FREDERICKSBURG WATERSHED PROPERTY MANAGEMENT PLAN

JANUARY 2011

Prepared by
City of Fredericksburg
Virginia Department of Game and Inland Fisheries
Virginia Outdoors Foundation
Nature Conservancy

Funded by the Chesapeake Bay Gateways Network and Keith Campbell Foundation and facilitated by Friends of the Rappahannock

MOTION: **SOLLEY**

SECOND: **DEVINE**

January 11, 2011
Regular Meeting
Resolution No. 11-01

RE: **ADOPTING THE FREDERICKSBURG WATERSHED PROPERTY MANAGEMENT PLAN**

ACTION: **APPROVED; Ayes: 7; Nays: 0**

WHEREAS, the City of Fredericksburg, Virginia has placed 4,232 acres of its riparian land holdings along the Rappahannock and Rapidan Rivers into a Conservation Easement; and

WHEREAS, the City staff and the easement holders (Nature Conservancy, the Virginia Outdoors Foundation, and the Virginia Board of Game and Inland Fisheries) have developed a management plan for this protected acreage, consistent with the Easement;

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Fredericksburg, Virginia does hereby adopt this Fredericksburg Watershed Property Management Plan.

****

Clerk's Certificate

I, the undersigned, certify that I am Clerk of the Council for the City of Fredericksburg, Virginia, and that the foregoing is a true copy of Resolution No. 11-01 duly adopted at a meeting of the City Council held January 11, 2011 at which a quorum was present and voted.

Tonya B. Lacey
Clerk of Council

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FREDERICKSBURG WATERSHED PROPERTY MANAGEMENT PLAN

1. INTRODUCTION

The City of Fredericksburg owns a corridor of forested riparian lands along 32 miles of the Rappahannock and Rapidan Rivers and more than 30 additional miles of property along many of their tributary streams. In 2006, the City placed 4,232 acres of this ecologically significant land into a Conservation Easement, referred to herein as the *Fredericksburg Watershed Property* or the Property (Appendix 1). The Property's Conservation Easement provides a high level of protection from development, vegetation removal, and other major alterations. Still, there are numerous land management issues that have a significant bearing on how the Conservation Easement is administered, including access management, trails management, and consideration of new recreational uses. The City developed this management plan to balance management of the exceptional natural resources of the Property with continued public recreational use.

1.1. Vision and Goals

The City of Fredericksburg regards the Watershed Property as an exceptional natural resource that plays a significant role in the region's quality of life (Map 1). The City's riparian property was acquired to protect the City's water supply. As noted in its Watershed Property Management Policy of 1991: "The protection of these water resources is essential to the health, safety, and welfare of the City and its citizens…. It performs a vital water quality function by restricting non-point source pollution, retarding erosion and sedimentation, and protecting the riverine ecosystem."

As subsequently noted in the City's Rappahannock River Watershed Plan (1994), protecting the natural ecosystem has tangible benefits for water quality, while also providing an exceptional resource for recreation. Natural resource protection, however, requires a careful oversight and administration to avoid any adverse impacts.

In the 2006 easement document, the City outlined its goals for managing the Fredericksburg Watershed Property through the concept of conservation values. The following goals identified as the City's conservation values provided the guiding philosophy for the development of this management plan.

> *Goal 1: Protect the natural environment and habitats of the Property, including the viewscape to and from the Rappahannock and Rapidan Rivers.*
>
> *Goal 2: Protect the water quality of the Rivers, to provide adequate water supplies.*
>
> *Goal 3: Protect the historic and archeological resources located on the Property.*
>
> *Goal 4: Prevent residential and commercial development of the Property.*

Goal 5: Allow reasonable use and enjoyment of the Property and the Rivers by the City and the general public in a manner consistent with the other easement goals (the conservation values).

This management plan is intended to:

- Provide clear management guidance that supports the City's vision and goals.
- Provide an analytic framework for developing sound policies and regulation.
- Identify and prioritize management needs.

1.2. Planning Process Overview

In 2008, the City of Fredericksburg appointed a committee to oversee the development of a management plan for its Watershed Property. The committee was comprised of representatives from the Virginia Outdoors Foundation, The Nature Conservancy, the Virginia Department of Game & Inland Fisheries (VDGIF), Friends of the Rappahannock, and the City staff (Planning and Public Works). To facilitate the planning process, the Friends of the Rappahannock received the City Council's approval to apply for funding from the Chesapeake Bay Gateways Network and the Keith Campbell Foundation.

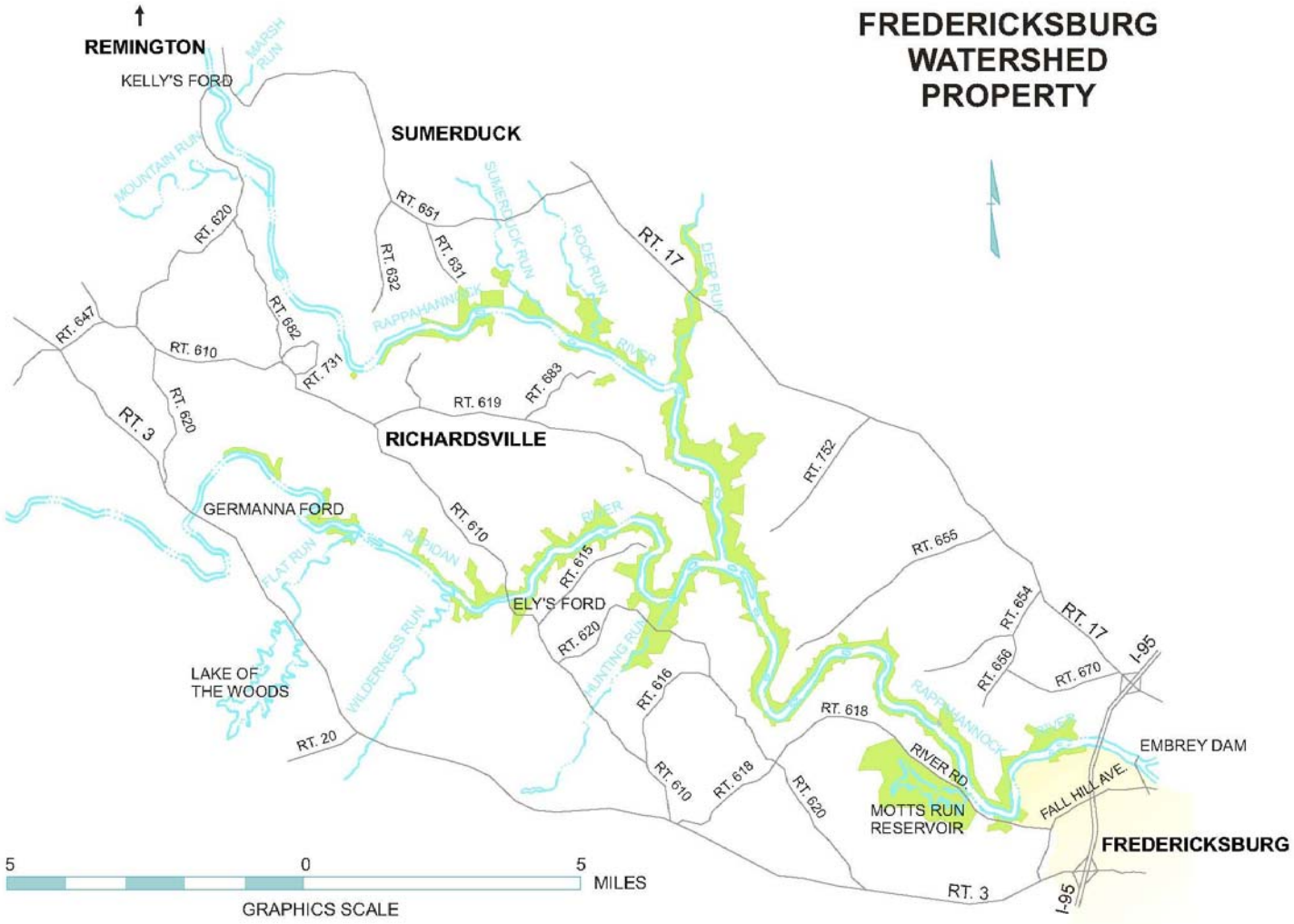
On March 4, 2009, the Committee conducted an initial public meeting to solicit input on issues that citizens thought should be addressed in a plan. Over 50 people attended and provided comments. The public comment period remained open through April 15. The Committee also met directly with representatives of various interested groups. The received comments consistently noted the following values and benefits of the Property:

- Wildlife habitat corridor
- Remote natural experience (nature sounds, solitude, little or no signs of human encroachment, remote campsites)
- Scenic vistas
- Water quality protection
- Recreational access to Property and the Rappahannock and Rapidan Rivers
- Access for hunting, fishing, and wildlife viewing

The Committee used this public input as it developed a draft document. From May 2009 through February 2010, the Committee gathered other relevant data and information and crafted policies to balance recreational use with natural resource protection. A draft plan was released for another round of public comment and a second public meeting held on February 17, 2010. This meeting also opened a public comment period that lasted until March 3.

Approximately 70 individuals attended this second public meeting and many others submitted comments on the plan via web submission, by telephone, and in writing. Most of the comments came from recreational users of the Property and their main concerns included the following:

- Equestrians – if multi-use trails are developed, include horses
- Trappers – if hunting is allowed, why not trapping (trapping is currently prohibited)


FREDERICKSBURG
WATERSHED
PROPERTY
REMINGTON
KELLY'S FORD
MARSH RUN
MOUNTAIN RUN
SUMERDUCK
RT. 620
RT. 651
RT. 632
RT. 631
SUMERDUCK RUN
ROCK RUN
RT. 17
DEER RUN
RT. 647
RT. 610
RT. 682
RAPPAHANNOCK
RIVER
RT. 731
RT. 683
RT. 619
RT. 3
RT. 620
RICHARDSVILLE
RT. 752
GERMANNA FORD
RT. 610
RIVER
RT. 655
FLAT RUN
RAPIDAN
RT. 615
ELY'S FORD
RT. 654
RT. 17
RT. 620
I-95
LAKE OF
THE WOODS
WILDERNESS RUN
HUNTING RUN
RT. 616
RT. 656
RT. 670
RT. 618
RAPPAHANNOCK
RIVER
EMBREY DAM
RT. 20
RT. 610
RT. 618
RT. 620
RIVER RD.
FALL HILL AVE.
MOTTS RUN
RESERVOIR
FREDERICKSBURG
RT. 3
I-95
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MILES
GRAPHICS SCALE

- Gold prospectors – City cannot restrict their activity in public waters
- Hunters – safety zone proposal seeks to address a problem that does not exist (canoeing and hunting occur in different seasons – conflict is perceived, not real)
- Mountain bikers – They recognize impacts of biking and want to work with City to develop good trails that will not erode
- Public access – Some thought more access needed while others thought existing access sufficient
- General – all recognized City held a wonderful resource – all want to share the resource and many want to help protect it

The Committee used the additional comments to develop the final draft. Where potential problems exist from specific users, the plan outlines a process to evaluate a proposed use against resource protection.

The Friends of the Rappahannock (FOR) presented the final draft to City Coundil on May 11, 2010 and the Council referred it to the Planning Commission for review and recommendation. The Planning Commission reviewed the draft plan and held its own public hearing on September 8, 2010. Between 30-35 persons attended that hearing and nine of them submitted public testimony. Seven of the speakers represented hunters, trappers, and water fowlers. They asked for access to the property and one speaker noted that a safety zone at the Confluence made sense. One speaker represented the prospectors and asked that their access to the public waterway not be denied. The final speaker was John Tippett, representing Friends of the Rappahannock. He made it clear that his organization had transitioned from its role as the plan facilitator back to an advocacy role. He noted two items in the draft plan with which FOR disagreed. First, he said the compromise for establishing a hunting safety zone at the Confluence was not acceptable. He said every identified campsite should have a safety zone. Second, the proposal to add a parking area, on City property, at the end of Richard's Ferry Road (in Culpeper), would compromise the seclusion of the Confluence.

The Planning Commission voted to recommend approval of the final plan on October 13, 2010, after deleting references to the proposed hunting safety zone. The Commission did not find there to be an actual conflict between campers and hunters. They further noted that safety zones represented an agenda rather than a recommendation to maintain the integrity of the Easement.

A summary of all public comments received during the public participation process is contained in Appendix 2.

1.3. Periodic Review of the Management Plan

City officials inspect the riparian corridor on a regular basis, to address developing issues. A periodic review of this management plan is also necessary, to ensure regulatory tools are adequate to address actual conditions. This periodic review will be done by the City and its easement partners (Nature Conservancy, Virginia Outdoors Foundation, and VDGIF).

2. DESCRIPTION OF PROPERTY

2.1. Overview and History

The City of Fredericksburg owns approximately 4,800 acres of riparian lands along the Rappahannock and Rapidan Rivers. These holdings extend upriver from the City itself, into five upriver counties through Spotsylvania, Stafford, Orange, Culpeper and Fauquier Counties. The bulk of these lands is located to the west of Interstate-95, reaching toward Kelly's Ford (Route 620) on the Rappahannock and Germanna Ford (Route 3) on the Rapidan. The integrity of these resources is high and the prospect for long term preservation is outstanding. A portion of this acreage accommodates public drinking water impoundments on tributary streams, related raw water intakes, and water treatment facilities. Most of these City lands also remain in their natural state, to protect this critical source of drinking water as much as possible. As an added benefit, the natural integrity of this corridor provides exceptional recreational opportunities.

The City purchased its riparian property from the Virginia Electric Power Company (VEPCO). In the early twentieth century, the utility company had once planned a series of hydroelectric dams along the river and acquired much of the acreage that would have been flooded by these projects. The City bought the property in 1969, in anticipation of a single, Federally funded flood control dam, planned by the U.S. Army Corps of Engineers. The land was to be part of the City's share of the overall project cost.

During the 1960s, public appreciation grew for the rivers as natural areas and recreational opportunities. With so much riparian property in public ownership, opposition to the new flood control dam gained momentum. The cost-benefit analysis for the new flood control dam included a factor for recreational value, but the planned reservoir would be within a short distance of the existing reservoir at the North Anna River. This proximity made questionable any justification for compromising the natural free-flowing character of the Rappahannock. The U.S. Congress closed any further studies for a dam in 1974 and cancelled the project entirely in 1989.

A new dam would not be built, but there was still the old concrete Embrey Dam across the River, which had been constructed in 1909/1910 as a hydroelectric facility. VEPCO had sold the dam to the City when it quit generating hydroelectric power and the reservoir behind this structure still fed raw water to the municipal water treatment plant. The City and Spotsylvania County, however, began to develop a cooperative water agreement that would include shared facilities. In 1999, a regional water treatment plant came online at the Mott's Run Reservoir. This new facility did not need the reservoir behind the old dam and the Embrey Dam immediately went from being an asset to a liability.

In anticipation of the Embrey Dam's obsolescence, state and local governments had urged the Federal government to consider its removal. The Corps conducted the necessary reconnaissance study and by 1998, had determined that breaching the dam would provide enough environmental benefit to justify Federal participation. Planning for the dam's removal continued and in 2004 it was breached with explosives. Once the reservoir drew down, the remaining concrete structure and an 1850's stone and timber dam, newly exposed behind it, were removed mechanically.

Once the Embrey Dam and the 1850s crib dam were removed, the Rappahannock River became a free-flowing river from the Blue Ridge Mountains to the Chesapeake Bay. The impact on anadromous fish populations has been dramatically positive and canoeing opportunities have increased as well. These ecological and recreational benefits are important and entirely compatible with the regional significance of the river as a source of drinking water. Protecting this riparian corridor for recreational uses also protects the quality of the water that is processed for consumption.

2.2. Demographic Trends

Over the past few decades, the land adjoining the Fredericksburg Watershed Property has experienced increased growth and development pressure. Several subdivisions abut the protected property and boundary line infringement has become a growing concern. In 2009, a detailed boundary survey was completed of the 4,232 acres of City's upriver holdings that were placed in a Conservation Easement. This survey is part of the easement administration process.

Most of the City-owned property is located in Stafford, Spotsylvania, and Culpeper Counties. The annual population growth for these three jurisdictions averaged four (4) percent for the period 2000-2008. The U.S. Census Bureau's 2008 estimate of the population in these three counties is 287,970 persons.

Approximately, 70,000 residents obtain their drinking water from the Rappahannock River. The major water intakes are located upstream of Fredericksburg at Motts Run, Hunting Run, and Rocky Pen Run, within the river corridor dominated by the City's Watershed Property.

2.3. Current Policies

The strong public and private support for removing barriers to a free-flowing river was a surprise to outside agencies, but not to the Fredericksburg region. Following the acquisition of the riparian lands, the City was able to manage them with limited staffing. As the area grew, however, encroachments and conflicts became evident. In response, the City developed a Watershed Property Management Policy. This new policy, adopted in 1991, defined the recreational uses that would be consistent with maintaining the river's water quality. The City document also made clear that it sought regional cooperation, not to relinquish its property rights, but to help ensure that the integrity of its holdings would not be compromised. The benefit to the upriver jurisdictions was access to a superb recreational resource.

Following up on its river property management policy, the City initiated a larger regional discussion. Participants included staff and elected officials from five upriver jurisdictions (Spotsylvania, Stafford, Culpeper, Orange, and Fauquier Counties), other riparian property owners, State and Federal resource agencies, non-profit groups, and interested citizens. This regional effort identified areas of common concern and outlined them in a Rappahannock River Watershed Plan (1994). This plan was not adopted by anyone other than the City, but the regional discussions continued, focusing on water quality, open space, recreation, and other items of mutual interest. This working group met for several years, until effectively superseded by the Rappahannock River Basin Commission.

Over the years, river advocates asked the City of Fredericksburg to consider placing its riparian property under some sort of Conservation Easement. This concept did not gain sufficient support, though, until 2005, when several organizations were able to begin to discuss reasonable compensation as well as an acceptable agreement. In 2006, with the promise of an endowment for a watershed property manager, the City placed 4,232 acres of its riparian lands under a permanent easement held by the Virginia Outdoors Foundation, the Virginia Board of Game and Inland Fisheries, and the Nature Conservancy. As noted previously, the easement goals, also called ***conservation values***, are as follows:

- protect the natural environment
- protect water quality
- protect historic and archaeological resources
- prevent residential and commercial development on protected lands
- Allow reasonable uses (consistent with these easement goals)

2.3.1. Access to the Rivers from the Watershed Property

The linear nature of the riparian corridor is both its strongest characteristic, yet also a significant weakness. The extensive natural area provides an outstanding recreational setting for river float trips of varying lengths and duration. A party can either put in at a public boat ramp or at any number of private access points and travel for miles and hours without encountering visual intrusions. The unobstructed corridor, however, is also viewed as unnecessarily remote, especially when it is so close to existing roads. On several occasions, additional public access points have been suggested, but usually without due consideration of protecting the integrity of existing experiences. The easement allows up to five new access points, but does not require them. The easement also makes clear that new facilities must not exceed on aggregate total of 42 acres. New access and new recreational experiences, however, must be accommodated without compromising identified resources, including remote river experiences.

The City has consistently been cautious about establishing river access points where some camping areas currently exist. The City Council denied permission to the Virginia Department of Game and Inland Fisheries, for example, when it asked to develop public access points at the Confluence (Culpeper County) and at Snake Castle (Fauquier County). These sites were determined to be too remote for proper administration. These additional access points also held a strong potential to create problems that would degrade the resource rather than improve recreational opportunities.

The easement documents identify the following sites as existing access points or primitive camping areas. It should be noted that some of the primitive camping areas are used as private access points by river outfitters.

Public river access points:

- Elys Ford
- Motts Run

Primitive camping areas noted in easement:

- Blankenbaker
- Hole in the Wall
- Confluence (Brumble Camp)
- Prettyman's Camp
- Snake Castle Rock
- Deep Run

Additional public access points need to be considered within the context of the easement's conservation values, which means that existing features and characteristics of the riparian corridor should be protected, including the existing (and highly coveted) recreational experiences.

2.3.2. Permitted Facilities and Activities

Water resources are used both off-stream (consumption) as well as in-stream (recreation). Balancing the two becomes necessary when both types of uses are deemed important. This potential conflict was very much part of the discussion when water withdrawal limits were established by the U.S. Army Corps of Engineers for water withdrawal permits related to local jurisdictional water treatment facilities. The Conservation Easement acknowledges and supports several off-stream uses, as follows:

- New public drinking water supply facilities, within authorized parameters.
- Maintenance, repair, and alteration of existing buildings, structures, equipment, and facilities.
- Farming, within authorized parameters.

While the Conservation Easement recognizes the needs for off-stream uses, it also protects recreational in-stream uses. A 100-foot buffer was also established by the Conservation Easement to protect the river resource. Permitted encroachments include non-motorized boat landings (as permitted by restrictions in the Conservation Easement), hiking trails, primitive camping areas, wetlands and stream restoration activity, and temporary structures needed for the repair of existing bridges. Balancing off-stream and in-stream uses has been a key component of protecting the river resource, while also providing outstanding recreational opportunities.

2.3.3. Conservation Easement

The Conservation Easement of 2006 places several restrictions on the use of the Watershed Property. The following activities are prohibited:

- Trash and dumping
- Grading, blasting, and unauthorized land disturbing activities
- Disturbing historic and archaeological resources, except as authorized by the City
- New roads or other transportation infrastructure, except as authorized.
- Installation of signs, except as authorized

- Communications towers
- New utility easements, except as authorized
- New access easements, except as authorized
- Removal of trees, except as authorized.

2.3.4. Current Management

In addition to the limitations specified in the Conservation Easement, the following activities have been expressly prohibited on the property through the Fredericksburg City Code:

- Setting or maintaining a fire (except campfires)
- Dumping, burying, or burning trash
- Polluting water bodies or wetlands
- Discharging a firearm (except for licensed hunting)
- Trapping
- Motorized vehicles
- Land disturbances that cause soil erosion
- Cutting, clearing, damaging, destroying trees or natural vegetation
- Failure to dispose of human waste properly (12 inches below ground & 100 feet from water bodies)
- Disturbing, defacing, injuring, or moving any structure, building, facility, or artifact

2.4. Ownership

2.4.1. No Right of Public Access

Although the easement will benefit the public, the City of Fredericksburg exercises the same rights as any property owner and retains the right to control access to its riparian property. This provision is a critical component for protecting specific areas of the riparian lands from overuse as well as to preserve specific sites and features of the Watershed Property.

2.4.2. Access Controlled by Owner

Recreational access has impacts on natural resources and imposes administrative responsibilities. The City has generally allowed recreational uses on its Watershed Property, but has also authorized the City Manager to limit specific activities, as necessary, to ensure the Property continues to provide its water quality function of restricting non-point source pollution, retarding erosion and sedimentation, and protecting the River corridor's ecosystem. The Conservation Easement makes clear that the City retains the exclusive right to control access and use of the Property.

Through a carefully considered policy on access, the City intends to manage its riparian lands as a sustainable recreational resource. Unrestricted access would invariably cause significant degradation of both the resource and the experience of those who would use the resource for recreational purposes. As a consequence, access will be managed by balancing recreational use and natural resource protection.

3. RESOURCE PROTECTION

3.1. Natural Resources

The Watershed Property is rich in natural resources and represents an exceptionally intact corridor of forested riparian habitat as well as upland habitat, protecting approximately 65 miles of rivers and tributaries. This area is dominated by deciduous oak-hickory hardwood forests, providing habitat for a variety of fauna and flora of ecological and conservation significance. The Property's forests filter runoff from the surrounding landscape before it enters the rivers and streams, thereby significantly protecting water quality of the Rappahannock River which is the drinking water supply for multiple jurisdictions.

The Property lies within the gently rolling physiographic province of the Piedmont, but the riparian corridor is characterized by relatively rugged terrain with steep river and stream valleys. Its southern terminus reaches the transition zone, or the Fall Line, between the resistant, metamorphic rocks of the Piedmont and the softer, sedimentary rocks of the Coastal Plain.

The planning team compiled existing field and GIS spatial data and consulted state, federal and non-profit partners to provide foundational knowledge on the natural resources of the Property.

3.1.1. Forest Conditions

In 2006, The Nature Conservancy conducted an inventory of the Property, to document human impacts (e.g., camps, clearings, trash) and ecological features (e.g., dominant vegetation, invasive species, geologic features). This information was compiled into a baseline documentation report (Appendix 3). According to this report and subsequent field observations, the majority of the Property is dominated by mature sawtimber-sized deciduous oak-hickory forests with sycamore (*Platanus occidentalis*), oaks (*Quercus spp.*), tulip poplar (*Liriodendron tulipifera*), river birch (*Betula nigra*), beech (*Fagus grandifolia*), green ash (*Fraxinus pennsylvanica*), boxelder maple (*Acer negundo*), paw-paw (*Asimina triloba*), spicebush (*Lindera benzoin*), ironwood (*Carpinus caroliniana*), and mountain laurel (*Kalmia latifolia*). Additionally, near Ely's Ford, there are high rock bluffs with a stand of eastern hemlocks (*Tsuga canadensis*).

3.1.2. Ecological Integrity

Across the entire Rappahannock River watershed, from the Blue Ridge Mountains to the Chesapeake Bay, these lands are one of the few areas with outstanding/very high ecological integrity, joining the ranks of large governmental landholdings such as Shenandoah National Park, Fort A.P. Hill and C.F. Phelps Wildlife Management Area (Map 2). Clearly, the Property (and the surrounding land) contributes significantly to the region's biological diversity and ecological integrity.

According to a GIS analysis conducted by Virginia Division of Natural Heritage (VDNH), most of the forests of this Property are classified as providing *outstanding to very high ecological integrity* (Map 3). VDNH defines ecological integrity as the relative contribution of ecological

services an area provides. Larger, more biologically diverse areas are assumed to provide greater ecological value, as are areas that are part of a larger complex of natural lands or which contribute to water quality enhancement. Additionally, this ecological integrity analysis only includes areas that represent: (1) cores of unfragmented natural habitats, such as forests and wetlands having at least 100 acres of interior habitat (interior habitat begins 100 meters inward from a forest-developed land edge); (2) natural habitat fragments of 10 to 99 acres; and (3) landscape corridors such as forested riparian corridors (Bulluck et al. 2007). Map 3 illustrates the Property's ecological integrity, along with the surrounding forests, as outstanding to very high, demonstrating the importance of these lands to the Central Basin of the Rappahannock River watershed.

The value of this Property as an ecological corridor is thus significant. The Property buffers 32 miles of riverfront along the Rappahannock and Rapidan rivers and an additional 33+ miles of stream corridors. Rivers and streams form natural connections between habitat blocks. When buffered with forests, these riverine connections provide a myriad of ecological functions such as conserving regional biological diversity and serving as carbon sinks. The forested riparian corridors also function as a transition zone between the aquatic and terrestrial environments. Intact riparian corridors provide biodiversity protection by serving as dispersal routes between natural landscapes for migratory mammals, birds, fish, and butterflies, providing habitat for many common and unique plants and animals, and even facilitating pollination and seed dispersal (Tewksbury et al. 2002). Forested riparian corridors also mitigate flood impacts, control erosion and sedimentation rates, and filter out many pollutants before they reach waterways, thus protecting clean water.

Because the Property is dominated by forests and forms a riparian corridor, it is classified as *green infrastructure*. Green infrastructure is a connected network of protected natural lands and waters that supports native species, maintains ecological processes, sustains air and water resources, conserves working landscapes for human uses (such as agriculture and forestry), serves recreational open space needs, and contributes to the health and quality of life for communities and citizens (VDNH 2002). The significance of the green infrastructure concept is emphasized by the Property’s linkages to additional blocks of natural habitat areas in private and public ownership. Upriver of the confluence, along the Rappahannock River, the Property nearly reaches the state-owned C.F. Phelps Wildlife Management Area (4,589 acres). Regionally, it is near other major land holdings such as the federally-owned Fredericksburg-Spotsylvania National Military Park, Fort A.P. Hill, and Shenandoah National Park. Outside of the Property and these state and federal conservation areas, much of the remaining landscape is fragmented, or likely to become fragmented, by residential, agricultural and suburban/urban land uses (Map 4). As private lands become developed and fragmented, the Property and the state/federal protected lands, which form the green infrastructure network, will become increasingly important to supporting critical ecological services and recreational opportunities.

3.1.3. Water Resources and Wetlands

The importance of the Property to the health of the regional waterbodies is further demonstrated by the state's watershed integrity model developed by the Virginia Division of Natural Heritage, the Virginia Department of Forestry, and Virginia Commonwealth University (Ciminelli and

Scrivani 2007). This model, commonly depicted as a map ranking the relative value of land as it contributes to watershed or water quality integrity, shows important terrestrial features that should be conserved for water quality. For the Property, the state model ranks a significant portion of these protected forests, and adjacent privately-owned forests, as providing high watershed integrity (Map 5). In particular, much of the Property's forests, from Mott's Run to the Confluence and above Ely's Ford on the Rapidan, are highlighted as contributing significantly to water quality integrity.

Numerous studies have observed the relationship between increasing impervious (hardened) surface and deteriorating water quality, and the positive relationships between water quality and large forested areas, particularly forested riparian buffers. Areas immediately adjacent to water bodies contribute to water quality health by serving as groundwater recharge and filtration areas, regulating temperature, and contributing to the maintenance of important aquatic and riparian habitat. Some of the most critical forests for maintaining high water quality in this region are already protected within the Property boundaries. There are additional adjacent lands that also clearly provide these important ecological services, suggesting that the region would benefit by conservation practices in these notable, but privately-owned forests.

Additionally, there are numerous connected and isolated wetlands located on the Property, ranging from <1 to 50+ acres in size (Map 6). The National Wetland Inventory, provided by the U.S. Fish and Wildlife Service, defines these wetlands as Freshwater Forested/Shrub Wetland (PFO1A), which are palustrine wetlands forested by woody broad-leaved deciduous vegetation and which experience temporary flooding conditions. The deepwater habitat of the rivers themselves is also technically classified as wetland type Riverine (R2UBH).

As stated above, 65 miles of rivers and streams and numerous wetlands are embedded within the Property, and they benefit greatly from the filtering function of extensive adjacent forests. The Property's riparian forests filter sediment, nutrients, bacteria and toxins from surface water runoff originating from the developed and agricultural lands across the landscape, thus playing a large role in reducing the amount of pollutants entering this region's waterways. Healthy, clean waters for drinking, swimming, fishing, and aquatic life depend on these forests. This pollution-reduction role is arguably the most important ecological service that the Property supplies for this region.

3.1.4. Geologic Features

The Rappahannock River watershed lies within three physiographic regions known as the Blue Ridge Province, the Piedmont Plateau, and the Coastal Plain. The streams in the Blue Ridge Mountains are precipitous and from its source near Chester Gap, the Rappahannock River initially flows over ancient and hard rocks before cutting into the sedimentary rocks and sandstone of the Piedmont Plateau.

The Piedmont is characterized by rolling terrain traversed by small valleys. Between Chester Gap and and Kelly’s Ford, the Rappahannock River is narrow and slightly entrenched. Between Kelly’s Ford and the confluence with the Rapidan River, the terrain becomes increasingly rugged. Farmlands give way to steep, heavily wooded hillsides. The River courses over a bed of

sand, gravel, and boulders. Rapids and islands become more frequent. The riverscape s dominated by rock outcroppings and steep valley walls that level off into the broad upland surface.

From the Confluence, the Rappahannock is similar to its middle reaches, but much larger as a result of the added flow of the Rapidan River. In this middle section, the River runs through a heavily wooded valley, its long deep pools occasionally interrupted by erosion resistant rock ledges that traverse the riverbed and cause riffles.

In the Fall Line transition zone, the Property includes a spectacularly scenic fall-zone river gorge with numerous channel-shelf boulder and gravel bars supporting exemplary dense colonies of American water-willow (*Justicia americana*), an aquatic herbaceous plant. This river gorge notably includes rock bluffs and scenic falls.

3.1.5. Biological Diversity

In terms of biological diversity, the Property abounds with native flora and fauna and supports healthy waters for aquatic life. Available state and federal data highlight the existence of rare species within an exemplary natural community and notable breeding assemblages of birds, freshwater mussels, and fish.

Bald eagles, a state threatened species, use this Property extensively year-round due to its proximity to aquatic habitat for their preferred prey. Although the eagle was removed from a federal protected status under the Endangered Species Act, it continues to be protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Due to the presence of bald eagles, the Virginia Division of Natural Heritage has designated a portion of the Property near Interstate-95 as a conservation site.

Additionally, in the vicinity of England Run, above the I-95 bridge, there exists a Natural Heritage resource (i.e., rare species or exemplary natural communities) termed the Rocky Bar and Shore natural community (DNH 2010). These types of resources are found within the Virginia mountains and Piedmont, primarily along major rivers such as the Rappahannock, and are characterized by seasonally flooded to intermittently exposed woodland, shrub, and herbaceous vegetation of bouldery and cobbly depositional bars. Vegetation varies from woodlands to herbaceous, with the dominant herb at the England Run site being American water-willow (*Justicia americana*). This native aquatic herbaceous plant has a striking white to purple flower during the summer and forms large mats partially submerged along the Rappahannock's shorelines and shallow waters, helping to reduce erosion and providing habitat for fish and invertebrates. Scrub river birch (*Betula nigra*) and American sycamore (*Platanus occidentalis*) are also commonly found on the outcrop bar at this location. At this particular site, the community is influenced by a high-energy alluvial environment of periodic flood-scouring.

Riparian bird surveys were conducted along segments of the watershed Property during the 2008 breeding season by the Virginia Department of Game & Inland Fisheries (VDGIF) and the Virginia Society of Ornithology (Harding 2009). The surveys included two segments along the Rapidan River, one along the Rappahannock, and one segment encompassing portions of both

rivers (Map 7). Collectively, these surveys covered 21 miles of riparian habitat, of which 20.2 miles were located along the Property. A total of 76 points along these routes were surveyed, resulting in the detection of 738 individual birds of 60 species located in the riparian habitats (Appendix 4). An additional 118 individuals, representing 10 additional species, were documented as fly-overs. These additional 10 species, which include the state threatened bald eagle, may not necessarily be breeding in the immediate area surveyed, but likely use the area for foraging. Based on the survey results, the Property supports a community of birds that are closely associated with the narrow corridors of forested riparian habitats, which provide important foraging, cover, and breeding resources for survival and reproduction.

The Property also supports common forest generalist species with a more widespread distribution in Virginia. The former riparian-associated species include the Acadian flycatcher, northern parula, yellow warbler, yellow-throated warbler, and Louisiana waterthrush; as well as great blue heron, green heron, osprey, waterfowl (Canada goose, mallard, wood duck) and belted kingfisher. The surveys particularly highlight the importance of the Property to neotropical migrant birds. These comprise over half of the documented species, and include the red-eyed vireo, wood thrush, scarlet tanager, ovenbird, black-and-white warbler, and worm-eating warbler. The forested habitats of the Property clearly support several species that are dependent on riparian habitat, several that are forest generalists, and a smaller number of species (36.7%) that exploit small openings in the forest or are associated with forest edges (Harding 2009; VDGIF 2009).

In 2006, VDGIF developed the Virginia Wildlife Action Plan to identify Species of Greatest Conservation Need (VDGIF 2005). These species are threatened because of their relatively small populations in the state or, despite larger populations, have experienced declines in parts of their range in the past 30 years. Nearly a third of the species documented during the riparian bird surveys on the Property are identified as Species of Greatest Conservation Need in Virginia (VDGIF 2009). Of these species on the Property, two-thirds are forest birds.

In addition, VDGIF reports that numerous imperiled and/or listed freshwater mussels are present in the Rappahannock and Rapidan Rivers (VDGIF 2009). The Rapidan River, upstream of the Property, has been designated a Threatened and Endangered Species Water due to the presence of the state threatened green floater. The Rappahannock River, through the Property, also has this designation due to the presence of the federal endangered dwarf wedgemussel and the state threatened green floater. The dwarf wedgemussel has not been found in recent surveys, thus it is undetermined if it still occurs in the Rappahannock watershed (B. Watson-VDGIF, pers. comm.). Furthermore, a number of freshwater mussel species identified as Species of Greatest Conservation Need in Virginia, such as the yellow lance, triangle floater and creeper mussel, have been documented in the Rapidan and Rappahannock Rivers. The mussel assemblages in these waters represent about 25 percent of the mussel species found within the Atlantic slope watersheds of Virginia.

In addition to supporting imperiled mussels, both the Rappahannock and Rapidan Rivers are designated as Anadromous Fish Use Areas due to the presence of anadromous and/or semi-anadromous fish, such as the American shad, hickory shad, blueback herring, alewife, and striped bass. A catadromous fish, the American eel, also is present in these rivers. With the

removal of Embrey Dam in 2004, which renewed access to 106 miles of historic spawning and rearing habitat, many of these fish are expected to increase in numbers in this riverine system. Depletion sampling (at Ely's Ford, below Kelly's Ford, above I-95 and adjacent to Lauck's Island), in July 2001, revealed fish assemblages dominated by redbreast sunfish, smallmouth bass, rock bass, northern hogsucker American eel, channel catfish, shorthead redhorse, yellow bullhead, gizzard shad and bluegill (Odenkirk 2008). Appendix 5 contains the full list of fish species, and their scientific names, found during this sampling period.

Based on the importance of this region for Virginia's fish and wildlife species, VDGIF has recommended that emphasis be placed on the maintenance, enhancement and expansion of the forested riparian buffer to benefit the forest bird community, riparian bird community, and sensitive waters known to support imperiled freshwater mussels and anadromous fish. VDGIF further recommends that a forested riparian buffer of at least 100 meters be maintained on each side of the rivers. Any management practices, new access site development, and/or required habitat modifications should be performed in a manner that minimizes their impact to this forested buffer and are compatible with forest bird habitat management, water quality maintenance, and the management of sensitive aquatic resources. To avoid forest fragmentation, VDGIF recommends that management practices resulting in the opening of forest habitat be: (1) clustered, rather than dispersed along the length of the Property, and (2) placed outside of the riparian buffer, to maintain the integrity of the buffer and to minimize habitat loss and degradation of riparian habitat and water quality.

The river corridor not only supports a diversity of bird species, but a wide array of other wildlife as well. Though VDGIF has not surveyed for other wildlife, the forested riparian corridor is dominated by mature forests associated with both rivers and numerous tributaries, with a diversity of different land uses adjacent to the Property. These conditions make the Watershed Property valuable and favorable habitat for a wide range of aquatic and terrestrial mammals, reptiles, amphibians, and intertebrates. Some of the more common riparian species include the river otter, mink, beaver, muskrat, northern water snake, copperhead, turtles, salamanders, American and Fowlers toads, and numerous frog species. Many insects and other invertebrates are sustained by the riparian corridor and associated rivers and tributaries. The Watershed Property also supports many upland and terrestrial species, some associated with the numerous rock outcroppings and cliff faces as well as the mature forests. A wide range of common mammal species inhabiting the Property include the white-tailed deer, black bear, raccoon, bobcat, red and grey foxes; many species of rodents, snakes, terrestrial salamanders, box turtles, and lizards as well as a whole host of invertebrates. The Virginia Wildlife Action Plan identified a number of amphibian and reptile species that either occur or may occur on the Watershed Property, including eastern mud salamander, eastern spadefoot toad, rainbow snake, common ribbon snake, eastern hognose snake, queen snake, and eastern box turtle.

3.1.6. Threats to the Natural Resources

Destructive Recreational Use

Certain recreational activities have negatively affected the natural resources of the Property and threaten the ecological integrity of these lands. Most notably, unauthorized motorized vehicles, such as all-terrain vehicles (ATVs), motorbikes and 4-wheel drive vehicles have had severe

impact on these lands. These vehicles destroy habitat, create multiple avenues of bare soil that erode away with each rain event, and create conditions for the introduction of invasive species.

There are also numerous camping areas along the Rapidan and Rappahannock Rivers that have been overused/abused. Three intensively-used and road-accessible campsites are located at the Confluence (George H. Brumble campsite), Blankenbaker, and Hole in the Wall. Other road-accessible campsites are located at Snake Castle and Deep Run. Some campers have used motororized vehicles to reach these campsites, damaging vegetation and causing erosion of both the trails and the campsites. Some of these sites have become semi-permanent camps, evidenced by tarps, grills, horseshoe pits, garbage cans, raking of the ground, movement of stone slabs to form chairs and tables, and construction of primitive canoe landings. Many of these campsites are also littered with trash. Intensively-used camps often have bare soil well into a 100-foot buffer along the river.

Boundary Intrusions and Unauthorized Land Disturbances

Adjacent and nearby landowners periodically have intruded into the Property when harvesting trees on their own lands, clearing trees to create a view of the river from their house, or clearing vegetation to create their own boat launch on the river. Additionally, portions of the Property have sometimes been misappropriated for farming. These boundary intrusions have originated both from misunderstandings or incorrect interpretations of the location of the Property's boundary as well as from a handful of people knowingly conducting unauthorized land disturbance activities on the Property.

Fragmentation of the Forested Riparian Corridor

Fragmentation of a natural landscape typically occurs when natural habitats such as forests are harvested for timber or cleared for development into agricultural or suburban/urban land uses. Forest clearing for these uses will not occur on the Property due to its protected status. The continuity of this corridor, however, must still be considered when decisions are made on where to place future public access sites such as boat launches.

Conversion of Surrounding Landscape to Developed Land Uses

Much of the Property’s surrounding landscape is privately-owned and thus highly vulnerable to future development (Map 4). The Commonwealth of Virginia will see more land developed in the next 40 years than has occurred in the past 400 (Virginia Conservation Network 2003). This region of Virginia is no exception. As human population increases, the unprotected forests surrounding the Property have a high probability of being developed for suburban and urban land uses. Thus, the Property will increasingly become isolated from other tracts of natural lands, which will impact wildlife and plant populations through reduced interior forested habitat for wildlife as well as inhibited animal movement, insect pollination, and seed dispersal across the region. Along the edges of the Property, where it is juxtaposed with developed lands, these disturbed lands will introduce more opportunities for invasive species into the Property, which will degrade the Property's ecological integrity. Additionally, construction on adjacent lands can lead to an influx of sediment pollution onto the Property and the adjoining waterways (Ricker et

al. 2008). This problem is exacerbated when the erosion and sediment controls on construction sites are either lacking, poorly installed, or insufficient to capture the eroding soils from the disturbed lands.

Invasive Species

Invasive species are any plant, animal, insect, or other organism that is not native to an area, and whose introduction causes economic or environmental harm. All of the above threats provide opportunities for invasive species to be introduced or expand their distributions into the Property. The greatest threat to biodiversity is habitat destruction, followed by invasion by exotic species. A substantial investment goes into researching, eradicating and controlling invasive species in Virginia, in order to protect natural areas, address health concerns, and to support agricultural, forestal, and fishery industries (Pimental et al. 2000). Because invasive species are able to spread unchecked, these non-native organisms can cause significant population declines, and even extirpation, of native plants and animals. Currently, several invasive plants can be found on the Property particularly along disturbed areas such as trails, utility rights-of-ways and boundaries with adjacent developed lands. These plants include garlic mustard (*Alliaria petiolata*), tree-of-heaven (*Ailanthus altissima*), multiflora rose (*Rosa multiflora*), Japanese honeysuckle (*Lonicera japonica*), and Japanese stiltgrass (*Microstegium vimineum*). Additionally, bamboo has been found and hydrilla has exploded in its distribution along the riverine habitats buffered by this Property. A full survey is needed to assess the impact of invasive plants occurring on the Property and a mitigation plan developed from that critical data.

Impaired Water Quality

The Rappahannock River watershed encompasses 2,715 square miles, or 6.8 percent of the Commonwealth of Virginia. The river and its tributaries, including the waterways buffered by the Property, are degraded by polluted runoff, most of which originates outside of the Property. The Virginia Department of Environmental Quality (DEQ) has designated sections of the watershed as impaired (waters fail to meet state-determined water quality standards due to high levels of at least one pollutant). As measured in 2008, 267 river/stream miles were identified as impaired for aquatic life, 28 miles for fish consumption, and 370 miles for recreational uses. These numbers are not comprehensive because DEQ has not assessed all sections of the river. The primary cause of waters impaired for recreational use is excessive bacteria levels (E. coli, Enterococcus, and fecal coliform) from sewage discharge, land application of wastes, livestock manure, and pet/wildlife waste.

The impacts of sediment and nutrient pollution occur throughout the Rappahannock River watershed and include the following:

- Likely extirpation of the endangered dwarf wedge mussel (*Alasmidonta heterodon)*
- Decline of underwater grasses, which serve as fishery and shellfish nurseries
- Severe declines of productive oyster (*Crassostrea virginica*) grounds in the Chesapeake Bay
- Declining populations of blue crab (*Callinectes sapidus*)
- Dead zones – water oxygen levels too low to support aquatic life

The primary source of nutrient pollution is nitrogen and phosphorus, transferred in the runoff from urban/suburban and agricultural lands, overflow from septic systems, and discharges from wastewater treatment plants. Excessive nutrients cause harmful algal blooms in the lower Rappahannock, blocking sunlight needed by underwater grasses and consuming oxygen (as the algae die) needed by fish and shellfish to survive.

Sediments are soil particles in waterways, which have eroded off of lands and streambanks that are bare of vegetation or otherwise disturbed. Sediments reach waterways from construction sites and from agricultural areas where there is heavy tillage, cattle stream access, and insufficient forested riparian buffers. The Rappahannock River contributes the highest annual sediment yield (329 tons per square mile) to the Bay. These sediments smother underwater grasses and aquatic organisms.

The riparian forests of the Property filter out a portion of these pollutants before the surface runoff reaches the rivers and streams.

Wildfires

Wildfires can have a devastating impact of the critical riparian forests on the Property.

3.1.7. Natural Resource Protection

Continue to Balance Recreational Use with Natural Resource Protection

Water-based recreation is exceptionally popular nationwide, but well thought out access is the key to environmental protection. Because the Rappahannock River constitutes its raw water supply, the City of Fredericksburg has been very explicit in its public policy related to water quality. The City's Watershed PropertyManagement Policy (1991), the Rappahannock River Watershed Plan (1994), and the 2006 Conservation Easement have all stated that protection of the natural resource is a higher priority than all other uses, including recreation. Although multiple recreational uses will be allowed to continue, decisions on additional types of recreation and the location of necessary infrastructure will continue to be based on their impact on natural resources.

Protect Integrity and Connectivity of Riparian Corridor

Although the entire Property is protected, the City will continue to manage these lands to maintain the ecological integrity and the connectivity of the riparian corridor. The Conservation Easement requires a minimum of a 100-foot forested buffer where encroachments are to be minimized. The standard ecological recommendation for resource protection, however, is a 300-foot wide buffer. A forested riparian buffer of at least 300 feet wide on each side of the river (as feasible) is considered critical to protect this resource from future human-caused disturbances. Any management practices, new access development, and/or required habitat modifications should be performed in a manner that minimizes their impact to the 300-foot wide forested buffer, which will help ensure compatibility with forest bird habitat management, water quality maintenance, and the management of sensitive aquatic resources.

To avoid forest fragmentation of the Property, necessary management practices resulting in the opening of forest habitat should be: (1) clustered, rather than dispersed along the length of the Property, (2) placed outside of the100-foot riparian buffer required by the Conservation Easement, which will help to minimize habitat loss and degradation of riparian habitat and water quality, and (3), where feasible, minimize impacts within a 300-foot wide riparian buffer.

Recommended actions:

- Conduct a natural resource inventory
- Conduct an invasive species inventory and develop a mitigation plan
- Identify potential land acquisitions to fill gaps along the forested riparian corridor

Minimize Land Disturbing Activities

The City will prohibit or limit activities that disturb the natural resources of this Property or results in negative impacts to the water quality of the Rivers and their tributaries. The City and the Conservation Easement already prohibit the use of off-road vehicles on the Property due to the destructive nature of this activity. This management plan supports the prior decisions by the City and the Conservation Easement partners in barring off-road vehicles. The proper construction of trails, to minimize erosion, while accommodating heavy trail use, will be paramount when trails for uses other than motorized vehicles are considered and evaluated.

Recommended actions:

- Establish physical barriers to vehicular access where needed
- Undertake habitat restoration projects (e.g., riparian buffer reforestation, eroding streambanks restoration, and removal of invasive species)
- Work with the Virginia Department of Forestry to implement best management practices for prevention of wildfires

Ensure Integrity of Boundaries

In 2009, a boundary survey was conducted to clearly identify the 4,232 acres placed under the Conservation Easement. The Property's boundaries should be monitored and any conflicts or intrusions should be appropriately, but aggressively resolved.

Recommended actions:

- Ensure Property boundaries are clearly marked

3.2. Historic Resources

The Rappahannock River valley has been marked by human activity for thousands of years. This riparian corridor includes a wide range of resources that reflect on many eras. The landscape is dotted with aboriginal settlement sites, early industries, canals and locks, the scars of gold mining, the remnants of water powered mills, military entrenchments from the Civil War, road traces, and river crossings. These resources show the evolution of the Rappahannock valley,

from backwater wilderness to an industrial corridor and wartime barrier, to a somewhat remote recreational area.

The first inhabitants were Native Americans and archaeological investigations of their camps and villages have revealed that tribal groups occupied the Rappahannock basin as early as 7000 B.C. These occupants, known as Mannahoaks when they encountered Captain John Smith in 1608, were gone by the time settlers pushed into the Virginia Piedmont in the 1670s. John Smith identified four major settlements on his 1624 map of exploration. Although he obtained the information from interrogating a captured Mannahoak warrior, through an Algonquian interpreter, field investigations in 1934 confirmed the location these Native American sites. The minimal European/Mannahoak contact holds great promise for their archaeological significance. The Mannahoaks were the last aboriginal culture in the Rappahannock valley. The next phase of occupation was the European influx that began in the late seventeenth and early eighteenth centuries. This period was dominated by Governor Alexander Spotswood's iron industry, which had enormous implications for the founding of Fredericksburg and its prominence in national affairs through the American Revolution. The furnace that Spotswood built in the wilderness had used up enormous tracts of woods, leaving the countryside denuded of trees. It ceased operations by 1792.

Following independence from Britain, the new government did not authorize Fredericksburg to remain a port-of-entry for overseas trade. Spotswood's iron industry was gone, but the river valley remained characterized by farming, milling, and gold extraction. The Rappahannock valley was the site of numerous gold mining enterprises and construction of a navigational canal began in 1811, to link them with the transshipment point of Fredericksburg. The California gold strikes, however, drew mining activity west, where extraction was less difficult than pulverizing the local quartz deposits. Agriculture alone could not sustain the canal enterprise and railroads also had a profound impact on the Rappahannock valley. East/west railways through Alexandria and Richmond cut into upriver markets.

While east-west railroads shifted economic opportunities, a north/south railway provided a logistics infrastructure that drew the Civil War armies to Fredericksburg. During the period 1862-1864, four major battles were fought in the vicinity, leaving behind a blackened countryside and a wrecked economy.

River related industries came back after the Civil War, though, and some gold mining recurred. River powered industries were superseded by electrified industries and new north/south transportation routes also refocused human activity away from the river valley. These developments included the Richmond, Fredericksburg, and Potomac Railroad (completed between Richmond and Washington by 1872), State Route 1, and eventually Interstate-95. During the twentieth century, and into the twenty-first century, the Rappahannock valley never saw the level of use that had occurred during its peak period of activity during the nineteenth century.

3.2.1. Historic Resource Inventories

The Virginia Department of Historic Resources (VDHR) has a standard inventory process to examine and evaluate historic resources within the broad patterns of Virginia's history. A

careful analysis, through the context of cultural region, historic period, and theme places resources within their larger setting. This standardized approach for collecting and evaluating information also allows VDHR to better understand the data available so as to understand any gaps in their historic record. The overall intent is to provide a sound basis for preservation decision making. The VDHR database has many individual site reports on file, which is searchable on-line. The reports vary in quality, however, as they are submitted by professionals as well as by all types of interested citizens.

The City of Fredericksburg, in partnership with the National Park Service, did its own reconnaissance survey of resources on its upriver riparian properties in 1996-1997. The final report, entitled Historic Resources along the Rapidan and Rappahannock Rivers does not follow the standard chronological VDHR format, but categorizes resources thematically (although there is also a loose chronological order as well). This approach resonated with the public and the document has been reprinted three times following the original 1997 printing. The broad themes contained in this publication include Native American sites, early industrial sites, canals and dams, gold mining, water powered industries, and the Civil War.

3.2.2. Threats to the Historic Resources

Threats to historic resources come from both natural causes as well as human activity. Under natural causes, erosion can significantly impact a site, but on the Property, it has typically already run its course. Erosion occurs relatively quickly after a site is abandoned. As vegetation returns, though, the level of erosion usually stabilizes. By then, building foundations and/or military earthworks are at least partially filled in. Their relief is also softened and obscured, at least above ground. Once stabilized under forest cover, the threat of erosion is usually minimal, as long as human activity does not cause the process to resume.

Flooding of resources is another natural impact, but has mixed results. On the one hand, flood waters can cut into a resource and carry it away. This destruction is known to have occurred at Native American sites within the river floodplain. On the other hand, floodwaters can also bury resources in alluvial deposits, which encapsulates and protects them.

Threats from human activity are both deliberate as well as inadvertent. Deliberate destruction includes removal of artifacts without following proper procedures or unauthorized activity on sensitive sites, such as driving vehicles along earthworks or through canals. Inadvertent destruction can result from overuse of the Property.

<u>Unauthorized Artifact Removal</u>

The many historic sites on the City's riparian land have the potential to yield information important to historic research. Underground evidence related to the resource is contained in buried artifacts as well as in the soil strata above the undisturbed soil that relates to erosion sequences.

Unexploded Ordnance

Many areas along the Rappahannock and Rapidan Rivers were once battlefields or were subjected to artillery bombardment. Unexploded ordnance from this period can still function. In the event such a hazard is encountered, the site should be evacuated without disturbing the unexploded ordnance and proper authority notified.

3.2.3. Historic Resource Protection

The City of Fredericksburg has traditionally sought to preserve its historic and archaeological resources, recognizing that those who live in special places have been entrusted with a responsibility for their protection and preservation. Fortunately, the City's policy of maintaining a forest cover over its riparian property, which enhances water quality, is also the most effective means to preserve historic and archaeological resources in those same areas. Forest cover is the most effective in preventing erosion. Tree roots stabilize the soils as do the layers of leaf litter built up over the years.

The Rappahannock valley was an active industrial area when water-powered mills were in operation and when the armies came during the Civil War. Since then, the once managed landscape has reverted back to woodlands. As trees reestablished themselves, the leaf litter layer built up on the forest floor, which is a defining characteristic of an intact forest ecosystem. Since the City does not log the Property, shade tolerant trees have occupied the overstory canopy.

Leave Resources Undisturbed

The historic resources on City-owned lands include significant Native American settlements, early industrial sites, as well as battlegrounds. Their study is encouraged, as long as they are not disturbed in any way. Any archaeological evaluations and any related digging must be authorized by the City of Fredericksburg.

Recommended action:

- Monitor proposed and existing development on adjacent lands to avoid adverse impacts to historic resources on the Property.

Allow Self-Discovery

One of the attractions of the City's riparian property is the opportunity to explore its many historic features, long fallen into disuse and being reclaimed by nature. The City seeks to protect these resources, so future generations can continue to experience the thrill of discovery. In this context, interpretive signs are to be strictly limited to trailheads and parking areas.

Recommended actions:

- Maintain an inventory of historic resources and update, as appropriate, to ensure it remains an accurate database for planning and policy development.

- Avoid the installation of signs on specific sites, but provide educational materials to the public so they can fully appreciate their protected heritage as well as understand their responsibility to care for historic resources by leaving them undisturbed.
- Ensure viewsheds and historic vistas retain their integrity and scenic value by carefully evaluating any proposed intrusions for visual impact.

Limit Restoration

The historic resources in the Rappahannock valley are being reclaimed by nature. In some instances, the natural vegetation serves to protect and preserve resources, but can also cause their loss. The root system of a naturally wooded area, for instance, can stabilize Civil War earthworks. A tree growing out of earthworks, however, can also cause considerable damage when it ages and eventually falls. In this context, it may be advisable to cut out some trees, while maintaining others.

Follow the principle of *economy of intervention*, to minimize any work that is accomplished within the City's riparian holdings. Clearing woodlands, for example, may be deemed necessary to maintain some areas, but may also initiate erosion and other negative impacts.

Recognize that many of the historic resources within the easement lands are ruins. They have deteriorated in a natural environment and will continue to deteriorate. Resources in obscure locations can be expected to be compromised by tree roots and eventually collapse.

If restoration or stabilization must be considered as a matter of safety – for instance, when the resource is in heavily travelled areas readily accessible to the public – then the necessary work must be accomplished according to established preservation standards, as authorized by the City of Fredericksburg.

3.3. Scenic Values

The Fredericksburg Watershed Property is highly valued as a recreational resource because it provides a river corridor that is largely undisturbed by signs of human intrusion. Despite its location within some of the fastest growing localities in the region, the Property's river buffer insulates the recreational user and provides scenic seclusion.

This effect of seclusion and privacy is maintained because City property typically runs from ridgetop to ridgetop, encompassing the entire viewshed from the vantage point of a canoeist, camper, or hunter. Where outparcels to City ownership exist, visible structures and cleared vegetation are common.

Three public water withdrawal stations constitute the most significant visual intrusions into the scenic corridor. These facilities are Motts Run, Hunting Run, and Rocky Pen Run.

3.3.1. Threats to Scenic Integrity

Tree Cutting / Vegetation Removal

Numerous private residential parcels directly abut the Property. Adjoining landowners have frequently trespassed on the Property to cut down trees and remove vegetation, in order to create a view of the river or to improve their access to the river. In other areas, chainsaws have been used to remove trees and vegetation for ATV trails and riverfront clearings. The City has successfully pursued civil action against violators in the past, requiring financial restitution and/or restoration of removed vegetation, but aggressive enforcement is still needed to curtail this activity.

Adjacent Developments

The construction of residential, commercial/industrial buildings, or other man-made infrastructure on adjacent lands has impacted the viewshed experienced by recreational users. When feasible, the City and a non-profit group have worked with developers to ensure that the new construction would not impact the viewshed. Celebrate Virginia, for example, has a proposed eco-tourism component and the developer worked with the Friends of the Rappahannock to protect the river viewsheds as this large scale project is constructed.

Noise Intruding on Solitude

Some noise is a natural part of the human experience, but increasing recreational use has resulted in incidents of excessive noise. Of particular concern is noise such as loud music and late night parties in camping areas. These types of activities are inconsistent with the City's goal of protection of the experience of solitude on the river.

3.3.2. Protecting Scenic Integrity

Avoid or Minimize Adverse Scenic Impacts

When future recreational infrastructure is developed on the Property, the City should ensure that scenic impacts are part of the evaluation process. The City will also continue to work with developers on adjacent lands where proposed development may impact the scenic integrity of the Property.

Protect Integrity of the Property Boundary

The City will continue to monitor the Property boundary for trespassing intrusions, such as tree removal, and take appropriate action, as needed.

4. RECREATIONAL ACTIVITIES

The Watershed Property and the rivers that these lands protect provide many recreational opportunities to the public. Citizens commonly use these lands and the rivers for hiking, hunting, wildlife viewing, paddling, fishing, camping, historical explorations, meditation, mountain biking, trail running, family outings, and nature appreciation. Below is an overview of trends for these common activities.

4.1. Trends in Recreational Uses

4.1.1. Canoe Liveries

Three canoe liveries are present on the Rappahannock River. Interviews with these liveries indicate that paddling rentals continue to be popular mainly from April through September. Tubing rentals have increased primarily on the stretch below I-95. Overnight camping rentals vary, based on water level.

4.1.2. Fishing

The Rappahannock River is known regionally, and even nationally, as a quality destination for smallmouth bass angling. Nearly the entire river and its major tributary, the Rapidan, provide stellar habitat for smallmouth bass and its relatives: the redbreast sunfish and rock bass. Since the removal of Embrey Dam, in 2004, the resident population of channel catfish has begun expanding greatly, and target species for fish passage including river herring (blueback herring and alewives), hickory shad, American shad and even striped bass have been found as far upstream as Kelly's and Ely's Fords. These migrants are generally encountered during spring, and yellow and white perch also may be found along the lower reaches of the Watershed Property. Fallfish, chain pickerel, and common carp provide additional angling opportunities and diversification, and even largemouth bass are present at lower densities in the river's slower sections. Applicable fishing regulations for the Property are noted in Section 5.2 (Recreation Management).

4.1.3. Hunting

Hunting has traditionally occurred on the Property and has continued during City ownership. Several local hunt clubs also own significant tracts of land that adjoin the Property. Species known and likely to be hunted on the Property include white-tailed deer, black bears, gray and fox squirrels, wild turkeys, waterfowl, and furbearers such as raccoons, gray and red foxes, and coyotes. Though the extent of hunting on the Property is largely unknown, an increase in the use of, and demand for, lands and waters open to the public in the Central and Northern Piedmont regions of the Commonwealth has become apparent as other natural areas are developed for residential and commercial uses. The VDGIF has observed an increase in hunter use of the neighboring C. F. Phelps Wildlife Management Area over the last decade. Given the close proximity of the Property to major urban centers and the growing public awareness of the Property, interest in and use of the Property by hunters is likely to increase.

The Watershed Property is essentially a continuous forested riparian corridor, ranging from river bank and flood plain forests to upland forests, and is classified as having high ecological integrity. The characteristics and use of the surrounding land varies tremendously, from urban/suburban development to uses such as agriculture and intense silviculture. As a consequence, the habitat afforded by the Watershed Property constitutes preferred habitat for several important game species such as white-tailed deer and black bears, and can facilitate an overabundance of these species, particularly deer. Deer and bear populations have been increasing throughout much of Virginia over the last 30 years, particularly in the urban/suburban/rural interface, resulting in more human/deer/bear conflicts. Scientific research also demonstrates that high deer populations negatively impact ecological integrity of forest communities, through over-browsing. Ecological damage will occur without some level of deer population control. Applicable hunting regulations for the Property are noted in Section 5.2 (Recreation Management).

4.1.4. Trapping

The Watershed Property includes a wide array of suitable and preferred habitat for many furbearing species. Aquatic species include beaver, river otter, and muskrat. Terrestrial species include mink, weasel, skunk, opossum, raccoon, gray and red fox, bobcats, and coyote. Over the past 15 years, VDGIF has observed a significant increase in human-wildlife conflicts in urban and suburban areas. Currently, the incidence of diseases carried by some furbearers is increasing.

Trapping is recognized as an effective wildlife management tool, to keep furbearer populations at healthy and acceptable levels, and to minimize the spread of mammalian diseases such as rabies. Since the boom in fur prices of the 1970s and 80s, there has been a downward trend in trapping and trapper numbers, a result of a growing intolerance for using fur for clothing and other products. This trend has resulted in rising furbearer populations and a rise in human-wildlife conflicts.

The Department of Health and Human Service's Center for Disease Control (CDC) reports that over 90 percent of human rabies cases are a result from exposure (bites) to wildlife. Presently, the eastern United States is experiencing a rabies epidemic within raccoon populations. The raccoon is a major vector of a new rabies variant (epizootic) specific to the species. In addition, research carried out by CDC suggests that the incidence of rabies in skunks has mirrored that of the raccoon. Since 1981 this epizootic of raccoon rabies has spread from Virginia throughout the Mid-Atlantic and Northeast United States. In 1995 the U.S. Department of Agriculture implemented a control program utilizing dispersal of oral rabies vaccine baits targeting raccoons. This Federal agency's Wildlife Service continues to work with local and state governments, universities, and other partners to address this public health problem.

Similar to hunting, trapping has traditionally occurred along the rivers, although the City prohibited trapping on its riparian property in 1991. To be clear, although trapping has been prohibited on the Property, legal trapping still takes place on the rivers. Although the extent of trapping on the rivers and on the Property, prior to its prohibition, is unknown, it is apparent from public comments that there exists a great interest to trap the Property and the tributaries of the Rappahannock and Rapidan Rivers.

4.1.5. Camping

There are no developed camping facilities on the Property, so camp sites are primitive. Because camping can occur anywhere on the Property, campers are encouraged to follow a Leave No Trace ethic. There are several popular camping areas along the Rivers, accessed primarily by water, so the level of camping activity is related to water levels. Adequate water levels typically occur during the period from early May through July. During weekends, camping in the vicinity of the Confluence is in high demand.

4.1.6. Gold Prospecting

An area called the Southern Appalachian gold district extends along the southeast front of the Appalachian Mountains. When molten rock intruded out of a north-south fault extending from what is now Maryland to Alabama, it spread to the east and eventually cooled in a narrow strip that is called the gold-pyrite belt. The various minerals eventually cooled, their relative location dictated by their densities. In the 1830s and 40s, Virginia was the third largest gold producing state until the California strikes of 1848 (Virginia Department of Mines, Minerals and Energy). Extraction of gold in Virginia has not been commercially worthwhile, but recreational prospectors can be found on the Rivers searching for placer deposits.

The U.S. Army Corps of Engineers has determined that a recreational suction dredge using an intake nozzle of 4 inches or less has a minimal effect on the aquatic environment and is generally not regulated. Further, the Virginia Marine Resources Commission exempts this activity from any permit requirements within non-tidal waterways up to the ordinary high water mark, which is admittedly sometimes difficult to determine, but is generally indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the area. The cumulative effects of prospecting are not addressed, although recreational gold prospecting is not allowed to affect the rights of riparian property owners (the City), is not allowed to adversely impact certain in-stream uses, and is not allowed to adversely impact historic resources.

Recreational gold prospecting is not permitted on the Property, including along tributary streams. Like trapping, however, it remains legal within public waters. Prospectors provided comments during the public participation process reminding the City that their level of activity is not regulated by the Commonwealth of Virginia or the U.S. Army Corps of Engineers..

4.1.7. Trail Use

An extensive network of trails exists throughout the property, though they were established by various users rather than carefully planned and designed to minimize environmental impacts. Many of them were created by ATVs which has always been a prohibited activity. Currently, some trails have become popular destinations for hikers, runners and mountain bikers. The City is currently working with Friends of the Rappahannock to inventory trails, with the goal to

determine which ones are appropriate for public use and which ones are having an adverse impact on the Property and should be closed.

Mountain Biking

Mountain biking can cause trail erosion leading to excessive sedimentation input into nearby waterways. This recreational activity needs to be properly managed, and any authorized trails constructed and maintained to standards directed by the City.

Mountain biking currently occurs on a specified trail system close to Fredericksburg that is mostly on private property, but also extends onto City lands that are not under easement. The City currently is working with mountain biking partners to explore the feasibility of establishing a longer biking route that will not degrade the natural setting.

Horseback Riding

Certain sections of the Property have been used in the past by horseback riders, but horses have the potential to contribute significantly to pollution problems facing the rivers and streams. The Rappahannock River is sensitive to nutrient loading and extensive efforts have been made to reduce the impact of animal waste to this waterway. Still, there are places where problems persist. As an example, a horse rescue operation in Culpeper County is causing unacceptable levels of e. coli bacteria to reach the Rapidan River.

The easement does not allow equestrian trails within any riparian buffer (100 feet from river's edge).

Hiking

Hiking trails are allowed by the Conservation Easement, but need to be properly planned and constructed. Many trails exist, but the severe topography precludes any type of hiking trail along the full length of the Property. The best place for a riverside trail, for instance, is on the edge of the uplands, above the steep slopes, but these areas are mostly in private ownership. Still, many areas along the river are conducive to hiking and suitable trails can eventually be established.

4.2. Existing Recreation Infrastructure

The following infrastructure is in place on the Property. Some of it, such as trails, will be evaluated to determine if they should be improved or closed. Other features, such as public boat ramps, will remain intact and possibly improved. Controlled access will be brought under formal license agreements and monitored more closely, to restore areas of damage. Maps 8 and 9 show the recreational infrastructure that currently exists on the Property.

4.2.1. Trails

Pedestrian access is permitted across the entire Property, unless otherwise posted. Most of the Property adjoins private property, though, so anyone gaining access to the City's Property will

need permission from the owners of the adjoining property as well. Existing trails have not been planned and constructed to minimize environmental impacts, so an inventory of trails is needed and each one evaluated for continued use, improvement, or closure.

4.2.2. Public Boat Ramps

There are two public boat ramps on the Property. These access points are at Ely's Ford and at Mott's Run. In addition, the upper reaches of the Property along the Rappahannock River can be accessed from the public boat ramp at Kelly's Ford.

4.2.3. Controlled Access

There are two primary access points used by canoe liveries. These occur at two locations below the Confluence, one called Blankenbaker's and the other Hole-in-the-Wall. Other controlled access points exist for large subdivisions, the homeowners associations constituting the legal entities responsible for meeting the City's criteria. A controlled access will soon be needed at Deep Run, as that area develops.

4.2.4. Camping Areas

The City has not established formal camping areas. Primitive camping is allowed at any suitable location, as long as campers follow the basic rules described herein. The Confluence of the Rappahannock and Rapidan Rivers is a heavily used camping area. The section in Culpeper County is the most remote for land access, but readily accessible to float-in campers. Due to its popularity, however, overflow camping areas in the vicinity of the Confluence, in both Stafford and Spotsylvania Counties have become very popular as well.

5. MANAGING THE WATERSHED PROPERTY

5.1. Management Planning

The conservation values identified in the Conservation Easement are the basis for managing the Property. The easement specifies the following goals:

1. Protect the natural environment and habitats of the Property, including the viewscape to and from the Rappahannock and Rapidan Rivers.
2. Protect the water quality of the Rivers and provide for adequate public water supplies.
3. Protect the historic and archeological resources located on the Property.
4. Prevent residential and commercial development of the Property.
5. Allow reasonable use and enjoyment of the Property and the Rivers by the City and the general public in a manner consistent with the other easement goals (the conservation values).

The Conservation Easement places the preservation of the stated conservation values above permitted activities, which is consistent with all of the City's previous management planning. This management plan provides the practical guidelines to ensure that the defined conservation values remain adequately protected. The measures outlined in this section are based on the concept of *Management Through Infrastructure.*

5.1.1. Management Through Infrastructure

Management Through Infrastructure is an approach to conservation planning that carefully manages the placement of infrastructure (public access, trails, and campsites) as means to manage impacts on the land and water. Because recreational users generally follow the infrastructure that is provided, protection of sensitive natural resources can often be accomplished by limiting infrastructure in areas that are more susceptible to damage. This process does not directly regulate the number of users, but rather focuses on the condition of the resource. The parameters used to assess impacts are called *Limits of Acceptable Change.*

5.1.2. Limits of Acceptable Change

For certain key aspects of the Property, it is useful to define limits at which the benefits it provides begin to become compromised by certain uses. For example, establishing a boat ramp and formal camping facilities in the vicinity of the Confluence could lead to increased ecological impacts and reduced recreational enjoyment due to overcrowding.

The concept of *Limits of Acceptable Change* recognizes that resources are not inexhaustible. Further, *Limits of Acceptable Change* acknowledges that there are impacts from various users and that cumulative impacts need to be reconciled with the allowed uses.

Determining the limits of acceptable change requires a systematic evaluation of the Property's physical condition rather than a focus on user limits. The condition of the resource becomes the benchmark for measuring how much change from human activity will be allowed to occur. The necessary steps to this approach are as follows:

1. Inventory existing conditions to obtain appropriate data.
2. Identify issues and concerns as a basis for developing management objectives.
3. Develop objectives for resource protection and recreational use.
4. Select the biophysical and social indicators of change that will be measured over time.
5. Formulate standards to establish measurable reference points.
6. Monitor conditions.
7. Compare conditions to established standards.
8. Take remedial action if established standards are exceeded.

Clearly, this process requires an interdisciplinary working group, which is provided by the range of expertise available on City staff and from its easement partners. In addition, groups that actually use the resource for recreation should be included, to ensure that the various user groups help to identify what conditions are acceptable to them, as these properties are managed and protected.

5.1.3. Recreational Use Corridors

Existing recreational infrastructure has already established three distinct corridors that help to define intensities of recreational use. The best policy for protecting the Property is to use these existing corridors and plan additional recreational infrastructure accordingly.

The factors that define each of these Recreational Use Corridors include various aspects of the following:

- Proximity to City of Fredericksburg (higher recreational intensity closer to the City)
- Continuity of forest cover
- Ecological integrity
- Scenic quality
- Recreational use suitability

The Recreational Use Corridors are shown in the table below and depicted in Map 10.

Corridor	Location	River-related Activities	Access Available
Corridor 1: Most Intensive Recreational Use	Mott's Run to I-95 and below	Large groups on short float trips, including tubing	Public boat launch and extensive trail network with multiple access points
Corridor 2: Moderate Recreational Use	Blankerbaker's/Hole-in-the-Wall to Mott's Landing	Full day canoe trips	Controlled access for put-in; public boat launch at Mott’s Run for take-out

Corridor	Location	River-related Activities	Access Available
Corridor 3: Low Recreational Use	Rappahannock River: Deep Run to Blankenbaker's/Hole-in-the-Wall; Rapidan River: Ely's Ford to Blankenbaker's/Hole-in-the-Wall	Overnight trips	Controlled or private launches on Rappahannock River (unless put in is at Kelly's Ford); public boat launch at Ely's Ford on Rapidan River

5.2. Recreation Management

Public ownership and a Conservation Easement provide a sound basis for resource protection. A clear process guided by the Easement's stated conservation values provides the framework for good public decisions, to effectively balance resource protection and recreational uses.

5.2.1. Outdoor Ethic – Leave No Trace

Recreational users exert an inevitable impact on natural resources. As large numbers of people are drawn to the Rappahannock River, it becomes increasingly important to minimize their impact, so all may continue to enjoy what the river offers. *Leave No Trace* is a conservation ethic that is widely recognized as a standard for recreational use of sensitive habitats and landscapes. The City introduced this concept in its Rappahannock River Watershed Plan (1994), under the heading of Low Impact Recreation. *Outdoor Ethics for the Rappahannock River* was developed by the Leave No Trace organization and the Friends of the Rappahannock, to adapt the general *Leave No Trace* guidelines specifically to the Rappahannock corridor upriver of the City of Fredericksburg. These Rappahannock guidelines are published on a waterproof plastic card which is designed to be attached to a backpack or canoe and can be obtained at no-cost at Friends of the Rappahannock, Virginia Outdoors Center, and Clore Brothers. The guidelines are listed in Appendix 6.

5.2.2. Miminizing Recreational Use Impacts

<u>Camping</u>

Primitive camping is allowed across the Property. There are numerous areas along the Rivers where camping is popular, many originating from paddlers accessing these areas from the water, but also by campers accessing the Property overland. The locations of these heavily used areas are depicted on the Rappahannock River Water Trail Map, (developed by Friends of the Rappahannock). The City has no plans to construct formal campsites.

When choosing where to camp on the Property, campers should consider the following:

- Do not remove live and standing dead vegetation for a camping area. Removal of vegetation fragments the riparian buffer corridor and promotes soil erosion.

- Avoid locations with steep banks that will be eroded by foot traffic. Choose an area where there is shallow grade access at the riverbank and where canoes can be secured without removing vegetation.
- Minimize the visual impact of a campsite by locating it at least 10 feet inland from the top of the river bank and behind a buffer of trees and vegetation.
- Choose an area that is level and well drained.

Fires

Campfires can pose a wildfire risk. For most of the Property, the ratio of wildland/urban interface is high because of the Property's narrow width between the Rappahannock or Rapidan River and developed lands. Potential wildfires originating from campfires on the Property could spread quickly to neighboring residential homes. In 2009, a small campfire started a wildfire near Ely's Ford, but was contained before it could spread. Open-air campfires are permitted, with due consideration of the following safety rules:

- Open-air campfires must be attended at all times and kept in a protective ring
- Open-air campfires must be located under treeless areas
- Only downed wood should be used for campfires. Do not disturb live or standing dead vegetation.
- Trash should not be burned in campfires.
- When planning a trip, campers should consult the Department of Forestry website as well as the local jurisdiction's Fire Marshall for any fire restrictions.

Human Waste

Campsites are heavily impacted by river users during the peak season of May through July. The Fredericksburg City Code requires that waste be buried 12 inches deep and at least 100 feet from the river, but field evidence indicates that holes are frequently not dug and, when dug, are rarely deep enough. Campers should carry a small shovel to dig the hole deep enough to be within the soil's biodegradable layer. The bacteria and various insects in the soil will dispose of the biotic waste within a few weeks. Food or solids should not be buried as animals will dig this material up and leave it scattered across the landscape.

Human waste should be handled in either of two ways:

- Waste, including tissues, can be packed out (e.g., collected in portable toilet, double bagged, and properly disposed of at the end of the trip), or

- Waste can be buried in a hole at least 12 inches deep, and at least 100 feet from the water. Note: Any tissues (e.g., toilet paper, Kleenex, and baby wipes) need to be biodegradable if they will be buried in the hole.

Noise

Protection of the recreational experience on the Watershed Property includes ensuring noise levels do not disturb other users. The experience of solitude has been recognized as a highly desired component of the experience afforded by the Property. Noise from campsites should not impact the recreational experience of others.

Minimize Soil Erosion

Soil erosion is one of the main problems for these Rivers, causing excessive sediments to run into the water. Some users have cleared camping areas by removing trees and other vegetation. Popular areas have grown in size as campers continue to remove woody vegetation for campfires or to create temporary shelters. Additionally, campers have caused soil erosion along the riverbanks when accessing the Property from the Rivers by climbing up a bank. To minimize soil erosion, campers should do the following:

- Avoid removing or clearing existing vegetation
- Use special care when climbing out of rivercraft, by stepping on stones or sturdy roots in the riverbank instead of bare soil.

Another soil erosion problem occurs at the Motts Run Landing where canoeists and canoe liveries are not using the existing wooden boat slip. Instead, they continue to use an eroded section of the riverbank, hindering its recovery and revegetation. Boat slips are an inobtrusive presence along the riparian corridor and will be constructed in other locations, as dictated by need and in accordance with this management plan. Canoeists and canoe liveries must be encouraged to use existing, low visibility boat slips, where they exist, rather than creating their own, erodible, launching points.

Trapping

Since 1991, trapping has not been an authorized activity on the Watershed Property pursuant to City Code Section 66-142. Trapping is a management tool, though, and could be considered as an authorized activity in the future, either throughout the Property or in specific zones. Legal trapping of the Property will require all necessary licenses and adherence to all applicable State trapping laws, regulations, local ordinances, and rules specific to the Property.

Hunting

The development of this policy included extensive input from the hunting public and from VDGIF. Hunting is permitted across most of the Property and requires no permits beyond applicable State and Federal hunting licenses and stamps. All applicable State and Federal hunting laws, regulations, local ordinances, and rules specific to the Property must be adhered to at all times. Additional rules specific to the Watershed Property will be posted at all public access sites, the City of Fredericksburg website (www.fredericksburgva.gov), and are also available by calling the City of Fredericksburg, Department of Public Works (540-372-1023).

The Property-specific rules for hunting on the Property are as follows:

- No trapping.
- No permanent tree stands.
- No hunting or discharge of firearms within any posted safety zone.
- Hunters must comply with all other laws or regulations relevant to the Property adopted into City Code or any additional posted rules.

The language in this management plan does not supersede Federal, State, or local laws or regulation as they relate to hunting. Current hunting regulations can be obtained from VDGIF's website (www.dgif.virginia.gov/hunting) or by referring to the most recent version of the Hunting & Trapping in Virginia digest or migratory waterfowl and webless migratory bird seasons and bag limits (also available online).

Fishing

The Rappahannock River is a well known destination for many types of fishermen. Fishing is permitted from anywhere along the Property and no permits are needed beyond applicable State fishing licenses. All applicable State fishing laws, regulations, and rules specific to the Property must be adhered to at all times.

The Property-specific rules for fishing on the Property are as follows:

- Do not discard monofilament fishing line in the river or on the riverbank—it is a danger to humans and wildlife.
- Use commercially available alternatives to lead sinkers. Lead sinkers pose a serious threat to birds that ingest the lead when easting fish.
- Do not spread non-native plants and animals. Instead of dumping bait containers into the river, pack out unused minnows, leeches, or worms and dispose of them in the trash.

Pets

Dogs should be on-leash at all times on the Property except when using dogs to find and retrieve game during open hunting seasons. Other pets are not permitted. Owners shall dispose of pet waste in a similar manner as human waste:

- Waste should be buried in a hole at least 12 inches deep, and at lease 100 feet from the water; or
- Waste should be collected in a bag or other container and packed out. If campers are returning by canoe, the waste must be stored in a waterproof container (eg. drybag) and tied securely to the canoe. Upon return, the waste should be properly disposed of in a trash receptacle, or in a toilet serviced by a septic system or municipal sewer.

5.3. Infrastructure Management

5.3.1. Trails

Trails allow the public to access many natural and recreational features and hiking on existing trails is a popular use of the Property. Pedestrian access is also permitted across the entire Property, unless otherwise posted. Trails are a key aspect of the *Management Through Infrastructure* approach, which seeks to manage impacts by controlling the extent of infrastructure. Consequently, construction of new trails on the Property should be undertaken only after thorough assessment of the potential unintended impacts of human access to an area.

Currently, no established trail exists that allows passage along the entire length of the Property. Certain natural features, as well as parcels that are not owned by the City, have divided the trails into segments. While a through- trail has been suggested on several occasions as a way to increase recreational accessibility of the Property, the nature of the terrain is not conducive to this effort. Development of a through-trail along the entire length of the Property is neither feasible nor recommended.

The following factors should be considered when evaluating proposals for any new trails:

<u>Protect Remote Camping Areas</u>

Remote camping areas are a special feature of the Property, providing seclusion from land-based intrusions such as ATVs or walk-in party-goers. Every consideration should be made to protect the secluded nature of these camping areas.

<u>Discourage Off-Road Vehicle Access to Trails</u>

Off-road vehicles, particularly ATVs, gain access to the Property from public rights-of-way. Blocking this type of access is extremely difficult since ATV operators typically will create a new trail around any trail impediments such as boulders or gates. This activity can be managed by limiting the creation of *new* trailheads.

<u>Erosion Control</u>

Trails should be constructed along the elevation contours to minimize erosion. Suitable water diversion mechanisms should be employed to ensure that trails do not become conduits for water flow and further erosion. Appendix 7 includes a brief introduction to recommended design specifications for new trails that will limit erosion potential.

<u>Scenic Impacts</u>

Trails should be set back from the top of the riverbank so as not to be visible from the river. To facilitate access to scenic vistas, trails can include occasional spurs to river overlooks in lieu of a trail along the top of the riverbank. The overlooks should also maintain a vegetated understory of woody plants and grasses along the top of the riverbank, to reduce erosion as well as to avoid visibility from the river

Trails Planning

The City and partners are inventorying the vast network of trails that have been created by various recreational uses. The extensive network of high impact ATV trails (often on steep terrain) that is apparent through the current limited mapping and visual surveys, is clearly in conflict with the criteria defined above and are thus beyond acceptable levels of damage. No additional trails should be constructed until current trails are inventoried, assessed for their impacts, and either improved to the point where they no longer cause adverse impacts or closed.

The following actions should be considered in the management of trails on the Property:

- A complete GPS inventory should be provided for all trails on the Property.
- Trails on steep terrain, trails with erosion problems and trails that impact historical features should be considered for relocation or closure.
- Numerous trails on the property exist primarily due to illegal ATV use. Each of these trails should be evaluated to determine if they have recreational value or if they should be closed due to impacts that cannot be mitigated otherwise.

It should be noted that the Conservation Easement does not allow equestrian trails within the 100-foot Riparian Buffer. Further, there are size limitations for new trails (maximum treadway width of three feet and maximum shoulder widths of two feet). The equestrian groups that have contacted the City about trails have been informed that the City owned Property is insufficient for their use, in and of itself. If groups establish trails on adjoining properties, however, and need to cross specific areas of the Property then these requests can be evaluated on a case by case basis.

5.3.2. Public Access

Public access points are the primary recreational infrastructure features on the Property. Effective management of the Property requires proper administration of public access because their location and management directly impact various sections of the Rappahannock and Rapidan Rivers. The existing public access points protect the recreational experiences described under Recreational Corridors and help to protect the conservation values contained in the Conservation Easement. The City of Fredericksburg does not intend to administer a large network of public access points; but will continue to strategically use public access to facilitate as well as protect river experiences.

There are both public boat ramps as well as controlled access points on the Property. This rivercraft access is distinct from overland pedestrian access, which the City currently permits across the entire Property, unless otherwise prohibited. Opinions differ, however, as to the adequacy of the current extent of boat launches. Some recreational users note the inconvenience of not being able to quickly reach certain reaches of the river. Others point out that one of the features that make the City's Watershed Property so special is the relative inaccessibility of some areas, which lends a wild and scenic aspect to the recreational experience. This relative remote experience is not typically available on rivers so close to major population centers and has been protected by the City since adoption of its Rappahannock River Watershed Plan, in 1994.

As an example, the Fredericksburg City Council declined a proposal by the Virginia Department of Game and Inland Fisheries, in the late 1990s, for the establishment of new publicly administered access points at Snake Castle and at the Confluence. In turning down this proposal for new infrastructure, the City Council cited the remote nature of the sites for administration and their likely intrusion on sections of the river prized for their wild and scenic recreational experience.

The Conservation Easement sets a generous limit on future access facilities, potentially allowing up to five new access points plus the improvement of several existing primitive access points to full public access. Implementation of this level of access would severely stress the resource, though, and impose a considerable challenge for maintaining the conservation values of the Property.

River Access

The City has considered the number and distribution of public boat launches within the Property to be adequate to meet the demands of recreational users, while still protecting the conservation values and the recreational experience of the river corridor. There are also points of controlled access that present a number of benefits. For instance, any controlled boat launch on the Property must receive the permission of the City and be subject to a formal licensing process. All agreements for controlled access address several requirements.

- Consistency with the Conservation Easement
- Protection of the scenic viewshed from the river
- A locked control structure at the Property boundary
- Defined limitations on permitted users
- Minimum buffer from waterbodies
- Limits on removal of vegetation
- Protection of the habitat and water quality

Still, the popularity of the controlled boat launches at Blankenbaker's and Hole-in-the-Wall suggests that an additional public boat ramp in that general vicinity is needed, especially if these controlled access points must be closed if passage through the adjoining private property is curtailed. A new public facility in this area would allow continued overnight trips through the Confluence as well as provide for longer day trips to Mott’s Run and areas downstream.

There exists a site for a boat launch at the Hunting Run water control facility, owned and managed by Spotsylvania County. This site is on the Rapidan River, 1.2 miles upstream of the Confluence, and the natural setting is already compromised by the water intake facility. In addition, infrastructure for vehicular access, parking, and river access is in place. Minimal disturbance of the riverbank is necessary to construct a boat launch.

A public boat launch at Hunting Run would be outside the City’s property, but would still protect the remote recreational use corridor on the Rappahannock River, help meet the demand for additional public access along this stretch of the river, and would be strategically located so as not to duplicate any other existing access. Given the potential benefits as well as the desirable

aspects of this site, VDGIF recently proposed to Spotsylvania County that a boat launch be developed on the County's property at Hunting Run. The County agreed to the proposal and has indicated it will enter into a cooperative agreement with VDGIF to develop the site. The U.S. Army Corps of Engineers has already been consulted and has also inspected the site. The VDGIF will design and construct a low-impact canoe slide on the site, as well as provide signage and enforcement.

An additional site for a public access to the Rappahannock River may be considered, if one is desired in Stafford County at the Rocky Pen Run water intake facility. This site is also consistent with the above referenced river access criteria. Like Hunting Run, the Rocky Pen Run area has infrastructure in place so that very little additional disturbance would be required to develop a boat launch.

There is the potential for additional public access points to the Rivers to be developed on lands outside the Watershed Property. For instance, the VDGIF is considering developing a low-impact boat launch between the southern portion of the C.F. Phelps Wildlife Management Area and the upper reaches of the Watershed Property. This site would be roughly six miles below the Kelly's Ford boat launch and would break up the long river trips from Kelly's Ford to Mott's Run.

While a new public access at Hunting Run would serve many needs, canoe outfitters may require access downstream of the Confluence, to be able to provide float trips at times of low water, when the Confluence is not easily travelled. As a consequence, the City should consider establishing a controlled access below the Confluence in the event that controlled access is lost at Blankenbaker's and/or Hole in the Wall.

Land Access

Though overland access (walk-in) to the Property can occur at any point along its boundary, the number of places that are publicly accessible is limited to Prettyman's Camp (off River Road in Spotsylvania County), Richards Ferry Road (Culpeper), Route 17/Deep Run (Stafford/Fauquier Counties), and Hunting Run/Spotswood Road (Spotsylvania County).

The end of Richards Ferry Road, in Culpeper County, is a very popular, but undeveloped and uncontrolled public access point to the Watershed Property near the Confluence. This site has been abused for many years by unauthorized vehicle intrusions. A new parking area, on City property just outside the watershed easement, would establish better control and enforcement of activities near the Confluence and would also allow public walk-in access to that area. Though outside the easement, this controlled access could significantly improve and protect this large and popular section of the Property, by placing the parking/access within the enforcement jurisdiction of the City's Watershed Property Manager as well as VDGIF Conservation Police Officer patrol and enforcement. If established, the new parking area would be approximately 1,000 feet from the Rappahannock River and nearly a mile from the popular camping area at the Confluence. A kiosk with a map could help to avoid abuse of adjoining private property and the

primitive road, to be used for law enforcement only, could be repaired to preclude further erosion and sedimentation of the Confluence area.

Signs

One of the goals of the Conservation Easement is to protect the viewscape to and from the Rappahannock and Rapidan Rivers. Indiscriminate use of signage has the potential to impact the natural viewscape along the river corridor. The river corridor currently exists in a state where few, if any, signs of human encroachment are visible on significant segments. This rare experience is worthy of special measures to ensure its protection. Therefore, the following guidelines relate to the use of signage on the Property:

- No signage should be visible from the vantage point of a canoe on the River.
- Signs shall be limited to safety information, regulations, and interpretive materials at publicly-maintained access points and selected camping areas.

Trash Receptacles

Trash receptacles are not appropriate anywhere along the City's riparian lands, due to the high likelihood of their loss during flood events. Recreational users are expected to follow the Leave No Trace ethic and pack out what they packed in. All trash should be disposed of properly, off the Property. Trash receptacles may be considered at managed, public access points, but only if adequate staffing is ensured for maintenance of the receptacles. At present, the City maintains trash receptables at two sites along River Road, in Spotsylvania County (Prettyman's Camp and Motts Run Landing), but reserves the right to remove them in the future. New boat ramps, such as Hunting Run, should not include provision of trash receptacles. Recreational users do not have a right to expect someone else to clean-up after them.

5.3.3. Camping Areas

The number of camping areas on the Property do not appear to adversely impact its recreational experiences or its scenic integrity. Of greater concern is the impact on water quality due to improper disposal of human waste. The City has no plans to develop formal campsites, but will work with canoe liveries to provide instruction in the property disposal of human waste and the loan of small shovels by the outfitters.

During plan development, the Friends of the Rappahannock indicated a need for safety zones around each mapped camping area. During public meetings, however, area hunters noted that buffer zones around all known camping areas would effectively deny a significant part of the Property to hunting. The plan development committee examined this issue at length and found no record of hunter/camper conflicts. Further, canoeing/camping occurs primarily during the spring and summer, while hunting occurs in the fall (when river water levels are down). This discussion continued through two public hearings and a compromise solution emerged to establish hunting safety zones around camping areas at the Confluence in Culpeper, Stafford, and Spotsylvania Counties, which are accessible by road and potentially in use during hunting

season. Map 11 shows the Confluence area and the three safety zones. Actual marked boundaries will be further refined to take advantage of the terrain, to ensure maximum safety.

5.4. Maintaining Watershed Property Integrity

5.4.1. Continued Prohibition of Motorized Vehicles

Consistent with the Fredericksburg City Code and the Conservation Easement, motorized vehicles will continue to be prohibited on the Property. The popularity of All Terrain Vehicles (ATVs) has grown steadily in recent years, while the locations where they can be legally operated has decreased. The result has been increasing ATV pressure on unmonitored lands, causing destruction of vegetation and soil erosion. Research by Ricker et al. (2008) in two sub-watersheds of the Rappahannock River indicates that ATV disturbances play a major role in sediment input because ATV trails become conduits of suspended sediments even during minor rainfalls. There is no justification to reconsider this prohibition.

5.4.2. Protection of Historic Resources

The Property contains a wide range of historic resources, including Native American sites, mill foundations, canals and canal locks, gold mines, Civil War earthworks, and more. Collection of artifacts will continue to be prohibited, unless authorized in specific instances by the City of Fredericksburg. Any proposals to clean, restore, and/or interpret sites will be considered by proper authority on a case by case basis, consistent with the City's policy of leaving resources undisturbed, allowing self discovery, and economy of intervention.

5.4.3. Boundary Intrusions

Removal of trees and other vegetation by adjoining landowners or anyone else is a significant illicit activity on the Property. In many locations, the City land extends only to the top of the ridge, where private homes abut the Property. In these instances, removal of trees on the Property can provide landowners with a view of the river. In other areas, adjoining landowners have cleared land at the riverfront and set up semi-permanent camps, with picnic tables, grills and makeshift structures.

Cutting, clearing, damaging, and destroying trees and other vegetation will continue to be prohibited, unless approved in specific instances by proper authority.

5.4.4. Recreational Use Impact

The City will continue to assess user activities for consistency with the conservation values of the Watershed Property and amend policies, as necessary, to ensure an appropriate balance is maintained between resource protection and allowed recreational uses. In addition, the Watershed Property Manager will establish a consistency between safety provisions at parks and recreational areas within the city limits (no glass bottles, etc.) and similar areas within the boundaries of the Watershed Property.

It is important to acknowledge that some recreational uses not allowed on the Property are still allowed within the waters of the Rivers. Trapping, for instance, has been a prohibited use on the City's Property yet remains legal in the public waterway. Similarly, gold prospecting of a specified intensity is allowed in the river bottom, up to the mean high water mark, even when that area of the river is dry.

5.4.5. Special Uses

For recreational uses or other activities currently prohibited in this plan, interest groups may submit a proposal to the City for their activity. The proposal will need to demonstrate how the activity will avoid or minimize impacts to the conservation values of the Property and to authorized public recreational uses. All licensing agreement proposals will need to be evaluated by the City and the Conservation Easement partners. Any changes to policy will need to be approved by City Council, following review and recommendation by the Planning Commission.

6. ADMINISTRATION

The Fredericksburg Watershed Property is administered by the City's Department of Public Works. The designated Watershed Property Manager is tasked with coordinating resource protection, public outreach, enforcement of regulations, and recreational management of the Property. Additional City departments support the administration, enforcement, maintenance and management of this Property, in particular the Police Department, Planning and Community Development, and Parks, Recreation and Public Facilities.

The Virginia Department of Game and Inland Fisheries, Virginia Outdoors Foundation, and The Nature Conservancy are easement holders and also provide management support. These organizations join the City staff to comprise the Watershed Property Easement Committee. This Committee can be used to review recreational uses within the context of natural resource proection, as specified in the Conservation Easement. Any changes to policy will need the approval of City Council, following review and recommendation from the Planning Commission.

For law enforcement issues, the Watershed Property Manager, the Fredericksburg Police, VDGIF Conservation Police Officers, and county law enforcement officers are authorized to enforce the law and regulations on the Property, consistent with their jurisdictional authority. State and local law enforcement agencies, for example, cannot enforce City ordinances on the Property, but are limited to enforcing respective state and/or local laws.

Under the Virginia Code, the City of Fredericksburg is not liable for injuries or damages incurred by an individual engaged in recreational activities on the Property. Landowners who provide recreational opportunities to the public are exempt from liability for injury or damages, provided the following conditions are met:

1. The landowner (including the City of Fredericksburg) has not charged a fee.
2. There has been no willful or malicious failure to guard or warn against a dangerous condition on the Property.

7. OBJECTIVES AND ACTION ITEMS

The following objectives are taken from the analysis provided in this plan. Action items are the means to reach these objectives.

Objective 1: Protect the River's water quality.

- Action: Establish physical barriers to vehicular access, where needed (p. 20).
- Action: Work with Easement partners to evaluate the environmental impacts of recreational activities on water quality (p. 20).
- Action: Identify potential land acquisitions to fill gaps along the forested riparian corridor (p. 20).
- Action: Undertake habitat restoration projects (e.g., riparian buffer reforestation, eroding streambanks restoration, and removal of invasive species (pp. 20, 37).
- Action: Work with the Virginia Deportment of Forestry to implement best management practices for prevention of wildfires (p. 36).

Objective 2: Balance resource protection with recreational uses.

- Action: Use the ad hoc Watershed Property Easement Committee to review recreational uses within the context of natural resource protection, as specified in the Easement (p. 47).
- Action: Continue working with VDGIF to manage hunting and trapping (pp. 37-38).
- Action: Reevaluate prohibition on trapping (p. 37).
- Action: Promote *Leave No Trace* ethics (p. 35).
- Action: Collaborate with VDGIF and researchers to evaluate ecological impacts of recreational activities on water quality and aquatic populations (p. 44).

Objective 3: Restore natural resource integrity, as appropriate.

- Action: Inventory natural resources as a basis for management decisions (p. 20).
- Action: Inventory invasive species and develop mitigation plans (p. 20).

Objective 4: Maintain and monitor access areas.

- Action: Monitor access areas to prevent adverse conditions from developing (p. 41).
- Action: Develop controlled access license agreements for river access points on the Property (p. 41).
- Action: Work with partner organizations and jurisdictions to provide consistent administration of any new access points (p. 41).
- Action: Establish a parking area on City property at the end of Richards Ferry Road to facilitate management of the Confluence area (p. 42).

Objective 5: Protect historic resources.

- Action: Maintain an inventory of historic resources, updated as needed, to ensure an accurate database for planning and policy development (p.23).
- Action: Monitor proposed and existing development on adjacent lands, to preclude adverse impacts to historic resources on the Property (p. 23).
- Action: Allow self discovery by avoiding the installation of interpretive signs at historic sites (p. 24).
- Action: Provide educational materials so the public can appreciate their protected heritage as well as understand their responsibility to leave historic resources undisturbed (p. 24).
- Action: Do not engage in the restoration of historic resources on the Property unless they would otherwise pose a hazard (heavily travelled; readily accessible). In such instances, work must be accomplished only as authorized by the City (p. 24).

Objective 6: Protect scenic areas and vistas.

- Action: Ensure viewsheds and historic vistas retain their integrity and scenic value by carefully evaluating any proposed intrusions for visual impact (p. 24).
- Action: Promote *Leave No Trace* ethics (p. 35).
- Action: Limit signs/kiosks to publicly maintained access points (p.43).
- Action: Limit installation of trash receptacles to locations that are administered seven days per week (p. 43).

Objective 7: Reduce adverse recreational impacts.

- Action: Evaluate camping areas for soil and riverbank erosion, vegetation destruction, and accumulation of trash and develop strategies to minimize such adverse impacts (p. 35).
- Action: Map all trails and evaluate their condition (p. 40).
- Action: Improve, relocate, or close trails that are causing erosion problems or that adversely impact historic resources (p. 40).
- Action: Develop new trails according to best management practices and with careful attention to cumulative impacts (p. 39).
- Action: Provide educational information in brochures, on kiosks at public access points, with outfitters, and at the Friends of the Rappahannock's River Orientation Center (p. 35).
- Action: Work with outfitters to create a program to lend small shovels to overnight canoeists, so they can dig proper holes for human waste disposal (p. 36).

Objective 8: Minimize user conflicts.

- Action: Collaborate with VDGIF and researchers to conduct recreational user surveys (p. 44).

- Action: Work with VDGIF to post a hunting safety zones around the campground areas at the Confluence, in Culpeper, Spotsylvania, and Stafford Counties, using the terrain to best advantage. (p. 44).

Objective 9: Maintain integrity of the Property boundary.

- Action: Mark and maintain Property boundaries and conduct periodic inspections to identify trespassing (p. 20).
- Action: Take action against boundary intrusions (p. 25).
- Action: Work with adjacent landowners and neighborhoods to assess whether existing infrastructure needs to be removed (and habitat restored) or whether the City should develop an agreement with the neighbor(s) to authorize continued access (p. 41).

Objective 10: Identify the resources and funding needed to implement these objectives and actions.

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MAPS

Maps are attached.

Map 2 – Ecological Integrity Acrosss the Rappahannock River Watershed

Map 3 – Ecological Integrity

Map 4 – Forest Conversion Vulnerability

Map 5 – Watershed Integrity

Map 6 – National Wetlands Inventory Data

Map 7 – Riparian Breeding Bird Survey Routes

Map 8 – Recreational Infrastructure: Campsites and Public Boat Launches

Map 9 – Recreational Infrastructure: Trails Currently Mapped

Map 10 – Proposed Recreational Intensity Corridors

Map 11 – Camping Areas at the Confluence with a Safety Zone

APPENDIX 1. DEED OF EASEMENT

Tax Map Identification Nos.:
Spotsylvania County: _____
Stafford County: _____
Fauquier County: _____
Culpeper County: _____
Orange County: _____

Exempted from recordation tax under Virginia Code §§ 58.1-811(A)(3), 58.1-811(D) and 10.1-1803 and from Circuit Court Clerk's fee under Virginia Code §17.1-266

DEED OF EASEMENT

THIS DEED OF EASEMENT, made and entered into this 5th day of June, 2006, by and between the **CITY OF FREDERICKSBURG, VIRGINIA**, a municipal corporation (hereinafter referred to as "the City" or "the Grantor"); the **VIRGINIA OUTDOORS FOUNDATION**, an agency of the COMMONWEALTH OF VIRGINIA (hereinafter referred to as "VIRGINIA OUTDOORS FOUNDATION"), whose address is 203 Governor Street, Suite 317, Richmond, Virginia 23219; the **VIRGINIA BOARD OF GAME AND INLAND FISHERIES**, an agency of the COMMONWEALTH OF VIRGINIA, whose address is 4010 West Broad Street, Richmond, Virginia 23230; and **THE NATURE CONSERVANCY**, a nonprofit corporation organized under the laws of the District of Columbia (hereinafter referred to as "The Nature Conservancy"), whose address is 490 Westfield Road, Charlottesville, Virginia 22903 (hereinafter referred to as collectively as "the Grantees.")

WITNESSETH:

WHEREAS, the Open Space Land Act of 1966 (Chapter 17, Title 10.1, Sections 10.1-1700, *et seq.*, of the Code of Virginia (1950), as amended) declares that the preservation of open-space land serves a public purpose by promoting the health and welfare of the citizens of the Commonwealth, and authorizes the designation of open-space land by public bodies, including municipalities, and the use of easements in gross to maintain the character of open-space land; and

WHEREAS, the Open Space Land Act of 1966 (Chapter 17, Title 10.1, Sections 10.1-1700, *et seq.*, of the Code of Virginia (1950), as amended) also authorizes any public body, including any county or municipality, to acquire by purchase, gift, devise, bequest, grant or otherwise title to or any interest or rights of not less than five years' duration in real property that will provide a means for the preservation or provision of open-space land; and

WHEREAS, Chapter 18, Title 10.1 of the Code of Virginia (§§10.1-1800, *et seq.*), as amended, declares it to be the public policy of the Commonwealth to "promote the preservation of open-space lands" and "to preserve the natural, scenic, historic, scientific, and open-space and recreational areas of the Commonwealth," and authorizes the Virginia Outdoors Foundation "to hold . . . any real property or any estate or interest therein as may be necessary and proper in carrying into effect the purposes of the Foundation"; and

WHEREAS, the Virginia Board of Game and Inland Fisheries is a public body and, the Virginia Department of Game and Inland Fisheries ("Department of Game and Inland Fisheries") is an agency of the Commonwealth of Virginia whose powers and duties include the conservation, protection, preservation and propagation of game birds, game animals, fish and other wildlife;

WHEREAS, the Virginia Department of Game and Inland Fisheries maintains an office in Fredericksburg, and it was the state agency responsible for administering the State Scenic River designation of the mainstem of the Rappahannock River from 1985 until 2003; and

WHEREAS, the Virginia Conservation Easement Act (Virginia Code §§10.1-1009, *et seq.*) authorizes certain charitable corporations, charitable associations, and charitable trusts declared exempt from taxation pursuant to 26 U.S.C. 501(c)(3) to hold a non-possessory interest in real property for purposes of retaining or protecting natural or open-space values of real property, assuring its availability for agriculture, forestal, recreational, or open-space use; protecting natural resources, maintaining or enhancing air or water quality, or preserving the historic, architectural, or archeological aspects of real property; and

WHEREAS, The Nature Conservancy meets the statutory requirements of Virginia Code §10.1-1009 for a holder of a perpetual easement under said Virginia Conservation Easement Act and has had a principal office in Virginia for more than five (5) years, as required by Virginia Code §10.1-1010(C); and

WHEREAS, The Nature Conservancy has extensive experience working in partnership with landowners to protect the natural resources on their property and currently holds conservation easements on 3,200,000 acres in the United States; and

WHEREAS, the United States Army Corps of Engineers, Norfolk District ("Corps") administers the Virginia Aquatic Resources Trust Fund ("Trust Fund"), which is one source of the consideration to the City for the conveyance of this easement, which consideration constitutes satisfaction of the requirement for compensatory mitigation pursuant to the Corps' authority and obligations under the law; and

WHEREAS, the Trust Fund is contributing $1,584,124 of the total cash compensation of $1.6 million, which consideration does not include the 42 acres permitted to be developed under the terms of this easement; and

WHEREAS, in 1969, the City acquired property, consisting of 4,800 acres, more or less, and situated primarily along the Rappahannock and Rapidan Rivers and their tributaries (hereinafter referred to as "the Rivers") in the City of Fredericksburg and in the Virginia Counties of Spotsylvania, Stafford, Fauquier, Culpeper, and Orange from the Virginia Electric & Power Company in order to protect the City's public water supply (the "River Lands"); and

WHEREAS, the City seeks to protect most of the River Lands through an open space and a conservation easement to be held by the Virginia Outdoors Foundation, the Board of Game and Inland Fisheries and The Nature Conservancy, the encumbered portion of the River Lands being hereinafter referred to as "the Property;" and

WHEREAS, the City has sought for the past 35 years to protect said Rivers and the River Lands from environmental degradation, physical encroachments, waste, and other threats; and

WHEREAS, the mainstem of the Rappahannock River from its headwaters near Chester Gap to the Ferry Farm-Mayfield Bridge has been designated as a component of the Virginia Scenic Rivers System under Virginia Code §10.1-415; and

WHEREAS, Virginia Code §10.1-415 states that the designation of the Rappahannock as a State Scenic River shall not preclude the Commonwealth, the City of Fredericksburg, or the Counties of Stafford, Spotsylvania, or Culpeper from constructing or reconstructing any road or bridge or from constructing any new raw water intake structures or devices, including pipes and reservoirs but not dams, or laying water or sewer lines below water level; and

WHEREAS, it is the intent of the parties that this easement shall not preclude the construction, maintenance, repair or reconstruction of roads or bridges, or the construction of new raw water intake structures or devices, including pipes but not reservoirs or dams, and laying utility lines below water level, in accordance with the terms and conditions hereof; and

WHEREAS, the protection of the Property will provide riparian buffer preservation along approximately 115,389 linear feet (21.9 miles) of the Rappahannock River, 61,354 linear feet (11.6 miles) of the Rapidan River, and 169,922 linear feet (32.2 miles) of tributaries to these rivers (total of 65.7 miles), which lands are of national ecological and historic significance; and

WHEREAS, the Property provides excellent habitat for the bald eagle (*Haliaeetus leucocephalus)*, as documented by the Virginia Division of Natural Heritage; and

WHEREAS, the permanent protection of the Property will also protect the habitat and spawning grounds for migratory fish species such as the American shad, which habitat was recently made accessible by the Corps of Engineers' upon removal of the Embrey Dam; and

WHEREAS, the Virginia Division of Natural Heritage has located element occurrences of the federally endangered dwarf wedgemussel (*Alasmidonta heterodon)* in reaches of the Rappahannock River that would be protected by this easement; and

WHEREAS, the City has taken various steps to manage and protect the River Lands through the adoption of ordinances and policies, including its Watershed Property Management Policy, to ensure that environmentally sensitive City-owned lands are protected for the use and enjoyment of future generations; and

WHEREAS, the comprehensive plans of the City and of the counties in which the River Lands lie, in effect as of the date of this easement, seek to protect the natural resources located within their jurisdictions and to preserve open space; and

WHEREAS, the Grantor and the Grantees wish to provide for the perpetual conservation of the Property, with due recognition that the City is a unit of local government, responsible to its citizens for services and infrastructure such as clean drinking water and roads, working under planning horizons of approximately twenty years; and

WHEREAS, the protection of water quality within the Chesapeake Bay watershed, and specifically along riparian corridors of significant waterways within the Bay watershed, such as the Rappahannock River and its tributaries, has been recognized by the Commonwealth of Virginia as requiring immediate governmental and private cooperative efforts to safeguard the water quality within these watersheds. This has included: (1) the General Assembly's enactment of the Chesapeake Bay Preservation Act, (2) the Chesapeake Bay Local Assistance Board's adoption of regulations concerning the use and development of certain lands within Tidewater Virginia called Chesapeake Bay Preservation Areas, which if improperly developed, may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries, (3) the Virginia Water Quality Improvement Fund, (4) the Commonwealth's participation in the Chesapeake Bay Agreement (§10.1-2124 of the Code of Virginia, 1950, as amended) and (5) the Commonwealth's participation in the Chesapeake 2000 Agreement; and

WHEREAS, the 2002-2003 Biennial Report of the Virginia Land Conservation Foundation, dated January 2004, states that meeting Virginia's land preservation goals under the Chesapeake 2000 Agreement "requires the conservation of 432,535 acres by 2010 or 61,791

acres per year," and protection of a substantial portion of the River Lands will make an immediate, substantial contribution toward Virginia's goal; and

WHEREAS, the City seeks to cooperate with the Grantees in order to promote the following goals: (1) to protect the natural environment and habitats of the Property, including the viewscape to and from the Rappahannock and Rapidan Rivers; (2) to protect the water quality of the Rivers and to provide adequate public water supplies; (3) to protect the historic and archeological resources located on the Property; (4) to prevent residential and commercial development of the Property; and (5) to allow reasonable use and enjoyment of the Property and the Rivers by the City and the general public in a manner consistent with the other easement goals; These goals are also referred to as "conservation values" throughout this document.

NOW, THEREFORE, in recognition of the foregoing and in consideration of the sum of One Million Six Hundred Thousand and 00/100 Dollars ($1,600,000.00) cash in hand paid by The Nature Conservancy to the City, the receipt and sufficiency of which are hereby acknowledged, and the additional consideration and support set forth below, it is hereby agreed as follows:

1. **Recitals Incorporated**. The parties acknowledge and agree that the foregoing recitals are hereby incorporated into this Deed of Easement and made a part hereof to the same extent as if fully set forth herein.

2. **Permanent Easement Granted**.

A. The City does hereby grant and convey to the Virginia Outdoors Foundation, the Virginia Board of Game and Inland Fisheries, and The Nature Conservancy a perpetual non-exclusive open-space and conservation easement in gross over, and the right in perpetuity to restrict the use of, the Property, consisting of four thousand two hundred thirty-two (4,232)

acres, more or less, in 129 separate lots or parcels of record and more particularly described in "SCHEDULE "A" attached hereto, as adjusted through the boundary line survey to be performed under paragraph 5B(1) and through any boundary line adjustments to be performed under paragraph 4B (hereinafter referred to as "the Property"). The easement is being conveyed in gross and not by the acre.

B The easement herein conveyed shall be more fully described in a survey completed at the direction and sole cost and expense of The Nature Conservancy within twenty-four months of the execution of this Deed (hereinafter referred to as "the Plat"). The Property shall be considered as a single parcel for the purpose of this easement, and, except as otherwise provided herein, the restrictions and covenants of this easement shall apply to the Property as a whole rather than as individual parcels.

3. <u>Restrictions on Use and Development of the Property</u>. The parties acknowledge and agree that the following restrictions are hereby imposed on the use and development of the Property pursuant to the public policies set forth above. The acts which the City covenants to do and not to do upon the Property, and the restrictions which the Grantees are hereby entitled to enforce, are and shall be as follows:

A. <u>New Buildings, Structures, Facilities, and Equipment Permitted</u>. No new buildings, structures, equipment, improvements (including roads and utilities) or other permanent facilities shall be built, constructed, or installed on the Property other than those permitted in this paragraph 3, including without limitation the following:

(1) the development of up to five new public river access points, including non-motorized boat landings, gravel roads, primitive campsites, trails, historic interpretation facilities, public parking areas, and related facilities;

(2) the relocation or improvement of the existing access points or primitive campgrounds at Ely's Ford, Mott's Run Reservoir, Blankenbaker and Hole in the Wall, the Confluence, Prettyman's Camp, Snake Castle, and Deep Run ;

(3) those erected and used by the City or other governmental entities (with the permission of the City) for the benefit of the public health, safety, or welfare, including for non-motorized recreational, environmental, interpretive, or historic purposes; and

(4) those whose development and use are consistent with the stated goals of this easement.

The City shall have the option, but not the obligation, to develop, relocate or improve any of the facilities discussed herein.

B. Same; General Building Restrictions. Except as provided in Paragraph 3.D. below, all new buildings, structures, equipment, improvements and facilities permitted under Paragraph 3.A. above shall be subject to the following restrictions:

(1) Except as provided in paragraph 7.F. below, the development footprint of all such new development, in the aggregate, shall not disturb more than 42 acres of the Property, which is approximately one percent of the Property. The City shall have the right to allocate this acreage in its sole discretion. The development of this acreage or any portion thereof, pursuant to the terms of this easement, shall not be considered the conversion or diversion of land from open-space land use;

(2) The term "development footprint" shall mean the total area disturbed by any one or more of the following activities: the cutting of trees, the grading,

landscaping or other permanent altering of land, and the erection, construction, or installation of any building, structure, equipment, improvement, or facility. Acres disturbed for the construction of trails and primitive campsites, and new public drinking water facilities permitted in paragraph 3.D. shall not be counted in the development footprint total area. The City may choose in its sole discretion whether acres disturbed for roads involving a river crossing permitted under paragraph 3.J. or utilities involving a river crossing permitted under paragraph 3.M. shall be counted in the development footprint total area;

(3) No single developed recreational site shall have a development footprint of more than three (3) acres;

(4) Hiking trails shall be unpaved trails constructed of permeable materials, with a maximum treadway width of three feet and a maximum two- foot wide additional shoulder on either side of the treadway;

(5) No building, structure, equipment, improvement or facility shall be visible at any time of year from the Rivers (except for road crossings as permitted below and except for structures and facilities permitted in 3.C.(1) and 3.C.(2) below).

C. Riparian Buffer Restrictions. The parties acknowledge and agree that a 100-foot-wide buffer area shall be established ("the Riparian Buffer"). The Riparian Buffer shall consist of all land within one hundred (100) feet of the mean high water mark of the Rivers or any tributary stream. The purpose of the Riparian Buffer shall be to prohibit development along the Rivers and tributaries to the greatest extent practicable, to preserve the natural environment, and to protect the water quality of the Rivers. Except as otherwise provided under Paragraphs 3(D), (J) and (M) below, the following restrictions shall apply within the Riparian Buffer:

(1) No building, structure, equipment, improvement or facility, including any road, boat ramp, or parking area of any kind, shall be built within the Riparian Buffer except as expressly permitted herein. Erosion and sediment control shall be given primary consideration in the design, location, construction and maintenance of any permitted building, structure, equipment, improvement or facility.

(2) The following facilities and structures shall be permitted within the Riparian Buffer:

a. New or relocated non-motorized boat landings designed to minimize their impact on the Rivers. No such boat landing shall exceed a structure size of 500 square feet;

b. Pedestrian hiking trails;

c. Primitive hike-in or canoe-in campsites designed to minimize erosion and destruction of natural vegetation. No campsite shall involve significant surface alteration or other disturbance of land;

d. Wetlands and stream restoration activities and structures approved in writing by the City; restoration of wildlife habitat, including control or removal of invasive species;

e. Temporary structures, equipment, and facilities required for the maintenance, repair, widening and reconstruction of existing bridges, located adjacent to the right of way leading to the bridge; and

f. Signs not greater than 9 square feet in size to identify the location of non-motorized boat landings.

(3) No motorized vehicles shall be permitted within the Riparian Buffer except those related to safety, maintenance, emergency, law enforcement, or as otherwise expressly permitted by the City.

D. New Public Drinking Water Supply Facilities The construction, operation, and maintenance of new buildings, structures, equipment, or other permanent facilities owned and operated by the City or other governmental entity on the Property and related to the production, transmission, or treatment of public drinking water supplies including without limitation outlet works and raw water intake structures and devices, shall not be subject to the restrictions and limitations set forth in this Paragraph 3. But no dams, reservoirs, or impoundments or other facilities for the storage of water shall be permitted on the Property. To the extent operationally or economically feasible, new public drinking water supply facilities shall be located outside the Riparian Buffer.

E. Maintenance, Repair and Alteration of Existing Buildings, Structures, Equipment, and Facilities. Nothing contained in this easement shall prevent the Grantor from repairing, replacing, maintaining, altering, or improving any existing buildings, structures, equipment, improvements, or facilities located on the Property as of the date of this easement.

F. Farming. Farming shall not be permitted within one hundred (100) feet of the Rivers or any tributary stream, as depicted on the most recent U. S. Geological Survey topographical quadrangle map.

G. Trash and Dumping. The accumulation, burial, burning, or dumping of trash, garbage, refuse, or junk shall not be permitted on the Property This restriction shall not prevent

the City from providing for trash receptacles or other means of encouraging clean and safe use of the Property and the Rivers, nor prevent generally accepted agricultural or wildlife management practices, such as creation of brush piles, composting, or the storage of farm machinery, organic matter, agricultural products or agricultural byproducts on portions of the Property that are farmed as of the date of the execution of this deed of easement.

H. Grading, Blasting and Other Land-disturbing Activities. No grading, blasting, or other land-disturbing activities shall be permitted on the Property, except as needed to carry out permitted uses under the terms of this easement, to restore wetlands and stream banks, or to prevent erosion and sedimentation on the Property. Best Management Practices, in accordance with the Virginia Erosion and Sediment Control Law, shall be used to control erosion and protect water quality in the construction of permitted buildings, structures, equipment, and facilities. Mining and hydrocarbon extraction on the Property shall be prohibited.

I. Historic and Archeological Resources. No disturbance of historic or archeological resources shall be permitted except as authorized by the City in consultation with the Virginia Department of Historic Resources or other historic expert.

J. Paved Streets, Roads, Highways, Bridges, and Other Transportation Projects. No new paved streets, roads, highways, bridges, or other transportation projects shall be constructed on the Property except for:

(1) roads to access public water supply facilities permitted under subparagraph D of this paragraph 3 or as may be required for public safety to access those facilities permitted under subparagraph A(3) of this paragraph 3; and

(2) those transportation projects involving a river crossing, endorsed by a recorded vote of the governing bodies of the Grantor and each county within which the affected portion of

the Property lies. Such endorsement must be made by a resolution approved by a simple majority vote of each governing body. The Grantor and the Virginia Outdoors Foundation shall review the project's preliminary plans and shall be actively involved in the planning and design of any mitigation measures needed to minimize harm to the scenic, environmental, historic, habitat, and water quality values of the Property. The right to approve the location of and allow the construction of river crossings pursuant to the terms of this section shall be considered an expressly reserved right of Grantor and the land on which the facilities may be located shall not be deemed to be lands converted or diverted from open-space land use under § 10.1-1704 of the Code of Virginia. Roads within the Property associated with river crossings, including the bridge, must be oriented perpendicular to rivers and tributaries and must be elevated above the river valley. ("Perpendicular" shall include an angle within 30 degrees of perpendicular.)

K. Signage. The display of billboards, signs, or other advertisements which are visible from outside the Property shall not be permitted on or over the Property except to state the name and address of the City or other property owner, to give directions, to regulate activities on the Property, or to provide notice necessary for the protection of the Property. No such sign shall exceed nine (9) square feet in size, except for informational kiosks.

L. Communications Towers. No cellular telephone or other telecommunications towers shall be permitted on the Property.

M. Utility Easements.

(1) The City shall not grant any new easements for electric, gas, telephone, water, sewer, or any other public or private utilities across the Property, except for: (a) utilities serving facilities located on the Property, or (b) those utility projects involving a river crossing that have been approved by the Virginia State Corporation Commission and endorsed by a resolution

approved by a recorded simple majority vote of the governing bodies of the Grantor and any county within whose jurisdiction the affected portion of the Property lies. The Grantor and the Virginia Outdoors Foundation shall review the project's preliminary plans and shall be actively involved in the planning and design of any mitigation measures needed to minimize harm to the scenic, environmental, historic, habitat, and water quality values of the Property. The right to approve the location of and allow the construction of utility projects involving river crossings pursuant to the terms of this section shall be considered an expressly reserved right of Grantor and the land on which the facilities are located shall not be deemed to be converted or diverted from open-space land use under § 10.1-1704 of the Code of Virginia .

(2) The City may either grant new utility easements or modify or renew existing ones for the replacement, alteration, upgrading, or relocation of existing facilities, or for the co-location of new facilities within an existing easement, or new right of way approved under paragraph (3)(J). Any new or amended utility easement shall contain conditions designed to minimize the easement's impact upon the conservation values of the Property.

(3) Utility crossings shall be co-located with existing road or utility crossings, or directionally drilled or placed underground and under the Rivers.

N. Access Easements. No new access easements or rights-of-way shall be granted by the City across the Property if they diminish or impair the conservation values of the Property.

O. Removal of Trees. There shall be no removal, destruction, cutting or clearing of trees except: (1) to prevent the imminent loss of life or to remove a significant threat to life or property; (2) to create emergency firebreaks; (3) to control disease; (4) to remove or control non-native species; or (5) to conduct activities expressly permitted under Paragraph (3) of this

easement; provided, however, that no trees shall be cut to create additional farmland or pastureland.

4. **Transfer and Subdivision of the Property.**

A. The parties acknowledge and agree, as noted above, that for purposes of this easement the Property consists of a single parcel of approximately four thousand two hundred thirty-two (4232) acres. It is the desire of the parties that the Property be maintained under public ownership to the greatest extent practicable. Therefore, the parties agree that the City shall not subdivide and transfer more than five (5) new parcels to a non-public entity or individual.

B. Boundary line adjustments with adjoining parcels of land shall be permitted in addition to any other permitted subdivisions of the Property. The City shall notify the Grantees in writing prior to the completion of any such boundary line adjustment. A boundary line adjustment is permitted and shall be approved by the Virginia Outdoors Foundation, which approval shall not be unreasonably withheld or delayed, if the adjustment is necessary to resolve a boundary dispute between the City and an adjacent landowner, it includes only the land needed for the settlement of the boundary and the Virginia Outdoors Foundation is made a party to the deed of boundary line adjustment.

The City shall also have the right to make boundary line adjustments that meet one of the following requirements: (i) the boundary line adjustment is the result of a judicial order, decree or other judicial ruling; (ii) the aggregate net loss of acreage through boundary adjustment deeds does not exceed 25 acres; (iii) the City includes the lost acreage within the lands permitted for development under paragraph 3B(1); (iv) the City reimburses the Virginia Aquatic Trust Fund for the lost mitigation value; or (v) the City replaces the lost land with new land to be

placed under this easement (with the approval of the Grantees).

C. Prior to or at the closing of any fee simple sale, transfer, boundary line adjustment, or subdivision of the Property or any portion thereof, the City shall provide written notification thereof to the Grantees, along with a copy of the recorded deed and the survey, if any. Such deed shall contain a reference to this easement by deed book and page number or other appropriate instrument number.

5. **Inspection, Support, and Enforcement.**

A. Inspection. Representatives of the Grantees and associated natural resources professionals may enter the Property from time to time for purposes of inspection and enforcement of the terms of this easement after permission from or reasonable notice to the City Manager or his designee and any other affected owner of the Property.

B. Support.

(1) The Nature Conservancy shall complete at its sole cost and expense a boundary line survey of the Property within two years of the execution of this easement. The final product shall be an AutoCad drawing of the exterior boundary, derived from deeds of record, compiled and coordinated, and geo-referenced with field located and GIS digitized boundary control unless otherwise agreed in writing by the City and The Nature Conservancy. The survey will be endorsed by a licensed surveyor. The plats will be suitable for recordation in the land records of each jurisdiction. The digital orthophoto will be set in the background. The surveyor selected by The Nature Conservancy shall be subject to approval by the City, which approval shall not be unreasonably withheld or delayed. The Nature Conservancy shall deliver two copies of the Plat to the City within five days of its completion. The City shall have 60 days to review the Plat and submit any comments to The Nature Conservancy. If no comments are submitted within 60

days, then the Plat shall be deemed approved. If the City does submit comments and the parties cannot agree on the final form of the Plat within 60 days of receipt of the City's comments, then the parties shall use the mediation procedure set forth in Section 5.C. The Nature Conservancy shall provide each party 2 copies of the Plat once it is approved by the City

(2) The Virginia Outdoors Foundation, Virginia Department of Game and Inland Fisheries, and The Nature Conservancy agree to cooperate to create the Baseline Report documenting the conservation values of the Property, consulting with the City in its preparation. The Report shall be completed at the time of closing on this easement and may be supplemented by additional information. Within two years of closing, The Nature Conservancy shall provide supplemental information which shall include aerial photography of the Property documenting existing conditions. The Virginia Outdoors Foundation, Department of Game and Inland Fisheries, and The Nature Conservancy agree to provide each of the easement holders ten copies of the Baseline Report at no charge. .

(3) The Nature Conservancy agrees to prepare and submit a monitoring plan to City Council for review within two years of the execution of this easement. The plan will include measures to annually document the condition of the Property and the Conservation Values. The City may be actively involved in the development of the plan. The purpose of the plan shall be to document the condition of the Property and to identify potential adverse impacts to the conservation values. The plan shall set forth the means of implementing the monitoring of the Property and shall include the preparation of a report containing the findings. The plan shall include overflights as needed for monitoring purposes. The Nature Conservancy agrees to submit a copy of the completed report to the City annually

(4) The Virginia Outdoors Foundation, the Virginia Department of Game and Inland Fisheries, and The Nature Conservancy agree to provide reasonable assistance to the City with respect to the long-term stewardship of the Property. Such assistance shall include providing advice on matters within areas of their expertise, such as wildlife habitat, water quality, wetlands, or similar issues. The Virginia Outdoors Foundation agrees to request the Attorney General to consult with the City's legal counsel, in the event the City undertakes civil litigation in furtherance of the Conservation Values. The assistance may also consist of directing the City to additional resources, such as funding sources, training sources, conservation groups, and scientific resources and this assistance may include actively seeking additional funds for projects and support personnel from within their respective budgets. In addition, the Virginia Board of Game and Inland Fisheries through the Virginia Department of Game and Inland Fisheries shall provide law enforcement assistance.

(5) The parties agree that the relative responsibilities of the Virginia Outdoors Foundation, the Virginia Department of Game and Inland Fisheries, The Nature Conservancy will be more fully developed from time to time through the use of mutually satisfactory bi-lateral or multi-lateral agreements.

C. Enforcement.

(1) The Grantor and Grantees shall endeavor to resolve all disputes by negotiation. In the event the Grantor and Grantees do not resolve any dispute within 90 days following written notice of the dispute from one party to all the others, the parties shall engage in non-binding mediation in the City of Fredericksburg (or as the parties may otherwise agree) with a mediator jointly selected.

(2) Should the dispute remain unresolved more than 30 days after the conclusion of non-binding mediation, or for more than 150 days after the written notice of the dispute, then the City or the Virginia Outdoors Foundation may bring an action against any other party seeking compliance with the terms of this easement, including without limitation the restoration of the Property to its status prior to the violation. Nothing herein shall be construed as a waiver of the sovereign immunity of the Commonwealth of Virginia, to the extent that it applies. The easement holders agree that, notwithstanding any law to the contrary, only the Virginia Outdoors Foundation shall have the right to commence litigation to enforce the terms of this easement against the City (except in the limited circumstances provided below in paragraph 5C(3)).

(3) In case of a dispute involving a significant or substantial violation of the terms of this easement, where the dispute has not been resolved by negotiation and mediation, and where the Virginia Outdoors Foundation refuses or fails to bring an action against the City under paragraph 5C(2) above, then the Corps may bring an action against the City for an injunction seeking compliance with the terms of this easement, including the restoration of the Property to its status prior to the violation.

(4) Nothing herein shall be construed to entitle any Grantee or the U.S. Army Corps of Engineers to institute any enforcement proceedings against the Grantor for any changes to the Property due to causes beyond the Grantor's control, such as changes caused by fire, flood, storm, earthquake or the unauthorized wrongful acts of third persons, and the City shall have no obligation to restore the Property if it has been damaged due to fire, flood, storm, earthquake or the unauthorized acts of third persons.

D Enforcement Against Trespass or Encroachment.

The City and the Grantees and the U.S. Army Corps of Engineers shall have the right jointly and severally to bring any action at law or in equity to enforce against trespass or encroachment, specifically including the right to require restoration of the Property to a condition of compliance with the terms hereof upon prior written notice to the City. The enforcing party or parties shall have the right to seek reimbursement from such party or parties for any reasonable costs of enforcement, including costs of restoration, court costs and reasonable attorney's fees, in addition to any other payments ordered by such court. In the event that a court of competent jurisdiction finds that The Nature Conservancy is not a valid holder of this easement, such organization shall nevertheless enjoy rights as a third-party beneficiary to bring enforcement actions against third parties hereunder, provided that the City, its successors and assigns, have agreed in writing to the bringing of such action(s).

6. **Amendment.** This easement may be amended by the written consent of the City and Virginia Outdoors Foundation, provided however that no amendment may be made that adversely affects the Conservation Values or the rights of an easement holder or imposes any additional obligation on any other easement holder without the consent of such easement holder. Any such amendment shall be consistent with the purposes of the Virginia Conservation Easement Act, or the Open Space Land Act or any regulations promulgated pursuant to those laws. The City and Virginia Outdoors Foundation have no right or power to agree to any amendment that would affect the enforceability of this easement.

7. **Miscellaneous.**

A. Vested Rights. Nothing in this easement shall restrict or infringe upon any existing lease, license, easement, or other legal right or privilege in the Property granted by the

City, either express or implied, to any third party. In addition, this easement shall be subject to all covenants, easements, encumbrances or other restrictions of record.

B. Successors and Assigns. The covenants, terms, conditions and restrictions contained in this easement shall be binding upon, and inure to the benefit of, the parties hereto and their respective permitted successors and assigns and shall continue as a servitude running in perpetuity with the Property; provided, however, that The Nature Conservancy shall not have the right to transfer or assign its interest in this easement (including any assignments or other transfers of the rights herein pursuant to any mergers of The Nature Conservancy) to any entity other than the Commonwealth of Virginia. Assignment of this easement by Virginia Outdoors Foundation, without the City's consent, shall be limited to the assignment to the Commonwealth of Virginia pursuant to §10.1-1801(1) of the Code of Virginia (1950), as amended. The Board of Game and Inland Fisheries shall not assign this easement without the City's consent.

C. Severability. If any provision of this easement or the application thereof to any person, party or circumstance is found to be invalid, the remaining provisions of this easement and the remaining parties shall not be affected thereby. If any party is found to be an invalid holder pursuant to applicable law, then the easement shall be deemed terminated only with respect to such a party, but that party shall be considered a third party beneficiary of the easement to the extent allowed by applicable law.

D. No Right of Public Access. Although this easement in gross will benefit the public as described above, nothing herein shall be construed to convey to the public a right of access to or, use of, the Property. The City hereby retains the exclusive right to control such access and use of the Property, subject to the terms hereof.

E. Additional Protective Measures. Nothing in this easement shall prohibit the City from granting additional preservation easements, not in conflict with the terms of this easement.

F. Reimbursement. In the event roads or utilities involving a river crossing as allowed under this easement are constructed in an area not designated by the City as within the development area permitted under paragraph 3B(1), the entity seeking such river crossing shall reimburse the Virginia Aquatic Resources Trust Fund for the mitigation value attributable to the development footprint of that construction.

G. Entire Agreement. This deed of easement sets forth the entire agreement of the parties with respect to the easement and supersedes all prior discussions, negotiations, understandings, or agreements relating to the easement. This easement does not replace, abrogate, or otherwise supersede any federal, state, or local laws applicable to the Property.

H. Notices. Any notices required by this Conservation Easement shall be in writing and shall be personally delivered or sent by first class mail, to Grantor and Grantees, respectively, at the following addresses, unless a party has been notified by the other of a change of address.

To Grantor:	To the Grantees:
City Manager 715 Princess Anne Street Fredericksburg, VA 22404	Legal Department The Nature Conservancy 490 Westfield Road Charlottesville, VA 22901 Fax: 434-817-9381
With a copy to:	With a copy to:
City Attorney 710 Princess Anne Street, Suite 2 Fredericksburg, VA 22404	The Nature Conservancy Virginia Field Office 490 Westfield Road Charlottesville, VA 22901 Fax: 434-979-0370
	Virginia Outdoors Foundation Executive Director

	101 N. 14th Street, 17th Floor Richmond, VA 23219
	Virginia Department of Game and Inland Fisheries 4010 West Broad Street Richmond, VA 23230
	Attorney General of Virginia 900 East Main Street Richmond, VA 23219

I. Authority. The easement herein conveyed is granted pursuant to Ordinance No. 06-08, duly adopted by the City Council of the City of Fredericksburg, Virginia, by a recorded vote of at least three-fourths of its members on April 11, 2006, and April 25, 2006 and which directed the City Manager to affix his signature hereto.

Acceptance of this conveyance by Virginia Outdoors Foundation is authorized by Virginia Code §10.1-1801, and by a recorded vote of its Board on June 21, 2006, as evidenced by the signature of its Executive Director hereto.

Acceptance of this conveyance by The Nature Conservancy is authorized by Virginia Code Title 10.1 Chapter 10.1, as evidenced by the signature of Michael L. Lipford, its Vice-President and Executive, hereto.

Acceptance of this conveyance by the Virginia Board of Game and Inland Fisheries is authorized by Virginia Code Title 29.1, Chapter 1, "Administration of Game and Inland Fisheries," and by a recorded vote of its Board on June 20, 2006.

[Intentionally left blank]

WITNESS the following signatures and seals.

CITY OF FREDERICKSBURG, VIRGINIA,
A municipal corporation

BY: _____ (SEAL)
Phillip. L. Rodenberg, City Manager

ATTEST:
_____
Deputy City Clerk

Approved as to form:

_____
Kathleen Dooley, City Attorney

VIRGINIA OUTDOORS FOUNDATION,
An agency of the Commonwealth of Virginia

BY: _____ (SEAL)
G. Robert Lee, Executive Director

Approved as to form:

_____
Frederick S. Fisher,
Special Assistant Attorney General

THE NATURE CONSERVANCY,
A District of Columbia nonprofit corporation

BY _____(SEAL)
Michael L. Lipford, Vice-President
and Executive Director

VIRGINIA BOARD OF GAME AND INLAND FISHERIES
An agency of the Commonwealth of Virginia

_____(SEAL)
Colonel Gerald Massengill, Interim Director

Approved as to form:

_____
Roger Chaffe,
Senior Assistant Attorney General

COMMONWEALTH OF VIRGINIA
CITY/~~COUNTY~~ OF Fredericksburg, to wit:

I, Tonya B. Lacey, a Notary Public for the Commonwealth aforesaid, hereby certify that Phillip L. Rodenberg, City Manager of the City of Fredericksburg, Virginia, Grantor, personally appeared before me this day and acknowledged the foregoing instrument.

WITNESS my hand and official seal this 5 day of July, 2006.

_____
Notary Public

My commission expires: January 31, 2008

COMMONWEALTH OF VIRGINIA
CITY/~~COUNTY~~ OF Charlottesville, to wit:

I, Anna G. Chisholm, a Notary Public for the Commonwealth aforesaid, hereby certify that G. Robert Lee, Executive Director, Virginia Outdoors Foundation, Grantee, personally appeared before me this day and acknowledged the foregoing instrument.

WITNESS my hand and official seal this 21st day of June, 2006.

Notary Public

My commission expires: 31 OCT 2007

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF Henrico, to wit:

I, David M. Foster Sr., a Notary Public for the Commonwealth aforesaid, hereby certify that Michael L. Lipford, Vice-President and Executive Director of The Nature Conservancy, a District of Columbia non-profit corporation, Grantee, personally appeared before me this day and acknowledged the foregoing instrument.

WITNESS my hand and official seal this 22nd day of June, 2006.

Notary Public

My commission expires: 12-31-2008

DAVID M. FOSTER, SR.
Notary Public
Commonwealth of Virginia
My Commission Expires Dec 31, 2008

COMMONWEALTH OF VIRGINIA
~~CITY~~/COUNTY OF Richmond, to wit:

I, Eleanor D. Hawkins a Notary Public for the Commonwealth aforesaid, hereby certify that Colonel Gerald Massengill, Interim Director for the Virginia Board of Game and Inland Fisheries, Grantee, personally appeared before me this day and acknowledged the foregoing instrument.

WITNESS my hand and official seal this 20 day of June, 2006.

Notary Public

My commission expires: July 31, 2010

I - Cons easement
Deed for execution.doc

CITY OF FREDERICKSBURG, VIRGINIA
A municipal corporation

BY: _____(SEAL)
Mayor Thomas J. Tomzak, M. D.

BY: _____(SEAL)
William C. Withers, Councilor

BY: _____(SEAL)
Matthew J. Kelly, Councilor

BY: _____(SEAL)
Thomas P. Fortune, Councilor

BY: _____(SEAL)
Deborah L. Girvan, Councilor

BY: _____(SEAL)
Kerry Devine, Councilor

APPENDIX 2. SUMMARY OF PUBLIC COMMENTS

During development of the watershed property management plan, the appointed committee solicited public comments at two public meetings, through one-on-one meeting with various recreational users, and during advertised public comment periods. Comments were received in person, by mail, and through the internet.

The following comments were received:

Public Meeting – March 4, 2009 held at University of Mary Washington (approximately 50 people in attendance)

General Comments

- Need to preserve land and remote experience
- Need to focus on resource protection first – then recreational uses
- Need to avoid overuse
- Do not make recreational use difficult
- All agreed that riparian lands and rivers are precious resources that protect water quality while providing scenic experiences

Access

- Need more access
- Do not need additional access

Hunting

- Is hunting in conflict with other users – or is conflict simply perceived (hunting season is late in year – when most other users are off the river)
- Plan needs a conflict resolution plan
- Are safety zones needed?

Camping

- Avoid designating campsites--official campsites have Health Department requirement
- Need to promote Leave No Trace ethic

Waste Management

- Need to educate users about property disposal of human waste

Trails

- Mountain bike community seeks trails – will help to build and maintain to erosition resistant standard
- Equestrians seek to be included if multi-use trails are to be built

Administration

- Ban alcohol and glass bottles
- Remove trash cans from access points (users can pack out what they packed in)

Public comment period – March 4-April 15, 2010 – comments received in person, by mail, and through internet

The equestrian community provided a significant amount of information on equestrian trails, including their own Leave No Trace ethic. They also sent numerous e-mails supporting inclusion of horses in any trail system. Organized groups included the Battlefield Back Country Horsemen, Trail Riders of Today, and Back Country Horsemen of America.

The mountain biking community also provided information on their sport including nationally developed standards for developing trails to avoid erosion and other damage to the landscape.

Public Meeting –February 17, 2010 held at University of Mary Washington (approximately 70 people in attendance); public comment period through April 15, 2010

General comments

- Many citizens still unclear that City lands are <u>not</u> public lands – there exists no <u>right</u> of access. City exercises same rights as a private owner.
- Perception that there was conflict of interest with Friends of Rappahannock preparing plan and also advocating for their own interests.

Access

- VDGIF stressed need for additional public access. Committee response: two VDGIF proposals included in final draft – canoe slip near Phelps Wildlife Area and consideration of parking area near Confluence.
- Canoe livery access allowed by City supports commercial uses on Property – need public access as well, to be fair to all. Committee response: supported VDGIF/Spotsylvania County public boat ramp proposal for Hunting Run.

Hunting

- Proposed safety zones create real hardship for hunters. Committee response: limited safety zones to Confluence.
- Proposed prohibition of dogs not workable on narrow corridor. Committee response: recognized dogs integral to small game hunting – deleted prohibition.

Trapping

- Prohibition on trapping (since 1991) is unfair. Committee response: met with trapping community – will recommend that trapping prohibition be re-evaluated within context of the easement.

Trails

- Equestrians continue to seek access to property. Committee response: met with equestrian groups – indicated City property cannot handle entire trails, but trail systems on adjoining lands that might need portions of Property will be considered case by case, within the context of the easement.

Recreational Gold Prospecting

- Prospectors said prohibition of their activity is contrary to law. Committee response: met with prospectors to clarify legal issues.

Administration

- The final draft plan includes a methodology for evaluating any proposed use within the context of resource protection, as required by the easement.

Letter from Delegate Albert C. Pollard (June 14, 2010) to Planning Commission

- Urged that more public access be provided.

Public Hearing – September 8, 2010 held by the Fredericksburg Planning Commission (approximately 35 people in attendance)

8:15	3:00
8:15	4:30

Access

- Speakers agreed with proposals for access at Hunting Run (Spotsylvania) and Rocky Pen Run (Stafford). One person suggested an access at Deep Run (Fauquier and Stafford).
- FOR strongly opposed parking area at end of Richard Perry Road.

Hunting

- Hunters opposed to safety zones around all compsites. FOR supported safety zones.
- Both hunters and FOR support safety zone at Confluence.

Trapping

- Seven speakers favored rescinding the 1991 prohibition of trapping on City owned property, citing its utility as a management tool, regulated by VDGIF.
- This activity imposes little conflict with others because it occurs November – February. It also has no impact on the physical aspects of the property.

Prospecting

- Would like to be able to access the public waterway where their activity is regulated by State and Federal agencies.

Administration

- The Planning Commission asked staff to be more specific about plan implementation.

Letter from Stafford riverfront property owners Ann Rabson and GeorgeNewman (Sept. 11, 2010)

- Donated open space easement on their property to VOF.
- Cautioned against allowing trapping and prospecting on City property.
- Thought parking area at Confluence to be a bad idea.

Letter from Friends of the Rappahannock (Sept. 13, 2010)

- Provided rationale for safety zones around all riverfront campsites – user conflicts.
- Explained FOR's opposition to parking area at end of Richards Ferry Road – any improvements will encourage land access to Confluence.

Public Hearing – November 23, 2010 held by City Council

General Comments

- Five speakers expressed support for plan. One speaker called it fair to all users.

Access

- One speaker indicated support for parking area on City-owned land at end of Richards Ferry Road.
- One speaker urged consideration of a discreet access (canoe slip) somewhere below Kelly's Ford.

Hunting

- Planning Commission Chair explained why Planning Commission did not recommend hunting safety zones – no demonstrated need.

- The City's Watershed Manager, when questioned, indicated that a safety zone at the Confluence was reasonable, for present conditions and in anticipation of increased future use.

Trapping

- Two speakers urged Council to rescind its 1991 prohibition on trapping on City lands.

APPENDIX 3. THE NATURE CONSERVANCY'S 2006 BASELINE CONDITIONS REPORT

In 2006, the Nature Conservancy developed a baseline report to document existing infrastructure, human impacts and ecological features. The full report includes maps, photos, and appendices in a document that includes 261 pages. This appendix includes only a 14-page summary. The full report, which will also include boundary mapping information, can be accessed by contacting the City of Fredericksburg Public Works Department.

CITY OF FREDERICKSBURG CONSERVATION EASEMENT
BASELINE DOCUMENTATION REPORT

Please complete to satisfy The Nature Conservancy's Standard Operating Procedure.

Date:	June 27, 2006
Grantor Name:	City of Fredericksburg, Virginia
Grantor Address:	City of Fredericksburg City Manager 715 Princess Anne Street Fredericksburg, VA 22404 City of Fredericksburg City Attorney 710 Princess Anne Street, Suite 2 Fredericksburg, VA 22404
Grantee Name:	The Nature Conservancy, Virginia Outdoors Foundation, Virginia Board of Game and Inland Fisheries
Address:	The Nature Conservancy Virginia Field Office 490 Westfield Road Charlottesville, VA 22901 Virginia Outdoors Foundation Executive Director 101 N. 14th Street, 17th Floor Richmond, VA 23219 Virginia Board of Game and Inland Fisheries c/oVirginia Department of Game and Inland Fisheries 4010 West Broad Street Richmond, VA 23230
County:	Spotsylvania, Stafford, Fauquier, Culpeper, Orange Counties
State:	Virginia
Acreage:	4,232 (more or less)

Grantor _____ VOF _____ TNC _____ VDGIF_____

Baseline Documentation Report Overview and Methodology:

During the week of June 5, 2006 staff from The Nature Conservancy, Virginia Outdoors Foundation, Virginia Department of Game and Inland Fisheries, and The City of Fredericksburg conducted a river-accessed assessment of the City of Fredericksburg easement lands using digital cameras and GPS technology. The river was separated into eight segments, seven accessed by canoe and one, the Deep Run tributary, was accessed on foot. Teams of six to eight people were assigned to each segment. Team leaders were designated and given the responsibility of overseeing data collection and report write-up for their respective segments. The segments and team leaders were as follows:

Segment 1 – Motts Landing to Interstate 95
(Team Leader: Diane Frisbee-TNC)
Segment 2 – Hole in the Wall to Motts Landing
(Team Leader: Jean Lorber-TNC)
Segment 3 – Hunting Run Intake to Hole in the Wall
(Team Leader: Melissa Collier-TNC)
Segment 4 – Eley's Ford to Hunting Run Intake
(Team Leader: Diane Frisbee-TNC)
Segment 5 – Germanna to Eley's Ford
(Team Leader: Catey Ritchie-TNC)
Segment 6 – Rappahannock River Campground to Hole in the Wall
(Team Leader: Catey Ritchie-TNC)
Segment 7 – Snake Castle to Rappahannock River Campground
(Team Leader: Melissa Collier-TNC)
Segment 8 – Deep Run Tributary (foot team)
(Team Leader: Jean Lorber-TNC)

Along each segment teams documented "Human Impact Features" including camps, clearings, signs, trash dumps, utility right-of-ways, agricultural areas, boat landings, recreation points, hunting blinds, historic features and other man-made features. Pedestrian and motor-vehicle trails were noted but not followed in their entirety. "Ecological Features" including buffer reference snapshots, invasive plants, geologic features and other natural features were also observed. GPS points and photographs were taken at the mouth of tributaries along the Rivers and Deep Run. These tributaries were not explored in their entirety.

Description of Location:

The Rappahannock River flows from its origin at Chester Gap in Fauquier County approximately 184 miles to the Chesapeake Bay. The first 62 miles, from the headwaters to Mayfield Bridge (Fredericksburg), are designated State Scenic River. The river has a watershed of approximately 27,896 mi^2, and average annual flow (1907 – 1988) near Fredericksburg was 1,639 $feet^3$/second. The Rappahannock River watershed is in between the Potomac-Shenandoah Watershed to the north and the York and James River Basins to the south. The watershed supports a variety of land uses; largely agricultural in the upper watershed, with manufacturing, light industrial, retail applications and an increasing amount of residential development throughout.

According to the Census Bureau, two of the counties in which this property is located (Stafford and Spotsylvania) are among the fastest growing in the nation. According to a 2003 Census report, they ranked 17th and 19th in the nation in their rate of growth. An analysis by The Nature Conservancy estimates that there are approximately 1,000,000 people who live within 30 miles of the property.

Human Impact Features:

Segment 1 (Motts Landing to I-95) - The majority of the man made features in segment 1 are located at the Bank's Ford/Prettyman's Camp Parking Area (photo points 1.4-1.19). The parking area consists of a parking area/pull-off along River Road, a dam ruin, split rail and barbed wire fencing, various small signs, two USGS flood gauges, and a pedestrian trail along the river. There are several footpaths leading from the parking area to the trail, and several river access points along the trail. River Road runs through the property at this location. This location also contains an old road bed that is currently inactive, two Confederate gunpits, and two deer stands near the property line that may be on private property.

Other man made features in segment 1 include a rope swing (photo point 1.1), foot trail (photo point 1.2), campsites (photo points 1.21 and 1.34), motorized vehicle trails (photo points 1.24 and 1.35), remnants of two canals with associated locks and dams (photo points 1.4, 1.20, 1.22, 1.27, and 1.36), and several Union gunpits (photo points 1.23, 1.25, 1.26). In addition, a cable support/pulley structure is located at photo point 1.20 and a cable crosses the river at this location. The cable is possibly used to collect water samples from the river.

Segment 2 (Hole in the Wall to Motts Landing) - Segment 2 of this property, beginning at the "Hole-in-the-Wall" river access site, and ending at Motts Landing, is approximately 5.6 miles long. Besides the beginning and end point of this segment, there are numerous trails and roads that are currently being used for river access and for camping (photostations 2.1, 2.4, 2.10-2.13, 2.17-2.19, 2.21, 2.23, 2.25, 2.30, 2.31 and 2.34). Presumably, these trails and roads were established by private landowners from the surrounding areas. The majority of these are narrow hiking trails that show signs of use by all-terrain vehicles. The most significant or improved road is the gravel road at photostation 2.17-2.19. There were several instances of past and current landowners cutting or mowing a path from their house to the river (photostations 2.5 and 2.31). There is one underground utility right-of-way that traverses City property on both sides of the river (photostations 2.34 and 2.35).

There are two sets of historic stone locks, both located on the northern bank of the river (photostations 2.10 and 2.30). An established foot and ATV trail runs through both locations.

Segment 3 (Hunting Run Intake to Hole in the Wall) - Segment 3, as described below, had a relatively intact forest buffer throughout its entire section. There were numerous campsites, both named and unnamed, all along the north and south sections of the Rapidan and Rappahannock Rivers. The three named campsites included the George H. Brumble campsite at point 3.18 (also known as "the Confluence"), the Blankenbaker campsite and put-in at point 3.55, and the Hole in the Wall campsite and take-out at point 3.67. All three campsites exhibited extensive use and had easy access from current roads. The Brumble campsite had a rougher, ATV-type road, which

could probably not be accessed in anything that was not equipped with 4 wheel drive. We did not explore this road out to its main road access point, but there was extensive rutting, as well as a culvert and small wetland area, as you walked away from the campsite. The Blankenbaker campsite has very open access as the road is maintained for the gasline easement. The Hole in the Wall campsite has a steep, rough, dirt/gravel road, and is also very accessible.

There were small, individual campsites throughout the segment. Some notable sites were at point 3.14, which showed signs of extensive use, including the placement of tarps tied to a tree. The campsites at 3.19 and 3.21 also showed signs of frequent use, grill covers, dish soap, signs that it had been raked recently, and stone slabs that have been manipulated to serve as chairs and small tables. There was only limited trail access to this site and appeared to be accessible only by boat. Many of the campsites contained litter and debris, mostly in the fire pits, as if an attempt was made to burn, and then bury trash (see points 3.19, 3.32 and 3.33). There was little or not trash or debris along the river. There was an old, wooden deck (point 3.39), washed up road construction barrel (point 3.46), an abandoned GMC Blazer/Jimmy (point 3.51), and then personal items belonging to visitors, a canoe at point 3.60, and canoes, raft and other items at point 3.62.

There were two utilities located on the property, the powerline at point 3.31 and the gasline at points 3.48 and 3.56, both of which provide road access. There is a gate at the property boundary on the road for the gasline at point 3.53.

The only structures (utilities excluded) that were located on the property pertain to the historical remnants of the old dams, locks, canals and mill races, and most especially the Old Rapidan Canal. The remains were mostly stone walls, cut rock piles, and iron pins embedded in rock in the river. We were unable to locate the remains, if any, of Scott's mill near the Hole in the Wall take-out. There was one deer stand located at point 3.49.

Segment 4 (Eley's Ford to Hunting Run Intake) - Segment 4 contains five campsites, two of which are low impact camps located on sandbars along the river (photo points 4.15 and 4.29). The other three campsites are cleared areas in the forest that are accessed by motorized vehicle trails. The largest of these campsites is approximately 20x50 yards in size, and is a well maintained area of mowed grass, with a fire ring, an old stove, and miscellaneous rusted metal debris (photo points 4.16-4.18). At photo points 4.24-4.25 is a smaller campsite that is somewhat overgrown and contains a burn/trash barrel, fire scar, and miscellaneous debris. The fifth campsite contains a fire ring and miscellaneous debris as well as a pedestrian trail from the camp to the river (photo point 4.36).

At two locations there are cleared areas which appear to have been cleared by adjacent landowners to open the viewshed to the river and/or for recreational purposes and river access (photo points 4.20 and 4.21). Pedestrian footpaths are located at both locations. At photo point 4.20 there is a dock/platform along the river near the cleared area.

Other man made features in this segment include a swimming hole ladder (photo point 4.6), boat landing/canoe pulloff (photo point 4.12), and stacked wooden debris of unknown origin (photo point 4.31). A Columbia Gas pipeline and cleared right-of-way crosses the river at photo point

4.3. Historic man made features include a dam ruin (photo point 4.27), mill race (photo point 4.28), mines (photo points 4.9 and 4.38), and mill ruins (photo point 4.32).

The Ely's Ford Boat Landing, which includes a concrete boat ramp and paved parking area, is located at the western boundary of this segment. This boat landing is not on the City of Fredericksburg property, though it is referred to in the conservation easement.

Segment 5 (Germanna to Eley's Ford) – Segment 5 contains a very limited number of human impact features relative to other segments. Three mowed clearings/recreation areas were noted which appear to be personal river access sites for homes and camps adjacent to the easement lands (Points 5.6, 5.8, 5.13, 5.17, 5.18, 5.19). A canoe, woodpile and picnic sites were seen at these points as well. Numerous trails maintained and used by motor-vehicles were observed in and out of the 100 foot buffer to the River. Many of these trails were associated with the above mentioned clearings and recreation areas. Future assessments of the easement property using foot teams and aerial imagery will better discern the extent of these trails.

A utility powerline was seen at point 5.2 and only one historic feature was documented (5.23).

Agricultural lands were documented on city easement land in two locations (5.10, 5.25). The field at point 5.10 was in use, but it appeared that the field at 5.25 had not been maintained in several years. There was no evidence of agricultural activity in the buffer. Two fields that appeared on the aerial map were not visited and could be better assessed by foot teams in the future.

Segment 6 (Rappahannock River Campground to Hole in the Wall) – Numerous high and low impact camps were found in segment 6. In general, the number of camps increased as our team approached the confluence. Minimum impact camps were found at 6.21, 6.23, 6.24, 6.34, and 6.39. Often these camps were only accessible by canoe. In addition, the camps at point 6.21 and 6.34 were on substrates that were conducive to "Leave No Trace" camping (gravel and sand). High use camps at points 6.13 (Deep Run Camp), 6.26, 6.27,6.32,6.36,6.41, 6.49, 6.52 appear to be kept clear and open by mowing or intense visitation by the public. Trash was found at several camp sites despite City-posted signs forbidding such activity. Firepits, grills, picnic tables and chairs, garbage cans, and boat landings were seen at many of the campsites. Deep Run camp had significant erosion issues at the river edge. Overall many of the high use camps were worn to bare soil well into the 100 foot river buffer.

Motor-vehicle trails were found at many of the campsites. Several of these trails were passable by full size cars and showed signs of significant rutting. Many of the trails appeared in the buffer.

Three waterfowl hunting blinds were discovered in segment 6 (6.31, 6.34). In addition, a rope swing (accessed by motor-vehicle and pedestrian trails)(6.46) was found, along with other high and low use recreation sites/clearings.

Historic features including canals, locks and dam ruins were plentiful and should be explored and documented more thoroughly during another on-the –ground assessment by foot.

One small agricultural area was found at point 6.10. The river buffer associated with this agricultural area should be walked to ensure the 100 foot river buffer is being maintained.

Several non-city postings and stakes were found at point 6.28, 6.29, and 6.42.

Segment 7 (Snake Castle to Rappahannock River Campground) - Segment 7 had a relatively intact forest buffer on the City owned parcels, however, there was evidence of disturbance and perhaps trespassing onto City land, which will be explained below. There were numerous campsites throughout this section, both named and unnamed. The one named campsite was Snake Castle Rock at point 7.25. This campsite exhibited extensive use, and appeared to be maintained and mowed and included one fire ring. There was easy access from a current road, and we did not explore this road out to its main access point. A black jeep was parked at this campsite, an indication of vehicular access.

There were small, individual campsites throughout the segment. Most campsites were accessible via ATV trails. Campsites 7.16, 7.26, 7.29 and 7.31, all had ATV access. The access roads at point 7.26 contained rutting and showed signs of abuse. There was also an ATV access point at 7.22. No campsite evidence was found, but deep rutting of the road at this site was present. At campsite 7.29 there was an ATV trail which traveled into the river and continued onto the island across the river, suggesting ATV use across the river itself. There was little or no trash or debris found on or along the river. Some trash was found at campsite 7.26 on Snake Castle Rock, but it was currently occupied by visitors. There was also a rope swing from which to jump into the river from the rock.

Structures discovered included the historical remnants of the old dams, locks, canals and mill races, mills (Ellis' and Skinker's at points 7.32 and 7.40), and the canal cut at Snake Castle Rock (described below). The remains were mostly stone walls and cut rock piles.

Other structures included three deer stands located at points 7.5, 7.10 and 7.16, and two bridges, one wooden that crossed a tributary at point 7.1, and an aluminum bridge at point 7.11.There was also a barbed wire fence located along the river edge at point 7.12.

At points 7.4 to 7.19 there was evidence of possible intrusion onto City property. Starting at point 7.4 there was a clear mowed/grazed road running along the edge of the river. We followed this road upstream and discovered two cows on the property per the parcel data we had in our gps unit. There were also wooden stakes labeled "property boundary" near the point where we discovered the cows (point 7.7). We followed this road inland and discovered a mowed field with the small grove of Ailanthus (see below). Near this field was evidence of what we assumed to be a graveyard based on the position of rocks at the bottom of the flagged stakes (point 7.10). We then continued on the mowed road downstream across the metal bridge. At point 7.13 there is a vehicular access road that ends at the river. We followed this road to the edge of the City boundary (point 7.14).

Continuing down the river, we came across another possible intrusion point at 7.17. This site was a clearing and possible campsite with a cinderblock barbeque pit, horseshoe pit, and access road.

At point 7.18 downstream, there was another clearing with tiki torches, fire pit, benches, and road access. We followed this access road to the property boundary.

Further downstream on the north side of the river at point 7.35 was another large clearing and campsite with a fire ring, plastic picnic table, chairs and an access road. At point 7.38 there is an A-Frame residence inland, and another cleared area with a table, swing, clothesline, and evidence of mowing. City of Fredericksburg property signs are found on two trees at this location.

Segment 8 (Deep Run) - Segment 8 of this property begins at the confluence of the Rappahannock River and Deep Run, follows Deep Run, and ends approximately 3.2 miles upstream. At the approximate center of this segment, the property is crossed by state route 17. Several culverts associated with the Rt.17 bridges were noted (photostations 8.16-8.18). One small powerline right of way cuts through the property (photostation 8.19). One abandoned car was found in a tributary (photostation 8.12). Small amounts of debris, usually a car tire (8.24), were found periodically along the length of Deep Run. A walking trail was found close to the Rt.17 bridge (photostation 8.15). Two ATV trails were found near the southern end of the segment (photostation 8.2 and near 8.1). Several deer stands and series of "POSTED" signs were found on the property (photostations 8.5, 8.6, 8.8, 8.11, 8.14, 8.21). A section of barbed wire fence was found on the west bank of the creek, seemingly on City property (8.23).

Ecological Features and Condition of the Land:

Segment 1 (Motts Landing to I-95) - The riparian buffer along segment 1 is primarily forested, with little clearing. The forest is composed primarily of sycamore, box elder, ash, and poplar, with lesser amounts of beech and oak species. The understory is composed primarily of paw paw, spicebush, and ironwood with various other shrub and vine species. Invasive species, primarily tree of heaven and Japanese stiltgrass, were observed along trails and other cleared areas, and in some locations along the river. Seven tributaries flow into the river along this segment, many of which are narrow, with low flow, steep banks, and vegetation covering the banks. England Run (photo point 1.37) and Golin Run (photo point 1.3) are larger tributaries with higher flow. A waterfall is located on England Run at photo point 1.39. The tributary flowing through the Bank's Ford/Prettyman's Camp Parking Area (photo point 1.11 and 1.12) is crossed by the pedestrian trail that goes along the river, and bank erosion is evident at the crossings. Several geese were noted throughout the segment on sandbars and other shallow areas.

Segment 2 (Hole in the Wall to Motts Landing) - The forested buffer of river segment 2 is in fairly good condition (photostations 2.3 and 2.32). The forest, consisting of ash, sycamore, poplar and oak tree species, is mostly mature sawtimber-sized, with few signs of recent disturbance. A typical understory consists of spicebush, paw-paw and various other shrubs and vines. Invasive plants were noted, mostly garlic mustard and Japanese stiltgrass, along the roads and trails (photostation 2.12, for example). The stream tributaries tended to be narrow (3-6'), and shallow (1-3' of water), many with steep banks of 3-6 feet (photostations 2.8, 2.9, 2.11b, 2.14-2.16, 2.20, 2.22, 2.24, 2.25, 2.32, 2.36-2.38).

Segment 3 (Hunting Run Intake to Hole in the Wall) - Segment 3 began on the Rapidan river at Hunting Run Put-In, continued past the confluence of the Rapidan and Rappahannock, and ended at Hole in the Wall Take-Out. This segment covered approximately five miles of river frontage, with the City owning all land on both sides of the rivers, except for a small break at Point 3.38, at the tributary.

The forested buffer was relatively intact along the riverfront and along most tributaries. The banks were accessible via boat and not very steep. The forested buffer consisted of sycamore (*Platanus occidentalis*), oak species (*Quercus spp.)*, tulip poplars (*Liriodendron tulipifera*), river birch (*Betula nigra*), beech (*Fagus grandifolia)*, paw paws (*Asimina triloba)*, mountain laurel (*Kalmia latifolia*), as well as poison ivy (*Toxicodendron radicans*), and greenbrier (*Smilax rotundifolia)* along edges and disturbed areas. Invasive species were also present throughout, and we noted tree of heaven (*Ailanthus altissima*), honeysuckle (*Lonicera japonica)*, multiflora rosa (*Rosa multiflora)*, garlic mustard (*Alliaria petiolata)* and Japanese stilt grass (*Microstegium vimineum)*. These were typically found by disturbed areas near historic structures, along ATV roads, river bank and campsite clearings. There was a noticeable rock outcropping with flowering mountain laurel at point 3.10, before the rapids.

Although our team did not explore each tributary in depth, there was one tributary at point 3.50 which exhibited huge head cuts and scars. This erosion may be a result of this stream's proximity to a subdivision located east of the City's property. The man-made feature which appeared to impact the property and buffer areas the most were the extensive ATV trails and roads throughout the property. As these will be explored later, they were also not explored in depth. The photos at points 3.18, 3.48, 3.51, 3.53 and 3.56, document accessible roads for both ATV's and possibly other 4 wheel drive vehicles. There are large ruts in some of these roads due to overuse and abuse. The stream at point 3.50 is unfortunately vulnerable due to its proximity to the subdivision as well as the easy access from the gasline road.

The second half along the Rappahannock of Segment 3, beginning after the gasline easement until the Hole in the Wall Take-out had an intact buffer with little to minimal disturbance. There were some obvious private take outs and launches where individuals stored their boats, and these were easily spotted from the river. There is a steep, rocky ridge approximately 50 or 60 feet from the river, rising 300 to 400 feet, which creates a natural buffer to adjacent properties. At point 3.62 there were 3 canoes, a raft and other items, but we did not discover an obvious trail to that location. The only way to that location was either via boat, or climbing down the rocky hillside.

During our run along Segment 3 we spotted fallfish (*Semotilus corporalis*), rock bass (*Ambloplites rupestris*), smallmouth bass (*Micropterus dolomieui*), a copperhead (*Agkistrodon contortix*), and northern water snake (*Nerodia sipedon*).

Segment 4 (Eley's Ford to Hunting Run Intake) – The riparian buffer along segment 4 is primarily forested, with little clearing. The forest is composed primarily of sycamore, box elder, ash, and poplar, with small amounts of beech and oak species. The understory is composed primarily of paw paw, spicebush, and ironwood with various other shrub and vine species. Invasive species, primarily tree of heaven, Japanese stiltgrass, and multiflora rose were observed along trails and other cleared areas, and in some locations along the river. Bamboo was observed

along the path and cleared area at photo point 4.21. Fifteen tributaries flow into the river along this segment, most of which are narrow, with steep and often eroded banks, and vegetation covering the banks. Flows at most tributaries were low, and several tributaries appeared to be dry. Middle Run (photo point 4.10), Fishing Run (photo point 4.35), and the tributary at photo point 4.23 are larger with channels approximately 5-10 feet in width and higher flows. A bald eagle was observed at several locations throughout the segment.

Segment 5 (Germanna to Eley's Ford) - The forested buffer of segment 5 consisted of many species common to riparian corridors. A few gravel and sand bars were noted along the way. Tree species included paw paw, sycamore, box elder, poplar, hackberry to name a few. One area of interest near the take out at Eley's Ford included high rock bluffs and intact hemlock forest that appeared to be free from wooly adelgid infestation. Invasive species in this segment included Johnson grass, garlic mustard, vinca, tree of heaven, microstegium, and Japanese honeysuckle. Canada geese and goslings were noted on the banks. Several bald eagles and two osprey were observed in this segment. Throughout most of the segment the river banks were high, making canoe landing difficult. Eight tributaries were found in segment 5. All were noted as "stable" at the point of entry into the Rapidan River.

Segment 6 (Rappahannock River Campground to Hole in the Wall) – Floodplain forest species were common to segment 6. Tree species included paw paw, sycamore, box elder, hackberry, poplar and river birch. Understory species included poison ivy, Virginia creeper, spicebush, ferns and maple-leaf viburnum. Invasive species included garlic mustard, hydrilla, vinca, tree of heaven, microstegium and Japanese honeysuckle.

More than a dozen tributaries were found in segment 6. The tributary at point 6.9 appeared to have high sediment loading at the mouth. This tributary was adjacent to an agricultural area. Several of the tributaries were not found on the USGS 7.5 minute quad but were observed on the ground.

Segment 7 (Snake Castle to Rappahannock River Campground) - Segment 7 began on the first upstream section of City owned property on the Rappahannock River. We put-in at Kelly's ford, and paddled to a triangular parcel on the south side of the river by a tributary (point 7.1). This segment covered approximately four miles of river frontage, with the City owning varying tracts, predominantly on one side of the river, and only a small portion in the middle of this segment was where both sides of the river were City owned.

The forested buffer was intact along the City-owed tracts, however, there were some areas where the edges along the river had been cleared or mowed with access roads leading to these sites. Often these clearings were associated with campsite and picnic sites, containing various items such as picnic tables, barbeque pits, tiki torches. The banks were steep, and we often had to climb the banks (6 to 8 feet) in order to access the City land. The forested buffer consisted of sycamore (*Platanus occidentalis*), oak species (*Quercus spp.)*, tulip poplars (*Liriodendron tulipifera*), river birch (*Betula nigra*), beech (*Fagus grandifolia)*, paw paws (*Asimina triloba)*, as well as poison ivy (*Toxicodendron radicans*), and greenbrier (*Smilax rotundifolia)* along edges and disturbed areas.

Invasive species were also present throughout, and we noted tree of heaven (*Ailanthus altissima*), honeysuckle (*Lonicera japonica)*, garlic mustard (*Alliaria petiolata)* and Japanese stilt grass (*Microstegium vimineum).* These were typically found by disturbed areas near historic structures, along ATV roads, walking trails, river bank and campsite clearings. There was one obvious grove of Ailanthus at point 7.8, in the middle of a mowed field.

This segment included the large rock outcropping known as Snake Castle Rock (point 7.26). In this rock there is a deep cut about six feet wide and 20 feet deep, which was created for Ellis' mill canal. We also discovered a large escarpment at point 7.6, estimated at 30 to 40 feet tall. This portion of segment 7 contains a steep, rocky incline, approximately 130 to 150 feet inland from the river.

We located 8 tributaries during our run of this segment. Due to the steepness of the riverbank, there were deep cuts in most tributaries we found. We were unsure whether this was due to erosion or a natural occurrence. Since the City land is interspersed with privately owned land which includes residences and farm fields, there is a higher risk of problems caused by proximity to farm and household run-off into the tributaries and river. We also discovered cows and evidence of grazing on one segment (described above).

During our run along Segment 7 we spotted a bald eagle (*Haliaeetus leucocephalus*) and great blue heron (*Ardea herodias*).

Segment 8 (Deep Run) - The forested buffer of river segment 2 is in fairly good condition (photostations 8.3, 8.6, 8.13). The forest, consisting of ash, sycamore, poplar and oak tree species, is mostly mature sawtimber-sized, with few signs of recent disturbance. A typical understory consists of spicebush, paw-paw and various other shrubs and vines. Invasive plants were noted, mostly garlic mustard and Japanese stiltgrass. The stream tributaries tended to be narrow (1-3'), and shallow (0-1' of water), many with steep banks of 3-6 feet (photostations 8.3, 8.4, 8.7, 8.9, 8.12, 8.19, 8.20, 8.25, 8.26). The property supposedly ends at photostation 8.28, which is the confluence of Deep Creek and other unnamed creek.

The Conservation Easement: Reference is made to that certain Conservation Easement, by and between The City of Fredericksburg, Virginia as the Grantor, and The Nature Conservancy, Virginia Outdoors Foundation, and The Virginia Board of Game and Inland Fisheries as Grantees, executed by the City of Fredericksburg on July 5, 2006 and to be recorded in the Clerk's Office of the Circuit Courts of Spotsylvania, Stafford, Fauquier, Culpeper, Orange Counties, Virginia (the "Conservation Easement").

This report contains 261 pages (including appendices) and includes: information on the location, tract description, physical environment, ecological features, man-made structures and other improvements and land uses affecting the property subject to the Conservation Easement. The Grantor and the Grantees further recognize that under the terms of the Conservation Easement, this report may be supplemented with additional information, including aerial photography, that will document existing conditions and that this document, as supplemented, will become final two years from the date of recordation of the Conservation Easement.

As noted above, in undertaking this report the teams documented "Human Impact Features." These features and their associated activities fall within one of three categories: i) prohibited by the Conservation Easement, ii) generally allowed by the Conservation Easement but subject to restrictions, and iii) generally allowed by the Conservation Easement but only if they are designated by the City of Fredericksburg for a permitted use. While this report documents the location of these Human Impact Features, it was beyond the scope of this initial investigation to attempt to categorize these "Human Impact Features." Rather, the parties anticipate that this work will be undertaken in the two years following recordation of the Conservation Easement, as provided in that agreement. The areas which clearly warrant additional examination are depicted in Appendix E for each river segment. The Conservation Easement also provides that a more detailed survey be completed. It is possible that some of the Human Impact Features documented in this report may not actually be on the property covered by the Conservation Easement, which will only become known once the boundary survey is completed.

The Grantor and the Grantees hereby certify that based on current information and to the best of their knowledge this natural resources inventory and description of property condition is an accurate representation of the protected property and the current land uses and physical features thereon at the time of transfer of the Conservation Easement.

The Grantor further certifies that to the best of the Grantor's knowledge: there are no structures or improvements on the property other than as described in this report; that the structures and improvements on the property (which appear to be abandoned) shall not be considered "existing structures and improvements" under Paragraph 3.E. of the Conservation Easement, and that the Grantor has not authorized any activities to be conducted on the property that are inconsistent with the terms and covenants contained in the Conservation Easement.

Grantor

_____[SEAL]
[NAME]

Date: _____

The Nature Conservancy – Grantee

By: _____

Title: _____

Date: _____

Virginia Outdoors Foundation – Grantee

By: _____

Title: _____

Date: _____

Virginia Board of Game and Inland Fisheries – Grantee

By: _____

Title: _____

Date: _____

City of Fredericksburg
STATE OF _____
CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me this ___ day of _____, 20__ by _____, who is _____ of the City of Fredericksburg.

My commission expires: _____.

_____
Notary Public

The Nature Conservancy
STATE OF _____
CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me this ___ day of _____, 20__ by _____], who is _____] of The Nature Conservancy, a District of Columbia non-profit corporation, on behalf the corporation.

My commission expires: _____.

_____
Notary Public

Virginia Outdoors Foundation
STATE OF _____
CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me this ___ day of _____, 20__ by _____], who is _____ of the Virginia Outdoors Foundation.

My commission expires: _____.

_____
Notary Public

Board of Game and Inland Fisheries
STATE OF _____
CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me this ___ day of _____, 20__ by _____, who is _____ of the Board of Game and Inland Fisheries.

My commission expires: _____.

_____
Notary Public

Note: Each page of this report and each page of any attachment should be initialed by all four parties.

Attachments:

_____ **Appendix A**: Road map and tax map indicating property location

_____ **Appendix B**: USGS topographic map and tax parcel overlay showing property line

_____ **Appendix C**. Human Impact features by segment (C-1 through C8) including maps, data sheet and site photos.

_____ **Appendix D.** Ecological features by segment (D-1 through D-8) including maps, data sheet and site photos.

_____ **Appendix E.** Human Impact features addressed by the Easement by segment (E-1 through E-8) including maps, data sheet and site photos.

This report was prepared by: Catey Ritchie, Jean Lorber, Diane Frisbee, and Melissa Collier

Segment Teams:

Segment 1 – Diane Barnes, Ruth Carmines, Steve Owens, Faren Wolter, John Nunnally
Segment 2 – Jean Lorber, Leslie Trew, Dave King, Ridge Schuyler, Jef DeBerry, Dave Dadurka, Emily Battle, Dana Romanoff
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Segment 7 – Melissa Collier, Doug Wetmore, Andrew Fotinos, Linda Crowe, Rachel Cain
Segment 8 (Deep Run) – Jean Lorber Leslie Trew, Ridge Schuyler, Dave King, Matt Kelly

APPENDIX 4. BREEDING BIRD SPECIES

The following breeding bird species were detected during riparian habitat surveys in 2008 along sections of the Rapidan and Rappahannock River adjacent to the Fredericksburg Watershed Property. The survey was coordinated by the Virginia Department of Game and Inland Fisheries and the Virginia Society of Ornithology.

Common Name	Rapidan 1	Rapidan 2	Rapidan 3	Rappahannock 3
Number of Points Surveyed	20	19	20	16
Total Species Detected	55	43	38	23
Canada Goose	31	20	0	2
Wood Duck	1	0	2	1
Mallard	3	2	5	11
Great Blue Heron	1	5	5	6
Great Egret	0	1	0	0
Black Vulture	1	0	0	0
Turkey Vulture	0	1	1	1
Osprey	0	1	1	1
Bald Eagle	0	0	2	0
Red-Shouldered Hawk	3	0	0	0
Killdeer	0	0	1	0
Morning Dove	0	4	0	0
Yellow-billed Cuckoo	6	0	0	0
Chimmney Swift	0	0	3	0
Ruby-throated Hummingbird	7	0	0	0
Belted Kingfisher	1	2	1	0
Red-bellied Woodpecker	4	0	1	1
Downy Woodpecker	5	4	2	5
Northern Flicker	1	0	0	0
Pileated Woodpecker	3	3	1	0
Eastern Wood-Pewee	2	1	5	0
Acadian Flycatcher	6	10	12	4
Easten Phoebe	0	2	0	0
Great Crested Flycatcher	1	1	1	0
Eastern Kingbird	1	0	4	4
Purple Martin	1	0	0	0
Tree Swallow	3	0	7	0
Northern Rough-winged Swallow	1	0	0	0
Barn Swallow	1	8	0	0
Blue Jay	1	3	3	1
American Crow	17	0	0	5
Fish Crow	1	0	0	0
Carolina Chickadee	15	13	3	3
Tufted Titmouse	9	26	3	3
White-breasted Nuthatch	1	2	0	0
Carolina Wren	13	13	6	13
Blue-gray Gnatcatcher	15	23	11	0

Common Name	Rapidan 1	Rapidan 2	Rapidan 3	Rappahannock 3
Number of Points Surveyed	20	19	20	16
Total Species Detected	55	43	38	23
Eastern Bluebird	0	1	0	0
Wood Thrush	1	6	4	7
American Robin	1	0	0	2
Brown Thrasher	1	0	0	0
Cedar Waxwing	6	0	0	0
White-eyed Vireo	4	4	3	0
Red-eyed Vireo	21	15	26	10
Northern Parula	26	18	22	13
Yellow Warbler	2	3	6	0
Yellow-throated Warbler	2	1	0	0
Pine Warbler	0	2	0	0
Prairie Warbler	1	0	0	0
Black-and-white Warbler	2	0	0	0
Prothonotary Warbler	0	1	0	0
Worm-eating Warbler	1	0	2	0
Ovenbird	1	3	5	0
Louisiana Waterthrush	5	7	9	1
Kentucky Warbler	0	2	0	0
Common Yellowthroat	2	0	2	0
Hooded Warbler	0	2	0	0
Yellow-breasted Chat	4	2	0	0
Summer Tanager	0	1	2	0
Scarlet Tanager	0	2	1	0
Northern Cardinal	14	24	14	6
Indigo Bunting	17	7	9	0
Eastern Towhee	1	1	0	0
Field Sparrow	1	0	0	0
Song Sparrow	1	0	1	0
Common Grackle	1	0	0	0
Brown-headed Cowbird	6	9	1	1
Orchard Oriole	2	2	0	0
American Goldfinch	9	10	11	1

APPENDIX 5. FISH SPECIES

The following fish species were collected at four sites (Ely's Ford, below Kelly's Ford, above I-95 and adjacent to Lauck's Island) during depletion electrofishing in July 2001 by Virginia Department of Game and Inland Fisheries (Odenkirk 2008). The percent of contribution to total weight is shown in parentheses (t=trace).

Sunfish Family Centrarchidae (48%)
Rock bass *Ambloplites rupestris* (9%)
Black crappie *Pomoxis nigromaculatus* (t)
Smallmouth bass *Micropterus dolomieu* (20%)
Largemouth bass *Micropterus salmoides* (t)
Green sunfish *Lepomis cyanellus* (t)
Redbreast sunfish *Lepomis auritus* (17%)
Bluegill *Lepomis macrochirus* (2%)
Pumpkinseed *Lepomis gibbosus* (t)
Redear sunfish *Lepomis microlophus* (t)

Lamprey family Petromyzontidae (t)
American brook lamprey *Lampetra appendix* (t)

Eel family Anguillidae (8%)
American eel *Anguilla rostrata* (8%)

Herring family Clupeidae (2%)
Gizzard shad *Dorosoma cepedianum* (2%)

Minnow family Cyprinidae (2%)
Common carp *Cyprinus carpio (*t)
Golden shiner *Notemigonus crysoleucas* (t)
Fallfish *Semotilus corporalis* (1%)
River chub *Nocomis micropogon* (1%)
Satinfin shiner *Cyprinella analostana* (t)
Common shiner *Notropis amoenus* (t)
Spottail shiner *Notropis hudsonius* (t)
Swallowtail shiner *Notropis procne* (t)

Sucker family Catostomidae (27%)
Northern hogsucker *Hypentelium nigricans* (12%)
Shorthead redhorse *Moxostoma macrolepidotum* (5%)
White sucker *Catostomus commersoni* (10%)

Catfish family *Ictaluridae* (10%)
Channel catfish *Ictalurus punctatus* (7%)
White catfish *Ameiurus catus* (t)
Yellow bullhead *Ameiurus natalis* (3%)

Brown bullhead *Ameiurus nebulosus* (t)
Margined madtom *Noturus insignis* (t)

Bass Family Moronidae (1%)
White perch *Morone americana* (t)
Striped bass *Morone saxatilis* (t)

APPENDIX 6. RAPPAHANNOCK LEAVE NO TRACE ETHICS

These standards were created cooperatively between Leave No Trace and Friends of the Rappahannock.

Rappahannock River Leave No Trace Ethics

Plan Ahead & Prepare

- Know Before You Go. Check the weather forecast and water levels before your trip. Stay updated on changing conditions at www.riverfriends.org. River levels greater than the following indicated levels are considered unsafe:
  - **Fredericksburg gage: 3.2 ft**
  - **Remington gage: 5 ft**
  - **Culpeper gage: 4 ft**
- Consider taking a weather radio and watch the weather during your trip. Upstream thunderstorms can cause the river to rise rapidly.
- Use a river map to plan the trip (www.riverfriends.org).
- If you are cold, wet, hungry, or dehydrated you will be preoccupied with your own discomfort and disregard impacts you might be making to the environment. An environmentally responsible outing starts with gathering all the information and equipment you need to keep yourself safe and comfortable.
- Avoid spreading invasive species by cleaning shoes and equipment, to remove hitchhiking weeds, seeds and other plant materials.

Travel & Camp on Durable Surfaces

- Camp on existing campsites. Consult the *Rappahannock Water Trail Map and Guide* for campsite locations.
- At campsites, focus activity where vegetation is absent.
- When hiking, walk single file down center of trail (even when muddy) to protect vegetation.
- Leave your campsite cleaner than when you arrived.

Dispose of Waste Properly

- Pack it in, pack it out!
- Use a portable camping toilet to pack out human waste, toilet paper, and tampons or dispose of human waste by depositing it in a hole 12 inches deep, and at least 100 feet from any waterway.
- For guidance on proper methods of disposing waste, visit Leave No Trace at www.LNT.org
- Don't throw trash in river, on land, or leave at campsite.

Leave What You Find

- Appreciate historical structures like locks, dams, and mill foundations, by leaving them undisturbed.
- Do not build structures or dig trenches in campsites.

Minimize Campfire Impacts

- Consider using a camp stove for cooking and use existing fire rings for campfires.
- Collect firewood from driftwood debris piles, rather than from the forest.
- Consider bringing your own firewood or charcoal.
- Burn all wood to ash. Extinguish fires completely with water.
- Pack out any campfire litter. Never burn trash.

Respect Wildlife

- Observe wildlife from a distance. Never follow or approach animals.
- Never feed wildlife. Store food and trash securely, preferably in a strapped cooler.
- Keep pets on a leash or leave them at home. Pack out their waste or bury in a hole 12 inches deep and at least 100 feet from any waterway.

Be Considerate of Other Visitors

- Respect other visitors and protect the quality of their experience.
- Do not discharge firearms except for lawful hunting.
- Leave larger campsites for larger groups.
- Let nature's sounds prevail.

Leave No Trace Fishing

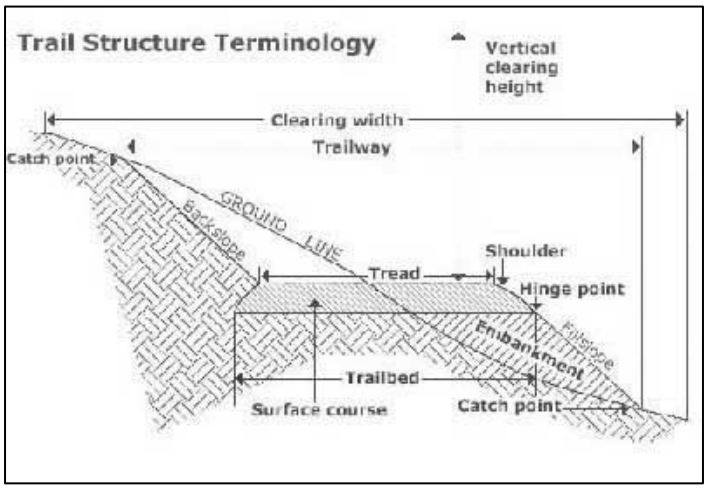
- Do not discard monofilament fishing line in the river or on the riverbank – it is a danger to humans and wildlife.
- Use commercially available alternatives to lead sinkers. Lead sinkers pose a serious threat to birds that ingest the lead when eating fish.
- Do not spread non-native plants and animals! Never release live bait such as minnows, leeches, or worms into the river. Pack them out and dispose of them in the trash.

APPENDIX 7. TRAIL DESIGN SPECIFICATIONS

The following recommended trail design specifications and techniques will minimize the potential for soil erosion on the Fredericksburg Watershed Property. They are adapted from *The Rappahannock River Recreational Access Guide: Planning Environmentally Low-Impact Recreational Access on Riparian Lands* (Friends of the Rappahannock 2007).

Trail Design

Hiking trails are highly desirable recreational features along waterways. Seemingly simple, trails actually require an appropriate trail design and proper construction. There are numerous excellent resources for trail standards, as shown in the Resource Box at the end of this section. In this guide, it is not possible to include all of the technical details associated with trail design, construction and management. Instead, basic trail guidelines from these publications are shown, with attention to those aspects critical to controlling surface water runoff.



USFS

Practice: To minimize impacts to sensitive areas and scenic vistas, take time to plan the route of the trail, the trail width, and desired trail features.

<u>Trail Corridor Widths</u>

The dimensions of the corridor are determined by the needs of the target user, trail difficulty level, or by guidelines designed by the landowner. *On Fredericksburg's Watershed Property (the river Conservation Easement lands), unpaved trails are allowed with a maximum treadway width of three feet and a maximum 2-foot wide additional shoulder on either side of the treadway (City Easement 2006).* For other areas, Table 2 includes recommended standards for trail construction.

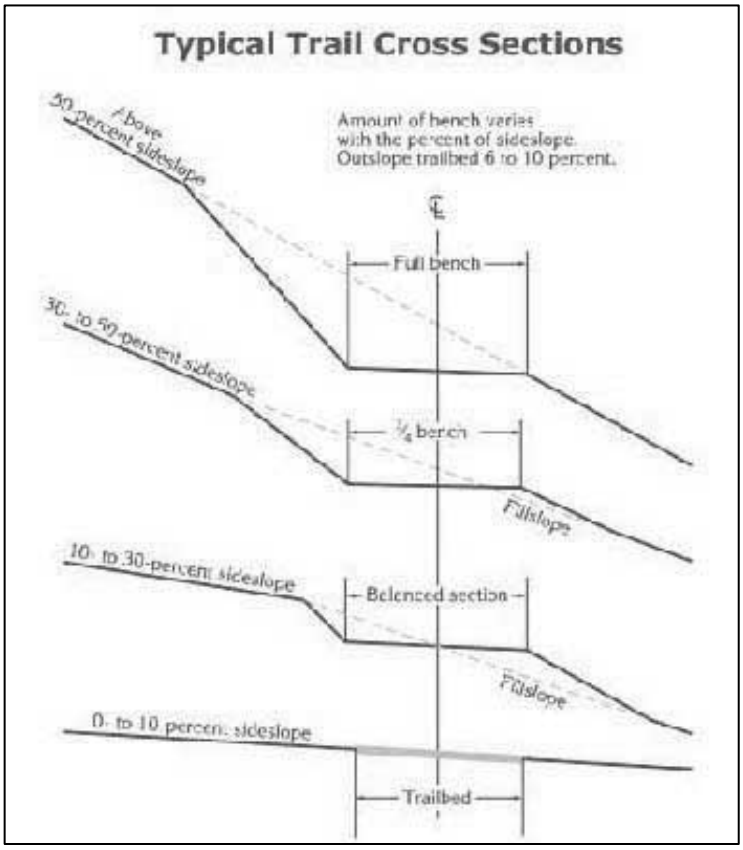
Table 2: Hiking trail corridor clearing guidelines (VDCR and Virginia Trails Association 2000).

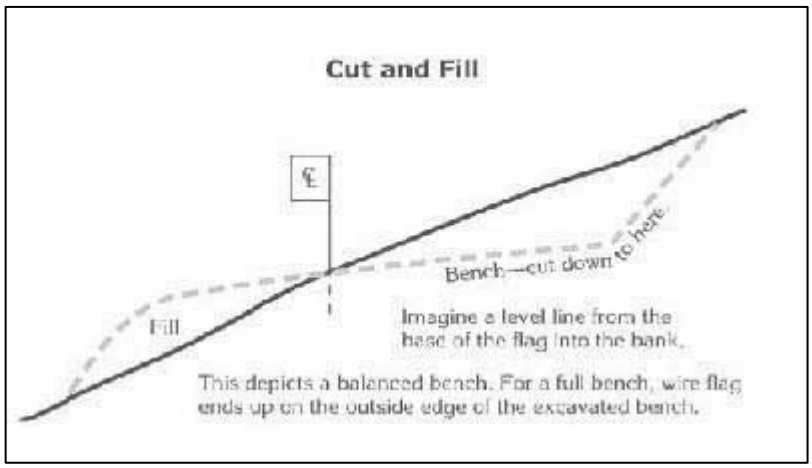
Component	Standard
Vertical Clearance	8 feet
Trail Width	2-5 feet
Horizontal Clearance (beyond trail width)	2 feet
Grade	Max 8-10%

Trailbed

The existing trail surface should not be unnecessarily disturbed, especially on flat areas (less than 10 percent slope). On level ground, the trail base should be formed by building up a slight crown of at least 3 inches to provide proper surface water drainage. On hillside trails, the trailbed is excavated into the side of the hill to provide a slightly outsloped travel path on mineral soil. Hillside excavation should not be necessary on slopes less than 10 percent slope.

On steep slopes, *full-bench* construction is usually needed where the trail crew cuts into the bank to the level of the trail center line. As the slope of the hillside decreases, *partial-bench* and *balanced-bench* methods can be used.

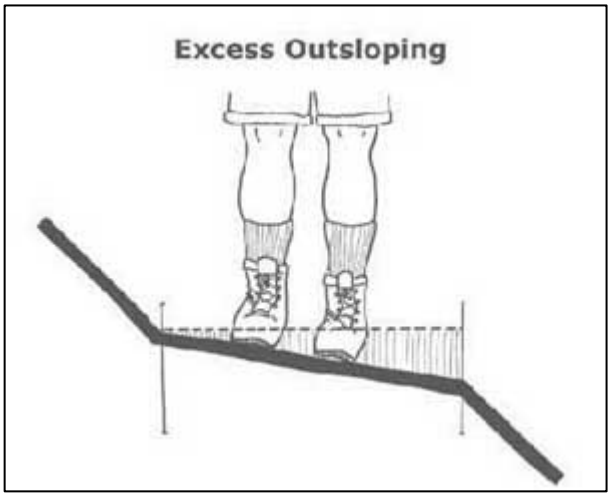




Cut and Fill method for sidehill trail building (USFS 2000).

These latter methods require the use of fill material on the outer edge (downslope) of the trailbed, termed the *cut and fill* method. Even though it requires more excavation, full-bench trailbeds are preferred by trail professionals because they are more durable and require less maintenance (fill materials on partial-bench trails may erode).

The *outslope* of the trailbed should be constructed with a barely discernable downward grade on the outside or downhill side to facilitate water drainage. Outsloping lets water run naturally off the trail, but the amount of outsloping is small, usually only a small percentage. An easy method to check the outslope is to walk the trail. If your ankles want to roll downhill, there is too much outslope. A partially-filled water bottle makes a great level.



If your ankles start to roll, there is too much outslope (USFS 2000).

Surface Water Control on Trails

Diverting surface water off the trail should be a top priority. Running water erodes tread and may contribute sediment into nearby streams. *You can learn a lot about where problems may occur by sloshing over a wet trail in a downpour and watching what the water is doing and how your drains and structures are holding up.*

The best drainage structures are those designed to be self-maintaining with minimal maintenance demands.

Outsloping, discussed above, is the first line of defense against erosion on a trail. Outsloping is most effective when used in combination with *grade dips*. Grade dips are permanent and usually maintenance-free. The basic idea is to use a reversal in grade (a relatively short rise on the trail then a return to the original trail descent slope) to force water off the trail. A *terrain grade dip* uses the existing terrain to plan for grade reversals and is a natural part of the landscape.

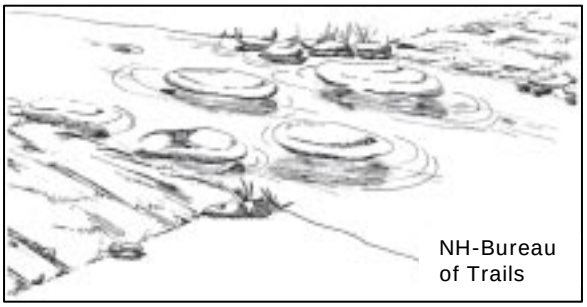
A similar concept to a terrain dip is the *rolling grade dip*, which consists of a short reversal of grade in the tread (figure to the left). The main difference from the terrain dip is that the rolling dip is constructed and not a natural part of the terrain. Water running down the trail cannot climb over the short rise and will run off the outsloped tread at the bottom of the dip.

The *waterbar* is the most common drainage structure after outsloping, but ***it is best to use waterbars only when grade dips cannot be used.*** Grade dips can be built quicker than a waterbar and will work better. Waterbars will be ineffective at water control if they are not

installed at the right angle or are too short. The waterbar needs to be anchored 12 inches into the cutslope and extend 12 inches into the fillslope. It also should be placed at a 45-60° angle along the trail, otherwise it will be too short and will clog with sediment, becoming ineffective.

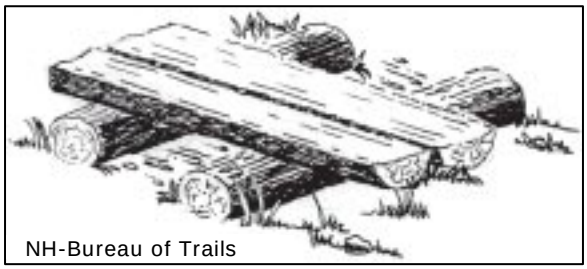
Trails in Wet Areas

The best choice for dealing with wet areas, such as wetlands, streams, seeps and springs, is to route the trail around these features. If rerouting is not feasible, following a few strategies for wet areas will minimize environmental impact.


NH-Bureau of Trails

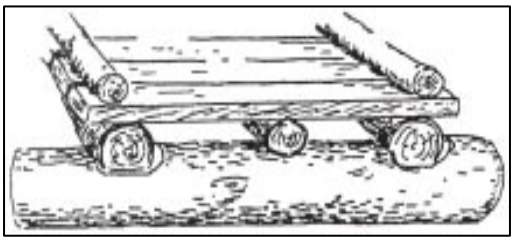
Stepping stones are large flat-topped rocks set into a stream, which allow for dry passage. *Stepping stones are the option of least environmental impact for stream crossings that accomplish the objective of providing dry passage.* The ideal location for these stones is in shallow streams with light to moderate flows. They are also a standard solution for low wet and boggy areas, and work well when well placed.

Puncheons are wooden walkways, typically constructed of wood, to cross bogs, mud flats, marshy areas, or fragile, wet terrain. Puncheons consists of a deck or flooring made of lumber or native logs placed on stringers to elevate the trail across wet areas. The simplest type of puncheon is a topped-log puncheon.


NH-Bureau of Trails

Wooden *boardwalks* elevated above the wet surface also are a useful solution for wet area crossings through areas of fragile habitat and in areas susceptible to flooding. Boardwalks are fixed planked structures built on pilings often located in marshy areas.

Bridges are designed to cross open water, wetlands or ravines where more simple structures cannot be used, especially for areas susceptible to flooding. On hiking trails, well-anchored foot logs can be used as a "rustic" bridge to cross streams. *The construction of bridges should only be considered after other options in trail location and "wet area structures" have been examined.* In addition to the often taxing-work of transporting bridge materials to the trail site, bridge construction usually requires significant erosion control measures due to the proximity of wetlands or water.


NH-Bureau of Trails 2004

See the *Trail Construction and Maintenance Notebook* (USFS 2000) for more information on more complex wet area crossing methods, such as using geosynthetic materials, culverts and French drains.

Trail Resource Box

Internet Resources

- The Virginia Greenways and Trails Toolbox - www.dcr.virginia.gov/prr/docs/toolbox.pdf
- Best Management Practices for Erosion during Trail Maintenance and Construction, New Hampshire Bureau of Trails - www.nhtrails.org/Trailspages/BMPmanual2004.pdf
- Trail Construction and Maintenance Notebook, U.S. Forest Service and U.S. Department of Transportation, Federal Highway Administration www.fhwa.dot.gov/environment/fspubs/00232839/index.htm

Publications

- Birchard, W., R. Proudman, and M. Dawson. 2000. Trail Design, Construction, and Maintenance. Appalachian Trail Conference.
- National Park Service. 1992. NPS Trails Management Notebook. U.S. Department of the Interior, NPS-Denver Service Center. NPS-2023