds, picnicking, volleyball and soccer.

The City of Roanoke has adopted a new Comprehensive Parks and Recreation Master Plan, which was citizen-driven and staff facilitated. The plan addresses programs, parks, and other facilities, plus many operational issues. Specific information related to the details of the plan can be obtained by contacting the Roanoke City Department of Parks and Recreation. The city of Roanoke is currently offering a comprehensive program specifically designed for the citizens of this predominantly metropolitan area. Major new initiatives include:

Mill Mountain Discovery Center: The center offers educational programs that focus on Mill Mountain's geology, wild flora and fauna, cultural history and past and present recreational opportunities. Programs, camps and special events are offered focusing on outdoor educational and cultural awareness. The center also serves as a small visitor center for travelers and city residents to learn more about the Roanoke Valley region. Finally, the center serves as a meeting place and reception site when the facility is not open to the public.

Roanoke River Center: The center will provide environmental education programs focusing on the Roanoke River and its riparian habitat. Conservation, aquatic ecology appreciation, pollution control, wildlife habitat, greenway development and recreational opportunities are the core activities. The facility will offer numerous programs, camps, lectures, special events and classes for students and citizens of the region through on-site exhibits and outreach activities. The center will also serve as a meeting and reception site when the facility is not open to the public.

Outdoor education: The Roanoke City Parks and Recreation Department offers outdoor educational programs for schools, citizens, community groups and organizations. These programs feature environmental education activities that promote the responsible use of our natural resources. These programs also offer alternative outdoor educational opportunities that promote self-confidence, coordination, and an appreciation of the natural world around us. These activities are held at the Mill Mountain Discovery Center, the Roanoke River Center, Rocwood Indoor Adventure Center and in other natural areas around the region.

The 1999 General Assembly directed a study to determine the feasibility of creating a horse trail between the Virginia Equine Center in Lexington and the Homestead Resort in Warm Springs. The report was completed and determined that it is feasible and desirable to develop such a horse trail. It will serve as a recreational trail as well as a venue for world-class level competitive events such as the Pan Am Games and the Olympics. It will complement the facilities offered at the Virginia Horse Center and The Homestead. The General Assembly continued the study and directed the development of an Environmental Assessment in 2001.

Virginia's Explore Park is a major recreational, open space, and environmental education resource for this region that is being developed collectively by the public and private sectors. Explore Park is located on state-owned wildlands in Roanoke and Bedford coun-

ties along three miles of the Roanoke River between the Blue Ridge Parkway and Smith Mountain Lake. Explore Park is administered by the private River Foundation for the governor-appointed Virginia Recreation Facilities Authority.

More than 800 of Explore Park's 1,100 acres are officially designated as scientific natural areas. The park includes an Indian village, circa 1671, a settlers' cabin complex, circa 1740, a long hunter camp, 19th century structures including a barn, Mountain Union Church, Hofauger Farmstead, Taubman Visitor Center and an interpretive center. A new Blue Ridge Parkway Visitor Center is being developed through a partnership between the National Park Service, Explore Park and Roanoke County. Also planned is the Handcock-Cortledge; a 30,000 square-foot environmental and cultural heritage education center, outdoor performing arts pavilion and small conference center with outdoor recreational facilities. The park will provide a recreational trail network to include an equestrian trail, mountain bike trail and miles of hiking trails. An adjacent converted regional landfill site will provide an area for special events.

In 1991, the U.S.D.A. Forest Service began identifying scenic roads on forest lands. The Highlands Scenic Tour, which forms a loop road along the boundary between Rockbridge and Alleghany counties, was designated in 1991. In addition, the Forest Service has undertaken an assessment of the rivers in the George Washington and Jefferson National Forests to determine whether they would be eligible for national recognition as Wild, Scenic or Recreation Rivers. Rivers eligible for such recognition will require further study and management plans prior to any formal national designation. This initiative is part of the forest management planning process and incorporates input from committees of citizen and agency representatives. Committee recommendations will be offered for public comment and review. In the George Washington and Jefferson National Forests, portions of the Jackson and Cowpasture rivers were found eligible for designation as federal Wild and Scenic Rivers in the 1993 Forest Plan. The Virginia Department of Conservation and Recreation is the lead state agency for developing suitability studies for these river segments.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

The private sector plays a major role in the provision of recreational opportunities in the Commonwealth. Developed campgrounds, golf courses, tennis courts, swimming pools and indoor recreation facilities help meet demands identified in the *2000 Virginia Outdoors Survey*. Many of these could be met through the efforts of private enterprise, organizations, or through partnerships and cooperative efforts by the private sector and units of government. An example would be the Western Virginia Land Trust, which was established in 1997. This organization holds conservation easements on agricultural lands and forest lands in the region.

Private landowners with adequate land for hunting may want to consider opening their lands on a fee basis. There may be opportunities to establish shooting ranges and related programs. Streams and rivers offer opportunities for private landowners to permit the launching and retrieving of boats. They also could provide lands for picnicking and education. A fee could be charged to offset costs. Another alternative might be for landowners to enter into an agreement with a unit of government to provide water access for the public. The landowner would then be covered under the *Landowner Liability Law, Code of Virginia*, §29.1-509, which would provide some liability protection.

Many miles of trout streams and thousands of farm ponds lie on private lands in the Commonwealth. Much public demand for fishing can be met if the owners of these lands will allow public access for fishing. Once again, the *Landowner Liability Law* can be helpful in lessening liability exposure if the public access is formalized through an agreement with a local governing body.

The 2000 *Virginia Outdoors Survey* indicated that out of 39 favored leisure activities, Virginians ranked (in order of preference) visiting historical sites number 5, visiting natural areas number 11, and visiting gardens number 14. There should be an analysis of these resources to determine if any can be made available to the public. These could be linked to bed and breakfast opportunities, nursery and garden center operations, game farms and historic restorations. This concept should be expanded to farmers' markets, pick-your-own

operations, wineries and craft fairs. There is a need to provide areas for the use of 4-wheel-drive off-road recreational vehicles. This may be an opportunity for the private sector to make use of lands for recreation that may not be productive for other uses. Such private sector operations reinforce public programs and opportunities and result in economic growth for the region. The Roanoke Valley Convention and Visitors Bureau is an example of an organization that could provide a one-stop shopping opportunity as a source of information on the recreation resources in the region by partnering with local, state, and federal agencies and the private sector.

Federal facilities

1. The regional commission and local governments should develop a comprehensive protection plan for the **Blue Ridge Parkway** and other recreational resources. The plan should consider the establishment of a trust to facilitate the acquisition of critical lands and interests and work to develop a scenic overlay zone within the viewshed of the Parkway. Local governments also need to support efforts to encourage adjacent landowners, localities, and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of the Blue Ridge Parkway as part of a multiregional Parkway viewshed planning process.

The **George Washington** and **Jefferson National Forests** should continue to partner with the **Roanoke Valley Convention and Visitors Bureau** and other area chambers of commerce to encourage tourism in this area.

3. Enhance the **Appalachian Trail** experience by broadening the protective corridor along its route.

Natural areas

Natural area preserves within the district include **Johnson Creek** in Alleghany County and **Poor Mountain** in Roanoke County.

The Department of Conservation and Recreation has, as of March 2001, documented 431 occurrences of 129 rare species and natural communities in the Roanoke Valley Alleghany Regional Commission. Forty species are globally rare and six are federally threatened or endangered. Eighty-four conservation sites have been identified in the district; 47 (56%) have received some level of protection through ownership or management by state, federal and non-government organizations. DCR recommends that the 37 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see Chapter III-B-2-d on page 133.

4. **Poor Mountain Natural Area Preserve** is in Roanoke County. Funds made available by the 1992 bond were used to improve access and trail facilities in the preserve.

5. **Johnson Creek Natural Area Preserve** is in Alleghany County. Funds made available by the 1992 bond were used to improve access and site security in the preserve.

6. A land use plan has been developed for the nearly 12,000 acres of restricted use public land surrounding **Carvin's Cove Reservoir**. This plan considers the development of recreational opportunities compatible with the protection of the Appalachian National Scenic Trail and Roanoke's water supply. Recreational and conservation plans should continue to be developed for the site, to implement and augment the recently completed land use plan.

7. Consideration should be given by local governments to develop ridgeline ordinances that would preserve open space and protect recreational lands.

Other state properties

8. **Dabney Lancaster Community College** in Alleghany County near Clifton Forge has some acres of undeveloped land that may have potential for recreational use. The site should be assessed and cooperative use agreements developed if appropriate.

9. **Catawba State Hospital** in Roanoke County should be assessed to determine its potential for providing recreational opportunities.

Regional parks

10. Additional developments at **Mowles Spring Park** in Salem is currently being assessed for public use.

11. Consideration should be given to the establishment of a new regional park in the vicinity of **Poor Mountain/ Bent Mountain**, southwest of the Roanoke/Salem area.

12. Continue the development and enhancement of **Virginia's Explore Park** facilities that complement the Blue Ridge Settlement and associated trails.

13. **Read Mountain** should be planned and managed to promote conservation, provide recreation, and protect critical viewsheds and open space resources.

Public water access
Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

14. The Forest Service and Virginia's Department of Game and Inland Fisheries should cooperate to finalize and implement plans to acquire and develop a series of boating and fishing access sites and canoe campsites along the **James River**. Additional public water access is needed on the river between Eagle Rock and Snowden, and between Lynchburg and Bent Creek.

15. Public water access is needed on **Johns Creek** above New Castle.

16. Public water access is needed on **Craig Creek** between New Castle and Strom.

17. Water-based recreational facilities and expanded access opportunities should be considered for **Lake Moomaw/Jackson River** in Alleghany County. Where appropriate, portages should be created around dams and other river obstacles.

18. Provide a better portage at the **Niagara Dam**.

19. Enhance boating access on the **Roanoke River.** Enhance the access for motorized and non-motorized boating on the Roanoke River and expand recreational facilities and public access opportunities while designing and constructing the proposed River Flood Reduction Project. Where appropriate, portages should be created around dams other river obstacles.

Scenic Rivers
The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

20. The **James River** from Springwood to the Botetourt County/ Rockbridge County line.

21. **John's Creek** in Craig County from Craig Springs to New Castle.

22. **Craig Creek** in Craig County from the Montgomery County/Craig County line to the Town of New Castle.

23. The **Roanoke River** beginning in Montgomery County from the Camp Altamons area to Smith Mountain Lake.

Scenic highways and Virginia Byways
There has been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. Within the Planning District, five regional driving trails should be considered. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

24. **Route 220** in Alleghany County from Covington to the Bath County/Alleghany County line, and in Botetourt County from Clifton Forge to Route 615.

25. **Route 606** in Botetourt and Craig counties from Fincastle to the intersection with Route 615.

26. A **James River Byway** should be developed, consisting of roads that closely parallel the James River Bateau Festival route.

Trails and greenways
Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. For example, the December 1995 Roanoke Valley Conceptual Greenway Plan identifies over fifty potential greenway corridors for additional feasibility and design study. DCR recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing

and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, cities and counties should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

27. In Region 5, the **Appalachian National Scenic Trail** stretches from Northern Botetourt County to Southern Craig County. Several of the sections in this region need improvement and protection. Localities should continue to encourage and cooperate with the federal government and the Appalachian Trail Conference clubs in their efforts to protect and maintain the trail.

28. **Roanoke River Greenway** and **Canoe Trail** should be considered along the Roanoke River from **Spring Hollow to Explore Park** and other important open space corridors to connect existing recreation and park facilities. Planned flood reduction and water/sewer programs could provide an opportunity to address trail and other open space needs, and the development of a river center would provide educational opportunities and access to the river for all citizens of the metropolitan region. The greenway along the Roanoke River should be enhanced wherever possible to include additional recreational and environmental education opportunities for the citizens of this predominantly urban area.

29. The greenway network would include the following trail segments: **Hanging Rock Battlefield Trail** extended to Roanoke River, **Tinker Creek Greenway** to Carvin's Cove, **Wolf Creek Greenway** with consideration to Blue Ridge Parkway and Roanoke River, **Glade Creek** to **Tinker Creek** to **Vinyard Park** and the parkway, **Mill Mountain Greenway**, **Lick Run** and **Tinker Trail**.

30. The proposed **Alleghany Trail** traverses the Craig County/West Virginia line, cutting across the southwest corner of Alleghany County before entering West Virginia. Portions of the trail have been constructed, and it is nearly complete in West Virginia. The trail will connect to the Appalachian Trail.

31. Consideration should be given to the development of the abandoned C&O Railroad right-of-way as a recreational trail. Located between **New Castle** and **Eagle Rock** in Craig and Botetourt counties, this right-of-way is owned by the state and would connect Camp Mitchell, the recently constructed high school, the George Washington and Jefferson National Forests and several other local recreational areas. A feasibility study has been completed and identifies appropriate recreational uses for the corridor.

32. The C&O Line between **Clifton Forge** and **Charlottesville**, presently operated as a shortline railroad, should be acquired, if abandoned and developed as a greenway. It has potential as a multi-use trail corridor, while linking several major recreational systems.

33. As the James River is a part of the Chesapeake Bay watershed, a **James River Canoe Trail** should be considered for development beginning in Iron Gate and running the full length of the river to its terminus in the bay.

34. The **Blue Ridge Parkway** and **George Washington** and **Jefferson National Forests** staff should continue working with horse enthusiasts and regional government units to complete the equestrian trail between Roanoke and Lexington. The trail will connect the equine center near Lexington with trail resources in the national forests. Completion of the trail should be undertaken to provide a venue for national events, as well as regional and state needs.

35. Equestrian trail connections should be considered from the proposed **Roanoke** to **Lexington Equestrian Trail** to **Carvin's Cove**, **Green Hill Park**, **Spring Hollow Reservoir** and the **Explore Park** to **Carvin's Cove**.

36. **Jackson River Greenway** should be considered from Iron Gate to upstream of the WESTVACO facility.

37. **Jackson River Greenway** should be considered in Covington.

38. The Roanoke Appalachian Trail Club should continue with the protection of viewsheds along the **Appalachian Trail** as well as side trail connections.

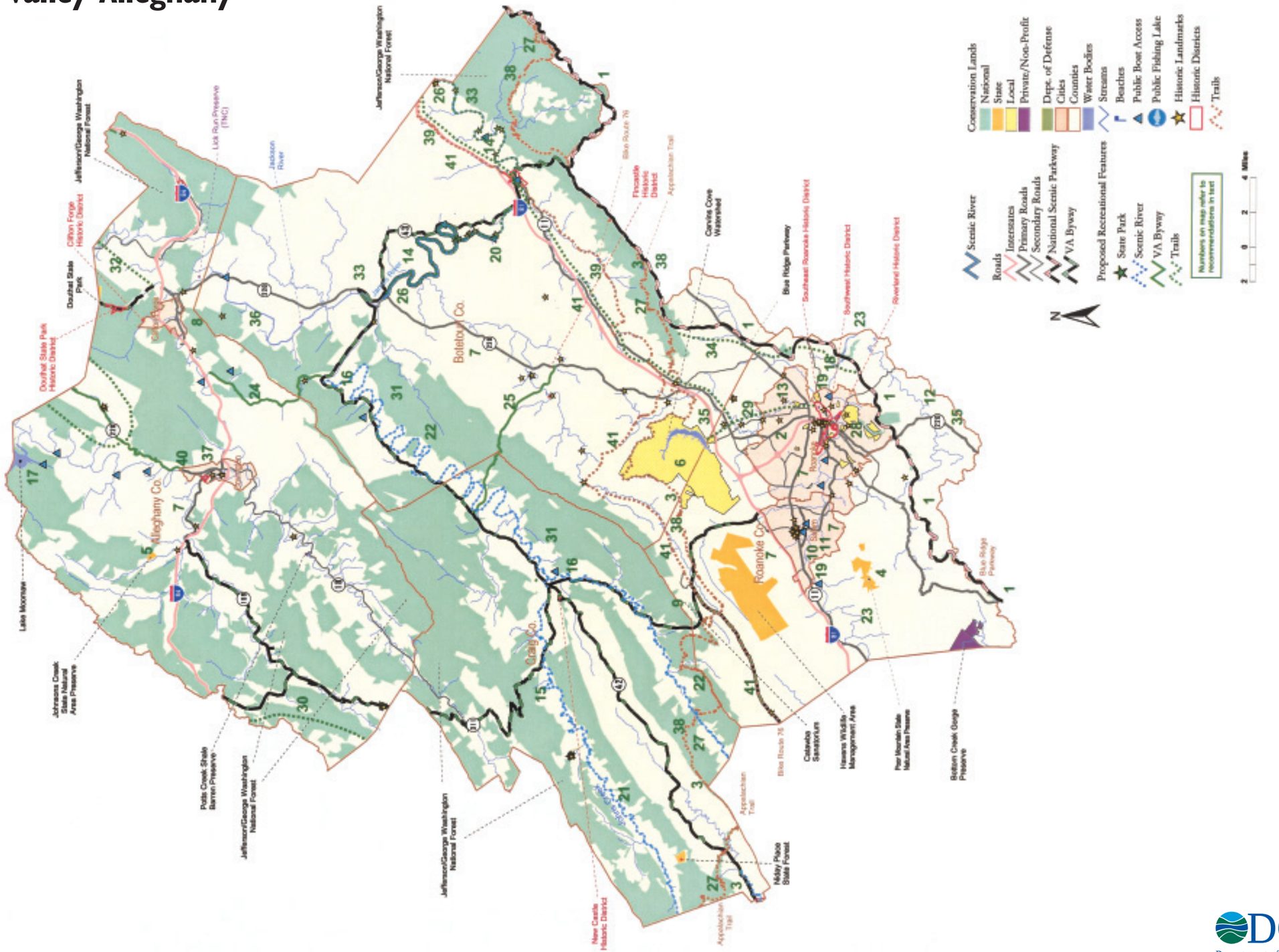
39. A greenway should be developed along the 48-mile long **Valley Trail** connecting the Hollins University area of Roanoke County to Lexington, Virginia. Portions of the property will be donated in fee simple to the Western Virginia Land Trust.

40. Develop a trail system that ties the **Fort Young Park** to the **Jackson River Park** in South Covington and the downtown (Main Street) area of Covington. It could be extended to Warm Springs using the scenic railway.

41. **Interstate Bike Route 76** should be enhanced and properly identified.

Roanoke Valley-Alleghany

PD 5



DCR
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CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 7
Existing and Projected Needs
Roanoke Valley-Alleghany (PD #5)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	515,855	102	fields	118	5	-16	106	-12
Basketball	936,475	222	goals	123	1	99	230	107
Bicycling	2,388,805	170	miles	NI			176	
Lake, River, Bay Use (combined)	1,585,130	19,411	water acres	3,960		15,451	20,100	16,140
Power Boating	357,130	8,608	water acres	S			8,913	
Sailing	243,378	2,106	water acres	S			2,181	
Lake Fishing	766,111	4,309	water acres	S			4,462	
Salt Water Fishing	49,205	277	water acres	S			287	
Jet Ski/ Personal Watercraft (PWC)	76,188	1,194	water acres	S			1,236	
Water Skiing / Towed on Water	93,118	2,918	water acres	S			3,021	
Camping (*)	707,383	4,172	sites	749		3,423	4,320	3,571
Tent camping	199,993	1,179	sites	296	248	883	1,221	925
Developed camping	507,390	2,992	sites	453	183	2,539	3,099	2,646
Fitness Trail use	82,008	7	mile trails	5	0	2	7	2
Fields (combined)	525,114	110	fields	126	0	-16	114	-12
Football	202,374	43	fields	NS			44	
Soccer	322,740	68	fields	NS			70	
Stream Use (combined)	978,008	585	stream miles	237		348	606	369
Stream Fishing	766,111	539	stream miles	S			558	
Human-powered boating	138,884	35	stream miles	S			37	
Rafting	31,745	6	stream miles	S			6	
Tubing	41,268	5	stream miles	S			6	
Golfing	922,719	31	courses	14		17	32	18
Hiking/ Backpacking	619,026	317	trail miles	468	14	-151	329	-139
Horseback Riding	111,107	48	miles	168	69	-120	50	-118
In-Line Skating	74,071	5	miles	NI	74		5	
Jogging/Running	1,891,468	152	mile trails	NI			157	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites

20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Roanoke Valley-Alleghany (PD #5) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	88,886	13	sites	0		13	13	13
Picnicking Away from Home	470,883	1,222	tables	1,095	162	127	1,266	171
Skateboarding	71,426	22	sites	NI			23	
Snow Skiing or Snowboarding	107,933	3	ski lifts	0	0	3	3	3
Softball	497,337	88	fields	79	0	9	92	13
Sunbathing/ Relaxing on Beach	646,274	46	beach acres	9	4	37	48	39
Swimming Outdoor Area	450,778	46	beach acres	9		37	48	39
Swimming Outdoor Pools	620,349	26	pools	30	23	-4	27	-3
Swimming Indoor Pools	214,807	2	pools	3	0	-1	3	0
Tennis	330,676	207	courts	203	50	4	214	11
Used a Playground	857,113	122	sites	145	2	-23	126	-19
Visiting Gardens	73,013	8	sites	NI			8	
Visiting Historic Sites	360,834	31	sites	NI			32	
Visiting Natural Areas	343,903	58	sites	NI			60	
Volleyball	67,458	20	courts	2	0	18	21	19
Went Hunting	629,608	103,249	acres	338,252		-235,003	106,914	-231,338
Went Shooting Total	474,057	268	fields	NI			277	
Target	210,575	119	fields	NI			123	
Skeet or Trap	107,933	61	fields	0		61	63	63
Other	52,908	30	fields	NI			31	
Drive for Pleasure	2,583,243	na	na	NI			na	
Motorcycle/ATV (combined)	236,764	108	miles	0	0	108	112	112
Driving All-Terrain Vehicle	169,306	77	miles	NS			80	
Driving Motorcycle Off-Road	67,458	31	miles	NS			32	
Driving 4-Wheel-Drive Off-Road	179,359	na	na	NI			na	
Walking for Pleasure	7,949,457	na	na	NI			na	
Other	179,888	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 6: Central Shenandoah Planning District

The Central Shenandoah Planning District was named for its geographic location in the heart of Virginia's famous Shenandoah Valley. The district comprises Augusta, Bath, Highland, Rockbridge and Rockingham counties; the cities of Buena Vista, Harrisonburg, Lexington, Staunton and Waynesboro; and the towns of Bridgewater, Broadway, Craigsville, Dayton, Elkton, Glasgow, Goshen, Grottoes, Monterey, Mount Crawford and Timberville. According to the 2000 Census, more than 258,750 people live in the region. For the district, this represents about a 15% increase from the 1990 census numbers.

The Central Shenandoah Planning District has a total area of approximately 3,437 square miles. The Blue Ridge Mountains form the eastern boundary and the Allegheny range lies along the western part of the region. Nestled between these

mountains, Virginia's Shenandoah Valley contains beautiful and diverse landscapes of fertile farmland, rolling fields and forests. The South Fork of the Shenandoah River flows through the valley, creating one of the premier fisheries in the state, while providing opportunities for swimming, canoeing and camping. Many of the headwater streams that form the North and South Forks of the Shenandoah River originate in Augusta and Highland counties. To the south, the James River cuts through the corner of Rockbridge County. Numerous streams in Augusta, Highland and Bath counties form the headwater sections of the James River system.

A variety of natural and recreational resources are present in the region. Federal holdings total more than 618,170 acres, and include the Shenandoah National Park and George Washington and Jefferson National Forests. The Appalachian Trail skirts the eastern boundary of the region. Douthat State Park, state-owned wildlife management areas, forests and other state resources contribute an additional 66,132 + acres of valuable open space, and provide numerous and varied recreational opportunities, as do the regional recreational areas of Natural Chimneys and Grand Caverns.

The Blue Ridge Parkway and Skyline Drive are among the nation's premier scenic roads. These major scenic highways attract tourists from throughout the nation, as well as international visitors. The character of the parkway, as well as some sections of Skyline Drive, have been altered from that of a pastoral scene to landscapes that are sometimes marked by incompatible development. Overlooks that once featured breathtaking vistas of farmsteads or forest now reveal factories and expanding suburban residential development. In some cases, subdivisions are being developed within a few hundred feet of these magnificent corridors. As development continues to expand in these sensitive areas, there will be major impacts on the quality of the visitor experience. Those communities that benefit most from the presence of these scenic highways should consider strengthening local comprehensive plans and creating special zoning regulations that will take into account the unique scenic and economic benefits associated with the scenic values of the parkway and Skyline Drive and their viewsheds.

The Central Shenandoah Valley is a major tourist destination for visitors from throughout the country who are attracted by the region's many natural and historic resources. Nationally known resorts, such as the Homestead, are popular destinations offering year-round opportunities such as snow-skiing and championship golf courses. The Museum of American Frontier Culture near Staunton has become a major attraction for the region. The Virginia Horse Center near Lexington attracts equine enthusiasts from throughout the Mid-Atlantic region. Events like Staunton's Fourth of July celebration and the Highland Maple Festival increase in popularity every year.

All the localities in this region have resources on the National Register of Historic Places, including a number of historic districts that date back to the first settlement in the area. The entire region is dotted with historic villages, farms, and inns. Since the area has remained largely rural, most of these historic sites have retained a high degree of integrity.

Due to the vast natural resources and outdoor recreational facilities on state and federal lands, the central Shenandoah region is a net importer of recreational demand. The results of the 2000 Demand-Supply-Needs Analysis for this region indicate a surplus of park and open space lands. However, this abundance is due mainly to the large state and federal holdings. There remains a shortage of land and facilities for close-to-home activities that local residents desire in their communities. Currently, the greatest needs for local facilities include courts and fields, outdoor swimming pools, playgrounds, and other resources usually provided by local parks and recreational departments. See Table 8, page 205.

The following recommendations could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents and visitors.

Private sector

The private sector has numerous opportunities to become involved in the recreation-tourism economic activities that result from the region's unique natural, cultural, and historic resources. The increased demand for facilities to house, feed, and provide services to the millions of visitors is obvious. The private sector will provide most of the future development of golf courses, pools, and other similar facilities. The ecotourism related demands for the Central Shenandoah Valley are steadily increasing. Many of the significant battlefields from the Civil War remain in private ownership. The Shenandoah Valley Battlefield Foundation will rely heavily on public-private partnerships in order to implement the many recommendations found in the Management Plan for protecting these historic areas and helping to meet the ever-increasing demands generated by Civil War enthusiasts. Private companies support the most of the demand for canoes and other recreational watercraft for visitors seeking to explore the legendary South Fork of the Shenandoah, the James and Maury Rivers. However, additional opportunities exist to provide access points and visitor accommodations.

Federal facilities

1. In 1997 Congress enacted legislation creating the **Shenandoah Valley Battlefield National Historic District (SVBNHD)**. Augusta, Highland and Rockingham counties and the cities of Harrisonburg, Staunton and Waynesboro are included within that designation. The legislation authorized a commission whose charge was to develop a plan to promote the protection and continued appreciation of the historic, cultural, and natural resources that are associated with the battlefields and are important to the people of the region, the Shenandoah Valley and the nation. The

Shenandoah Valley Civil War Battlefields Foundation was also created to serve as a catalyst for implementing the management plan.

This district contains some of the most remarkable and intact Civil War battlefields in the United States. The landscape of the valley, its natural beauty, farms, small towns and tradition makes it one of the most "characteristically American" regions in the country. More than 325-armed conflicts took place in the eight counties (includes all of PDC 7) that comprise the SVBNHD and lay at the heart of the struggle. According to the management plan, about 70% of the core areas identified in the management plan retain their original integrity, while only about 7% of those areas are in some way protected. Today the district remains a vital, yet vulnerable national resource. Protection and interpretation of the core resources should be a priority for all of the partnering agencies.

The SVBNHD Management Plan outlines a program to preserve the districts historical character, protect and interpret the Civil War battlefields and related resources and increase the public's awareness of the war's legacy in the valley. The plan contains dozens of recommendations for protecting the fragile resources, providing visitor information services, interpreting the activities that occurred on particular sites, and identifying battlefield tour routes that would enable the visitor to travel among the planned visitor service centers. These recommendations should be implemented by the foundation, state and local partners, conservation organizations and/or private enterprise.

2. There is a need to develop a **Blue Ridge Visitor Information Center/Services Center** in the vicinity of I-64 near the intersection with Skyline Drive and the Blue Ridge Parkway. Shenandoah National Park received more than 1.3 million visitors in 1999 and the Blue Ridge Parkway in Virginia receives an estimated 10 million visitors annually. A partnership among the National Park Service, the U.S.D.A. Forest Service, the Commonwealth of Virginia and surrounding localities could be created to plan, build and operate a complex near Rockfish Gap or Afton Mountain that would complement the visitor center envisioned in the Shenandoah Battlefield National Historic District.

3. The **George Washington** and **Jefferson National Forests** completed its Revised Land and Resource Management Plan in January 1993, which calls for additional resources to support the dispersed recreation associated with the forest. Under master plan goals and objectives, the forest will operate using a balanced approach; recreation and conservation will have equal weight with other forest activities. There will be additional facilities provided during the life of the plan, including trails, camping, water access, natural resource interpretation and environmental education. Implementation of these recommendations could provide new and improved recreational opportunities for forest visitors.

4. Local governments should support efforts to encourage adjacent landowners, localities and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of the **Blue Ridge Parkway** and **Skyline Drive** as part of a multi-regional parkway viewshed planning process.

5. Segments of the **Bullpasture**, **Cowpasture**, **Jackson**, **North** and **St. Mary's rivers**, as well as **Back Creek**, have been identified in the Forest Service's Revised Land and Resource Management Plan as eligible for consideration for potential federal Wild and Scenic River designation. The Virginia Department of Conservation and Recreation and the Forest Service will work together to determine suitability.

6. **Lake Moomaw** and the surrounding lands are administered under a cooperative arrangement among the Forest Service, the U. S. Army Corps of Engineers and the Virginia Department of Game and Inland Fisheries. Because of the lake's enormous popularity and the variety of available recreational facilities, some areas are getting overcrowded. Additional developments are being considered and should be provided, including a visitor center, expanded campground, a new group camp and additional trails.

7. **Shenandoah National Park**: In 1999, the park's attendance exceeded 1.3 million visitors, taxing some of the resources during peak periods in the prime recreational season. Overcrowding here, as in other NPS units has led to overutilized resources and user conflicts. The staff is considering several infrastructure improvements to existing areas within the park. It is also dealing with a number of significant threats to the

park's environment. Outbreaks of diseases or infestation by insects, including the gypsy moth, dogwood *Anthracnose*, and southern pine beetle are decimating large tracts of valuable forest land. Problems associated with certain wildlife species overpopulation, such as whitetail deer, and the loss of scenic vistas due to declining air quality, need to be addressed as well. US Congress fixed the park at its present size, precluding adjustments to the park boundaries and preventing the resolution of some land-use conflicts at the park boundaries. All these factors could significantly impact the availability and quality of recreational issues for future park visitors. The parks revised resource management plans contain strategies for addressing these issues.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

8. A new **Douthat State Park** Master Plan adopted in 2000 recommends additional developments for the park. These include: enhancing the existing cabins, adding to or improving the camping facilities, developing additional equestrian and pedestrian trail opportunities, and providing environmental education/visitor information facilities.

9. A **state park** has been proposed for the central Shenandoah Valley in either Augusta or Rockingham County. The site could take advantage of the scenic, cultural and historic resources, as well as the unique natural resources of the region. In 1999, a report prepared by DCR for the General Assembly determined that it would be feasible to include Natural Chimneys and Grand Cavern Regional Parks in the state parks system, provided adequate funding is available to upgrade the facilities bring the facilities up to state park standards and provide for staffing and operating requirements. The Upper Valley Regional Park Authority and the Department of Conversation and Recreation are working on a planning process that could enable these resources to be incorporated into the state park system.

Natural areas

Cowbane Prairie Natural Area Preserve and **Folly Mills Fen Natural Area Preserve** are both located in Augusta County. **Deep Run Ponds Natural Area Preserve** is located in Rockingham County.

The Department of Conservation and Recreation has, as of March 2001, documented 1,187 occurrences of 357 rare species and natural communities in the Central Shenandoah Planning District. Sixty-four species are globally rare and 11 are federally threatened or endangered. One-hundred-and-sixty-five conservation sites have been identified in the district; 101 (61%) have received some level of protection through ownership or management by state, federal and non-government organizations.

DCR recommends that the 64 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see Chapter III-B-2-d, page 133.

Public fish and game management

10. **Goshen**, **Highland**, **Little North Mountain** and **Gathright wildlife management areas** all offer excellent public hunting opportunities. Consideration is being given to making these areas available for other non-consumptive forms of recreation, such as hiking and nature study. Highland County, in particular, needs additional hiking and camping facilities.

11. The **Virginia Department of Game and Inland Fisheries** is the primary agency responsible for providing boating access to the public waters of the state. They should coordinate with all public land managing agencies, local governments and other user groups to identify opportunities and help develop appropriate access sites on the free flowing streams of the region.

Other state properties

The following state-owned lands contain significant undeveloped open space that may have some potential for local recreational use. Each site should be assessed and, where appropriate, some form of cooperative agreement should be developed, making these resources available for local use as parks and open space.

12. **Western State Hospital** in Augusta County contains nearly 400 acres. Because the site appears to be less than 50% developed, the potential exists for some type of joint-use agreement. The hospital staff began development of an internal trail system in 1994. These facilities may offer some additional opportunities for use by the surrounding community.

13. **McCormick Farm** in Rockbridge County contains more than 600 acres of open space. The Cyrus McCormick Museum is operated on the property.

14. The **White Tract** owned by Virginia Military Institute (VMI) in Rockbridge County contains more than 60 acres of undeveloped open space.

15. The opportunity exists to develop or expand outdoor recreation opportunities at the **Woodrow Wilson Rehabilitation Center** in Augusta County. Greater utilization of this resource could benefit the center as well as area residents.

16. The opportunity exists for expanded recreational facilities at the **Blue Ridge Community College**.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

17. Additional **public water access** opportunities are needed on most of the streams of the region, including the Maury and James rivers in Rockbridge County, the South Fork of the Shenandoah River, and the other larger headwater streams of Highland and Bath counties. Where appropriate, portages should be created around dams and other river obstacles.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

18. **Back Creek** and **Jackson River** in Bath County above Lake Moomaw.

19. **Maury River** in Rockbridge County from its origin west of Goshen Pass to Limekiln Bridge.

20. The **Calfpasture River** in Rockbridge and Augusta counties from Marble Valley to Goshen Pass.

21. The entire **James River** in Rockbridge County.

22. The **Cowpasture River** in Highland and Bath counties from Panta to Route 42.

23. The **South Fork of the Shenandoah River** in Rockingham County.

24. All of the **Laurel Fork** in Highland County.

Scenic highways and Virginia Byways

There has also been a tremendous interest in "thematic" trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. Within the Planning District, the Shenandoah Valley Battlefields tour route, the Lewis and Clark Trail and the Wilderness Road Trail are regional driving trails that should be considered. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state. The following roads have been recommended for consideration as Virginia Byways:

25. **Route 250** in Highland and Augusta counties from the West Virginia state line to Route 42 at Churchville.

26. **Route 60** in Rockbridge County between Buena Vista and the Blue Ridge Parkway.

27. **Route 42** in, Augusta, and Rockbridge counties from Route 39 to Rockingham County near Harrisonburg (in PDC 7).

28. **Route 252**, from near Staunton to the intersection with Route 39 in Rockbridge County.

29. **Route 608** in Rockbridge and Augusta Counties, from near Buena Vista to the intersection with Route 340 at Stuarts Draft.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, cities and counties should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans. as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike-trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are trail/greenway proposals for this region:

30. A **Staunton to Harrisonburg Rail-with-Trail** could be developed along the former Norfolk-Southern railroad corridor now owned by the Shenandoah Valley Railroad, a short line operator. The lower traffic volumes would seem to make a shared corridor more acceptable to the various user groups.

31. The **Clifton Forge to Staunton to Waynesboro** (Charlottesville) segment of the CSX Railroad was proposed for abandonment several years ago. The line is still active and was used by the Railroad Historical Society for fall-color excursions, which became popular events. However, technical difficulties forced the group to cancel the excursions, but they are working to restore the popular trips. The corridor could be considered for rail-with-trail usage now and rail-trail conversion should the line be abandoned.

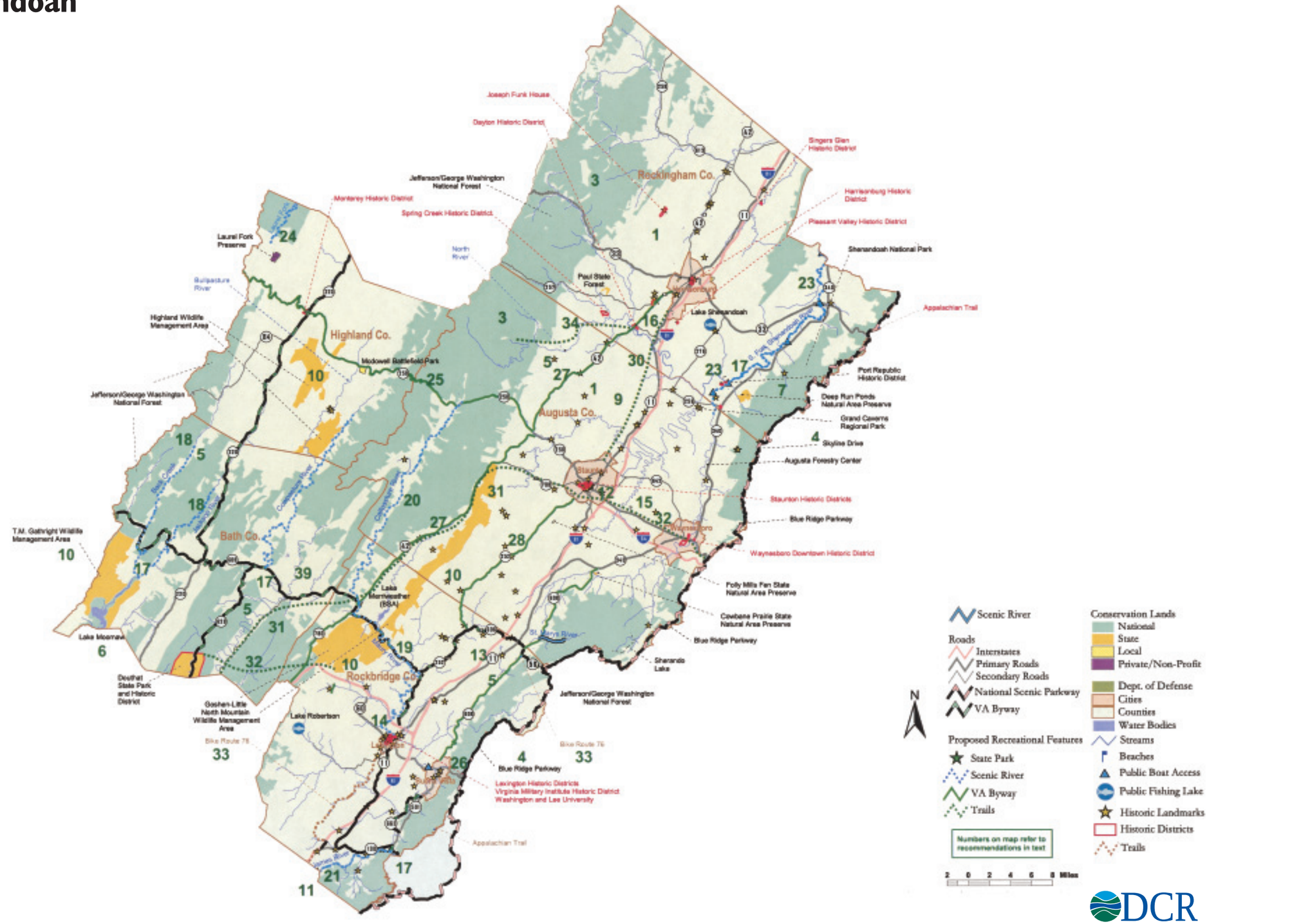
32. The **Allegheny Highlands Horse Trail**: a feasibility study that recommended development of a system of horse trails that would connect the Horse Center in Lexington with Douthat State Park and the Homestead was completed in 1999. An environmental assessment will be completed in 2001 that identifies specific routes for this trail system on Forest Service Lands and within Douthat State Park. Additional elements of the proposed system will require funding in order to be completed. Once completed, the Allegheny Horse Trail will include more than 70 miles of trail plus trailheads and appropriate overnight facilities.

33. The location of **Interstate Bike Route 76** should be refined and properly signed.

34. Consideration should be given to the development of the **North River Trail**, a linear rails-to-trails park utilizing the abandoned Chesapeake Western railway corridor along the North River and Mossy Creek from North River Gorge to Bridgewater in Augusta and Rockingham counties.

Central Shenandoah

PD 6



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 8
Existing and Projected Needs
Central Shenandoah (PD #6)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	504,639	100	fields	86	4	14	106	20
Basketball	916,113	217	goals	60	6	157	231	171
Bicycling	2,336,865	166	miles	NI			177	
Lake, River, Bay Use (combined)	1,550,664	18,989	water acres	4,753		14,236	20,158	15,405
Power Boating	349,365	8,421	water acres	S			8,939	
Sailing	238,086	2,060	water acres	S			2,187	
Lake Fishing	749,453	4,216	water acres	S			4,475	
Salt Water Fishing	48,135	271	water acres	S			287	
Jet Ski/ Personal Watercraft (PWC)	74,531	1,168	water acres	S			1,240	
Water Skiing / Towed on Water	91,094	2,854	water acres	S			3,030	
Camping (*)	692,002	4,081	sites	2,590		1,491	4,332	1,742
Tent camping	195,644	1,154	sites	582	438	572	1,225	643
Developed camping	496,357	2,927	sites	2,008	1,195	919	3,107	1,099
Fitness Trail use	80,225	6	mile trails	7	0	-1	7	0
Fields (combined)	513,696	108	fields	61	0	47	115	54
Football	197,974	42	fields	NS			44	
Soccer	315,723	66	fields	NS			70	
Stream Use (combined)	956,743	572	stream miles	581		-9	608	27
Stream Fishing	749,453	527	stream miles	S			559	
Human-powered boating	135,864	35	stream miles	S			37	
Rafting	31,055	5	stream miles	S			6	
Tubing	40,371	5	stream miles	S			6	
Golfing	902,656	30	courses	14	13	16	32	18
Hiking/ Backpacking	605,566	311	trail miles	911	103	-600	330	-581
Horseback Riding	108,691	47	miles	377	78	-330	50	-327
In-Line Skating	72,461	5	miles	NI			5	
Jogging/Running	1,850,341	148	mile trails	NI			157	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Central Shenandoah (PD #6) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	86,953	12	sites	1		11	13	12
Picnicking Away from Home	460,644	1,196	tables	3,325	529	-2,129	1,270	-2,055
Skateboarding	69,873	21	sites	NI			23	
Snow Skiing or Snowboarding	105,586	3	ski lifts	9	9	-6	3	-6
Softball	486,523	87	fields	81	6	6	92	11
Sunbathing/ Relaxing on Beach	632,222	45	beach acres	34	7	11	48	14
Swimming Outdoor Area	440,976	45	beach acres	34	17	11	48	14
Swimming Outdoor Pools	606,860	26	pools	33	4	-7	27	-6
Swimming Indoor Pools	210,137	2	pools	6	43	-4	3	-3
Tennis	323,486	202	courts	149	11	53	215	66
Used a Playground	838,476	119	sites	121		-2	127	6
Visiting Gardens	71,426	8	sites	NI			8	
Visiting Historic Sites	352,988	30	sites	NI			32	
Visiting Natural Areas	336,426	57	sites	NI			60	
Volleyball	65,991	20	courts	4	0	16	21	17
Went Hunting	615,918	101,004	acres	657,014		-556,010	107,221	-549,793
Went Shooting Total	463,750	262	fields	NI			278	
Target	205,996	116	fields	NI			124	
Skeet or Trap	105,586	60	fields	4		56	63	59
Other	51,758	29	fields	NI			31	
Drive for Pleasure	2,527,075	na	na	NI			na	
Motorcycle/ATV (combined)	231,616	106	miles	29	0	77	112	83
Driving All-Terrain Vehicle	165,625	76	miles	NS			80	
Driving Motorcycle Off-Road	65,991	30	miles	NS			32	
Driving 4-Wheel-Drive Off-Road	175,459	na	na	NI			na	
Walking for Pleasure	7,776,609	na	na	NI			na	
Other	175,977	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 7: Northern Shenandoah Valley Regional Commission

The Northern Shenandoah Valley Regional Commission encompasses the counties of Clarke, Frederick, Page, Shenandoah and Warren, the City of Winchester, and the towns of Berryville, Boyce, Middletown, Stephens City, Luray, Shenandoah, Stanley, Edinburg, Mount Jackson, New Market, Strasburg, Toms Brook, Woodstock and Front Royal. The region has a landmass of about 1,650 square miles, and the 2000 Census indicated that more than 185,250 people call this area home. Overall, this represents about 16.4% growth during the last decade.

The regional commission encompasses the northwest corner of Virginia that lies between the Blue Ridge Mountains and the eastern slopes of the Appalachians. Massanutten Mountain dominates the heart of the region. The lower sections of the North and South forks of the Shenandoah River crisscross the landscape of the region before converging at Front Royal to create the legendary Shenandoah River. The Shenandoah River in Clarke County is a component of the state Scenic River system. Many of the headwater streams that eventually create the mighty Potomac River rise out of the Appalachians in the southwest section of the district.

The region's economy is driven by a diverse blend of agriculture, tourism, and industry. Since the area was first settled, agriculture has been the mainstay of the Shenandoah Valley. During the Civil War, the Valley was described as the breadbasket of the Confederacy, and more than 300 armed conflicts were waged throughout the area. With the construction of Interstate 81, the Valley began to acquire manufacturing and other industrial interests. During the past 20 years, the Shenandoah Valley and nearby mountain attractions have become popular tourist destinations, generating economic benefits that rival the agricultural and industrial sectors.

Within the region, there are about 2,300 acres of state lands and more than 168,400 acres of federal lands available for most types of dispersed recreational use. Due to the vast tracts of forests and national parks, the significant water resources, and the private resorts, the Northern Shenandoah Valley region receives a large influx of recreational users from other parts of Virginia and from outside the state. Collectively, visitors seeking recreational opportunities contribute significantly to the tourism revenue generated in this region.

Skyline Drive, traversing Shenandoah National Park, is among the nation's premier scenic roads. This majestic park and scenic highways attracts tourists from throughout the nation, as well as international visitors. The character of some sections of Skyline Drive has been altered from that of a pastoral scene to landscapes that are sometimes marked by incompatible development. Overlooks that once featured breathtaking vistas of farmsteads or forest are now obscured by haze originating from distant factories, or now reveal factories and expanding suburban residential development. In some cases, subdivisions are being developed within a few hundred feet of this magnificent corridor. As development continues to expand in these sensitive areas near the park, there will be major impacts on the quality of the visitor experience. Those communities that benefit most from the presence of the park with its scenic highways should consider strengthening local comprehensive plans and creating special zoning regulations that will take into account the unique scenic and economic benefits associated with Skyline Drive and its viewshed.

Despite the apparent abundance of certain types of recreational resources, shortages exist for close-to-home facilities that are important to local residents. Needs have been indicated for additional courts and game fields, playgrounds, swimming facilities and other amenities for use by local residents. Existing and projected facility needs for the region are summarized in Table 9, page 215.

The following recommendations could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

The private sector has played a major role in the establishment of the northern Shenandoah Valley as a tourist destination area. Major resorts such as Massanutten and Bryce have made substantial investments in ski areas, golf courses, pools, campgrounds, lodging and other amenities for the recreating public. Increased interest in the numerous Civil War battlefield sites, many of which are privately owned, has created new opportunities for the heritage-tourism industry. Private-public arrangements and partnerships are evolving to protect, promote, and interpret the significant recreational, cultural and historic resources that are synonymous with the northern Valley. Private enterprise will have the primary responsibility to provide for the increased demand for future amenities throughout the region. The increasing demand for camping, fishing and other on-water activities could prompt private investors to establish recreation and tourism-driven businesses. There is a demonstrated need for additional four-wheel-drive off-road trails in the region. This may present an additional opportunity for the private sector to make use of marginal, undeveloped, private lands to create additional ORV trail opportunities.

Federal facilities

1. In 1997, Congress enacted legislation creating the **Shenandoah Valley Battlefield National Historic District (SVBNHD)**. All the localities within the Northern Shenandoah Valley Regional Commission are included. The legislation authorized a commission whose charge was to develop a plan to promote the protection and continued appreciation of the historic, cultural and natural resources that are associated with the battlefields and are important to the people of the region, the Shenandoah Valley and the nation. The Shenandoah Valley Civil War Battlefields Foundation was also created to serve as a catalyst for implementing the recommendations found in the management plan. The district contains some of the most remarkable and intact Civil War battlefields in the United States. The landscapes of the valley, its natural beauty, farm, small towns and tradition makes it one of the most "characteristically American" regions in the country. More than 325 armed conflicts took place in the eight counties (including Highland, Rockingham and Augusta counties plus cities and towns in PDC 6) that comprise the SVBNHD and lay at the heart of the struggle. According to the management plan, about 70% of the core areas identified in the management plan retain their original integrity, while only about 7% of those areas are in some way protected.

Today the district remains a vital, yet vulnerable national resource. The management plan recommends a 20-year implementation process. However, all the partners should strive to initiate the critical resource protection strategies quickly, before the key resources are compromised by development pressures.

The SVBNHD Management Plan outlines a program to preserve the districts historical character, protect and interpret the Civil War battlefields and related resources, and increase the public's awareness of the war's legacy in the Valley. The plan contains dozens of recommendations for protecting fragile resources, providing visitor information services, interpreting activities that occurred on a particular site, and identifying battlefield tour routes that would enable the visitor to travel among the planned visitor service centers.

2. The **George Washington** and **Jefferson National Forests:** Revised Land and Resource Management Plan identifies additional resources necessary to support the existing demand for dispersed recreational opportunities in the forest. The revised goals and objectives call for the forest to operate with a more balanced approach — open space, conservation and recreation having equal weight with other forest activities. Additional facilities called for by the forest plan include trails, camping, water access, natural resource interpretation and environmental education. These resources will result in new and improved recreational facilities for forest visitors. There is an identified need for additional four-wheel-drive off-road vehicle trails on all public lands throughout the region.

3. Within this region, the **North Fork of the Shenandoah**, the **South Fork of the Shenandoah**, **Cedar Creek**, and two segments of **Passage Creek** were identified in the U.S.D.A. Forest Service's Revised Land and Resource Management Plan as eligible for study for federal Wild and Scenic River designation. Should this process proceed, the Virginia Department of Conservation and Recreation will work with the Forest Service to determine if these rivers should be designated.

4. **Shenandoah National Park**: In 1999 the park's attendance exceeded 1.3 million visitors, taxing some of the resources during peak periods in the prime recreational season. Overcrowding here, as in other National Park Service units, has led to overutilized resources and user conflicts. The staff is considering several infrastructure improvements to existing areas within the park. It is also dealing with a number of significant threats to the health of the park's environment. Outbreaks of diseases or infestation by insects, including the gypsy moth, the dogwood *Anthracnose*, and the southern pine beetle are decimating large tracts of valuable forestland. Problems associated with certain wildlife species overpopulation, such as the white tail deer, and the loss of scenic vistas due to declining air quality need to be addressed. Congress fixed the park at its present size, precluding adjustments to the park boundary and preventing the resolution of some land-use conflicts at the park boundaries. All of these factors could significantly impact the availability and quality of recreational resources for future park visitors. The park's revised Resource Management Plans contain strategies for addressing these issues.

5. Local governments are beginning to recognize the value of viewsheds as an enhancement to their quality-of-life as well as an asset that turns local attractions into tourist destinations. Scenic overlays for the **Shenandoah Valley National Battlefield Historic District**, the **Shenandoah National Park** and **George Washington** and **Jefferson National Forests** should be considered as part of a multiregional viewshed planning process.

6. The **Appalachian Trail** skirts the edge of the region along the crest of the Blue Ridge Mountains within the Shenandoah National Park and must deal with the same issues as those that confront the park. In addition, the Appalachian Trail frequently experiences overcrowding in some areas. Consideration should be given for ways to disperse the use of this resource and to balance conflicting uses and needs.

7. The **Conservation and Research Center** near Front Royal contains several thousand acres and is operated by the Smithsonian Institution's National Zoological Park. Activities at the center focus on biodiversity conservation through programs in research, national and international training, and captive breeding of endangered species. The Conservation and Research Center is closed to the general public; however, conference facilities are available for use by outside groups on a fee basis. Localities could take advantage of the unique meeting facilities available at the center.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

8. Land acquisition and initial infrastructure developments at the **Raymond R. "Andy Guest" Jr. Shenandoah River State Park** that were called for in the 1992 bond referendum issue have been completed. A master plan for the park was approved in March 2001, which calls for camping, cabins, an extensive trails network, a visitor center and environmental educational facilities, as well as enhanced access to the river.

9. The **Seven Bends Area of the North Fork of the Shenandoah River** in Shenandoah County has beautiful scenery and excellent fishing and canoeing in a pristine setting. The area could provide a rare opportunity for the acquisition and development of a multipurpose river park that could contain significant historic and natural features, and would afford easy access to import resources of the region, including several near-by battlefields. This site would provide an excellent opportunity to serve the conservation, recreation and environmental education needs of the region.

Natural areas

The Department of Conservation and Recreation has, as of March 2001, documented 422 occurrences of 165 rare species and natural communities in the Northern Shenandoah Valley Regional Commission. Twenty-one species are globally rare and five are federally threatened or endangered. Fifty-three conservation sites have been identified in the district; 39 (74%) have received some level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 14 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see Chapter III-B-2-d on page 133.

Other state properties

10. **Blandy Farm** and **State Arboretum** in Clarke County houses the State Arboretum of Virginia on more than 150 acres. Local visitors and tourists alike hail the Blandy Farm for the quality experience and memorable visit that they have there. Plans have been developed for an information and visitors, center, an amphitheater, picnic facilities, gardens and garden walks accessible for persons with disabilities.

11. The **Northern Virginia 4-H Center,** located in Warren County, has numerous trails and other facilities that are used by others, including hikers on the nearby Appalachian Trail. There may be an opportunity to develop a cooperative agreement among groups, which will expand offerings for all users.

Public fish and game management

12. The Virginia Department of Game and Inland Fisheries should establish a state fish and game management area on the **Shenandoah River** to serve the conservation and recreation needs of the region.

13. As the primary agency responsible for providing boating access to the public waters of the Commonwealth, **DGIF** should coordinate with all land managers and user groups to identify locations and help to develop additional access sites that are needed on the free flowing streams of the region.

Regional parks and other resources

14. Shenandoah County has received funds to purchase a 150-acre parcel near the confluence of the North Fork of the Shenendoah River and Cedar Creek. The critical location on the river and in close proximity to the national forest will give the park a regional significance that can support a variety of recreational opportunities for the people of the area. Shenandoah County should initiate the design and development process as soon as the resources can be identified.

15. The Avtex Fibers Plant is a Superfund site on the Shenandoah River at Front Royal. It is being redeveloped into a "green" industrial park. A recreational park, **Conservancy Park** is part of the site rehabilitation and consists of almost 350 acres fronting the river.

Park developments will include access to the river, restroom facilities, picnic areas, natural areas and open space, a trails network and a variety of other day-use activities, including soccer fields. **Conservancy Park** could help address issues identified in the recreational use management plan (see #17). Funding should be made available as part of the mitigation plan and the site should be developed as an early phase of the rehabilitation, which could be completed in five to seven years.

Public water access

The Demand-Supply-Needs analysis also points to a critical need for increased access to the public waters of the district for all types of water-based activities. Access considerations for the region include the following:

16. Additional public access is needed to all the major streams of the region, including both the North and South forks and the main stem of the **Shenandoah River**, **Passage Creek** and **Cedar Creek**. Where appropriate, portages should be created around dams and other river obstacles.

17. A multi-objective river recreation plan has been prepared to address recreation and water resource management issues for the South Fork and Main Stem of the Shenandoah River in Page, Clarke and Warren counties. The plan, developed by an advisory committee composed of farmers, outfitters, other riparian owners, local government, DCR, DGIF, USFS and others, contains numerous recommendations for managing the recreational use on the river while protecting the resource. Recommendations of that plan should be implemented quickly. Other communities should consider the findings and recommendations of this plan as a model for implementing management strategies on other heavily used river segments.

Scenic Rivers

The following river segment has been evaluated and determined to qualify for Virginia Scenic River designation:

18. The **North Fork of the Shenandoah River** from Burnshire Bridge to Route 648 in Front Royal.

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

19. The **South Fork of the Shenandoah River** in Page and Warren counties from Port Republic to Route 684, and from Overall to Front Royal.

20. The **North Fork of the Shenandoah River** in Shenandoah and Warren counties from New Market to Burnshire Bridge.

21. **Cedar Creek** in Shenandoah, Frederick and Warren counties — the entire stream.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. Within the planning district, Shenandoah Valley Battlefields tour route and the Wilderness Road Trail are regional driving trails that should be considered. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state. The following roads have been recommended for consideration as Virginia Byways:

22. **Route 42** from near Edinburg in Shenendoah County to near Harrisonburg in Rockingham County, as well as the section south of Harrisonburg to the Augusta County line.

23. **Route 678** in Shenandoah County between Route 211 and Route 55 near Strasburg.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. This plan should strive to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable.

Local governments should also develop comprehensive bicycle plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

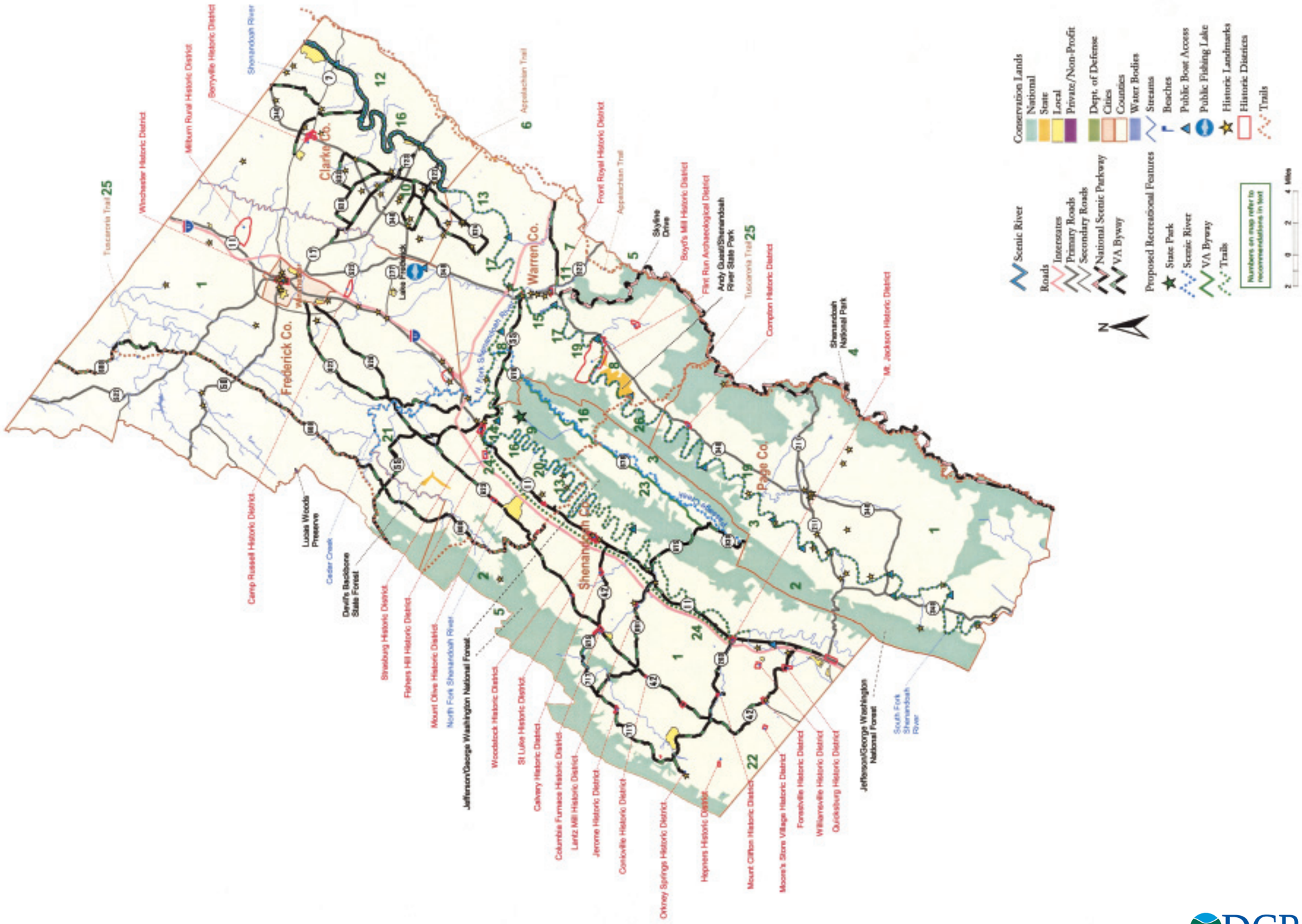
24. A private conservation organization is attempting to purchase the **Norfolk Southern Railway** in Shenandoah County for the purpose of operating an historic steam excursion train. This facility, if developed, could provide a combination recreation/tourism facility that could become a tourist destination for the northern Valley. Additional funding is needed in order to complete the plan as proposed in the recent feasibility study.

25. The **Tuscarora Trail** (formerly the Big Blue) crosses Shenandoah and Frederick counties. Although the trail is in place, efforts should continue to relocate the trail corridor off the public roads and provide additional protection for the relocated sections.

26. A greenway should be developed along the **Shenandoah River** to connect the state park with other resources.

Northern Shenandoah

PD 7



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 9
Existing and Projected Needs
Northern Shenandoah Valley (PD #7)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	361,300	71	fields	39	4	32	82	43
Basketball	655,898	156	goals	61	10	95	180	119
Bicycling	1,673,096	119	miles	NI			137	
Lake, River, Bay Use (combined)	1,110,210	13,596	water acres	576		13,020	15,702	15,126
Power Boating	250,131	6,029	water acres	S			6,963	
Sailing	170,459	1,475	water acres	S			1,704	
Lake Fishing	536,577	3,018	water acres	S			3,486	
Salt Water Fishing	34,462	194	water acres	S			224	
Jet Ski/ Personal Watercraft (PWC)	53,361	836	water acres	S			965	
Water Skiing / Towed on Water	65,219	2,044	water acres	S			2,360	
Camping (*)	495,444	2,922	sites	3,210		-288	3,374	164
Tent camping	140,073	826	sites	416	63	410	954	538
Developed camping	355,371	2,096	sites	2,794	1,942	-698	2,420	-374
Fitness Trail use	57,437	5	mile trails	10	1	-5	5	-5
Fields (combined)	367,785	77	fields	47	3	30	89	42
Football	141,741	30	fields	NS			34	
Soccer	226,044	48	fields	NS			55	
Stream Use (combined)	684,988	410	stream miles	348		62	473	125
Stream Fishing	536,577	377	stream miles	S			436	
Human-powered boating	97,273	25	stream miles	S			29	
Rafting	22,234	4	stream miles	S			5	
Tubing	28,904	4	stream miles	S			4	
Golfing	646,264	22	courses	12	12	10	25	14
Hiking/ Backpacking	433,560	222	trail miles	474	133	-252	257	-217
Horseback Riding	77,818	34	miles	211	36	-177	39	-172
In-Line Skating	51,879	4	miles	NI			4	
Jogging/Running	1,324,766	106	mile trails	NI			123	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Northern Shenandoah Valley (PD #7) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	62,255	9	sites	2		7	10	8
Picnicking Away from Home	329,802	856	tables	2,657	435	-1,801	989	-1,668
Skateboarding	50,026	15	sites	NI			18	
Snow Skiing or Snowboarding	75,595	2	ski lifts	3	3	-1	2	-1
Softball	348,330	62	fields	63	4	-1	72	9
Sunbathing/ Relaxing on Beach	452,644	32	beach acres	17	12	15	37	20
Swimming Outdoor Area	315,721	32	beach acres	17		15	37	20
Swimming Outdoor Pools	434,486	18	pools	33	23	-15	21	-12
Swimming Indoor Pools	150,449	2	pools	2	0	0	2	0
Tennis	231,603	145	courts	96	31	49	167	71
Used a Playground	600,314	85	sites	83	12	2	99	16
Visiting Gardens	51,138	6	sites	NI			6	
Visiting Historic Sites	252,725	21	sites	NI			25	
Visiting Natural Areas	240,867	41	sites	NI			47	
Volleyball	47,247	14	courts	13	2	1	16	3
Went Hunting	440,971	72,315	acres	106,513		-34,198	83,517	-22,996
Went Shooting Total	332,025	188	fields	NI			217	
Target	147,484	83	fields	NI			96	
Skeet or Trap	75,595	43	fields	3		40	49	46
Other	37,056	21	fields	NI			24	
Drive for Pleasure	1,809,279	na	na	NI			na	
Motorcycle/ATV (combined)	165,827	76	miles	19	0	57	87	68
Driving All-Terrain Vehicle	118,580	54	miles	NS			63	
Driving Motorcycle Off-Road	47,247	22	miles	NS			25	
Driving 4-Wheel-Drive Off-Road	125,621	na	na	NI			na	
Walking for Pleasure	5,567,724	na	na	NI			na	
Other	125,992	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 8: Northern Virginia Regional Commission (NVRC)

The Northern Virginia Planning District (NVPD) covers an area of about 1,300 square miles and is home to more than 1.82 million people. This region includes nine local governments. These are the counties of Arlington, Fairfax, Loudoun and Prince William, the cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park and the towns of Herndon, Leesburg, Vienna and Dumfries. With increases in population over the last 10 years ranging from a moderate 10.9% in Arlington County to an explosive 96.8% in Loudoun County, the NVRC has experienced an overall growth rate of 23.9% from 1990 to 2000. Thus, the preservation of remaining open space in urban areas and the effective management and protection of undeveloped land in regions of rapid growth are among the greatest challenges facing the Northern Virginia Planning District.

From the rugged Blue Ridge Mountains in the west, eastward across the rolling Piedmont to the gently sloping Coastal Plain, the region is characterized by a variety of landscapes and land uses. Farms, forests, sprawling subdivisions, open fields and densely populated urban areas all make up the NVPD region. Marked by topographic variety, numerous rivers and streams and many notable cultural and historic sites, the area offers a full range of outdoor experiences. Whether hiking the Appalachian Trail or horseback riding in Loudoun County's hunt country, exploring the forests of Prince William County or paddling the Potomac River, the outdoor enthusiast's choices of activities are many.

Although predominantly urban/suburban in character, the NVPD includes extensive areas that are rural in nature. In sharp contrast to the vibrant, highly developed localities of Arlington and Alexandria in the east, the western part of the region is characterized by rolling farmland, winding country roads and small historic towns. Picturesque villages such as Aldie, Waterford and Middleburg, once agricultural-market towns, serve as small commercial centers for a rural area experiencing the intense pressures of nearby urbanization. Discussions of "smart growth" and sustainable

development are common as the region struggles to cope with an unprecedented population increase and accompanying demand for services and facilities. Loudoun County, having nearly doubled in population in the last 10 years, has responded to concerns for environmental quality, natural and historic resources and transportation issues by initiating a smart growth strategy. Aimed at guiding the county's physical development through the implementation of incentives and regulatory instruments, the plan focuses on protecting Loudoun's natural and man-made resources while promoting and sustaining an "efficient, strong, diverse and resilient economy." In July, 2001, the Loudoun County Board of Supervisors voted 7 - 2 to adopt stringent development curbs designed to preserve 300 square miles of countryside by eliminating about 83,000 potential homes from Loudoun's plans and removing county support for a proposed north-south highway. The new plan reduces residential development potential in all areas of the county, sets up the framework for four distinct suburban communities, each with a town center and improved open space, designates areas for natural resource management and rural economic purposes, and asks for greater support from new development for supporting infrastructure. Recognizing the value of the area's open space, Loudoun County residents have dedicated more than 20,500 acres to conservation easements.

Prince William Forest Park, a property of the National Park Service located in Prince William County, is an outstanding resource in this rapidly developing area. Consisting of more than 17,000 acres, the largest natural area in the Washington, DC metropolitan region, the park is a sanctuary for many native species. More than 176,000 visitors enjoyed the park in 2000, an increase of 22% over the previous year.

Manassas National Battlefield Park, a 5,000-acre property of the National Park Service dedicated to the preservation of the scene of two major Civil War battles, is a popular destination for Civil War enthusiasts as well as those who simply enjoy the beauty of the Virginia countryside. Host to more than 800,000 visitors each year, the park has been a focal point in several major, local land use decisions. As the county continues to grow and pressure from development interests increase, questions arise concerning the nature of adjacent land uses. Care must be taken to protect the integrity of this, and other, important historic resources. Localities should strongly consider the impacts of future development on nearby properties to sites such as this.

As is the case with all other counties in the Northern Virginia Planning District, Prince William County is faced with the challenge of meeting the outdoor recreational needs of a growing population in an area that is experiencing rapid development with an accompanying increase in land costs. Acquiring large tracts for development as multi-use complexes is becoming increasingly difficult, yet the demand for such facilities continues to grow. The county is encouraged to continue to work with developers to include small neighborhood parks with connecting trails in their subdivision designs with combined efforts being focused on larger, regional facilities and integrated trail systems.

Prince William County has acknowledged the need to address the pressures of urbanization by including growth management strategies in its comprehensive plan. Major features of the 1998 Prince William County Comprehensive Plan include designating about one-half of the county as a "rural" area, subject to specific development constraints, delineating development areas, limiting public service areas and linking new development to the county's ability to support new growth.

Acquisition of open space and the development of parks and trails in Fairfax reflect the strong interest and support of county residents. To the level that funding allows, Fairfax continues to respond positively to citizens' requests for additional open space and improved outdoor recreational opportunities. Fairfax County residents consistently support park bond referendums for land acquisition and facility development. Arlington County, as well, strives to meet the needs of a growing population while facing the challenge of protecting and preserving open space resources. To that end, Arlington has joined with Fairfax County to work with the Northern Virginia Conservation Trust, a nonprofit land trust dedicated to preserving and enhancing the natural and historic resources of Northern Virginia.

As pastures and corn fields give way to ball fields and soccer complexes in the west and the eastern part of the region approaches build-out, the NVPD plans for a future that will ensure an excellent quality of life for all residents. This must include the protection and

preservation of natural and cultural resources, access to outdoor recreational facilities and open space by all residents and the development of livable communities. The densely populated areas in Northern Virginia historically have generated greater levels of demand for recreational facilities than any other localities. Local governments, however, have done their best to meet these demands and continue to do so. Fairfax County Park Authority, for example, has launched a very aggressive land acquisition program and in the year 1999 - 2000 actually increased its park authority's land holdings by 20%. Strong local support and willingness to use alternative land acquisition techniques will ensure the addition of even more acreage to the region's parkland. It must be noted, however, that the loss of open space to development throughout the region continues at a rate that far exceeds the amount set aside as natural resource or outdoor recreation areas.

Specific needs have been identified in the Northern Virginia Planning District. These include:

- Transportation alternatives, specifically trails for walking, hiking and cycling and to connect people with destinations.
- Increased trail-use options for horseback riders.
- The development of dog parks.
- Additional playing fields to include facilities for tennis, volleyball, football, soccer, cricket, lacrosse, baseball and basketball.
- Access to water-based recreational opportunities. This includes facilities for swimming, boating and fishing and the development of water trails.
- Additional parks with playgrounds as well as minimally developed open space areas.
- Increased recreational opportunities within dense population nodes.
- Mountain bike facilities.
- Street-legal, four-wheel-drive vehicle off-road areas.

Highly urbanized areas such as Arlington, Alexandria and Fairfax face the challenge of providing recreational amenities for an increasing population in areas where little open space remains. In these cases, the adaptive reuse of existing properties should be considered. Abandoned, unused available sites, including rail yards and empty "big box" buildings are all potential recreational assets. Creative approaches can be used to identify opportunities, acquire the sites and develop them to meet residents' needs. However, development must be limited to appropriate locations. Consideration must be given for the protection of passive natural areas to preserve valuable habitat while enhancing the urban experience. Where possible, existing open spaces, including stream valleys and wetlands, might be linked to create greenways to provide enhanced habitat opportunities and a welcome relief from the urban landscape. Opportunities to protect, preserve and expand green infrastructure must be evaluated. Planning should also include consideration for those whose means of transportation are limited. Enjoyment of outdoor recreational opportunities by all members of the community assures continued interest in, and support of, such facilities as well as an understanding of the importance of maintaining environmental quality.

Planning to meet the recreational and open space needs of the NVPD will require cooperation among local governments, the development of interjurisdictional partnerships, private sector support and a dedicated source of funding for land acquisition and facility improvements.

Private sector

The private sector plays a major role in the protection and preservation of open space as well as the provision of recreational amenities and opportunities in Virginia. Privately developed campgrounds, golf courses, marinas, tennis courts, swimming pools and any number and variety of indoor facilities could help meet the recreational demands identified in the 2000 *Virginia Outdoors Survey*. Private enterprise and the efforts of organizations and partnerships, or the cooperative efforts of the private sector and units of government, often combine to acquire and maintain land for recreational use, as well for natural and historical preservation.

Private landowners might consider offering fee-based hunting in localities where permitted, fishing, trail riding and boating access to the general public. Familiarity with the *Landowner Liability Law, Code of Virginia, Chapter* 29.1-509 (page 408), could encourage some landowners to enter into an agreement with a unit of government to provide public access while minimizing their liability. This is of particular importance in the far western part of the region where the locally strong tradition of farm-to-farm trail riding and point-to-point events is threatened by changes in land ownership and the accessibility of large tracts of land.

The 2000 *Virginia Outdoors Survey* revealed that walking for pleasure is the preferred activity out of 39 leisure pastimes. Visiting historic sites ranked 5th, visiting natural areas was 11th and visiting gardens ranked 14th. An analysis of private-sector resources in these categories is recommended to determine the possibility of making them available to the public. A good example of the mutual benefits enjoyed by a public/ private recreational partnership is apparent in the ongoing implementation of the Potomac Heritage National Scenic Trail plan. Planners for the trail continue to engage the support of private enterprises including bed and breakfasts, museums, historic sites and recreational facilities to alert potential trail users to development of the trail, while current users enjoy the vast resources available throughout the corridor. The Northern Virginia Visitors' Consortium is encouraged to continue its role in promoting partnerships to support the heritage and recreational opportunities in the NVPD.

Federal facilities

1. **Occoquan Bay National Wildlife Refuge**, made up of the former Woodbridge Research Facility and the area known as the Marumsco National Wildlife Refuge, is part of the **Potomac River National Wildlife Refuge**, as are Mason Neck and Featherstone NWRs. Continued consideration must be given for public access to these sites.

2. **Lorton-Meadowood Farm Land Exchange**: Completion of the Lorton-Meadowood Farm Land exchange should be facilitated. Future use of the Lorton site should maximize recreational and environmental benefits to the area. Accommodations should be made for the planned Potomac Heritage National Scenic Trail through the Lorton property, allowing for a connection between Prince William County to the south and Fort Belvoir to the east and the **South Run/Pohick** and **Accotink greenways** to the north. The development of a cooperative management agreement between the Bureau of Land Management and the Northern Virginia Regional Park Authority is encouraged as a means to assure the protection of open space at Meadowood Farm and the addition of recreational opportunities in Fairfax County. The conservation of Meadowood Farm, adjacent to Mason Neck State Park, will substantially increase wildlife habitat and open space land use potential in the area. Localities are encouraged to work with federal property managers to include all federal lands as possible sites for the development of trails, field sport facilities, water access points and publicly accessed open space.

State parks

All projects included in the 1992 Parks and Recreational Facilities Bond Referendum have been completed. Funding is needed to complete projects identified in approved master plans. By law, state park master plans must be evaluated by DCR staff every five years. Significant needs, proposed changes or improvements and additions costing in excess of $500,000 and not identified in the current approved master plan are subject to approval through the public participation process.

Due to the extremely high demand for public access to the waters of the Commonwealth, any significant property on a major tidal river, or its tributaries that becomes available should be evaluated for potential acquisition and development as a state or regional park. Along with addressing public demand, increased access opportunities will facilitate meeting the goals of the Chesapeake Bay Agreement, which calls for the addition of 66 public water access sites in Virginia by 2010, and an additional 500 miles of water trails throughout the bay region by 2005.

3. **Mason Neck State Park**: User needs include the development of a multi-use trail linking the park's visitors center and trail system with trails in adjacent management areas. An additional staff residence and improved administrative offices are needed to accommodate staff and facilitate effective efficient park management. With park visitors numbering about 10,000 persons per year and increasing, the construction of a larger environmental education/visitors center is necessary, along with picnic shelters, canoe-in campsites and increased water access. Plans for the development of an environmental education center on the site by the Chesapeake Bay Foundation have been greeted with enthusiasm. Slated to be housed in an existing structure overlooking the Potomac River, the center will offer workshops focused on water quality, habitat preservation and the ecology of the Chesapeake Bay.

4. **Leesylvania State Park**: User demands indicate the need for additional piers and boat launch facilities.

This should include piers adjacent to the group campsite to accommodate larger boats as well as convenience piers for launching smaller watercraft. With the proposed development of the Potomac River Water Trail, consideration should be given to the possibility of increased user access from the water. In addition, improvements should include increased trail access for mobility impaired park visitors. Reflecting the outdoors recreational demands of nearby urban areas, Leesylvania State Park is host to more than 300,000 visitors per year.

5. **Grist Mill Historical State Park** will be transferred to the Mount Vernon Ladies' Association upon completion of the restoration project.

Natural areas

As of March 2001, there were 56 conservation sites identified within the NVPD. Thirty-five (63%) are protected to some degree through ownership and management by state, federal and nongovernment organizations. Every effort should be made to protect the remaining 21 sites. Although appropriate methods of protection for each site will vary, each should be included on Virginia's registry of natural areas. Additional preservation strategies include developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner or acquiring the site as a state natural area preserve. Specific information about each of these natural areas can be obtained from DCR. The Natural Heritage Program is discussed in detail in Chapter III-B-2-d on page 133.

The Department of Conservation and Recreation has documented 406 occurrences of 158 rare species and natural communities in the NVPD region. Thirteen of these species are globally rare, and one is listed as threatened or endangered.

6. DCR is in the process of securing an easement and natural area dedication for **Bull Run Mountain**.

Regional parks

7. Representing the efforts of three counties and three cities – Arlington, Fairfax, and Loudoun counties and the cities of Alexandria, Falls Church and Fairfax – the **Northern Virginia Regional Park Authority (NVRPA)** provides almost two million citizens with some of the finest recreational facilities in the country. From wave pools to golf courses, boating facilities to quiet nature trails, the **Northern Virginia regional parks** offer visitors a full range of outdoors recreational opportunities. More than 10,000 acres of woodlands, streams and rolling Virginia countryside are preserved in the 19 parks within the system. With most of its land in a natural state, NVRPA strives to balance resource protection with meeting the recreational needs of a diverse, dynamic and growing population in a rapidly developing area. To that end, the NVRPA actively pursues the acquisition of land and easements to preserve and protect areas of exceptional historic, cultural, natural, recreational or aesthetic value. The NVRPA is encouraged to continue its efforts to preserve open space in an area where buildout in the foreseeable future is a distinct possibility.

Public water access

Access to Virginia's rivers and streams is essential to meeting water-related recreational demands. Swimming, fishing and boating rank 3rd, 4th and 8th, respectively, in preferred recreational activities according to the 2000 *Virginia Outdoors Survey*. Access to areas that support such activities is limited.

8. Boating, fishing and beach access to the **Potomac** and **Occoquan Rivers** should be increased significantly. Portages should be built around dams and other river obstacles, where appropriate.

9. The need for a boathouse on the **Potomac River** in **Arlington** has been identified by citizen groups interested in promoting youth rowing programs, offering water access for educational programs and providing opportunities for area citizens and visitors to enjoy non-motorized boating.

10. Concerned parties are encouraged to continue efforts to make the much needed improvements at **Belle Haven Marina** and develop a cooperative agreement that will result in the continued operation of the facility and its proper maintenance. The affordable and convenient access to the Potomac River that Belle Haven Marina offers makes it a popular and valuable amenity in an area lacking in water access sites.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road

Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

Trails and greenways

The Department of Conservation and Recreation recommends that each locality include a trail and greenway component within its comprehensive plan. Efforts should be made to integrate existing and proposed trails and greenways into a regional network designed to provide access to area resources while conserving and maximizing open space opportunities. The Fairfax County Park Authority has identified a countywide system of greenways, incorporating and connecting major stream valleys. While some sections of this system may include trails, others will be preserved as valuable habitat and important passive recreation areas, providing relief from urban surroundings. In developing trails as transportation alternatives, it is necessary that localities work with developers to promote connections not just loops within neighborhoods. The north Vienna trails network, proposed by a citizen group, is an example of a trail designed to provide significant connections for local residents. The three-mile trail, one-third of which is already completed, will provide links to Wolf Trap Farm Park for the Performing Arts, a property of the National Park Service, Meadowlark Gardens and W&OD regional parks, Wolf Trails Park, Fairfax County Cross-County Trail, Wolf Trap Elementary School and the Town of Vienna. Walking for pleasure was identified in the 2000 *Virginia Outdoors Survey* as the overall favorite outdoor activity of all Virginians. With the implementation of transportation alternatives identified as a regional goal, and the inclusion of convenient outdoor exercise opportunities in community designs advocated by health specialists, the development of trails such as this one meets a number of recognized needs.

Accommodations for cyclists within integrated trail systems must include improved safety considerations, appropriate signage and mapping and separate cycling lanes wherever possible, not just wide road shoulders. Localities, counties and cities should determine appropriate roads for bicycle routes and work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bicycling plans. Growing interest in birding as a recreational pastime will add another dimension to trail identification and development, as will interest in other theme trails.

The following are greenway/trail proposals for this region:

11. Complete the feasibility study for extending the **Mount Vernon Trail** from Roosevelt Island to the American Legion Bridge (I-495).

12. Complete the **W&OD Trail** to connect with the **Appalachian Trail**. Upon completion, the **W&OD Trail** will be an effective east-west axis, linking the Chesapeake Bay with the Appalachian Mountains and serving as an inter-county collector for existing and developing trails throughout the region.

13. Complete the connection between the **W&OD Trail** and **White's Ferry**.

14. Construct a trail from the **W&OD Trail** to the Potomac River in Northwest Fairfax County.

15. Include the **Potomac Heritage National Scenic Trail** in all comprehensive plans and work toward its completion.

16. Develop the **Potomac River Water Trail** to provide interjurisdictional boating opportunities and access to sites along the **Potomac River**. The extension of this water trail, upstream to Great Falls, is suggested.

17. Develop the **Occoquan Water Trail** to provide interjurisdictional boating opportunities and access to sites along the Occoquan River.

18. Complete the **Fairfax Cross County Trail** to link existing local and stream valley parks between Fort Belvoir and Great Falls National Park.

19. Continue the **Accotink Greenway Trail** from **Lake Accotink Park** to Pohick Bay/Gunston Cove.

20. Continue to develop greenway trail systems along the **Difficult Run**, **Sugarland Run**, **Pimmit Run**, **Pohick/South Run**, **Turkeycock/Holmes Run**, **Cameron Run** and **Rocky/Cub Run Stream Valleys**.

21. Develop a trail linking **Prince William Forest Park** and **Leesylvania State Park**.

22. Develop the proposed **Broad Run Stream Valley Greenway/ Linear Park**, from Lake Manassas to Lake Jackson, to include multi-use trails with pocket parks scattered along its length to provide opportunities for active recreation.

23. The **East Coast Greenway**, as proposed, will pass through the Northern Virginia Planning District. Local planners should coordinate with the East Coast Greenway Planning Committee to ensure that the selected corridor is consistent with local plans.

24. Enhance and properly identify **Interstate Bike Route 1**.

State forests

25. Continue to develop educational opportunities at **Conway Robinson Memorial State Forest**.

Other

Continue to identify opportunities for the Virginia Byways.

Increase public fishing access throughout the entire region.

Identify opportunities for the preservation of open space and/or the development of parks between **Leesylvania State Park** and **Washington, DC**

Consideration should be given to the expansion of historic districts to preserve resources and promote economic development.

The development of theme trails linking similar sites such as vineyards, historic districts and birding sites, should be considered.

Continue to develop trail systems within wildlife management areas to facilitate access for activities other than hunting and fishing.

Identify environmentally sensitive areas and develop strategies for their protection and preservation.

Continue to promote the protection and preservation of open space through land acquisition, conservation easements, stewardship agreements, the development of agricultural and forestal districts, the outright purchase of land or any of the many open-space protection strategies presented in Appendix E, Tools and Programs for Open Space and Natural Resources on page 403.

Identify opportunities for the development of greenway and stream valley trails throughout the region.

Northern Virginia

PD 8

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 10
Existing and Projected Needs
Northern Virginia (PD #8)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	3,212,899	635	fields	500	25	135	699	199
Basketball	9,039,681	2,144	goals	476	3	1,668	2,358	1,882
Bicycling	20,103,307	1,430	miles	NI			1,573	
Lake, River, Bay Use (combined)	7,952,378	106,364	water acres	30,072		76,292	116,998	86,926
Power Boating	2,323,452	56,001	water acres	S			61,600	
Sailing	333,996	2,890	water acres	S			3,179	
Lake Fishing	1,851,501	10,415	water acres	S			11,456	
Salt Water Fishing	2,406,951	13,539	water acres	S			14,893	
Jet Ski/ Personal Watercraft (PWC)	571,787	8,958	water acres	S			9,854	
Water Skiing / Towed on Water	464,690	14,560	water acres	S			16,016	
Camping (*)	3,102,172	18,295	sites	1,775		16,520	20,124	18,349
Tent camping	1,132,683	6,680	sites	377	87	6,303	7,348	6,971
Developed camping	1,969,489	11,615	sites	1,398	645	10,217	12,776	11,378
Fitness Trail use	1,669,981	134	mile trails	34	0	100	147	113
Fields (combined)	11,998,452	2,522	fields	657	16	1,865	2,775	2,118
Football	6,716,229	1,412	fields	NS			1,553	
Soccer	5,282,223	1,110	fields	NS			1,221	
Stream Use (combined)	2,786,327	1,500	stream miles	157		1,343	1,650	1,493
Stream Fishing	1,842,425	1,295	stream miles	S			1,425	
Human-powered boating	602,645	153	stream miles	S			169	
Rafting	134,325	24	stream miles	S			26	
Tubing	206,932	27	stream miles	S			30	
Golfing	5,968,368	201	courses	54	34	147	222	168
Hiking/ Backpacking	1,960,413	1,005	trail miles	672	18	333	1,106	434
Horseback Riding	332,181	144	miles	134	16	10	158	24
In-Line Skating	4,937,336	351	miles	NI			386	
Jogging/Running	27,227,955	2,182	mile trails	NI			2,400	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Northern Virginia (PD #8) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	885,816	126	sites	35		91	139	104
Picnicking Away from Home	2,441,440	6,338	tables	5,438	159	900	6,972	1,534
Skateboarding	1,669,981	514	sites	NI			565	
Snow Skiing or Snowboarding	893,077	23	ski lifts	0	0	23	25	25
Softball	4,029,737	717	fields	409	8	308	788	379
Sunbathing/ Relaxing on Beach	7,387,852	529	beach acres	7	6	522	582	575
Swimming Outdoor Area	5,627,111	576	beach acres	7		569	634	627
Swimming Outdoor Pools	6,425,797	272	pools	194	148	78	299	105
Swimming Indoor Pools	4,412,744	50	pools	9	3	41	55	46
Tennis	3,942,608	2,464	courts	914		1,550	2,711	1,797
Used a Playground	11,413,959	1,624	sites	634	226	990	1,787	1,153
Visiting Gardens	903,968	99	sites	NI			109	
Visiting Historic Sites	3,993,433	338	sites	NI			372	
Visiting Natural Areas	2,047,542	347	sites	NI			381	
Volleyball	697,036	207	courts	23	0	184	227	204
Went Hunting	1,561,069	255,999	acres	28,309		227,690	281,594	253,285
Went Shooting Total	952,978	538	fields	NI			592	
Target	844,067	477	fields	NI			524	
Skeet or Trap	299,508	169	fields	6		163	186	180
Other	136,140	77	fields	NI			85	
Drive for Pleasure	13,156,548	na	na	NI			na	
Motorcycle/ATV (combined)	381,191	174	miles	3	0	171	192	189
Driving All-Terrain Vehicle	235,976	108	miles	NS			119	
Driving Motorcycle Off-Road	145,216	66	miles	NS			73	
Driving 4-Wheel-Drive Off-Road	825,915	na	na	NI			na	
Walking for Pleasure	62,715,056	na	na	NI			na	
Other	898,523	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 9: Rappahannock – Rapidan Planning District

The Rappahannock-Rapidan Planning District (RRPD) covers an area of about 1,993 square miles and is home to more than 130,000 people. The region is made up of Culpeper, Fauquier, Rappahannock, Madison and Orange counties and the towns of Orange, Remington, Warrenton, Culpeper, Madison and Gordonsville. The area experienced an increase in population of 15.7% between 1990 and 2000. Orange and Culpeper counties absorbed the greater part of that increase with growth rates of 20.8% and 23.3%, respectively. From the rugged Blue Ridge Mountains in the west to the rolling Piedmont in the east, the area is one of memorable scenic vistas. Primarily agricultural, the region is characterized by many cattle and dairy operations as well as row-crop farms that provide feed for area livestock and produce for local and regional markets. Commonly known as hunt country, the region supports a large number of horse farms and is host to many traditional horse-centered activities, including point-to-point events, fox hunts and polo matches. Orchards, wineries, forests and rural residential development, with the occasional suburban-type subdivision, complete the land-use types that make up this district. The largest towns in the region are Culpeper, with a population of 9,664, and Warrenton, home to 6,670 residents.

The scenic qualities of the region are apparent and have been recognized in the designation of more than 100 miles of roads as Virginia Byways. These include all or part of the following routes, 20, 55, 231, 245, 522, 615, 626, 647, 709, 710, and 802. Rivers flowing through the area are the Hughes, Thornton, Hazel, Robinson, Rapidan and the Rappahannock, a State Scenic River. Goose Creek, a tributary of the Potomac and candidate for Scenic River designation, originates in Fauquier County. Recreational use of waterways varies throughout the region. Boating, fishing, tubing and swimming are popular pastimes.

Although essentially rural with an agriculture-based economy, the Rappahannock-Rapidan region has begun to experience many of the pressures typical of areas adjacent to those that are rapidly urbanizing. Surrounded by high-growth rate areas to the north, south and east, the region's potential for development is the subject of scrutiny by builders and entrepreneurs. Families seeking a more rural lifestyle and willing to commute a considerable distance to employment opportunities in Northern Virginia, Charlottesville and the Richmond area add to the pressure for increased development. With an average annual growth rate lower than those of adjacent planning districts, the Rappahannock-Rapidan area is preparing for the future. As local governments evaluate both the positive and negative aspects of development, they must identify and implement effective strategies that will allow them to manage inevitable growth while protecting regional resources. Some landowners, interested in maintaining the pastoral quality of the region, have voluntarily committed all or part of their property to conservation/open space easements. More than 70,000 acres in this area are in conservation easements held, for the most part, by the Virginia Outdoors Foundation. Fauquier County landowners have protected more than 44,000 acres through conservation easements, while almost 12,000 acres are covered by easements in both Rappahannock and Orange counties. In addition, many properties are owned and managed by land preservation trusts or foundations. Great Meadow, located in The Plains, is one such property. Owned by the Meadow Outdoors Foundation and dedicated to the preservation of open space for horse and field events, Great Meadow provides a unique setting for horse shows, polo matches, wine festivals, cross-country field trials and soccer matches. Drawing more than one million people annually to its 175-acre site, Great Meadow is a popular destination preserved in perpetuity for outdoor events for generations to come.

The National Trust for Historic Preservation owns Montpelier, home to three generations of the James Madison family. With more than 2,700 acres of rolling pasturelands, formal gardens and The James Madison Landmark Forest, the site hosts many special events throughout the year, attracting local and regional visitors. A unique site, noted for its historic and natural resources, Montpelier offers visitors the opportunity to enjoy Virginia's beautiful countryside while participating in significant cultural events. Thus, the region is an excellent example of the effectiveness of partnerships established between committed citizens and public agencies or nonprofit conservation organizations for the purpose of land preservation.

Most federal and state-owned open space is located in the western part of the district. Federal properties, specifically Shenandoah National Park and the section of the Appalachian Trail that passes through the area, make up about 66,000 acres of open space. State-owned properties include Sky Meadows State Park, Whitney State Forest and the Thompson, Rapidan and Chester Phelps wildlife management areas. These combine to add another 21,000 acres to the public open space in the Rappahannock-Rapidan Planning District.

Specific needs have been identified in the RRPD. These include:

- Transportation alternatives, specifically trails for walking, hiking, bicycling and horseback riding. Trails must connect people with destinations.
- Additional playing fields to include facilities for tennis, volleyball, football, soccer, baseball and basketball.
- Access to water-based recreational opportunities. This includes facilities for swimming, boating and fishing and the development of water trails.
- Additional parks with playgrounds, as well as minimally developed open-space areas.
- Recreational amenities to meet the needs of older residents to include indoor and outdoor swimming facilities and paved trails.
- Teen-focused recreational facilities and programs.
- Interpretive nature centers.
- Street-legal four-wheel-drive vehicle off-road trails.
- Unpaved trails for mountain bikers.
- Improve access to wildlife management areas for uses other than hunting and fishing.

As is the case throughout the Commonwealth, walking for pleasure is the most popular recreational pastime in the area. Residents and local officials cite a need for increased hiking and walking opportunities. A comprehensive trail system is viewed as the solution to this problem. If developed with multiple uses in mind, such a system could link small communities and specific destinations, thus providing exercise options

and transportation alternatives. Currently limited safe cycling opportunities might be expanded through accommodation within a well-developed trail system.

Water-related activities are also important to local residents. Results of the 2000 *Virginia Outdoors Survey* indicate a deficiency in opportunities to access water bodies. Despite the number of rivers and streams in the area, public access to these resources is limited. Other activities for which the demand exceeds available facilities include camping and picnicking.

Private sector

The private sector can play an important role in meeting recreational needs in this region. Entrepreneurial opportunities exist for the establishment of outfitter services for canoeing, and kayaking. Private landowners might consider offering fee-based hunting, fishing, trail riding and boating access to the general public. Familiarity with the *Landowner Liability Law, Code of Virginia, Chapter* 29.1-509 (page 408), could encourage some landowners to enter into an agreement with a unit of government to provide public access while minimizing their liability. This is of particular importance in preserving the locally strong tradition of farm-to-farm trail riding and point-to-point events. Changes in land ownership and subsequent changes in accessibility threaten this tradition.

Bed and breakfast accommodations, as well as hostels, can be developed to accommodate hikers, cyclists and regional tourists participating in local events or travelling through the region. Driving tours featuring the unique resources of the area, including Civil War sites, vineyards, horse farms and historic districts might be developed. As localities prepare for increases in residential growth, consideration must be given for the inclusion of mechanisms within the permitting process to encourage or require the preservation of open space and the development of recreational amenities. Private investment in playing fields, golf courses, tennis courts, swimming pools and playgrounds will help meet the demand for these facilities. These might be included as elements of new housing developments.

State parks

All projects included in the 1992 bond issue have been completed. Funding is needed to complete projects identified in approved master plans. By law, state park master plans must be evaluated by DCR staff every five years. Significant needs, proposed changes or improvements and additions costing in excess of $500,000 and not identified in the current approved master plan are subject to the public participation process.

1. Covering 1,862 acres on the eastern flank of the Blue Ridge, **Sky Meadows State Park** provides visitors with camping and picnicking facilities, as well as bridle paths and hiking trails. A 3.6-mile section of the Appalachian Trail passes through the western edge of the park. Noted for its outstanding views of the surrounding countryside, the park is aptly named. Horse rental facilities at Sky Meadows State Park will provide park visitors with an additional recreational amenity. Piedmont Environmental Council recently acquired historic Ovoka Farm, a 1,235 acre parcel, part of which is contiguous to Sky Meadows State Park. PEC and DCR are currently negotiating a cooperative management agreement, which may result in additional recreational opportunities.

2. A site for a state park along the **Rapidan River** in Madison or Orange County should be considered. The **Rappahannock River** corridor offers such possibilities, as well.

Natural heritage areas

As of March 2001, there were twenty-eight conservation sites identified within the Rappahannock-Rapidan Planning District. Twenty-three (82%) are protected to some degree through ownership and management by state, federal and nongovernment organizations. Every effort should be made to protect the remaining five sites. Although appropriate methods of protection for each site will vary, each should be included on Virginia's registry of natural areas. Additional preservation strategies include developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner or acquiring the site as a state natural area preserve. Specific information about each of these natural areas can be obtained from DCR's Division of Natural Heritage. The Natural Heritage Program is discussed in detail in Chapter III-B-2-d on page 133.

The Department of Conservation and Recreation has documented 278 occurrences of 119 rare species and natural communities in the Rappahannock-Rapidan Planning District. Eight of these species are globally rare, and one is listed as threatened or endangered.

3. The Department of Conservation and Recreation should complete securing an easement and natural area dedication for **Bull Run Mountain**.

Heritage areas

4. The **John Singleton Mosby Heritage Area**, designated in 1995, was formed to increase awareness of the historic, cultural and natural qualities of this unique area in Northern Virginia. As the first Heritage Area in the Commonwealth, the John Singleton Mosby Heritage Area has proven to be of significant value to the regional economy. The success of this approach to historic and open space preservation should encourage the designation of similar sites throughout the region.

Public water access

Access to Virginia's rivers in the region should be expanded to meet water-related recreational demands. Suggested for consideration are the following:

5. Additional access is needed on the **Rappahannock River**. Private landowners might consider developing access sites with limited facilities for canoes and kayaks. Canoe-in camping, picnicking and shuttle services might be offered.

6. The **Chester Phelps Wildlife Management Area** on the **Rappahannock River** and other large tracts of publicly and privately owned land on major rivers offer potential sites for primitive canoe-in camping and picnicking sites.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

7. **Rapidan River** from its headwaters to its confluence with the Rappahannock River.

8. **Goose Creek** from its headwaters to the Loudoun County line. That segment of Goose Creek from the Loudoun County line to the Potomac has been designated a state Scenic River.

9. **Hughes River** in Madison, Rappahannock and Culpeper counties.

10. **Hazel River** from its headwaters in Rappahannock County to its confluence with the Rappahannock River in Culpeper County.

11. **Robinson River** from its headwaters to its confluence with the Rapidan River.

12. **Thornton River** from Sperryville to its confluence with the Hazel River.

Trails and greenways

The Department of Conservation and Recreation recommends that each locality include a trail and greenway component within its comprehensive plan. Efforts should be made to integrate existing and proposed trails and greenways into a regional network designed to provide access to area resources while conserving and maximizing open space opportunities. In developing trails as transportation alternatives, it is necessary that localities work with developers and one another to assure that trails actually link users with destinations, not simply provide walking loops within neighborhoods.

Accommodations for cyclists within integrated trail systems must include improved safety considerations, appropriate signage and mapping, and separate bicycling lanes wherever possible. Although wide road shoulders provide bicycling opportunities, separate bicycling trails are preferred. Localities, counties and cities should determine appropriate roads for bicycle routes and work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bicycling plans as a component of their transportation plans. The Virginia Department of Transportation can provide funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan. Growing interest in birding as a recreational pastime will add another dimension to trail identification and development, as will interest in other theme trails.

Trail/greenway proposals for this region include:

13. The development of a **Rappahannock River Trail**, linking the Tidewater area to the **Appalachian Trail**. Potential exists for the development of a greenway/hik-

ing/water trail system along the **Rappahannock River** to provide a connection from the Chesapeake Bay through the rapidly urbanizing Fredericksburg area to the Appalachian Trail.

14. The development of the **Fredericksburg – Orange Trail**, a potential rail-trail along the old **Virginia Central Railroad** bed, linking Fredericksburg to Culpeper. With two small sections complete, one in Alum Spring Park maintained by the City of Fredericksburg, and the other linking a school and playing fields in Spotsylvania County, the proposed trail would provide access to Civil War battlefields, historic properties, schools, playgrounds and commercial sites.

15. The development of trails linking the **Rapidan Wildlife Management Area** and **Shenandoah National Park** to include a multi-use trail along the **Conway River**.

16. Changes in land uses in areas adjacent to the **Appalachian National Scenic Trail** must be carefully considered to assure the protection of this valuable resource.

17. **Bull Run Mountain Trail**

Hostels

18. **Thoroughfare Gap** is suggested as a hostel location.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following routes are recommended for consideration as Virginia Byways:

19. **Route 3/522 South**.

20. **Route 230** from Stanardsville in Greene County to Route 15 in Orange County.

Public fish and game management

Proposals include:

21. Consolidation of the **Rapidan Wildlife Management Area** in Madison County through land exchanges with the **Shenandoah National Park** and the acquisition of private in-holdings as available.

22. Expanding the trail network linking sections of the **Rapidan Wildlife Management Area** with the **Shenandoah National Park**.

23. Increasing the range of recreational opportunities at **Chester Phelps Wildlife Management Area** by accommodating such activities as hiking, horseback riding, primitive canoe-in camping and river access. The development of a public rifle and shotgun range should be considered.

State forests

24. Enhance horseback riding and hiking trails at **Whitney State Forest**.

Other

25. Local governments should encourage landowners, localities and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of **Skyline Drive** as part of a multiregional viewshed planning process. Additional scenic overlay districts should be considered within this PDC where scenic vistas abound.

26. The development of recreational facilities at **Vint Hill** should compliment those offered in the area.

27. Enhance and properly identify **Interstate Bike Route 1**.

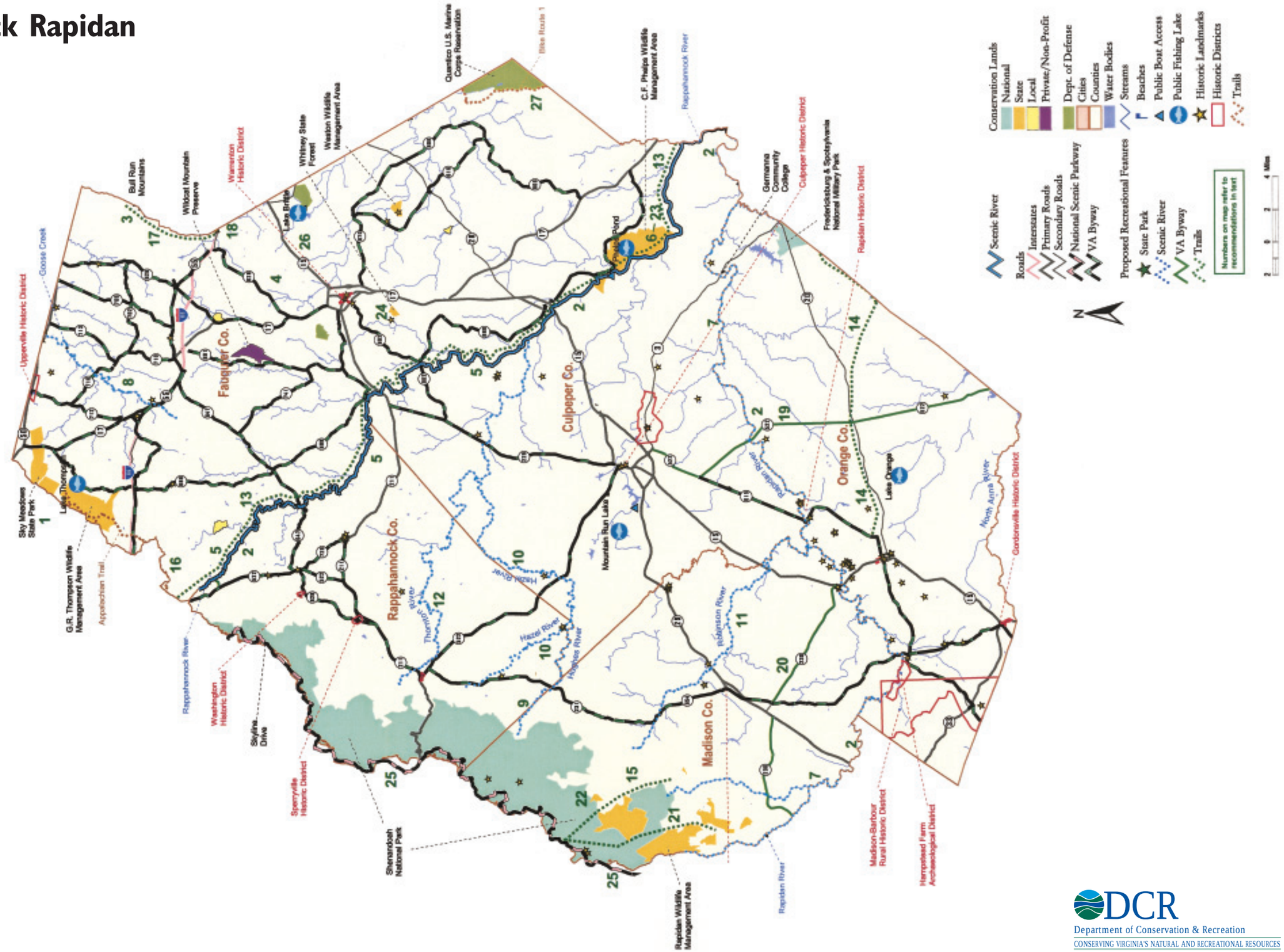
In addition

- Localities should consider the expansion of historic districts to preserve resources and promote economic development.
- Planning districts and local governments should consider the development of theme trails linking similar sites such as vineyards, historic districts and birding sites.
- The Virginia Department of Game and Inland Fisheries should continue to develop trail systems within wildlife management areas to facilitate access for activities other than hunting and fishing.

- All planning districts should identify existing green infrastructure, and opportunities for green infrastructure restoration, for inclusion within a green infrastructure management plan.
- All localities should identify environmentally sensitive areas and develop strategies for their protection and preservation as a critical part of their green infrastructure management plan.
- All localities should continue to promote the protection and preservation of open space through land acquisition, conservation easements, stewardship agreements, the development of agricultural and forestal districts, the outright purchase of land or any of the many open space protection strategies presented in Appendix E: Tools and Programs for Open Space and Natural Resources on page 403.

Rappahannock Rapidan

PD 9



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 11
Existing and Projected Needs
Rappahannock-Rapidan (PD #9)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	204,873	40	fields	41	5	-1	45	4
Basketball	372,007	88	goals	42	3	46	97	55
Bicycling	388,181	28	miles	NI			30	
Lake, River, Bay Use (combined)	1,001,587	12,268	water acres	725		11,543	13,488	12,763
Power Boating	259,461	6,254	water acres	S			6,876	
Sailing	8,896	77	water acres	S			85	
Lake Fishing	500,052	2,813	water acres	S			3,093	
Salt Water Fishing	112,545	633	water acres	S			696	
Jet Ski/ Personal Watercraft (PWC)	82,219	1,288	water acres	S			1,416	
Water Skiing / Towed on Water	38,414	1,204	water acres	S			1,323	
Camping (*)	164,438	970	sites	496		474	1,066	570
Tent camping	39,896	235	sites	116	48	119	259	143
Developed camping	124,541	734	sites	380	230	354	808	428
Fitness Trail use	20,218	2	mile trails	6	1	-4	2	-4
Fields (combined)	529,705	111	fields	49	2	62	122	73
Football	242,613	51	fields	NS			56	
Soccer	287,092	60	fields	NS			66	
Stream Use (combined)	474,174	295	stream miles	365		-70	324	-41
Stream Fishing	393,572	277	stream miles	S			304	
Human-powered boating	56,610	14	stream miles	S			16	
Rafting	7,548	1	stream miles	S			1	
Tubing	16,444	2	stream miles	S			2	
Golfing	363,920	12	courses	4	5	8	14	9
Hiking/ Backpacking	104,458	54	trail miles	269	144	-215	59	-210
Horseback Riding	57,553	25	miles	174	106	-149	27	-147
In-Line Skating	135,459	10	miles	NI			11	
Jogging/Running	981,235	79	mile trails	NI			86	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Rappahannock-Rapidan (PD #9) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	46,366	7	sites	0		7	7	7
Picnicking Away from Home	120,902	314	tables	590	100	-276	345	-245
Skateboarding	30,192	9	sites	NI			10	
Snow Skiing or Snowboarding	34,775	1	ski lifts	0	0	1	1	1
Softball	161,742	29	fields	52	2	-23	32	-20
Sunbathing/ Relaxing on Beach	342,489	25	beach acres	1	0	24	27	26
Swimming Outdoor Area	268,492	27	beach acres	1	14	26	30	29
Swimming Outdoor Pools	341,815	14	pools	18	0	-4	16	-2
Swimming Indoor Pools	145,568	2	pools	0	16	2	2	2
Tennis	160,394	100	courts	54	4	46	110	56
Used a Playground	514,879	73	sites	40		33	81	41
Visiting Gardens	36,662	4	sites	NI			4	
Visiting Historic Sites	122,115	10	sites	NI			11	
Visiting Natural Areas	88,554	15	sites	NI			16	
Volleyball	63,349	19	courts	11	5	8	21	10
Went Hunting	366,615	60,121	acres	19,902		40,219	66,100	46,198
Went Shooting Total	134,246	76	fields	NI			83	
Target	103,111	58	fields	NI			64	
Skeet or Trap	30,192	17	fields	0		17	19	19
Other	22,644	13	fields	NI			14	
Drive for Pleasure	940,799	na	na	NI			na	
Motorcycle/ATV (combined)	368,637	168	miles	0	0	168	185	185
Driving All-Terrain Vehicle	291,136	133	miles	NS			146	
Driving Motorcycle Off-Road	77,501	35	miles	NS			39	
Driving 4-Wheel-Drive Off-Road	62,001	na	na	NI			na	
Walking for Pleasure	2,648,525	na	na	NI			na	
Other	22,913	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 10: Thomas Jefferson Planning District

The Thomas Jefferson Planning District comprises Albemarle, Fluvanna, Greene, Louisa and Nelson counties and the city of Charlottesville. The region's western edge is in the mountainous Blue Ridge physiographic province. Forming the remainder, and the majority of the region, is the Piedmont physiographic province's rolling landscape.

The 1996 *Virginia Outdoors Plan* predicated that by 2010 the population in the region would exceed 200,000. According to the 2000 census, the population for the region was 199,648. The region will easily meet and far exceed this predication. Fluvanna County has experienced a 61.3% growth from 1990 to 2000. Only Loudoun County, in Northern Virginia, experienced more growth in the 10-year period.

This region is characterized by varied terrain, habitats, and vegetation types. It is primarily rural in nature except in the vicinity of Charlottesville, which is more urban and suburban. The presence of Lake Anna has provided the catalyst for the development of a large retirement community. Adding to the scenic beauty of the area are viewsheds of mountainsides, ridges and pastoral valleys. As a testament to the interesting character of the landscape, a number of roads have been designated as Virginia Byways, including Routes 6, 20, 22, 56, 250, 151, 231, 610, and 614.

The region abounds with scenic, natural, open space and historic resources; a legacy that Virginians have worked together to protect, as exhibited by Scenic River and Virginia Byway designations. Additionally, more than 28,110 acres in the region are under open space easements held primarily by the Virginia Outdoors Foundation, thereby protecting the open-space qualities of the affected land.

A number of rivers add to the scenic and environmental qualities of the area. Segments of the Rockfish, Rivanna and Moormans rivers have been designated as Virginia Scenic Rivers. The Rivanna River has been designated an official project of the Save America's Treasures campaign (November 16, 2000) by the National Trust of Historic Preservation. Other important rivers in the area include the James, Tye, Mechums, North Anna, South Anna, Hardware and Piney. As with most regions in the Commonwealth, there is a need for greater public access to the rivers.

Walking, driving for pleasure, water-related activities, use of playgrounds, and bicycling are activities experiencing high levels of participation in the region. See Table 12, page 245.

The 2000 *Virginia Outdoors Survey* indicates a need for soccer fields, river access points for fishing and boating, picnicking and camping facilities in the region.

The 2000 *Virginia Outdoors Survey* also ranked the top 39 activities that individuals participated in; visiting historic sites ranked 5th in this survey. Monticello, Historic Michie Tavern and the University of Virginia are located in this region, and their popularity with the general public should be used in marketing the region.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

This region has an abundance of scenic and historic resources. The private sector could consider making land available for hunting, walkers and bicyclists, thus increasing access to these important resources. Visiting gardens is also an activity experiencing high levels of participation and should be considered by the private sector. Considering the number of rivers in this region and the need for greater public access, opportunities exist for private investment in providing guide and outfitter services. There is a need to provide areas for the use of four-wheel-drive off-road recreational vehicles. This may be an opportunity for the private sector to make use of lands for recreation that may not be productive for other uses. There is a strong tradition in this region of farm-to-farm trail riding by the equestrian community. With changing landownership patterns, this tradition is in danger of being lost. Efforts should be made to encourage dissemination of information about landowner protection from liability afforded persons who participate in providing trails for horseback riding across their lands.

Federal facilities

1. An effort should be made to reduce air pollution that obstructs viewsheds from **Shenandoah National Park** and the general vicinity. The issue of changing land use adjacent to the park also needs to be examined further. Local governments need to support efforts to encourage adjacent landowners, localities, and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of the Shenandoah National Park as part of a multiregional park viewshed planning process.

2. There is a need to develop a **Blue Ridge Visitor Information Center/Services Center** in the vicinity of I-64 near the intersection with Skyline Drive and the Blue Ridge Parkway. Shenandoah National Park received more than 1.3 million visitors in 1999 and the Blue Ridge Parkway in Virginia receives an estimated 10 million visitors annually. A partnership among the National Park Service, the U.S.D.A. Forest Service, the state of Virginia and surrounding localities could be created to plan, build, and operate a complex near Rockfish Gap or Afton Mountain that would compliment the visitor centers envisioned in the Shenandoah Battlefield National Historic District. Local governments also need to support efforts to encourage adjacent landowners, localities and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of the Blue Ridge Parkway as part of a multiregional parkway viewshed planning process.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the original master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

3. The **Middle Valley** area beyond Charlottesville has been identified as a desirable location for the development of a state park.

Natural areas

The Department of Conservation and Recreation has, as of March 2001, documented 134 occurrences of 59 rare species and natural communities in the Thomas Jefferson Planning District. Eleven species are globally rare and three are federally threatened or endangered. Twenty-five conservation sites have been identified in the district; 17 (68%) have received some level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the eight unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see page 133.

Other state properties

The following state-owned properties contain significant acreage of undeveloped land that may have recreational potential. Each site should be assessed, and cooperative use agreements should be developed where appropriate.

4. The **Birdwood** property in Albemarle County is a 148-acre tract of land owned by the University of Virginia.

5. Undeveloped portions of the **Piedmont Community College** campus in Albemarle County may have recreational potential.

6. Undeveloped portions of the **Blue Ridge Hospital** property in Albemarle County may have recreational potential.

7. The **Virginia Department of Corrections** owns a 194-acre tract in Louisa County, which may have recreational potential.

8. The Milton Airport property located in Eastern Albemarle County on the Rivanna River, owned by the University of Virginia, has tremendous potential as a riverside park. The property's 172 acres, which is flat, could be a key to meeting open field space needs. A cooperative venture between the university, the city and county could help meet needs in the region.

9. The **Hardware** and **James River wildlife management areas**, owned by the Virginia Department of Game and Inland Fisheries, offers the potential for partnerships in developing trails and possible linkage with the James River.

Regional parks

10. Fluvanna County's publicly owned, 960-acre **Pleasant Grove** site is being partially developed for the following recreational purposes: athletic fields, the heritage trail that will link up the historic village of Palmyra and a riverside old mill and lock, along with equestrian trails, an historic preservation area, and natural habitats. The county is currently working on the master plan for this area, which will be completed by fall 2001.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

11. The feasibility of providing picnicking and primitive and canoe-in camping should be investigated for the **Hardware** and **James River wildlife management areas**, as well as other large tracts of land on major rivers in the region. Where appropriate, portages should be created around dams and other river obstacles.

12. A canoe put-in should be considered on the Rivanna River between Palmyra and the Town of Columbia.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as a Virginia Scenic Rivers:

13. The **James River** in Nelson, Buckingham, Albemarle, Fluvanna and Cumberland counties.

14. The **South River** in Greene County.

15. The **Hardware River** in Fluvanna County.

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road

Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

16. The designation of a **James River Byway** consisting of roads that closely parallel the James River Bateau Festival trail should be considered. The corridor would include Route 6 in Fluvanna County, Route 626 in Albemarle and Nelson counties.

17. Scenic **Route 15** corridor from the Fluvanna County line to Culpeper.

18. **Route 810** from Stanardsville in Greene County to Crozet in Albemarle County.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

19. **Appalachian National Scenic Trail** is in need of additional protection.

20. A **Rivanna River Trail** in Fluvanna and Albemarle counties should be developed to connect the Town of Columbia and the Trans-Virginia Trail with the Appalachian Trail.

21. A land trail, **James River Trail**, along the entire length of the James River should be considered.

22. The abandoned rail line through **Fluvanna** should be developed into a multi-use trail.

23. The C&O Line between **Clifton Forge** and **Charlottesville**, presently operated as a "short-line railroad," should be acquired, if abandoned, and developed as a greenway. It has potential as a multi-use trail corridor, while providing linkage to several major recreational systems.

24. **Interstate Bike Route 76** should be enhanced and properly identified.

25. The **Nature/Wildlife Trail** to **Long Island Creek** located near Palmyra. This site has been named an American Treasure by the White House Millennium Council and the National Trust for Historic Preservation.

26. The Rivanna Conservation Society's **Rivanna River Water Trail** is being developed under a grant from the National Park Service. Also, the Fluvanna County Historical Society and the Virginia Canals Society are attempting to have all the locks on the Rivanna Canal added to the Virginia Landmarks Register and the National Register of Historic Places.

27. The **Holland-Page House**, owned by the Historical Society in Fluvanna County, is being developed as a museum of rural life from 1865-1900. A nature trail is in the planning stages from the log cabin to the Long Island Creek. This site has been declared an American Treasure and could be linked at some stage to a future Rivanna River Trail.

Hostels

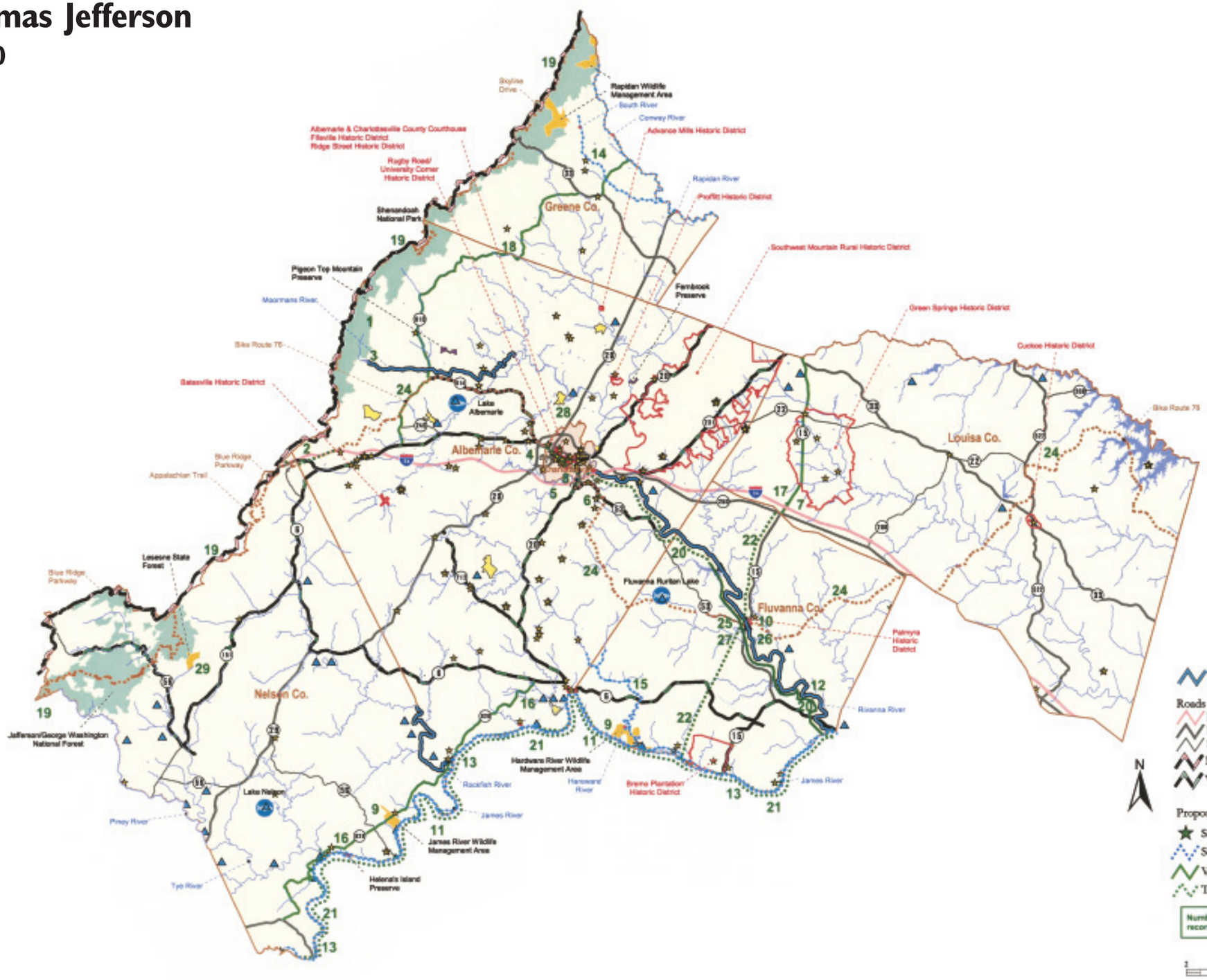
28.The **Charlottesville area** is suggested as a hostel location.

State forests

29. Expand demonstration and research opportunities, as well as facilities for hiking and outdoor study at **Lesesne State Forest**.

Thomas Jefferson

PD 10



DCR
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CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 12
Existing and Projected Needs
Thomas Jefferson (PD #10)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	303,465	60	fields	64	4	-4	70	6
Basketball	551,028	131	goals	104	14	27	152	48
Bicycling	574,986	41	miles	NI			48	
Lake, River, Bay Use (combined)	1,483,584	18,172	water acres	14,990		3,182	21,122	6,132
Power Boating	384,322	9,263	water acres	S			10,767	
Sailing	13,177	114	water acres	S			133	
Lake Fishing	740,694	4,166	water acres	S			4,843	
Salt Water Fishing	166,706	938	water acres	S			1,090	
Jet Ski/ Personal Watercraft (PWC)	121,785	1,908	water acres	S			2,218	
Water Skiing / Towed on Water	56,900	1,783	water acres	S			2,072	
Camping (*)	243,571	1,436	sites	1,531		-95	1,670	139
Tent camping	59,096	349	sites	471	147	-122	405	-66
Developed camping	184,475	1,088	sites	1,060	863	28	1,265	205
Fitness Trail use	29,947	2	mile trails	18	5	-16	3	-15
Fields (combined)	784,617	165	fields	84	2	81	192	108
Football	359,366	76	fields	NS			88	
Soccer	425,250	89	fields	NS			104	
Stream Use (combined)	702,362	436	stream miles	488		-52	507	19
Stream Fishing	582,972	410	stream miles	S			476	
Human-powered boating	83,852	21	stream miles	S			25	
Rafting	11,180	2	stream miles	S			2	
Tubing	24,357	3	stream miles	S			4	
Golfing	539,050	18	courses	12	11	6	21	9
Hiking/ Backpacking	154,727	79	trail miles	190	22	-111	92	-98
Horseback Riding	85,250	37	miles	43	26	-6	43	0
In-Line Skating	200,646	14	miles	NI			17	
Jogging/Running	1,453,437	116	mile trails	NI			135	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Thomas Jefferson (PD #10) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	68,679	10	sites	3		7	11	8
Picnicking Away from Home	179,084	465	tables	633	148	-168	540	-93
Skateboarding	44,721	14	sites	NI			16	
Snow Skiing or Snowboarding	51,509	1	ski lifts	8	8	-7	2	-6
Softball	239,578	43	fields	51	5	-8	50	-1
Sunbathing/ Relaxing on Beach	507,306	36	beach acres	9	3	27	42	33
Swimming Outdoor Area	397,699	41	beach acres	9		32	47	38
Swimming Outdoor Pools	506,307	21	pools	44	37	-23	25	-19
Swimming Indoor Pools	215,620	2	pools	6	2	-4	3	-3
Tennis	237,581	148	courts	170	77	-22	173	3
Used a Playground	762,655	109	sites	113	32	-4	126	13
Visiting Gardens	54,304	6	sites	NI			7	
Visiting Historic Sites	180,881	15	sites	NI			18	
Visiting Natural Areas	131,169	22	sites	NI			26	
Volleyball	93,835	28	courts	4	0	24	32	28
Went Hunting	543,043	89,053	acres	34,984		54,069	103,510	68,526
Went Shooting Total	198,849	112	fields	NI			131	
Target	152,731	86	fields	NI			100	
Skeet or Trap	44,721	25	fields	2		23	29	27
Other	33,541	19	fields	NI			22	
Drive for Pleasure	1,393,543	na	na	NI			na	
Motorcycle/ATV (combined)	546,037	249	miles	0	0	249	290	290
Driving All-Terrain Vehicle	431,240	197	miles	NS			229	
Driving Motorcycle Off-Road	114,798	52	miles	NS			61	
Driving 4-Wheel-Drive Off-Road	91,838	na	na	NI			na	
Walking for Pleasure	3,923,083	na	na	NI			na	
Other	33,940	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 11: Central Virginia Planning District

The Central Virginia Planning District includes 2,147 square miles and has a population of 228,616 residents (2000 Census). This region encompasses the counties of Amherst, Appomattox, Bedford and Campbell; the cities of Bedford and Lynchburg; and the towns of Altavista, Amherst, Appomattox, Brookneal and Pamplin City. Currently, the Virginia Outdoors Foundation holds 1,020 acres in easements to protect the scenic quality of the region.

Surveys of this area indicate both a perceived and an actual lack of recreational facilities throughout the region. In general, the area's growth rate has been consistent with that of the Commonwealth as a whole. However, Bedford County has sustained a growth rate of in excess of 26% over the last 10 years and is expected to continue to experience a high growth rate. It is the fastest growing county west of Richmond. The presence of Smith Mountain Lake has provided the catalyst for the development of a large retirement community. It is in the 10th year of a 20-year recreation plan, which emphasizes both acquisition of land for recreational purposes and long-term leases with private entities to provide services for recreational facilities. Bedford County's major recreational need is athletic fields and courts, particularly in the fast growing Forest, Smith Mountain, Moneta and Stewartsville areas. As the population of the county grows so, too, will the recreational needs of its residents. These needs could be identified and solutions recommended through the development of a regional open space and park plan.

The central region has two major rivers, the James River in the north and the Staunton River in the south. These rivers, portions of which are Scenic Rivers, offer a multitude of historically significant resources such as the Kanahwa Canal. In addition, Smith Mountain Lake and Holliday Lake state parks are both in this region. Moving from west to east, the topography of the region ranges from mountainous to gently rolling farmland. This variety of landscapes lends itself to many different recreational activities.

As expected, the urbanized areas within the central region have a better supply of recreational facilities, both in terms of quality and quantity. The budgetary and actual expenditure statistics for the region indicate that per capita spending for recreation is higher in the urban areas than in the more rural areas. While the predominant land use is agricultural, several pockets of heavy industrial development are dispersed throughout the region. This creates rural population centers that demand recreational facilities and activities.

Amherst County's greatest needs are for public swimming facilities, soccer/football fields, volleyball, horseback riding trails and biking trails. Additional monetary and other resources will be needed to maintain the James River Trail being built across the southern portion of the county. A proposed drinking water reservoir on the Buffalo River could prove to hold additional recreational opportunities. The town of Altavista in Campbell County has been working on the concept of a walking/bike trail along the river that would originate in the vicinity of one of the residential areas and terminate at the Staunton Riverfront Park.

The greatest need for local outdoor recreational opportunities is in and near the city of Lynchburg for outdoor swimming, football/soccer and biking. There is also a need to provide connections to trail facilities located in the adjacent counties.

The Blue Ridge Parkway is one of the nation's premier scenic roads. This major attraction draws visitors from across the country and around the world. The parkway's character has been changing as forests and farmsteads are converted into more developed land uses. This increasing encroachment will have a major impact on the quality of the visitor's recreational experience. Localities benefiting from the parkway should be thorough in developing comprehensive plans and zoning ordinances to ensure that the intrinsic value of the parkway and its viewsheds are conserved. Appropriate development should consider the use of innovative landscaping methods to preserve the scenic beauty of the parkway. The National Park Service is developing landscape design guidelines that may be useful in this endeavor.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

The private sector plays a major role in the provision of recreational opportunities in the commonwealth. Developed campgrounds, golf courses, tennis courts, swimming pools and indoor recreation facilities help meet demands identified in the 2000 *Virginia Outdoors Survey*. Many of these could be met through the efforts of private enterprise, organizations or through partnerships and cooperative efforts by the private sector and units of governments.

Private landowners with adequate land for hunting may want to consider opening their lands on a fee basis. There may be opportunities for shooting ranges and related programs. Streams and rivers offer opportunities for private landowners to permit the launching and retrieving of boats. They also could provide lands for picnicking, camping and education. A fee could be charged to offset costs. Another alternative might be for landowners to enter into an agreement with a unit of government to provide water access for the public. The landowner would then be covered under the *Landowner Liability Law, Code of Virginia, Chapter* 29.1-509 (page 408), which would provide some liability protection.

Many miles of trout streams and thousands of farm ponds lie on private land in the commonwealth. Much public demand for fishing can be met if the owners of these lands will allow public access for fishing. Once again, the *Landowner Liability Law* can be helpful in lessening liability exposure if the public access is formalized through an agreement with a local governing body or state agency.

The 2000 *Virginia Outdoors Survey* indicated that out of 39 favored leisure activities, Virginians ranked visiting historical sites 5th, visiting natural areas 11th, and visiting gardens 14th. The private sector, working with localities, should consider the placement of future recreation facilities in locations near historic sites in order to maximize potential usage, while being careful not to destroy the integrity of the historic site itself. There should be an analysis of these resources by the private sector to determine if any can be made available to the public.

These could be linked to bed and breakfast opportunities, nursery and garden center operations, game farms and historical restorations. This concept should be expanded

to farmers' markets, pick-your-own operations, wineries and craft fairs. Private sector operations reinforce public programs and opportunities and result in economic growth for the region.

Federal facilities

1. Local governments need to support efforts to encourage adjacent landowners, localities and planning district commissions to develop a scenic overlay zone adjacent to and within the viewshed of the **Blue Ridge Parkway** as part of a multiregional parkway viewshed planning process.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the original master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

2. Projects identified in the approved **Smith Mountain Lake State Park** master plan need to be funded. Improvements include the construction of cabins, an environmental education center and lake access facilities.

Natural areas

The Department of Conservation and Recreation has, as of March 2001, documented 105 occurrences of 62 rare species and natural communities in the Central Virginia Planning District. Eleven species are globally rare and four are federally threatened or endangered. Eighteen conservation sites have been identified in the district; 13 (72%) have received some level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the five unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see page 133.

3. Include the **Ruskin Freer Natural Area** in the planning and development of the Blackwater Creek Natural Area.

Other state properties

The following state-owned properties contain significant acreage of undeveloped land that may have potential for recreational use. Each site should be assessed, and cooperative use agreements developed where appropriate.

4. The **Lynchburg Training School and Hospital** in Amherst County has approximately 100 acres of undeveloped land. Consideration for future use of the undeveloped land should include the preservation of open space, trails and connections to the James River.

5. Approximately 58 acres of the **Central Virginia Community College** tract in the City of Lynchburg are undeveloped and may have potential for recreational use.

Regional parks

6. Continued funding and development of **Riveredge Park** (acquired by DCR as Smiley/Block property and leased to Amherst County) should provide enhanced public recreation and river access opportunities. Initial park development includes a boat launching facility funded by the Commonwealth, city of Lynchburg, and Amherst County. With the continued support from the city of Lynchburg a connection from the existing Blackwater Creek trail and other greenways should be considered in future plans.

7. Amherst County should continue to develop a regional park with access to the **James River** for fishing, picnicking and trails. The plan would include a link to the **James River Heritage Trail** and a suspension bridge under Route 29.

8. Provide three regional parks; one to be located near **Montvail Elementary School**, one near Route 714 adjacent the landfill and the third near Route 460. The latter would be developed jointly by Campbell County and the city of Lynchburg.

9. Consider recreational development of the public land surrounding the **Falling Creek** and **Beaver Dam reservoirs**, which are water sources for the inhabitants of the Roanoke Valley.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

10. The development of the Smith Mountain Lake Shoreline Management Plan by Appalachian Power Company should consider access opportunities and guidelines for the lake and classify access points and facilities as public, private or commercial.

11. Public water access areas are needed on the **James River** between Eagle Rock and Snowden; between Lynchburg and Bent Creek; and on the **Staunton River** between the existing access point and Altavista, Long Island and Brookneal.

12. The Virginia Department of Conservation and Recreation, U.S.D.A. Forest Service and the Virginia Department of Game and Inland Fisheries should work to finalize and implement plans to acquire and develop a series of boating and fishing access sites and canoe-in campsites along the **James River**. Portage opportunities should be provided when possible around dams located on the James River.

Scenic Rivers

The following river segment has been evaluated and qualifies as a Virginia Scenic River:

13. The **Staunton River** in Campbell County from the town of Altavista to the beginning of the current designation at Long Island.

The following river segment should be evaluated to determine its suitability as a Virginia Scenic River:

14. The **James River** in Campbell, Amherst, and Appomattox counties from Lynchburg to Bent Creek.

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

15. **Routes 24** and **614** in Appomattox County from the Appomattox/Campbell County line to the Buckingham/Appomattox County line are elements of the "Lee's Retreat Route."

16. A **James River Byway** would consist of roads that closely parallel the James River Bateau Festival trail. The corridor would include Route 622 and Route 130 in Amherst County.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans.

The following are greenway/trail proposals for this region:

17. The **Appalachian National Scenic Trail** stretches from northern Amherst County to southern Craig County. Several of the sections in this region need improvement and protection. Localities should continue to cooperate with the National Park Service and the Appalachian Trail Conference clubs in their efforts to protect and maintain the trail.

18. **Cumberland to Appomattox Trail:** A trail could be developed to tie together the Cumberland State Forest and the Appomattox Court House National Historical Park via the Buckingham/Appomattox State Forest. The existing Willis River Trail could be linked by current forest roads and short sections of trail across private land to join these resources together.

19. A **Lynchburg to Appomattox Trail** should be considered using abandoned railroad corridors and private

lands. This would connect Lynchburg's Blackwater Creek Natural Area/National Recreation Trail to a proposed greenway corridor along the James River through Amherst, Campbell and Appomattox counties to Historic Appomattox Court House. A **Concord to Appomattox Trail** should be considered to bridge the gap between the proposed Cumberland to Appomattox Trail and the TEA-21 funded James River Trail being built from the City of Lynchburg across southern Amherst County to the Mount Athos area of Campbell County. This trail would link the City of Lynchburg's Blackwater Creek Natural Area with the Appomattox Court House National Historic Park and the route of Lee's Retreat.

20. Efforts should continue in the development of a **James River Trail** along the entire length of the river. Efforts are currently underway to develop the portion of this trail through Lynchburg and in Amherst, Appomattox and Campbell counties.

21. A **Staunton River Trail**, which would feature Native American campsites and other historic and aesthetic points of interest, could be developed along the scenic Staunton River from Altavista to Brookneal.

22. A trail should be developed from Bedford County to the **Appalachian National Scenic Trail**.

23. A **Blue Ridge Railroad/Appalachian Trail** should be extended along the old railroad right-of-way along the Tye River.

24. A Poplar Forest/Blackwater Creek/Peaksview Park Trail should be developed to include a connection to the Appomattox Court House and the D-Day Memorial in Bedford.

25. Complete the **Bikeway Plan** for Bedford County and City.

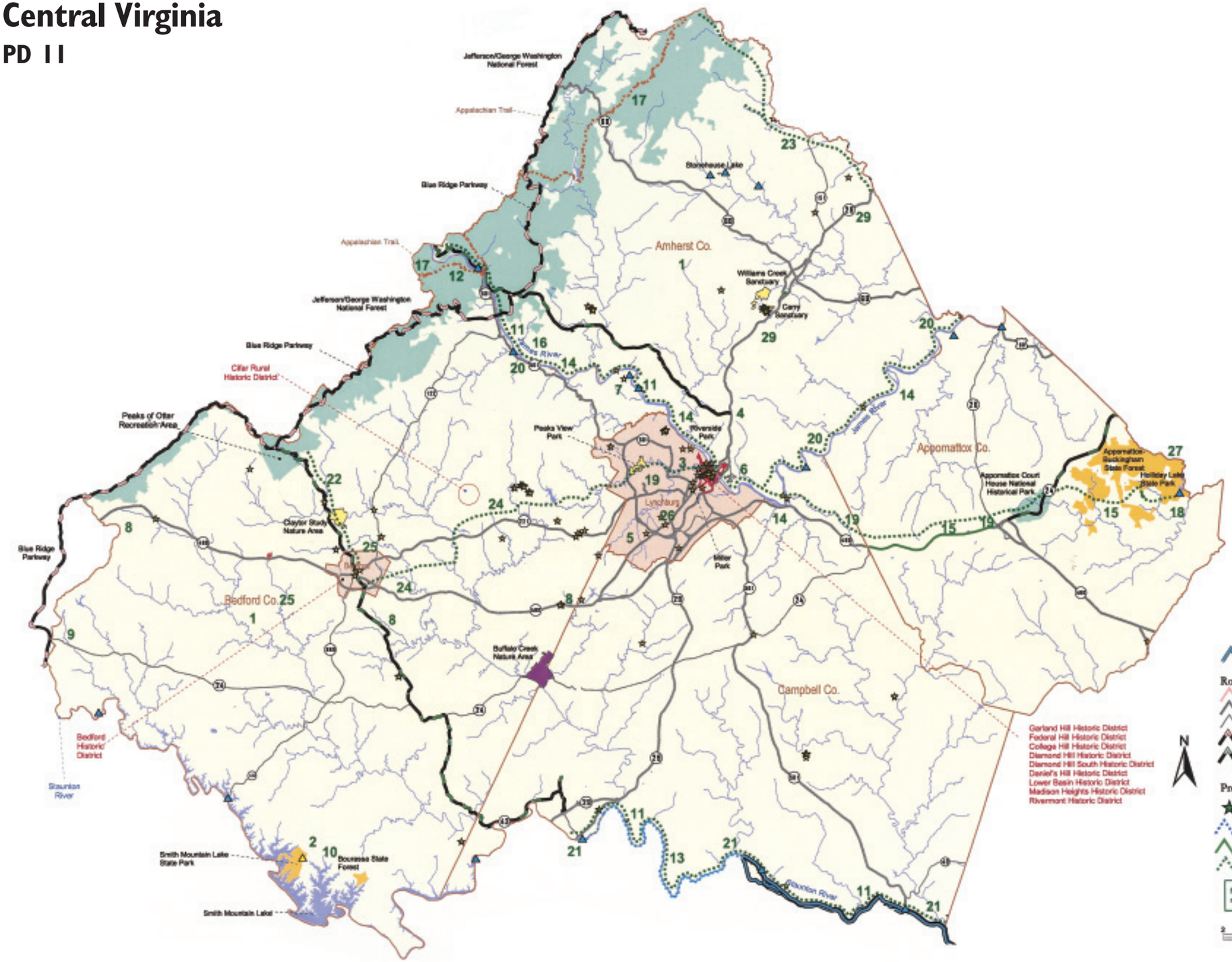
26. Update the **Lynchburg Trail Plan** with recommendations for extensions into Bedford County and downtown development of the James River waterfront.

State forests

27. Continue development of the Appomattox to Cumberland hiking trail and opportunities for horseback riding.

Central Virginia

PD 11



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 13
Existing and Projected Needs
Central Virginia (PD #11)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	347,496	69	fields	91	19	-22	74	-17
Basketball	630,980	150	goals	113	12	37	160	47
Bicycling	658,414	47	miles	NI			50	
Lake, River, Bay Use (combined)	1,698,845	20,809	water acres	11,978		8,831	22,297	10,319
Power Boating	440,086	10,607	water acres	S			11,366	
Sailing	15,089	131	water acres	S			140	
Lake Fishing	848,165	4,771	water acres	S			5,112	
Salt Water Fishing	190,894	1,074	water acres	S			1,151	
Jet Ski/ Personal Watercraft (PWC)	139,456	2,185	water acres	S			2,341	
Water Skiing / Towed on Water	65,156	2,042	water acres	S			2,188	
Camping (*)	278,912	1,645	sites	1,569		76	1,763	194
Tent camping	67,670	399	sites	486	287	-87	428	-58
Developed camping	211,241	1,246	sites	1,083	733	163	1,335	252
Fitness Trail use	34,292	3	mile trails	13	3	-10	3	-10
Fields (combined)	898,461	189	fields	83	14	106	202	119
Football	411,509	87	fields	NS			93	
Soccer	486,952	102	fields	NS			110	
Stream Use (combined)	804,271	500	stream miles	171		329	535	364
Stream Fishing	667,559	469	stream miles	S			503	
Human-powered boating	96,019	24	stream miles	S			26	
Rafting	12,802	2	stream miles	S			2	
Tubing	27,891	4	stream miles	S			4	
Golfing	617,263	21	courses	13	13	8	22	9
Hiking/ Backpacking	177,177	91	trail miles	252	6	-161	97	-155
Horseback Riding	97,619	42	miles	56	2	-14	45	-11
In-Line Skating	229,759	16	miles	NI			18	
Jogging/Running	1,664,324	133	mile trails	NI			143	

S - same as combined NS - not inventoried seperately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondants preferred developed campsites

20.4 % of 2000 Virginia Outdoor Survey respondants preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Central Virginia (PD #11) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE NEEDS	2000 DEMAND	2010 NEEDS	2010 SUPPLY
Nature Study/ Programs	78,644	11	sites	1		10	12	11
Picnicking Away from Home	205,069	532	tables	1,380	410	-848	570	-810
Skateboarding	51,210	16	sites	NI			17	
Snow Skiing or Snowboarding	58,983	2	ski lifts	0	0	2	2	2
Softball	274,339	49	fields	61	5	-12	52	-9
Sunbathing/ Relaxing on Beach	580,913	42	beach acres	20	13	22	45	25
Swimming Outdoor Area	455,403	47	beach acres	20		27	50	30
Swimming Outdoor Pools	579,770	25	pools	24	15	1	26	2
Swimming Indoor Pools	246,905	3	pools	8	4	-5	3	-5
Tennis	272,053	170	courts	202	84	-32	182	-20
Used a Playground	873,313	124	sites	110	19	14	133	23
Visiting Gardens	62,184	7	sites	NI			7	
Visiting Historic Sites	207,126	18	sites	NI			19	
Visiting Natural Areas	150,201	25	sites	NI			27	
Volleyball	107,450	32	courts	3	0	29	34	31
Went Hunting	621,836	101,974	acres	83,299		18,675	109,269	25,970
Went Shooting Total	227,702	129	fields	NI			138	
Target	174,891	99	fields	NI			106	
Skeet or Trap	51,210	29	fields	2		27	31	29
Other	38,407	22	fields	NI			23	
Drive for Pleasure	1,595,740	na	na	NI			na	
Motorcycle/ATV (combined)	625,265	286	miles	19	0	267	306	287
Driving All-Terrain Vehicle	493,811	226	miles	NS			242	
Driving Motorcycle Off-Road	131,454	60	miles	NS			64	
Driving 4-Wheel-Drive Off-Road	105,163	na	na	NI			na	
Walking for Pleasure	4,492,304	na	na	NI			na	
Other	38,865	na	na	NI			na	

S - same as combined NS - not inventoried seperately NI - not inventoried (-) - indicates surplus.

Region 12: West Piedmont Planning District

The West Piedmont Planning District is made up of the counties of Franklin, Henry, Patrick and Pittsylvania and the cities of Danville and Martinsville. The area begins in the Blue Ridge and extends into the Piedmont physiographic province. The ruggedly beautiful landscapes of the Blue Ridge Mountains provide a variety of recreational opportunities ranging from the scenic views along the Blue Ridge Parkway to the trout streams of the Pinnacles of Dan. Recreation and family vacations are synonymous with this part of the state.

Fairystone State Park cabins and campgrounds have long been a favorite destination for Virginians and visitors from out of state. Smith Mountain Lake, a hydroelectric power impoundment, provides 20,000 acres of flat water and nearly 500 miles of shoreline. This lake has private campgrounds open to the public, public boat ramps, marinas, docks and marine repair facilities. The West Central 4-H Center is located on the lake and provides lodging and conference facilities when summer programs for youth are not being offered. Philpott Reservoir is a U.S. Army Corps of Engineers flood retention and power production reservoir, which provides a large body of power boating water far inland from the tidal rivers and bays of the state. Canoeing, fishing and other water-based recreational opportunities are provided in the many miles of high-quality rivers and streams that drain into this area. The Smith River below Philpott Reservoir is a high-quality brown trout fishery enjoyed by anglers from all over the country.

The Virginia Department of Game and Inland Fisheries (DGIF) manages three large wildlife management areas in the district. Smith Mountain (managed under agreement with American Electric Power), Turkeycock Mountain, and White Oak Mountain wildlife management areas provide more than 6,000 acres of public lands for hunting, nature study, trail use, and open space.

The county of Franklin is well underway in finalizing its citizen-driven comprehensive Parks, Recreation and Open Space Master Plan, of which the Public Needs Assessment portion of the project has been completed. The plan will address park facilities, programs, open space/natural areas and quality service delivery. Franklin County has entered into an agreement with the Department of Conservation and Recreation to take over management of the 37-acre parcel of Smith Mountain Lake State Park that lies within Franklin County and is across the lake from the park. Franklin County will develop recreational facilities on this parcel, thereby enhancing public access to the lake from the southern side. In concert with DCR, DGIF and VDOT, Franklin County plans to develop recreational facilities such as beach frontage, boating access, fishing, picnicking opportunities and walking/biking facilities. This park project will enhance public access to Smith Mountain Lake from the southern side.

The city of Danville has been making great progress in implementing its Community Trails and Greenways Plan. Some sections of abandoned rail line have been converted to trails and connectors have been developed along the Dan River and throughout the city. Danville has also developed a skateboard park to provide participants with safe, off-street play areas. On the eastern side of Danville in Pittsylvannia County, local supporters are developing portions of the former Danville to Richmond Railroad into a trail that will parallel the Dan River from Ringold to South Boston.

The population of this region as measured by the 2000 census was 250,195. Like other areas of the state, the counties are growing at nearly a 10 percent rate while the cities have lost about six percent of their population. Public participation in recreation is very high and the 2000 *Virginia Outdoors Survey* recorded high demand for most activities. The needs analysis indicates a shortage of bicycle trail miles, campsites, playgrounds, swimming pools and hiking trails. Facilities for all other activities were found to be adequate, especially near better-supplied urban areas. In more rural areas, planning is needed to create additional park facilities for those citizens that reside in underserved areas. Rural local governments would be encouraged to conduct a comprehensive study of their outdoor recreation delivery systems using both facility and operational standards as defined herein. Developed facilities are needed in more rural areas. These figures did not include imported demand generated by visitors who use facilities. When the imported use is factored in, shortages are indicated in other activities. See Table 14, page 261.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

This region is a major destination area for vacationers. There is room for a significant expansion of the hospitality industry in this region. Particular design consideration needs to be given to utilizing the natural contours of the land when developing commercial amenities and light industrial complexes. Bed and breakfasts, hotels, motels and other such businesses that are located in attractive settings near recreation areas should find ample demand to justify the investment.

Federal facilities

1. The **Blue Ridge Parkway** provides a diversity of dispersed recreational opportunities in the spectacular setting of the Blue Ridge Mountains. A number of trails, historic sites, campgrounds and scenic vistas attract more than 10 million visitors each year to the Virginia portion of this popular national park.

Localities through which the parkway passes should be sensitive to the significance of this park. Maintaining scenic viewsheds and natural environments through which the roadway passes is necessary for its continued popularity and national significance. All plans and programs should recognize these values, and any activities within the parkway's viewshed should be designed to enhance visitors' experiences and the attractiveness of the area. An effort should be made especially to provide an adequate buffer between the parkway and development activities. The Blue Ridge Parkway Consortium may be able to address techniques for establishing this buffer as well as deal with other inconsistencies of land use along the parkway.

2. **Philpott Reservoir** in Franklin, Patrick and Henry counties contributes substantially to the supply of motor boating, sailing, skiing and fishing opportunities in the area. The reservoir provides camping, trails, nature study and bank fishing opportunities. As use levels for offered activities increase, consideration should be given to providing additional access, camping and

day-use facilities. The Department of Game and Inland Fisheries manages 7,000 acres of this land for hunting and fishing purposes.

3. The **Booker T. Washington National Monument**, located in Franklin County, is an historic commemorative property situated in an area that is rapidly changing character from a rural, pastoral setting to residential subdivisions. Route 122 between Burnt Chimney and Smith Mountain Lake is a very scenic road corridor with several National Register sites, including the National Monument, located along it. This road should receive Virginia Byway designation and an effort should be made to acquire easements on the properties along this corridor to ensure protection of the pastoral setting in which the Booker T. Washington farm is located. Efforts should especially be made to acquire ownership or easements on lands adjacent to the monument that are critical to protection of the setting.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process. The following two state parks do not currently have a master plan, but plans will be developed for each park during the next planning cycle:

4. The projects undertaken by the 1992 bond have been completed at **Fairystone State Park**. They include improvements to cabins, picnic areas, the restaurant and beach facilities. The Fairystone Wildlife Management Area, which is adjacent to the park, increases the range of outdoor recreation activities available for visitors. Hunters desiring to hunt in the WMA can stay in the cabins or campgrounds that are open during some of the hunting seasons. The extensive trail system in the WMA increases the number of miles of trails available to park visitors. There is strong demand for the development of equestrian facilities at Fairystone State Park. Several loop trails of varying lengths have been identified that use the park, the WMA, and Corps of Engineers, project lands of the Philpott Reservoir. A fully developed equestrian campground and day use parking facilities need to be developed at the state park to accommodate the equestrian uses. Parking areas may also be needed on the WMA and on Corps of Engineers project lands.

5. **Smith Mountain Lake State Park**, located in Bedford and Franklin counties, consists of almost 1,600 acres fronting on the central portion of Smith Mountain Lake. Bond monies were used to construct an environmental education center and new housekeeping cabins. The small peninsula of parkland (37 acres) in Franklin County has been leased to the county for development as a local park, which may include water access, fishing and picnicking.

Smith Mountain Lake has evolved to become a popular retirement destination. Condominiums and time-share developments are also becoming popular. The tourism benefits of the lake are having major economic impacts on the local communities. Smith Mountain Lake State Park is undergoing an update of its master plan to expand its capacity to meet this increased demand on the lake region. Proposed new facilities include development of a full-service campground, visitor center and amphitheater.

Natural areas

The Department of Conservation and Recreation has, as of March 2001, documented 139 occurrences of 57 rare species and natural communities in the West Piedmont Planning District. Thirteen species are globally rare and three are federally threatened or endangered. Thirty-one conservation sites have been identified in the district; only four (13%) have received any level of protection through ownership or management by state, federal and non-government organizations.

DCR recommends that the 27 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a detailed discussion of the Natural Heritage Program, see Chapter III-B-2-d on page 133.

6. **Grassy Hills Natural Area Preserve** was established in 2000 near Rocky Mount in Franklin County.

This property will be managed to protect and enhance the special habitats and plant communities located on the 1,200-acre property. Opportunities for nature study programs will be afforded by this addition to the Natural Areas System. There is significant local interest with regard to the extent of public access opportunities that may become available at Grassy Hill. It may be advantageous for both state and neighboring local jurisdictions to jointly examine a usage plan that would address citizen outdoor recreational needs as they pertain to this nature preserve.

Other state properties

The following properties contain undeveloped land that may be suitable for recreational use:

7. The Virginia Department of Corrections has phased out a number of older "field unit" sites in Franklin, Henry and Pittsylvania counties. As these units are closed, they should be assessed for their recreational potential and considered for possible local park and open space opportunities.

8. **Danville Community College** has 40 acres of wooded land that may be suitable for recreational use.

9. **Patrick Henry Community College** in Henry County has 80 acres of wooded land that may have recreational potential.

10. The Board of Directors of the Virginia Community College System currently holds title to a 380-acre parcel of land in Franklin County near Burnt Chimney that was donated by the owner with the requirement that it be used for public educational and recreational purposes. Local and state agencies should participate jointly in planning for the use of the **James Turner Smith Estate Tract** to ensure that local recreational and open space needs are addressed.

Special recreation areas

11. The **DuPont Wildlife Habitat Improvement Area** in Martinsville is a 548-acre parcel that the company has made available to the Wildlife Habitat Enhancement Council to manage for wildlife habitat. It lies along the Smith River and provides opportunities for hiking, canoeing and nature study.

Public water access

12. Although this region has a good supply of recreational waters, public access to good boating and canoeing waters is needed at five-mile intervals to meet recreational demands. Emphasis should be placed on locating access sites at bridge crossings so that both sides of the river are adequately served. Where appropriate, canoe trails could be developed along rivers through the creation of portages around dams and other river obstacles. Special attention should be given to the provision of additional access opportunities on Smith Mountain Lake, and the Blackwater and Pigg Rivers. A newly developed river access facility at **Waid Recreation Area** in Franklin County has provided a much needed access to the Pigg River.

Scenic Rivers

The following river segment has been evaluated and found to qualify for inclusion in the Scenic River System:

13. The **Blackwater River** from Route 220 to Smith Mountain Lake in Franklin County.

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

14. The **South Mayo River** in Patrick and Henry counties from Route 653 to the North Carolina state line.

15. The **North Mayo River** in Henry County from Route 695 to the North Carolina state line.

16. The **Smith River** from Route 8 to Route 704 in Patrick County, and from Marrowbone Creek to Route 622 in Henry County.

17. The **Sandy River** in Pittsylvania County.

18. The **Dan River** in its entirety.

19. The **Pigg River** in its entirety.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state. The region's beautiful mountains and valleys are accessed by a system of well-maintained roads. Several of these roads are particularly scenic. The following roads have been recommended for consideration as Virginia Byways:

20. **Route 8** and **Route 793** from the Floyd County line to the North Carolina state line in Patrick County.

21. **Routes 346** and **623** from Route 57 in Patrick County to the Franklin County line.

22. **Routes 108** and **890** in Henry and Franklin counties from Martinsville to Penhook.

23. **Route 863** in Pittsylvania County from Route 58 to the North Carolina state line.

24. **Route 122** in Franklin County from Rocky Mount to Booker T. Washington National Monument.

25. **Routes 640** and **832** in Pittsylvania County between Route 29 North near Blairs, over White Oak Mountain and ending in Chatham.

Trails and greenways

Locally and regionally initiated trail and greenway planning is important for identifying and providing communities with these desirable resources. DCR recommends that each locality develop a trail and greenway plan as part of its park and recreation comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network in order to connect existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

26. The **Dan River Trail** is a canoe trail that currently is developed and managed as a trail only in the North Carolina section of the Dan River. This trail should be continued into Virginia and extended to Staunton River State Park. A series of managed access and public use areas should be provided to meet the needs of canoe trail users while protecting riparian property owners.

27. A system of trails/greenways throughout Danville should be implemented using city-owned utility right-of-ways and other public and private properties. Components of the **Danville Riverwalk Trail** have been completed, and plans to extend the trail are under development.

A number of opportunities exist throughout the region for converting abandoned rail lines to trails. Timely conversion is recommended to prevent further deterioration of existing beds, trestles and historic properties.

28. The proposed **Southside Virginia Trail**, along the abandoned Norfolk, Franklin and Danville Railroad, should be considered for rail-to-trail conversion from the Danville depot to the North Carolina state line and eastward through Brunswick County.

29. The section of the former Danville-Richmond Railroad line is being developed as a rail-to-trail conversion from Ringold to South Boston. The Dan River Trail Association is undertaking an effort to acquire funding for the acquisition of this right-of-way from Ringold, near Danville, to the Halifax County line just south of South Boston. This rail line parallels the Dan River and would provide a terrestrial component to the proposed Dan River Canoe Trail. Plans should be developed for extending the trail to Staunton River State Park through Corps of Engineers flowage easement lands.

Public fish and game management

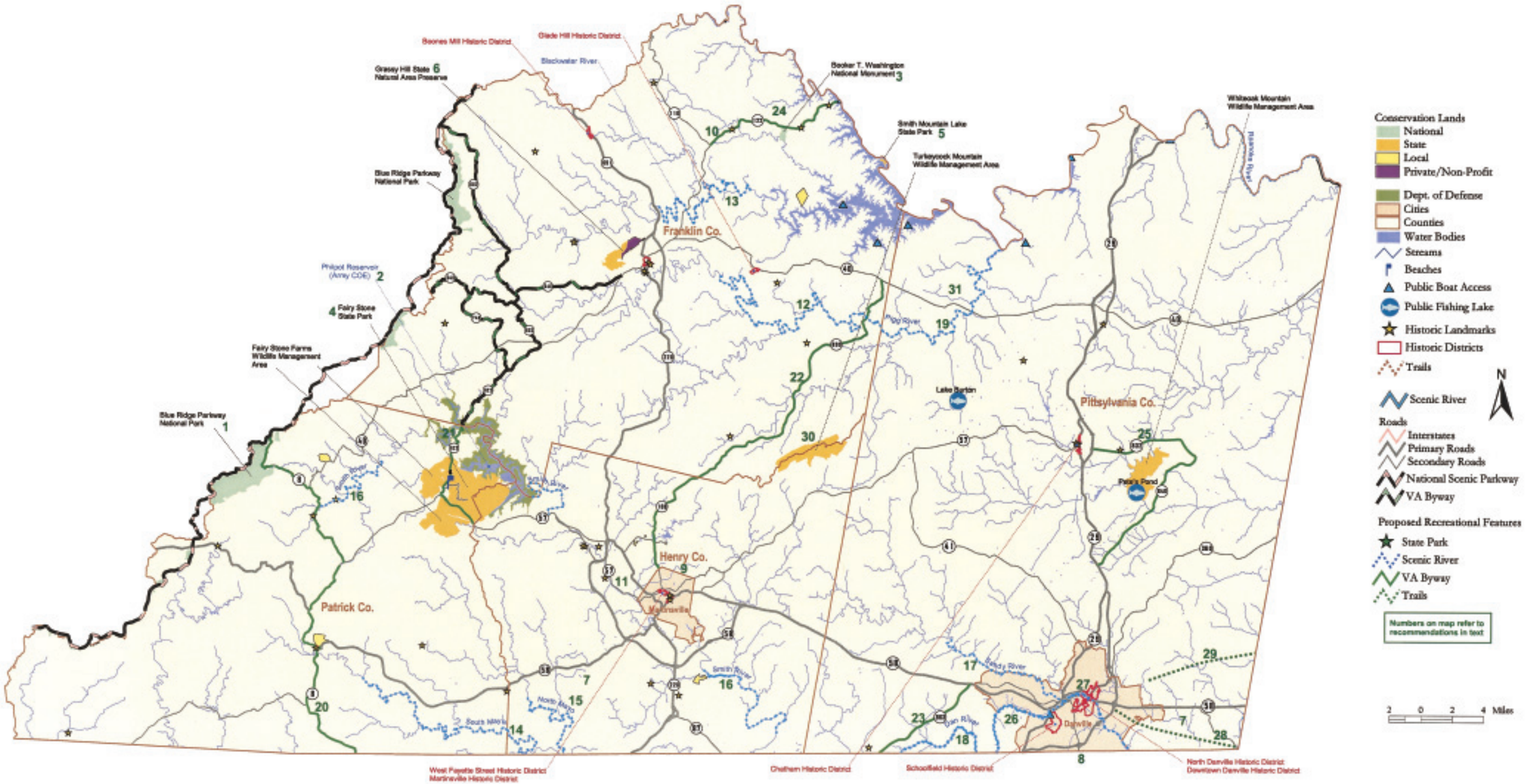
30. Turkeycock Mountain, Smith Mountain, Fairystone, and White Oak Mountain wildlife management areas are largely open spaces that can meet many regional demands for dispersed recreation. In a combined effort with local governments, hiking trails can be more fully developed and enjoyed outside of the normal hunting season and horseback riding and bicycling may take place on roads and larger trails. Nature study, wildlife viewing, picnicking and fishing are also available. Consideration should be given to providing additional recreational facilities such as camping.

Regional parks

31. The County of Franklin has purchased and included an additional 292 acres to their **Waid Recreation Area**, giving the natural resource-based park a total of 512 acres. The regional significance of this preservation initiative is that it provides conservation measures to approximately one mile of the Pigg River as well as preserving additional corridors of the "Great Philadelphia Wagon Road."

West Piedmont

PD 12



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 14
Existing and Projected Needs
West Piedmont (PD #12)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	380,296	75	fields	95	6	-20	77	-18
Basketball	690,538	164	goals	135	11	29	168	33
Bicycling	720,562	51	miles	NI			53	
Lake, River, Bay Use (combined)	1,859,199	22,773	water acres	21,550		1,223	23,374	1,824
Power Boating	481,625	11,608	water acres	S			11,915	
Sailing	16,513	143	water acres	S			147	
Lake Fishing	928,223	5,221	water acres	S			5,359	
Salt Water Fishing	208,913	1,175	water acres	S			1,206	
Jet Ski/ Personal Watercraft (PWC)	152,619	2,391	water acres	S			2,454	
Water Skiing / Towed on Water	71,306	2,234	water acres	S			2,293	
Camping (*)	305,238	1,800	sites	1,988		-188	1,848	-140
Tent camping	74,058	437	sites	263	64	174	448	185
Developed camping	231,180	1,363	sites	1,725	1,505	-362	1,399	-326
Fitness Trail use	37,529	3	mile trails	14	0	-11	3	-11
Fields (combined)	983,266	207	fields	77	4	130	212	135
Football	450,351	95	fields	NS			97	
Soccer	532,915	112	fields	NS			115	
Stream Use (combined)	880,186	547	stream miles	2		545	561	559
Stream Fishing	730,569	514	stream miles	S			527	
Human-powered boating	105,082	27	stream miles	S			27	
Rafting	14,011	2	stream miles	S			3	
Tubing	30,524	4	stream miles	S			4	
Golfing	675,527	23	courses	14	15	9	23	9
Hiking/ Backpacking	193,901	99	trail miles	97	3	2	102	5
Horseback Riding	106,833	46	miles	49	13	-3	47	-2
In-Line Skating	251,446	18	miles	NI			18	
Jogging/Running	1,821,420	146	mile trails	NI			150	

S - same as combined NS - not inventoried seperately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondants preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondants preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
West Piedmont (PD #12) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	86,067	12	sites	0		12	13	13
Picnicking Away from Home	224,425	583	tables	1,747	424	-1,164	598	-1,149
Skateboarding	56,044	17	sites	NI			18	
Snow Skiing or Snowboarding	64,550	2	ski lifts	0	0	2	2	2
Softball	300,234	53	fields	76	9	-23	55	-21
Sunbathing/ Relaxing on Beach	635,745	46	beach acres	26	4	20	47	21
Swimming Outdoor Area	498,388	51	beach acres	26		25	52	26
Swimming Outdoor Pools	634,495	27	pools	34	25	-7	28	-6
Swimming Indoor Pools	270,211	3	pools	3	1	0	3	0
Tennis	297,732	186	courts	168	49	18	191	23
Used a Playground	955,745	136	sites	133	11	3	140	7
Visiting Gardens	68,053	7	sites	NI			8	
Visiting Historic Sites	226,677	19	sites	NI			20	
Visiting Natural Areas	164,378	28	sites	NI			29	
Volleyball	117,592	35	courts	9	0	26	36	27
Went Hunting	680,530	111,600	acres	18,837		92,763	114,545	95,708
Went Shooting Total	249,194	141	fields	NI			144	
Target	191,399	108	fields	NI			111	
Skeet or Trap	56,044	32	fields	1		31	32	31
Other	42,033	24	fields	NI			24	
Drive for Pleasure	1,746,361	na	na	NI			na	
Motorcycle/ATV (combined)	684,283	313	miles	1	1	312	321	320
Driving All-Terrain Vehicle	540,421	247	miles	NS			253	
Driving Motorcycle Off-Road	143,862	66	miles	NS			67	
Driving 4-Wheel-Drive Off-Road	115,090	na	na	NI			na	
Walking for Pleasure	4,916,332	na	na	NI			na	
Other	42,533	na	na	NI			na	

S - same as combined NS - not inventoried seperately NI - not inventoried (-) - indicates surplus

Region 13: Southside Planning District

The Southside Planning District is composed of Halifax, Mecklenburg and Brunswick counties and the city of South Boston. The 2000 Census population of this region was 88,155. The region lies in the Piedmont Plateau physiographic province and is characterized by gently rolling uplands.

The Staunton and Dan Rivers are the major recreational and scenic rivers in the region. The Staunton River is a designated state Scenic River from Long Island in Campbell to Clover Landing in Halifax County. The U. S. Army Corps of Engineers has developed the John H. Kerr Reservoir on the Staunton River in Halifax and Mecklenburg counties, and Virginia Power has developed Lake Gaston further downstream in Mecklenburg and Brunswick counties and into North Carolina. The combination of the two lakes provides more than 73,000 acres of inland waters for recreation. It should be noted that while there is a fair amount of public access to the Kerr Reservoir, public access to Lake Gaston is limited. There are only four public boat landings on the entire Virginia portion of the lake and no public access for swimming or picnicking. It is important that public access opportunities for these activities be enhanced on Lake Gaston. Two other rivers, the Meherrin and Nottoway, also provide recreational boating, canoeing and fishing for the region.

Residents of Southside Virginia have an excellent supply of water-based recreational areas and facilities. The rural character of the area assures adequate open space and dispersed recreational lands, though few areas are publicly managed. Some local parks, coupled with state parks and Corps of Engineer facilities, provide the majority of the public park acreage and facilities. The 2000 *Virginia Outdoors Survey* recorded a need for playgrounds in most communities and up to five soccer/football fields. South Boston residents need a swimming pool, softball fields and a gymnasium. The large number of private recreational enterprises around Gaston and Kerr Lakes create surpluses in the inventory, but most are used by visitors from

out of the region. Often, these facilities are not available for local use because of heavy seasonal visitor use. Public areas may need to be developed to meet local needs not adequately met by private providers. See Table 15, page 269.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector opportunities

The identified need for additional camping, picnicking, swimming and hiking opportunities in the region suggest that a private recreational development similar to Elkhorn Lake Campground would be a successful venture. There is also a need for an increase in the supply of golf, tennis and swimming pools, suggesting that a golfing, swimming and racket facility development would be popular.

Marinas, and especially dry storage boat facilities, should be successful ventures on Kerr Reservoir and on Lake Gaston on the Virginia side. Existing facilities are inadequate to meet projected demand.

There is a great deal of interest in outdoor adventure recreation. Canoe liveries and rafting trips are good businesses to develop along canoeable rivers such as the Dan, the Nottoway, the Staunton and the Meherrin. By developing agreements with riparian landowners along a river, livery operators offer their customers canoeing trips of various lengths with camping available at prearranged spots.

Federal facilities

1. The **John H. Kerr Reservoir** in Mecklenburg and Halifax counties, as well as Fort Pickett in Nottoway, Dinwiddie and Brunswick counties, have areas which may be suitable for additional recreational opportunities. The John H. Kerr Reservoir contains many acres of project lands in addition to reservoir acreage. Some of these lands have development potential for increasing recreational use of this 18,000-acre lake. These developments could be undertaken by any public agency or private entrepreneur under lease from the Corps of Engineers.

2. **Fort Pickett** offers the opportunity for increased public recreational use in a number of outdoor activities.

State parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

3. The **Staunton River Battlefield State Park** is being expanded through acquisition of additional lands to protect the battlefield site. In addition, a visitor center has been developed by Virginia Power and Old Dominion Electric Cooperative that has been donated to the commonwealth along with 80 acres of battlefield lands. Plans for a new visitor facility on the Charlotte County side of the park are underway. The Virginia General Assembly has authorized DCR to accept donation of the Mulberry Hill Plantation. The plantation and its owners played prominent roles in the settlement and history of this part of the Staunton River Valley.

Archeological excavations at the park have uncovered significant artifacts of Native American habitation of this area. The story of the people who inhabited this area prior to European colonization should be told in a visitor center to be developed in the park. The refurbished Randolph train depot will be used to tell the story of the settlement and history of the Staunton River Valley. A separate structure will be developed to house and interpret the Native American artifacts and to tell the precolonial story.

4. At **Staunton River State Park**, efforts are underway to develop equestrian facilities to include a horse trail connecting the park with the Staunton River Battlefield State Park. This trail would follow the river and lie mostly on Corps of Engineer project lands.

5. Improvements have been made with the 1992 bond funds at **Occoneechee State Park** to enhance public health, safety and enjoyment of the park. Also, the campgrounds have been improved and the visitor center exhibits replaced.

Natural areas

DCR will be acquiring a natural area preserve along **Difficult Creek** in Halifax County.

The Department of Conservation and Recreation has, as of March 2001, documented 205 occurrences of 82 rare species and natural communities in the Southside Planning District. Ten species are globally rare and three are federally threatened or endangered. Forty-five conservation sites have been identified in the district; 24 (53%) have received some level of protection through ownership or management by state, federal and non-government organizations.

DCR recommends that the 21 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a detailed discussion of the Natural Heritage Program, see page 133.

Other state properties

The following state properties contain significant undeveloped land which may have the potential to meet recreational needs:

6. **Medium Security Institute #1** in Brunswick County has 700 acres of undeveloped land that should be evaluated for its potential for meeting local recreational demand.

7. **Southside Community College** in Brunswick County has 62 acres of land that should be evaluated for its recreational potential.

Regional parks

8. **Great Creek Reservoir** in Brunswick County is a 212-acre impoundment with 8.1 miles of shoreline. The lake provides opportunities for fishing and boating. Recreational facilities recently constructed on the upland areas will provide picnicking, hiking, play fields and other opportunities for the community.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

9. Access is needed approximately every five miles along the **Staunton**, **Dan**, **Meherrin** and **Nottoway** rivers. Although many access sites are already provided, several long stretches of these rivers need additional access. Where appropriate, portages should be created around dams and other river obstacles. Support facilities needed for water trails should be added at appropriate intervals.

10. Access is needed to **Lake Gaston**. As part of the relicensing of this hydroelectric generating facility, additional public access for boating and lake use should be developed on the Virginia portions of the lake.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

11. The **Dan River** in its entirety.

12. The **Meherrin River** in Brunswick County.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

13. **Route 344** in Halifax County from Scottsburg to Buggs Island Lake.

14. **Routes 615**, **707**, **703**, **903** and **626** in Mecklenburg and Brunswick counties between Boydton and Route 46.

15. **Routes 635**, **699**, **674** and **712** in Mecklenburg County from the Staunton River to the North Carolina line.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these desirable resources. DCR recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network in order to connect existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway, trail and blueway proposals for this region:

16. The **Dan River Canoe Trail** should be extended into Virginia, ending at Staunton River State Park.

17. There are several sections of abandoned railroad right-of-way in this region which should be evaluated for trail use potential, including the section from **Staunton River Battlefield State Park** to **Keysville** and the proposed **Southside Virginia Trail** from Milton, North Carolina, through Halifax, Mecklenburg and Brunswick counties. The section of the abandoned Norfolk, Franklin, and Danville line from La Crosse to Brunswick should be evaluated as a potential rail-trail.

18. The abandoned Norfolk and Southern Railroad line from **Ringold to South Boston** should be developed as a trail. Its proximity to the Dan River will complement the canoe trail. Efforts are underway to extend the trail from Danville to South Boston. The Dan River Trail Association has been awarded a TEA-21 grant to acquire and develop the section from Ringold to Sutherland on the Halifax-Pittsylvania county line. Continued effort will be needed to join the two cities. Consideration should be given to extending the trail on to Staunton River State Park where it would connect with a trail under development that connects with Staunton River Battlefield State Park and the abandoned Richmond to Danville Railroad.

19. The abandoned Seaboard Coastline has potential to be developed as a trail from **Petersburg** to the **North Carolina state line** if the line is not reactivated for railroad purposes.

20. **U.S. Bike Route 1** should be enhanced and properly identified.

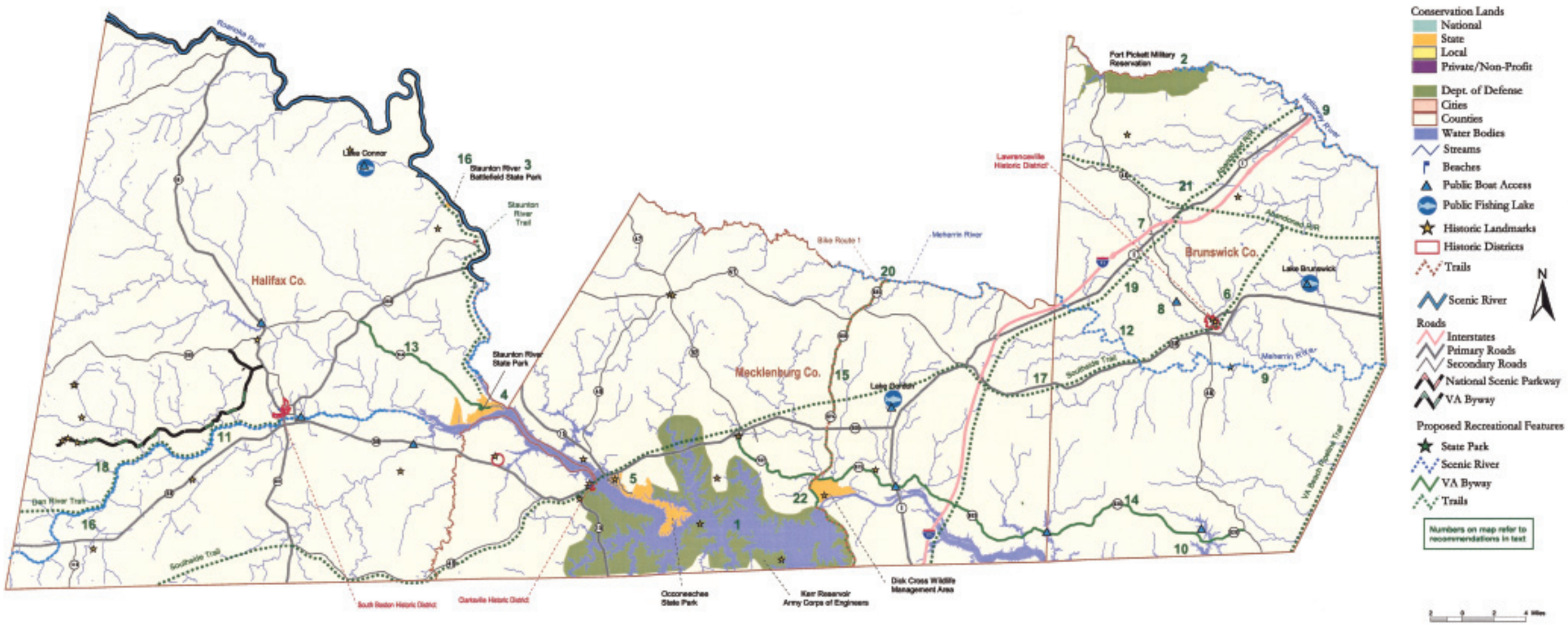
21. The **East Coast Greenway** is proposed to travel through this region paralleling I-85 and Route 1 on its way from Richmond to Raleigh.

Public fish and game management

22. Additional land acquisitions are proposed for the **Dick Cross** (formerly Elm Hill) **Wildlife Management Area** in Mecklenburg County.

Southside

PD 13



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 15
Existing and Projected Needs
Southside (PD #13)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	165,464	33	fields	22	1	11	35	13
Basketball	300,424	71	goals	31	1	40	76	45
Bicycling	476,216	34	miles	NI			37	
Lake, River, Bay Use (combined)	700,933	8,585	water acres	74,493		-65,908	9,134	-65,359
Power Boating	175,409	4,228	water acres	S			4,489	
Sailing	32,659	283	water acres	S			315	
Lake Fishing	347,033	1,952	water acres	S			2,076	
Salt Water Fishing	63,901	359	water acres	S			377	
Jet Ski/ Personal Watercraft (PWC)	51,321	804	water acres	S			849	
Water Skiing / Towed on Water	30,609	959	water acres	S			1,027	
Camping (*)	166,623	983	sites	2,773		-1,790	1,064	-1,709
Tent camping	43,697	258	sites	601	90	-343	280	-321
Developed camping	122,926	725	sites	2,172	1,578	-1,447	784	-1,388
Fitness Trail use	19,914	2	mile trails	101	0	-99	2	-99
Fields (combined)	334,593	70	fields	10	0	60	74	64
Football	148,852	31	fields	NS			33	
Soccer	185,741	39	fields	NS			41	
Stream Use (combined)	358,071	220	stream miles	12		208	235	223
Stream Fishing	291,943	205	stream miles	S			219	
Human-powered boating	45,299	12	stream miles	S			12	
Rafting	7,565	1	stream miles	S			1	
Tubing	13,265	2	stream miles	S			2	
Golfing	294,655	10	courses	7	7	3	11	4
Hiking/ Backpacking	125,405	64	trail miles	41	7	23	70	29
Horseback Riding	42,585	18	miles	27	0	-9	20	-7
In-Line Skating	78,623	6	miles	NI			6	
Jogging/Running	725,717	58	mile trails	NI			62	

S - same as combined NS - not inventoried seperately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondants preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondants preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Southside (PD #13) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	34,235	5	sites	2		3	5	3
Picnicking Away from Home	116,835	303	tables	1,147	93	-844	328	-819
Skateboarding	23,855	7	sites	NI			8	
Snow Skiing or Snowboarding	30,434	1	ski lifts	0	0	1	1	1
Softball	141,014	25	fields	28	2	-3	27	-1
Sunbathing/ Relaxing on Beach	251,698	18	beach acres	3	0	15	19	16
Swimming Outdoor Area	190,877	20	beach acres	3		17	21	18
Swimming Outdoor Pools	248,361	11	pools	26	17	-15	11	-15
Swimming Indoor Pools	100,077	1	pools	1	0	0	1	0
Tennis	121,105	76	courts	23	9	53	81	58
Used a Playground	365,195	52	sites	29	0	23	55	26
Visiting Gardens	27,385	3	sites	NI			3	
Visiting Historic Sites	104,776	9	sites	NI			10	
Visiting Natural Areas	85,461	14	sites	NI			16	
Volleyball	40,552	12	courts	0	0	12	13	13
Went Hunting	262,260	43,008	acres	49,670		-6,662	45,813	-3,857
Went Shooting Total	124,105	70	fields	NI			76	
Target	77,622	44	fields	NI			47	
Skeet or Trap	28,063	16	fields	0		16	17	17
Other	17,815	10	fields	NI			11	
Drive for Pleasure	784,544	na	na	NI			na	
Motorcycle/ATV (combined)	218,019	100	miles	1	0	99	105	104
Driving All-Terrain Vehicle	170,145	78	miles	NS			82	
Driving Motorcycle Off-Road	47,874	22	miles	NS			23	
Driving 4-Wheel-Drive Off-Road	52,754	na	na	NI			na	
Walking for Pleasure	2,286,698	na	na	NI			na	
Other	32,592	na	na	NI			na	

S - same as combined NS - not inventoried seperately NI - not inventoried (-) - indicates surplus.

Region 14: Piedmont Planning District

As its name suggests, the Piedmont Planning District lies in Virginia's Piedmont physiographic province. Rolling terrain and a rural countryside are the region's dominant characteristics. It comprises the counties of Amelia, Buckingham, Charlotte, Cumberland, Lunenburg, Nottoway and Prince Edward; the towns of Dillwyn, Phenix, Drakes Branch, Keysville, Charlotte Court House, Kenbridge, Victoria, Crewe, Burkeville, Blackstone, Farmville, and part of Pamplin.

The region experienced a 0.2% population growth rate between 1980 and 1990. The 2000 Census indicated a population increase from 84,905 in 1990 to 97,103 in 2000 for the region.

The region is traversed by a large number of streams and rivers. Some of the more significant rivers include the Slate, Appomattox, Nottoway, James, Meherrin (also North, Middle and South Meherrin), Willis, Staunton, and North. The James and Appomattox rivers form the northern boundary of the region, while the Staunton and Meherrin rivers form the region's southern boundary. This richness in water resources has the potential to provide much water-related recreation, provided public access is available. There is a need for greater public access to this region's waters.

The region's combination of rolling terrain, numerous water bodies, rural land uses, open space and small communities creates pleasant visual impressions. Most of the region's roads are bordered by fields and forestland. State forests, parks, natural areas and wildlife management areas provide a core of publicly owned open space, natural resources and recreational opportunities. Three state wildlife management areas are: Amelia, Horsepen, and Briery Creek. State parks include Bear Creek Lake, James River, Twin Lakes and Holliday Lake. The Appomattox-Buckingham, Cumberland and Prince Edward-Gallion state forests are also located in the region, as is Sailor's Creek Battlefield State Park.

High use recreational activities include walking, driving for pleasure, water activities — swimming, fishing and boating, use of playgrounds, bicycling and softball. The demand survey indicates a surplus of horseback riding trails, but there is a need for a horse campground in the region. See Table 16, page 277.

Fort Pickett was turned over to the Virginia National Guard and the Re-Use Authority to operate beginning in 1997. The property offers the opportunity for increased public recreation use in a number of outdoor activities. Every effort should be made to maintain and expand the numerous recreational activities currently available, such as hunting, fishing and hiking.

The following recommendations relative to the region's resources could contribute to regional open space and/or recreational opportunities to meet current and future needs of area residents.

Private sector

There are a number of streams and rivers in this region and a need for greater access to the waters. The private sector has an opportunity to provide the needed access to meet public demand, and the opening of private land could provide opportunities for camping and bank fishing. To help meet the demand for recreational facilities, opportunities exist for private investment in golf courses, tennis courts and swimming pools. These can often be provided as amenities in housing developments, through swim and racquet clubs, or as a result of public-private partnerships. There is a need to provide areas for the use of 4-wheel-drive off-road recreational vehicles. This may be an opportunity for the private sector to make use of lands for recreation that may not be productive for other uses.

State Parks

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

1. Additional land should be acquired for **Bear Creek**, **Twin Lakes** and **Holliday Lake state parks** to protect viewshed areas at the entrance to the parks and from developed areas within the park. Buffer lands also need to be acquired to permit effective management of important natural areas.

2. **James River State Park**, located in Buckingham County, opened in the spring of 1999. This new state park will help to meet recreational needs of area citizens. It provides a variety of traditional offerings (camping, picnicking, hiking and visitor center), access to the river, as well as an area for cooperative development with the localities for local programs and facilities.

Natural areas

The Department of Conservation and Recreation has, as of March 2001, documented 177 occurrences of 88 rare species and natural communities in the Piedmont Planning District. Thirteen species are globally rare and four are federally threatened or endangered. Thirty conservation sites have been identified in the district; 15 (50%) have received some level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 15 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a detailed discussion of the Natural Heritage Program, see Chapter III-B-2-d on page 133.

Public water and beach access

Access to Virginia's rivers and streams at approximately five-mile intervals is necessary for meeting water-related recreational demands. Access considerations for the region include the following:

3. Additional access is needed on the **James**, **Staunton** and **Slate rivers**, as well as all canoeable streams in the region.

4. The **Amelia Wildlife Management Area** has the potential to accommodate primitive canoe-in only camping and picnicking.

Where appropriate, portages should be created around dams and other river obstacles.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

5. The **Upper Appomattox River** in Buckingham, Prince Edward and Cumberland counties.

6. The **James River** in Nelson, Buckingham, Albemarle, Fluvanna and Cumberland counties from Wingina to Columbia.

7. The **Slate River** in Buckingham County from Route 20 to the James River.

8. The **Staunton River** in Charlotte and Halifax counties from the Campbell County line to Kerr Reservoir.

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following road has been recommended for consideration as a Virginia Byway:

9. **Route 15** south of Farmville in Prince Edward County.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. DCR recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, cities and counties should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

10. A **James River Trail** along the entire length of this river should be considered.

11. The **Cumberland-Appomattox Trail** in Cumberland and Buckingham counties would cross this region south of the James River.

12. **Virginia Southside Trail** would traverse Lunenburg and Charlotte counties, and stretch across Southside Virginia from the Atlantic Ocean to Mount Rogers in Southwest Virginia.

13. **Interstate Bike Route 1** should be enhanced and properly identified.

14. **Twin Lakes State Park** should be considered for a stop on the African-American Trail.

Public fish and game management

15. The **Amelia Wildlife Management Area** in Amelia County has the potential to accommodate additional recreational development, such as trails and river access opportunities, which would be beneficial in meeting some of the recreational needs in Region 2 (Cumberland Plateau) to the east.

State forests

16. Continue development of the Appomattox to Cumberland hiking trail in the **Appomattox-Buckingham State Forest**.

17. Expand bicycling and hiking opportunities in **Prince Edward-Gallion State Forest**.

18. Establish a comprehensive program between Virginia Department of Forestry and DCR to preserve, develop and interpret the **Camp Gallion CCC (Civilian Conservation Corps)** in Gallion State Forest.

Piedmont

PD 14

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 16
Existing and Projected Needs
Piedmont (PD #14)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	147,597	29	fields	28	14	1	31	3
Basketball	268,004	64	goals	8	2	56	67	59
Bicycling	279,657	20	miles	NI			21	
Lake, River, Bay Use (combined)	721,572	8,838	water acres	2,989		5,849	9,379	6,390
Power Boating	186,923	4,505	water acres	S			4,781	
Sailing	6,409	55	water acres	S			59	
Lake Fishing	360,252	2,026	water acres	S			2,150	
Salt Water Fishing	81,081	456	water acres	S			484	
Jet Ski/ Personal Watercraft (PWC)	59,233	928	water acres	S			985	
Water Skiing / Towed on Water	27,674	867	water acres	S			920	
Camping (*)	118,466	699	sites	240		459	741	501
Tent camping	28,742	170	sites	28	0	142	180	152
Developed camping	89,723	529	sites	212	9,100	317	562	350
Fitness Trail use	14,565	1	mile trails	0	2	1	1	1
Fields (combined)	381,615	80	fields	9		71	85	76
Football	174,785	37	fields	NS			39	
Soccer	206,829	43	fields	NS			46	
Stream Use (combined)	341,608	212	stream miles	144		68	225	81
Stream Fishing	283,541	199	stream miles	S			212	
Human-powered boating	40,783	10	stream miles	S			11	
Rafting	5,438	1	stream miles	S			1	
Tubing	11,847	2	stream miles	S			2	
Golfing	262,178	9	courses	5	5	4	9	4
Hiking/ Backpacking	75,255	39	trail miles	156	1	-117	41	-115
Horseback Riding	41,463	18	miles	128	15	-110	19	-109
In-Line Skating	97,589	7	miles	NI			7	
Jogging/Running	706,910	57	mile trails	NI			60	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Piedmont (PD #14) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	33,403	5	sites	0		5	5	5
Picnicking Away from Home	87,101	226	tables	388	55	-162	240	-148
Skateboarding	21,751	7	sites	NI			7	
Snow Skiing or Snowboarding	25,053	1	ski lifts	0	0	1	1	1
Softball	116,524	21	fields	18	8	3	22	4
Sunbathing/ Relaxing on Beach	246,739	18	beach acres	5	2	13	19	14
Swimming Outdoor Area	193,429	20	beach acres	5		15	21	16
Swimming Outdoor Pools	246,253	10	pools	9	7	1	11	2
Swimming Indoor Pools	104,871	1	pools	0	0	1	1	1
Tennis	115,553	72	courts	33	17	39	77	44
Used a Playground	370,933	53	sites	9	3	44	56	47
Visiting Gardens	26,412	3	sites	NI			3	
Visiting Historic Sites	87,975	7	sites	NI			8	
Visiting Natural Areas	63,797	11	sites	NI			11	
Volleyball	45,638	14	courts	1	0	13	14	13
Went Hunting	264,120	43,313	acres	70,752		-27,439	45,964	-24,788
Went Shooting Total	96,715	55	fields	NI			58	
Target	74,284	42	fields	NI			45	
Skeet or Trap	21,751	12	fields	11		1	13	2
Other	16,313	9	fields	NI			10	
Drive for Pleasure	677,779	na	na	NI			na	
Motorcycle/ATV (combined)	265,577	121	miles	0	0	121	129	129
Driving All-Terrain Vehicle	209,742	96	miles	NS			102	
Driving Motorcycle Off-Road	55,834	26	miles	NS			27	
Driving 4-Wheel-Drive Off-Road	44,667	na	na	NI			na	
Walking for Pleasure	1,908,074	na	na	NI			na	
Other	16,508	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

Region 15: Richmond Regional Planning District

The Richmond Regional Planning District is in the center of Virginia's urban corridor, which stretches from Northern Virginia, through the Richmond metropolitan area, to the Hampton Roads metropolitan areas. Comprising a mix of urban and rural jurisdictions, the area is experiencing rapid growth. This region consists of Charles City, Chesterfield, Hanover, Henrico, Goochland, New Kent and Powhatan counties, the city of Richmond, and the town of Ashland. Area growth has occurred mainly in western Henrico County, southern Hanover County and northern Chesterfield County. Significant future growth is anticipated to extend southwesterly through Chesterfield County, north along the I-95 corridor in Hanover, along the I-64 and I-295 corridors through Goochland and Hanover counties and Henrico, New Kent and Charles City counties to the east.

The region continues to experience a rapid growth rate. In 1990, the region had a population of 739,735. By 2000, the population had increased to 865,941. In fact, all the localities in the region experienced double-digit growth except for the city of Richmond, which had a decline in population.

Straddling two physiographic regions separated by the fall line — the Coastal Plain to the east and the Piedmont to the west — this region offers a variety of terrain and habitats. The Piedmont is characterized by rolling hills, meandering rivers and a mixture of forest and agricultural land uses in the undeveloped and sparsely developed portions. The Coastal Plain is flat with tidal rivers and streams, as well as tidal and some nontidal wetlands.

Seven rivers flow through the area including the James, Appomattox, Chickahominy, South Anna, North Anna, Pamunkey and Little. All offer opportunities for recreation and provide a variety of habitats. Of these, the James is the largest and offers diverse recreation, especially at the Falls of the James in Richmond.

This section of the river provides swift flowing white-water conditions supporting canoeing, kayaking and rafting activities. Other popular water-related activities include bank and wade angling, boat angling, tubing, wading and swimming, rock-hopping and nature walks and hiking.

Portions of the James, Appomattox and Chickahominy rivers have been designated state Scenic Rivers. The James was the first Virginia River to receive some type of official recognition; in 1972, the city of Richmond secured designation by the Virginia General Assembly of a portion of the James within the city as an Historic River. In 1984, the designation was extended through downtown Richmond — a formal declaration as a state Scenic River followed. This eight-mile section is named the Historic Falls of the James Scenic River. Approximately five miles of the Appomattox River below Lake Chesdin was designated a state Scenic River in 1977. The Appomattox River designation was extended 1.2 miles to 100 feet from the base of the Lake Chesdin Dam by the 1998 Virginia General Assembly. In 1990, an approximate 10-mile section of the Chickahominy River, from Route 360 to the junction of the Hanover-Henrico-New Kent county line in Hanover County, was designated a state Scenic River.

A private-public partnership has been developed between the James River Association and the city of Richmond, the Department of Game and Inland Fisheries and the CSX Corporation to provide fish passages on the James River dams in Richmond. This important fish restoration project was accomplished with completion of a fish passage at Boshers Dam in 1999.

In this region, Routes 5, 6, 617 and 711 are designated Virginia Byways. Route 5, which is also part of the Interstate Bicycle Route 76, connects the Richmond region with the historic resources in Williamsburg and Yorktown. The road also provides access to the historic plantations along the James River. River Road and Route 6 are designated Virginia Byways from Henrico County westward to Nelson County.

Federal, state and local park and open space resources are found in the region. Federal properties include the Richmond National Battlefield Park, Presquile National Wildlife Refuge, and Harrison Lake National Fish Hatchery. State-owned resources include Pocahontas State Park; the Elko Tract, White Oak Swamp Natural Area and Game Farm Refuge, and the Powhatan, Chickahominy River and Kittewan wildlife management areas. In addition, there are a number of locally-owned resources and sites with regional importance.

With the large numbers of people, urbanization and development in Region 15, there is a need to protect critical open space and provide more recreational opportunities. Actions should be encouraged that enhance the scenic qualities of the region's river and scenic road corridors, create greenways, develop parks and protect important natural areas and farmland. This in turn will enhance the quality of life in the region.

Demand is high in the area for activities such as walking, bicycling, playground use, soccer fields and water-related activities such as swimming and boating. Based on the 2000 *Virginia Outdoors Survey* and the facilities inventory, there is a need for water-related activities, playgrounds, swimming pools, football/soccer fields, hunting areas and other recreational opportunities. See Table 17, page 289.

Because the Richmond Planning District is predominantly urban, consideration should be given to urban issues with regard to parks and recreational opportunities. Planning for the urban population should include the needs of those who may have limited means of transportation. The major state and regional park systems that offer large areas of open space and natural area experiences are not typically in urban settings. Thus greenways, urban open spaces and stream valleys can be blended into systems, which meet some of the demand for natural and passive areas in urban settings.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

Due to the populations and the expected growth in this region, the opportunities for public-private partnerships, as well as private investment in recreation, are numerous. The demand for access to resources and facilities is far greater than the present supply. The seven rivers in this region provide opportunity for water-based developments, access and services. Campgrounds, golf courses, tennis courts and swimming

pools can be provided by the private sector. Private lands could provide open space and greenways through voluntary granting of open space and conservation easements, management agreements, or other means to help meet the need for activities such as walking and bicycling.

There is a need to provide areas for the use of four-wheel-drive, off-road recreational vehicles. This may be an opportunity for the private sector to make use of lands for recreation that may not be productive for other uses.

Federal facilities

In 1992, the U.S. Fish and Wildlife Service made an agreement with Charles City County, the Department of Conservation and Recreation and other state agencies to explore providing additional opportunities for recreational and environmental education at the **Harrison Lake National Fish Hatchery**. As part of the challenge grant, the USFWS permitted construction of barrier free recreational fishing and picnic areas. This construction included two fishing piers, a boat dock, accessible asphalt paths and parking areas, and six picnic tables, two of which are handicapped accessible. In addition, a watchable wildlife area has been established and a nature trail extension was made. These projects, most of which were cost-shared by state and local agencies, were found to be compatible with the mission of the hatchery and resulted in only minor environmental disturbance. Plans for additional facilities are dependent on funding, compatibility with the mission of the USFWS and Harrison Lake National Fish Hatchery, and environmental considerations.

Presquile National Wildlife Refuge is a 1,329-acre island in the James River, in the northeast corner of Chesterfield County. Historically, a USFWS-operated ferry provided access for pre-scheduled groups to view wildlife, enjoy the 0.75-mile interpretive trail and participate in a limited deer-hunting program. In 2001, concern for visitor safety prompted a thorough review of ferry operations by the USFWS and the U.S. Coast Guard. Until safety concerns are resolved, the ferry will be unavailable for public transportation.

1. Implementation should be undertaken to complete the program contained in the 2000 Conceptual Design Proposal for the Fisheries and Aquatic Resources Center at **Harrison Lake National Fish Hatchery**.

2. The USFWS should continue to work with partners, including the U.S. Coast Guard and the U.S. Army Corps of Engineers to provide safe public access to **Presquile National Wildlife Refuge** for compatible public use, including wildlife observation and deer hunting.

State parks

Due to the extremely high demand for public access to the waters of the commonwealth, any waterfront property that becomes available on the major tidal rivers or their tributaries in the region should be evaluated for potential acquisition and development as a regional or state park. Any site acquired and developed on these waters would also help to meet the commitments of the *2000 Chesapeake Bay Agreement*.

Projects identified in the approved Pocahontas State Park Master Plan need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

3. Another state park in the region, along the **James River** near Richmond, would help to meet the recreational needs of area citizens. It could provide a variety of traditional offerings, access to the river, as well as an area of cooperative development with the localities for local programs and facilities.

Natural Areas

Cumberland Marsh Natural Area Preserve is located in New Kent County.

The Department of Conservation and Recreation has, as of March 2001, documented 290 occurrences of 94 rare species and natural communities in the Richmond Regional Planning District. Fourteen species are globally rare and five are federally threatened or endangered. Eighty conservation sites have been identified in the district; only 10 (13%) have received any level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 70 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's

Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For more discussion of the Natural Heritage Program, see page 133.

Other state properties

The following state-owned properties contain undeveloped land that may have potential for recreational use. Each site should be assessed, and cooperative use agreements developed where appropriate.

4. The **Rice Property**, located in Charles City County and owned by Virginia Commonwealth University, should be evaluated to determine its potential to meet identified educational and recreational needs of the region.

5. While a portion of the state-owned **Elko Tract** in eastern Henrico County has been transferred to the Henrico County Industrial Development Authority, consideration should be given to utilizing undeveloped portions of the property to meet recreational, environmental education and open space needs of the region. The White Oak Swamp Natural Area was part of the original Elko Tract.

6. All **community college** properties should be explored to determine if undeveloped portions of those properties could be used to meet the recreational needs of the region.

7. All **Virginia Department of Corrections** properties should be evaluated to determine if undeveloped portions could be used to meet recreational needs in the area.

8. DCR is in the process of acquiring a site of approximately 154 acres along **Falling Creek** in Chesterfield County known as the Mary B. Stratton property. Once acquisition is completed, this property will be leased to Chesterfield County and should be developed and managed for appropriate recreational use.

Regional parks

9. In 1999 the County of Henrico adopted the Update 2015 Parks, Recreation and Open Space Plan. The plan provides a comprehensive approach to parks and open space planning. The Update 2015 Plan includes a revised parks, recreation and open space classification system to permit a more detailed analysis of resources, protection issues, and parks and recreation facility needs. The county has also completed master plans for a number of proposed park facilities including **Meadowview Park**, located on the Chickahominy River in central Henrico; **Deep Bottom Park** and the **Meade Property**, both located on the James River in eastern Henrico; and **Twin Hickory Park**, located in northwestern Henrico. It is hopeful that funds for park acquisition and developments will become available.

10. Lands along approximately six miles of the **James River** through Richmond have been acquired by the city and improved for the public's access and enjoyment. Extension of the parkland westward through Henrico and Chesterfield counties would provide valuable open space and recreational opportunities to area residents and help to protect the James River corridor.

11. Chesterfield County has acquired approximately 120 acres of park land south of the James River in northwestern Chesterfield County. The site includes forested shoreline and has significant ecological features and natural beauty. Development of passive recreational facilities for access and enjoyment of the river should be a priority.

12. Chesterfield County's proposed expansion of the **Eppington Plantation** site will help to preserve the site's historical landscape and provide public access to the Appomattox River. Chesterfield has also acquired additional sites at **Henricus**, the second settlement in Virginia, **Mid-Lothian Coalmines**, an early mining and railroad site, and **Falling Creek Ironworks**, a 1619 early industrial site. Preservation of historical and natural features should be considered as well as development to allow for interpretation and enjoyment by site visitors.

13. The old canal locks and railroad embankments, recalling the **Gayton Coal Mines** and other historic interests, plus the heavily wooded swamps and ravines along **Tuckahoe Creek** would provide a natural setting for outdoor recreational and ecological study serving Henrico and Goochland counties.

14. The **Belmont Park/Horse Swamp** area in Henrico County would be a combination of two sites linked by trails. Both areas are easily accessible and particularly attractive for regional recreational development.

15. **White Oak Swamp**, in eastern Henrico County, is of historical and ecological significance. The area contains wetlands, rich in plant and animal life, and gently rolling uplands suitable for a variety of recreational activities. A portion of this area comprises the White Oak Swamp Natural Area.

16. The recently approved master plan for **Four Mile Creek Park** in Henrico County should be implemented.

17. Chesterfield County has acquired and has development plans for **Irvin G. Horner Park** along Otterdale Creek, a tributary leading to the Swift Creek Reservoir. This site should be developed for natural resource based as well as active recreational activities.

18. Lands along the scenic **South Anna River** in Hanover County have potential for regional park development.

19. Land adjacent to the whitewater fall line section of the **Little River** in Hanover County is especially scenic and is suitable for regional park development.

20. The natural area along **Big Creek** on the Pamunkey River in New Kent County includes several hundred acres of natural waterways, swamps and marshlands, which provide considerable opportunity for water-oriented recreational pursuits. A public boat ramp at Big Creek would be an asset — enhancing access to the area's waters.

21. A regional park located along the scenic **Chickahominy River** near Providence Forge in Charles City County would complement the existing Chickahominy River Wildlife Management Area farther downstream, and help to preserve an important natural resource.

22. Chesterfield County has acquired approximately 150 acres of parkland on the north side of the **Appomattox River** on Lake Chesdin. The site includes forested shoreline as well as some potential inland community park space and has significant ecological features and natural beauty. Development of passive recreational facilities along the lake should be a priority.

23. Henrico County has acquired more than 500 acres along the **Chickahominy River**, which has the potential to become a significant natural area and park.

24. **Diascund Reservoir** in New Kent County is located in natural, forested surroundings. It has potential for the development of water-oriented and water-enhanced recreational facilities.

25. In 1988, the General Assembly officially designated the **James River Bateau Festival Trail** from Lynchburg through the city of Richmond. Localities along the route should work towards conservation and rehabilitation of remaining navigation structures from the days of the bateau. The current condition of the James River and Kanawha Canal within Richmond prevents canal boats and bateau from passing by the Falls of the James, through downtown, and into the tidal portion of the James River. The annual James River Bateau Festival and other significant tourist attractions would benefit from the availability of a functional canal and navigation system around the dams and falls at the city.

26. The City of Richmond, through the Richmond Riverfront Development Corporation, is proceeding with the initial phase of development of the **James River and Kanahwa Canal** system through the area. The project provides the opportunity for people to enjoy a renovated canal system. Walking trails, boat rides providing access to historic areas and other amenities are included in the project. The National Park Service has relocated its Richmond Battlefield Park Headquarters to the Tredegar Ironworks complex, which is adjacent to the canal.

27. The fastest growing community in Chesterfield County is the **Spring Run** area. Chesterfield County should acquire and develop a regional park site in the nearby Winterpock area to serve the Spring Run community as well as the southwestern quadrant of the county.

28. Chesterfield County has acquired approximately 800 acres of property on the **James River** at the Dutch Gap conservation area. The Virginia Department of Game and Inland Fisheries has a cooperative management agreement with the county to ensure enhancement of wildlife and habitat on the site. Further development of amenities to promote conservation and natural resource interpretation of the site should occur.

Public water access

Access to Virginia's rivers and streams is necessary for meeting water-related recreational demands. *The*

Chesapeake Bay Public Access Plan could assist in determining the areas of greatest need for additional public access. Where opportunities are available, lands should be acquired or use agreements arranged to help meet the demand for public access. Where appropriate, portages should be created around dams and other river obstacles. Access considerations for the region include the following:

29. Although the region is rich in water resources, public access to those resources needs to be increased. Increasing public access also includes providing fishing access for the physically challenged. Developments at **Harrison Lake National Fish Hatchery** provide access for persons with disabilities. Another location where fishing access for persons with disabilities would be beneficial is the **Osborne Boat Landing**.

30. In instances where public highway crossings of fishable and/or floatable waters are scheduled for renovation or relocation, the potential for providing parking areas and boat launching facilities should be evaluated. Public access to the **James River** is needed between Richmond and Hampton Roads. Access sites also should be provided on the **North Anna**, **South Anna**, **Pamunkey** and **Chickahominy rivers**.

31. Future developments at **Lawrence Lewis Jr. Park** in Charles City County should include a boat ramp for access to the James River and additional parking to provide access to the recreation facilities that is handicapped accessible. Currently, there are no boat ramp facilities in Charles City County providing access to the James River.

32. Provide public parking and access to the **James River** below the 14th Street Bridge on the north channel to facilitate egress from the whitewater stretch of the river through downtown Richmond.

33. The Dutch Gap boat landing on the **James River** in Chesterfield County should receive major renovations. The site frequently receives full capacity use. The launch area should be relocated further from commercial shipping lanes. Opportunities for an additional public powerboat launch in the vicinity of the James River and Falling Creek also should be investigated.

34. Additional boating access to the **Appomattox River** in the vicinity of Chesterfield County's Point of Rocks Park should be investigated. Additional whitewater canoe access points should be established on the Appomattox River between the Brasfield Dam at Lake Chesdin and the Harvell Dam just beyond Virginia State University.

35. Local jurisdictions should encourage both private and public landowners to operate boat-in only campgrounds on the **upper James River** as well as other rivers.

The following river segments have been evaluated and qualify as Virginia Scenic Rivers:

36. The **Pamunkey River** from Route 604/602 to Pampatike Landing.

37. The **North Anna River** between the Route 601 bridge and Route 1.

38. The **Chickahominy River** between the New Kent, Hanover and Henrico county lines and Bottoms Bridge at Route 60, as well as the Charles City County/New Kent County line to the confluence with the James River.

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

39. The **James River** from Columbia to Watkins Landing in Goochland and Powhatan counties.

40. The **James River** from Richmond to the confluence with the Chickahominy River.

41. The **South Anna River** from the Hanover County line to the Pamunkey River in Hanover County.

42. The **Chickahominy River** from Route 60 to the New Kent County and Charles City County lines.

43. The **North Anna River** from the North Anna Dam to Route 601 in Hanover County.

44. The **North Anna River** from Route 1 to the junction of the South Anna River or the Pamunkey River.

45. The **Pamunkey River** in its entirety.

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including, Civil War trails, the Wilderness Road

Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. For those localities that have not developed a trail and greenway plan, the Department of Conservation and Recreation recommends the development of a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

46. A proposed trail along the entire length of the **James River** should be considered.

47. The abandoned **CSX Railway** (formerly known as the Seaboard Airline Railroad) in eastern Chesterfield County should be developed for a rail-trail conversion to create a trail linking Chesterfield, Petersburg and Colonial Heights.

48. A greenway system should be developed westward from Ettrick along the banks of the **Appomattox River**. On the Petersburg side, the existing towpath and dirt road may be used, and, on the Chesterfield side, the old mill embankments could be incorporated into the trail.

49. **Interstate Bike Route 1** should be enhanced and signage maintained.

50. **Interstate Bike Route 76** should be enhanced and signage maintained.

51. The **Capitol-to-Capitol Bike Trail** along Route 5, which has been approved by all local jurisdictions, should be constructed in a manner that preserves the historic and scenic beauty of its unique tree corridor, and should be made available for public use by the Jamestown commemoration in 2007.

Hostels

52. The **Richmond Region** should be considered as a location for a hostel.

Public fish and game management

53. More than 5,000 acres have been acquired at the **Chickahominy Wildlife Management Area** in Charles City County. Consideration should be given to expanding recreational opportunities, particularly along the Morris Creek portion of the property. A public rifle and shotgun shooting facility should be developed on the property.

54. Recreational developments should be considered at the **Powhatan Wildlife Management Area** in Powhatan County. Opportunities exist for increasing water-oriented recreation at the two lakes within the area and along the Appomattox River.

State forests

55. Develop agreements with the Virginia Department of Conservation and Recreation to expand forest education and develop an environmental trail at **Pocahontas State Park**.

56. Develop plans for forest-managed hiking trails and canoe launching facilities at **Crawford State Forest**.

57. Develop a canoe trail to connect the **Crawford State Forest** with the New Kent Forestry Center.

Richmond Regional

PD 15

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 17
Existing and Projected Needs
Richmond Regional (PD #15)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	1,532,716	303	fields	144	4	159	337	193
Basketball	4,312,386	1,023	goals	275	5	748	1,138	863
Bicycling	9,590,297	682	miles	NI			759	
Lake, River, Bay Use (combined)	3,793,688	50,741	water acres	29,029		21,712	56,453	27,424
Power Boating	1,108,404	26,715	water acres	S			29,723	
Sailing	159,333	1,379	water acres	S			1,534	
Lake Fishing	883,260	4,968	water acres	S			5,528	
Salt Water Fishing	1,148,238	6,459	water acres	S			7,186	
Jet Ski/ Personal Watercraft (PWC)	272,771	4,273	water acres	S			4,754	
Water Skiing / Towed on Water	221,681	6,946	water acres	S			7,728	
Camping (*)	1,479,893	8,728	sites	1,872		6,856	9,710	7,838
Tent camping	540,347	3,187	sites	100	75	3,087	3,545	3,445
Developed camping	939,546	5,541	sites	1,772	1,707	3,769	6,165	4,393
Fitness Trail use	796,666	64	mile trails	14	0	50	71	57
Fields (combined)	5,723,870	1,203	fields	144	1	1,059	1,339	1,195
Football	3,203,982	674	fields	NS			749	
Soccer	2,519,888	530	fields	NS			589	
Stream Use (combined)	1,329,219	715	stream miles	285		430	796	511
Stream Fishing	878,930	618	stream miles	S			688	
Human-powered boating	287,492	73	stream miles	S			81	
Rafting	64,080	11	stream miles	S			13	
Tubing	98,717	13	stream miles	S			14	
Golfing	2,847,214	96	courses	30	30	66	107	76
Hiking/ Backpacking	935,216	480	trail miles	143	4	337	534	391
Horseback Riding	158,467	69	miles	49	20	20	76	27
In-Line Skating	2,355,360	168	miles	NI			186	
Jogging/Running	12,989,115	1,041	mile trails	NI			1,158	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites

20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Richmond Regional (PD #15) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	422,579	60	sites	5		55	67	62
Picnicking Away from Home	1,164,691	3,024	tables	1,856	426	1,168	3,364	1,508
Skateboarding	796,666	245	sites	NI			273	
Snow Skiing or Snowboarding	426,043	11	ski lifts	0	0	11	12	12
Softball	1,922,389	342	fields	182	2	160	380	198
Sunbathing/ Relaxing on Beach	3,524,380	253	beach acres	11	11	242	281	270
Swimming Outdoor Area	2,684,417	275	beach acres	11	0	264	306	295
Swimming Outdoor Pools	3,065,431	130	pools	47	34	83	144	97
Swimming Indoor Pools	2,105,103	24	pools	1	0	23	27	26
Tennis	1,880,824	1,176	courts	422	129	754	1,308	886
Used a Playground	5,445,037	775	sites	169	1	606	862	693
Visiting Gardens	431,239	47	sites	NI			53	
Visiting Historic Sites	1,905,070	161	sites	NI			179	
Visiting Natural Areas	976,781	165	sites	NI			184	
Volleyball	332,521	99	courts	15	0	84	110	95
Went Hunting	744,709	122,124	acres	14,784		107,340	135,872	121,088
Went Shooting Total	454,619	257	fields	NI			286	
Target	402,663	227	fields	NI			253	
Skeet or Trap	142,880	81	fields	0		81	90	90
Other	64,946	37	fields	NI			41	
Drive for Pleasure	6,276,340	na	na	NI			na	
Motorcycle/ATV (combined)	181,848	83	miles	26	0	57	92	66
Driving All-Terrain Vehicle	112,572	51	miles	NS			57	
Driving Motorcycle Off-Road	69,275	32	miles	NS			35	
Driving 4-Wheel-Drive Off-Road	394,003	na	na	NI			na	
Walking for Pleasure	29,918,262	na	na	NI			na	
Other	428,641	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 16: RADCO Planning District

Situated midway between Richmond, Virginia and Washington, D.C., the Rappahannock Area Development Commission (RADCO) Planning District is one of rapidly changing land-use patterns. Straddling the East Coast's most heavily traveled interstate, I-95, the area is made up of Stafford, King George, Spotsylvania and Caroline counties, along with the city of Fredericksburg and the towns of Bowling Green and Port Royal. As the highly urbanized I-95 corridor grows to the east and west, nearby agricultural areas absorb the pressures of the rapidly expanding population base and its increasing need for housing, transportation and services. Expansive agricultural tracts interspersed with large-lot suburban properties and typical suburban subdivisions flank the intensely developed interstate corridor. With 241,044 residents recorded in the 2000 census, the area has experienced an increase in population of almost 41% since 1990. Stafford and Spotsylvania counties are among the fastest growing in the state, with growth rates of 48.5% and 57.5%, respectively, over the past ten years. The presence of Lake

Anna has provided the catalyst for the development of a large retirement community. As the population of the area continues to grow, conflicting interests will compound the task of protecting and managing the region's resources. In preparing for the future, RADCO's plans should include the protection and preservation of natural and manmade resources, access to outdoors recreational facilities and open space by all residents, and the development of livable communities. Resource protection strategies should include consideration for land uses immediately adjacent to the significant historical and natural resources of the region. It is essential that these unique resources not be compromised by the negative impacts of inappropriate development in adjacent areas.

Bisecting the region on a north-south axis, roughly coinciding with the Fall Line, I-95 marks not only the area of most rapid development, but also the boundary between the rolling hills of the Piedmont to the west and the flatter, gently sloping Coastal Plain to the east. Many rivers and streams and their countless tributaries flow across the region. From the Potomac River in the north, south to the Rappahannock, the Matta, the Po, the Ni (coalescing to form the Mattaponi) and the North Anna rivers, the rivers and streams of the region provide ample opportunities for many types of water-based recreational activities. Flowing eastward across the region, rivers lose their rapids and flashy characteristics more typical of the Piedmont to widen into smooth-flowing tidal rivers flanked by wide floodplains with broad wetlands in the comparatively flat Coastal Plain. The Rappahannock River is valued as a recreational resource as well as for its scenic beauty. From its headwaters at Chester Gap to the Mayfield Ferry Farm Bridge below Fredericksburg, the Rappahannock has been designated a state Scenic River. That segment of the North Anna River in Caroline County from Route 601 to the Route 1 Bridge is recognized as a state Scenic River, as well. The Rappahannock and the Potomac serve as gateways for the region to the Chesapeake Bay.

Tourism is a key element in the RADCO region's economy. With an abundance of historical and cultural resources of both state and national significance, the area is a popular tourist destination. Civil War battlefields, historic buildings and gardens attract more than 1.1 million visitors to the region every year. The 2000 *Virginia Outdoors Survey* documents the fact that state residents enjoy visiting historic sites and rank this as 5th among their preferred outdoor activities. Visiting gardens ranks 14th. Walking for pleasure holds the number-one spot, while bicycling and hiking rank 6th and 16th, respectively. The combination of these elements suggests an effective strategy for continuing to attract visitors to the area while serving the needs of the resident population. Linking sites through the development of a well-integrated multiuse trail system will provide recreational opportunities for residents as well as visitors.

Results of the 2000 *Virginia Outdoors Survey* indicate that despite the availability of a wealth of resources, user facilities for some activities remain marginal. Respondents to the survey indicated that access to water for boating, fishing, swimming and beach use is a definite need that is not being met adequately. A similar deficiency is seen in the limited number of miles of trails available for hiking, walking, bicycling, jogging and horseback riding. In addition, public playgrounds separate from those associated with local schools, and public swimming pools were listed as desired amenities.

As localities plan for the future and attempt to meet the outdoor recreational needs of their residents as expressed in the 2000 *Virginia Outdoors Survey* and local needs assessments, they are encouraged to include small neighborhood parks, larger regional facilities, trails that provide links within and between communities and access to water resources. Local governments within the I-95 corridor area must respond to an ever-increasing need for athletic fields. The creation of the Fredericksburg-Stafford Park Authority was an important step in the development of a regional approach to outdoor recreation planning. As the area continues to grow the need for multijurisdictional resource development and management will increase. Preservation of open space and natural resources within this rapidly changing area will be a challenge to all localities. The quality of life now enjoyed by residents of the area will be assured through comprehensive region-wide planning and the implementation of effective growth management strategies.

Specific needs have been identified in the RADCO area. These include:

- Local transportation alternatives, specifically, trails for walking, hiking and cycling. Trails must connect people with destinations,
- and should be included within a comprehensive trails and greenways plan.
- Increased access to water-based recreational opportunities, which includes facilities for swimming (indoors and outdoors), boating and fishing, and the development of water trails.
- Additional playing fields to include facilities for baseball, basketball, tennis, volleyball and soccer.
- Additional golf courses.
- Additional parks with playgrounds, as well as minimally developed open space areas.
- Off-road areas for street-legal four-wheel-drive vehicles, ATVs and mountain bikes.

- Development of youth-centered recreational programs.
- Securing additional access to federal lands for recreational activities.
- Secure stable sources of funding to acquire, develop and manage public recreational properties.

Recognizing the impediments to open space preservation in the area, local governments are developing strategies for the development of comprehensive, regional park systems. Stafford County's Needs Assessment, for example, encourages the aggressive acquisition and development of properties noting, "Delays in implementation will only increase costs." Since current growth rates in the area have exceeded projections, many localities find themselves behind the curve in meeting recreational needs. Open space protection strategies should include interjurisdictional efforts to develop and maintain greenways and regional parks.

Localities are encouraged to work with local residents to identify and preserve the many historic features found throughout the region. Native American village acres, Civil War trenches and battlefields, historic river fords, the canals and mill sites along the Rappahannock River and the historic Spotswood furnace – all mark significant moments in the Commonwealth's history, worthy of recognition and preservation.

Proposed major development in the Fredericksburg area along the Rappahannock River at I-95 will have a considerable impact on the existing open space and the character of the region. With approximately 2,500 acres slated for development to include a mix of offices, hotels, convention centers, homes and retail establishments, the effect will be considerable. Project design considerations should include site selection and treatment that is suitable to the topography, sensitive to environmental conditions and respectful of local history. Of particular importance is the location selected and the site design developed for the proposed national slavery museum to be included in this project. Care must be taken to create an atmosphere of solemn reflection and dignity appropriate to the theme of the museum.

Private sector

The private sector plays a significant role in providing recreational opportunities in the Commonwealth. Developed campgrounds, resident summer camps for children, golf courses, tennis courts, swimming pools, marinas and indoor recreational facilities help meet the needs identified in the 2000 *Virginia Outdoors Survey*. Within the RADCO region, entrepreneurial opportunities exist for the establishment of outfitter services for canoeing and kayaking, boat launches, canoe-in campgrounds, multifield sports complexes and swimming pools. Private landowners might consider fee-based hunting, fishing and boating access. Familiarity with the *Landowner Liability Law, Code of Virginia, Chapter* 29.1-509 (page 408), could encourage some landowners to enter into an agreement with a unit of government to provide public access while minimizing their liability. As many localities prepare for substantial increases in residential growth, consideration must be given for the inclusion of mechanisms within the permitting process to encourage or require the preservation of open space and the development of recreational amenities to meet communities' needs.

Federal facilities

When federal properties become surplus, their potential recreational and natural resource values should be evaluated for possible inclusion in state or local open space or outdoor recreational plans.

1. **Fort A.P. Hill** periodically hosts the international Boy Scouts of America Jamboree, an event attended by 40,000 participants in 2001.

2. The **Fredericksburg and Spotsylvania National Military Park**, at 9,000+ acres, is the largest military park in the world. Composed of several battlefield sites, cemeteries, and historical structures, the park hosts more than one million visitors annually. Localities are encouraged to work with the National Park Service to link park sites with other attractions within the region through the development of an integrated trail system. In order to protect this important historic resource, localities should strongly consider the impacts of future development in areas adjacent to park lands.

3. Established on May 28, 1996, the **Rappahannock River Valley National Wildlife Refuge** is a component of the Eastern Virginia Rivers National Wildlife Refuge Complex, which also includes James River and Presquile national wildlife refuges. The U.S. Fish and Wildlife Service is authorized to purchase up to 20,000 acres within the boundary of the refuge area. As of July 2001, a total of 4,800 acres has been purchased from willing sellers.

State parks

All projects included in the 1992 bond referendum have been completed. Funding is needed to complete projects identified in approved master plans. By law, state park master plans must be evaluated by DCR staff every five years. Significant needs, proposed changes or improvements and additions costing in excess of $500,000 and not identified in the current approved master plan are subject to approval through the public participation process.

Due to the extremely high demand for public access to the waters of the Commonwealth, any significant property on a major tidal river, or its tributaries that becomes available should be evaluated for potential acquisition and development as a state or regional park. Along with addressing public demand, increased access opportunities will facilitate meeting the goals of the Chesapeake Bay Agreement, which calls for the addition of 66 public water access sites in Virginia by 2010 and an additional 500 miles of water trails throughout the bay region by 2005.

4. **Lake Anna State Park**: User requests reflect the need for picnic shelters, additional beach area, cabins and camping facilities within the park. The completion of the proposed trail system will result in about 10 miles of multi-use trails. Volunteer groups should continue to play a significant role in trail development and maintenance.

5. **Caledon Natural Area**: User requests reflect the need for additional trails within the park. The development of a birding trail is planned. A link to the Potomac Heritage National Scenic Trail is envisioned in the development of the Dahlgren Rail Trail. Protection of this site will be enhanced by the conservation of the adjacent property, the Nash farm, the preservation of which has been assured through a combination of easements and a natural area dedication.

Natural areas

As of March 2001, there were 48 conservation sites identified within the RADCO Planning District. Twenty-six (54%) are protected to some degree through ownership and management by state, federal and nongovernment organizations. Every effort should be made to protect the remaining sites. Although appropriate methods of protection for each site will vary, each should be included on Virginia's registry of natural areas. Additional preservation strategies include developing voluntary management agreements with landowners, securing conservation easements through local land trusts, actual acquisition of sites, and/or dedication of sites as natural area preserves. Specific information about each of these natural areas can be obtained from DCR's Natural Heritage Program, which is discussed in detail in Chapter III-B-2-d on page 133.

The Department of Conservation and Recreation has documented 284 occurrences of 84 rare species and natural communities in the RADCO Planning District. Ten of these species are globally rare, and four are listed as threatened or endangered.

In August 2001 the Department of Conservation and Recreation secured an easement and natural area dedication for 1,107 acres along **Chotank Creek** and the Potomac River in King George County. Critical eagle habitat and other natural heritage resources will be protected at this site.

The **Crow's Nest**, a 4,500-acre peninsula of mature, second growth forest surrounded by 700 acres of freshwater tidal marshes, should be considered for preservation as a natural heritage area or a national wildlife refuge. Located in eastern Stafford County, the property supports a rich diversity of plant and animal species reflecting its many habitats. It is an extremely significant feeding and nesting stop for migrating songbirds and provides valuable habitat for waterfowl, fish and shellfish.

Public water and beach access

Despite the abundance of rivers and streams in the region, public access to them is limited. RADCO Planning District residents cite a scarcity of boat launches and minimal opportunities for bank fishing and swimming. Where the opportunity exists, access through land acquisition or use agreement should be

pursued. The development of portages around dam sites and other river obstacles is encouraged to facilitate river use. In addition, water trails should be developed along the Rappahannock, the Potomac and other rivers in the area. Water access considerations for the region include the following:

6. Additional boating and fishing access at **Lake Anna**.

7. Additional access should be provided on all rivers in the region including the **Potomac**, **Rappahannock**, **North Anna**, **Matta**, **Po**, **Ni** and **Mattaponi**.

8. The development of water trails along the **Rappahannock River** and the implementation of the **Potomac River Water Trail** from Washington, DC to the Chesapeake Bay, as suggested by the guide prepared by the Virginia Department of Conservation and Recreation and Maryland's Department of Natural Resources.

Scenic Rivers

9. Impacts to the **Rappahannock River** from proposed commercial development along the riverbanks should be carefully evaluated. As a state Scenic River, the Rappahannock River should be protected as a unique regional resource. Inappropriate development that compromises the scenic qualities of the river and the enjoyment of its natural beauty should be discouraged. Appropriate setbacks and buffers should be incorporated into plans to assure the preservation of the river corridor. This will include consideration for impacts to water quality.

10. The **North Anna River** in Caroline County, from Route 601 to the Route 1 bridge, is a state Scenic River. Every effort should be made to preserve the character of the region through which it flows. Appropriate setbacks and buffers should be incorporated into plans to assure the preservation of the river corridor. This will include consideration for impacts to water quality

It is recommended that the following river segments be evaluated to determine their suitability as **Virginia Scenic Rivers**:

11. The **Rapidan River** from the Orange/Spotsylvania County line to the confluence with the Rappahannock River.

12. The **North Anna River** from Lake Anna to Route 601 and from Route 1 to the junction with the South Anna River.

13. The **Rappahannock River** in Stafford, Spotsylvania, King George and Caroline counties between the city of Fredericksburg and the King George/Westmoreland County line.

Scenic highways and Virginia Byways:

There has been a tremendous interest in thematic trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

14. **Route 208** in Spotsylvania County, through the battlefield area to the Louisa County line has been recommended for consideration as a Virginia Byway.

Trails and greenways

The Department of Conservation and Recreation recommends that each locality include a trail and greenway component within its comprehensive plan. Efforts should be made to integrate existing and proposed trails and greenways into a regional network designed to provide access to area resources while conserving and maximizing open space opportunities. In developing trails as transportation alternatives, it is necessary that localities work with developers and one another to assure that trails actually link users with destinations, not simply provide walking loops within neighborhoods.

Accommodations for cyclists within integrated trail systems should include improved safety considerations, appropriate signage and mapping, and separate bicycling lanes wherever possible. Although wide road shoulders provide bicycling opportunities, separate bicycling trails are preferred. Localities, counties and cities should determine appropriate roads for bicycle routes and work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bicycling plans. Growing interest in birding as a recreational pastime will add another dimension to trail identification and

development, as will interest in other theme trails. It is strongly suggested that consideration be given for the development of an integrated trail system designed to link the many historical sites in the region.

Trail/greenway proposals for this region include:

15. The development of a greenway/hiking/water trail system along the **Rappahannock River**. Linking the Upper and Lower Rappahannock basins, the RADCO segment of the trail could provide opportunities for canoe-in camping, access to historic sites and rock climbing areas. Preservation and enhancement of mill sites and the canal system along the Rappahannock River are suggested.

16. Identifying the proposed **Potomac Heritage National Scenic Trail (PHNST)** in all local comprehensive plans with development to follow as conditions permit. Envisioned as a multi-use trail to include water trail components where appropriate, the PHNST, when complete, will link the Chesapeake Bay with the Allegheny Highlands. The 50-mile RADCO segment, following the Potomac River through King George and Stafford counties, will link the area to state and county parks, wildlife refuges and wetlands. It will provide access to historical and cultural features along with marinas, schools, commercial areas and neighborhoods along the Potomac River waterfront. A link to the city of Fredericksburg is included in the plan.

17. Linking **Barnesfield Park** to the planned Potomac Heritage National Scenic Trail.

18. The development of a multi-use trail along the abandoned **Dahlgren Junction Railroad** to provide links to the Potomac Heritage National Scenic Trail, Barnesfield Park at Route 301 bridge, the Caledon Natural Area and through to Sealston.

19. The development of the **Fredericksburg - Orange** trail along the old **Virginia Central Railroad** linking Fredericksburg to Orange. With two small sections complete, one in Alum Spring Park maintained by the city of Fredericksburg, and the other linking a school and playing fields in Spotsylvania County, the proposed trail would provide access to Civil War battlefields, historic properties, schools, playgrounds and commercial sites.

20. The completion of the **South Stafford Bicycle Trail**. Reflecting the efforts of the Fredericksburg-Stafford Park Authority, the three-mile trail will link two parks in Stafford County.

21. Link the South Stafford Bicycle Trail with the Old Mill Park Trail proposed in the City of Fredericksburg.

22. **Interstate Bike Route 1** should be enhanced and properly identified.

23. The **East Coast Greenway**, as proposed, will pass through the RADCO area. Local planners should coordinate with the East Coast Greenway Planning Committee to ensure that the selected corridor is consistent with local plans.

In addition:

- Localities should consider the expansion of historic districts to preserve resources and promote economic development.
- Planning districts and local governments should consider the development of theme trails linking similar sites such as vineyards, historic districts and birding sites.
- The Virginia Department of Game and Inland Fisheries should continue to develop trail systems within wildlife management areas to facilitate access for activities other than hunting and fishing.
- All planning districts should identify existing green infrastructure and locations for green infrastructure restoration for inclusion within a green infrastructure management plan.
- All localities should identify environmentally sensitive areas and develop strategies for their protection and preservation as a critical part of their green infrastructure management plan.
- All localities should continue to promote the protection and preservation of open space through land acquisition, conservation easements, stewardship agreements, the development of agricultural and forestal districts, the outright purchase of land or any of the many open space protection strategies presented in Appendix E: Tools and Programs for Open Space and Natural Resources on page 403.

RADCO

PD 16

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 18
Existing and Projected Needs
RADCO (PD #16)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	426,648	84	fields	73	5	11	107	34
Basketball	1,200,399	285	goals	67	6	218	362	295
Bicycling	2,669,562	190	miles	NI			242	
Lake, River, Bay Use (combined)	1,056,014	14,124	water acres	39,049		-24,925	17,977	-21,072
Power Boating	308,536	7,437	water acres	S			9,465	
Sailing	44,352	384	water acres	S			489	
Lake Fishing	245,865	1,383	water acres	S			1,760	
Salt Water Fishing	319,624	1,798	water acres	S			2,288	
Jet Ski/ Personal Watercraft (PWC)	75,929	1,190	water acres	S			1,514	
Water Skiing / Towed on Water	61,707	1,933	water acres	S			2,461	
Camping (*)	411,944	2,429	sites	6,265		-3,836	3,092	-3,173
Tent camping	150,411	887	sites	74	69	813	1,129	1,055
Developed camping	261,533	1,542	sites	6,191	5,991	-4,649	1,963	-4,228
Fitness Trail use	221,760	18	mile trails	20	2	-2	23	3
Fields (combined)	1,593,301	335	fields	112	3	223	426	314
Football	891,863	187	fields	NS			239	
Soccer	701,438	147	fields	NS			188	
Stream Use (combined)	370,003	199	stream miles	236		-37	253	17
Stream Fishing	244,660	172	stream miles	S			219	
Human-powered boating	80,027	20	stream miles	S			26	
Rafting	17,837	3	stream miles	S			4	
Tubing	27,479	4	stream miles	S			5	
Golfing	792,553	27	courses	16	12	11	34	19
Hiking/ Backpacking	260,328	134	trail miles	92	8	42	170	78
Horseback Riding	44,111	19	miles	18	5	1	24	6
In-Line Skating	655,640	47	miles	NI			59	
Jogging/Running	3,615,660	290	mile trails	NI			369	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
RADCO (PD #16) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	117,629	17	sites	2		15	21	19
Picnicking Away from Home	324,204	842	tables	926	112	-84	1,071	145
Skateboarding	221,760	68	sites	NI			87	
Snow Skiing or Snowboarding	118,594	3	ski lifts	0	0	3	4	4
Softball	535,118	95	fields	66	3	29	121	55
Sunbathing/ Relaxing on Beach	981,049	70	beach acres	61	24	9	89	28
Swimming Outdoor Area	747,236	77	beach acres	61		16	97	36
Swimming Outdoor Pools	853,296	36	pools	24	19	12	46	22
Swimming Indoor Pools	585,978	7	pools	2	2	5	8	6
Tennis	523,548	327	courts	157	19	170	416	259
Used a Playground	1,515,685	216	sites	93	10	123	275	182
Visiting Gardens	120,040	13	sites	NI			17	
Visiting Historic Sites	530,297	45	sites	NI			57	
Visiting Natural Areas	271,898	46	sites	NI			59	
Volleyball	92,561	27	courts	9	2	18	35	26
Went Hunting	207,298	33,995	acres	108,599		-74,604	43,268	-65,331
Went Shooting Total	126,548	71	fields	NI			91	
Target	112,085	63	fields	NI			81	
Skeet or Trap	39,772	22	fields	2		20	29	27
Other	18,078	10	fields	NI			13	
Drive for Pleasure	1,747,087	na	na	NI			na	
Motorcycle/ATV (combined)	50,619	23	miles	1	1	22	29	28
Driving All-Terrain Vehicle	31,336	14	miles	NS			18	
Driving Motorcycle Off-Road	19,284	9	miles	NS			11	
Driving 4-Wheel-Drive Off-Road	109,675	na	na	NI			na	
Walking for Pleasure	8,328,070	na	na	NI			na	
Other	119,317	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 17: Northern Neck Planning District

The Northern Neck Planning District is bound by the Potomac and Rappahannock rivers and the Chesapeake Bay. The region includes four counties: Lancaster, Northumberland, Richmond, and Westmoreland, and has a 2000 Census population of 49,353. There are 492,800 land acres and 42,433 water acres in the region. There are more than 1,000 miles of shoreline, which is almost 38% of the total Tidewater shoreline. Wetlands cover 37,890 acres in the region. Water-related and other natural resources are abundant, making this district one of the most important for environmental and conservation planning in the Chesapeake Bay watershed. Currently, the Virginia Outdoors Foundation holds 3,702 acres in easements to protect the scenic quality of the region.

Historically, the surrounding areas have seen unprecedented growth and urbanization, while the Northern Neck counties have remained among the least-developed localities in the Tidewater region of Virginia. In the last few years, the development pressures from more urbanized areas have begun reaching the Northern Neck. The average population growth rate for the region between 1990 and 1999 was 8.1%.

The economy and recreational opportunities of the Northern Neck are dependent on the region's wealth of water resources. Tourism is one of the largest industries in the Northern Neck Planning District. It is estimated that nearly 3,000 jobs in this district, as well as in Planning District 18, relate to tourism and seasonal visitation.

As indicated in the 2000 *Virginia Outdoors Survey*, the most popular outdoor activities in the region are related to the use of water resources and beaches. Sailing, power boating, canoeing, fishing and water-skiing ranked highest among the water-related recreation. Walking and driving for pleasure and bicycling also are popular activities. Baseball, basketball, softball, fitness trail use and tennis were selected as the top active recreational alternatives. Other popular team sports include volleyball and football. See Table 19, page 311.

Areas of need for recreational activities include playgrounds, appropriately designated bicycle facilities, access to water for all types of boats, fishing and swimming, and additional campsites without hook-ups. The linking of existing recreational areas and parks with greenways could increase the number of miles of trails suitable for walking and bicycling. Adding or incorporating a parallel trail system along roads with scenic attributes could enhance walking for pleasure and bicycling opportunities. These roads could serve as connections to historic reserves such as George Washington's boyhood home and Stratford Hall, home of Robert E. Lee, Westmoreland State Park and a variety of other historic, cultural, natural and recreational sites.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

Because of the abundance of water resources in the region, there are a number of water-based recreational opportunities that could be explored. There is a major need for additional water access for boating and fishing. Facilities such as marinas, dry storage areas, fishing piers, bait and tackle shops, and food service establishments are needed to support these activities. In addition, water-to-land access points are also in demand, thus facilities that provide safe areas for boats to dock for overnight stays, meals or sightseeing are desirable. Boat-in bed and breakfasts might also be popular developments. Another private sector opportunity would be the conversion of abandoned seafood processing facilities into water-based recreational developments. The 2000 *Virginia Outdoors Survey* identified visiting historic sites, gardens, arboretums, and natural areas as important activities. The private sector should examine opportunities for meeting this demand.

Federal facilities

1. The US Fish and Wildlife Service is continuing the process of acquiring the Rappahannock River Valley National Wildlife Refuge on the tidal **Rappahannock River**. The refuge, when completed, could be as large as 20,000 acres in size and could provide ecological management for a significant portion of the river valley. It is important that appropriate public access be provided in the development of this refuge. Establishment of this refuge should not preclude the development of needed public access from nonrefuge lands to the Rappahannock River.

State parks

Due to the extremely high demand for public access to the waters of the Commonwealth, any waterfront property that becomes available on the major tidal rivers or their tributaries in the region should be evaluated for potential acquisition and development as a regional or state park. Any site acquired and developed on these waters would also help to meet the commitments of the 2000 Chesapeake Bay Agreement.

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan or improvements/additions costing in excess of $500,000, must go through the public participation process.

2. **Belle Isle State Park** is located on the Rappahannock River in Lancaster County. It was the first state park to be purchased with funds from the $95 million 1992 Parks and Recreation Facilities bond referendum. The approved master plan for the park includes development of a swimming area, nature study areas with an environmental education center and overnight facilities to include campgrounds. **Westmoreland State Park** was established in 1936, and is one of six original Virginia state parks. The Department of Conservation and Recreation will prepare a new master plan for the site in the next two years. Through the public participation process the plan will identify new facilities and programs that will enhance the visitors' experience in the park. It is located near George Washington's birthplace and Stratford Hall, the boyhood home of Robert E. Lee. The plan may include formal connections to these sites and others in the region. Projects identified in the approved Belle Isle and Westmoreland state park master plans need to be funded.

3. An area near the mouth of the **Potomac River** in Northumberland County should be considered for development as a state park. Potential sites include the Coan River and Hull Neck areas.

Natural areas

The following natural area preserves are located within this district: **Hickory Hollow** in Lancaster County, and **Bush Mill Stream**, **Dameron Marsh**, and **Hughlett Point** in Northumberland County.

The Department of Conservation and Recreation has, as of March 2001, documented 183 occurrences of 16 rare species and natural communities in the Northern Neck Planning District. Two species are globally rare and two are federally threatened or endangered. Thirty-seven conservation sites have been identified in the district; only three (8%) have received any level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 34 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see Chapter III-B-2-d on page 103.

Regional parks

4. Consider development of a centrally located park to serve the residents of **Northumberland County**.

Other state properties

The following state-owned properties contain significant undeveloped land that may have potential for recreational use. Each site should be assessed, and cooperative use agreements developed where appropriate.

5. In Northumberland County, the **Vera Knols Tract**, administered by the Virginia Outdoors Foundation, should be maintained as a natural area.

6. **Rappahannock Community College** in Richmond County has 118 acres of land, which should be evaluated for its recreational potential.

7. The Virginia Tech Forest Management Station in Richmond County has 55 acres of land that may be suitable for dispersed recreation, such as hiking, picnicking and nature study.

Public water and beach access

Access to Virginia's rivers and streams is necessary to meet water-related recreational demands. While this region has an abundance of water resources, availability of public access needs to be increased. Wherever highways cross bodies of water and renovation or relocation is planned, the potential for providing parking areas and boat and fishing access should be incorporated into the road improvement. Certainly areas where public access has historically occurred should remain open after road improvements are in place. The *Chesapeake Bay Area Public Access Plan* could assist in determining the areas of greatest need for additional public access. Where opportunities are available, lands should be acquired or use agreements arranged to help meet the demand for public access. Where appropriate, portages should be created around dams and other river obstacles.

Within the region there are many state owned road rights-of-way that end at the water's edge. Many of these served as public access points to the rivers when much of the regional commerce traveled by water. These properties should be evaluated to determine if there is clear public ownership. Those that are publicly owned should be evaluated for their potential to meet water access needs.

Access considerations for the region include the following:

8. Implement the **Chesapeake Bay Gateway Program** to provide increased access, education and interpretive opportunities.

9. Provide water overlooks at **Powers Land** and other bay and river resources of the region.

10. Consider **Vir Mar Beach** as an enhanced access point to the bay to include picnic and parking areas.

Scenic Rivers

The following river segments should be evaluated to determine its suitability as a Virginia Scenic River:

11. The **Rappahannock River** from the Westmoreland County/King George County line to the Chesapeake Bay.

12. The **Corrotoman River** in Lancaster County.

13. The **Cat Point Creek** from Route 622 to its junction with the Rappahannock River.

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving-tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following road should be considered for inclusion as Virginia Byway.

14. **Route 360** from the Downing Bridge at the Rappahannock River to its intersection with Route 624.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

15.The **Potomac River Water Trail** should be completed and enhanced through a partnership between Virginia and Maryland.

16. Efforts should be made to incorporate the **Potomac Heritage Trail** into local and regional comprehensive plans.

17. Implement the adopted comprehensive bicycle trail plan for PDC 17 to include connections with all localities.

18. Implement the development of the **Northern Neck Heritage Trail**.

State forests

19. The recently acquired **Chilton Woods State Forest** is located in Lancaster County. Develop and expand conservation and passive recreational activities.

Northern Neck

PD 17

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 19
Existing and Projected Needs
Northern Neck (PD #17)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	76,004	15	fields	16	0	-1	16	0
Basketball	254,661	60	goals	3	0	57	66	63
Bicycling	419,501	30	miles	NI			33	
Lake, River, Bay Use (combined)	919,644	14,100	water acres	292,371		-278,271	15,426	-276,945
Power Boating	439,242	10,587	water acres	S			11,583	
Sailing	44,270	383	water acres	S			419	
Lake Fishing	36,028	203	water acres	S			222	
Salt Water Fishing	357,711	2,012	water acres	S			2,201	
Jet Ski/ Personal Watercraft (PWC)	26,355	413	water acres	S			452	
Water Skiing / Towed on Water	16,040	503	water acres	S			550	
Camping (*)	67,712	399	sites	2,064		-1,665	437	-1,627
Tent camping	12,091	71	sites	282	283	-211	78	-204
Developed camping	55,621	328	sites	1,782	1,664	-1,454	359	-1,423
Fitness Trail use	14,806	1	mile trails	2	2	-1	1	-1
Fields (combined)	438,501	92	fields	4	0	88	101	97
Football	343,497	72	fields	NS			79	
Soccer	95,005	20	fields	NS			22	
Stream Use (combined)	114,746	51	stream miles	18		33	55	37
Stream Fishing	50,093	35	stream miles	S			39	
Human-powered boating	54,782	14	stream miles	S			15	
Rafting	4,738	1	stream miles	S			1	
Tubing	5,133	1	stream miles	S			1	
Golfing	88,342	3	courses	7	8	-4	3	-4
Hiking/ Backpacking	43,924	23	trail miles	17	4	6	25	8
Horseback Riding	7,107	3	miles	0	0	3	3	3
In-Line Skating	76,497	5	miles	NI			6	
Jogging/Running	651,460	52	mile trails	NI			57	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites

20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Northern Neck (PD #17) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	27,638	4	sites	0		4	4	4
Picnicking Away from Home	81,136	211	tables	320	72	-109	230	-90
Skateboarding	20,728	6	sites	NI			7	
Snow Skiing or Snowboarding	10,364	0	ski lifts	0	0	0	0	0
Softball	179,151	32	fields	6	0	26	35	29
Sunbathing/ Relaxing on Beach	295,378	21	beach acres	33	1	-12	23	-10
Swimming Outdoor Area	140,952	14	beach acres	33	0	-19	16	-17
Swimming Outdoor Pools	126,837	5	pools	11	9	-6	6	-5
Swimming Indoor Pools	34,202	0	pools	1	1	-1	0	-1
Tennis	50,834	32	courts	16	7	16	35	19
Used a Playground	288,814	41	sites	6	0	35	45	39
Visiting Gardens	33,165	4	sites	NI			4	
Visiting Historic Sites	88,589	7	sites	NI			8	
Visiting Natural Areas	73,437	12	sites	NI			14	
Volleyball	139,422	41	courts	0	0	41	45	45
Went Hunting	136,807	22,435	acres	1,000		21,435	24,545	23,545
Went Shooting Total	80,939	46	fields	NI			50	
Target	30,599	17	fields	NI			19	
Skeet or Trap	18,359	10	fields	0		10	11	11
Other	18,655	11	fields	NI			12	
Drive for Pleasure	422,166	na	na	NI			na	
Motorcycle/ATV (combined)	18,063	8	miles	0	0	8	9	9
Driving All-Terrain Vehicle	1,283	1	miles	NS			1	
Driving Motorcycle Off-Road	16,780	8	miles	NS			8	
Driving 4-Wheel-Drive Off-Road	37,508	na	na	NI			na	
Walking for Pleasure	1,978,068	na	na	NI			na	
Other	57,249	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 18: Middle Peninsula Planning District

The Middle Peninsula Planning District is in the east-central Tidewater region of Virginia and includes approximately 1,388 square miles of land and water. The region encompasses nine local governments: the counties of Essex, Gloucester, King and Queen, King William, Mathew and Middlesex; and the towns of Tappahannock, West Point and Urbanna. The region's northern border is the Rappahannock River, the Chesapeake Bay on its eastern side, its southern border is the York River and the western border is Caroline County. The district is largely rural, with thousands of acres of valuable tidal and nontidal wetlands, forests, pastures, rivers, streams, and embayments. The topography of these localities is typical of Tidewater, Virginia, with landforms ranging from flat, level areas to gently rolling hills up to 200 feet above sea level.

Population growth was fairly steady in the Middle Peninsula region throughout the 1990s. The region's 2000 Census population was 83,684 people. In the past, population growth has not been consistent among the individual counties. While some counties have had a large increase in population, others have remained fairly stable. For the most part, those counties with the larger growth have a significantly greater amount of waterfront property. King William County's population has changed the most. Although Gloucester is in the Middle Peninsula Planning District Commission, it is also a member of the Hampton Roads Planning District Commission. For the purposes of this plan, Gloucester data and information is contained only in the Middle Peninsula region to avoid duplication. Currently, the Virginia Outdoors Foundation holds 4,790 acres in easements to protect the scenic quality of the region.

The Middle Peninsula's economy and recreational opportunities are dependent on the region's abundant natural resources. The region offers opportunities for both the commercial and recreational harvesting of finfish and shellfish. The construc-

tion and maintenance of both pleasure and work boats, and the use of the waterways for transport and recreation are vital facets of the community. The region also has vast forests of hardwoods and softwood. Sawmills are located throughout the region, as well as Smurfit Stone Container Corporation, which produces pulp and craft paper for domestic and European markets. Tourism is one of the largest industries in the Middle Peninsula Planning District. It is estimated that nearly 3,000 jobs in this district, as well as Northern Neck Planning District 17, relate to tourism and seasonal visitation.

The Virginia Institute of Marine Science at Gloucester Point and the centrally located Rappahannock Community College provide a resource base from which the region can address water-related and resource-related management issues. Both of these schools add to the knowledge about the natural resources in this region. Additionally, they provide seminars, classes and public information on these topics. At times, educational and interpretive programs initiated by these schools increase the use of the lands and water bodies by students, citizens and recreationists.

According to *Phase I: Comprehensive Water Quality Management Plan for the Middle Peninsula: An Information Search and Review*, recreational activities are an important facet of the Middle Peninsula economy, with water-related recreation providing the impetus. There are more than 150 nonmunicipal marinas in the region; most are in Middlesex and Mathews counties.

According to the 2000 *Virginia Outdoors Survey*, the most popular outdoor activities in the region are walking for pleasure; lake, river, bay, and beach use; and bicycling for pleasure. Basketball, baseball and soccer are the three most popular team sports. Additional tent camping and playground facilities are needed in the region. These facilities could be included into already existing facilities, particularly within the most popular activity areas. Other areas of need include additional public hunting opportunities, increased public access to the waters and additional passive recreational opportunities in natural surroundings. Handicapped access should be enhanced at public fishing piers, marina facilities, parking facilities and local parks. See Table 20, page 317.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

Participating in water-based recreation and visiting cultural sites are activities that are vital to the local economy. Therefore, the private sector could play a strong role in enhancing outdoor recreation opportunities. There continues to be a need for marinas and boat storage areas. In addition, the boating public is looking for places to go once they are on the water. Bed and breakfasts, restaurants and other accommodations and attractions that can be reached by water are in demand. As housing developments are planned in the region, market desirability can be enhanced by including recreational amenities such as swimming pools, water access points, trails, tennis courts, etc. The private sector can also provide guide services for fishing and hunting and the rental of water sports equipment as well as the support of skydiving, which is gaining momentum as a popular recreational activity. There is a need to provide areas for the use of four-wheel-drive off-road recreational vehicles. This may be an opportunity for the private sector to make use of lands for recreation that may not be productive for other uses.

Federal facilities

1. The US Fish and Wildlife Service is continuing the process of acquiring the **Rappahannock River Valley National Wildlife Refuge** on the tidal **Rappahannock River**. The refuge, when completed, could be as large as 20,000 acres in size and could cover a significant portion of the river valley. It is important that appropriate public access be provided in the development of this refuge. Establishment of this refuge should not preclude the development of needed public access from nonrefuge lands to the Rappahannock River.

Tourism, based on both water-related recreation and the wealth of historical opportunities and attractions are very important factors in the region's economy.

State parks

Due to the extremely high demand for public access to the waters of the Commonwealth, any waterfront property that becomes available on the major tidal

rivers or their tributaries in the region should be evaluated for potential acquisition and development as a regional or state park. Any site acquired and developed on these waters would also help to meet the commitments of the 2000 Chesapeake Bay Agreement.

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

2. On the **Middle Peninsula**, the Chesapeake Bay is a potential location for a water-oriented state park. A facility located in this area would help to meet the conservation and recreational needs of citizens in the Richmond and Norfolk metropolitan areas.

Natural areas

Bethel Beach Natural Area Preserve and **New Point Comfort Natural Area Preserve** are both located in Mathews County.

The Department of Conservation and Recreation has, as of March 2001, documented 238 occurrences of 58 rare species and natural communities in the Middle Peninsula Planning District. Five species are globally rare and three are federally threatened or endangered. Sixty conservation sites have been identified in the district; only four (7%) have received any level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 56 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see page 133.

Other state properties

The following state-owned properties contain significant undeveloped land that may have potential for recreational use. Each site should be assessed, and cooperative use agreements developed where appropriate.

3. **Rappahannock Community College**, South Campus in Gloucester County, has 199 acres of land that should be studied for recreational potential.

4. The **Virginia Institute of Marine Science** could potentially provide limited access to the water, as well as offer opportunities for special interpretive and environmental education programs.

Regional parks

A regional open space plan that includes recreational and conservation opportunities should be undertaken.

5. Consider development of a community park in the **town of West Point**.

6. Consider development of a regional park in **Gloucester County** to include soccer fields, a swimming pool and other amenities.

Public water and beach access

Access to Virginia's rivers and streams is necessary to meet water-related recreational demands. While this region has an abundance of water resources, the amount of public access needs to be increased. Wherever highways cross bodies of water, and renovation or relocation is planned, the potential for providing parking areas, and boat and fishing access should be incorporated into the road improvement. Certainly, areas where public access has historically occurred should remain open after road improvements are in place. The *Chesapeake Bay Public Access Plan* could assist in determining areas of greatest need for additional public access. In areas where opportunities are available to enhance public access, public lands should be acquired or use agreements arranged to help meet this demand. Where appropriate, portages should be created around dams and other river obstacles.

Within the region there are many state-owned road rights-of-way that end at the water's edge. Many of these served as public access points to the rivers when much of the regional commerce traveled by water.

These properties should be evaluated to determine if there is clear public ownership. Those that are publicly owned should be evaluated for their potential to meet water access needs. There are over 300 of these sites on the Middle Peninsula.

Access considerations for the region include the following:

7. While there have been many changes to **Gloucester Point Beach** over the last few years, the potential remains for additional improvements. Boating and fishing access should be expanded.

8. A **public fishing lake** in Essex County is needed to meet the demand for freshwater fishing in this region.

9. Additional **public beach access** in this region is also needed. Some of the need for this type of access could be met by making small beaches available for public access.

10. Develop a strategy to provide access opportunities at the VDOT Rights-of-Way, which terminate at the bay and the region's rivers.

11. Consider development of two access points on VDOT lands on the **Pamunkey River** for car-top boat launching and crabbing.

12. Develop boat access to the Mathews County Court House on the headwaters of **East Creek**.

Scenic Rivers

The following river segments have been evaluated and qualify as Virginia Scenic Rivers:

13. The **Pamunkey River** from Route 614 to the Pampatike Landing.

14. The **Piankatank River** in its entirety from Dragon Run to the Chesapeake Bay.

15. The **Mattaponi River** from Monday Bridge to the Walkerton Bridge.

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

16. The **Mattaponi River** in King William County and King and Queen County from Route 628 to Monday Bridge and from Aylett to West Point.

17.The **Rappahannock River** from Westmoreland County/King George County line to the Chesapeake Bay.

18.The **Pamunkey River** from the King William County/Caroline County line to Route 614 and from Pampatike Landing to the York River.

19. **Dragon Run** from its headwaters in Essex County and King and Queen County to the Piankatank River in Middlesex County and Gloucester County.

20. The **York River** from West Point to the Chesapeake Bay.

21. **Ware River** in Gloucester County.

Scenic highways and Virginia Byways

There has also been a tremendous interest in thematic trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Plans should be developed that would expand the water trail system throughout the region. Local governments should also develop comprehensive bicycle plans as a component of their transportation plans. They should also consider development of water trails on many river/bay resources in the region. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

22. **Beaverdam Park** has the potential to expand its trail system, including horse and mountain bike trails. The park already has four trails totaling approximately nine miles.

23. Implement blueways programs proposed by the Mattaponi and Pamunkey Rivers Association along the Mattaponi, Pamunkey and York rivers, as well as streams in Mathews County.

State forests

24. Continue development of a demonstration model farm, and improved hunting and fishing opportunities, and expand conservation and passive recreational activities at **Zoar State Forest**.

Middle Peninsula

PD 18

DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 20
Existing and Projected Needs
Middle Peninsula (PD #18)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	128,873	25	fields	14	0	11	30	16
Basketball	431,809	102	goals	11	2	91	119	108
Bicycling	711,314	51	miles	NI			59	
Lake, River, Bay Use (combined)	1,559,368	23,909	water acres	167,398		-143,489	27,826	-139,572
Power Boating	744,788	17,951	water acres	S			20,892	
Sailing	75,065	650	water acres	S			756	
Lake Fishing	61,089	344	water acres	S			400	
Salt Water Fishing	606,542	3,412	water acres	S			3,971	
Jet Ski/ Personal Watercraft (PWC)	44,687	700	water acres	S			815	
Water Skiing / Towed on Water	27,197	852	water acres	S			992	
Camping (*)	114,814	677	sites	3,954		-3,277	788	-3,166
Tent camping	20,503	121	sites	236	235	-115	141	-95
Developed camping	94,312	556	sites	3,718	3,718	-3,162	647	-3,071
Fitness Trail use	25,105	2	mile trails	1	0	1	2	1
Fields (combined)	743,532	156	fields	16	0	140	182	166
Football	582,441	122	fields	NS			143	
Soccer	161,092	34	fields	NS			39	
Stream Use (combined)	194,565	86	stream miles	147		-61	100	-47
Stream Fishing	84,939	60	stream miles	S			70	
Human-powered boating	92,889	24	stream miles	S			28	
Rafting	8,034	1	stream miles	S			2	
Tubing	8,703	1	stream miles	S			1	
Golfing	149,794	5	courses	3	4	2	6	2
Hiking/ Backpacking	74,479	38	trail miles	17	7	21	44	27
Horseback Riding	12,050	5	miles	4	0	1	6	2
In-Line Skating	129,710	9	miles	NI			11	
Jogging/Running	1,104,629	89	mile trails	NI			103	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Middle Peninsula (PD #18) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	46,863	7	sites	0		7	8	8
Picnicking Away from Home	137,576	357	tables	827	737	-470	416	-411
Skateboarding	35,147	11	sites	NI			13	
Snow Skiing or Snowboarding	17,574	0	ski lifts	0	0	0	1	1
Softball	303,773	54	fields	14	0	40	63	49
Sunbathing/ Relaxing on Beach	500,849	36	beach acres	21	20	15	42	21
Swimming Outdoor Area	239,002	24	beach acres	21		3	28	7
Swimming Outdoor Pools	215,068	9	pools	19	15	-10	11	-8
Swimming Indoor Pools	57,993	1	pools	1	1	0	1	0
Tennis	86,195	54	courts	33	8	21	63	30
Used a Playground	489,719	70	sites	13	1	57	81	68
Visiting Gardens	56,236	6	sites	NI			7	
Visiting Historic Sites	150,213	13	sites	NI			15	
Visiting Natural Areas	124,522	21	sites	NI			25	
Volleyball	236,407	70	courts	2	0	68	82	80
Went Hunting	231,972	38,041	acres	2,495		35,546	44,274	41,779
Went Shooting Total	137,242	78	fields	NI			90	
Target	51,884	29	fields	NI			34	
Skeet or Trap	31,130	18	fields	1		17	20	19
Other	31,633	18	fields	NI			21	
Drive for Pleasure	715,833	na	na	NI			na	
Motorcycle/ATV (combined)	30,628	14	miles	1	1	13	16	15
Driving All-Terrain Vehicle	2,176	1	miles	NS			1	
Driving Motorcycle Off-Road	28,453	13	miles	NS			15	
Driving 4-Wheel-Drive Off-Road	63,600	na	na	NI			na	
Walking for Pleasure	3,354,055	na	na	NI			na	
Other	97,073	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 19: Crater Planning District

The Crater Planning District derives its name from a large crater left by an explosion during the siege of Petersburg in the Civil War. The planning district is composed of the counties of Chesterfield, Dinwiddie, Greensville, Prince George, Sussex and Surry; the cities of Colonial Heights, Emporia, Hopewell and Petersburg; and the towns of Claremont, Dendron, Jarratt, McKenney, Stony Creek, Surry, Wakefield and Waverly. According to the 2000 census, the region is home to approximately 167,100 people. During the 1990s, the region as a whole grew by about 6.9%. The Crater District's northern localities are included in the Richmond-Petersburg Metropolitan Statistical Area, while the localities in the southern portion are among the more sparsely populated areas of the state. Chesterfield County has a dual membership in the Richmond Regional and Crater Planning Districts, but is described in Region 15.

The Crater District encompasses an area of approximately 1,889 square miles. The district straddles the fall line, with the western sections of Dinwiddie and Greensville counties in the Piedmont Plateau, and the remaining areas in the Coastal Plain. Elevations range from 400 feet above sea level in the west to less than 100 feet in the east. Some low-lying areas contain large freshwater swamps.

The area's rivers have been important to its development. Petersburg, a river port since the 1700s, was settled at the point where the Appomattox River crossed the fall line. Hopewell is just downstream at the confluence of the James and Appomattox rivers. The Nottoway and Blackwater Rivers originate within the district, while the Meherrin River traverses Greensville County in the southern portion of the region. Forty miles of the Nottoway River in Sussex and Southampton counties, between Route 40 at Stoney Creek and Route 633 at Careys Bridge, are designated as Virginia Scenic Rivers. A segment of the Appomattox River, from below the Lake Chesdin Dam to the Route 36 bridge in the city of Petersburg, has also been

recognized as a state Scenic River. A portion of the James River, upstream of Trees Point to Lawnes Creek in James City County (Region 23) and Surry County, is a designated State Historic River.

Interstate 95 is the principal highway in the Crater Planning District, connecting Richmond and points south to North Carolina. Interstate 85 originates in Petersburg and angles to the southwest through Dinwiddie County, eventually entering central North Carolina. Newly constructed Interstate 295 provides a circumferential route around the Richmond area, intersecting with I-95 in Prince George County, south of Petersburg. Arterial Routes 58 and 460 provide east-west links through the region. Route 58 passes through Greensville County and Emporia, paralleling the North Carolina state line. Route 460 crosses Dinwiddie County, passing through the Petersburg area and providing a principal business route for eastern communities in the region.

Most of the recreational resources of the region are associated with developed areas near the major rivers and Lake Chesdin. Most of the shoreline is privately owned; however, there are limited opportunities for the general public to access the waters for recreational pursuits. The numerous Civil War battlefields, operated by the National Park Service, provide for dispersed picnicking and trail use in addition to their interpretive benefits. The Civil War Preservation Trust has acquired two sites in Dinwiddie County. These are the White Oak Road and Hatchers Run properties. These sites are available for public educational purposes. Fort Lee has numerous athletic facilities and areas that were designed for military personnel but afford area citizens some limited use.

Residents of the counties in the southern Crater Region have thousands of acres of corporate timberlands available for hunting and other dispersed recreational activities. The smaller Piedmont streams and reservoirs in Greensville County meet some of the resident demand for water-based or water-enhanced recreation. However, Buggs Island Lake, Lake Gaston and the tidal estuaries of southeastern Virginia attract many more users.

Based on the results of the 2000 *Virginia Outdoors Survey* and the Outdoor Recreation Facilities Inventory, the Crater region as a whole provides about 85% of the local and regional park acreage and facilities needed to meet existing demand for outdoor recreational activities. Table 21 on page 331 measures the rates of participation for 39 activities by the people of the region. This data is translated to demand for facilities on a regional basis. Activities such as jogging, biking and walking for pleasure are readily met through shared use of the streets and roads in local neighborhoods. Although the Crater Planning District has the landmass and water to support almost all the needs of its citizens, there are shortcomings in the provision of close-to-home facilities in most of the localities. Priorities for most of the communities should include additional playgrounds, courts and fields for close-to-home local use, and increased access to the waters of the region for all types of water-based activities. According to the Demand-Supply-Needs analysis, there are unmet needs within the region for public access to water, camping, softball, football/soccer fields and picnic areas.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

The Crater Region contains a wealth of significant cultural and historic resources. The major rivers are capable of supporting thousands of activity days of water-based recreational use. The 2000 *Virginia Outdoors Survey* pointed out that the people of the region want additional opportunities for water-based recreational facilities. Private developments could provide access points for the major streams. The survey also revealed that visiting historic sites and gardens is important to area residents. The private sector can play a major role in making the numerous historic sites available for local residents and visitors. Camping is another unmet recreational need the private sector could support. The unique combination of water resources and important historic and cultural areas translate to opportunities for the private sector to provide support facilities and increase recreational developments to meet the existing and future demand of residents and visitors. There is also an unmet need for four-wheel-drive, off-road trail opportunities in the region. This may present an opportunity for the private sector to use lands for recreational trails that may not be productive for other uses.

1. **Pamplin Historical Park** is a newly developed, privately owned attraction in Dinwiddie County. The park has 422 acres and features a museum, plantation, theater and a Civil War battlefield. In the National Museum of the Civil War Soldier, visitors are immersed in an entertaining personal encounter of the story of the common soldier of the Civil War. Tudor Hall is a restored and furnished 1812 plantation house that served as a Confederate Brigade headquarters during the 1864-65 Petersburg Campaign. The Battlefield Theater features a fiber optics map, artifacts and a surround-sound theater presentation describing the August 2, 1865 breakthrough battle.

Federal facilities

2. The **James River National Wildlife Refuge** in Prince George County contains approximately 4,300 acres of bottomland forest and wetlands fronting on the James River. A visitor center/ environmental education complex, nature trails, and limited hunting were proposed in the station management plan in the early 1990s. That plan is now under review for possible revision in 2001. Portions of this site could be made available for compatible forms of outdoor recreational activities. Limited hunting and fishing, wildlife viewing, and environmental education opportunities and related nature trails could be provided within the framework of the refuge's primary mission.

3. **Appomattox Manor** and adjacent waterfront lands in the City Point area of Hopewell have been purchased as part of an expansion of the Petersburg National Battlefield Park. The site was originally the debarkation point for men and materials during the siege of Petersburg, and the manor house was General Grant's headquarters. Additional interpretation and environmental education opportunities would add to the desirability of this important tourist destination site. Consideration should be given to providing water-to-land access on the river in the City Point area. The area is also identified as a terminus for the Appomattox River Trails network, which will link many of the cultural and recreational resources of the river corridor.

4. The **Petersburg National Battlefield** is the primary regional historic attraction. It includes the battlefield, the City Point Unit in Hopewell and the Five Forks Unit in Dinwiddie. A new general management plan is under development for the Petersburg National Battlefield. The National Park Service and the localities in the region should work together to provide additional trail opportunities within the Petersburg National Battlefield and link them to the future Appomattox River Trail and privately owned Civil War sites.

State parks

Due to the extremely high demand for public access to the waters of the Commonwealth, any waterfront property that becomes available on the major tidal rivers or their tributaries in the region should be evaluated for potential acquisition and development as a regional or state park. Any site acquired and developed on these waters would also help to meet the commitments of the *2000 Chesapeake Bay Agreement*.

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

5. **Chippokes Plantation State Park/Chippokes Farm and Forestry Center**: The relationship between the park and the Farm and Forestry Center is considered a true partnership. Each facility supports the other while concentrating on its individual area of expertise. The approved Chippokes State Park Master Plan, completed in May of 2000, calls for expanded camping, adding to the trails network, enhanced access to the river and Lower Chippokes Creek, as well as infrastructure improvements. Extensive renovations are planned for the historic portion of the property, Chippokes Plantation. The Chippokes Farm and Forestry Center, located on the Chestnut Farms portion of Chippokes Plantation State Park, is also proposing a major expansion of its facilities and programs in partnership with the park, Virginia Tech and others.

The Farm and Forestry Center will initiate a fund-raising campaign to help finance its planned expansion. To accomplish this task, the Chippokes Farm Foundation will develop innovative partnerships with Chippokes Plantation State Park, private enterprises and private citizens. Chippokes and the Farm and Forestry Center will be major contributors to the Celebration 2007 events surrounding the 400-year celebration of the first English settlement in Virginia in 1607, which will be of national and worldwide significance.

Natural areas

Chub Sandhill Natural Area Preserve and Dendron Swamp Natural Area Preserve are both located in Sussex County. The sites could offer some limited opportunities for compatible forms of recreational use such as hiking trails and bird watching.

The Department of Conservation and Recreation has, as of March 2001, documented 591 occurrences of 182 rare species and natural communities in the Crater Planning District. Eighteen species are globally rare and six are federally threatened or endangered. Ninety-six conservation sites have been identified in the district; only 24 (25%) have received any level of protection through ownership or management by state, federal and non-government organizations.

DCR recommends that the 72 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a more detailed discussion of the Natural Heritage Program, see Chapter III-B-2-d, page 133.

Public fish and game management

6. **Hog Island Wildlife Management Area** in Surry County: Several miles of pedestrian trails are available, and the area has potential for picnic area development and includes some good, natural beach. The site also offers excellent opportunities for bank fishing and other appropriate water-based recreation.

Other state properties

The following state-owned properties contain significant undeveloped land that may have potential for recreational use. Each site should be assessed, and cooperative use agreements developed where appropriate.

7. **Richard Bland College** in Dinwiddie County contains almost 700 acres. About 20% of the property has been developed. The college and surrounding communities should consider a partnership to develop recreational facilities that would be useful to all area citizens.

Regional parks

8. A small parcel fronting the **Appomattox River** near I-295 was conveyed to Prince George County in 1996. The county is developing trails, bank fishing opportunities and picnicking at the site overlooking the river at the location of an embarkation point for federal troops during the siege of Petersburg.

9. **Appomattox Riverside Park**, in the Ferndale area below Lake Chesdin in Dinwiddie County has been developed by the City of Petersburg. This facility should be expanded to provide a variety of recreational uses and ultimately should connect with the Petersburg waterfront via trails along the old canal towpath.

10. **Prince George County** should develop a regional park along the James River in the historic plantation area to provide both land- and water-based recreational facilities.

11. **Surry County** should take advantage of the beautiful natural setting of forest, water and marsh along the James River near the town of Claremont to provide water accesses and water-related recreational opportunities.

12. The **Nottoway River** and its environs in Sussex County offer an ideal location for various woodland and water-oriented recreational activities.

13. The acquisition of the **Slagle Lake** property would be a major contribution to the recreational resources of the region due to its historical significance and proximity to the city of Emporia.

Public water access

Access to Virginia's rivers and streams are necessary to meet water-related recreational demands. The *Chesapeake Bay Public Access Plan* could assist in determining the areas of greatest need for additional public access. In areas where opportunities are available to enhance public access, lands should be acquired or use agreements arranged to help meet demand for public access. Where appropriate, portages should be created around dams and river obstacles. Access considerations for the region include the following:

14. A number of public water access sites are needed for the region. They include: the **James River** in Hopewell, Prince George County and Surry County;

the **Blackwater River** in Surry County; the **Nottoway River** in Dinwiddie County and Sussex County; and the **Meherrin River** west and east of Emporia.

15. The **Meherrin River** has the potential to become a major recreational resource for Emporia, Greensville County and Southampton County in Accomack–Northampton PD 22. In order to achieve its potential, the numerous logjams would have to be removed, and additional access opportunities provided.

Scenic Rivers

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

16. The **Meherrin River** in Greensville County.

17. The **Blackwater River** from its headwaters in Prince George County to the Surry County/Isle of Wight County line.

18. The **Nottoway River** in Dinwiddie and Sussex counties.

19. The **James River** between Hopewell and the Surry County/Prince George County line. The reach in Surry County was designated a Historic River by the 1988 General Assembly.

Scenic highways, Byways and Parkways

There has also been a tremendous interest in thematic trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. Within the Planning District, the Lee's Retreat Civil War Driving Tour and the James River Plantations Driving Tour are regional driving trails should be considered. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state. The following roads have been recommended for consideration as Virginia Byways:

20. **Routes 10** and **156** in Prince George and Surry counties from Hopewell to the Surry County/Isle of Wight County line.

21. **Route 35** in Sussex County from the Southampton County line to Route 301.

22. **Route 40** in Sussex and Surry counties from Route 301 to Route 10.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable. Localities, cities and counties should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan.

The following are greenway/trail proposals for this region:

23. **"Trekking Dinwiddie" Trail**: Dinwiddie County is planning the development of a trail system focusing on the natural and cultural resources in the northeastern portion of the County. The trail is proposed to link the county's recreational resources, Civil War battlefields and other historic sites.

24. **Appomattox River Greenway/Blueway**. A regional trail system along the river is proposed. The system may consist of bicycle and multipurpose trails, linking natural, cultural, heritage and other linear open spaces in the region between Lake Chesdin and the City Point area in Hopewell. The goal of this 22-mile trail network is to link all recreational, cultural and natural features, and historic sites on both sides of the Appomattox River. A critical component of the Appomattox River Greenway/ Blueway system is the VEPCO Canal and the Petersburg waterfront. The historic canal has been damaged in recent floods and

is in need of substantial repairs. The Petersburg waterfront should be reopened to accommodate recreational use. The south channel of the river was closed years ago to reduce flooding, but could be reopened with control structures to provide the critical link in the greenway/water trail.

25. The **Cabin Creek Trail** network in Hopewell will connect several parks and recreational facilities. Hopewell High School, Mathew Sports Complex, Crystal Lake Park, Atwater Park and the new City Soccer Complex. This trail could eventually connect to the future Appomattox River Trail.

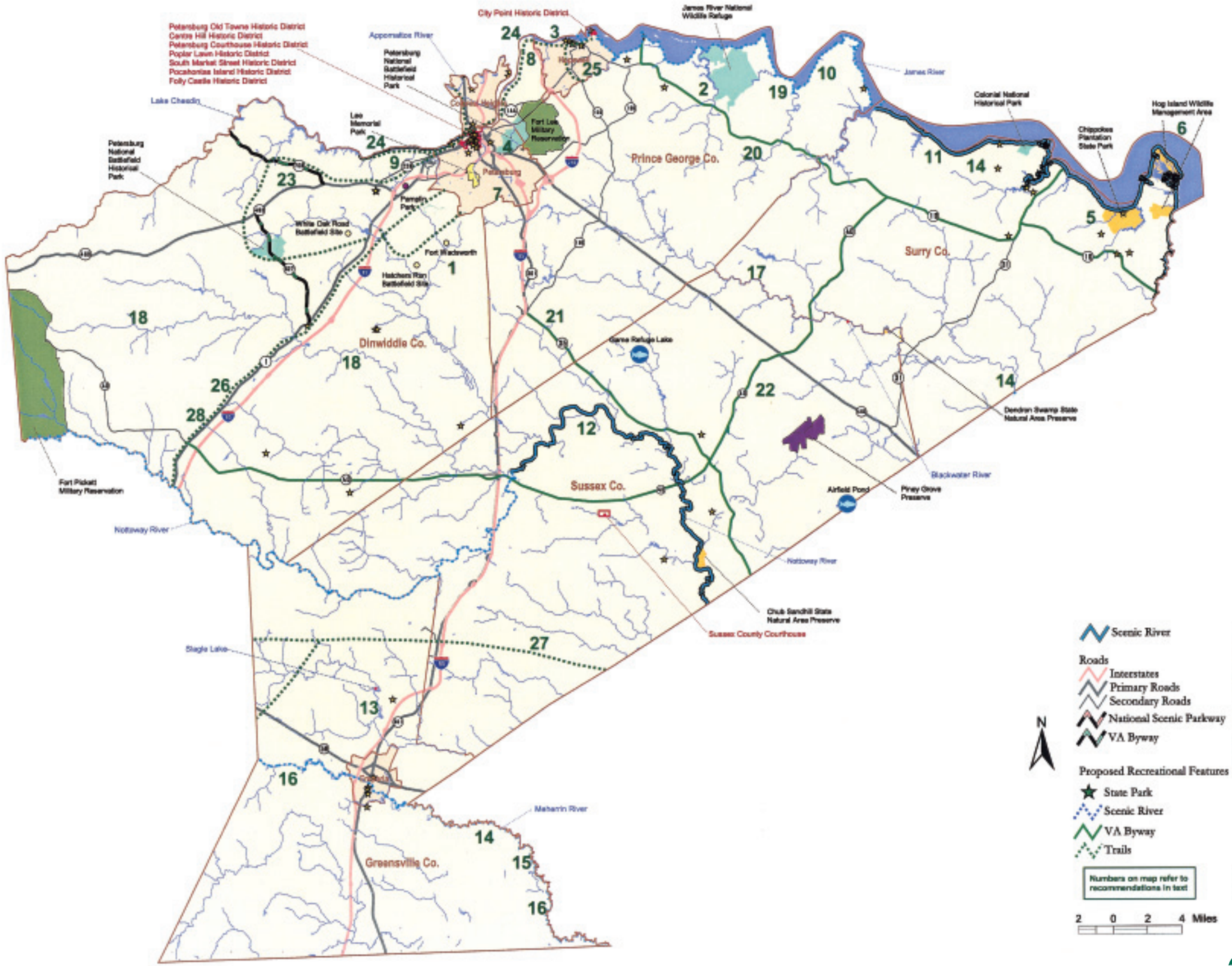
26. The abandoned **Seaboard Coast Railroad** corridor between Petersburg and North Carolina has been considered for a potential rail-trail conversion for several years. The Department of Rail and Public Transportation is considering a rapid rail transit line in this corridor. If the rapid rail transit proposal goes forward, the rail-trail conversion opportunity will be lost. Conversely, if other transit options are selected, the rail-trail conversion should be pursued.

27. The proposed **Virginia Southside Trail**, utilizing the abandoned Norfolk-Southern's Virginia Central railroad corridor and the Lake Gaston-Virginia Beach Water Pipeline corridor and traversing Greensville and Sussex counties, should be developed into a multipurpose, non-motorized, cross-country trail.

28. The **East Coast Greenway**: The East Coast Greenway is being planned and is proposed to pass through the Crater Planning District. Local planners should coordinate with the East Coast Greenway Planning Committee to ensure that the chosen corridor is consistent with local trail plans.

Crater

PD 19



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 21
Existing and Projected Needs
Crater (PD #19)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	295,818	58	fields	56	3	2	59	3
Basketball	832,302	197	goals	96	3	101	201	105
Bicycling	1,850,954	132	miles	NI			134	
Lake, River, Bay Use (combined)	732,192	9,793	water acres	26,390		-16,597	9,962	-16,428
Power Boating	213,925	5,156	water acres	S			5,245	
Sailing	30,752	266	water acres	S			271	
Lake Fishing	170,472	959	water acres	S			975	
Salt Water Fishing	221,613	1,247	water acres	S			1,268	
Jet Ski/ Personal Watercraft (PWC)	52,646	825	water acres	S			839	
Water Skiing / Towed on Water	42,785	1,341	water acres	S			1,364	
Camping (*)	285,623	1,684	sites	875		809	1,713	838
Tent camping	104,288	615	sites	1	0	614	626	625
Developed camping	181,335	1,069	sites	874	874	195	1,088	214
Fitness Trail use	153,759	12	mile trails	6	0	6	13	7
Fields (combined)	1,104,723	232	fields	25	0	207	236	211
Football	618,377	130	fields	NS			132	
Soccer	486,345	102	fields	NS			104	
Stream Use (combined)	256,543	138	stream miles	32		106	140	108
Stream Fishing	169,636	119	stream miles	S			121	
Human-powered boating	55,487	14	stream miles	S			14	
Rafting	12,368	2	stream miles	S			2	
Tubing	19,053	2	stream miles	S			3	
Golfing	549,520	19	courses	6	4	13	19	13
Hiking/ Backpacking	180,499	93	trail miles	74	10	19	94	20
Horseback Riding	30,585	13	miles	29	0	-16	13	-16
In-Line Skating	454,591	32	miles	NI			33	
Jogging/Running	2,506,935	201	mile trails	NI			204	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Crater (PD #19) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	81,559	12	sites	0		12	12	12
Picnicking Away from Home	224,789	584	tables	333	124	251	594	261
Skateboarding	153,759	47	sites	NI			48	
Snow Skiing or Snowboarding	82,227	2	ski lifts	0	0	2	2	2
Softball	371,026	66	fields	53	1	13	67	14
Sunbathing/ Relaxing on Beach	680,215	49	beach acres	23	8	26	50	27
Swimming Outdoor Area	518,100	53	beach acres	23		30	54	31
Swimming Outdoor Pools	591,637	25	pools	10	4	15	25	15
Swimming Indoor Pools	406,291	5	pools	1	0	4	5	4
Tennis	363,004	227	courts	75	4	152	231	156
Used a Playground	1,050,907	150	sites	81	3	69	152	71
Visiting Gardens	83,230	9	sites	NI			9	
Visiting Historic Sites	367,684	31	sites	NI			32	
Visiting Natural Areas	188,522	32	sites	NI			32	
Volleyball	64,178	19	courts	5	1	14	19	14
Went Hunting	143,731	23,570	acres	93,372		-69,802	23,976	-69,396
Went Shooting Total	87,743	50	fields	NI			50	
Target	77,715	44	fields	NI			45	
Skeet or Trap	27,576	16	fields	1		15	16	15
Other	12,535	7	fields	NI			7	
Drive for Pleasure	1,211,351	na	na	NI			na	
Motorcycle/ATV (combined)	35,097	16	miles	0	0	16	16	16
Driving All-Terrain Vehicle	21,727	10	miles	NS			10	
Driving Motorcycle Off-Road	13,370	6	miles	NS			6	
Driving 4-Wheel-Drive Off-Road	76,044	na	na	NI			na	
Walking for Pleasure	5,774,307	na	na	NI			na	
Other	82,729	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 22: Accomack-Northampton Planning District

The Accomack-Northampton Planning District comprises the counties of Accomack and Northampton, and the towns of Accomac, Belle Haven, Bloxom, Cape Charles, Cheriton, Chincoteague, Eastville, Exmore, Hallwood, Keller, Melfa, Nassawadox, Onancock, Onley, Painter, Parksley, Saxis, Tangier and Wachapreague. Less than 1% of Virginia's population resides on the Eastern Shore. The 2000 Census population for the region is 54,208 people. Future planning decisions are being considered that could result in more intense development. There is a need to have comprehensive plans to protect open space and recreation resources, while accommodating development. However, this region is rich in natural resources and potential for recreational opportunities. The Eastern Shore contains a significant percentage of the state's saltwater shores, including most of the ocean

frontage, which remains largely unspoiled. Wide expanses of marshlands, shallow bays and winding channels, all guarded by a chain of barrier islands with unspoiled beaches, are located on the seaward side. The Chesapeake Bay side is characterized by islands, inlets, creeks and marshlands with sandy beaches toward the southern end. The whole region is a vast incubating and feeding ground for bird and sea life, and is of vital importance to fish and wildlife interests far beyond the borders of Virginia. The variety and quantity of resources makes the Eastern Shore of Virginia an important area for the development of ecotourism opportunities. Currently, the Virginia Outdoors Foundation holds 1,726 acres in easements to protect the scenic quality of the region.

Due largely to the efforts of nonprofit and private organizations, nearly all of the barrier islands of Virginia have been acquired and are being preserved in their natural state in perpetuity. Some of these islands also offer opportunities for compatible public recreation. All or part of 13 islands have been acquired by The Nature Conservancy, three islands are managed by federal agencies and one island is maintained by the state as a natural area. Two marshland areas on the bay side are managed by the state: one for wildlife management and hunting, the other as a protected natural area. The state also owns extensive wetlands between the mainland and barrier islands on the seaside for wildlife management. Kiptopeke State

Park is located on the southern end of the Northampton County, and is being developed to provide recreation opportunities and management of unique habitats.

Although there is abundant water and open space in the Eastern Shore Region, access to and use of much of it is very limited. For example, many of the beach areas are either privately owned or difficult to reach, as is the case with the barrier island beaches. There is a need to provide public access to these barrier island beaches; however, such access must be sensitively designed for these fragile resource areas.

Recent studies also have identified significant facility needs for close-to-home types of activities. The most pressing needs are for trails for walking, jogging, bicycle and horseback riding; soccer, baseball, and softball fields; and basketball courts. While there appears to be a surplus of camping and picnic facilities, it should be noted that the majority of picnic tables and the only in-ground pool are located at commercial campgrounds, and are not available for use by local residents. See Table 22, page 341.

Earlier studies, which identified a need for passive recreational areas (parks, trails, picnic areas, etc.), as well as increased bay and ocean access, resulted in the acquisition of Kiptopeke State Park. Located between the community of Cape Charles and the Chesapeake Bay Bridge Tunnel, it is being developed (less than 1%) to highlight the wealth of the Eastern Shore's natural heritage. It provides public opportunities for camping, picnicking, beach swimming, boating access to the bay and a variety of educational programs directed towards the natural and cultural resources of the site.

Local priorities on the Eastern Shore should include the development of a number of small community parks and at least two district parks, providing game fields and courts, picnic sites, swimming and trails. Certain immediate recreational needs may be satisfied by further developing existing park facilities. A study is under way to evaluate the possibility of connecting the Eastern Shore by ferry to the Northern Neck of Virginia. Establishment of a ferry service and terminal opens the possibility of co-locating a waterfront recreational facility. In addition, there is a bike plan being developed to improve overall bicycle access and safety throughout the Eastern Shore, including a designated bicycle facility from Maryland/Virginia state line to the Eastern Shore National Wildlife Refuge at the southern end of Northampton County.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

The private sector plays a major role in the provision of recreational opportunities in the Commonwealth. Developed campgrounds, golf courses, tennis courts, swimming pools, marinas and indoor recreation facilities help meet demands identified in the 2000 *Virginia Outdoors Survey*. An example would be the opening of the YMCA at Olney in 1999, which provides its members with a 25-meter indoor swimming pool, gymnasium, exercise equipment and scheduled recreational programs. Another example is the development of two golf courses by private sector companies in Northampton County. Many needs could be met through the efforts of private enterprise, organizations, or through cooperative efforts by the private sector and units of government.

Private landowners with adequate land for hunting may want to consider opening their lands on a fee basis. There may be opportunities to establish shooting ranges and related programs. Streams, rivers and the Chesapeake Bay may offer opportunities for private landowners to permit launching and retrieving of boats. They could also provide lands for picnicking, camping and education. A fee could be charged to offset costs. Another alternative might be for landowners to enter into an agreement with a unit of government to provide water access for the public. The landowner would then be covered under the *Landowner Liability Law, Code of Virginia, Chapter* 29.1-509 (page 408), which could provide some liability protection.

Miles of streams and thousands of farm ponds lie on private lands in the Commonwealth. Much public demand for fishing can be met if the owners of these lands will allow public access for fishing. Once again, the *Landowner Liability Law* can be helpful in lessening liability exposure if public access is formalized through an agreement with a local governing body or state agency.

The 2000 *Virginia Outdoors Survey* ranked water related activities in the top 10 preferred by Virginians. Of 39

favored leisure activities, Virginians ranked visiting historic sites 5th, visiting natural areas 11th, and visiting gardens 14th. There should be an analysis of these resources by the private sector to determine if any can be made available to the public. These could be linked to bed and breakfast opportunities, farming, the seafood industry, nursery and garden center operations, historic restorations, and other land-use developments. This concept should be expanded to farmers, markets, pick-your-own operations, craft and collectable fairs and waterman activities.

This region has a wealth of existing open space and recreation opportunities. Integration of private sector operations would reinforce public programs and facilities and result in economic growth.

Federal facilities

Chincoteague National Wildlife Refuge is one of the most-loved refuges in the entire country. More than 1.4 million people flock there each year to bird watch, photograph wildlife, walk or hike along a wild beach, utilize the 14-mile accessible trail system and participate in interpretive and educational programs. More than 320 species of birds occur on the refuge, which is also home to several threatened and endangered species. Featuring more than 14,000 acres of beach, maritime forest, and freshwater and saltwater wetlands, Chincoteague Refuge is managed for migratory birds, native plants and animals, threatened and endangered species. Chincoteague also provides the public with unprecedented opportunities to enjoy wildlife-dependent recreation opportunities including hunting and fishing. A new educational and interpretive facility is scheduled to be completed by 2003 featuring exhibits, an auditorium and a classroom. The USFWS should continue to pursue funding sources to complete the facility as planned.

Eastern Shore of Virginia National Wildlife Refuge was established in 1984 when the US Fish and Wildlife Service obtained the old Cape Charles Air Force Base. This 752-acre refuge is located at the southern tip of the Delmarva Peninsula and is a hemispherically important stopover area for migrating neotropical bird species. The USFWS, with its southern tip partners (the Commonwealth, local governments and the private sector) are identifying critical areas for habitat conservation in Northampton County.

The refuge has a state-of-the-art visitor center, interpretive trails that include an historic coastal artillery site, wildlife observation areas and a photography blind. There is big game hunting for deer during the Virginia archery and gun seasons. The refuge has an extensive environmental education program and participates in a number of local festivals including the Eastern Shore Birding Festival. It has been identified as an anchor site in the *Birdwatcher's Guide to Delmarva* and is a proposed site for the Virginia Coastal Birding Trail.

1. The USFWS should continue to work closely with the National Park Service and private partners to optimize compatible recreational opportunities at **Chincoteague National Wildlife Refuge** and **Assateague Island National Seashore** while protecting sensitive beach habitat.

2. Studies of **Assateague Island National Seashore** should be completed to determine where appropriate support facilities could be located while preserving the integrity of the bays, dune systems and vegetation. Development of a transit system and improved bicycle facilities to supplement vehicle access to the island's recreational resources should be considered.

State parks

Due to the extremely high demand for public access to the waters of the Commonwealth, any waterfront property that becomes available on the major tidal rivers or their tributaries in the region should be evaluated for potential acquisition and development as a regional or state park. Any site acquired and developed on these waters would also help to meet the commitments of the *2000 Chesapeake Bay Agreement*.

Projects identified in approved master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/additions costing in excess of $500,000, must go through the public participation process.

3. Projects identified in the approved **Kiptopeke State Park** Master Plan need to be funded. DCR has developed a partnership with birding interests to include the state park as a site in the birding trail.

4. The potential exists for a state park in the area between **Occahannock** and **Onancock Creeks** in southern Accomack County. This site would offer

abundant shoreline on the Chesapeake Bay and several large creeks. The excellent marshes and beaches found here could contribute greatly to the Eastern Shore's supply of accessible water-oriented recreational opportunities as well as provide an opportunity to site a ferry landing.

Natural Areas

The following natural area preserves are located within the district: **Parkers Marsh** in Accomack County and **Cape Charles Coastal Habita**t, **Savage Neck Dunes**, **William B. Trower Bayshore**, and **Wreck Island** in Northampton County.

The Department of Conservation and Recreation has, as of March 2001, documented 449 occurrences of 104 rare species and natural communities in the Accomack-Northampton Planning District. Five species are globally rare and three are federally threatened or endangered. Ninety conservation sites have been identified in the district; only 32 (36%) have received any level of protection through ownership or management by state, federal and nongovernment organizations.

DCR recommends that the 58 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see Chapter III-B-2-d, page 133.

5. **Wreck Island Natural Area Preserve** in Northampton County is owned by DCR for the natural heritage resources occurring there. Provision of appropriate public access to the island should be considered.

Regional parks

A regional open space plan that includes recreational and conservation opportunities should be undertaken.

6. Regional parks should be acquired and developed in both **Accomack** and **Northampton counties**. Both sites should provide trails, swimming, beach access and facility development for softball and basketball. Accomack County has identified a potential regional park site near Onancock, which is centrally located and has good development potential.

Public water and beach access

The Eastern Shore's rich and plentiful water resources are its primary recreational attraction. However, public access to the region's water resources for boating and beach use is very limited and should be increased. The *Chesapeake Bay Public Access Plan* could assist in determining areas of greatest need for additional public access. The current access study in Accomack County will further refine the access opportunities for that locality. In areas where public access can be enhanced, lands should be acquired or use agreements arranged to help meet this demand. Access considerations for the region include the following:

7. The **Virginia Department of Game and Inland Fisheries** should continue to provide additional access for public hunting, fishing and boating on the Eastern Shore's ocean, bays and marshes.

8. The USFWS should continue to work with partners to implement recommendations contained in the Refuge Comprehensive Conservation Plan that will improve access and enhance opportunities for compatible, wildlife-dependent recreation and environmental education.

9. The **Eastern Shore of Virginia National Wildlife Refuge** in Northampton County should be considered as a possible access point to those barrier islands suitable for some recreational use.

10. **Barrier islands** acquired as natural areas could offer additional limited access to water and beaches.

11. Access to the bay should be considered at **Guard Shore** located in Accomack County in the vicinity of the Saxis Wildlife Management Area.

12. Access to the Bay should be considered at **Mason Beach** in the vicinity of Pungoteaque Creek in Accomack County.

Scenic Rivers
The following rivers should be evaluated to determine their suitability as Virginia Scenic Rivers:

13. **Machipongo River**

14. **Onancock Creek**

15. **Occohannock Creek**

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

The following roads have been recommended for consideration as Virginia Byways:

16. **Route 180** in Accomack County from Harborton to Wachapreague.

17. **Route 605** in Accomack County from Quinby through Wachapreague to Accomac.

18. **Business Route 13**, **Route 178**, and **Route 179** from Accomac to Onancock, and **Route 718** from Onancock to Pungoteague.

19. **Route 600** in Accomack County from Route 603 north to Route 182 in Mappsburg.

20. **Route 182** from Mappsburg to Quinby.

21. **Route 679**, the Seaside Road, from just north of Accomac through Atlantic to the Maryland state line.

22. **Route 639**, **Business Route 13**, and **Route 184** from Oyster to Cape Charles.

Trails and greenways

Local and regionally initiated trail and greenway planning is important for identifying and providing communities with these resources. The Department of Conservation and Recreation recommends that each locality develop a trail and greenway plan as part of its comprehensive plan. In this plan, an effort should be made to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial and other resources the community deems desirable. Both Accomack and Northhampton counties are pursuing designations of Heritage Trails. The plan should be completed and strategies developed for its implementation. The Birding Trail should be designed and implemented for the resources found on the Eastern Shore. Localities, counties and cities should also determine appropriate roads for bicycle routes, and should work with the Virginia Department of Transportation to develop these routes by adopting local comprehensive pedestrian and bikeway plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan. A Scenic Byway/bike route system should be formed to connect all the major attractions of the Eastern Shore. This system should link wildlife refuges, parks, historic and cultural resources and scenic areas from Cape Charles to Maryland.

The following are greenway/trail proposals for this region:

23. The abandoned **Penn Central Railroad** from Cape Charles to Eastern Shore National Wildlife Refuge should be protected as a greenway to be a wildlife corridor, as well as a possible multi-use trail.

24. The **Virginia Coastal Birding and Wildlife Trail** planned by the Virginia Department of Game and Inland Fisheries with support from the Virginia Department of Conservation and Recreation should be implemented and marketed to the public.

Hostels

25. Hostels should be considered for location in the following areas: **Assateague Island**, **Cape Charles** and the central portion of the Eastern Shore.

Accomac-Northampton

PD 22

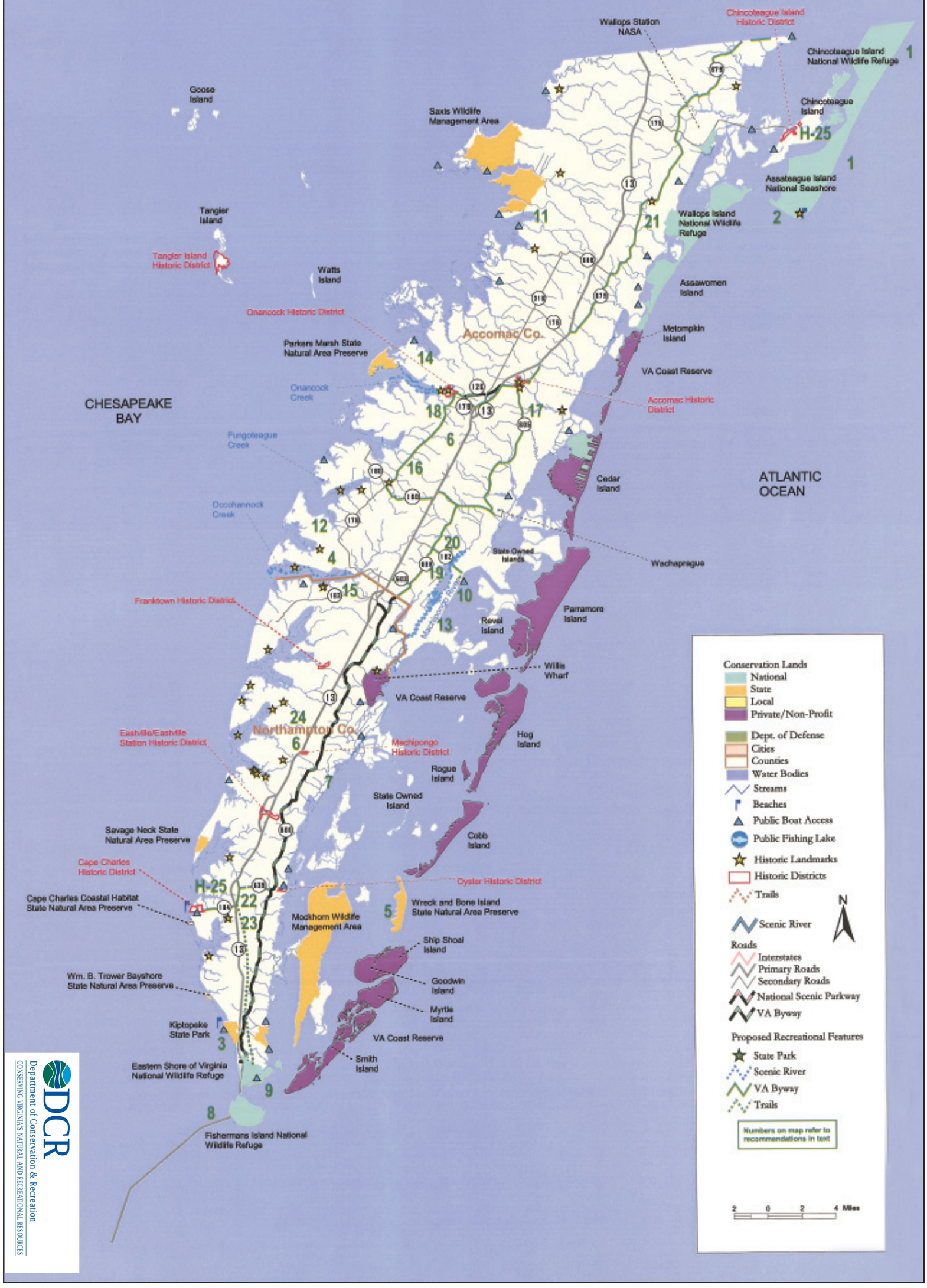


Table 22
Existing and Projected Needs
Accomack-Northampton (PD #22)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	79,153	16	fields	3	0	13	14	11
Basketball	265,214	63	goals	7	0	56	57	50
Bicycling	436,883	31	miles	NI			28	
Lake, River, Bay Use (combined)	957,750	14,684	water acres	428,684		-414,000	13,340	-415,344
Power Boating	457,442	11,026	water acres	S			10,016	
Sailing	46,104	399	water acres	S			362	
Lake Fishing	37,521	211	water acres	S			192	
Salt Water Fishing	372,533	2,095	water acres	S			1,904	
Jet Ski/ Personal Watercraft (PWC)	27,447	430	water acres	S			391	
Water Skiing / Towed on Water	16,704	523	water acres	S			475	
Camping (*)	70,518	416	sites	5,305		-4,889	378	-4,927
Tent camping	12,593	74	sites	1,699	1,699	-1,625	67	-1,632
Developed camping	57,926	342	sites	3,606	3,415	-3,264	310	-3,296
Fitness Trail use	15,419	1	mile trails	1	0	0	1	0
Fields (combined)	456,671	96	fields	7	0	89	87	80
Football	357,730	75	fields	NS			68	
Soccer	98,941	21	fields	NS			19	
Stream Use (combined)	119,500	53	stream miles	0		53	48	48
Stream Fishing	52,169	37	stream miles	S			33	
Human-powered boating	57,052	15	stream miles	S			13	
Rafting	4,934	1	stream miles	S			1	
Tubing	5,345	1	stream miles	S			1	
Golfing	92,002	3	courses	3	4	0	3	-1
Hiking/ Backpacking	45,744	23	trail miles	26	2	-3	21	-5
Horseback Riding	7,401	3	miles	4	0	-1	3	-1
In-Line Skating	79,667	6	miles	NI			5	
Jogging/Running	678,454	54	mile trails	NI			49	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Accomack-Northampton (PD #22) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	28,783	4	sites	3		1	4	1
Picnicking Away from Home	84,498	219	tables	1,065	750	-846	199	-866
Skateboarding	21,587	7	sites	NI			6	
Snow Skiing or Snowboarding	10,794	0	ski lifts	0	0	0	0	0
Softball	186,575	33	fields	12	1	21	30	18
Sunbathing/ Relaxing on Beach	307,617	22	beach acres	574	49	-552	20	-554
Swimming Outdoor Area	146,793	15	beach acres	574		-559	14	-560
Swimming Outdoor Pools	132,093	6	pools	10	7	-4	5	-5
Swimming Indoor Pools	35,619	0	pools	0	0	0	0	0
Tennis	52,940	33	courts	16	3	17	30	14
Used a Playground	300,781	43	sites	10	2	33	39	29
Visiting Gardens	34,539	4	sites	NI			3	
Visiting Historic Sites	92,259	8	sites	NI			7	
Visiting Natural Areas	76,480	13	sites	NI			12	
Volleyball	145,199	43	courts	1	0	42	39	38
Went Hunting	142,475	23,364	acres	21,150		2,214	21,226	76
Went Shooting Total	84,293	48	fields	NI			43	
Target	31,867	18	fields	NI			16	
Skeet or Trap	19,120	11	fields	0		11	10	10
Other	19,428	11	fields	NI			10	
Drive for Pleasure	439,658	na	na	NI			na	
Motorcycle/ATV (combined)	18,812	9	miles	6	0	3	8	2
Driving All-Terrain Vehicle	1,336	1	miles	NS			1	
Driving Motorcycle Off-Road	17,475	8	miles	NS			7	
Driving 4-Wheel-Drive Off-Road	39,062	na	na	NI			na	
Walking for Pleasure	2,060,032	na	na	NI			na	
Other	59,622	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Region 23: Hampton Roads Planning District

The Hampton Roads Planning District covers approximately 2,500 square miles and is home to more than 1.5 million people. This region encompasses 22 local governments: the counties of Isle of Wight, James City, Southampton, Surry and York; the cities of Chesapeake, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Virginia Beach, Williamsburg, Suffolk and Franklin; and the towns of Windsor, Smithfield, Boykins, Branchville, Capron, Courtland, Ivor and Newsoms. This area of the state has a wealth of biodiversity and is home to one third of the rare, threatened and endangered plants in the Commonwealth. There are also a variety of recreational opportunities throughout the region for residents and visitors.

The Hampton Roads Planning District lies in the Mid-Atlantic Coastal Plain. Three major river drainage systems in the region include the York, James and Chowan basins. To the east, the Atlantic Ocean and the Chesapeake Bay form an undulating natural boundary for the region. The region relies heavily on these water resources for its economic well-being. The city of Virginia Beach is one of the major destination beach areas for visitors on the East Coast. To the west of the region are rural counties that have, to date, received less pressure for development. While Isle of Wight and Southampton counties are predominantly rural and have a lower annual rate of population increase than other parts of the region, Isle of Wight is experiencing increased growth pressure. Other urban communities in the region continue to experience development and redevelopment and are, in part, magnets for growth occurring in surrounding communities.

The expanse of water and outdoor opportunities associated with the coastal landscapes of the region offer abundant outdoor recreation. Whether it is exploring history,

cultural activities, playing sports, boating, canoeing, enjoying the scenic beauty of rural landscapes and protected natural areas, discovering the diverse natural areas, or becoming involved in an educational or interpretive opportunity, Hampton Roads offers a great variety of experiences for everyone. The Norfolk in-town lakes are used for fishing and a variety of passive recreation activities.

Because the Hampton Roads Planning District is heavily populated, urban issues with regard to parks and recreational opportunities need to be considered. Because of dense population, poor conservation practices can be detrimental to an urban environment. Planning for the urban population should include the needs of those who may have limited means of transportation. Because open space and leisure activities are important to quality of life, planning in the urban context must include the availability of a variety of recreational experiences.

The predominant physiographic features of the region are the shorelines, vast expanses of open water, and the marshlands and swamps associated with these waters. Most portions of the James and York Rivers in the region are estuarine. Freshwater systems in the region include the Nottoway, Blackwater, Meherrin, North Landing and Northwest Rivers, Back Bay and the Dismal Swamp. The waterways form diverse natural systems and provide excellent habitats, as well as opportunities for boating, picnicking, camping, swimming and other outdoor enjoyment.

The following rivers in this region are designated Virginia Scenic Rivers:

North Landing River and Tributaries from the North Carolina state line to its headwaters, including segments of Pocaty Creek, Blackwater Creek, and West Neck Creek (+/- 26 miles). This river system flows adjacent to the North Landing River Natural Area Preserve, which encompasses approximately 1,900 acres. The Nature Conservancy owns an additional 6,000 acres within the river system.

Nottoway River from the bridge at Route 40 at Stony Creek to Route 653 (Carey's Bridge) in Southampton County (+/- 33 miles).

The Hampton Roads region is in the Atlantic Flyway, enhancing opportunities to observe waterfowl throughout the region during certain periods of the year. In general, the region boasts abundant natural resources. Lands protected by federal, state, and local ownership, dedication or easements allow for biodiversity and provide opportunities for the enjoyment of nature. Properties boasting this richness could be incorporated into ecotourism initiatives, which could further promote their special character while providing a profitable tourist alternative to the region. North Carolina has a wildlife management area designated on the Northwest River adjacent to the city of Chesapeake. This landholding by North Carolina strengthens the management of the river corridor as a biologically diverse area, and it is accessible from Virginia by boat. There are also extensive state wildlife management areas on the western shore of Back Bay, including the Princess Anne Wildlife Management Area and the Whitehurst Tract. Because ecotourism is expected to be more popular in the future, it is essential that important lands within Hampton Roads be identified and conservation mechanisms established to ensure the longevity of this biodiversity.

Currently, the most popular activities in the region are outdoor beach use, and walking and bicycling for pleasure. The most pressing recreational needs in this region are additional boating facilities and public access to beaches. Additional camping facilities and playgrounds are also needed, in addition to public hunting, indoor and outdoor swimming facilities, golf courses, fitness trails and tennis courts. There is also the demand for additional bicycling facilities for pleasure and for commuting to work and school. See Table 23, page 355.

The following recommendations relative to resources in the region could contribute to regional open space and/or recreational opportunities for meeting current and future needs of area residents.

Private sector

The Hampton Roads Planning District has an abundance of water and outdoor recreational opportunities

for the private sector. Besides the need for public access to the waters, facilities such as dry storage areas and fishing piers are also needed. The private sector could enhance outdoor recreational opportunities by providing tennis courts, swimming pools and golf courses. These can often be provided as amenities in new housing developments. Demand for additional bicycling facilities could be provided by opening private lands for trail development. Opportunities also exist for rental of water-sports equipment and in development of water-to-land access points. These sites could provide boaters and other visitors with eating facilities or overnight accommodations. There is a need to provide areas for the use of four-wheel off-road vehicles. This may be an opportunity for the private sector to make use of lands for recreation that may not be productive for other uses.

Federal facilities

1. **Fort Eustis and Fort Monroe** are federal properties that offer public access to adjacent water bodies. Improved publicity could enhance and increase the use of these lands. The possibility of using the **Fort Story** beach for providing additional public access may be a future consideration. Other US military installations in the region should also be evaluated for their potential to be used for joint recreational activities, particularly beach and water access.

2. The National Park Service (NPS) supports the establishment of bikeways, and walking and jogging trails in the **Colonial National Historical Park** and along the **Colonial Parkway** corridor. The NPS plans to explore the feasibility of building a trail for walkers, joggers and bicyclists as part of the Yorktown Battlefield. The feasibility of building a trail linking the west tour road to Surrender Field to prevent conflicts between vehicles and pedestrians or cyclists will be studied. Due to increased development in the area, the NPS is interested in working to protect the vistas adjacent to and throughout the park. The NPS also plans to study the effects of heavy visitation on several sites along the Colonial Parkway. It will assess opportunities to improve facilities, e.g., hardening trails and adding comfort stations and overflow parking. The NPS recommends the **Cheatham Pond** tract be divided into parcels with long-term leases or management agreements with both the US Navy and York County. A portion of the parcel tentatively slated to be managed and developed by York County has excellent potential for a public boating access site, along with passive recreational facilities such as hiking/biking/horseback riding trails and picnic areas.

3. In 1989, the U.S. Fish and Wildlife Service (USFWS) received approval to expand the **Back Bay National Wildlife Refuge** to the north and west of Sandbridge and along the western shore of Back Bay. When complete, the 6,340-acre expansion will provide additional protection for the marshes and fastlands surrounding Back Bay and help to initiate the recovery of this important resource. Back Bay has an extensive environmental education program that promotes an appreciation for the resource and provides some appropriate public use of these federal lands. Among the considered facilities are water access points, fishing areas, wildlife observation decks, trails and environmental education centers. A high priority should be given to relocation of the Back Bay Visitor Center to the western side of Back Bay to improve accessibility to the refuge for environmental education. It is extremely important that the agreement be maintained which allows access to False Cape State Park to accommodate park visitors and the wildlife resources of the refuge.

4. In the 2000 Appropriation Act, the Virginia General Assembly directed that, "The Virginia Tourism Corporation, with the assistance of the **City of Suffolk**, shall develop a Public Use Development Plan and Environmental Assessment for the Great Dismal Swamp Wildlife Refuge." The report, *Opportunities for Regional Tourism Development*, has been prepared and the recommendations are in the process of being implemented.

5. The **Great Dismal Swamp Wildlife Refuge** consists of about 109,000 acres in Virginia and North Carolina and is managed by USFWS. Approximately 84,000 acres are located in the cities of Suffolk and Chesapeake. Measures to protect the refuge and provide appropriate access to the area immediately surrounding the refuge are being addressed. Plans for widening Highway 17 adjacent to the refuge are being discussed and may offer excellent access opportunities while protecting existing access Congress allocated $250,000 in fiscal year 2001 to update the refuge's 1979 Public Use Development Plan. The plan may include visitor center developments in the cities of Suffolk and Chesapeake.

6. **Plum Tree Island National Wildlife Refuge** in Poquoson is an extensive marsh system of more than 3,275 acres. The island was an old Air Force bombing range, which, because of potential hazards, is not available for public use. However, an expansion has been approved. By acquiring marsh systems to the west of Plum Tree Island, it will be possible to provide additional protection for critical habitat, and to provide opportunities for controlled public hunting and wildlife observation. The proposed expansion of Plum Tree Island should also be evaluated to possibly include public access to Back River and Lloyd Bay for fishing and wildlife observation.

Continue to explore opportunities for partnership between the U.S. Fish and Wildlife Service and others to provide compatible recreational and environmental education for Virginia's citizens.

State parks

Due to the extremely high demand for public access to the waters of the Commonwealth, any waterfront property that becomes available on the major tidal rivers or their tributaries in the region should be evaluated for potential acquisition and development as a regional or state park. Any site acquired and developed on these waters would also help to meet the commitments of the 2000 Chesapeake Bay Agreement.

Projects identified in the approved **False Cape** and **First Landing State Park** master plans need to be funded. State park master plans must be revisited by DCR staff every five years; any significant changes not identified in the current, approved master plan, or improvements/ additions costing in excess of $500,000, must go through the public participation process.

7. **False Cape State Park** consists of 4,321 acres in Virginia Beach. The park stretches six miles along the Atlantic Ocean, from the Back Bay National Wildlife Refuge to the North Carolina state line. Use of the park is limited to hiking, bicycling, boating, primitive beach camping and managed hunts; additionally, there is an extensive environmental education program. Parking is available at Little Island Recreation Area and Back Bay National Wildlife Refuge; visitors may hike, bike or use the tram for access to the park, as vehicular access is not permitted. Participants of the parks environmental education programs have access to the park via a vehicle that uses the beach. The USFWS and the Commonwealth of Virginia have an agreement permitting access through the refuge to False Cape State Park that accommodates park visitors and the wildlife resources of the refuge. It is extremely important that this agreement be maintained. Efforts need to be made to protect the southern boundary of the park where major developments are taking place in North Carolina. This may provide the opportunity for cooperative stewardship programs between Virginia and North Carolina.

8. **First Landing State Park** and Natural Area in Virginia Beach is the most-visited state park, with an annual attendance of one million visitors. The new Chesapeake Bay Education Center will provide laboratories and classrooms for environmental education studies. The center serves as a regional focal point for the dissemination of information relating to the bay and other natural areas, as well as the opportunity to enjoy these areas. Coordination of environmental education between state and local interests should be pursued as part of this effort. First Landing State Park has been identified as a site to participate in Celebration 2007 since this is the location where settlers first touched land in America.

9. **York River State Park**, located in James City County, offers an opportunity to experience the estuarine environment. The park's focus is preserving a portion of the York River frontage and its related marshes, while providing passive day-use recreation to visitors. The park has been identified as a location for a proposed Native American memorial. This "sacred place" would provide information on Native American traditions and values. York River State Park has been a model for all Virginia's state parks as their resource management plans are developed. The park's natural resources make it a significant place for environmental education at all levels.

10. A site on the lower **Blackwater River** in Southampton County or the city of Suffolk near the North Carolina line should be acquired for future development. A site in this area featuring the dense swamp and dark fishing waters of the river would not only provide a needed recreational facility, but also help preserve this interesting natural area.

Natural areas

The following natural area preserves are located within the district: **Antioch Pines** and **Blackwater Ecological**

Preserve in Isle of Wight County; **Grafton Ponds** in the city of Newport News; **North Landing River** in the city of Virginia Beach; and **Northwest River** in the city of Chesapeake. DCR is working to secure an easement and natural area dedication for portions of **False Cape State Park** in Virginia Beach.

DCR has, as of March 2001, documented 1,176 occurrences of 312 rare species and natural communities in the Hampton Roads Planning District. Twenty species are globally rare and six are federally threatened or endangered. One-hundred-and-thirty-five conservation sites have been identified in the district; 65 (48%) have received some level of protection through ownership or management by state, federal and non-government organizations.

The Department of Conservation and Recreation recommends that the 70 unprotected conservation sites be targeted for future protection efforts. The appropriate method of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas, developing a voluntary management agreement with the landowner, securing a conservation easement through a local land trust, acquiring the site through a locality or local land trust, dedicating the site as a natural area preserve with the current owner, or acquiring the site as a state natural area preserve. For a discussion of the Natural Heritage Program, see page 133.

Other state properties

The following state-owned properties contain undeveloped land that may have potential for recreational use. Each site should be assessed, and cooperative use agreements developed where appropriate.

11. **The College of William and Mary**

12. **Old Dominion University**

13. **Norfolk State University**

14. **Christopher Newport University**

15. **Tidewater Community College** owns a 244-acre parcel of property located adjacent to I-664 in the City of Suffolk. Portions of this property should be examined for their potential to provide access to the James River, environmental education opportunities, and extended environmental and recreational facilities that complement the missions of Tidewater Community College and similar institutions in the region.

16. **Paul D. Camp Community College**

17. **Thomas Nelson Community College**

Regional parks

Hampton Roads Planning District has many regional parks. These parks include lands surrounding water supply reservoirs, as well as properties acquired by localities to provide local recreational opportunities or to protect biologically diverse areas. Each property owned should be evaluated and management plans adopted to ensure the appropriate balance of recreational and conservation initiatives. A regional open space plan, to include recreational and conservation opportunities, should be developed. This may involve the compilation of various existing plans available from the localities and other regional studies.

18. The 763-acre **Northwest River Park** is located on the Northwest River in Chesapeake. It is an incredible natural area with opportunities and programs for environmental education, fishing, birding, camping, picnicking, canoeing, boating and hiking.

19. **Newport News Park** is an 8,065-acre site straddling the city of Newport News/York County line. This municipal park, one of the largest in the United States, provides a vast array of outdoor recreational opportunities including camping, fishing, hiking, picnicking, golfing and boating. This site also contains significant Civil War era earthworks, as well as the majority of the Grafton Ephemeral Ponds Natural Complex, which provides a wealth of potential interpretive opportunities. Ample undeveloped acreage remains on the site, which could be used for additional recreational facilities, as well as greenways and trails to connect other parks and natural areas.

20. **Grandview Nature Preserve**, in the city of Hampton, is a critical marsh and beach habitat located on the Chesapeake Bay and is currently being recommended for natural area dedication. Combined with adjoining Grundland Creek Park, there are approximately 600 acres. The beach is home to the northeastern beach tiger beetle, which is a federally threatened

species and proposed for state listing as endangered. The least tern, a species of concern, has the largest nesting colony on the East Coast at this site. The colony is also one of the oldest documented in the country. Because of its sensitive nature only passive recreational activities, such as hiking and bird watching, are available.

21. Suffolk's **Lone Star Lakes** provide more than 1,100 acres of land and freshwater with potential for additional developments. This lake system is connected to salt water via Chuckatuck Creek.

22. **Waller Mill Park** in York County is owned and operated by the City of Williamsburg. A major freshwater-oriented park near Williamsburg, it connects to a network of local bike trails.

23. **Little Creek Reservoir** is a Newport News water supply in western James City County. This reservoir contains 1,800 acres, and offers opportunities for recreation on and adjacent to its waters.

24. **New Quarter Park** in York County is a 550-acre site on Queen Creek. The park is used for group activities and includes active recreational facilities, picnic facilities, and canoe access to Queen Creek. This site should be incorporated into plans for a regional greenway system.

25. **Lake Prince**, **Lake Cohoon**, **Lake Mead**, **Lake Kilby**, **Lake Burnt Mills**, **Spaetes Run Lake** and **Western Branch Reservoir** are all water-supply reservoirs within Suffolk that belong to adjacent cities. They now offer only limited use for freshwater fishing. Lake Prince and the Western Branch Reservoir connect to the Nansemond River. Although little upland is owned by the cities of Norfolk and Portsmouth, it is possible that additional compatible recreational resources, such as hiking trails, picnicking and environmental education, could be developed through cooperative agreements.

26. **Sandy Bottom Nature Park**, in the city of Hampton, is a 456-acre environmental education facility situated in an area dominated by pine hardwood mixed forest and nontidal wetlands. The park is home to the state endangered canebrake rattlesnake and Mabee's salamander. A 52-acre borrow mining pit site is being converted to wetlands, complete with a perimeter trail, boardwalk, observation tower and canoe trails. There is a 10,000-sq. ft. nature center and a wildlife exhibit area. The park provides year-round interpretive programming for school groups and the general public. Recreational activities include hiking, biking, camping, picnicking, canoeing and fishing. Conference and classroom facilities are available.

27. The **Harris Creek Area** of Hampton borders on the Back River, which feeds into the Chesapeake Bay. A parcel of property on the tip of the Harris Creek peninsula is being considered for acquisition as an open space/natural area. The owner has offered to sell the 155 acres to the City of Hampton for preservation, as development is closing in on the property. The property features forested wetlands, marsh and forested uplands. Wetland restoration may be a part of the future of this site. Public access will be limited to passive recreational activities.

28. The Virginia Beach City Council adopted the ***Virginia Beach Outdoors Plan 2000 Update*** as a guidance document for open space and recreational planning and to integrate the plan as part of the next revision to the city's comprehensive plan. The plan encompassed five major components of the city's natural and recreational resources. These five components are: greenways, beaches and scenic waterways, cultural and natural areas, parks and athletic facilities, trails and open space preservation.

The recommendations in the plan are estimated to cost $150 million for land acquisition to add 68 multi-use athletic fields; 75 miles of new multi-use trails; 37 miles of greenways; 13 new boating and canoeing waterway access sites; and purchase and preserve more than 4,100 acres of undeveloped property. The preservation efforts would be in addition to the 2,650 acres that are already owned by the city for recreational use and preservation as open space.

29. The city of Virginia Beach has completed acquisition of **Stumpy Lake**. The acquisition of the 1,400 acres preserves the unique natural character of the area including its lake, wetlands and wooded areas. A plan is being developed for its future use and development.

30. **Carrollton Nike Park** is a 156-acre park in the northern end of Isle of Wight County. Currently, 42 open acres and seven wooded acres are utilized for park buildings, recreation courts and fields, playgrounds, picnic areas and walking/biking trails, and

the rest is used in cultivation or remains undeveloped as woodlands and marsh along Jones Creek and Carrollton Branch. Carrollton Nike Park offers a wide variety of activities such as lighted tennis courts and softball fields, basketball and volleyball courts, a soccer complex, two playground areas, a picnic shelter and an accessible walking trail. In addition, the park contains a 2.5-mile single-track off-road bicycle trail, which was featured in *Mountain Bike Virginia* by Randy Porter. Carrollton Nike Park will open a new state-of-the-art skateboard park and has been nominated for the Virginia Birding and Wildlife Trail as a locally known birding site.

Public Water and Beach Access

Boating, fishing, beach access, and natural area access adjacent to the water bodies should be increased throughout the region. While this area boasts many of these facilities, demand is also high. An ever-growing influx of tourists is interested in enjoying the water-related recreational areas. Emphasizing access from the water may increase the availability of some natural area systems for passive recreation. Where appropriate, portages should be created around dams and other river obstacles. Additional canoe/kayak access sites on small, publicly or privately-owned properties will improve and enhance the opportunities for canoeists and small boat traffic on smaller tributaries and waters where they don't have to compete with larger boats. The *Chesapeake Bay Area Public Access Plan* could assist in determining the areas of greatest need for additional public access. The Hampton Roads Planning District Commission study, *The Waters of Southeastern Virginia*, and the Hampton Roads Planning District Commission Regional Shoreline study were prepared in close cooperation with 15 member local governments and reflect local desires for public access. Access considerations for the region include the following:

31. **West Neck Creek, Pocaty River, Blackwater Creek** (in the city of Virginia Beach), **Muddy Creek**, and **Asheville Bridge Creek** should all be limited to access by nonmotorized boats. These water bodies are adjacent to sensitive lowlands that have high water tables and erodible shorelines. Increased erosion along these waterways will negatively affect the scenic beauty of these resources and degrade the existing water quality of the streams. Many more opportunities are being identified through the Hampton Roads PDC study.

32. The **city of Franklin** experienced the devastation of Hurricane Floyd and has had to rebuild the downtown and other flood-impacted areas located along the Blackwater River. The city's 1999-2000 Recreational Assessment and the Flood Recovery Master Plan 2000-2001 both call for the utilization of land adjacent to the river for community recreational use. Public recreation activity centers would include a community park, and interpretive river walk, track(s)/soccer fields, an amphitheater, a wetlands mitigation demonstration project and a trail system connecting neighborhoods to community recreational areas and the downtown Main Street community.

33. **Jones Creek Boat Landing** was developed on property that was a part of the Nike Missile Site. It is located on Jones Creek, which flows to the Pagan River and into the James River. Jones Creek Boat Landing includes 2 boat ramps, parking area and a public restroom and fishing pier, which will be completed this year. People from Isle of Wight County utilize this water access as well as surrounding cities; vehicles from as far away as North Carolina have been observed there also.

Scenic Rivers

The following river segment has been evaluated and qualifies as a Virginia Scenic River:

34. The **Nottoway River** from Carey's Bridge at Route 643 to the North Carolina state line.

The following river segments should be evaluated to determine their suitability as Virginia Scenic Rivers:

35. The **Blackwater River** in Isle of Wight and Southampton counties from the City of Franklin to the Surry County line.

36. The **Chickahominy River** in James City County from Providence Forge to the James River. The segment between James City and the New Kent County line to its confluence with the James has been evaluated and found to qualify for designation.

37. The **Northwest River** in Chesapeake, from its headwaters to the North Carolina state line. This river could be added to the present designation for the North Landing River and its tributaries.

38. The **James River** from the Charles City/James City County line to Hampton Roads. Part of this reach has been designated by the General Assembly as a Historic River.

39. **Atton's Creek** and **Milldam Creek**, both tributaries to the North Landing River in Virginia Beach.

Scenic highways and Virginia Byways

There has been a tremendous interest in thematic trails including Civil War trails, the Wilderness Road Trail, the Birding and Wildlife Trails, the Revolutionary War trails, the African-American Heritage Trail system, and other driving tour routes. The next logical step after the *Scenic Roads in Virginia* map would be to develop a series of regional maps or booklets that describe and help locate the resources and services found in all sections of the state.

40. The concept of a scenic state connector road and greenbelt between **Green Spring** and the **Colonial Parkway** should be explored.

The following road has been recommended for consideration as a Virginia Byway:

41. The **Green Sea Byway**, which will connect the Back Bay Wildlife Refuge to the Great Dismal Swamp by using secondary roads in the cities of Virginia Beach and Chesapeake.

Trails and greenways

In the Hampton Roads region, efforts are underway to coordinate local greenways and trails planning and development. A formal program to coordinate these plans on the Upper Peninsula has been in effect for some time, and localities are discussing approaches for broader regional coordination through the Hampton Roads Planning District Commission. Locally and regionally initiated trail and greenway planning is important for identifying and providing these desirable resources for communities. Such plans should reflect efforts to link existing and proposed trails and greenways into a regional greenways network connecting existing and proposed recreational, natural, cultural, water, business/commercial, and other resources the community deems desirable.

Local governments should also develop comprehensive bicycle plans as a component of their transportation plans. The Virginia Department of Transportation can include funds for bike trail construction projects only if the bikeway plan is included in the locality's approved transportation plan. The proposed Southeastern Parkway and Greenbelt projects include a component for alternate transportation and separate bicycle facilities in the right-of-way. Other roads planned in the region also should consider bicycles as an alternative means of transportation. Adopted bike plans are currently in place for Newport News, York and James City counties, Williamsburg and Hampton. A regional bicycle facilities plan has been developed as part of the region's 2021 Transportation Plan. The city of Virginia Beach currently has 63 miles of multi-use trails interspersed throughout the city.

The following are greenway/trail proposals for this region:

42. The **James River Trail** would traverse Virginia along the length of the James.

43. The **Virginia Southside Trail/Virginia Beach Pipeline Trail** would extend from Virginia Beach to Mount Rogers in the western part of the commonwealth. A portion of this trail would use the right-of-way of the Lake Gaston/Virginia Beach proposed water pipeline.

44. The **Hampton/Newport News Expressway Greenway** is being developed along the new East/West Expressway on those cities. The greenway will connect the two cities and also connect to eight miles of trail system at Sandy Bottom Nature Trail. It is hoped that the City of Hampton will further connect this trail system to a series of inter-connected trails throughout the city, possibly utilizing old railroad and utility line right-of-ways.

45. **Newmarket Creek**, which runs 12 miles through the City of Hampton, is being developed as a waterway park. The first canoe launch has been installed and other sites are being discussed. The trail is expected to eventually become part of a larger region-wide trail system. Newmarket Creek is a popular site for birdwatchers and nature enthusiasts due to the rich variety of wildlife and habitats.

46. The cities of Suffolk, Portsmouth, Chesapeake and Norfolk have teamed up to develop this region's first intercity trail connection in the southside Hampton Roads area. The **Multi-City Bike Trail** totals 28 miles

in length and will promote regionalism by improving links with several southside Hampton Road cities.

47. The Virginia Coastal Birding and Wildlife Trail has selected seven sites to be included in the trail: Beach Garden Park, Munden Point Park, Little Island Park, Dozier Bridge/West Neck Creek, Great Neck Park, Lotus Garden Park and the Francis Land House. The plan is to connect these sites to the Eastern Shore and Back Bay Wildlife Refuge, which supports the continuation of an East Coast birding trail. In addition, the *Virginia Beach Outdoors Plan* recommends 75 new miles of trails and 37 miles of greenway to be established.

48. The city of Suffolk completed its Open Space Master Plan in November 2000. The plan connects the cultural, historic, natural and scenic resources of the city by a nonmotorized trail.

49. The **Capitol-to-Capitol Bike Trail** along Route 5, which has been approved by all of the local jurisdictions, should be constructed in a manner that preserves the historic and scenic beauty of its unique tree corridor and should be made available for public use by the Jamestown commemoration in 2007.

Hostels

The following general areas are suggested as potential hostel locations:

50. **Williamsburg/Yorktown**

51. **Virginia Beach**

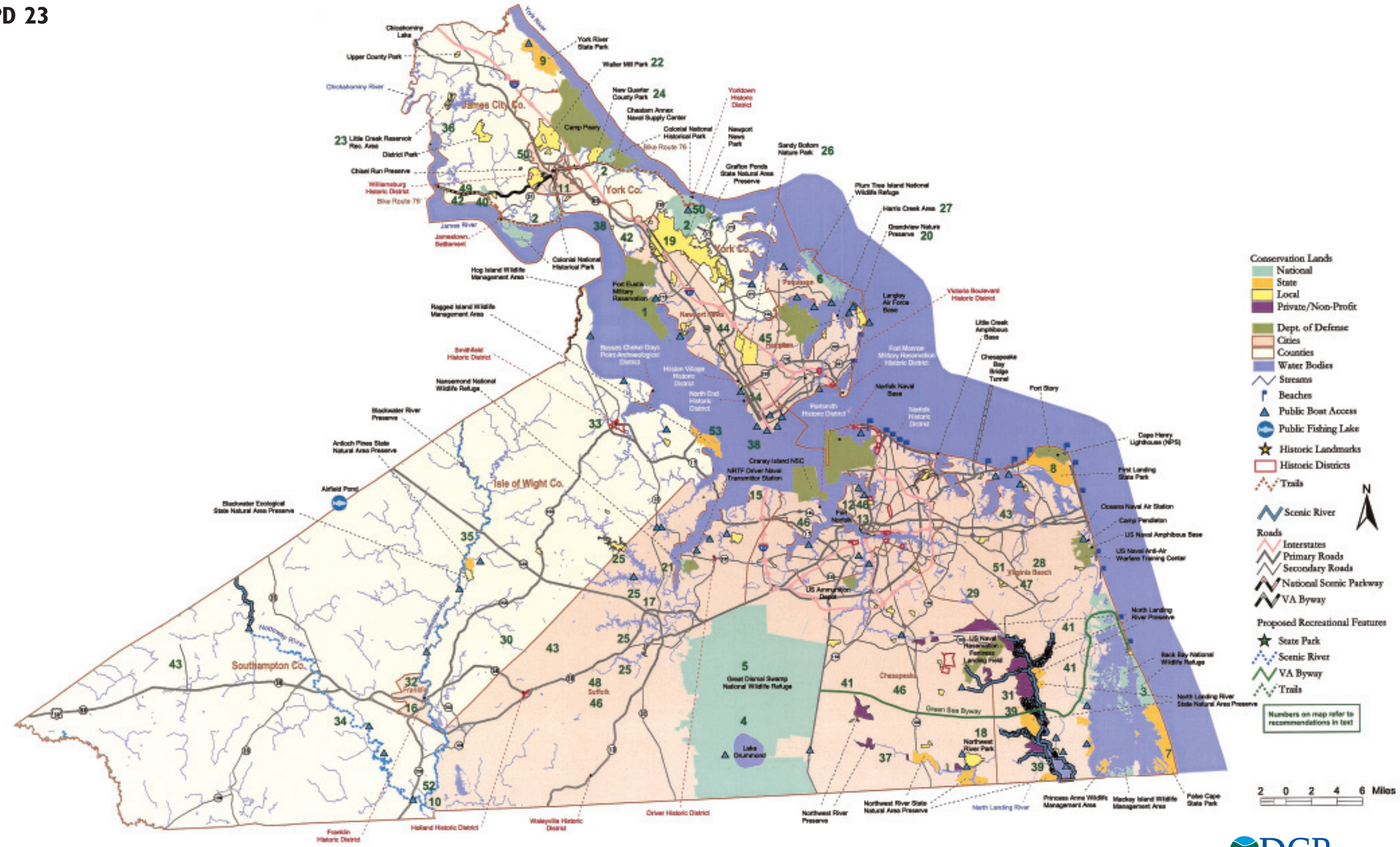
Public fish and game management

52. A potential **Blackwater Wildlife Management Area** in Southampton County and Suffolk has been identified. Such a facility would help meet needs for additional hunting lands in this region.

53. **Ragged Island**, in Isle of Wight County on the James River, was acquired by the Virginia Department of Game and Inland Fisheries. This 1,473-acre site offers limited water access. Additional uplands could be purchased or use agreements could be made with property owners to increase access at this site. The site contains raised boardwalks and trails used for educational and interpretive activities.

Hampton Roads

PD 23



DCR
Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

Table 23
Existing and Projected Needs
Hampton Roads (PD #23)

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	2,713,750	536	fields	299	14	237	595	296
Basketball	7,635,296	1,811	goals	1,214	114	597	2,007	793
Bicycling	16,980,101	1,208	miles	NI			1,339	
Lake, River, Bay Use (combined)	6,716,914	89,839	water acres	171,223		-81,384	99,577	-71,646
Power Boating	1,962,486	47,301	water acres	S			52,428	
Sailing	282,107	2,441	water acres	S			2,706	
Lake Fishing	1,563,856	8,797	water acres	S			9,750	
Salt Water Fishing	2,033,013	11,436	water acres	S			12,675	
Jet Ski/ Personal Watercraft (PWC)	482,955	7,566	water acres	S			8,386	
Water Skiing / Towed on Water	392,497	12,298	water acres	S			13,631	
Camping (*)	2,620,225	15,453	sites	7,853		7,600	17,128	9,275
Tent camping	956,712	5,642	sites	1,684	1,015	3,958	6,254	4,570
Developed camping	1,663,513	9,810	sites	6,169	5,674	3,641	10,874	4,705
Fitness Trail use	1,410,537	113	mile trails	98		15	125	27
Fields (combined)	10,134,399	2,131	fields	564		1,567	2,361	1,797
Football	5,672,810	1,193	fields	NS			1,322	
Soccer	4,461,589	938	fields	NS			1,040	
Stream Use (combined)	2,353,450	1,267	stream miles	75		1,192	1,404	1,329
Stream Fishing	1,556,190	1,094	stream miles	S			1,213	
Human-powered boating	509,020	130	stream miles	S			144	
Rafting	113,456	20	stream miles	S			22	
Tubing	174,784	23	stream miles	S			25	
Golfing	5,041,135	170	courses	53	136	117	189	135
Hiking/ Backpacking	1,655,847	849	trail miles	287	42	562	941	654
Horseback Riding	280,574	121	miles	106	50	15	135	29
In-Line Skating	4,170,282	297	miles	NI			329	
Jogging/Running	22,997,880	1,843	mile trails	NI			2,043	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Existing and Projected Needs
Hampton Roads (PD #23) Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	748,198	106	sites	10		96	118	108
Picnicking Away from Home	2,062,143	5,354	tables	4,260	4,763	1,094	5,934	1,674
Skateboarding	1,410,537	434	sites	NI			481	
Snow Skiing or Snowboarding	754,330	19	ski lifts	0	0	19	21	21
Softball	3,403,686	605	fields	499	38	106	671	172
Sunbathing/ Relaxing on Beach	6,240,091	447	beach acres	1,885	182	-1,438	496	-1,389
Swimming Outdoor Area	4,752,895	487	beach acres	1,885		-1,398	539	-1,346
Swimming Outdoor Pools	5,427,500	230	pools	104	60	126	255	151
Swimming Indoor Pools	3,727,190	42	pools	14	2	28	47	33
Tennis	3,330,093	2,081	courts	893	648	1,188	2,307	1,414
Used a Playground	9,640,711	1,372	sites	682	111	690	1,521	839
Visiting Gardens	763,530	84	sites	NI			93	
Visiting Historic Sites	3,373,022	285	sites	NI			316	
Visiting Natural Areas	1,729,441	293	sites	NI			324	
Volleyball	588,746	175	courts	19	4	156	193	174
Went Hunting	1,318,545	216,227	acres	46,988		169,239	239,664	192,676
Went Shooting Total	804,926	455	fields	NI			504	
Target	712,934	403	fields	NI			446	
Skeet or Trap	252,977	143	fields	4		139	158	154
Other	114,989	65	fields	NI			72	
Drive for Pleasure	11,112,576	na	na	NI			na	
Motorcycle/ATV (combined)	321,970	147	miles	10	2	137	163	153
Driving All-Terrain Vehicle	199,315	91	miles	NS			101	
Driving Motorcycle Off-Road	122,655	56	miles	NS			62	
Driving 4-Wheel-Drive Off-Road	697,602	na	na	NI			na	
Walking for Pleasure	52,971,784	na	na	NI			na	
Other	758,930	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

APPENDIX A

Guidelines for Outdoor Recreation Planning

Because each locality has unique resources, conditions, and issues, guidelines for recreational and open space planning must be evaluated in terms of the local situation. Guidelines must be used judiciously as basic norms, subject to modification as local needs arise.

Although it is impossible to settle on just one precise definition for the word "recreation," one thing that can be agreed upon is that leisure plays a major role in an individual's level of life satisfaction. Whether one chooses to define themselves by the sheer rock face that they climb with grace and precision, or leave behind the turmoil of daily routine with a contemplative walk in the forest, the physical and psychological benefits of recreation are endless. Herein lies the value of parks and open space to the communities.

In order to meet the demand for recreational areas and facilities and provide an outlet for healthy recreational opportunities, there must be a plan. The information that follows is one tool that urban planners and developers and leisure service professionals can use to gain perspective on the factors that must be considered in the design of recreation areas and facilities, and the utilization of open space for recreation opportunities. The guidelines stated here will assist in the development of long-range plans for park and recreational needs and resources, while inviting the reader to consider this important question: how much is enough?

The first step in the planning process is to acknowledge that the resources in each locality are unique, as are the needs of the community. For this reason, it is most important to realize that the guidelines presented here are meant to assist in the planning process, but are subject to modification to tailor the plan to the resources, issues, and needs of the locality.

Planning guidelines and considerations

The 2002 Virginia Outdoors Plan addresses several basic categorical areas important to the planning process: area guidelines, space guidelines, capacity guidelines, design guidelines, maintenance guidelines and playground guidelines. These categories were selected based on the experience and observation of professional planners and park and recreation researchers. They represent reasonable and applicable guidelines for conditions within the Commonwealth. In addition, the concept of sustainable design has recently been developed to recognize the relationship of human civilization to the natural world. Explanations of the categories mentioned above, along with descriptions of other related terms, are provided for users of the *Virginia Outdoors Plan*.

Experience

Experience is one consideration that is often overlooked in the planning process, but is an essential and ever present factor in the development and design of recreation facilities, areas and open space. The Recreation Opportunity Spectrum (ROS) devised by the United States Department Agriculture Forest Service addresses the concept of user experience and the correlation to recreation planning. "The basic assumption underlying the Recreation Opportunity Spectrum is that options to

realize the number of recreational experiences sought by users are best assured by providing a diverse set of recreation opportunities. A recreation opportunity is a chance for a person to engage in a specific recreation activity within a specific environmental setting to realize a predictable recreation experience. Thus, the ROS conceives of the recreation management and planning task as a behaviorally-based production process, with three distinct aspects of demand that must be considered."

- "First, visitors seek opportunities to participate in certain activities."
- "Second, visitors seek certain settings in which they can recreate."
- The third aspect of demand is "desired experiences" which is a product of providing the second.

"In offering diverse settings where participants can pursue various activities, the broadest range of experiences can be realized. The task of the recreation planner and manager, then, is to formulate various combinations of activity and setting opportunities to facilitate the widest possible achievements of desired experiences – or to preserve options for various types of recreation opportunities." To accomplish this, consider the following points in devising an effective recreation/park plan:

- When possible, go beyond the demand/supply/needs assessment of the locality, and approach the community for input on what opportunities they would like to see developed in their area.
- Think about what kind of experiences you want to provide for users and incorporate that experience into the planning process.
- Conduct a detailed assessment of the natural resources that will be used to put the plan into action, and let the capability/condition of the land dictate the planning goals.
- One consideration that is not addressed by current planning processes is the benefit of large, undeveloped tracts of land being allocated for the "wilderness/primitive experience." As the population of the Commonwealth continues to grow and urban development progresses, it is more important than ever to ensure that open space free of parking lots and swimming pools is available for future generations. The benefits of wilderness trails and natural settings, particularly in urban/rural areas, are boundless and should be planned for.

While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of providing the opportunities for obtaining these experiences. By managing the natural resource setting, and the activities that occur within it, the manager is providing the opportunities for recreation experiences to take place. Therefore, for both the manager and the recreationist, recreation opportunities can be expressed in terms of three principal components: the activities, the setting and the experiences.

For management and conceptual convenience, possible mixes or combinations of activities, settings and probable experience opportunities have been arranged along a spectrum, or continuum. This continuum is called the Recreation Opportunity Spectrum (ROS) and is divided into six classes. The six classes, or portions along the continuum, and the accompanying class names have been have been selected and conventionalized because of their descriptiveness and utility in land and resource management planning and other management applications.

Each class is defined in terms of its combination of activity, setting and experience opportunities. Subclasses may be established to reflect local or regional conditions as long as aggregations can be made back to the six major classes for regional or national summaries. An example of a subclass may be further breakdown of "Roaded Natural" into subclasses based on paved, oiled or dirt-surfaced roads, which in turn reflects amount of use, or a further breakdown of "Primitive" based upon aircraft or boat use.

Table 24 describes the general environmental and societal settings that are outlined in the ROS. When a specific activity and desired experience is matched with the appropriate setting, the environmental planner is then able to design an area that will fulfill the expectation of the user.

Table 24

ROS
Setting Characterization

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Area is characterized by essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of others is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions are present, but are subtle. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions are present, but are subtle. Motorized use is permitted.	Area is characterized by predominantly natural appearing environments with moderate evidence of the appearances of the sights and sounds of man. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventionalized motorized use is provided for in construction standards and design facilities.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for specific activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.	Area is characterized by substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans on-site are predominant. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

The Recreation Opportunity Spectrum provides a framework for stratifying and defining classes of outdoor recreation opportunity environments. As conceived, the spectrum has application to all lands regardless of ownership or jurisdiction. Its use in the national forest system will facilitate the consideration, determination and implementation of the recreation management role.

For more information on the Recreation Opportunity Spectrum (ROS), contact the Forest Service at:

USDA Forest Service
George Washington and Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019-3050
540) 265-5100
www.fs.fed.us

Area guidelines

Area guidelines are used to determine the number of acres of recreational and park lands needed by a locality. These guidelines are usually expressed as a minimum number of acres per 1,000 people in the population.

The recommended area guideline for recreation and park sites in Virginia is 10 acres per 1,000 people, which represents a minimum acreage that should be exceeded when possible. Though this recommendation is sufficient for the inventory and development of parks in rural and less densely populated areas, it is more difficult to meet this standard in an urban setting. Where you have more extensive development, higher population numbers in a small area, and a lack of available and affordable open space, recreational development must be planned to accommodate the needs of as large and diverse a user group as possible. It is important to disperse park opportunities evenly throughout the locality so that each sector has convenient access to parks and open space, and that the planning and development process provides for as many different kinds of activities as the resources will allow.

Another crucial factor that must be incorporated into the demand-supply-needs inventory equation is the existence and accessibility to private facilities such as schools, churches, and clubs. Though these facilities play an important part in accommodating the recreation needs of a community, planners must also note that these facilities are not available to everyone at all times. They are not accessible during normal operating hours, and if a membership is required, the user group is restricted to members of that organization only. If the needs identified by the community are not met by the existing publicly accessible facilities, then local planners must devise options for meeting those needs.

In meeting the 10 acres per 1,000-area standard, planners should consider three major local park classifications — the neighborhood park, the community park, and the district park. Each of these park categories has its own unique function and service radius within the locality. Frequently, local government will interchange the names of the park types, but their functions within the locality remain unchanged. Table 25 on page 364 summarizes area guidelines for each park type.

Space guidelines

Space guidelines deal with actual site planning and give the amount of land or water necessary for a particular activity (e.g., the number of square feet needed for a tennis court or acres needed for a football field). These guidelines are usually constants and not subject to variation.

Capacity and space guidelines are presented in Tables 26 and 27 on pages 378 and 386. These guidelines determine the amount of land or water required to accommodate a particular activity within a park complex and determine how many people can be accommodated during an average day, week, or season. To reiterate a point made in the area guidelines section, an assessment of the existing resources should be conducted, the development plan shaped to accommodate as many different types of opportunities as possible, and utilize the natural layout of the resources or landscape to dictate where to develop the appropriate opportunities. The tables show the capacity and space guidelines for the most popular types of outdoor recreational activities in the Commonwealth.

Capacity guidelines

Capacity guidelines relate to the instant, daily or seasonal capacity of a particular recreational facility. They aid in the development of management plans and/or determinations of facility adequacy to meet local needs. When the capacity standard of a particular facility is known, the planner can then determine (based on local demand) how many facilities are needed.

Capacity guidelines are subject to variations depending on the quality of the facility and its management, e.g., a night-lighted ball field has a greater daily capacity than an unlit field.

Two additional facets of carrying capacity that affect the users experience and the resources themselves on the ground level are physical and social carrying capacity. Physical carrying capacity relates to the maximum use that a recreation area can sustain without resource degradation. This relates also to the maintenance guidelines discussed further in this section, and is imperative to the upkeep and preservation of existing resources. It is possible to increase the physical carrying capacity of an area by hardening defined impact areas for each activity. The second is social carrying capacity, and relates to the user's expectation of what kind of experience they are hoping to have. Social carrying capacity is a very important consideration in the design and development of recreation and open space resources. In order to maximize the satisfaction of the user, it is imperative to design the area or facility in such a way to provide the most appropriate environment for the activity at hand.

Social interaction level is an aspect of social carrying capacity that can be a determinant of the potential for user conflict in a recreation area. An example of user conflict between two substantially different users might be paddlers and personal watercraft (PWC) users; they are both using the same resources, but in very different ways. Their expectations for the experience that they are seeking, the environment in which they choose to participate and the atmosphere that they create with respect to the level of presence that they have are all factors that might contribute to user conflict.

For further information on the concept of user expectation, refer to the section above on "Experience," as well as the U.S.D.A. Forest Service's Recreation Opportunity Spectrum model.

Design guidelines

The guidelines for designing park and open space areas are as varied and diverse as the resources that will support them. Depending on the kind of experience that is intended and the type of user to be served, there are many different outlets for obtaining park and open space design guidelines. The schematic sketches in the latter part of this chapter will provide a brief overview of the size, service area, administrative responsibilities, purpose, character, location and potential facilities that might exist on various levels from a neighborhood playground or playlot to a state park.

As there are endless resources for obtaining park and open space design guidelines, a few key sources are provided below for readers of the 2002 Virginia Outdoors Plan.

The Virginia Greenways and Trails Toolbox – Connecting Our Common Wealth
Prepared by the **Virginia Department of Conservation and Recreation** & **Virginia Trails Assoc.** with Parsons, Harland, Bartholomew & Associates
203 Governor Street, Suite 302
Richmond, VA 23219
(804) 786-6124
www.dcr.state.va.us

National Recreation and Park Association
22377 Belmont Ridge Road
Ashburn, VA 20148-4501
Phone: 703-858-0784 Fax: 703-858-0794
E-mail: info@nrpa.org
www.nrpa.org

USDA Forest Service
George Washington and Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019-3050
(540) 265-5100
www.fs.fed.us

National Park Service
U.S. Custom House
200 Chestnut Street, Fifth Floor
Philadelphia, PA 19106
(215) 597-7013
www.nps.gov

Trails for the Twenty-First Century: Planning, Design, and Management Manual for Multi-Use Trails
(Second Edition)
Charles A. Flink; Kristine Olka; Robert M. Searns
Rails-To-Trails Conservancy
1100 17th Street, 10th Floor, N.W.
Washington, DC 20036
(202) 331-9696
E-mail: greenways@transact.org
www.railtrails.org

Maintenance guidelines

Maintenance guidelines refer to the desired level of maintenance for recreation facilities and areas within a park system, as well as those activities or individual work elements that support maintenance requirements. Despite the almost endless variety of tasks and methods associated with the upkeep of any system of outdoor recreational facilities, the National Recreation and Parks Association (NRPA) has established a set of guidelines. *Park Maintenance Guidelines* (1986) was developed from years of research and evaluation. This document covers a multitude of maintenance levels, methods and practices. Due to its length and complexity, there is no attempt to summarize the document within the *Virginia Outdoors Plan*. However, copies may be obtained by writing the National Recreation and Parks Association, 2775 South Quincy Street, Suite 300, Arlington, VA 22206.

Playground guidelines

Playground guidelines are used to determine if a playground has any features that could lead to an injury to a child. Playground guidelines address issues such as protective surfacing, head entrapment hazards, entanglement hazards and equipment location. These guidelines are designed for persons concerned with public playground safety.

In 1998, more than 230,000 children ages 14 and under were treated in hospital emergency rooms for playground equipment-related injuries in the United States. Children ages 5 to 14 accounted for more than 70% of these injuries (*National SAFE KIDS Campaign Fact Sheet* 12/99).

An analysis of playground injuries in the United States during 1990-1994 showed:

- Boys (53.3%) were injured more frequently than girls (46.5%).
- Nearly 70% of all injuries occurred on public playgrounds, while 67% of deaths occurred on home playgrounds.
- Injuries to the head and face accounted for 60% of all injuries to children ages 0-4, while injuries to the arm and hand accounted for 43% of the injuries to children 5-14.
- Children ages 0-4 were injured at greater rates on swings, slides, and climbing equipment (128/100,000; 106/100,000; and 64/100,000 respectively).
- Children ages 5-14 were injured at greater rates on climbing equipment, swings, and slides (150/100,000; 143/100,000; and 64/100,000 respectively).

(Mack, M.G., Hudson, S., &Thompson, D. (1997) *A Descriptive Analysis of Children's Playground Injuries in the United States 1990 – 1994*. Injury Prevention, 3, 100-103.)

The Consumer Product Safety Commission (CPSC) estimated that more than 70% of injuries on both public and home playground equipment resulted from falls, especially falls to the surface beneath the equipment. Other reasons for injuries included impact from moving equipment (13%), the majority of which involved children under the age of six, running or bumping into stationary equipment (5%), and contact with hazards such as protrusions, pinch points, sharp edges and hot surfaces (7%). (*Playground Equipment Related Injuries and Deaths*, April 1990, U.S. Consumer Product Safety Commission, Washington, DC 20207)

An average of 15 playground equipment-related deaths are reported each year, according to data from the CPSC, and more than 40% of these involve children under the age of six. Fatal injuries most often involved entanglement in ropes tied to or caught on equipment, falls, impacts from tipovers or failures of equipment, impact with moving swings, and head entrapment (Hazard Sketch: *Playground Equipment-Related Injuries and Deaths*, October 1996, U.S. Consumer Product Safety Commission, Washington, DC 20207)

In Virginia, more than 400 children under the age of 15 were hospitalized after falling from playground equipment between 1994 and 1997. Costs associated with these hospitalizations totaled $1,858, 289, or an average of $4,600 per hospitalization (Center for Injury and Violence Prevention, Virginia Department of Health).

Sustainable design

Sustainable design is a concept that adds a holistic approach to societal growth. This concept ascertains that in order to ensure that the well-being of the natural world is not compromised in the face of development, it is important to plan communities in a manner that considers the value of natural heritage resources. From the revitalization of existing facilities in lieu of new development, to designing neighborhoods such a

way that open space is preserved, sustainable design recognizes the economic, environmental and social value of the Commonwealth's natural resources. For an in-depth presentation on the concept of sustainable design, see *Better Models for Development in Virginia – Ideas for Creating, Maintaining, and Enhancing Livable Communities* by Edward T. McMahon with Sara S. Hollberg and Shelley Mastran, available from the Virginia Department of Conservation and Recreation, or see the section on Sustainable Development on page 31.

In 1991, the National Park Service developed guidelines and recommendations for incorporating principles of sustainable design regarding natural resources, cultural resources, site planning and design, architectural design, building ecology, interpretation, energy and utilities, waste disposal, and facilities maintenance and operation.

Urban guidelines

One of the greatest challenges that urban planners and natural resource managers face is how to most effectively utilize available resources within an urban area to meet the recreational and open space needs of their citizens. When you consider all of the diverse activities that make up the recreation/leisure participation of the citizens in any one area, the task of providing the resources to support these activities becomes quite overwhelming. From athletic fields that accommodate youth and adult sports to the undeveloped open space resources that are required for even a semi-wilderness experience, providing an outlet for these activities in a highly developed area is no easy job. Maintenance and repair of fields and facilities, staffing constraints and budgetary issues are but a few of the barriers that must be overcome when attempting to accommodate the needs of many with a limited cache of resources.

In order to most efficiently utilize the resources at a localities disposal, it is essential to adopt a local comprehensive plan that takes into account the demand placed on existing resources and to assess how these resources meet current and projected needs. Since the available resources are as varied as the activities that they support, the objective of the urban guidelines section of the *Virginia Outdoors Plan* is not to present the reader with a formula for comprehensive planning, but to provide sources for obtaining the information needed to effectively design an urban recreation plan.

The Fairfax County Park Authority has developed a planning process that acts as an exemplary model for how to most effectively meet the recreation needs of a densely populated area. Though the plan is specific to the Northern Virginia metropolitan area, it does address the philosophy, considerations and issues that are associated with any successful comprehensive plan. They were developed as a result of a demand survey directed to the urban population of Fairfax County. They resulted in a change in participation and space guidelines and the determination of sustainable carrying capacity guidelines to accommodate developed recreational activities. The planning process also developed criteria for the identification and protection of significant and sensitive natural and cultural resources. These guidelines reflect the needs of urban populations and may be applicable to other urban areas in the Commonwealth. Contact the Fairfax County Park Authority, Division of Planning and Development, 12055 Government Center Parkway, Fairfax, VA 22035, for further information on the methodology and guidelines.

The following additional resources related to urban planning are provided for readers of the 2002 Virginia Outdoors Plan:

American Planning Association
122 S. Michigan Ave., Suite 1600
Chicago, IL 60603
(312) 431-9100 (general)
(312) 786-6344 (Planning Advisory service and Planners Book Service)
www.planning.org

Virginia Trails Association
P. O. Box 1132
Ashland, VA 23005
(804) 798-4160
E-mail: virginiatrails@aol.com

Coalition for Smarter Growth
1415 Oronoco Street
Alexandria, VA 22314
(703) 683-5704
E-mail: stopsprawl@aol.com

Trails and Greenways Clearinghouse
1100 17th Street, N.W., 10th Floor
Washington, DC 20036
(877) GRN.WAYS (toll-free)
www.trailsandgreenways.org

Table 25

PARK AREA STANDARDS

SERVICE RADIUS

CLASS	ACRES/1,000	URBAN/SUBURBAN	RURAL	MINIMUM SIZE
Neighborhood Acres	3	2 Miles	1 – 1½ Miles	5
Playground or Playlot	—	2 Miles	—	—
Community Acres	3	1 Mile	3 – 7 Miles	20
District Acres	4	5 – 7 Miles	10 – 15 Miles	50
Regional Acres	*	25 Miles	25 Miles	100
State Acres	10	1 Hour	50 Miles	400

Total Recommended Acres/1,000 Population: 20

* - Considered at a variable rate over and above local area standard.

The following pages contain schematic sketches of various parks and recreational sites and facilities typically found at each.

Neighborhood Playground or Playlot

- **Size**
  1/4 acre and larger

- **Service area**
  Approximately five minutes' walking time

- **Administrative responsibility**
  Local government

- **Purpose**
  The primary function is to provide safe play areas for preschool and school-age children, especially in high-density areas where backyard playgrounds may be unavailable. These parks, however, can sometimes be oriented toward adult needs.

- **Character**
  The character is one of intensive use and easy accessibility. Facilities should be designed to meet the needs of local residents. When serving children, these parks should be designed for active play, while those designed for adults also should provide opportunities for passive recreation. Maintaining playground equipment is critical and should be considered in the planning stage. These areas are not normally designed for organized activities.

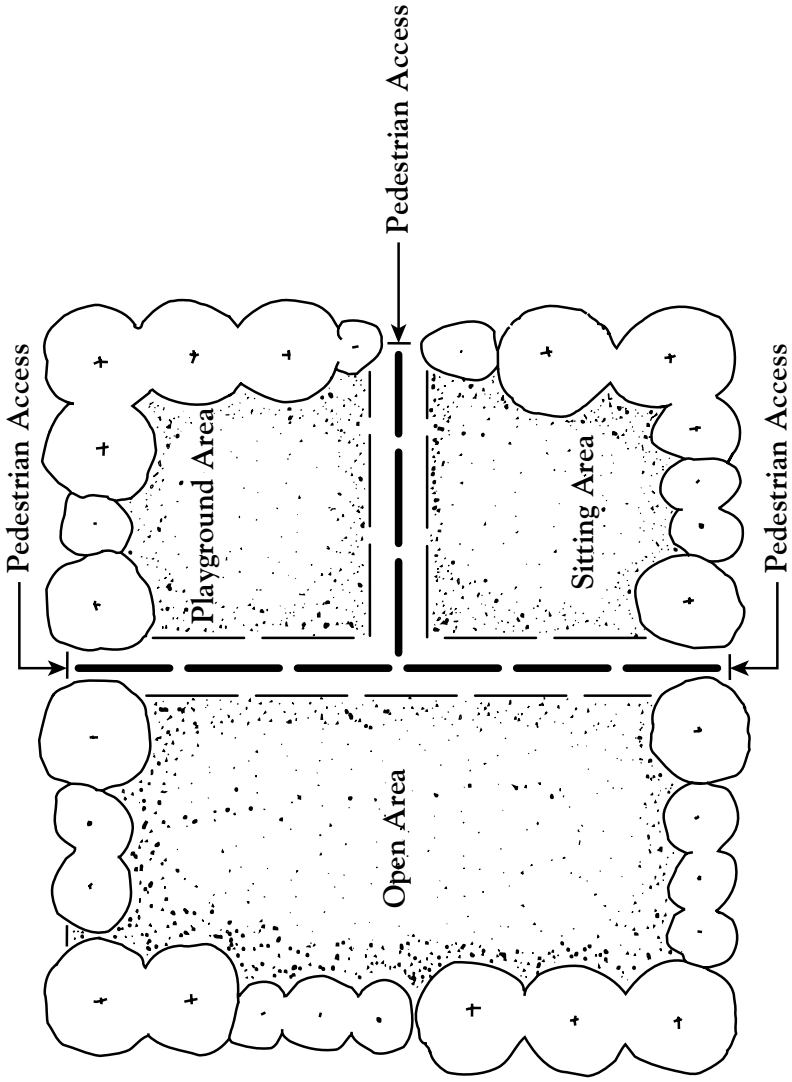
- **Location**
  Location is determined more by the availability of land or space than any other factor.

- **Potential facilities**
  - playgrounds
  - horseshoe pits
  - shuffleboard courts
  - basketball courts
  - volleyball courts
  - badminton courts

Schematic Sketch 1

N EIGHBORHOOD PLAYGROUND OR PLAYLOT

1/4 AC & UP



Neighborhood Park

- **Size**
  5-20 acres
  Plan at 3-acres/1,000 population

- **Service area**
  Approximately 5-15 minutes' walking distance or under 1 mile driving distance

- **Administrative responsibility**
  Local government

- **Purpose**
  The primary function is to provide limited types of recreation for the entire family within easy walking distance. Facilities should be provided for all age groups.

- **Character**
  Intensive use and easy access are characteristics of this classification. Ideally, the site should have level to gently rolling areas to accommodate intensive use facilities, with shaded areas for passive recreation.

- **Location**
  If possible, the neighborhood park should be located near a school and/or the neighborhood center and away from railroads, major streets and other hazardous areas.

- **Potential facilities**
  - playground
  - picnic facilities
  - tennis courts
  - ball diamond
  - horseshoe pits
  - shuffleboard courts
  - basketball courts
  - football/soccer fields
  - volleyball courts
  - badminton courts
  - walking trails
  - fishing pond
  - swimming pool
  - bikeway
  - recreation center

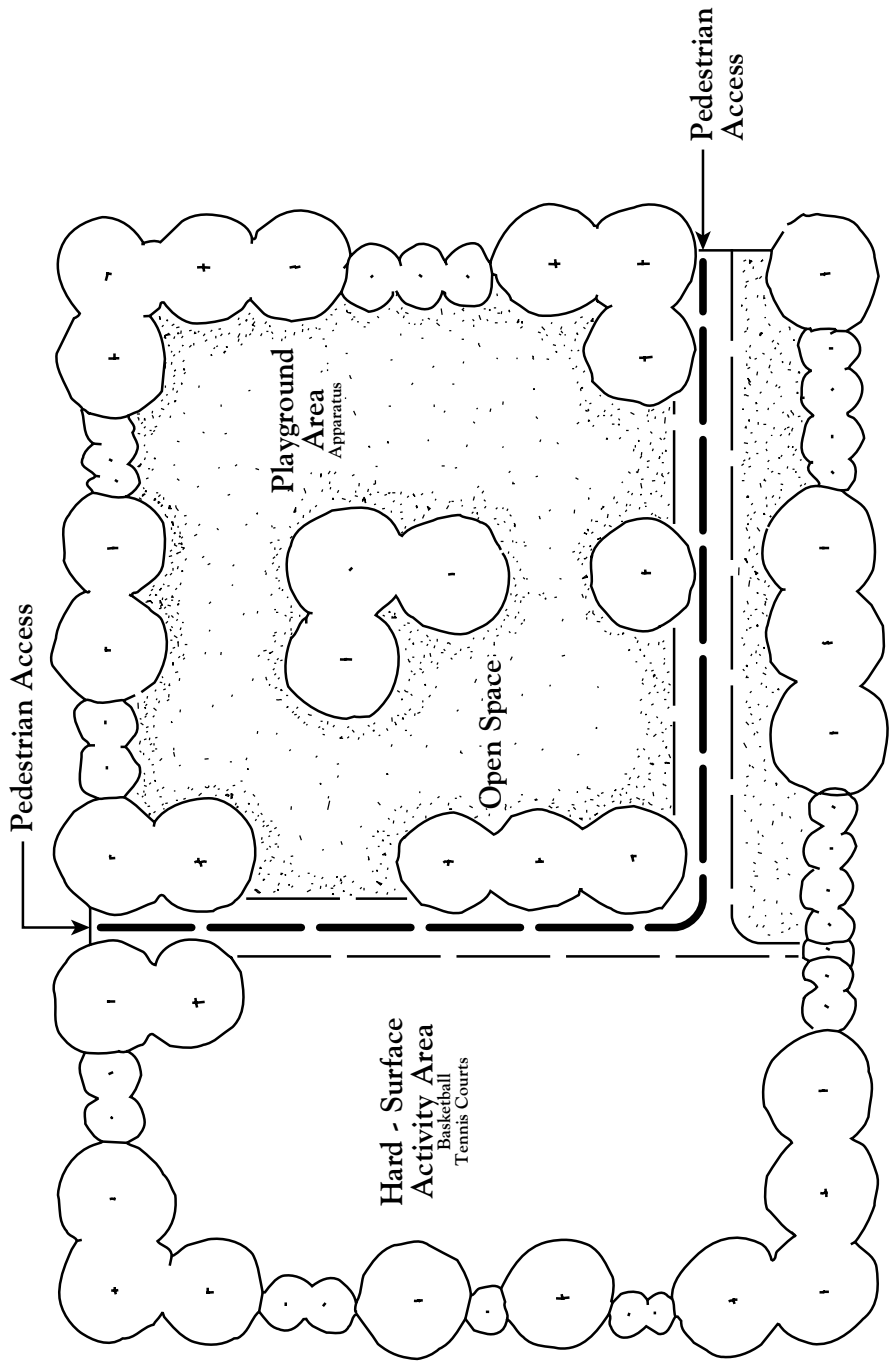
Playfields are usually dual purpose in this type of facility. They are an area for sports and running games and also serve as open space. Intensive use areas (the playground area and hard surface courts) are buffered from other activities by passive natural areas and pedestrian access corridors. Programmed activities, such as organized athletics, are often suitable in neighborhood parks. Although limited parking is provided, site design should encourage pedestrian access to the greatest extent possible.

Rural communities may want to consider including neighborhood park functions in larger community parks, which could better serve the needs of a widely dispersed local population. From an economic standpoint, it would be more beneficial for a rural locality to have a few strategically located, well-designed, larger facilities than to invest in several small sites and not have the funds to properly develop and maintain them.

Schematic Sketch 2

N EIGHBORHOOD PARK

5 - 20 AC



Community Park

- **Size**
  20-50 acres
  Plan at 3-acres/1,000 population

- **Service area**
  Approximately 15 minutes' driving time

- **Administrative responsibility**
  Local government

- **Purpose**
  Community parks should primarily support active recreational activities and be capable of withstanding intensive use while still containing a fair amount of open space.

- **Character**
  The site usually varies from relatively flat open space to moderately sloping wooded areas. Such a park should be adaptable to a wide variety of recreational activities. Access is gained by automobile, bicycles or walking.

- **Location**
  When possible, located near the center of community with good access and service by a public transportation system.

- **Potential facilities**
  - playgrounds
  - picnic facilities
  - tennis courts
  - ball diamonds
  - horseshoe pits
  - shuffleboard courts
  - basketball courts
  - volleyball courts
  - recreation center
  - football/soccer fields
  - trails: walking, hiking, biking, fitness
  - natural area
  - fishing lake or stream access
  - beach and swimming area
  - swimming pool
  - parking area

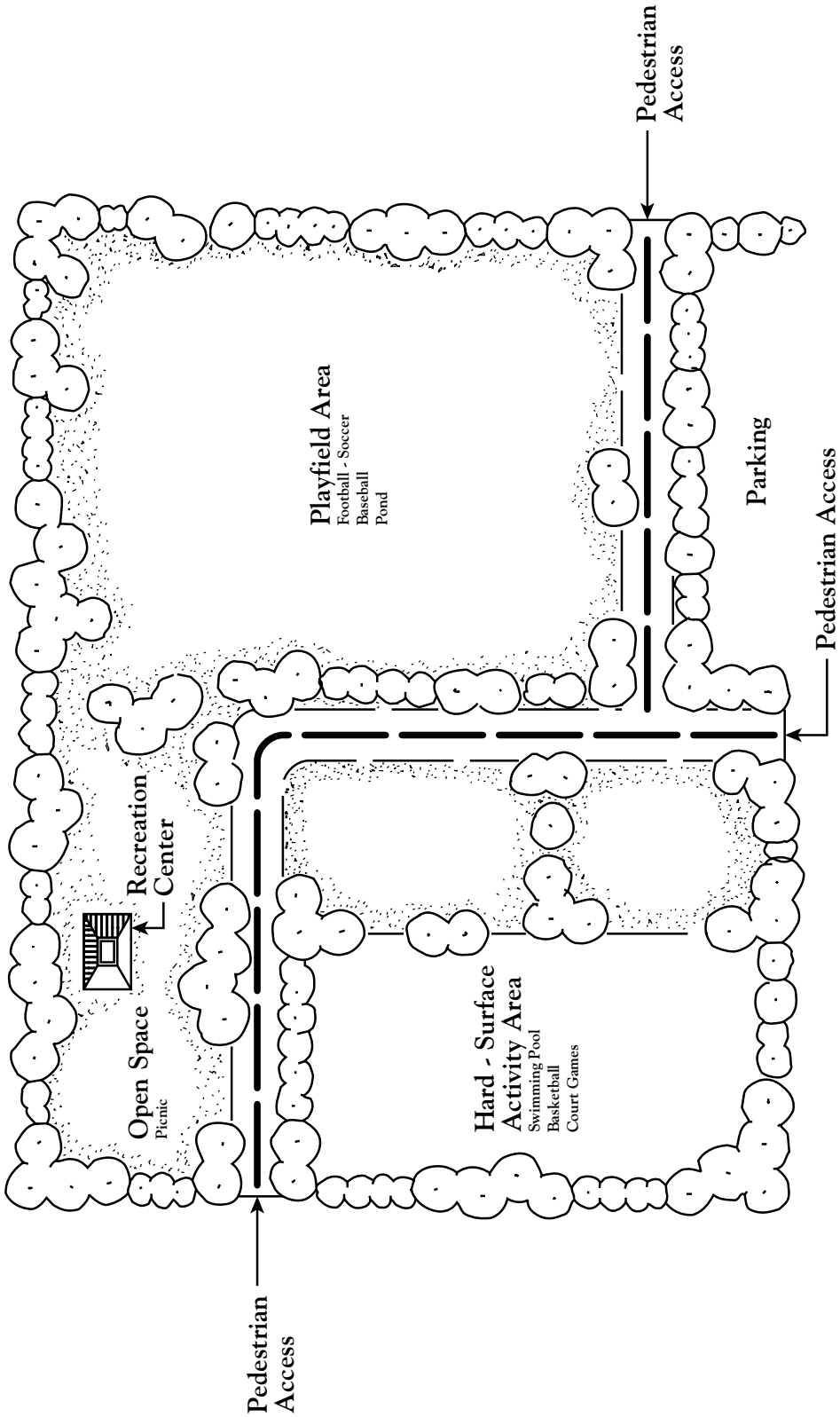
A multitude of activities must be provided by this intensive use recreational facility. The recreation center is often the focal point of the park. Organized activities and supervised play are administered from this point. Other activities are grouped in the surrounding area. Their location depends on the natural terrain, need for control and vehicular access. Any existing natural qualities — topography, water features, trees, etc. — should be preserved as natural buffers between activity areas, as well as to protect the recreational environment from surrounding, incompatible influences. These natural elements also should be used to provide a space for more passive forms of recreation such as nature walks, picnicking and fishing.

In a rural setting, this park category may take the place of the neighborhood park. It can better serve a widely dispersed population than two or three smaller sites. Community parks, along with neighborhood parks (where applicable), usually meet most of the close-to-home recreational needs of most localities.

Schematic Sketch 3

COMMUNITY PARK

20 - 50 AC



District Park
(City or County)

- **Size**
  50-150 acres
  Plan at 4-acres/1,000 population

- **Service area**
  15-25 minutes' driving time
  5-15 mile service radius

- **Administrative responsibility**
  Local government

- **Purpose**
  The district park should serve the recreational needs of large portions of the local population. It should contain a wide variety of intensively developed areas for day-use recreation, while providing ample open space with generous buffers between activity areas.

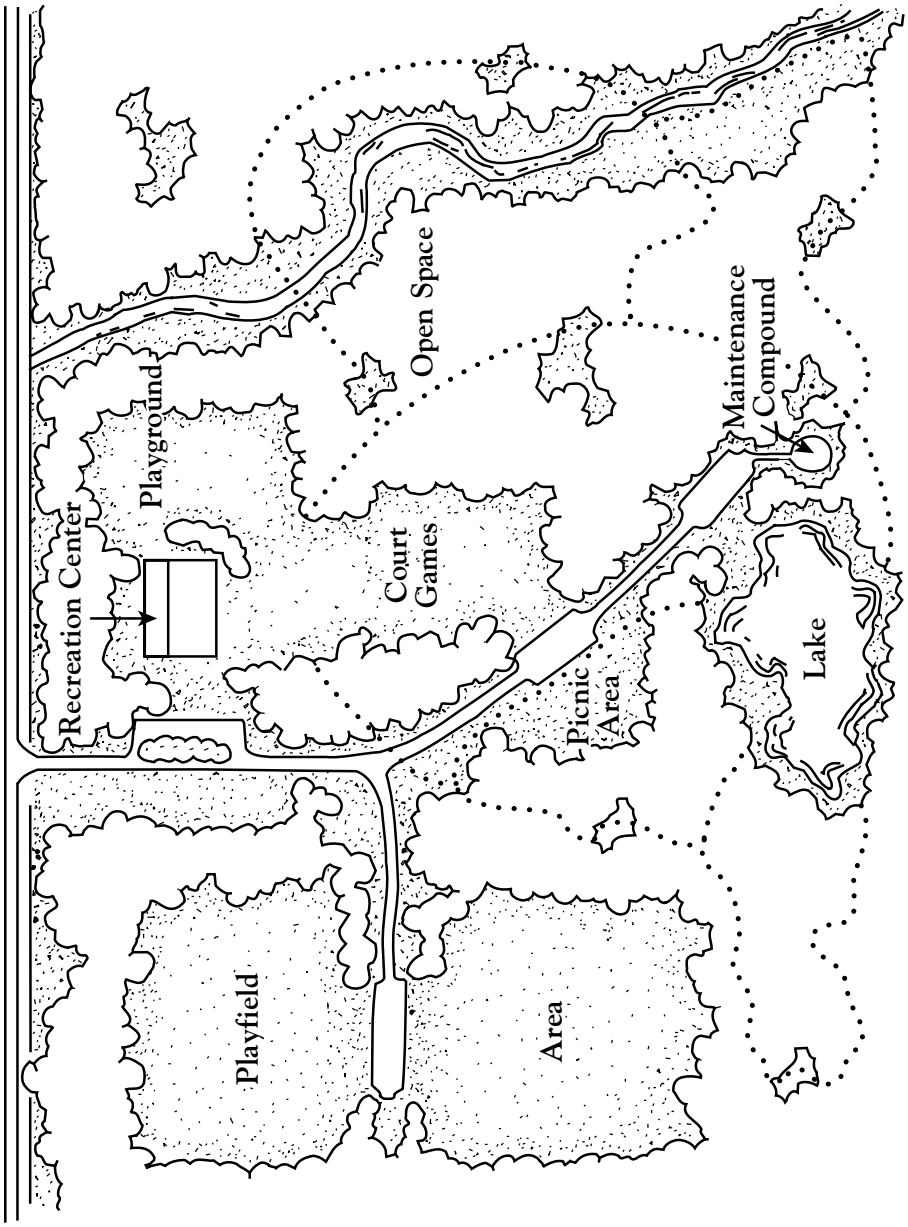
- **Character**
  The site can vary from flat open space to moderately or steeply sloping topography. It should be capable of supporting a wide variety of activities with ample buffer and natural areas. A stream, lake or tidal waterfront site is very desirable. The district park needs to be accessible by automobile, as well as by pedestrians and bicycles.

- **Location**
  When possible, the district park should be located near the center of the service area. It should be on or near a major street that provides good access to the facility. In urban or suburban situations, easy access to mass transit is highly desirable. The site also should be accessible by pedestrians and bicyclists.

- **Potential facilities**
  - playgrounds
  - picnic facilities
  - tennis courts
  - ball diamonds
  - horseshoe pits
  - volleyball courts
  - basketball courts
  - parking areas
  - recreation centers
  - golf (on larger sites with ample land)
  - trails
  - natural area
  - lake or stream
  - fishing/boating
  - swimming pool and/or beach with a swimming area
  - football/soccer fields
  - shuffleboard courts

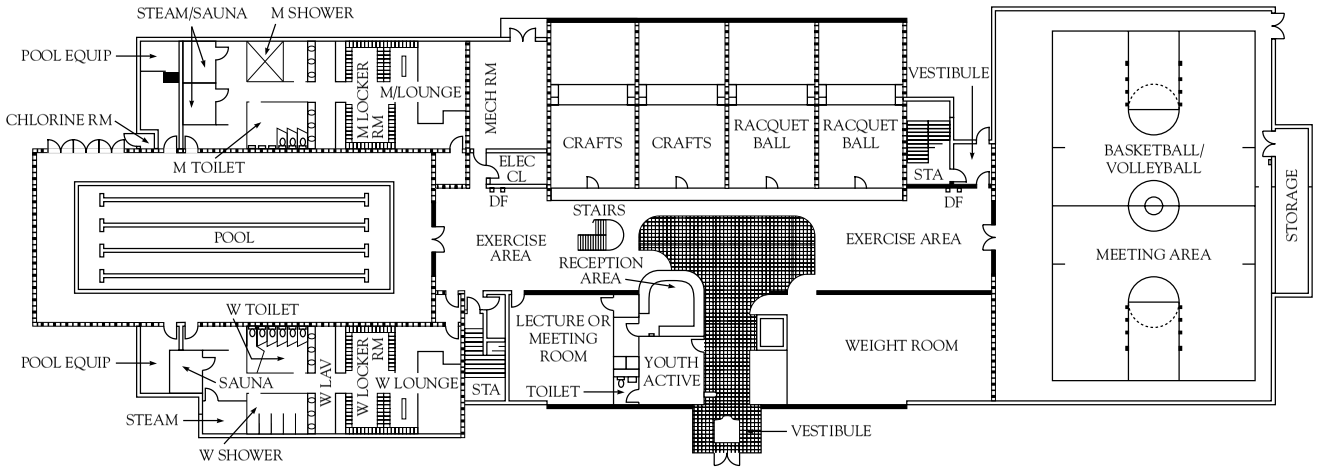
Schematic Sketch 4

DISTRICT PARK
(CITY OR COUNTY)
20 - 50 AC



Schematic Sketch 5

RECREATION CENTER



Recreation Center

The recreation center may be found at neighborhood, community, district, and large urban parks. At neighborhood parks, the center is usually 15,000 to 20,000 square feet. It generally will include multipurpose rooms, arts and crafts area, game room, kitchen, lounge and lobby, restrooms and office. If a gymnasium is not available in a neighborhood school, the recreation center also may include a gymnasium and locker room facilities.

The recreation center in a larger park serving a community, district, or city will be considerably larger, from 20,000 to 80,000 square feet, and will include several multi-purpose rooms, gymnasium, childcare facilities, aerobics room, racquetball courts, shower and locker rooms, game room, arts and craft area, auditorium or areas for performing arts, classrooms, concession stand, kitchen, large meeting room, restrooms, office, lounge or lobby, and some specialized areas such as a ceramics workshop or weight room. Frequently, larger centers have an indoor pool used year-round for recreational, instructional and therapeutic purposes. An important consideration in all recreational facilities is adequate storage space for equipment and supplies.

Most localities that have developed guidelines for indoor facilities have adopted a standard of 0.5 to 0.75 square feet per resident. Small centers may serve 5,000-8,000 neighborhood residents, while larger centers may well serve communities of 50,000-80,000 people.

Greenway

- **Size**
  Any length, preferably longer than one mile
  Typically 75-100 feet or wider

- **Service area**
  Depends upon the location, size and significance of the corridor

- **Administrative responsibility**
  Federal, state, local or public/private partnership

- **Purpose**
  Greenways are established to protect, preserve, and maintain existing natural and cultural corridors; to link population centers with recreational, educational and business areas and other population centers; and to provide recreational and non-motorized transportation opportunities along these corridors by using natural features (ridgelines, steep slopes), utility rights-of-way, abandoned railroad rights-of-way, and watercourses (streams, rivers, canals, etc.).

- **Character**
  Depending on the location, it can range from rugged terrain with scenic views and extensive vegetation to open level meadows. The greenway can be a separate entity or a portion of any of the other park categories.

- **Potential facilities**
  - camping
  - picnic facilities
  - trails (all types)
  - natural area
  - winter sports
  - historic sites
  - fishing
  - access points
  - canoeing
  - parking areas
  - boating and facilities

State Park

- **Size**
  600+ acres
  Plan at 10-acres/1,000 population

- **Service area**
  Entire state

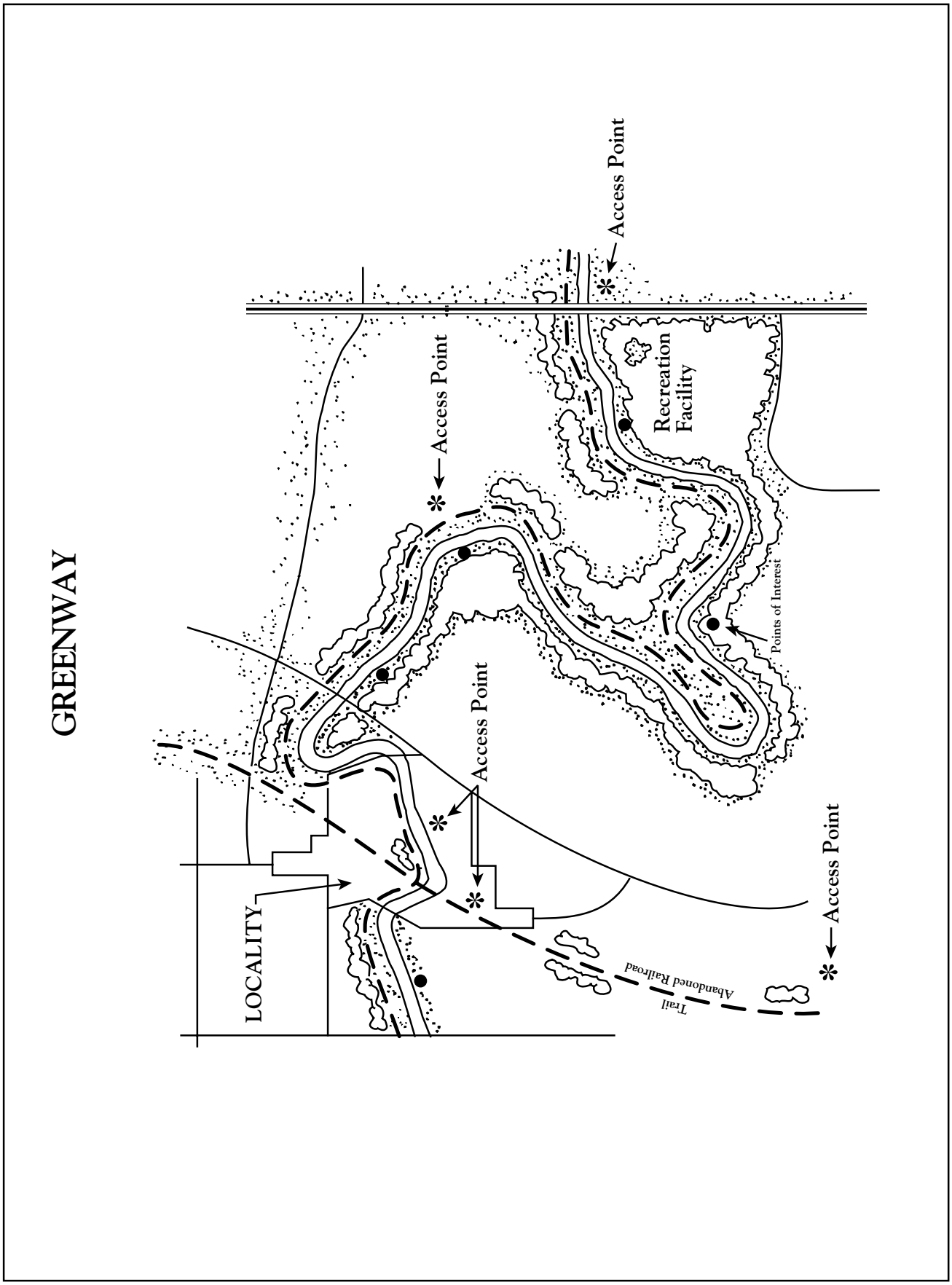
- **Administrative responsibility**
  Virginia Department of Conservation and Recreation

- **Purpose**
  To provide significant recreational experiences and protect a significant natural resource base or landscape.

- **Character**
  Extensive open space and/or unique natural features in the form of views, terrain and vegetation are important qualities of the state facility. Compatible recreational uses are a necessity. Access to a major lake, ocean or river is very desirable.

- **Location**
  - Usually determined by the location of areas with unique natural features and proximity to population centers.
  - The site should meet a variety of the popular outdoor recreational activities identified in the Virginia Outdoors Plan.
  - The site must be consistent with the mission, goals and objectives of the Department of Conservation and Recreation (DCR).
  - The site should contain a significant natural feature — preferably water-oriented.
  - A single access road allows excellent control and monitoring of users to the park and serves as the backbone of the vehicular circulation system. Specialized activities are grouped in intensive use nodes along the central circulation system to provide areas for camping, picnicking, and water-oriented activities. The remaining area — as much as 80% of the total site — can be left as natural, undeveloped, but usable open space for such activities as hiking, horseback riding, nature study and fishing.

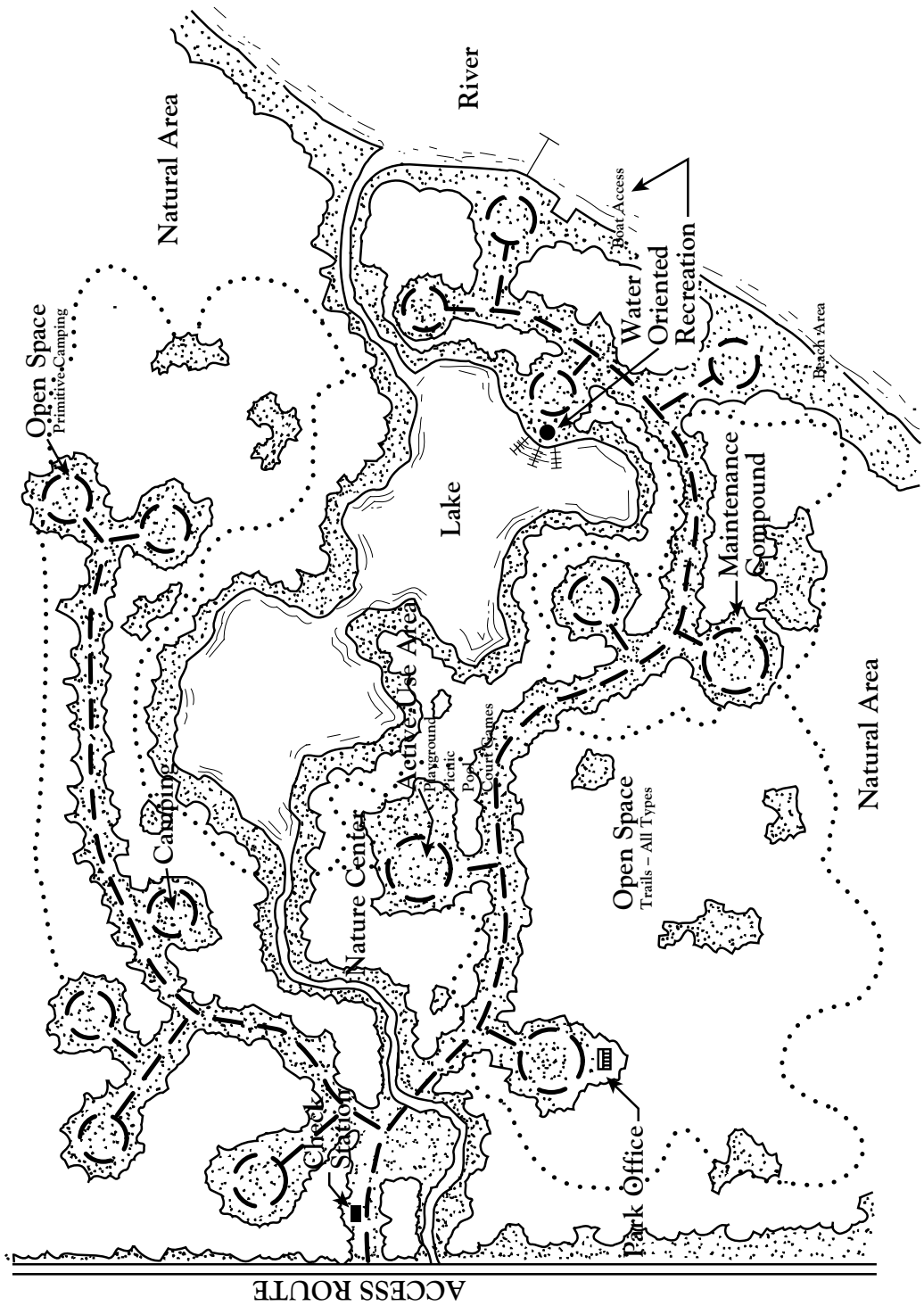
- **Potential facilities**
  - camping
  - picnic facilities
  - natural area
  - playground
  - trails (all types)
  - canoeing
  - parking areas
  - overnight facilities
  - natural/historic interpretive facilities
  - boating facilities
  - fishing lake and/or stream access
  - swimming pool and/or swimming area and beach
  - open play fields
  - amphitheatre


GREENWAY
LOCALITY
Access Point
Access Point
Access Point
Access Point
Recreation Facility
Points of Interest
Abandoned Railroad Trail

Schematic Sketch 7

STATE PARK

600 - 2500 AC



Regional Park

- **Size**
  100-500 acres
  No special size/1,000 population

- **Service area**
  Approximately 45 minutes' driving time
  25-mile service radius

- **Administrative Responsibility**
  Single or multijurisdiction

- **Purpose**
  Regional parks should supplement the community park system with more extensive open space areas and readily accessible passive recreational opportunities.

- **Character**
  Varied terrain, scenic views and extensive natural areas are important qualities of regional parks, along with the opportunity for participation in a variety of recreational activities.

- **Location**
  Locate in areas with significant natural characteristics. The regional park should serve several communities.

- **Potential facilities**
  - day camping
  - overnight camping
  - natural area
  - picnic facilities
  - trails (all types)
  - playground
  - amphitheatre
  - swimming area, (beach and/or pool)
  - boating facilities
  - golf
  - fishing lake
  - athletic fields

The regional park is designed to provide recreational space for a relatively large population. The road system enables smooth vehicular flow to the various facilities, and a single main access facilitates control and reduces conflicts between use areas. Located conveniently to the circulation system are large, intensive-use areas and picnic grounds. Lakes, streams or other outstanding natural features are desirable assets. As much as 80% of the site is undeveloped usable open space to provide opportunities for hiking, nature study and other passive activities. An isolated segment of the site may be reserved for day camps.

The regional park should complement the facilities provided at other parks and is not a substitute for neighborhood, community or district facilities. In addition to the more intensively developed areas, the regional park should also offer an abundance of open space for recreational pursuits such as picnicking, hiking, nature study and enjoying the outdoors.

Schematic Sketch 6

REGIONAL PARK

100 - 500 AC

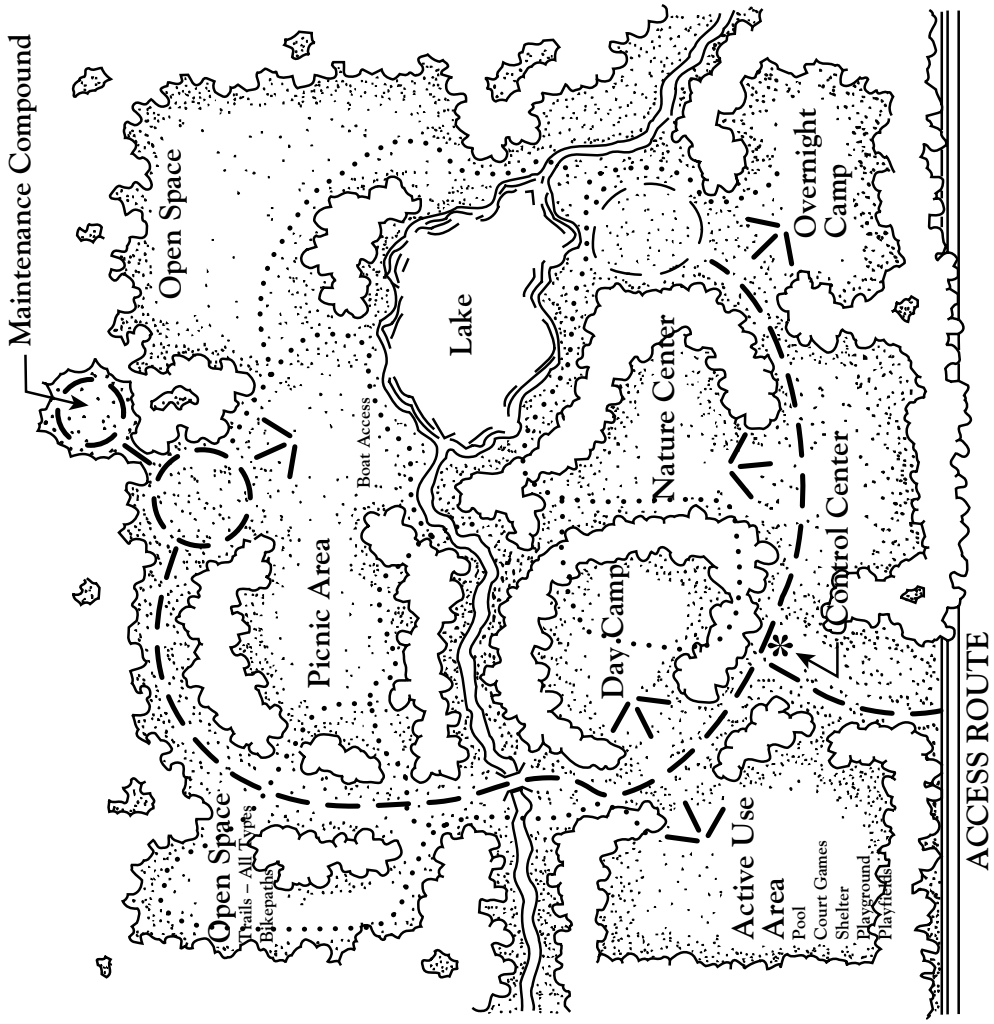


Table 26
Space Standards

Activity and Type of Facility	Dimensions**	Net acres* required	Instant capacity	units/ pop.	Remarks
Archery (Range)	10' x 300' min. per target	.85	10	1/50,000	Ten positions — with movable targets. Could be per part of a range complex including rifle, pistol, skeet and trap-buffer area required.
Baseball (Diamond)					Should be included in complex of fields at community
Adult	350' x 350' (400' to CF)	3.0	18	1/6,000	district or regional parks — lighting desirable.
Little League	200' x 200' (250' to CF)	1.5			Check League Guidelines for actual size.
Basketball (Court)	60' x 100'	0.15	10	1/5,000	Full court — 1/2 court games would double instant capacity. Should be included in complex of fields at neighorhood, community district or regional parks — lighting desirable — also use as multipurpose court.
Beach (Swimming & Bathing)	Minimum 200' x 600'	3.0 acre	150	25' shore/1,000	Consider at any facility where there is a water body that can support beaches. Swimming unit should contain 100' wide beach with 100' of available swimming water — 30% of people will be in water at one time under normal conditions — support facilities should be shared with other activities.
Boating, (Power) & Water Skiing	Variable to meet conditions	12 ac/boat	3.0/boat	0.5 ac/1,000	Minimum of 100 acres of open water at least 4' in depth desirable — would accommodate eight boats at one time.
Boat Ramp	16' x length to meet 3" depth at low water	2 acres	8 boats/hr	see remarks	Provide one ramp for each 40 boats anticipated to use the facility on a design day. (12-14% slope)
Camping (Self-Contained Unit)	35' x45'	0.125/acre	8 units/ac	10 ac/1,000	Consider this density primarily as a destination-type facility — support facilities would be needed to integrate tent camping with self-contained units — two types should be separate when practical — consider at large regional and state facility.
(Tent)	90' x100'	0.20 ac/site	5 units/ac	5ac/1,000	This is a low density and should be developed when resource is fragile — consider at regional and state facilities.

* Does not include land requirements for support facilities, buffer and parking.

** Suggested Dimensions — Site conditions or intended use may dictate smaller court or field.

Space Standards continued

Activity and Type of Facility	Dimensions**	Net acres* required	Instant capacity	units/ pop.	Remarks
Canoeing	Variable	mile	8 people/		**Small streams 10 to 40 feet wide, 4 canoes/mile — medium stream 40' to 70' wide will support 8 canoes/mile — large streams 75' wide or over will support 12 canoes/mile. Width x 5,280' ÷ 43,560 sq ft = surface acres/mile.
Trails					
Multi-use	minimum 12' width				Connector trails should be used to connect schools, parks, and other facilities. Proper signage and education is needed to minimize user conflicts.
Bicycle	minimum 10' width				Provide off-road bicycle trails where practical to connect schools, businesses, parks.
Equestrian	Minimum 4' tread 8' cleared width				
Hiking/jogging	minimum 4' tread — rural minimum 5' tread — urban				Connector trails should be used to connect facilities.
Firearms (Shooting Range)	Variable	5 ac	20	1/50,000	Ten positions on each range. If possible, develop range complex with rifles, pistol ranges, and skeet and trap fields. — Careful coordination with National Rifle Association and local gun clubs desirable. Provide adequate buffer from other activities.
Fishing					
Bank shoreline	8' x 50' 1,000	400 sq. ft.	100 mile	1 mile shore/	Consider on any water body that can support fish population — DGIF suggests 10-acre minimum size where unlimited fishing pressure anticipated. Fishing water is a plus for any community, district, regional or state facility.
Boat		4 ac water/boat with 2 people	.50/acre	4 acre/1,000	
Stream		1 mile/four fisherman	4/mile		
Football (Field)	195' x 480' 150' x 360' actual play area	2.25	22	1/10,000	Should be included in complex of fields at community, district or regional park. Lighting desirable — could also serve as field hockey, lacrosse, or soccer field.

* Does not include land requirements for support facilities, buffer and parking.

** Suggested Dimensions — Site conditions or intended use may dictate smaller court or field.

Space Standards continued

Activity and Type of Facility	Dimensions**	Net acres* required	Instant capacity	units/ pop.	Remarks
Golf	6,500 yards/18 holes average, 7,000 yds. + championship course.	50 acre/9 holes	4/hole x # holes	9 holes/25,000	Eighteen holes for each 50,000 people minimum size 100 acres — 160 acres desirable — can accommodate 500 persons/day.
Hockey (Field)	200' x 350'	1.6	22	1/25,000	Should be included in complex of fields at community park. Lighting desirable. Are considered multipupose fields.
(Ice Rink)	85' x 200'	0.4	12	1/30,000	Artificial icemaking required — can adapt paved court areas to hold water in colder parts of state for limited winter use.
Horseshoes (Lanes)	12' x 50'	0.4	4	1/10,000	Include in neighborhood, community, district, or regional park; if in neighborhood with high percentage of people over 30 — multiple lane best.
Hunting					
Upland		12 acre/hunter/ day	.083 hunters/ac		Using a turnover factor of two = 6 acres of resources/hunter.
Waterfowl		12 ac/hunter	.083 hunters/ac		
Lacrosse (Field)	260' x 500'	3.0	20	1/25,000	Football or soccer fields often used — provided at community park.
ORV					
2 Wheel	min. 5' tread width	10 acre min.	4/mile	1 acre/5,000	Carefully planned trails are required to buffer from passive activities. Should be environmentally sensitive.
4 Wheel	min. 7' tread width	15 acre min.	4/mile	2 acre/5,000	
Picnicking	Variable		4/table	10 units/1,000	Tie with other activities — Density higher in urbanized areas.
Sailing	Variable	6 acre/boat	.5 person/acre	1 acre/1,000	Large expanses of open water desirable.

* Does not include land requirements for support facilities, buffer and parking.

** Suggested Dimensions — Site conditions or intended use may dictate smaller court or field.

Space Standards continued

Activity and Type of Facility	Dimensions**	Net acres* required	Instant capacity	units/ pop.	Remarks
Skateboard Park	Variable	0.25 min.	100	1/25,000	Smooth, level surface required – free from gravels – Concreter preferred; ramp/component materials can vary – steel requires least maintenance; park should be designed to accommodate a variety of vehicles (skateboards, roller blades, bicycles, etc.).
Skiing (Snow)	100' x length		75/lift	1 ac. ski slope/ 1,000	Requires northeast facing slopes. On site of 100 acres or more, slopes should be protected by trees. Also requires annual snowfall of 30" or more, or artificial snow-making equipment.
Soccer (Field)	250' x 400'	2.25	22	1/5,000	Provide at community, district, or regional park — football or lacrosse fields often used. Spring and fall seasons may require additional fields if football or baseball fields also used for soccer program.
Softball (Field)	300' x 300'	2.10	20	1/3,000	Provide in complex area neighborhood, community, district, or regional park. Lighting desirable — more than one field per site desirable.
Swimming (Pool)					
Jr. Olympic	45' x 75'	0.5	225	1/10,000	15 sq. ft. of water per person, based on 3% of of population, 100 sq. ft. deck per 35 sq. ft. of water.
Olympic	75' x 150'	0.75	750	1/20,000	
Tennis (Court)	60' x 120'	0.2	4	1/2,000	Provided at neighborhood, community, district, or regional sites — develop in pairs where possible — lighting desirable.
Volley ball	50' x 80'	0.1	12	1/1,000	Provide at neighborhood, community, district, or regional facilities. Consider using basketball courts for multipurpose use.

* Does not include land requirements for support facilities, buffer and parking.

** Suggested Dimensions — Site conditions or intended use may dictate smaller court or field.

APPENDIX B

Demand/Supply/Need for Outdoor Recreation Areas

The demand for outdoor recreation: *The 2000 Virginia Outdoors Survey*

The 2000 *Virginia Outdoors Survey* was a cooperative project between the Virginia Department of Conservation and Recreation and Virginia Commonwealth University. In the 35 years that the state has been conducting outdoor recreation resource survey work, this effort was the most comprehensive. In addition to addressing standard questions pertaining to participation in different types of outdoor recreational activities, the survey also asked, for each activity, how many household members participated, how much time it took to reach the place where they participated, and whether participation usually occurred at a publicly or privately owned facility. The activity list from which respondents could choose was also expanded in order to develop more comprehensive data on the types of outdoor recreational activities and resources enjoyed by Virginians.

The 2000 survey was designed to elicit more detailed information regarding major resource-based recreational activities. For example, boating questions sought to determine the type of boats used and whether they could be hand-launched or required a ramp, and what other activities were enjoyed while boating. Questions were also asked about the types of facilities and programs that should be provided within Virginia's state parks. Other questions probed for factors that prevented people from participating in their favorite activities, and respondents were asked for their perceptions of problems with public outdoor recreational areas. Certain questions were designed to gain information about the types of outdoor recreational areas/facilities most in demand and to determine the public's attitudes toward the protection of open space and rare, threatened or endangered species. A summary of the survey, with the questionnaire, can be obtained by contacting the Department of Conservation and Recreation, Division of Planning and Recreation Resources, 203 Governor Street, Suite 326, Richmond, VA 23219.

The survey process

Because of the amount of information covered, the 2000 *Virginia Outdoors Survey* was a mailed questionnaire. To ensure accuracy of results at both the state and regional level, Virginia was divided into four regions for sampling purposes: the Chesapeake region (Planning Districts 17, 18 and 22), the urban corridor (Planning Districts 8, 15, 16, 19 and 23), the Piedmont region (Planning Districts 9 through 14), and the Mountain region (Planning Districts 1 through 7). Addresses were acquired within each region through a random selection process and questionnaires were mailed. If a household failed to return its questionnaire within two weeks, a postcard reminder was sent. Households not responding within a period of a few months were sent reminder letters, as well as additional survey copies. As a result of these efforts, more than 3,400 valid responses were received.

To help ensure validity of the data, the responses were weighted according to 2000 Census data to correspond with population characteristics such as race, income and property ownership for each region. Survey estimates are 95% certain to be within ±2.0% confidence interval of the actual attitudes of the population at the statewide level. This high level of confidence makes the data an excellent source of information regarding Virginians' preferences and attitudes about outdoor recreation and open space resources.

Results and trends

One of the most significant findings of the 2000 *Virginia Outdoors Survey* is the popularity of water-based recreation. Four of the top-ranked 10 activities are water-oriented, thus requiring access to the state's waters for participation. Virginians are concerned about improved water access, as 55.7% of respondents ranked the provision of additional access to water for fishing, boating and swimming as the most important outdoor recreation resource need. The popularity of trail-based activities is also demonstrated as the next two highest ranked needs are hiking/walking trails and bicycle trails at 54.6% and 39.7%, respectively.

Another interesting trend identified in the survey is the growing popularity of visiting natural areas (26.9%) visiting gardens (21.6%), and nature study (11.1%). These activities show an increase in popularity from the 1992 *Virginia Outdoors Survey*. While these activities were not even measured in earlier surveys, they are receiving a significant amount of participation today and reflect the public's interest in the environment and natural resources. It is also interesting to note that environmental education ranks as one of the most important services that should be provided in state parks.

Resulting data on the perceived importance of outdoor recreational opportunities for Virginians is a key component of the survey. Results show that 64.1% rate outdoor recreation as *very important*, 29.6% feel it was *somewhat important* and only 6.4% indicate it was *not important*. Thus, the overwhelming majority (93.7%) of Virginians believe that it is important for them to have outdoor recreational opportunities available. In addition, there is a strong opinion (79.2%) from the public that government agencies should provide outdoor recreational areas and facilities.

The survey also addressed the factors that limit one's participation in the desired outdoor recreational activities. Not surprisingly, time and money are at the top of the list. While public agencies cannot have much of an impact on these two areas, the next four highly rated limitations are ones for which the public sector has responsibility. In order of importance, the major limitations identified by Virginians are:

distance to desired facility	42.5%
availability of desired facility	40.8%
overcrowding at facility	40.2%

Participation and travel time data generated by the survey will be useful to plan for future provision of outdoor recreational opportunities. Other surveys have found that the highest participation rates occur in those activities located close to home. For example, walking for pleasure has an average per person participation rate of 99 times per year. Field sports, such as softball and soccer, have participation rates of 30.7 and 47.5 times per year, respectively. Court games, such as basketball and tennis, have participation rates of 39.4 and 25.5 times per year, respectively. Playground use has a participation rate of 41.7 times per year. All of these activities have an average travel time of less than 30 minutes, showing their need to be located close to home. While the frequency of participation for many of these activities is quite high, a relatively small percentage of the total population participates on a regular basis.

On the other hand, resource-based activities generally draw a larger segment of the population, but who tend to participate less frequently. For example, 44.3% of the population visit the beach; 42.3% participate in fishing; 40.9% participate in boating; and 31.6% of the population camps an average of seven times per year. Travel times for these resource-based activities are also significantly greater — an average of 1.5 hours.

The survey confirmed that weekends are still a favorite time to participate in recreational activities, with 65% of all participation occurring on Saturdays and Sundays. However, the number of people who participate on both weekends and weekdays is 28%, indicating a gradual spreading of activity into the midweek period.

Finally, the survey obtained information on Virginians' attitudes concerning the conservation of open space and rare, threatened and endangered species. When asked if it was important to protect open space, 72.8% of the population felt it was *very important*, 20.3% *somewhat important*, 1.5% *not important* and 5.4% indicated that they *did not know*. When asked if they felt open space was adequately protected, 37.9% said no, 22.7% said *yes*, and 39.4% said they *did not know*. When asked if they would be willing to give up certain property uses to protect open space, only 5.0% were *very willing*, 17.7% were *willing*, 31.1% were *somewhat willing*, 25.6% were *not willing*, and 20.6% *did not know*. This indicates a strong need for public edu-

cation on the importance of open space and ways in which it can be conserved. Obviously, a large segment of the population is not yet sure how they feel about this issue. Their support will be important to the future of conservation of natural and recreational resources.

With respect to endangered species, people are somewhat more willing to share some property rights for conservation. In this case, 29.6% are *somewhat willing*, 23% are *willing*, 12.2% are *very willing*, and only 20.1% are *not willing*. In this instance, there is only 15.1% in the *do not know* category. However, the need for a strong program to educate those not familiar with the importance of these resources still exists and could have a significant effect on the conservation of the state's open space and natural resources.

Facility demand and need

Data concerning the number of participants in each recreational activity was used to estimate the demand for recreational areas and facilities using the following framework.

Activity days were measured as the estimated number of individuals participating (the number of individual persons in all survey households reported as participating, multiplied by a weight factor for the households as described above), multiplied by the median number of days spent by each participant within the survey region. It should be noted that the median figure results in a conservative estimate of the total number of activity days for each activity.

Demand for facilities and recreational areas to support each activity was estimated using rule-of-thumb capacity standards developed by the Department of Conservation and Recreation, generally following those used in previous demand studies. Activity clusters were developed for some activities, such as water-based recreation, which share the same resources. Current needs based on 2000 Census figures were projected to the year 2010 using official population projections, by locality, obtained from the Virginia Employment Commission.

The geographic level of analysis for estimating demand was the survey region. Statewide needs were obtained by adding the regional needs; planning district demand and local demand were allocated proportionally to the population of each sub-area within each region.

Supply estimates were taken from the statewide inventory of recreational areas and facilities, which is maintained and updated by DCR for this study. The data at the individual facility level was totaled by locality, by planning district and statewide for comparison with estimates of need at each level.

Need gaps were calculated by subtracting the current supply from the current and projected demand for each activity or activity cluster. The need applies only to the specified area (i.e., locality, planning district, or statewide), and therefore does not take into account imported demand such as tourism from outside the state or local area. In reality, a local surplus of capacity, such as the water resources in the Chesapeake Bay region, or the scenic resources of the Blue Ridge, often results from visitors from outside the area.

Capacity standards used to estimate demand appear in the following table. The formula used to estimate demand is:

$$D = (A/W)P/C$$

Where:

D is the demand in units,
A is the annual number of activity days spent in the activity,
W is the number of weeks the activity is in season,
P is the proportion of activity days that occur on the peak day of the week, and
C is the daily capacity of the facility or area unit.

The daily capacity, C, is calculated as:

$$C = I\ T$$

where:

I is the instant capacity, and
T is the turnover factor per day.

In estimating area and facility demand, activity clusters were identified. Stream fishing, canoeing, kayaking and jon boating, rafting and tubing all use stream miles. Therefore, demand for these activities was added together to compare with the inventory total for this resource. Lake and bay fishing, sailing, sailboarding, power boating, water skiing and jet skiing were combined to obtain a total need for water acres.

Off-road motorcycling and unlicensed all-terrain vehicle use were combined for off-road trail miles. The demand for outdoor swimming at natural areas was estimated in terms of beach acres rather than water acres, and this was combined with sunbathing. Football and soccer demand were added together because they share the same fields.

Alternate estimates of demand can be calculated from the results for two activities using the following conversion factors: large indoor or outdoor swimming pools can accommodate three times the number of users as standard size pools; and demand for ski areas may be estimated as 44 acres per lift, or one acre per 17 skiers per day.

Table 27

Capacity of Areas and Facilities by Activities

Activity	Weeks in Seasons	Peak Day Proportion	Instant Capacity	Turnover Factor	Daily Capacity	Units
Baseball	26	0.37	18	4	72	fields
Basketball	26	0.37	10	6	60	goals
Bicycling for pleasure	26	0.37	40	5	200	miles
Camping	26	0.46	3	1	3	sites
Canoeing, Kayaking, Jon Boating	36	0.44	8	6	48	stream miles
Fishing Stream	40	0.45	4	4	16	stream miles
Fishing Lake, Bay	40	0.45	0.5	4	2	water acres
Football	20	0.37	22	6	88	fields
Golf	26	0.39	72	2.5	180	courses
Hiking, Backpacking	26	0.40	10	3	30	trail miles
Hosreback Riding	26	0.45	8	5	40	miles
Hunting	18	0.49	0.084	2	0.166	acres
Ice Skating	6	0.42	100	3	300	rinks
Jet Skiing	20	0.47	0.5	3	1.5	water acres
Jogging, Fitness Trail	26	0.15	24	3	72	mile trail
Motorcycling Off-Road	26	0.38	4	8	32	trail miles
Nature Study	26	0.37	2	2	4	acres
Picnicking Away From Home	26	0.54	4	2	8	tables
Pools, Swimming Outdoors	14	0.40	225	3	675	pools
Pools, Swimming Indoors	52	0.40	225	3	675	pools
Power Boating	26	0.47	0.25	3	0.75	water acres

Table 27

Capacity of Areas and Facilities by Activities continued

Activity	Weeks in Seasons	Peak Day Proportion	Instant Capacity	Turnover Factor	Daily Capacity	Units
Playground Use	26	0.37	25	4	100	sites
Rafting	26	0.44	16	6	96	stream miles
Sailboarding	26	0.45	1	2	2	water acres
Sailing	26	0.45	0.5	2	1	water acres
Skateboarding	26	0.40	25	2	50	sites
Snow Skiing	14	0.27	75	10	750	ski lifts
Soccer	20	0.37	22	6	88	fields
Softball	26	0.37	20	4	80	fields
Sunbathing, Beach Use	20	0.43	150	2	300	beach acres
Swimming, Outdoor Area	14	0.43	150	2	300	beach acres
Tennis	26	0.39	4	6	24	courts
Tubing	14	0.44	40	6	240	stream miles
Unlicensed All-Terrain Vehicle Use	26	0.38	4	8	32	trail miles
Vlisiting Gardens	40	0.44	50	2	100	sites
Visiting Historic Sites	52	0.44	50	2	100	sites
Visiting Natural Areas	26	0.44	50	2	100	sites
Volleyball	26	0.37	12	6	48	courts
Water Skiing	20	0.47	0.25	3	0.75	water acres

Table 28
Division of Planning and Recreation Resources
Projected Statewide Needs

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Baseball	12,466,080	2,464	fields	1,828	158	2,082	2,695	2,313
Basketball	31,234,301	7,408	goals	3,027	199	4,381	8,135	5,108
Bicycling	67,133,477	4,777	miles	NI			5,247	
Lake, River, Bay Use (combined)	38,736,080	507,854	water acres	1,302,491		-794,637	553,502	-748,989
Power Boating	11,199,042	269,926	water acres	S			294,328	
Sailing	2,253,110	19,498	water acres	S			20,975	
Lake Fishing	12,240,857	68,855	water acres	S			74,494	
Salt Water Fishing	8,536,764	48,019	water acres	S			52,833	
Jet Ski/ Personal Watercraft	2,530,308	39,641	water acres	S			43,309	
Water-Skiing / Towed on Water	1,975,998	61,915	water acres	S			67,562	
Camping (*)	12,775,279	75,341	sites	51,257		24,084	82,188	30,931
Tent camping	4,187,630	24,696	sites	8,942	5066	15,754	27,025	18,083
Developed camping	8,587,649	50,645	sites	42,315	35453	8,330	55,163	12,848
Fitness Trail use	4,852,462	389	mile trails	422	47	-33	430	8
Fields (combined)	38,644,615	8,124	fields	2,185	84	5,939	8,953	6,768
Football	21,158,134	4,448	fields	NS			4,907	
Soccer	17,486,481	3,676	fields	NS			4,047	
Stream Use (combined)	15,743,642	9,006	stream miles	3,175		5,831	9,753	6,578
Stream Fishing	11,481,493	8,073	stream miles	S			8,736	
Human-powered boating	2,827,129	720	stream miles	S			784	
Rafting	568,456	100	stream miles	S			109	
Tubing	866,564	113	stream miles	S			124	
Golfing	22,665,370	765	courses	301	361	464	837	536
Hiking/ Backpacking	8,909,287	4,569	trail miles	5,363	612	-794	4,967	-396
Horseback Riding	1,833,529	793	miles	2,103	472	-1,310	861	-1,242
In-Line Skating	14,219,037	1,012	miles	NI			1,119	
Jogging/Running	88,143,668	7,063	mile trails	NI			7,776	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus

* - 79.6 % of 2000 Virginia Outdoor Survey respondents preferred developed campsites
20.4 % of 2000 Virginia Outdoor Survey respondents preferred primitive campsites

Note: Demand multipliers used to create this chart are based on the findings of the Virginia Outdoors Survey as measured at the regional level. In regions with significant contrasts in population density and demographics, need results may show surpluses where none exist, especially in sparsely populated counties. Additional analysis will be required to adjust these results to local conditions.

Projected Statewide Needs Continued

ACTIVITY	ACTIVITY DAYS	DEMAND	UNITS	TOTAL SUPPLY	PRIVATE SUPPLY	2000 NEEDS	2010 DEMAND	2010 NEEDS
Nature Study/ Programs	3,130,303	445	sites	67		378	489	422
Picnicking Away from Home	9,682,208	25,137	tables	33,035	10,517	-7,898	27,462	-5,573
Skateboarding	4,897,560	1,507	sites	NI			1,665	
Snow-Skiing or Snowboarding	3,090,031	79	ski lifts	22	22	57	87	65
Softball	14,523,040	2,583	fields	1,871	121	712	2,833	962
Sunbathing/ Relaxing on Beach	25,564,746	1,832	beach acres	2,047	435	-215	2,013	-34
Swimming, Outdoor Area	19,014,841	1,947	beach acres	2,047		-100	2,141	94
Swimming, Outdoor pools	22,355,220	946	pools	747	507	199	1,039	292
Swimming, Indoor pools	13,477,237	154	pools	64	20	90	169	105
Tennis	13,009,606	8,131	courts	3,914	1,501	4,217	8,944	5,030
Used a Playground	38,084,653	5,420	sites	2,666	276	2,754	5,962	3,296
Visiting Gardens	3,048,908	335	sites	NI			369	
Visiting Historic Sites	13,141,685	1,112	sites	NI			1,223	
Visiting Natural Areas	7,799,637	1,320	sites	NI			1,444	
Volleyball	3,090,000	916	courts	144	17	772	1,002	858
Went Hunting	10,232,450	1,678,012	acres	2,142,241		-464,229	1,815,697	-326,544
Went Shooting Total	6,005,147	3,392	fields	NI			3,665	
Target	4,041,035	2,283	fields	NI			2,484	
Skeet or Trap	1,574,402	889	fields	39		850	965	926
Other	838,768	474	fields	NI			513	
Drive for Pleasure	54,482,683	na	na	NI			na	
Motorcycle/ATV (combined)	4,908,532	2,242	miles	228	5	2,014	2,415	2,187
Driving All-Terrain Vehicle	3,577,252	1,634	miles	NS			1,759	
Driving Motorcycle Off-Road	1,331,281	608	miles	NS			656	
Driving 4-Wheel-Drive Off-Road	3,565,865	na	na	NI			na	
Walking for Pleasure	224,976,112	na	na	NI			na	
Other	3,537,520	na	na	NI			na	

S - same as combined NS - not inventoried separately NI - not inventoried (-) - indicates surplus.

Survey Results

The results of the survey are available from the Department of Conservation and Recreation, 203 Governor Street, Suite 326, Richmond, VA 23219.

Table 29
VIRGINIA OUTDOORS SURVEY
RANKING OF ACTIVITIES

Rank	Activity	Statewide %
1	Walking for pleasure	67.1
2	Driving for pleasure	62.4
3	Swimming	52.2
4	Fishing	42.0
5	Visiting historic sites	40.4
6	Bicycling	39.7
7	Sunbathing	39.1
8	Boating	34.1
9	Picnicking	28.7
10	Camping	28.2
11	Visiting natural areas	26.9
12	Golfing	25.1
13	Using playgrounds	24.4
14	Visiting gardens	21.6
15	Jogging/running	21.5
16	Hiking/backpacking	18.3
17	Tennis	16.2
18	Playing basketball	15.4
19	Hunting	13.8
20	Shooting	13.4
21	Snow-ski/snowboard	11.9
22	In-line skating	11.2
23	Nature study/program	11.1
24	Playing softball	10.1
25	Playing soccer	8.7
26	4-wheel-drive off-road	7.6
27	Using fitness trails	7.3
28	Playing football	7.0
29	Water-skiing/towing	6.7
30	Jet ski/personal water craft	6.5
31	Playing baseball	6.2
32	Horseback riding	6.2
33	Playing volleyball	6.1
34	Tubing	6.1
35	Skateboarding	4.1
36	Rafting	3.7
37	Driving all-terrain vehicle	2.4
38	Motorcycling off-road	1.2
39	Other activities	2.8

Supply of outdoor recreational areas and facilities

The available supply of recreational areas and facilities forms the link between recreational demand and the need for outdoor recreational opportunities. An updated and current inventory of the outdoor recreational supply is an essential factor for measuring actual needs in the Commonwealth.

In 2000, the Department of Conservation and Recreation conducted a statewide inventory of existing outdoor areas and facilities throughout Virginia. This survey was designed to solicit information from all cities, towns, counties, and local parks and recreation agencies. Respondents were provided with an inventory of local recreational sites and facilities and were asked to make additions and/or deletions to existing sites. Respondents were furnished with a form on which to tabulate and record recreation resources not currently listed in the state's supply system. To determine the true supply and subsequent need for outdoor recreational areas and facilities, it was requested that information on all recreational providers — public, quasi-public, and private, be included.

The 1996 *Virginia Outdoors Plan* included an expanded user survey and an expanded inventory of recreational facilities and resources available in the private sector, and the effort has been expanded and continued in the 2000s. Accurate information about all recreational opportunities should better serve the recreational needs of Virginians and enhance the management of recreation resources. Additionally, it will provide valuable information on available resources that might become a medium for recreational contributions through public and private partnerships.

DCR stores and maintains computerized inventory records on the statewide supply of outdoor recreational areas and facilities. The supply data is arranged and stored by locality, recreational region and planning district commission. The availability and use of sites and facilities is categorized as public, quasi-public, or private, and site ownership is identified as local, regional, state or federal. Land and water acreage is indicated, as is specific information on the type and number of facilities. The data system allows DCR to periodically update and add new information into the supply inventory. The inventory has been expanded to include many private tennis areas, swimming and racquet clubs, hunting clubs and recreational facilities located in housing developments. DCR has the capacity to store more information about private recreational areas and facilities. This feature improves knowledge of available supply and more accurately validates information about outdoor recreational demand and need. Such information about locally available public and private recreational facilities also ensures that real needs are not duplicated in the planning process. Every effort is made to obtain accurate information from survey respondents. However, some large resource areas and facilities serve multiple respondents that can lead to overlapping survey information. It is requested that any discrepancies found in this document be reported to DCR's Division of Planning and Recreation Resources at (804) 786-2093.

The supply inventory does not measure the quality of available facilities. However, information on maintenance capability, facility design, lighting, accessibility and other environmental factors usually indicates if the supply of recreational resources has maximum user potential.

The Department of Conservation and Recreation uses information gathered on the existing supply of outdoor recreational areas and facilities as a resource for several in-house initiatives related to planning, grants administration and technical assistance for parks and recreation. The Department of Conservation and Recreation also distributes this information to federal agencies and to local and regional political jurisdictions in the Commonwealth.

In order to accurately assess and meet the recreation and open space needs of a locality, it is imperative to the planning process to consider the following: When assessing existing and proposed recreational development, it is important to consider that even though a region, county or city may show a surplus of resources (for example, soccer/football fields, boat ramps, trails, local parks) based on the localities inventory of recreation resources, not all opportunities are available to all citizens. Barriers like proximity (travel distance) and access (private, member-only facilities) must be taken into consideration to most accurately meet the needs of the locality.

Table 30 on page 392 summarizes the basic supply of outdoor recreational facilities used in developing the *Virginia Outdoors Plan*.

Table 30

STATEWIDE SUPPLY OF RECREATIONAL FACILITIES

ACTIVITY	SUPPLY
Baseball	1,828 fields
Basketball	3,027 goals
Bicycling	NI***
Lake, river, and bay use	1,302,491 miles
Camping	51,257 sites
Fitness trails	422 miles
Fields (football/soccer)	2,185 fields
Stream use (combined)	3,175 stream miles
Golfing	5,427 courses
Hiking/backpacking	5,363 trail miles
Horseback riding	2,103 miles
In-line skating	NI***
Jogging/running	NI**
Nature study/programs	67 sites
Picnicking	33,035 tables
Skateboarding	NI
Snow-skiing/snowboarding	22 lifts
Softball	1,871 fields
Sunbathing/relaxing on beach	2,047 beach acres

ACTIVITY	SUPPLY
Swimming, outdoor area	2,047 beach acres
Swimming, outdoor pools	747 pools
Swimming, indoor pools	64 pools
Tennis	3,914 courts
Playgrounds	2,666 sites
Gardens	NI
Historic sites	NI
Natural areas	NI
Volleyball	144 courts
Hunting	2,142,241 acres
Shooting total	NI
Driving for pleasure	NI***
Motorcycle/ATV (combined)	228 miles
4-wheel-drive off-road	NI****
Walking for pleasure	NI***

NI: Not Inventoried
* Not added to other similar resources.
** Includes only specially constructed trails.
*** Unmeasured, provided on any suitable surface including local streets.
**** Unmeasured, provided on any suitable surface

The need for outdoor recreational areas and facilities

Demand and supply studies are conducted to calculate the need for recreational lands and facilities. The needs picture provides a reasonably accurate guide for directing the expenditure of local, state and federal resources, and suggests emphasis for other governmental and private acquisition and development programs. An estimate of area and facility needs has been prepared for the state as a whole and for each of the 21 planning regions.

Facility needs do not necessarily reflect activity popularity or activity day demand, but rather the design day concept. For example, some outdoor recreational activities, such as bicycling, require fewer facilities than others because participation is fairly evenly distributed throughout the week and the year. An activity such as snow skiing, on the other hand, requires more facilities per participant because participation occurs primarily on winter weekends.

The 2000 *Virginia Outdoors Survey* found that one of the reasons respondents did not participate more in some recreational activities was because of overcrowding. The formula used to compute facility needs based on demand realistically apportions the majority of each week's use to weekend days. Since as much as 90% of each week's use occurs on weekends, the supply of existing facilities is crowded on weekends, and providers feel pressure to try to lessen the crowding by constructing new facilities. However, if use could be spread out more evenly over the week, fewer facilities would be needed to meet the demand.

Present and projected regional and planning district needs were considered in the development of the regional analysis presented in Chapter IV. Such needs may be met in a variety of ways including: acquisition and proper development of additional facilities; provision of facility lighting to lengthen use hours; implementation of mobile programs; use of incentives to encourage private facility managers to open their facilities to specific user groups; and proper coordination of transit systems, road improvement projects and the like to make existing recreational areas and facilities more accessible. In addition, incentives should be provided to promote private sector involvement in the development of recreational facilities and services.

Virginia's need for outdoor recreation can be met only through coordination and cooperation between public agencies and private enterprise. Summary needs data, by locality, is available from the Department of Conservation and Recreation's Division of Planning and Recreation Resources.

In 1994 and 1995, the National Survey on Recreation and the Environment interviewed approximately 17,000 Americans over the age of 15 in random-digit-dialing telephone samplings. The primary purpose was to learn about the outdoor recreation activities of people over the age of 15 in the United States. Table 31 on page 394 shows a comparison of participation by Americans in outdoor recreation activities from 1982-83 to 1994-95.

Table 31

National Survey on Recreation and the Environment (NSRE)

Activity	Number in 1982-83 (Millions)	Number in 1994-95 (Millions)	Percent Change
Bicycling	56.5	57.4	+1.6
Horseback riding	15.9	14.3	-10.1
Golf	23.0	29.7	+29.1
Tennis	30.0	21.2	-29.3
Outdoor team sports	42.4	53.0	+25.0
Boating	49.5	58.1	+17.4
Sailing	10.6	9.6	-9.4
Motorboating	33.6	47.0	+39.9
Water skiing	15.9	17.9	+12.6
Swimming/pool	76.0	88.5	+16.4
Swimming/non-pool	56.5	78.1	+38.2
Fishing	60.1	57.8	-3.8
Hunting	21.2	18.6	-12.3
Hiking	24.7	47.8	+93.5
Walking	93.6	133.7	+42.8
Running/jogging	45.9	52.5	+14.4
Bird watching	21.2	54.1	+155.2
Picnicking	84.8	98.3	+15.9
Sightseeing	81.3	113.4	+39.5
Off-road driving	19.4	27.9	+43.8
Ice skating	10.6	10.5	-0.9
Downhill skiing	10.6	16.8	+58.5
Cross-country skiing	5.3	6.5	+22.6
Snowmobiling	5.3	7.1	+34.0
Sledding	17.7	20.5	+15.8
Camping (overall)	42.4	52.8	+24.5
Developed area	30.0	41.5	+38.3
Primitive area	17.7	28.0	+58.2
Backpacking	8.8	15.2	+72.7
Attending a sports event	70.7	95.2	+34.7
Attending an outdoor concert or play	44.2	68.4	+54.7

Turnover refers to the number of times that a particular facility may be used by different individuals or groups during a day. For example, a baseball field might have a turnover factor of four games per day, since the average warm up and game will last almost two hours. Thus, the planner can reasonably expect to accommodate up to eight teams per field, per day.

An activity day is the participation by one person in any recreational activity during any part of one day. If an individual swims, picnics, and plays baseball during the day, that individual has generated three activity days (occasions) of recreation, one each for swimming, picnicking, and baseball.

Special Population

Persons with Disabilities

There are many opportunities in Virginia for most citizens to enjoy a wide variety of outdoor recreational experiences, including boating, hunting, fishing, hiking, bicycling, horseback riding, swimming, picnicking, camping, nature observation and sightseeing. However, many citizens with disabilities lack opportunities to participate in such activities. It's important for recreation planners and providers to understand some of the barriers persons with disabilities might face that may limit their participation. Physical, social, emotional, transportation and financial barriers can then be addressed during the planning and implementation phases of recreational program and facility development.

One of the biggest obstacles that persons with disabilities (i.e., physical, sensory and mental impairments) might face is attitudinal barriers. Yet today's society is more conscious of the need for greater accessibility for everyone. Attitudes are slowly changing, and many positive steps are being taken to help create better access. Although many barriers to participation still exist, they frequently can be eliminated by educating staff about the abilities and needs of persons with disabilities. Once staff members are aware of the barriers, the necessary program or facility modifications can be made to increase accessibility. Often, only minor adjustments are needed. Some examples of program modification include: changing rules, regulations, equipment and methods of communicating. Facility modification includes removing environmental or architectural barriers.

It is important for recreation providers to recognize that citizens with disabilities have the same varied personalities, experiences, capabilities and leisure interests as the general population. They expect to have the opportunity to participate in a wide variety of outdoor recreational experiences and enjoy the same satisfactions and benefits from these activities as everyone else. They also expect to participate in integrated leisure activities with their families, friends and other park visitors.

Current estimates indicate that approximately 12% of Virginians have disabilities that significantly impact their daily living, including their leisure lifestyle. The total number of people impacted increases significantly when the many family members and friends who recreate with them are added. This number is expected to increase as baby boomers age and life spans increase because senior adults can be expected to develop some of the disabilities often accompanying the normal aging process. In addition, modern medicine is saving more lives and individuals may live many years with major disabilities.

Often programs and facilities may be accessible to persons with disabilities without special adaptations or modifications. But to ensure access, various aspects of accessibility should be incorporated into planning, developing and designing all recreational facilities and programs. Incorporating accessibility initially into facility design and construction can be relatively inexpensive.

Maintenance is important when ensuring accessibility. Well-designed, but poorly maintained facilities are often inaccessible. During construction, renovation or the installation of equipment, it is important to ensure that specifications for accessibility are followed. For example, relatively accessible playground equipment, when installed incorrectly or completely surrounded by landscape timbers without a cutaway, can be virtually inaccessible to children or parents with disabilities.

It is not acceptable to merely design accessible facilities when the programs themselves are not accessible or available to everyone. For example, a beautifully designed and fully accessible visitor center at a park is of little value to a person who can enter the facility and navigate around it but not actually experience the programs offered. A few illustrations of programmatic barriers are listed below:

- Display cases too high for a wheelchair user to view.
- Printed information on exhibits or in park brochures that is not presented audibly, in Braille, large print or through other methods usable to persons with visual impairments.
- Environmental interpretation without an interpreter for hearing-impaired persons.
- Slide presentations without closed captioning for persons with hearing impairments.
- A reservation system for campsites, picnic shelters, cabins, etc. that doesn't include a TDD/TTY/TT telephone number for persons with hearing impairments and the ability to make reservations online.
- Attitudinal barriers created by staff who limit disabled visitors by not allowing a person with a disability to participate in an activity due to extreme caution or lack of knowledge about equipment or programs.

Park and recreation agencies should be committed to serving everyone in the population. Agency policies should clearly indicate the commitment to providing barrier-free or accessible recreational programs and facilities. Developing a policy on accessibility is not enough. Specific procedures also should be established for implementing and enforcing this policy.

Staff training also needs to be provided to ensure that employees are aware of specific policies related to accessibility and the agency's commitment to follow them. Staff must have necessary technical information to implement these policies, e.g., facility design standards and guidelines for removing programmatic barriers. In addition, the staff should understand and appreciate the possibility that persons with disabilities may have special needs.

Representation and involvement of persons with disabilities on committees, advisory boards, etc. are recommended to provide valuable insight into planning and providing accessible services, programs and facilities.

Legislative requirements

Various federal and state legislation has been passed to provide facility and programmatic accessibility to persons with disabilities. The most far-reaching legislation that potentially impacts many is the *Americans With Disabilities Act (ADA)*, signed into law July of 1990.

The *Americans with Disabilities Act of 1990* (PL101-336)/ ADA is intended to create broad protection for an estimated 43 million Americans with disabilities with respect to employment, state and local government services, public accommodations, transportation and telecommunications throughout the nation. It gives civil rights protection to qualified individuals with disabilities

that are similar to those provided to individuals on the basis of race, sex, national origin and religion.

There are various themes in this legislation that directly affect the way agencies provide leisure services. First, leisure service agency programs, services and activities should be available to persons with disabilities in the most integrated setting possible, i.e., that which is most like the setting in which people without disabilities receive the same service. Public entities may not provide services or benefits to individuals with disabilities through programs that are separate or different, unless the separate programs are necessary to ensure that the benefits and services are equally effective. Even when separate programs are permitted, an individual with a disability still has the right to choose to participate in the regular program. State and local governments may not require an individual with a disability to accept a special accommodation or benefit if the individual chooses not to accept it. Also, there should be consumer involvement/input by persons with disabilities.

The *ADA* places an emphasis on providing accessibility to programs, services and activities. The *ADA* includes requirements for new facilities and improvements to existing facilities. Public entities shall operate their programs so that when viewed in their entirety, they are readily accessible to and usable by individuals with disabilities. Reference is made in the *ADA* to requirements for providing reasonable accommodations. These can include, but are not limited to, changes in rules, policies and practices; removal of architectural, communication and transportation barriers; and the provision of auxiliary aids and services.

Another reason the *ADA* is having a major impact is the amount of publicity it has received, and is continuing to receive, nationwide. The general public and service providers are becoming much more aware of the needs and concerns of persons with disabilities. Also, consumers with disabilities are becoming much more aware of their rights to access with respect to employment, public services and places of public accommodation. Consumers are also becoming much more knowledgeable of specific legislative requirements for agencies and businesses and are more assertive in ensuring that true access is provided to them through available legal remedies.

Parks and recreation planners and service providers have a responsibility to increase their knowledge about accessibility requirements and the *ADA*. Related information and technical assistance are available from various federal and private agencies. Finally, they have a responsibility to comply with required regulations and do whatever is necessary and reasonable to provide high-quality recreational choices accessible to all citizens, including those with disabilities.

Adherence to legislative requirements increases the accessibility of recreational facilities for most persons who have physical disabilities. However, there are still many situations where the requirements do not guarantee accessibility. Recreational providers need to be aware of these situations in order to develop provisions in their policies to compensate for some of these shortcomings. Some of these problems and related recommendations are outlined below.

Recommendations

- Existing standards only outline the minimum specifications that must be met for general "handicapped accessibility" or universal design. In many instances, exceeding these standards is desirable to help make facilities more usable to everyone. For example, there are specific slope requirements for the maximum allowable grade on a ramp. These requirements are to ensure the minimum acceptable standards for accessibility. Complying with these standards can still result in a ramp with a slope that is too steep for many persons to negotiate. In this situation, exceeding these standards by lowering the grade on a ramp even further would actually help make it accessible to more persons.

- In the past many agencies were not required to meet these standards. Therefore, it was imperative that every outdoor recreational provider took responsibility above and beyond what was required for adopting barrier-free site design standards and setting forth policies for enforcing compliance. There are many instances where this did not occur, and facilities are still in use today that are inaccessible to a large number of people.

- Many buildings and facilities constructed prior to 1968 are not generally accessible unless planners/managers of the facility had the foresight to plan for accessibility or upgrade the facility to make it accessible.

- At this time there are no final requirements published for some of the key park and recreational facilities such as campgrounds, picnic areas, trails, swimming and fishing areas, and playgrounds. Since standards for these types of facilities are still being developed, persons with disabilities are often denied the opportunity to participate in outdoor recreational experiences with their nondisabled family members and friends.

- Until specific outdoor recreational standards are finalized and incorporated into the *ADA* standards, it is critical that outdoor recreational providers seek other sources of information that provide guidelines for making these types of facilities accessible to everyone. These sources include: draft standards put out by The Access Board, various technical assistance publications on the subject, experts working in disability-related professions, and persons with disabilities. People with disabilities should be directly involved with facility design to help increase the functionality of the facility.

Senior adults

The senior adult population is another rapidly growing segment of society with special needs that should be considered in planning recreational programs, services and facilities.

Some senior adults have disabilities, and many of the issues and concerns addressed in the previous section apply to them. Many senior adults do not have disabilities, but may have unique leisure needs or situations. Some of these needs may be attributed to changes related to the aging process (i.e., physical or mental changes such as reduced vision, hearing, poor balance, low stamina); changes in their living environment (i.e., moving from a private residence to a planned retirement community, lifecare setting/adult home, nursing home); accident-safety concerns related to reduced agility and poor balance; or crime-safety concerns, such as the fear of leaving home because of crime targeted at senior adults.

Any modifications made to improve accessibility to recreational programs, services and facilities for persons with disabilities will also improve access for the senior adult population. In addition to the accessibility issues identified earlier, there are other areas that should be taken into consideration in recreational planning for this population. Some of these are outlined below:

- The senior adult segment of society is rapidly growing. Therefore, concerns or needs of this population have an even greater significance to recreational planners.
- This population generally has large amounts of leisure time.
- Most seniors have a better than average amount of discretionary income to spend on leisure pursuits.
- Senior adults are living longer than ever before, which means that they represent a larger segment of the population that will be living with even more years of forced retirement/leisure.
- The vast majority of senior adults (estimated at 95%) reside in the community. However, some live in adult homes, nursing homes or life care settings. The life care setting concept is growing in popularity. It provides a continuum of care for residents progressing from an independent to a more dependent living situation.

New *ADA* guidelines being developed by The Access Board

Outdoor developed areas

This rulemaking covers access to trails, beaches, and picnic and camping areas and will supplement the existing *ADA* Accessibility Guidelines (*ADAAG*) by adding a new chapter on outdoor developed areas. The guidelines will provide new construction and alteration scoping and technical criteria and addresses unique constraints specific to outdoor environments. The guidelines will be based on a report developed by the Outdoor Developed Areas Regulatory Negotiation Committee, which The Access Board has established for this purpose.

Recreation facilities

This rulemaking covers various recreation facilities, including amusement rides, boating facilities, fishing piers and platforms, golf courses, miniature golf, sports facilities, swimming pools and spas. It provides both scoping requirements, which specify what has to be accessible, and technical requirements, which spell

out how access is to be achieved. These guidelines will supplement *ADAAG*, which addresses a wide range of facilities but does not cover these types of recreation facilities in any particular detail.

Play Areas

On October 18, 2000, The Access Board published accessibility guidelines for newly built or altered play areas under the *Americans with Disabilities Act*. The guidelines are one of the first to provide a comprehensive set of criteria for access to play areas. They cover the number of play components required to be accessible, accessible surfacing in play areas, ramp access and transfer system access to elevated structures, and access to soft contained play structures. The guidelines address play areas provided at schools, parks, childcare facilities (except those based in the operator's home, which are exempt), and other facilities subject to the *ADA*.

The new guidelines as issued by The Access Board are not mandatory on the public. Instead, they set the minimum baseline for enforceable *ADA* standards maintained by the Department of Justice (DOJ). The requirements will become mandatory after DOJ incorporates them into its *ADA* standards. In the interim, the public may consult the new guidelines as a reference in providing access to playgrounds and play equipment.

The Access Board
1331 F Street, NW, Suite 1000
Washington, DC 20004-1111
(202) 272-5434 (v) – (202) 272-5449 (TTY) – (202) 272-5447 (fax)
(800) 872-2253 (v) – (800) 993-2822 (TTY)
website: www.access-board.gov
E-mail: info@access-board.gov

National Center on Accessibility
Indiana University
2805 East 10th Street, Suite 190
Bloomington, Indiana 47408
(812) 856-4422 (v) (812) 856-4421 (TTY)
(812) 856-4480 (Fax)
(812) 856-4427 (technical assistance)
website: www.ncaonline.org

National Center on Physical Activity and Disability
1640 West Roosevelt Road
Chicago, Illinois 60608-6904
1-800-900-8086 (v/TTY) (312) 355-4058 (fax)
website: www.ncpad.cc.uic.edu

Other Web resources of interest:

For a list of disability-related resources in Virginia, try the website: *www.disabilityresources.org/VIRGINIA.html*

The Department of Justice (www.usdoj.gov) has an entire section of their website devoted to legislation related to people with disabilities and various policy issues.

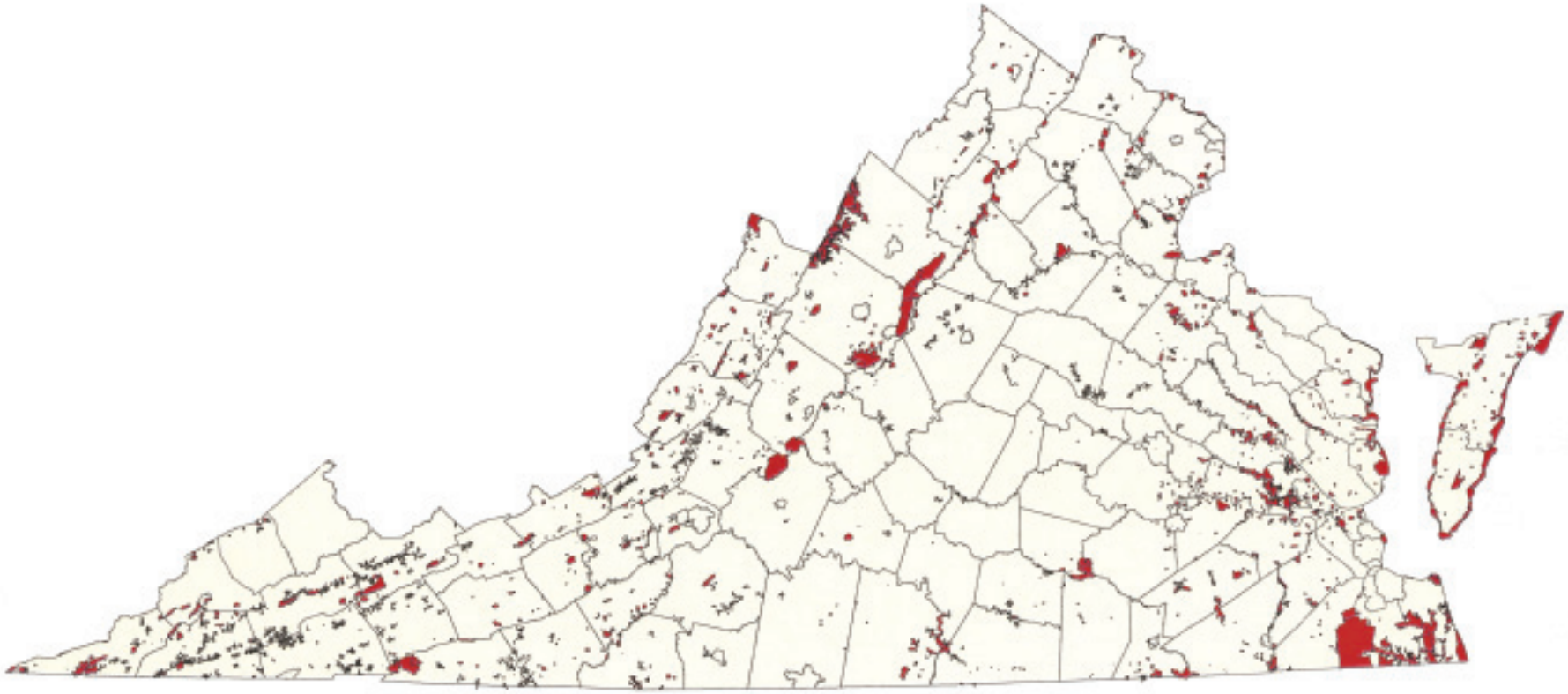
APPENDIX D

Natural Heritage Data

Conservation Sites Database

One of the primary new conservation initiatives being spearheaded by DCR's Natural Heritage Program (NHP) is the identification of natural area conservation sites. Conservation sites serve as important targets for protection activities. As of January 2002, NH had identified 1727 conservation sites on both private and public lands (see map next page). For each conservation site, staff have defined the boundaries of the site based on the natural heritage resources known to occur at the site, their ecological requirements, and the site-specific characteristics that factor into the vulnerability of the natural heritage resource populations. The site boundaries reflect not only where the natural heritage resources have been documented, but also the land area that is considered to be important to their continued persistence at that site. The identification and design of these conservation sites will have multiple applications, such as assessing potential threats to an individual conservation site and its natural heritage resources, prioritizing sites for acquisition or other protection methods, highlighting critical habitat patches in need of monitoring or management, and enlisting the support and resources of partners in protection activities.

Conservation Sites in Virginia



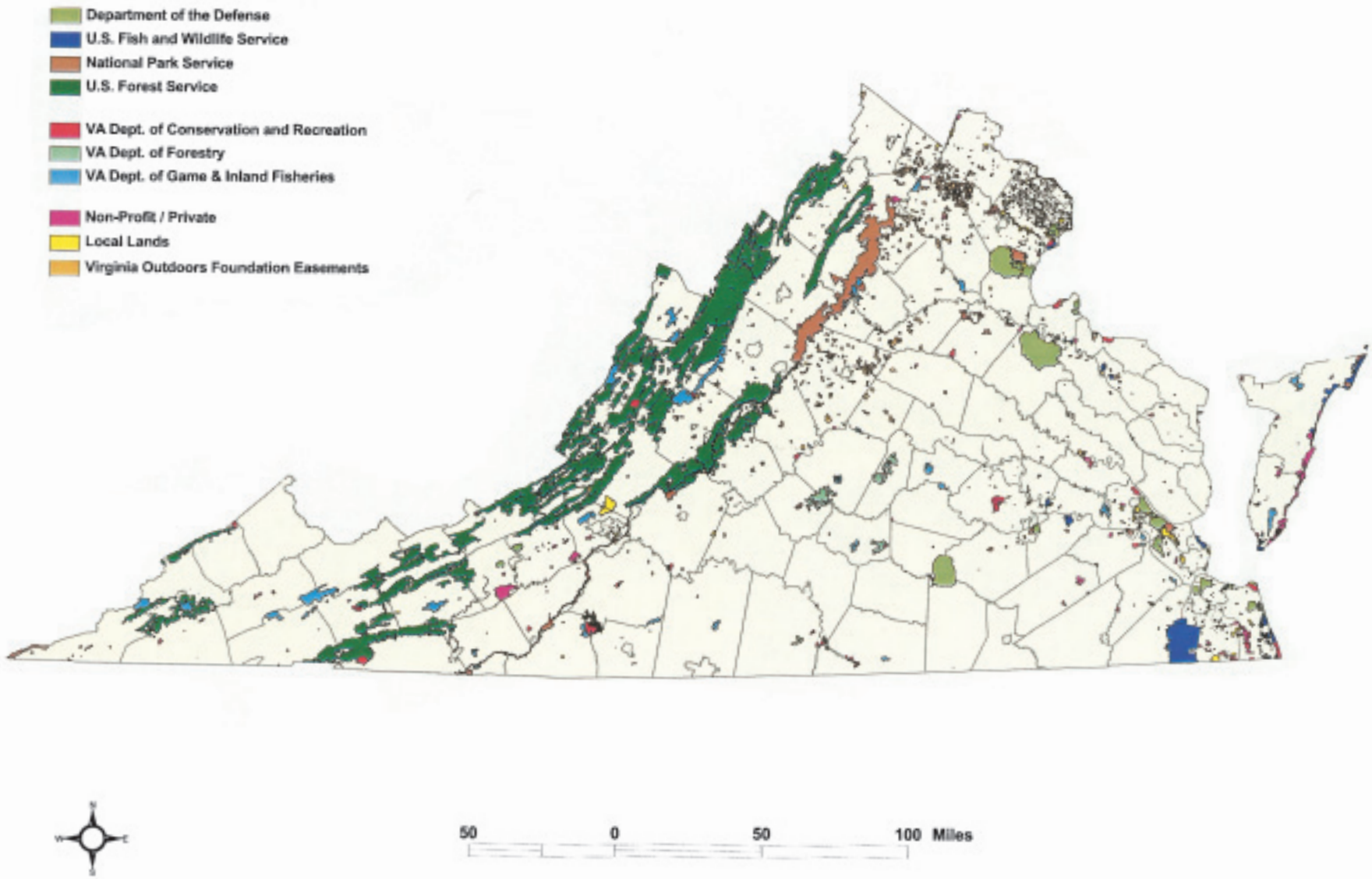
50 0 50 100 Miles

Conservation Lands Database

The Department of Conservation and Recreation is developing a "conservation lands" GIS database. Conservation lands are public (and some private) lands in Virginia that have value for natural resource conservation, outdoor recreation, and open-space protection. Included are federal and state lands (national parks, national wildlife refuges, forest service lands, Department of Defense lands, state wildlife management areas, state forests, and state parks and natural areas), local parks, lands owned as preserves by nonprofit conservation organizations such as The Nature Conservancy, and lands held under conservation easement by the Virginia Outdoors Foundation and other land trusts.

This spatial database will provide an accurate representation of property boundaries and record of ownership of Virginia's conservation lands. When used in conjunction with the Conservation Sites Database, the Conservation Lands Database can identify which natural heritage resources occur on conservation lands, assess their level of protection, and determine if further protection is warranted. The Conservation Lands Database will serve as an important decision-making tool for DCR and other agencies in the areas of recreational planning, community planning, natural heritage resource protection, and natural area and conservation easement acquisition.

Conservation Lands Database



Virginia's Natural Area Preserve System

Table 32 is a list of dedicated natural areas within the Virginia Natural Area Preserve System, including preserve name, the county or city within which the preserve occurs, number of acres, whether it has developed access for visitors, and a list of natural heritage resources documented from the preserve.

Preserve Name	County or City	Acres	Owner	Access	Natural Heritage Resources
*Antioch Pines	Isle of Wight	400	DCR	N	Mature loblolly and pine-turkey oak woodlands and three rare plants on sandhills along the Blackwater River
Bethel Beach	Mathews	104	DCR	Y	Rare plants, beach and marsh nesting birds, Northeastern beach tiger beetles
Big Spring Bog	Grayson	50	DCR	N	Rare wetland community and pitch pine barrens, state and globally rare plants
Blackwater Ecological Preserve	Isle of Wight	318	Old Dominion University	N	One of Virginia's last longleaf pine-turkey oak barrens
*Buffalo Mountain	Floyd	1,000	DCR	Y	Balds, prairie-like openings, magnesium rich seeps, and at least 16 rare plants and animals
Bush Mill Stream	Northumberland	103	DCR	Y	Mature hardwood forest and great blue heron foraging area
Cape Charles Coastal Habitat	Northampton	29	Northampton Co.	Y	Coastal beach, dune, and maritime forests and migratory songbird habitat
Chotank Creek	King George	1,108	Private	N	Coastal plain, forest, swamp and tidal marsh
*Chub Sandhill	Sussex	387	DCR	Y	Rare sandhill plant community, five rare plants and four rare animals
*Cleveland Barrens	Russell	501	DCR	N	Limestone barrens with rare plants and animals
*Cowbane Prairie	Augusta	63	DCR	N	Wet prairie habitat with queen-of-the-prairie, blueflag, and many other rare plants
Cumberland Marsh Conservancy	New Kent	1,193	The Nature	Y	Pristine freshwater marsh with bald eagles, sensitive joint vetch, and other rare plants
*Dameron Marsh	Northumberland	316	DCR	N	Exemplary Chesapeake Bay marsh and bird nesting area, and northeastern beach tiger beetle
*Deep Run Ponds	Rockingham	668	DCR	N	Shenandoah Valley sinkhole ponds system
*Dendron Swamp	Sussex	160	DCR	N	Virginia's finest bald cypress-tupelo swamps
*Difficult Creek	Halifax	653	DCR	N	Piedmont pine – hardwood barrens

Preserve Name	County or City	Acres	Owner	Access	Natural Heritage Resources
Folly Mills Fen	Augusta	29	Private	N	Calcareous wetlands supporting many rare plants
Grafton Ponds	Newport News	375	Newport News	Y	Virginia's finest coastal plain sinkhole pond system, many rare plants and animals
*Grassy Hill	Franklin	1,295	DCR	N	Grassland communities, several rare plants
Hickory Hollow	Lancaster	254	N. Neck Audubon	Y	Mature mixed hardwood forest, ravines and high quality swamp, migratory songbird habitat
*Hughlett Point	Northumberland	204	DCR	Y	Coastal marsh, beach-dune system, Northeastern beach tiger beetle
Johnson Creek	Allegheny	99	DCR	N	Exemplary shale barren, shale barren rockcress, and several other rare plants
New Point Comfort	Mathews	95	The Nature Conservancy	Y	Barrier spit terminus, maritime forests, coastal marsh, sandy beaches, and northeastern beach tiger beetle
*North Landing River	Virginia Beach	3,441	DCR	Y	Wind-tide marshes, swamp and pocosin, over 30 rare plants and animals
*Northwest River	Chesapeake	2,245	DCR	N	Freshwater marsh, swamp and upland forest, many rare plants and animals
Parkers Marsh	Accomack	759	DCR	N	Chesapeake Bay beach habitat, low marsh, high marsh and shrub and forest vegetation
*Pedlar Hills Glades	Montgomery	522	DCR	N	Calcareous woodlands and several rare plants
*Pinnacle	Russell	435	DCR	Y	Limestone barrens, state and globally rare plants and animals
*Poor Mountain	Roanoke	925	DCR	Y	Xeric pine and hardwood forest, extensive stand of globally rare piratebush
*Savage Neck Dunes	Northampton	299	DCR	N	Coastal beach, dune, and maritime forest system, migratory songbird habitat, and three rare plant and animal species
*The Cedars	Lee	709	DCR	N	Limestone glades and woodlands supporting ten rare plants and two rare animals
William B. Trower Bayshore	Northampton	35	DCR	N	Coastal beach-dune system, Northeastern beach tiger beetle, other rare species
Wreck Island	Northampton	1,380	DCR	N	Endangered shorebird nesting habitat, coastal grasslands
Total		20,154			

Asterisks (*) denote natural areas purchased with funds from the 1992 Parks and Natural Areas Bond Fund.

APPENDIX E

Tools and Strategies for Protecting Open Space and Natural Resources

The protection and enhancement of Virginia's significant natural, cultural, recreational and open space resources require:

- A strong partnership between the public and private entities involved in land conservation, management and development.
- The utilization of innovative and nontraditional land use planning tools.
- A commitment to sustainable development at all levels of government.
- Recognition of the vital role that green infrastructure plays in the economic and physical well-being of the Commonwealth and its citizens.

In Virginia, open space and significant natural, historic, agricultural, forestal, scenic and recreational resources are protected by a combination of legislated land-use regulations and voluntary mechanisms. These are available to government agencies, private landowners and private nonprofit organizations. Federal tax incentives and, more recently, Virginia state tax incentives, also play an important role in open space protection.

Federal, state and local government efforts to protect open space through the establishment of public parks and the development of land-use regulations are well known. Less apparent, although equally important, are private land conservation strategies. Critical to the protection of open space and the preservation of unique natural areas, private land conservation efforts have resulted in the conservation of thousands of acres in Virginia. In 1966, the Virginia Outdoors Foundation (VOF) was created. Developed to assist private landowners in protecting their properties, the VOF currently holds conservation easements on more than 700 properties, making up more than 130,000 acres of open space. In addition to VOF, there are numerous national conservation organizations and more than 20 regional and local

land trusts now working to protect Virginia's "common wealth." Nationally, Virginia ranks second in the number of conservation easements held and fifth in total acres of privately protected land.

The land protection toolkit is becoming more dynamic and diversified, as evidenced by the growing number of strategies available to both public and private conservation agencies and organizations. These include public policy and planning tools, fiscal incentives, regulatory mechanisms and voluntary conservation options. However, no single tool, be it voluntary, regulatory, or incentive-based, works well by itself. The size of the Commonwealth, the diversity of interests contained therein, and competing economic and social factors combine to make a singular approach ineffective. The following is an overview of the options available to agencies, localities, and individual landowners that are useful in addressing the challenges of preserving and protecting open space and natural resources.

Planning

The value of planning lies in its comprehensive approach in providing direction for resource protection to all players in the land-use game. To be effective, the planning process must actively engage key players, groups and stakeholders in working together to reach a common goal. That common goal was articulated in 2000 by the General Assembly's Joint Subcommittee on the Future of Virginia's Environment in its recommendation for the identification and establishment of a statewide-integrated network of open space. Achieving this goal will require an unprecedented cooperative effort among federal, state and local public agencies, private conservation organizations and land trusts, landowners and developers.

Open space planning guidelines

The *Virginia Outdoors Plan* (*VOP*) provides a comprehensive overview of the Commonwealth's natural, open space and recreation resources. Updated every five years, this document addresses current open space and resource issues while projecting future needs and anticipating potential concerns. The *VOP* includes information on the acquisition, stewardship, land-use, development and management of outdoor resources.

Local comprehensive plans

As stated in the *Code of Virginia*, Title 15.2, Chapter 11, Article 4, Section 15.1-446.1, every local government must "prepare and recommend a comprehensive plan for the development of the territory within its jurisdiction." This is done for "the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory 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 inhabitants."

The comprehensive plan serves as a planning tool rather than a regulatory device and generally includes two components: the policy plan and the land-use plan. The policy plan outlines the community's goals and objectives for land use, transportation and housing, while the land-use plan, usually a map, shows the location of planned land uses. This includes areas planned for environmental protection as well as future growth. Although it is not required by law, all communities should include an open space and recreation component within their comprehensive plans. As a significant element in a complete assessment of an area's resources, an open space and recreation plan evaluates a locality's assets and needs, while providing criteria and direction for protecting resources, acquiring open space and focusing on the implementation of appropriate planning and land protection mechanisms. To be successful, each plan must be tailored to the unique characteristics of the community for which it is developed and should include input from members of the community that the plan will serve. The local comprehensive plan is intended to provide guidance to all public and private entities engaged in land use decision making including governmental agencies, private non-profit organizations, commercial developers and individual landowners. Zoning and subdivision ordinances control the location and construction of the built environment.

Management plans

Three of the largest landowners in the commonwealth – the National Park Service, the U.S.D.A. Forest Service, and the U.S. Fish and Wildlife Service – develop and follow management plans for more than two million acres in Virginia. With some areas dedicated to open space use, some to preservation, and

other areas available for recreation, it is apparent that how this space is managed influences significantly the resources available to the public. Similarly, state agencies such as the Department of Conservation and Recreation, the Department of Game and Inland Fisheries, and the Department of Forestry develop and implement plans appropriate to the resources for which they are responsible. Regional and municipal park and recreation agencies also prepare management plans for their larger parks.

Resource protection tools and strategies

Land-use planning in Virginia incorporates a number of regulatory and voluntary resource protection tools and strategies. These are available to local governments and private land conservation organizations, developers and individual landowners. Regulatory land-use tools must be delegated to localities by the state. Some mechanisms may be voluntarily negotiated with developers as a condition of development. Both governmental agencies and private nonprofit organizations can utilize the growing number of voluntary mechanisms in negotiations with private landowners. Tools and strategies are illustrated in the chart below and described in the following section.

Protecting Open Space and Natural Resources

Governmental			Voluntary Land Protection	
Zoning Tools/ Policy Options	**Administrative Tools**		**Purchase/ Donations**	
Sliding Scale	Dedication	Proffers	Fee-Simple Acquisition	Conservation Easements
Performance Standards	Deed Restrictions	Agricultural & Forestal Districts	Bargain Sale	Remainder Interest & Reserved Life Estates
Planned Unit Development	Impact Fees	Urban Growth Boundaries	Purchase/Lease Back	Stewardship Agreements
Cluster Development	Development Incentives/ Disincentives	Conservation Subdivision Rights	Transfer of Development	Notification, Recognition, & Nonbinding Agreements
Overlay Districts *(Open/limited development/water body/watershed/viewshed)*	Concurrency	Transfer of Development Rights Land Banking	Purchase of Development Rights Land Swaps	

Governmental options

Zoning tools

Zoning is the traditional method by which Virginia counties and municipalities influence development. If it is consistent with, and supportive of, the goals and objectives of the locality's comprehensive plan, zoning can effectively minimize impacts on significant or unique natural features. There are two types of zoning utilized by local

government agencies, conventional zoning and conditional development. Conventional zoning allows for the development of a property "by right" subject to the conditions of the existing baseline zoning category. For example, a property might be developed at one residential dwelling unit per acre, subject to legal restrictions imposed by the Chesapeake Bay Act, adopted performance standards and subdivision ordinances. Conditional development is subject to government-imposed administrative requirements or may reflect the developer's voluntary agreement to provide certain amenities to offset the impacts of development as a condition of rezoning to a more intensive land use. Overall, local jurisdictions that create zoning districts with the intent to preserve open space are more apt to preserve large areas of land, and in turn, large ecosystems. Zoning, as a preservation tool, raises concerns related to the equitable treatment of property owners, the loss of property rights and potential development profit, and the need for collaboration among local governments to preserve features that occur in more than one jurisdiction. Perhaps the most popular of preservation tools nationwide, zoning is most effective when it is developed regionally and uniformly enforced. Subject to the changing political climate in which it is developed and subsequently implemented, zoning is sometimes criticized as a temporary solution to long-term emerging problems. Zoning tools that can be used by local governments to preserve open space include:

Sliding scale zoning – most effective when applied to large tracts that have not been subdivided. In this case, a baseline number of development rights for a parcel is granted and the number of development rights subsequently permitted above the base number is inversely proportional to the size of the parcel developed.

Performance standards/zoning – based on permitted impacts rather than uses, this approach encourages innovative site plans that minimize negative impacts on natural features, including open space. Factors considered in site plan review include design, local growth rate, existing and proposed infrastructure, and municipal services. Performance zoning targets single or multiple impacts and can supplement or replace traditional zoning regulations.

Planned unit developments (PUDs) – allowing for flexible development practices while continuing to meet overall density and land use goals, PUDs usually include mixed uses that are clustered so that individual lots are small and open space is preserved. Communities often require that PUDs set aside a portion of the developed area for recreation and/or open space uses.

Cluster development – allows residences to be grouped on a portion of a site to preserve the remaining open space, agricultural land, or a unique natural feature. The property owner is given the right to increase the density of development beyond applicable zoning regulations in one section of the site in return for leaving the remainder as open space. Reston's design reflects clustered development. The city of Charlottesville and its surrounding counties use this approach to preserve the area's rural character. Besides creating more open space, clustered development reduces infrastructure costs for roads and storm water management systems by as much as one-half the total cost of conventional development strategies, thereby creating major economic incentives to developers. On the other hand, mandatory clustering can be subject to "takings" questions because of the required smaller lot sizes and the restricted location of development on the site.

Overlay districts – applied to areas containing natural or unique features worthy of protection. By superimposing an additional district boundary or designation (i.e., floodplain district) over existing zoning, the overlay creates a supplementary set of regulations to protect specific features.

Governmental/administrative tools

Dedications – require that a developer assign, or dedicate, a negotiated portion of his or her land to open space as a condition to obtaining approval to build.

Deed restrictions – constraints on property use recorded on the property's deed. Deed restrictions can be required of new developments or negotiated with current landowners. A common form of deed restriction is a conservation easement, which will be discussed separately.

Impact fees – assessed to the developer to help fund infrastructure and public amenity costs generated by new development. Impact fees may be applied to off-site as well as on-site improvements.

Development incentives – include bonus densities offered to landowners or developers who wish to set aside large portions of their land, usually more than half, as open space.

Development disincentives – applied to developers who discount community open space objectives and discourages conventional "cookie cutter" designs, usually through reduction in lot yield.

Concurrency – compares the availability and adequacy of services available to the type, timing, and amount of land use demand. Concurrency policies require that public facilities be available to support development as it occurs. Through permit negotiation, localities manage growth while assuring that they do not incur large infrastructure debt in the process.

Policy option tools

Proffers – offers made through negotiation with a local government by a rezoning applicant to offset the impact of a rezoning request. Used widely in Virginia, proffers mitigate development impact through the construction of public improvements or the donation of land or cash. The local government estimates the cost of new infrastructure to support new projects, then suggests the percentage the developer should offer to pay. If an agreement can be reached, the rezoning request is likely to be approved. Proffers have been used successfully to create vegetated buffers and open space for playgrounds within new developments on a localized scale, but are of limited use in preserving large areas as open space.

Agricultural and forestal districts – created by landowners to protect and preserve rural areas, these generally involve large minimum aggregate holdings that must be kept in agricultural or forestal use for a period of time, usually four to 10 years, as specified by the agreement. Property owners hold title, but restrictions on land use are imposed for the term of the agreement. Exceptions within the agreement allow landowners to withdraw from the program under certain circumstances. In exchange, the community agrees to minimize the impact of adjacent development on agriculture. In Virginia, statewide enabling legislation provides for four categories of land use that qualify for reduced valuation as special districts: agriculture, forestal, horticulture and open space. However, adoption of land-use taxation for all or some of the categories is a local government decision.

Urban growth boundaries – a line on a map marking the separation of open land from land on which development is to be concentrated. Goals associated with the establishment of an urban growth boundary include containing urban sprawl and providing for an orderly transition from urban to open space uses. Strong regional planning and cooperation among localities is essential to success. The low cost of implementation and the ease with which this tool combines with a transfer of development rights program are primary advantages. However, the potential for litigation focused on "takings" issues initiated by property owners excluded from the developable area must be considered.

Conservation subdivision/limited development – protects and/or preserves identified significant natural, historic, archaeological or unique features by limiting development of a parcel and limits development to those areas without identified features, thereby protecting and/or preserving the identified features. This approach may be combined with the donation or sale of a conservation easement to assure resource protection.

Purchase of Development Rights (PDR) – the use of public money to purchase the development rights to privately owned land. The landowner is paid the difference between the value of the land based on its development potential and its value at its existing use.

Funding sources for PDR programs vary between jurisdictions. Under *Code of Virginia*, service districts may be created to allow local governments to impose special assessments to generate funds for the purchase of development rights determined to be of benefit to the community. Once acquired, development rights are then extinguished and a conservation easement placed on the property for perpetual use as open space or for agricultural production. Government programs require a dedicated source of stable revenue. Development rights may also be purchased by land trusts or other private nonprofit conservation organizations

Transfer of Development Rights (TDR)—not currently legal in Virginia. TDRs, like PDRs, compensate landowners for the real, or perceived, loss of land value. Under a TDR, development rights, or density units, are transferred from an area where preservation is desired to a more developed area with the ability to accommodate a higher density, usually an area with existing infrastructure. In this case, the developer, who stands to profit from the higher density in the development area, pays the landowner directly for the development rights. This system works best when the development rights are transferred to an existing urbanized area and do not contribute to urban sprawl. As is the case with a PDR, interjurisdictional cooperation is essential to the program's success. A TDR can be either mandatory or voluntary. In a voluntary program, existing zoning in the sending area remains until a TDR sale or transaction occurs, in which case the land is down-zoned. In a mandatory program, all land in the sending area is downsized and a receiving area is designated.

Land banking—land is purchased and reserved for later use or development. Land is sometimes leased for agriculture or open space use. Essentially a land trust operated by local or state government, these programs are usually funded by real estate transfer taxes.

Voluntary land protection programs

Outright purchase programs

In this case, full title to land and all rights associated with it are purchased at a price equivalent to its value at its "highest and best" use. The appraised fair market value of the property is the standard for all sales. Purchasing land at its fair market value has two advantages: the acquisition process is relatively simple, and the rights and privileges of fee simple ownership are rarely challenged. Land can be purchased for open space by:

Fee-simple acquisition – outright purchase of land. Since the landowner is fully compensated, this is the most comprehensive means of affecting control and preservation of land.

Purchase and lease-back – outright purchase of land with a subsequent lease to another individual who will gain some economic return from the land as agricultural, forestal or open space use.

Bargain sale – land is purchased for less than fair market value. Often used by a land trust or government to acquire open space, this type of sale provides the landowner with immediate cash and can result in a tax deduction for the difference in the price received for the property and its fair market value. It can also benefit the landowner by offsetting any capital gains tax.

Land Swaps – most often involves the exchange of land between a governmental agency and a private landowner or organization. The intention is to protect and preserve unique or natural features of the land while offering in exchange land that is usually more suitable for development. Land swaps may also be negotiated by private organizations and may include the exchange of easements.

Landowner liability

Private individuals often voluntarily offer trails through their property. They may give an easement on a portion of their land or may allow access through an agreement with a governmental agency. In these instances, the landowner's liability is limited (§29.1-509 of the *Code of Virginia*).

§ 29.1-509. Duty of Care and Liability for Damages of Landowners to Hunters, Fishermen, Sightseers, Etc.

A. For the purpose of this section:

"Fee" means any payment or payments of money to a landowner for use of the premises or in order to engage in any activity described in subsections B and C of this section, but does not include rentals or similar fees received by a landowner from governmental sources or payments received by a landowner from incidental sales of forest products to an individual for his personal use, or any action taken by another to improve the land or access to the land for the pur-

poses set forth in subsections B and C of this section or remedying damage caused by such uses.

"Land" or "premises" means real property, whether rural or urban, waters, boats, private ways, natural growth, trees and any building or structure which might be located on such real property, waters, boats, private ways and natural growth.

"Landowner" means the legal title holder, lessee, occupant or any other person in control of land or premises.

B. A landowner shall owe no duty of care to keep land or premises safe for entry or use by others for hunting, fishing, trapping, camping, participation in water sports, boating, hiking, rock climbing, sightseeing, hang gliding, skydiving, horseback riding, foxhunting, racing, bicycle riding or collecting, gathering, cutting or removing firewood, for any other recreational use, or for use of an easement granted to the Commonwealth or any agency thereof to permit public passage across such land for access to a public park, historic site, or other public recreational area. No landowner shall be required to give any warning of hazardous conditions or uses of, structures on, or activities on such land or premises to any person entering on the land or premises for such purposes, except as provided in subsection D.

C. Any landowner who gives permission, express or implied, to another person to hunt, fish, launch and retrieve boats, swim, ride, foxhunt, trap, camp, hike, rock climb, hang glide, skydive, sightsee, engage in races, to collect, gather, cut or remove forest products upon land or premises for the personal use of such person, or for the use of an easement as set forth in subsection B does not thereby:

1. Impliedly or expressly represent that the premises are safe for such purposes; or
2. Constitute the person to whom such permission has been granted an invitee to whom a duty of care is owed; or
3. Assume responsibility for or incur liability for any intentional or negligent acts of such person or any other person, except as provided in subsection D.

D. Nothing contained in this section, except as provided in subsection E, shall limit the liability of a landowner which may otherwise arise or exist by reason of his gross negligence or willful or malicious failure to guard or warn against a dangerous condition, use, structure, or activity. The provisions of this section shall not limit the liability of a landowner which may otherwise arise or exist when the landowner receives a fee for use of the premises or to engage in any activity described in subsections B and C of this section. Nothing contained in this section shall relieve any sponsor or operator of any sporting event or competition including but not limited to a race or triathlon of the duty to exercise ordinary care in such events.

E. For purposes of this section, whenever any person enters into an agreement with, or grants an easement to, the Commonwealth or any agency thereof, any county, city, or town, or with any local or regional authority created by law for public park, historic site or recreational purposes, concerning the use of, or access over, his land by the public for any of the purposes enumerated in subsections B and C of this section, the government, agency, county, city, town, or authority with which the agreement is made shall hold a person harmless from all liability and be responsible for providing, or for paying the cost of, all reasonable legal services required by any person entitled to the benefit of this section as the result of a claim or suit attempting to impose liability. Any action against the Commonwealth, or any agency, thereof, for negligence arising out of a use of land covered by this section shall be subject to the provisions of the Virginia Tort Claims Act (§ 8.01-195.1 et seq.). Any provisions in a lease or other agreement which purports to waive the benefits of this section shall be invalid, and any action against any county, city, town, or local or regional authority shall be subject to the provisions of § 15.2-1809, where applicable.

(Code 1950, §§ 8-654.2, 29-130.2; 1962, c. 545; 1964, c. 435; 1977, c. 624; 1979, c. 276; 1980, c. 560; 1982, c. 29; 1983, c. 283; 1987, c. 488; 1988, c. 191; 1989, cc. 26, 500, 505; 1990, cc. 799, 808; 1991, c. 305; 1992, c. 285; 1994, c. 544.)

Donations

Donations of conservation easements and outright donation of property to a land trust or to a government agency are highly effective and efficient ways of preserving land. In general, these programs generate few legal disputes over property rights and takings issues and often qualify property owners for tax deductions. Voluntary protection programs are best combined with other open space protection strategies to maximize their benefit. Voluntary programs include:

Conservation easements – legally binding agreements in which a landowner retains ownership of the property while donating certain development rights to a qualified organization. Although each easement is different, they typically "run with the land" as an encumbrance on the title, limiting the use of the property. In Virginia, easements may be donated to a public body under the Open Space Lands Act or to a private, nonprofit conservation organization under the Conservation Easement Act.

Remainder interests and reserved life estates – essentially the same, these allow the owner to live on, and use, the land during his/her lifetime and/or the lifetime of other family members as designated. At the death of the last family member, ownership falls to the designee, usually a public or nonprofit land preservation entity. The value of such a donation is different from an outright gift, but can still be considered a charitable contribution for federal income tax deduction purposes.

Stewardship agreement – a temporary or permanent donation of specifically identified property rights to an organization. The agreement may provide significant property tax benefits to the landowner while permanently protecting natural and unique areas from development. Similar to a conservation easement, it can be applied to areas that may not meet conservation easement requirements.

Notification, recognition, and nonbinding agreement programs – following notification, property owners are offered recognition in return for agreeing, in writing, to protect the resource on their property. Nonbinding agreements, which can be terminated at any time, serve to protect the resource. The Natural Area Registry Program under the Natural Area Preserve Act (*Code of Virginia* 10.1-216) is the mechanism for such a program in Virginia.

Geographic information management

The effective management of all natural resources is dependent upon the development and maintenance of an efficient and accurate database that is easily accessed by those involved in making land-use decisions. Such a tool was envisioned in the establishment of the Virginia Geographic Information Network (VGIN) Division, Department of Technology Planning. Authorized by legislative mandate in 1997 to foster the creative use of geographic information and develop a catalog of data to be available throughout the Commonwealth, the VGIN division is charged with coordinating, managing and supporting the continued development of a comprehensive geographic information library. Currently collaborating with local, regional and state government offices, as well as public utilities, VGIN is working to develop a network for the efficient and effective collection, storage and dissemination of data. The realization of a useful tool remains a goal of the VGIN division. Once developed, it will be an invaluable planning resource.

Funding

Funds to be used for the protection and/or preservation of natural resources through the outright purchase of land and the establishment of conservation easements and management agreements are available from state and federal sources, as well as private nonprofit organizations. State programs include the Virginia Land Conservation Fund Grant Program, the Land and Water Conservation Fund match and Water Quality Improvement Act funds. Federal monies dedicated to the preservation and protection of open space include the Forest Legacy Fund and the Conservation Reserve Enhancement Program, both of which are administered by the United States Department of Agriculture. Tax benefits are offered at both the state and federal level. Regional and local land trusts, most often managed by private, nonprofit organizations, advise and assist landowners in negotiating land transactions and then purchase the land in question. With more than 1200 trusts in 50 states, land trusts are the fastest growing mechanism for land preservation in the nation.

Conclusion

The number and variety of planning tools available allow a great deal of flexibility in managing open space, natural, and recreation resources. By selecting specific tools, combining, and/or customizing them, a locality may effectively manage the conditions unique to its situation while creating an environment that can accommodate growth and development in a positive manner.

APPENDIX F

Visual Resources

The Commonwealth of Virginia has abundant and diverse visual and scenic resources that entice visitors and have a lasting appeal for residents. They range from the breathtaking natural beauty of the mountains and tranquil scenes of the valleys and foothills of the Shenandoah to the Atlantic coast's white sand beaches and dunes laden with sea oats. Virginia's scenic rivers exhibit exemplary natural and pastoral beauty. The world-renowned Chesapeake Bay offers visions of working water vessels and watermen, as well as abundant natural, scenic resources. The heritage for which the Commonwealth is so well known includes visually rich components such as historic architecture, quaint towns, and numerous landscaped vistas reminiscent of those present during the early settlement of the Commonwealth and the country. Virginia byways traverse areas of exceptional beauty and/or have outstanding historic interest. The wealth of Virginia's natural resources is reflected in these scenic qualities.

The concept of visual resources is not new. In fact, the ancient Romans preserved visual symbols within the community to give citizens a sense of security in a changing world. The need for visual anchors holds true today. It is disorienting to revisit a once-familiar community when previous landmarks no longer exist.

It has been established, through the court system, that states and localities can protect visual resources. Several landmark cases formed a basis for this over the years. As early as the late 1800s, regulatory efforts were enacted to protect the scenic views from the state capitol building in Massachusetts (*Parker v. Commonwealth*, 59 N. E. 634 [Mass. 1896]). Also, in *Berman v. Parker* (348 U.S. 26m at 33), public welfare included the consideration of aesthetic components in an urban renewal case. This case determined that "the community should be beautiful as well as healthy; spacious as well as clean; well-balanced as well as carefully patrolled." In *Penn Central Transportation Co. v. New York City* (438 U. S. 104, 129 [1978]), the court recognized that "states and cities may enact land-use regulations by preserving the character and the desirable aesthetic features of a city." These cases all uphold the validity of local landmark protection laws.

Planning in the 1970s focused on environmental protection and fiscal impacts of the environment. Laws such as the National Environmental Protection Act, the Clean Water Act, the Wetland Protection Act and other resource-based regulations were passed. The scenic roads movement of the 1930s also upheld the establishment of scenic corridors for recreational purposes. It was during this time that the Blue Ridge Parkway and the Skyline Drive were constructed.

Landscape architects have developed various methods to systematically identify, inventory, evaluate, and prioritize visual and scenic qualities in the environment. Methods are available for visual assessments of roadways, rivers, resorts, mining, forestry, historic areas and communities in order to determine how major public works and larger-scale developments and policies will affect the scenic natural and cultural landscape. Visual resources protection is also recognized as an essential component in the conservation of natural resources. Conservation lands are sometimes established to maintain the visual integrity surrounding important habitats and special communities.

Importance of scenic resources

The *Code of Virginia*, §10.1-108 defines environment as "the natural, scenic, scientific and historic attributes of the commonwealth." This section of the code also charges the Department of Conservation and Recreation with the task of assisting with the management and protection of these components of the environment.

Visual resources are important for many reasons, but perhaps their best selling point is their link to the economy. These resources include the outstanding scenic and recreational attractions present in Virginia including beaches, mountains, and waterways.

Values of the scenic environment may include the following:

- Economic benefits of recreation can be related to scenic quality.
- Tourism is linked to visual resources within the community. These visitors ranked visiting scenic places near the top of their vacation objectives.
- Landscapes form a sense of place and provide a common point of reference for many generations.
- Visual resources relate to the presence of natural resources and open space protection.
- According to the 2000 *Virginia Outdoors Survey*, 64% of all Virginians surveyed enjoy driving for pleasure, 25% visit gardens and arboretums and 43% tour historic sites.

Urban scenic issues

Because the majority of the Commonwealth's population resides in metropolitan areas, the scenic values of urban areas are critical. The scenic qualities of urban landscapes are most often those that were created by existing developments.

Each locality has its own unique framework and set of tools that it utilizes to improve the visual qualities of its urban areas. Comprehensive plans, technical planning studies, and local ordinances are often the most effective mechanisms for protecting and enhancing the visual environment in urban and suburban areas. Planning tools that can help inventory, identify and manage scenic resources include:

- Comprehensive plans
- Open space plans
- Parks and recreation plans
- Visual resources inventories and assessments
- Natural and cultural resource inventories
- Environmental inventories
- Greenways plans and studies

Implementation techniques and ordinance provisions that help maintain or improve visual quality within urban and suburban areas include:

- Site planning
- Designated setbacks
- Buffers for designated areas
- Parking requirements
- Screening requirements for designated areas
- Landscaping requirements
- Facade and architectural guidelines
- Urban forestry or streetscape initiatives
- Signage regulations
- Transportation access control
- Storm-water runoff control guidelines

- Erosion and sediment control guidelines
- Landscape maintenance requirements
- Conservation easements

Rural scenic issues

The scenery in rural Virginia is often associated with landscapes of past agrarian activities. During recent decades, as society has changed from one based on farming industry into one dependent upon more technological trades, the face of rural Virginia has changed. With rural economies stressed, residents search for support through tourism and by attracting businesses, industry, and commercial development. As rural economies become more diverse, the physical appearance of the landscape is affected.

As rural Virginia changes, it is important that its residents identify elements of the community's rural character they want to protect. In many cases, the attraction to rural areas is the visual landscape rather than the actual land use. For example, an orchard view may be important to a community's sense of itself. If the orchard were incorporated into a landscape plan for a proposed development site, commercial or industrial use would have less visual impact because the historic use of the land as an orchard has been maintained. In short, preservation of the orchard as an agricultural operation is a separate goal from preservation of the orchard's view or agricultural character. The appearance of man's manipulation of the landscape often makes the greatest visual contribution to the visual attributes of a rural area.

While some planners feel that development is inevitable in all rural communities, this should not be an overriding assumption for every rural community in Virginia. Rural areas near the urban crescent will face development pressures certain to alter their visual appearances; these rural communities should decide if they want to be proactive and establish development guidelines and landscape controls, as well as promote conservation easements, to help preserve their rural character. Other rural communities, further from intensive urban and suburban development, are more insulated from change in visual character. These communities may in fact be developing tourist industries that relate to their rural and/or scenic character. Certain industries and businesses also may be attracted to these communities, partially based on their visual appeal. While seemingly protected from visual change, these communities should nevertheless consider identifying components essential to their rural image and ways to conserve these characteristics.

Visual resource assessments

The Virginia Byways and Scenic Rivers programs systematically evaluate and recognize visual resources associated with each of these corridor types. Other visual assessments are conducted on a county or regional level, for highway planning and road corridor plans, for environmental review and for historic landscapes.

Visual assessments occurring at a county or regional level are usually conducted to evaluate landscape character in a large area, and to identify ways to conserve the important visual components. This type of assessment could influence significantly the types and locations of developments and beautification or enhancement projects proposed within a community. There are numerous ways in which these assessments can be conducted depending on location, land use and purpose of the study.

New roadways and highway planning should include assessing the scenic environment by evaluating both the impacts to the existing landscape and the scenery planned from the proposed roadway. A methodology for incorporating scenic areas and visual resources into highway design could be adopted into the current highway planning process by the Virginia Department of Transportation. An example of this methodology could include the steps listed in the table on page 44.

Bridges are important design elements for creating visually interesting highways. Water is another aesthetic resource that can greatly enhance a highway's attractiveness. Older bridge design generally allowed a water view and a unique architectural or engineering component to enhance structural appeal. New bridges should be designed to offer a safe, open parapet allowing vehicles and pedestrians a view of the open water and its surrounding landscape. Communities should stress in their transportation planning efforts with VDOT a strong desire for visual and pedestrian access at all water crossings.

In planning bridge replacements, localities, in conjunction with VDOT, should incorporate funding to

provide recreational access at appropriate water bodies and attractive designs that provide a safe alternative to the Jersey Barrier Parapet bridge design. DCR provides comments on highway projects, including all state and federally funded bridge projects. If DCR knows that a locality wants an alternative bridge design at a particular location, they will include that request in the comments that are provided to VDOT.

For the most part, protecting visual resources is not regulated by local land-use ordinances, developmental and architectural guidelines or state legislation. Local citizens and communities are responsible for identifying those visual resources that they consider important to their quality of life. Often resources are not adequately identified and measures taken for conservation until the environment is lost.

Sources of information on visual resources

A list of resources that can be helpful in conducting visual assessments and understanding the various techniques that can be used to help conserve visual resources can be found in Appendix H, page 422.

Recommendations

- Evaluate landscapes in terms of a broad, regional sense to determine the sense of place and visual character of the area.
- Establish a baseline visual survey that identifies scenic areas significant to the Commonwealth.
- Formulate design guidelines to show how to conserve the appealing appearance of the landscape.
- Increase the level of public awareness toward visual resources through environmental awareness seminars, visual assessment and learning exercises, workshops relating to specific projects and design education in the schools.
- Provide leadership to promote more state, regional, and local landscape inventories to better recognize, conserve and enhance the scenic environment.
- Provide the Department of Transportation with input regarding bridge designs that provide a safe alternative to the Jersey barrier bridge design in scenic areas.
- Publish a technical assistance report to serve as a manual that introduces visual resources to private and public sector organizations involved in land management activities. The report should focus on providing an overall understanding of visual resources and introduce methods and processes for evaluation and analysis, as well as potential techniques for the enhancement and protection of the visual environment.

Route selection

Evaluate proposed road corridors for their visual impact on the existing scenic environment.

Anticipate potential changes due to cumulative or secondary impacts (such as increased development).

Categorize the visual experience for the traveler.

- Identify trip segments.
- Document the visual components within these trip segments, noting the transitions between the various trip segments.
- Document the occurrence of visual features along the selected routes.

Identification of alignment (preliminary engineering)

Ensure that the preliminary engineering is harmonious with the form of the land. The road should move logically among the visual components of the landscape.

Design (final engineering)

Incorporate the visual resources previously inventoried and analyzed in the road design. The visual edge and the edge form along the roadway are particularly important in the detail designs.

Source: *Visual Values for the Highway User, 1971.*

APPENDIX G

History of State Land Use Planning

- 1933—State Planning Board created by Governor Pollard
- 1938—State Planning Board became a permanent agency by the General Assembly
- 1944—General Assembly created regional planning commissions
- 1948—State Planning Board is abolished by the General Assembly: new Division of Planning and Economic Development created within the Department of Conservation and Development with four sections (Local Planning, Industrial Development, Research, Mapping and Surveys)
- 1959—Advisory Legislative Council **Report on Consolidation of Local Governments and Functions; and Zoning and Planning Laws** recommended:
  a. localities be able to impose assessments on landowners who benefit from local improvements to the area
  b. consolidating zoning and planning laws
  c. comprehensive plans include subdivision definitions and regulations
  d. comprehensive plans, provided by the local planning commission, be approved by local governing body and all zoning will be based on the plan
- 1960—General Assembly added a planning function to the existing Division of Industrial Development and created the Division of Industrial Development and Planning
- 1961—Virginia Advisory Legislative Council **Report on Zoning, Subdivision Control, and Planning in Virginia** recommended:
  a. creation of one single statute, effective statewide, to replace the numerous existing statutes on zoning, subdivision control, and planning
  b. Board of Conservation and Economic Development be given planning capabilities to restrict land uses near historically valuable sites
- 1962—Division of Industrial Development and Planning transferred to the Office of the Governor by the General Assembly
- 1962—General Assembly delegated localities the ability to enact planning, zoning, and development ordinances (*Code of Virginia* § 15.1 to 15-969.3 was repealed by Acts 1962, c.623)
- 1966—General Assembly separated the planning function from the Division of Industrial Development and Planning and created a new State Division of Planning under the Office of the Governor
- 1966—Passage of the *Open Spaces Land Act* (*Code of Virginia* §10.1-1700 to 10.1-1705)
- 1967—**Virginia Metropolitan Area Study Commission**, also known as the **Hahn Commission**, was extremely supportive of the creation of the State Division of Planning, although they wanted it renamed the Division of State Planning and Community Affairs. Its recommendations included:
  a. increased state role in local planning through technical and professional assistance
  b. division of the state into planning districts which would be responsible for a regional comprehensive plan and would have authority over the local planning commissions

c. establishment of service districts

d. drafted the *Virginia Area Development Act*

- 1968—General Assembly created the Division of State Planning and Community Affairs (DSPCA) and adopted the *Virginia Area Development Act* (*Code of Virginia* § 15.1-1400 to 15.1-1492, 15.1-1500 to 15.1-1505)
- 1969—**Report on Zoning Procedures in Urban Areas** by the Virginia Advisory Legislative Council recommended:

a. ensuring that all localities have equal powers and restrictions under zoning legislation

b. prohibiting localities from requiring developers to donate land for public facilities without receiving compensation

- 1972—The **Governor's Ad Hoc Committee to Review the Virginia Area Development Act** issued their report with the following recommendations:

a. increase the planning districts, authority to provide any governmental service of a regional nature that the local governing bodies request

b. planning districts be enabled to borrow money in the short-term as well as finance services through contracts with local governments

c. allow planning districts to have an operational component as well as planning function

- 1972—Report of the **Governor's Management Study** recommended transferring the functions of the Commission on the Aging away from the DSPCA, although DSPCA maintained that the functions were administered on a regional basis
- 1973—**Interim Report on Land Use Policies** from the Virginia Advisory Legislative Council recommended increasing the funding and staff support to the Commission on Outdoor Recreation to increase the number of easements and increase coordination in enacting the *Open-Space Land Act* (*Code of Virginia* §10.1-1700 to 10.1-1705)
- 1976—**Report of the Land Use Policies Study Committee** to the Virginia Advisory Legislative Council recommended:

a. creating a State Planning Advisory Committee

b. repealing the legislation which gave implementation power to the planning districts

c. not allowing the planning districts any taxing or borrowing ability

d. repealing the service district legislation

e. that there should be no general legislation passed which affects critical environmental areas; they should be handled on a local level only

f. proposed *Agricultural and Forestal Districts Act* to increase incentives for farming and forestry

- 1977—The *Agricultural and Forestal Districts Act* (*Code of Virginia* § 15.2-4300 to 15.2-4314) passed
- 1977—Seventh Interim Report of the **Commission on State Governmental Management**, also known as the **Hopkins Commission**, recommended that due to "the lack of a clear concept of the role of a state planning agency." #(53) DSPCA's functions would be divided accordingly:

a. "overall planning coordination responsibility" (54) would be merged with budget activities under the Department of Planning and Budget

b. the personnel training division would be transferred to the new Department of Personnel and Training

c. the management analysis would be transferred to a new Department of Management Analysis and Systems Development

d. a new Department of Intergovernmental Affairs would be responsible for coordinating all projects and communications between local, state and federal government

- 1982—*Local Agricultural and Forestal Districts Act* passed (*Code of Virginia* § 15.2-4400 to 15.2-4407)
- 1983—In reaction to local officials' complaints about court decisions concerning zoning ordinances, the subcommittee studying the Impact of **Judicial Decisions on Zoning Powers** investigated the matter. The Subcommittee found that while the courts had often repealed local zoning decisions from 1950-1970; more recently, the courts had upheld local authority and the fairly debatable rule.

- 1984—Final Report from the task force of the **Governor's Commission on Virginia's Future** realized that the state's planning activities were focused on short-term goals due to the linkage with the budget process as well as limited coordination among the planning activities within the state. The task force recommended the following:

  a. the Department of Planning and Budget (DPB) becomes the collection site, as well as advisor and evaluator, for all the localities, strategic plans and the head of the strategic plan section should be considered a cabinet member

  b. create a citizen planning group to interact with the strategic plan section of DPB

  c. create a new intergovernmental affairs agency to coordinate the county-city-state system

  d. a realignment of local government boundaries

  e. increasing the planning districts authority to perform regional services

  f. greater planning for infrastructure improvements and increased cooperation among agencies involved

- 1984—Final Report of the **Governor's Commission on Virginia's Future** echoed the recommendations of the task forces with the addition of finding ways for the state to increase funding for the localities which find ways to cooperate on a regional level or consolidate their jurisdictions

- 1988—**Report of the Land Use Roundtable,** concerned with the Chesapeake Bay Area localities recommended the following:

  a. increased leadership role from the state

  b. increased state involvement through technical, monetary, and advisory assistance

  c. a set of clear state-mandated guidelines for localities to follow to protect the area

  d. mandatory zoning for localities

  e. revisions to the comprehensive plans would require state approval

  f. creation of a citizens board under the Secretariat of Natural Resources

- 1987—*Chesapeake Bay Agreement* reached between Virginia, Maryland, Pennsylvania and District of Columbia

- 1988—General Assembly enacted the *Chesapeake Bay Preservation Act* (*Code of Virginia* § 10.1-2100 to 10.1-2116)

- 1988—*Virginia Conservation Easement Act* (*Code of Virginia* §10.1-1009 to 10.1-1016) passed

- 1990—A Report from the **Commission on Population Growth and Development** emphasized the need for more involvement and leadership from the state in respect to planning. A statewide comprehensive plan was called for, as well as increased cooperation between state agencies involved in planning

- 1990—The **Report of the Joint Subcommittee Studying Off-Site Road Improvements** recommended that high-growth localities be able to charge impact fees for the cost of road improvement. The localities would have to have a system of zoning ordinances and establish service districts to address the transportation issues of the region

- 1991—The **Interim Report on Local and State Infrastructure and Revenue Resources** emphasized the benefits of regional cooperation among localities to reduce costs and recommended that cities and counties have equal authority to tax

- 1992—The **Final Report on Local and State Infrastructure and Revenue Resources** recommended creating state incentives for localities that create regional solutions to infrastructure problems

- 1993—The **Report from the Commission on Population Growth and Development** again emphasized the importance of coordinated planning among all levels of govern-

ment. Other recommendations included planning for compact growth and adoption of the *Growth Strategies Act*

- 1994—Report from the **Commission of Population Growth and Development** again emphasized the importance of state leadership in the planning environment as well as the importance of a GIS system and a state strategic plan

- 1995—Report by the Joint Legislative Audit and Review Commission on the **Review of Regional Planning District Commissions in Virginia** recommended:
  a. reassert that PDCs were designed to be regional in nature and create monetary incentives to encourage regional solutions
  b. develop a state strategic plan and clearly outline PDCs role in the planning process
  c. have the Commission on Local Government oversee the PDCs and their regional efforts, as well as review the district boundaries
  d. have PDCs responsible for regional strategic plans instead of or with comprehensive plans

- 1995—*Regional Cooperation Act* (*Code of Virginia* §15.2-4200 to 15.2-4222) passed

- 1996—*Regional Competitiveness Act* (*Code of Virginia* §15.2-1306 to 15.2-1310) passed

- 1997—Section #15.1-1 to 15.1-1726, including the *Virginia Area Development Act*, of the *Code of Virginia* were repealed by Acts 1997, c. 587

- 1997—*Virginia Water Quality Improvement Act* (*Code of Virginia* §10.1-2117 to 10.1-2134) passed

- 1998—The Interim report from the committee studying **The Impact of Aesthetics on the Economy and Quality of Life In Virginia and Its Localities** recognized the importance of a comprehensive land use plan for maintaining the character of an area. The study as noted that a comprehensive plan protected the open space, scenic byways, historic resources and economic potential of an area.

- 1999—The Interim report from the commission on the **Future of Virginia's Environment**, recommended:
  a. increased state involvement in providing parks and protecting open spaces
  b. statewide planning for state parks

- 1999—The Interim report from the subcommittee on **Land Development Patterns and Ways Address Demands for Increased Services and Infrastructure Resulting from Residential Growth**, also known as the **Keating Commission**, recommended increased funding for the Virginia Outdoors Foundation and a full scale inquiry into the tax system at both the state and local levels

APPENDIX H

Environmental Review Process

Public and private land-disturbing projects may impact a variety of natural, cultural and recreational resources, requiring a permit or other environmental document describing potential impacts and outlining methods for avoiding and/or mitigating detriments. Depending on the resources that may be impacted, review and approval from different government agencies may be required. For many proposed projects, approval at the local level is sufficient; other activities are directly regulated by state or federal agencies.

The *Code of Virginia* § 10.1-1188 requires state agencies to prepare and submit an Environmental Impact Report (EIR) for each major state project. "Major state project" constitutes the acquisition of an interest in land for construction of any state facility, or the construction of any state facility or expansion of an existing state facility costing more than $100,000. Projects undertaken by federal agencies are required to have an environmental assessment (EA) or an environmental impact statement (EIS) submitted in accordance with the National Environmental Policy Act (NEPA). The federal documents may substitute as EIRs for federal projects undertaken in Virginia. The Department of Environmental Quality (DEQ) is the coordinating agency for statewide review of most environmental review documents in Virginia. DEQ distributes these projects to state agencies for review and response according to each agency's area of responsibility and expertise. In accordance with the *Code of Virginia Code* § 15.2-2202, DEQ invites review and comment by affected localities and planning district commissions to determine consistency with local ordinances, applicable laws and the locality's comprehensive plan. DEQ completes the process with coordination and analysis of all responses.

The purpose of the environmental review is to ascertain the environmental effects of proposed projects and allow for project modifications to avoid, reduce or mitigate for those impacts. The environmental review process should begin in the early planning stages of a project for site and design procedures to be best determined. It is recommended that the DEQ office of Environmental Impact Review be contacted for assistance in the EIR process.

In order for a timely review without project delay, the EIR must address:

- the environmental impact of the project including impact on wildlife habitat (both terrestrial and aquatic).
- historical and archaeological sites and/or structures.
- agricultural land and forestland.
- tidal and nontidal wetlands.
- watersheds of significant importance.
- natural areas.
- Chesapeake Bay Resource Protection areas.
- adverse impacts of the project that cannot be avoided if the project is undertaken.
- mitigation measures to minimize or reduce adverse impacts.
- alternatives to the proposed project including why the selected project action is the preferred selection.
- irreversible changes to the surrounding environment that will result from the project coming to fruition.

In 1991, Virginia's Secretaries of Natural Resources and Transportation agreed that state historic and natural resource agencies are to have the opportunity to comment on all state-funded highway projects at the earliest stage of development. As a result of this agreement, the Early Coordination Review process was established. Such review provides the basis for balanced consideration of environmental and transportation needs. It also allows the relevant agencies to address potential impacts of the projects, suggest mitigation measures to minimize impact and explore possible alternatives to the proposed construction.

In addition to the above, the following proposed activities are reviewed by state agencies for environmental impact as well as compliance with associated laws, regulations and permit issuance requirements and approval of funding and/or grants:

- Airport construction and expansion projects; *Code of Virginia* §5.1-7
- Dredging and filling of waters of the United States, including wetlands; Section 404, *Clean Water Act*
- Compliance with the Chesapeake Bay Preservation Act; *Code of Virginia* § 10.1- 2114
- Encroachments in, on or over state-owned bottomlands or wetlands; *Code of Virginia* §62.1 1 through 62.1-13
- Erosion and Sediment Control and Stormwater Management plan approvals; *Code of Virginia* § 10.1-560 and § 10.1-603
- Extraction of minerals on state-owned lands; *Code of Virginia* §2.1-512.1
- Federal consistency with the Virginia Coastal Resource Management Program; *Executive Order Number 15* (90)
- Federal EA and EIS in accordance with NEPA; *Code of Virginia* §10.1-1183 (9)
- Handling of hazardous materials and solid waste disposal facility permits; *Code of Virginia* §10.1-1400 et seq
- Hydropower projects; *Code of Virginia* §10.1-1186 (8)
- Obstruction to navigable waterways; *Section 10, Rivers and Harbors Act*
- Oil and gas drilling in Tidewater, Virginia; *Code of Virginia* § 62.1-195.1
- State Water Control Board-administered permits; Section 402 of the Clean Water Act and Code of Virginia § 62.1-44.2 through 62.1-44.34:23
- Minimum instream flow; *Code of Virginia* §62.1-10

Locality planning and development projects - locality requests

Through the environmental review process, information is disseminated about natural resources and how they can be conserved and enhanced. The Commonwealth's goal is twofold — providing opportunities for Virginians to use these valuable resources while conserving and enhancing them for future generations.

The following sources offer detailed information about Virginia's environmental quality programs and the responsibilities and expertise of Virginia's natural resource agencies:

A General Guide to Environmental Regulations in Virginia
Virginia Department of Environmental Quality
629 E. Main Street, Suite 900
Richmond, VA 23219
(804) 786-8750

Business and Industry Guide to Environmental Permits in Virginia
Virginia Department of Environmental Quality
629 E. Main Street, Suite 900
Richmond, VA 23219
(804) 786-8750

Property Owner's Guide to Wetlands Permits
Virginia Water Resources Research Center
10 Sandy Hall
Blacksburg, VA 24061
(540) 231-5624

For a listing of programs and available literature, contact the:

Soil and Water Conservation Division
Virginia Department of Conservation and Recreation
203 Governor Street, Suite 206
Richmond, VA 23219
(804) 786-2064
www.state.va.us/dcr/sw/index.htm

Tourism and Recreation Economics

It is complicated to value tourism and recreation. There are a number of ways that tourism and recreation provide direct benefits to the citizen and others that have direct economic impacts on the local economies. The methods of assessing the direct benefits of open space include:

Market value: This is the most direct measure of the economic value of open space. It is the real estate market value – the cash price that an informed and willing buyer pays an informed and willing seller in an open and competitive market.

Enhancement value: The existence of open space may affect the value of adjacent lands. This is supported by studies of advertised real estate values of properties that are in close proximity to open space amenities (properties facing open space resources or are within a quarter of a mile of a large open space resource). This fact has been found to be true of properties adjacent to greenbelts and greenways as well.

Production value: Lands valued for open space are seldom idle, but rather are part of a working landscape vital to the production of goods and services valued and exchanged in local markets. This economic value is direct, readily measured and the returns from production accrue directly to the landowner.

Natural system value: Open space lands support natural ecosystem functions that provide direct and indirect benefits such as groundwater recharge, climate moderation, flood control and storm damage prevention, and air and water pollution abatement. One way to estimate the value of an ecosystem is to calculate the monetary damages that would result if the benefits were not provided or calculate the cost of public expenditures required to construct infrastructure to replace the functions of the natural system. In addition to the aforementioned benefits, value accrues in enhanced water quality and wildlife habitat. Recreation value is provided to hunters, fisherman and those who enjoy swimming and trail related activities.

Use and nonuse values: Open space is often an important provider of public goods such as scenic vistas, solitude, wildlife and community character embodied in the traditional working landscape. These goods are nonexcludable (impossible or costly to exclude anyone from use) and nonconsumptive (one person's enjoyment does not diminish its availability for others). These characteristics result in the failure to develop markets for public goods, little compensation to landowners to provide goods, and thus the underproduction of public goods by the private sector. This is the main reason for public ownership of open space, natural areas and recreation resources. Economic values are typically estimated by determining the subjective value that people place on the resource or activities related to it.

Intangible values: The previous values focused on open space values of interest to humans and, of those, only values that could be expressed in monetary terms. It is important to note that some of the intangible values of open space include scientific and aesthetic values, preserving genetic diversity and natural heritage.

The second category of values consists of those that provide indirect economic impacts on local economies. These include:

Fiscal impact analysis: There is a growing awareness that local population growth and real estate development do not necessarily provide net fiscal benefits to local governments; in other words, providing infrastructure and other services to accommodate new development may cost more than the development generates in property tax and other revenues. Fiscal impact analysis is the primary analytic tool available to make this assessment. It allows the policymaker to project direct, current, public costs and revenues associated with residential or nonresidential growth to be projected to determine the net fiscal impact of development in the local jurisdiction experiencing growth.

Expenditures from open space-related activities: Activities directly or indirectly associated with open space may generate significant expenditures and provide an important source of revenue for businesses, and state and local governments. These could be the revenues from hunting and fishing license sales, or from other open space-related activities such as hiking, hunting, fishing, bird watching, nature photography, snowmobiling, skiing and mountain biking. Expenditures include the purchase of equipment, travel costs, lodging and accommodations, guide services, meals, groceries, etc., as well as attendant service jobs.

Impacts from employment and tax revenues: Open space lands support jobs and related income that are valuable to local, regional and national economies.

There are a number of considerations that must be recognized when assessing the value of open space and recreation resources.

- People who live in rural areas are realizing that existing open space may be lost without active intervention.
- Suburban communities on the metropolitan fringe are realizing that the loss of open space is not necessarily a consequence of growth. There is a growing number of new policy instruments and institutions that enable growing communities to exercise much greater control over development.
- Center cities and inner suburbs are finding new opportunities for public open space through redevelopment of former industrial "brownfields" and other vacant land.
- A deeper understanding of the value of open space will better inform land-use decisions.
- It is important to remember that it is not possible to completely calculate the economic value of open space and that the methods of determining open space value have the potential of misuse if they are too narrowly construed. Valuation methods are appropriate, however, to justify the preservation of significant open space as development proceeds in a given area.
- Open space can possess negative values. Over used and poorly managed urban parks or the application of poor resource management practices are examples.
- The value of open space depends in part on its protection status.
- Open space values are dynamic and must be considered comprehensively.

The source of the material related to open space values is the paper ***The Economic Values of Open Space: a Review and Synthesis*** by Charles J. Fausold, Cornell Cooperative Extension Association of Schuyler County, Rural Urban Center, 208 Broadway, Montour Falls, NY 14865, USA and Robert J. Lilieholm, Department of Forest Resources, Utah State University, Logan, UT 84322-5215, USA. Additional information and specific inquiries concerning the information on open space values should be directed to the authors.

Virginia Tourism Accreditation Program

The program is designed around five major components: the tourism promotion organization, the situation analysis and improvement plan, tourism information and promotion, the existing tourism industry program, and a concluding simulation exercise.

The objectives of the Virginia Tourism Accreditation Program are:

- to retain existing tourism enterprises and existing employment.
- to enhance the ability of local organizations to market the appeal of Virginia localities.
- to enhance the ability of local tourism leaders to successfully develop tourism programs by improving the level of preparedness for such development.

- to encourage localities to invest in tourism, and to develop and allocate resources for local efforts directed toward tourism development.
- to provide participating communities with a program which will enable them to enhance their tourism and economic development programs. Each community earning the designation as a "Virginia Accredited Tourism Community" will benefit from technical assistance and recognition as such from the Commonwealth.

At this time, 26 communities have enrolled in the accreditation program, and 13 have completed the program requirements. Detailed information about this program and requirements for participation can be obtained from the Tourism Development Division of the Virginia Tourism Corporation.

APPENDIX J

Part A: Organizational References

Virginia State Agencies

Virginia Department of Conservation and Recreation
203 Governor Street, Suite 302
Richmond, VA 23219
(804) 786-6124
www.dcr.state.va.us

Virginia Department of Environmental Quality
629 East Main Street
P.O. Box 10009
Richmond, VA 23240-0009
(804) 698-4000
www.deq.state.va.us

Virginia Department of Forestry
Fontaine Research Park
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903
(434) 977-6555
www.dof.state.va.us

Virginia Department of Game & Inland Fisheries
4010 W. Broad Street
Richmond, VA 23230
(804) 367-1000
www.dgif.state.va.us

Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221
(804) 367-2323
www.dhr.state.va.us

Virginia Main Street Program
Virginia Department of Housing and Community Development
501 N. Second Street
Richmond, VA 23219
(804) 371-7030
www.dhcd.state.va.us

Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219
(804) 371-6752 (Environmental Programs)
(804) 786-2264 (Enhancements)
www.vdot.state.va.us

Virginia Economic Development Partnership
901 East Byrd Street
P.O. Box 798
Richmond, VA 23218-0798
(804) 371-8202
www.yesvirginia.org

Virginia Land Conservation Foundation
203 Governor Street, Suite 326
Richmond, VA 23219
(804) 786-3218
www.dcr.state.va.us/vlcf

Virginia Outdoors Foundation
203 Governor Street, Suite 316
Richmond, VA 23219
(804) 225-2147 (Richmond Office)
(703) 327-6118 (Northern Virginia Office)
(804) 293-3423 (Charlottesville Office)
(540) 886-2460 (Shenandoah Valley Office)
(540) 951-2822 (Western Virginia Office)
www.virginiaoutdoorsfoundation.org

Virginia Tourism Corporation
901 East Byrd Street
Richmond, VA 23219
(804) 786-2051
www.vatc.org

Virginia Organizations

Association for Preservation of Virginia Antiquities (APVA)
204 W. Franklin Street
Richmond, VA 23220
(804) 648-1889
www.apva.org

Blue Ridge Foothills Conservancy
HC6, Box 215
Madison, VA 22727
(540) 923-9980

Central Virginia Battlefields Trust
604-A William Street, Suite 1
Fredericksburg, VA 22401
(540) 371-4157
www.cvbt.org
The Central Virginia Battlefields Trust works to purchase and preserve significant Civil War battlefields and landmarks. It also serves as an advocate for battlefield preservation.

Chesapeake Bay Foundation
1008 E. Main Street, Suite 1600
Richmond, VA 23219
(804) 780-1392
www.cbf.org
The Chesapeake Bay Foundation acts to restore and sustain the bay's ecosystem by improving water clarity, diversity, and abundance of living resources in the watershed.

Institute for Environmental Negotiation
164 Rugby Road – Peyton House
University of Virginia
Charlottesville, VA 22903
(434) 924-1970
www.bohr.ms.virginia.edu

James River Association
P. O. Box 110
Richmond, VA 23218-0110
(804) 730-2898
www.jamesriverassociation.org
The James River Association works to encourage sustainable growth in the James River Watershed that is consistent with the conservation of natural and historic resources.

Land Trust of Virginia
P. O. Box 354
Leesburg, VA 20178
(540) 687-8441
The Land Trust of Virginia works with local communities, primarily through conservation easements, to meet their historical and natural resource objectives.

Middle Peninsula Land Trust
P.O. Box 433
Mathews, VA 23109

New Dominion Business Council
P. O. Box 1124
Leesburg, VA 20177
(703) 771-3301
The New Dominion Business Council was formed to provide the business community with a forum for advocating for responsible growth.

Northern Virginia Conservation Trust
4022 Hummer Road
Annandale, VA 22003
(703) 354-5093
The Northern Virginia Conservation Trust works to preserve open space in Arlington, Fairfax, Prince William, and other Northern Virginia counties.

Piedmont Environmental Council
P. O. Box 460
Warrenton, VA 20188
(540) 347-2334
www.pec-va.org
The Piedmont Environmental Council works to preserve the rural economy, natural resources, history, and beauty of the Northern Piedmont region of Virginia. PEC also provides technical assistance on land use policy and land conservation.

Potomac Conservancy
4022 Hummer Road
Annandale, VA 22003
(703) 642-9880
The Potomac Conservancy works to preserve the natural, historic and recreational qualities of the Potomac River.

Preservation Alliance of Virginia
700 Harris Street, Suite 106
Charlottesville, VA 22902
(804) 984-4484
www.vapreservation.org
The Preservation Alliance works to preserve and promote the cultural, historic, architectural and archaeological heritage of the Commonwealth.

Scenic Virginia
P. O. Box 17606
Richmond, VA 23226
(804) 282-5522
www.scenicva.org
Scenic Virginia, Inc., works to protect, preserve and enhance the scenic beauty of the Commonwealth of Virginia. It provides information on highway beautification, scenic byway designation, and sign control.

Shenandoah Valley Battlefields National Historic District Commission
P. O. Box 897
New Market, VA 22844
(540) 740-4543
www.valleybattlefields.org
The commission was created by federal legislation in November 1996 to develop a management plan to protect the resources of the Shenandoah Valley Battlefields National Historic District.

Southern Environmental Law Center
201 W. Main Street, Suite 14
Charlottesville, VA 22902
(804) 977-4090
www.southernenvironment.org
SELC is the only environmental organization dedicated solely to protecting the natural resources of the southeastern United States.

Valley Conservation Council
P. O. Box 2335
Staunton, VA 24402
(540) 886-3541
www.valleyconservation.org
The Valley Conservation Council works to promote land uses that sustain the farms, forests, open spaces and cultural heritage of the Valley region of Virginia.

Virginia Conservation Network
1001 E. Broad Street, Suite 410
Richmond, VA 23219
(804) 644-0283
www.vcnva.org
The Virginia Conservation Network (VCN) is a coalition of organizations devoted to advancing a common, environmentally sound vision for Virginia.

Virginia Recreation and Park Society
6038 Cold Harbor Road
Mechanicsville, VA 23111
(804) 730-9447

Virginia Trails Association
P. O. Box 1132
Ashland, VA 23005
(804) 798-4160
The Virginia Trails Association promotes the development of trails and greenways throughout Virginia.

Western Virginia Land Trust
P. O. Box 18102
Roanoke, VA 24101-0000
(540) 985-0000
The Western Virginia Land Trust works to protect open space, natural areas and scenic landscapes in southwestern Virginia.

Williamsburg Land Conservancy
5000 New Point Road, Suite 1202
Williamsburg, VA 23188
(757) 565-0343
www.wmbglandconserv.org
The Williamsburg Land Conservancy works to preserve historic, scenic and environmentally sensitive lands in the James and York River Basins.

National Organizations

American Farmland Trust
1200 18th Street, N.W., Suite 800
Washington, DC 20036
(202) 331-7300
www.farmland.org
The leading conservation organization dedicated to protecting America's agricultural resources. AFT provides a variety of information resources and services.

American Forests
910 17th Street, N.W., Suite 600
Washington, DC 20006
(202) 955-4500
www.amfor.org
The oldest citizen's conservation organization in the U.S., American Forests provides information on urban forestry, tree preservation, and reforestation.

American Planning Association
122 S. Michigan Ave., Suite 1600
Chicago, IL 60603
(312) 431-9100 (general)
(312) 786-6344 (Planning Advisory service and Planners Book Service)
www.planning.org
The American Planning Association provides informational services, education, and research on all aspects of city and regional planning.

American Society of Landscape Architects
636 Eye Street, NW
Washington, DC 20001-3736
(202) 898-2444
www.asla.org

Appalachian Trail Conference
P.O. Box 807
Harpers Ferry, WV 25425-0807
(304) 535-6331
www.appalachiantrail.org

Civil War Preservation Trust
1515 Wilson Boulevard, Suite 350
Arlington, VA 22209
(703) 682-2350
www.civilwar.org
The mission of The Civil War Trust is to preserve significant Civil War battlefields and to support preservation education programs.

Coalition for Smarter Growth
1415 Oronoco Street
Alexandria, VA 22314
(703) 683-5704
E-mail: *stopsprawl@aol.com*
The Coalition for Smart Growth advocates better land use and transit-oriented design in Northern Virginia.

Congress for the New Urbanism
5 Third Street, Suite 725
San Francisco, CA 94103
(415) 495-2255
www.cnu.org
The Congress for the New Urbanism advocates restructuring public policy and development practices to support the restoration of existing urban centers and towns within coherent metropolitan regions.

The Conservation Fund
1800 North Kent Street, Suite 1120
Arlington, VA 22209-2156
(703) 525-6300
www.conservationfund.org
The Conservation Fund works to protect open space, wildlife habitat, and historic sites throughout America. The Fund also assists business, government, and the nonprofit sector with projects that integrate economic development with environmental protection.

Joint Center for Sustainable Communities
c/o U.S. Conference of Mayors
1620 Eye Street, N.W.
Washington, DC 20006
(202) 293-7330
www.usmayors.org/uscm/sustainable
The Joint Center for Sustainable Communities provides a forum for cities and counties to work together to develop long-term policies and programs that will lead to job growth, environmental stewardship and social equity.

Land Trust Alliance
1331 H Street, N.W., Suite 400
Washington, DC 20005-4711
(202) 638-4725
www.lta.org
The Land Trust Alliance provides services and programs for local and regional land trusts. It also provides information on all aspects of private land conservation, including easements and fee acquisition.

National Arbor Day Foundation
211 N. 12th Street, Suite 501
Lincoln, NE 68508
(402) 474-5655
www.arborday.org
The National Arbor Day Foundation sponsors programs and publishes information encouraging the conservation of trees.

National Main Street Center
c/o National Trust for Historic Preservation
1785 Massachusetts Avenue, N.W.
Washington, DC 20036
(202) 588-6219
www.mainst.org
The National Main Street Center works with communities across the nation to revitalize their traditional downtowns and neighborhood commercial areas. It provides information on downtown revitalization.

National Recreation and Park Association
22377 Belmont Ridge Road
Ashburn, VA 20148-4501
Phone: 703-858-0784 Fax: 703-858-0794
E-mail: *info@nrpa.org*
www.nrpa.org

National Resources Conservation Service
1606 Santa Rosa Road, Suite 209
Richmond, VA 23229-5014
(804) 287-1691
www.va.nrcs.usda.gov

National Scenic Byways Resource Center
227 West First Street, Suite 610
Duluth, MN 55802
(800) 429-9297
www.byways.org
Sponsored by the Federal Highway Administration (FHWA), it provides information on all aspects of scenic byways.

National Trust for Historic Preservation
1785 Massachusetts Avenue, N.W.
Washington, DC 20036
(202) 588-6000
www.nthp.org
The National Trust for Historic Preservation works to protect the irreplaceable. It fights to save historic buildings, neighborhoods, and landscapes. It provides information on all aspects of historic preservation.

The Nature Conservancy
4245 N. Fairfax Drive, Suite 100
Arlington, VA 22203
(703) 841-5300
www.tnc.org
The Nature Conservancy works to preserve plants, animals and natural communities that represent the diversity of life on Earth by protecting lands and waters they need to survive.

Rails-To-Trails Conservancy
1100 17th Street, 10th Floor, N.W.
Washington, DC 20036
(202) 331-9696
E-mail: *greenways@transact.org*
www.railtrails.org

Scenic America
801 Pennsylvania Avenue, S.E., Suite 300
Washington, DC 20003-2152
(202) 543-6200
www.scenic.org
Scenic America works to preserve and enhance the scenic character of America's communities and countryside. It provides information on sign control, tree preservation and other forms of landscape protection.

Sprawl Watch Clearinghouse
1100 17th Street, N.W., 10th Floor
Washington, DC 20036
(202) 974-5133
www.sprawlwatch.org
The Sprawl Watch Clearinghouse makes the tools, techniques, and strategies for managing growth accessible to citizens, grassroots organizations, environmentalists, public officials, planners, architects, the media and business leaders.

Surface Transportation Policy Project
1100 17th Street, N.W., 10th Floor
Wahington, DC
(202) 466-2636
www.transact.org/stpp.htm
The Surface Transportation Policy Project works to ensure that transportation policy and investments help conserve energy, protect environmental and aesthetic quality, strengthen the economy, promote social equity, and make communities more livable.

Trails and Greenways Clearinghouse
1100 17th Street, N.W., 10th Floor
Washington, DC 20036
(877) GRN.WAYS (toll-free)
www.trailsandgreenways.org
The Trails and Greenways Clearinghouse provides technical assistance, information resources and referrals to trail and greenway advocates and developers across the nation.

Trust for Public Land
116 New Montgomery Street, 4th Floor
San Francisco, CA 94105
(415) 495-4014
www.tpl.org
The Trust for Public Land conserves land for people to improve the quality of life for our communities.

Urban Land Institute
1025 Thomas Jefferson Street, N.W., Suite 500 West
Washington, DC 20007
(202) 624-7000
www.uli.org
The Urban Land Institute (ULI) provides leadership in the responsible use of land to enhance the total environment. ULI offers a wide variety of books and materials on development issues.

Wilderness Society
1615 M Street, NW
Washington, DC 20036
1-800-THE-WILD
www.wilderness.org

Federal Agencies

Environmental Protection Agency
U. S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029
(215) 814-5000
www.epa.gov

Tennessee Valley Authority
400 W. Summitt Hill Drive
Knoxville, TN 37902-1499
(865) 632-2101
www.tva.gov

National Park Service
U. S. Custom House
200 Chestnut Street, Fifth Floor
Philadelphia, PA 19106
(215) 597-7013
www.nps.gov

United States Army Corps of Engineers, Norfolk District
803 Front Street
Norfolk, VA 23510-1096
(757) 441-7500
www.usace.army.mil

United States Department of Commerce
National Oceanic & Atmospheric Administration
1335 East West Highway
Silver Spring, MD 20910-3284
(301) 713-3578
www.noaa.gov

United States Fish & Wildlife Service
Department of the Interior
1849 C Street, Room 3012
Washington, DC 20240
(202) 208-5634
www.fws.gov

United States Forest Service
George Washington & Jefferson National Forest
5162 Valleypointe Parkway
Roanoke, VA 24019-3050
(540) 265-5100
www.southernregion.fs.fed.us

Part B: State Agencies with Land Acquisition and/or Land Conservation Protection Programs

Secretariat, Agencies, Boards, Commissions, and Authority[1]

Secretary of Natural Resources

Chesapeake Bay Local Assistance Board
§ 10.1-2103 Powers and duty of the Board*

Department of Conservation and Recreation
§ 10.1-104 Powers of the Department
§ 10.1-114 Commemorative facilities and historic sites management
§ 10.1-201 Acquisition of lands of scenic beauty, recreational utility or historical interest
§ 10.1-203 Establishment, protection and maintenance of the Appalachian Trail
§ 10.1-204 Statewide system of trails
§ 10.1-208 Acquisition of property; making property available for agricultural and timbering uses, outdoor and recreational uses
§ 10.1-210 Additional duties of the department (Natural Area Preserves Act)
§ 10.1-213 Dedication of Natural Area Preserves*
§ 10.1-216 Natural Areas Registry *
§ 10.1-301 General Powers of Director (State Park Development Revenue Bond Act)
§ 10.1-401 Powers and duties of the Director; acquisition of property (Scenic Rivers Act)

Board of Conservation and Recreation
§ 10.1-107 General powers and duties of the Board*

Breaks Interstate Park Commission
Chapter 622 of the 1994 Virginia Acts of Assembly (and also a companion Act passed by the Commonwealth of Kentucky)

Cave Board[2]
§ 10.1-1002 Powers and duties of Cave Board

Chippokes Plantation Farm Foundation
§ 3.1-22.10 Powers of Foundation

Virginia Land Conservation Foundation
§§ 10.1-1017 thru 10.1-1022.1

Virginia Outdoors Foundation
§§ 10.1-1800 thru 10.1-1804

Virginia State Park Foundation
§ 10.1-219 Powers of Foundation

Department of Environmental Quality
§ 10.1-1186 General Powers of the Department

Department of Game and Inland Fisheries
§ 29.1-103 Powers and duties of the Board
§ 29.1-104 Acceptance of gifts, etc.
§ 29.1-106 Forest and watershed areas
§ 29.1-339.1 Voluntary migratory waterfowl conservation stamp

Department of Historic Resources
§ 10.1-2202 Powers and duties of the Director

Board of Historic Resources
§ 10.1-2204 Duties of the Board of Historic Resources

Virginia Historic Preservation Foundation[3]
§ 10.1-2400 thru § 10.1-2404 (see footnote)

Virginia Marine Resources Commission
§ 28.2-524 taking oysters or clams in certain areas; limitations
§ 28.2-1200 thru 28.2-1213 Submerged Lands
§ 28.2 1300 thru 28.2-1320 Wetlands
§ 28.2-1400 thru 28.2-1420 Coastal Primary Sand Dunes and Beaches
§ 28.2-1500 thru 28.2-1512 Ungranted Shores of the Sea, Marshes and Meadowlands

Virginia Museum of Natural History
§ 10.1-2009 Powers and duties of the Board

Secretary of Commerce and Trade

Board of Agriculture and Consumer Services[4]
§ 3.1-4 Powers in general

Department of Forestry
§ 10.1-1101 General powers of Department
§ 10.1-1107 Purchase of lands and acceptance of gifts for forestry purposes by the State Forester; management; definition of state forests
§ 10.1-1108 Waste and unappropriated lands
§ 10.1-1114 Establishment of nurseries; distribution of seeds and seedlings
§§ 10.1-1120 thru 10.1-1123 Forest Management of State-Owned Lands Fund*

Department of Mines, Minerals and Energy
§ 45.1-161.3 Powers of the Department
§ 45.1-197.7 Acceptance of federal funds, gifts, etc. (Chapter 16, Permits for Certain Mining Operations; Reclamation of Land)
§ 45.1-230 Authority and duties of Director (Chapter 19, Virginia Coal Surface Mining Control and Reclamation Act of 1979)

Secretary of Education

College of William and Mary - Virginia Institute of Marine Science
§ 28.2-1103 and § 28.2-1104 Virginia Estuarine and Coastal Reserve Research System

Frontier Culture Museum of Virginia
§ 9-99.4 Powers and duties

Gunston Hall
§ 9-99.1 Board of Regents of Gunston Hall; Board of Visitors for Gunston Hall

Jamestown-Yorktown Foundation
§ 23-288 Powers and duties

Science Museum of Virginia
§ 23-250 Powers and duties of the Board

Secretary of Transportation

Department of Aviation
§ 5.1-2.2:1 Department of Rail and Public Transportation[5]
§ 33.1-391.5 Responsibilities of Department

Department of Transportation
§§ 33.1-62 thru 33.1-66 Scenic Highways and Virginia Byways
§ 33.1-223 Fund for access roads and bikeways to public recreational areas and historical sites; construction sites; construction, maintenance, etc., of such facilities
§ 33.1-223.2:1 Wetlands mitigation banking

Virginia Port Authority
§ 62.1-132.19 Acquisition and lease of property

Others

Mount Vernon Ladies Association of the Union[6]
Chapter 298 of the 1856 Acts of Assembly, and Chapter 171 of the 1858 Acts of Assembly

Department of General Services
§ 2.1-489 Planning and construction by Division (of Engineering and Buildings)

Virginia Public Building Authority
§ 2.1-234.13 Purposes and general powers and duties of Authority

Committee on Atlantic Rural Exposition (State Fair of Virginia)
Chapter 719, Item 627, 1966 Virginia Acts of Assembly

State Land Evaluation Advisory Council
§§ 58.1-3229 thru 58.1-3234, Special Assessment for Land Preservation (also known as Land Use Assessment)*

Footnotes

1. Items so noted with an asterisk (*) do not have acquisition authority; however, the program authority has natural resource conservation land protection value.
2. Cave Board is an Advisory Board; however, § 10.1-1002, Item 1. allows the Board to accept any gift, money, security or other source of funding.
3. Repealed effective January 1, 2003, if the assets of the Virginia Historic Trust Fund have not reconveyed from the Association for the Preservation of Virginia Antiquities to the Virginia Historic Preservation Foundation under subsection C of § 2 of the second enactment of Chapter 24 of the 1999 Virginia Acts of Assembly.
4. Limited, not to exceed 1000 acres for the programs of the Department of Agriculture and Consumer Services.
5. Charges with retention of rail corridors for public purposes. With Department of Conservation and Recreation's authority under the federal Rails to Trails Act provides for Rails to Trails conversions of rail lines formally abandoned.
6. Land acquisition authority believed to be restricted to the Mount Vernon property under the above references and to the George Washington Grist Mill State Park pursuant to Chapters 803 and 811 of the 1996 Virginia Acts of Assembly.

APPENDIX K

Agency and Organizational Funding Sources

Grant programs are available to park and recreation, conservation, and natural resource management agencies to provide opportunities to develop and manage their resource base. The following is a list of agencies and grant opportunities that could be considered by planners and managers. The list is not to be considered all-inclusive and for details of the grant and eligibility requirements contact must be made with the administering agency.

Over 1400 federal grant listings are contained in the publication *Catalog of Domestic Assistance* published by the Government Printing Office. The catalog is revised annually to reflect changes in grants and eligibility criteria. You can receive a copy of the publication by writing:

Federal Domestic Assistance Catalog Staff (MVS)
General Services Administration
Reporters Building, Room 101
300 7th Street, SW
Washington, DC 20407
Phone: (202) 708-5126
Toll-Free Answering Service: 1-800-669-8331
www.CFDA.Gov

The Federal Assistance Programs are also available on CD-ROM and diskettes. Advertisements for these options are contained in the Catalog or by writing or calling the Catalog staff at the above address and telephone numbers. The agencies listed below are typical of those listed in the catalog offering grants.

The United States Department of Agriculture:
United States Forest Service
Natural Resource Conservation Service

The United States Department of Interior:
U.S. Fish and Wildlife Service
Geological Survey
National Park Service

The Department of Commerce:
National Oceanic and Atmospheric Administration

The Department of Housing and Urban Development:
Community Planning and Development

The National Foundation on the Art and the Humanities:
The National Endowment for the Arts
The National Endowment for the Humanities

The Environmental Protection Agency:
Office of Water
Office of Research and Development
Office of Environmental Education

The Federal Emergency Management Agency:

State Assistance Programs
Agencies of the Commonwealth offer a number of technical assistance opportunities for public and private agencies and organizations. To determine the availability of grants, their purpose and eligibility requirements, contact should be made with the specific agency. Agency contact references are identified throughout the Plan in the individual sections describing their programs, as well as in Appendix J Organizational Resources on page 425.

There are numerous private, philanthropic and conservation organizations that fund and support land conservation programs. These are contained on the list found in Appendix J, Organizational Resources.

APPENDIX L

Priorities of Plan Recommendations in Response to Current Issues

A sound planning process involves the identification of current issues and the development of a set of recommendations to respond to these issues. *The Virginia Outdoors Plan (VOP)* is the Commonwealth's attempt to do both. The *VOP* provides guidance to federal, state, regional and local governments, as well as the private sector, in responding to issues related to Virginia's outdoor recreation and open space resources.

Several sources of information were used to identify and develop the issues confronting the Commonwealth, including: input gathered from citizens, the *2000 Virginia Outdoors Survey*, current published recreational and open space planning and management materials, and the governmental agencies and conservation organizations throughout the state.

Based on such input and research, the Department of Conservation and Recreation identified a number of issues and trends. These include: tourism and recreational economics; access to and availability of open space resources; land-use planning, quality of life, conservation ethics, sustainable development, and funding for outdoor recreation and open space resources. Within these broad issues, material is presented which relates to land conservation; private property rights; water resources; maintenance and security of public lands; sustainability and environmental concerns; the role of government; population increase and other demographic changes; urbanization; and various quality of life issues.

In the following breakdown of priority issues and recommendations, priorities are defined as follows:

New Priorities – These issues have become significantly more important to Virginians.

Ongoing Priorities – These issues were identified as significant in the previous *VOP's* and continue to be important.

Major issues in outdoor recreation and conservation are identified below as new priorities or ongoing priorities. Following each issue are general recommendations, which represent a compilation of more specific recommendations found throughout the *VOP*. Specific recommendations are found throughout the plan and have direct relationships to the major issues found in this appendix.

The issues and recommendations found in this chapter and throughout the plan are important. Working toward their resolution should be considered within the five-year scope of this *VOP*.

New Priority Issues: Recreation-based tourism has become an essential element of Virginia's economy.

A. Outdoor recreational opportunities are very important to Virginians and most feel strongly that the public sector has a responsibility to provide outdoor recreational opportunities for its citizens. In order of priority, respondents to the *2000 Virginia Outdoors Survey* indicated that the greatest needs for outdoor recreational opportunities in Virginia are: public access to the state's waters, hiking and walking trails, bicycle trails, sports fields, and tennis and basketball courts.

B. Respondents to the *2000 Virginia Outdoors Survey* indicated that their primary concerns with existing public recreation areas include: poor maintenance, overcrowding, and security and enforcement.

C. Virginians are becoming increasingly concerned with the quality of their environment and are demanding more comprehensive environmental education to help them make responsible resource decisions.

D. A stable state funding source is needed to enhance the acquisition, operation, maintenance and conservation of Virginia's outdoor recreation and open space resources.

E. Serious conflicts have arisen between in-stream and off-stream uses related to the state's water resources.

F. Protecting and enhancing Virginia's visual resources and cultural landscapes is continuously more important.

G. It is important to ensure that all citizens have access to outdoor recreational opportunities.

H. Sustainable development of the Commonwealth's finite resources should be a goal of all interests.

I. Sound land-use planning and the interpretation of all public infrastructure into a plan that protects critical and significant open space resources is important to the economic development of the Commonwealth and maintenance of the natural and visual resources cherished by residents and nonresidents.

Ongoing Priority Issues:

A. The private sector will continue to have a significant impact on the quality and availability of Virginia's natural and recreation resources through the protection and buffering of key park and open space resources, the preservation of natural heritage resources, and the provision of recreational opportunities.

B. A lack of information about available recreational opportunities has been cited as a major reason why many people don't take advantage of Virginia's resources.

C. The majority of Virginians believe that it is very important to protect our park, natural, and open space resources.

D. There is an urgent need for strong, enforceable, local open space and conservation plans.

E. Conflict between the conservation of natural and recreation resources and private property rights remains an important issue. Creative solutions must be developed that allow for appropriate development while also protecting the viability of important park, natural, and open space resources.

F. Continued population growth and an increase in seasonal tourism have resulted in stress to the coastal environment and a significant increase in demand for coastal recreational opportunities.

The issues identified in the preceding text encompass the recommendations found throughout the document. The priority for action is considered to be the five-year horizon defined by this plan. The implementation of specific recommendations is dependent upon the availability of funds and the commitment of the citizens of the Commonwealth and a specific level of government or private interest to undertake the project.

APPENDIX M

Wetlands

Wetlands, both tidal and nontidal, are among the most important natural resources found in Virginia's landscape. Wetlands include swamps, bogs and marshes, as well as the shallow portions of oceans, bays, rivers, lakes and ponds. Semi-aquatic lands that flood or contain saturated soils for some period during the growing season also are considered wetlands.

Wetlands perform many valuable functions, including maintaining water quality by filtering and capturing pollutants, protecting coastal and inland shorelines from erosion, storing and buffering flood waters, providing habitat and nursery areas for terrestrial and aquatic life, producing and transporting plant food for the aquatic food chain, maintaining the base flow of streams and recharging groundwater. Wetlands also provide food and habitat that is essential for ducks and other migratory waterfowl.

The flooded nature of wetlands makes them unsuitable for many human activities including development, construction, and most types of agriculture. Wetlands have historically been filled, drained, excavated or otherwise destroyed to accommodate these activities. In combination with other impacts on wetlands, such as pollution, dumping and impoundment, Virginia has lost a large percent of the acreage and environmental values of its wetlands.

Over the past three decades, a number of governmental programs have been established to reduce the destruction of wetlands. In Virginia, each level of government is responsible for implementing various programs affecting wetlands. In adopting the Wetlands Act of 1972, the Virginia General Assembly established the policy to "preserve the wetlands and to prevent their despoliation and destruction." As a signatory to the Chesapeake Bay Agreement of 2000, Virginia adheres to a goal of no net loss of wetlands, with a long-term goal of gaining wetlands acreage and functions.

Wetland types and functions

Virginia's tidal wetlands are found along the shorelines of the Atlantic Ocean, the Chesapeake Bay, and the tidal portions of rivers and creeks. Vital to commercial and sport fisheries, they provide food and habitat to innumerable species that comprise Virginia's annual harvest of fish from tidal waters. The amount of plant food produced by these wetlands ranges between one and six tons per year, rivaling the production level of intensively farmed agricultural areas.

Virginia's tidal wetlands are important to the Atlantic Coast Flyway, serving as wintering and stopover grounds for migratory waterfowl including tundra swans and numerous varieties of ducks. They are home to herons, egrets, rails, snipe and others that depend on the food and shelter provided there. Freshwater tidal marshes in particular exhibit high diversity and provide habitat for many and varied birds, mammals and aquatic species.

Tidal marshes filter and cleanse our waters. Dense wetland plants baffle flowing water, allowing suspended silt to be settled onto the wetland where it's captured by the growth of the root system. The silt particles carry substances such as phosphorus,

which can be harmful to the aquatic system in great quantities. Wetlands also are effective in capturing substances dissolved in the water such as nitrogen, which can lead to overgrowth and eutrophication in the aquatic environment.

Nontidal wetlands are being recognized for their value to the environment and the economy. These wetlands are found above the reach of tide and salinity and may be adjacent to tidal wetlands, along the shorelines and floodplains of nontidal rivers, and in the higher reaches of watersheds. Nontidal wetlands develop naturally in areas that intercept and cleanse water flowing though a watershed. These wetlands provide a first line of defense for water quality protection as runoff flows toward streams, rivers and bays. Where nontidal wetlands are destroyed, increased runoff and silt from developing watersheds erode and smother tidal wetlands and submerged aquatic vegetation leading to the decline of water quality.

Virginia's nontidal wetlands perform a number of other important environmental functions that vary by region. Bogs, ponds and meadows in the western portion of Virginia, as well as headwater wetlands throughout the state, buffer and detain floodwaters for the protection of downstream areas. These areas also may recharge groundwater. Nontidal wetlands along rivers and streams in the piedmont and mountain regions retain nutrients, filter sediment and provide other water quality functions similar to tidal fringe marshes of the coastal plain. These wetlands are also conduits for groundwater discharge, helping maintain flow levels of streams and rivers. Bottomland hardwood swamps of the coastal plain are important sources of food production for aquatic animals, provide habitat, and are important for water quality protection, erosion control, hunting and other recreational activities.

Wetlands losses

The United States Fish and Wildlife Service (USFWS) estimates that Virginia lost more than 63,000 acres of coastal and inland wetlands between 1956 and 1977. These losses were mainly in the coastal plain, and averaged about 3,000 acres per year. The USFWS also estimated that urban development was responsible for 43% of tidal wetlands loss during this period. Tidal wetlands also were lost to dredging projects, impoundments and sea level rise.

Agriculture is cited by the USFWS as the principal source of nontidal wetlands loss between 1956 and 1977, accounting for 45 percent of the total. Channelization is cited as the second most influential factor in nontidal wetlands loss, while urban development accounted for 3.0% of nontidal wetlands loss over those 21 years.

The Chesapeake Bay Agreement

Recognizing wetlands' importance to the bay's ecosystem, the bay states committed to implementation of a baywide policy to protect tidal and non-tidal wetlands in the form of the Chesapeake Bay Agreement of 2000. The agreement provides for the following milestones:

1. Achieve a no net loss of existing wetlands acreage and function in the signatories' regulatory programs.
2. By 2010, achieve a net resource gain by restoring 25,000 acres of tidal and nontidal wetlands. To do this, we commit to maintain an average of 2,500 acres per year basin wide by 2005 and beyond. We will evaluate our success in 2005. (Virginia's share of this goal is to recreate 10,000 acres of wetland by 2010.)
3. Provide information and assistance to local governments and community groups for the development and implementation of wetlands preservation plans as a component of a locally based integrated watershed management plan. Establish a goal of implementing the wetlands plan component in 25 percent of the land area in each state's bay watershed by 2010. The plans would preserve key wetlands while addressing surrounding land use so as to preserve wetland functions.
4. Evaluate the potential impact of climate change on the Chesapeake Bay watershed, particularly with respect to its wetlands, and consider potential management options.

Executive Order 72-00 establishing the Virginia Wetlands Restoration Coordinating Committee

The Virginia Wetlands Restoration Coordinating Committee, established by former governor James Gilmore under Executive Order 72 (00), is cochaired by the Directors of the Department of Game and Inland Fisheries and Department of Conservation and Recreation. All land-holding state agencies and institutions of higher education are requested by this order to participate in wetland restoration by taking the following steps:

1. Identify areas suitable for wetland restoration, establishment or preservation on the land owned by the agency or institution.
2. Develop measurable indicators for wetland conservation, restoration and establishment in an agency-specific plan.
3. Identify resources that can be used to establish or restore wetlands on state property.
4. Establish or restore wetlands as appropriate on state lands within the extent of identified resources.

The Wetlands Restoration Coordinating Committee is charged with measuring progress and reporting on three tasks. These are:

1. Promote the voluntary establishment or restoration of wetlands (tidal and nontidal) by private landowners.
2. Coordinate a comprehensive survey of public lands held by the Commonwealth, as well as lands purchased with state funds but held by private organizations, in search of suitable sites for wetland creation, preservation and enhancements.
3. Provide the Secretary of Natural Resources with an estimate of the cost and opportunities for funding the restoration or establishment of wetlands on public lands.

The wetland restoration goal for the Commonwealth is 10,000 acres of wetlands to be created or restored by the end of calendar year 2010. In order to facilitate the achievement of the wetland restoration goals set out in the Chesapeake 2000 Agreement, 60% (6,000) of the acres restored are to be located within the Chesapeake Bay drainage.

The strategy developed to facilitate the achievement of Virginia's goals for wetland restoration and to aid in the voluntary conservation, establishment and restoration of wetlands in all regions of the commonwealth has the following elements:

1. Restore wetlands on surplus state lands and place existing wetlands on these lands in conservation easements.
2. Restore wetlands on state-owned and, where appropriate, place conservation easements on existing wetlands.
3. Restore wetlands on private lands in partnership with landowners.
4. Purchase easements on private lands suitable for wetland restoration or preservation.
5. Work with local governments to restore wetlands on their public lands.

Regulatory programs for wetlands management

Virginia wetlands regulation dates to the 1972 Wetlands Act, which established a coordinated state/local program to regulate the use and development of tidal wetlands. The program is based on protecting the full range of tidal wetlands values, which are summed in a ranking system used to evaluate wetlands permits. The act, amended in 1982 to include nonvegetated wetlands, sets forth a policy of preserving tidal wetlands and balancing their preservation with necessary economic development.

Virginia's tidal wetlands permitting program is primarily administered by 35 localities in the tidewater region. In coastal localities that have not yet adopted the Wetlands Zoning Ordinance, the Virginia Marine Resources Commission conducts wetland permitting. By law, the commission reviews all decisions made by local wetlands boards and has authority to modify, remand, reverse or uphold those decisions. The majority of tidal wetlands permits are private efforts to protect shoreline property from natural erosion. Increasing developmental pressure in the tidewater region has increased the number of permits that the commission must review.

Virginia's Chesapeake Bay Preservation Act, administered by the Chesapeake Bay Local Assistance Department, is a water quality program, not a wetlands management program. However, the water quality maintenance functions of wetlands are recognized in the regulations of this act, and certain classes of nontidal wetlands are designated as Resource Protection Areas in local area programs. The Bay Act Program is designed to improve water quality in the Chesapeake Bay and its tributaries by requiring wise resource management practices in the use and development of environmentally sensitive land features. At the heart of the Bay Act is the idea that land can be used and developed in ways that minimize impact on water quality. Major department efforts in implementing the Bay Act include administering a competitive grants program for localities and planning districts,

providing training for local government planners and engineers, and reviewing local comprehensive plans and ordinances for compliance.

The federal government, including the U.S. Army Corps of Engineers and the Environmental Protection Agency, has regulated activities in both tidal and nontidal wetlands since 1977 under Section 404 of the Clean Water Act. In Virginia, this task falls to the Norfolk District of the Corps of Engineers. This office has worked with the Virginia Marine Resources Commission and local wetlands boards to coordinate the 404 program with Virginia's tidal wetlands program. This coordination has allowed the development of consistent and predictable standards for compliance with tidal wetlands regulations.

The Clean Water Act focuses wetlands management primarily on the water quality functions of wetlands, and not the full range of wetlands values. Thus, Section 404's program doesn't adequately protect nontidal wetlands in higher reaches of watersheds that are important in detaining floodwaters, stabilizing stream banks and maintaining the base flows of streams and rivers. Providing stability to federal nontidal wetlands regulations in Virginia is one of the principal opportunities pursued by the Department of Environmental Quality (DEQ). Since 1989, DEQ's aim has been to improve the management and protection of nontidal wetlands based on combined state and federal authority. The Virginia Water Protection Permit regulations define surface waters to include wetlands. They have procedural guidelines and certain management criteria for reviewing permits relative to water withdrawals and/or dredge and fill activities conducted in surface waters.

A joint Department of Environmental Quality/Department of Mines, Minerals and Energy project improves restoration of abandoned mine streams and wetlands to ensure that both hydrologic carrying capacity and habitat value are maintained and restored. A major program developed by DEQ, with the Virginia Institute of Marine Science, is a nontidal wetlands classification and functional assessment project. This information will allow coordination for all state programs striving to conserve nontidal wetlands and balance resource protection with other competing demands.

Agriculture and wetlands management

Field staff in Virginia, including conservation specialists, conservation technicians and water quality specialists, develop conservation plans in accordance with the U.S.D.A. Natural Resources Conservation Service's Field Office Guide, as well as other policy and technical documents. These documents discourage clearing or draining wetlands, in general, and encourage compliance with Section 404 and Section 401 programs. The federal 1985 Food Security Act and 1990 Food, Agriculture, Conservation and Trade Act (FACTA) also encompass financial disincentives for farmers receiving any federal subsidy to clear or drain wetlands for agricultural purposes. The Wetlands Reserve Program, established by the 1990 FACTA, can reimburse Virginia's farmers for their efforts to protect non-tidal wetlands.

Working with water quality and conservation specialists, the Department of Conservation and Recreation (DCR) recommends using best management practices (BMPs) to lessen impact on adjacent waters and wetlands. This policy is reinforced through Natural Resource Conservation Service technical guidance and assistance to Virginia's 45 soil and water conservation districts. It also implements federal provisions for wetlands protection.

Forestry and wetlands management

The 1993 Forestry Water Quality Law gives the Department of Forestry (DOF) authority to stop work and impose civil fines for silvacultural operations that are causing, or could potentially cause, water quality problems. This law has increased department foresters' responsibility to provide sound recommendations to loggers for on-site BMP application. It also has led to increased requests from loggers for preharvest BMP consultations with department staff. DOF has a coastal forestry engineer who specializes in wetlands protection and on-site recommendations for wetlands BMP application.

Acquisition and management

Virginia wetlands also may be preserved through conservation easements to state, county or city governments and to regional park authorities and, under the 1988 Conservation Easement Act, to certain qualified nonprofit organizations. Conservation easements offer many benefits to the landowner. Additionally, the

state's Wetlands Act allows the Marine Resources Commission to receive gifts, grants and bequests of wetlands. A few small gifts have been made, generally for tax purposes. This program could gain momentum in future years as private owners become aware of the potential financial benefits of such donations. The Virginia Outdoors Foundation and the Chesapeake Bay Foundation also acquire interests in wetlands. DCR's Natural Heritage Program has acquired numerous natural area preserves that contain significant wetlands. Furthermore, many of the sites identified in the 2001 Natural Heritage Plan as priorities for protection include wetland acres.

In 1986, the U.S. Congress passed the *Emergency Wetlands Resources Act, mandating the U.S. Fish and Wildlife Service* and state agencies receiving Land and Water Conservation Funds to prioritize wetlands within each state. Information about this list may be found in the *Regional Wetlands Concept Plan, Emergency Wetlands Resources Act, Northeast Region*, 1990. U.S. Fish and Wildlife Service, Northeast Region. Hadley, Massachusetts.

In recent years, Virginia's state agencies have responded to heightened interest in protecting the values of wetlands by developing or implementing strategies to improve the conservation of wetlands through appropriate programs and activities. Wetlands are specifically managed, or otherwise affected, by a wide variety of programs at each level of government. Wetlands regulatory programs have the most widespread effect on determining whether they are protected or lost. Other governmental programs substantially overlap with wetlands management. Examples include programs such as endangered species and those that manage specific activities, (e.g. mining, agriculture, or road construction) that are at times responsible for wetlands conversion.

Private efforts at wetlands restoration

Private efforts also are evident in wetlands protection in Virginia. The Nature Conservancy (TNC) devotes its resources to protecting unique and ecologically valuable areas. It has made a significant contribution to the preservation of wetlands in Virginia. Two of its most notable preserves are the Great Dismal Swamp, managed by USFWS, and the Virginia Coast Reserve, a chain of 13 barrier islands located along the Eastern Shore of Virginia and managed by TNC. The Nature Conservancy is investigating options to protect unique freshwater tidal wetlands identified along the Chickahominy, Pamunkey, Mattaponi, James, Potomac and Rappahannock rivers. TNC is negotiating to acquire various critical sites representative of wet meadows, sinkhole ponds and mountain bogs of the Shenandoah Valley.

Ducks Unlimited, Inc. is another nonprofit organization interested in preserving critical habitats, specifically wetlands. Although most of its acquisition efforts have been focused in Canada, Mexico and the northern midwest states, a program initiated in 1985 called MARSH (Matching Aid to Restore States' Habitat) offers funds for acquisition, preservation, protection and enhancement of wetlands to all states. Ducks Unlimited works in Virginia with the Department of Game and Inland Fisheries to improve habitats in certain areas.

Future protection efforts

The Department of Conservation and Recreation (DCR) will pursue enhanced management of the commonwealth's wetland resources. DCR is working to expand the natural areas registry program, which provides voluntary nonbinding protection of exemplary natural areas to include many wetland systems. DCR also will continue to provide and expand appropriate ecological management of wetlands by coordinating multi-agency exotic species eradication programs, detailed hydrologic mapping and monitoring programs, prescribed burn research and restoration of endangered ecosystems and species.

DCR will continue to identify significant wetlands and other natural resources in western and southwestern Virginia. These areas are the most biologically diverse in the state, but have the fewest resources to identify and conserve natural areas. DCR will provide management planning data to localities to aid in protection of these resources.

Wetlands scientists from the Virginia Institute of Marine Science estimate implementing Virginia's tidal wetlands program in recent years has reduced the state's rate of tidal wetlands loss from 400-600 acres per year to only 20-25 acres per year. Virginia has a "no net loss" policy that continues to lower losses further. Wetland banking by agencies such as the Department of Transportation and private developers

is moving Virginia toward the creation of more wetlands annually as opposed to continued acreage losses.

Coordination among all levels of government will continue to be important for managing all wetlands. Coordination between state and federal wetlands regulatory programs is important to ensure efficient, predictable, and consistent regulation. Coordination with local governments is important because local land-use decisions have a significant effect on the planned locations of development. If these decisions consider the values and locations of wetlands, they can reduce conflicts between landowner expectations and requirements of wetlands regulatory programs.

For further information about wetland programs in Virginia contact:

Department of Conservation and Recreation

Division of Soil and Water Conservation
203 Governor Street, Suite 201
Richmond, VA 23219
www.dcr.state.va.us

Department of Environmental Quality
P. O. Box 10009
Richmond, VA 23240-0009
www.deq.state.va.us

Chesapeake Bay Local Assistance Department
101 North 14th Street, 17th Floor
Richmond, VA 23219
www.cblad.state.va.us

Department of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
www.dgif.state.va.us

Virginia Marine Resources Commission
2600 Washington Avenue
Newport News, VA 23607
www.state.va.us/mrc

Chesapeake Bay Program
410 Severn Avenue, Suite 109
Annapolis, MD 21403
www.cheasapeakebay.net

U.S. Army Corps of Engineers
Norfolk District Office
803 Front Street
Norfolk, VA 23510-1096
www.usace.army.mil

U.S. Fish and Wildlife Service
P. O. Box 480
White Marsh, VA 23183
www.fws.gov

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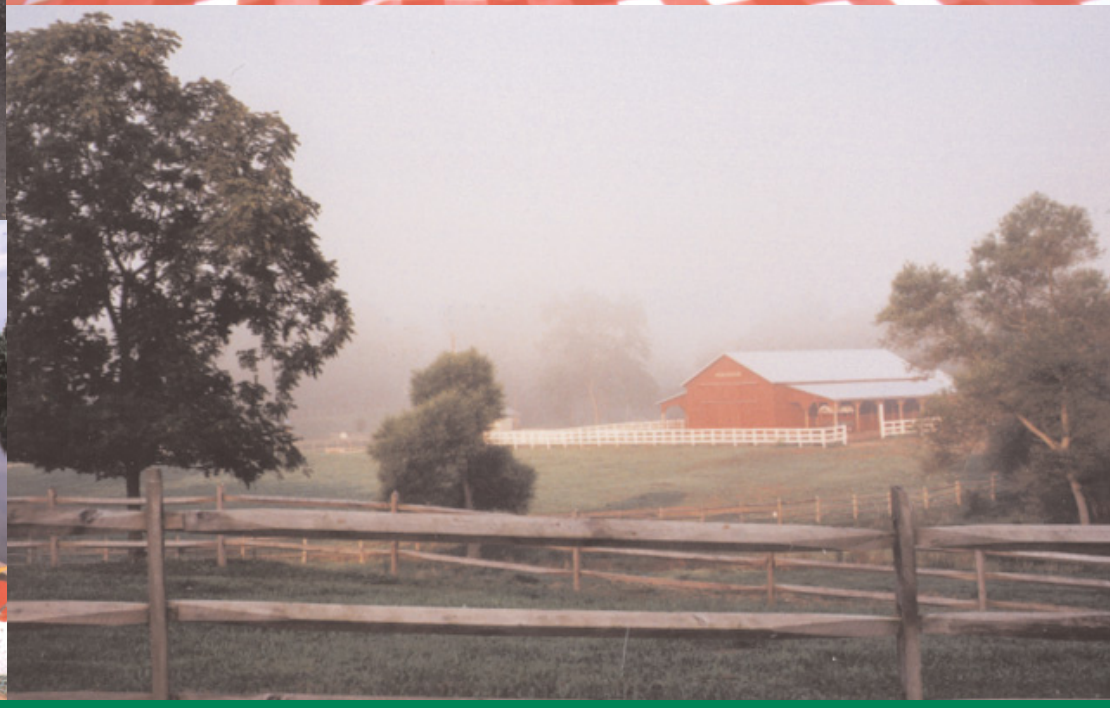
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