National Park Service
U.S. Department of the Interior

Rock Creek Park
Washington, DC



# *Cultural Landscape Report*
# The Historic Trails of Rock Creek Park

February 2013

Resource Stewardship and Science
Cultural Landscapes Program, National Capital Region



*Cultural Landscape Report*

# The Historic Trails of Rock Creek Park

## Rock Creek Park
Washington, D.C.

Historical Overview

Existing Conditions

Analysis and Evaluation

Treatment


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U.S. Department of the Interior
National Park Service, National Capital Region
Resource Stewardship and Science, Cultural Landscapes Program
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2013

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# Executive Summary

The origins of the Rock Creek Park trail system can be traced to the informal foot paths and trails created by American Indians hunting, fishing and quarrying stone in the Rock Creek Valley. The exact trails created are unknown, but over the years, a trail system emerged and was expanded as the area was slowly developed by European colonists. The establishment of mills along the creek and tributaries necessitated the construction of roads and trails to gain access to these commercial operations from the farms in the area. These roads became the foundation on which the circulation system of Rock Creek Park was built; many are still in operation today as park streets or have been converted to bridle or foot trails and serve today's valley visitors looking to escape the city.

The creation of Rock Creek Park in 1890 effectively preserved the natural landscape of the valley and provided an opportunity for the Board of Control to develop roads within the newly formed park. By 1907, with the increasing popularity of the automobile, conflicts between user groups prompted the board to create separate circulation systems for pleasure drives, bridle trails, and foot paths. This distinct system of roads, horse trails, and hiking trails was expanded over the years to meet the demand, reaching its peak prior to the release of the 1918 "Olmsted Report" on Rock Creek Park. At this same time the Board of Control was dissolved and the management of the park became the responsibility of the Army Corps of Engineer's Office of Public Buildings and Grounds (OPBG). Under the leadership of the OPBG, the agency improved the trail system and removed redundant trails, but also expanded the trail network into Maryland, following the extension of Rock Creek Park into Montgomery County. The public continued to raise concerns to park managers about trail conditions and access. In response, new pedestrian entrances were opened on the eastern side of the creek.

In 1933, management of the Washington, DC, portion of Rock Creek Park, along with other DC city park sites and reservations under the jurisdiction of the Office of Public Buildings and Public Parks (the successor to the Office of Public Buildings and Grounds), was transferred to the National Park Service (NPS). NPS chief landscape architect Thomas Vint directed landscape architect Malcolm Kirkpatrick and plant pathologist E.P. Meinecke to conduct an assessment of the park's condition and needs shortly after Rock Creek Park came under NPS management. Their 1934 report cited similar issues to those that were highlighted in the 1918 Olmsted report, but which had not been addressed in the intervening years. Indeed, little of the Olmsted plan had been implemented and the park seemingly had been allowed to develop without any planning. The 1934 study was recommended to be a supplement to the 1918 Olmsted report.

Under NPS management, a systematic refinement of the trail system created a naming convention for bridle and foot trails, trail route circuits or loops, and development of multi-use trails, due to the popularity of bicycles starting in the 1960s. Over the last 40 years, the development and maintenance of the trail system in Rock Creek Park has relied on a collaboration between NPS and advocates for various trail user groups, as well as partnerships with organizations who provide trail maintenance.

This Cultural Landscape Report for the Historic Trails of Rock Creek Park documents the history and significance of the park's trail system and its features and provides guidance for future management of the trails. Historical narratives and period maps were developed for nine historical periods and relied upon extensive research of primary and secondary documentation, field investigations, and the analysis of historical maps. An in-depth field survey conducted between fall 2010 and fall 2011, documented all visible above-ground features and existing conditions, and this data was converted into a trails database. After careful analysis of Rock Creek Park's trail system, a period of significance was defined to be from 1890-1972, which encompasses the park's establishment through the early years of the bicycle boom. The focus of this period of significance is on the trail system as a whole.

The treatment plan for the Historic Trails of Rock Creek Park outlines a long-term management plan and preservation strategy for the trail system. Overarching goals, principles and policies serve as guide for the future maintenance and rehabilitation efforts for the historic trail system. Paramount is the goal to "maintain the historic character of the trail system and its character defining features." In the 1934 report, Malcolm Kirkpatrick wrote about the trails stating, "Anything mentioned heretofore that would improve the landscape character of the park, will make possible keener enjoyment of these diversions. Riding and walking do not demand complicated treatment, but a sympathetic approach to construction and maintenance operations is vital."

Kirkpatrick's premise serves as a catalyst for this treatment plan. The plan defines a hierarchy for the historic trails (bridle, foot and multi-use) to offer guidance for existing maintenance and any future trail development. The guidelines are then organized in greater detail by the various characteristics of the trail system, such as route, views and vegetation, trail cross-section, tread, retaining walls, bridges, and signage to name a few. Combined, these guidelines will offer support for park staff and volunteers to maintain the trail system with a unified focus that allows for the preservation of significant historic trails and the future growth needs of the trail system.

# ACKNOWLEDGMENTS

The Cultural Landscape Report for the Historic Trails of Rock Creek Park is the result of the efforts, insight and encouragement of numerous individuals and the cooperation of many institutions. The project was initiated by the Rock Creek Park Resources Division and managed by the park Cultural Resources Manager Simone Monteleone. The project was prepared by the National Capital Region Cultural Landscapes Program under the supervision and guidance of the Associate Regional Directory of Resources Stewardship and Science, Perry Wheelock, and the Regional Historical Landscape Architect, Maureen Joseph. The staff of Rock Creek Park provided their knowledge and expertise of the trails system throughout the research and writing of this document. Invaluable to the project were Superintendent Tara Morrison, Assistant Superintendent Cindy Cox, Chief of Resource Management Nick Bartolomeo, Chief of Maintenance Donald Kirk, Natural Resources Specialist Ken Ferebee, Natural Resources Specialist Bill Yeaman, and Roads and Trails Manager Dawna St. Louis.

The use of GPS and ArcGIS technology was integral in developing an inventory database of trails to include their history and condition and in developing all of the period maps for the report. The use of this technology was aided by the tremendous support of the talented GIS & GPS professionals from the NPS Washington Support Office, Cultural Resources Geographic Information System (CRGIS) Facility and the National Capital Region GIS office. Deirdre McCarthy provided constant training and support with the use of ArcGIS and assisted with setting up the initial trails GIS geodatabase, James Stein provided GPS training and assisted with GPS issues throughout the inventory phase, and Cynthia Wanschura provided invaluable assistance with organizing the database, ArcGIS technical support and performed the final round of edits for the historical period maps.

Surveying the trail system required the help of many to GPS all the trail features, document trail conditions and photograph the trails and their features. This extensive inventory would not have been possible without the assistance from the following individuals including the Cultural Landscapes Program Staff: Maureen Joseph, Frances McMillen, Jon Pliska, and Saylor Moss; Rock Creek Park Staff: Simone Monteleone, Ken Ferebee, Bill Yeaman, Joe Kish, Troy Boston, Kevin Harris, and Alexa Viets; Rock Creek Park Volunteers: Travis Moore, and Ronda Bernstein; and Washington Support Office Archeologist David Gadsby.



# Introduction

**Section Title Page**
**Rock Creek Park, Peirce Mill,**
**Glass Negative, 1918-1920,**
**Library of Congress, LC-F8-1543**

# Introduction

A Cultural Landscape Report (CLR) serves the National Park Service as both the primary treatment document for cultural landscapes and as a tool to inform day-to-day management decisions and long-term preservation strategies. The Historic Trails of Rock Creek Park CLR has been prepared with reference to appropriate historical contexts to document and evaluate the historic development of the trail system based on criteria for eligibility to the National Register of Historic Places. This report includes the physical history of the trail system, identifies, analyzes and evaluates significant cultural landscape features and provides treatment recommendations that focus on the rehabilitation of the trail system and its features. The analysis includes a study of the trail system's geographical setting, physical development, materials, construction methods, and use for nine historical periods. Utilizing the analysis and the Secretary of Interior's Standards for the Treatment of Historic Properties, this CLR recommends a treatment plan to protect the identified significant cultural resources that is appropriate for the trail system's condition and use.

The purpose of this cultural landscape report is to document the history and significance of the trail system and its features and to provide guidance for the future treatment of the trails. The site history provides an overview of the development of the trail system and includes period photographs and associated plans depicting the trail system as it looked during the nine historical periods. Extensive primary and secondary research, field investigations, and the study of historical maps were used to prepare the history. In depth field investigations provided the basis for the existing conditions section, which outlines the current state of the trail system and its surrounding landscape. The analysis section investigates potential areas of significance for the trail system with respect to National Register of Historic Places criteria and determines integrity of those areas through the comparison of the existing and historic conditions. In addition, this section identifies character defining features that provide a framework for the trail system.

The Historic Trails of Rock Creek Park Treatment Plan provides a rehabilitation treatment plan for long-term trail management. The treatment plan defines a hierarchy for the historic trails to offer guidance for any future trail development. Included in this section are design guidelines for the individual trail features, such as drainage, bridges, and tread. Combined, these guidelines will offer support for park staff and volunteers to maintain the trail system with a unified focus that allows for the preservation of significant historic trails and the future growth needs of the trail system.

## STUDY BOUNDARIES

Rock Creek Park is in the northwest quadrant of Washington, D.C. and is bounded by the Maryland and District of Columbia line to the north and the National Zoo to the south. The study area is composed of the Rock Creek Park Historic District and the adjacent outparcels along Rock Creek's tributaries, including Soapstone Valley Park, Melvin Hazen Park, Pinehurst Valley, and Piney Branch Valley. All combined, the historic trails system studied is within 1,935 acres of parkland. The focus of this study is the official trail system of Rock Creek Park from 1890 to present day, and includes extant and abandoned trails. Many of the early trails originated as farm or mill roads predating the park. To further understand the trail system's origins, the circulation system of roads and trails prior to 1890 are also explored. The period maps identify roads and trails directly adjacent to the park. These help to provide context and show connectivity to the surrounding area, but are not included as part of the report's detailed study. In addition to the official trail system, the park has numerous unofficial social trails. These are briefly discussed, but not a focus of this report.

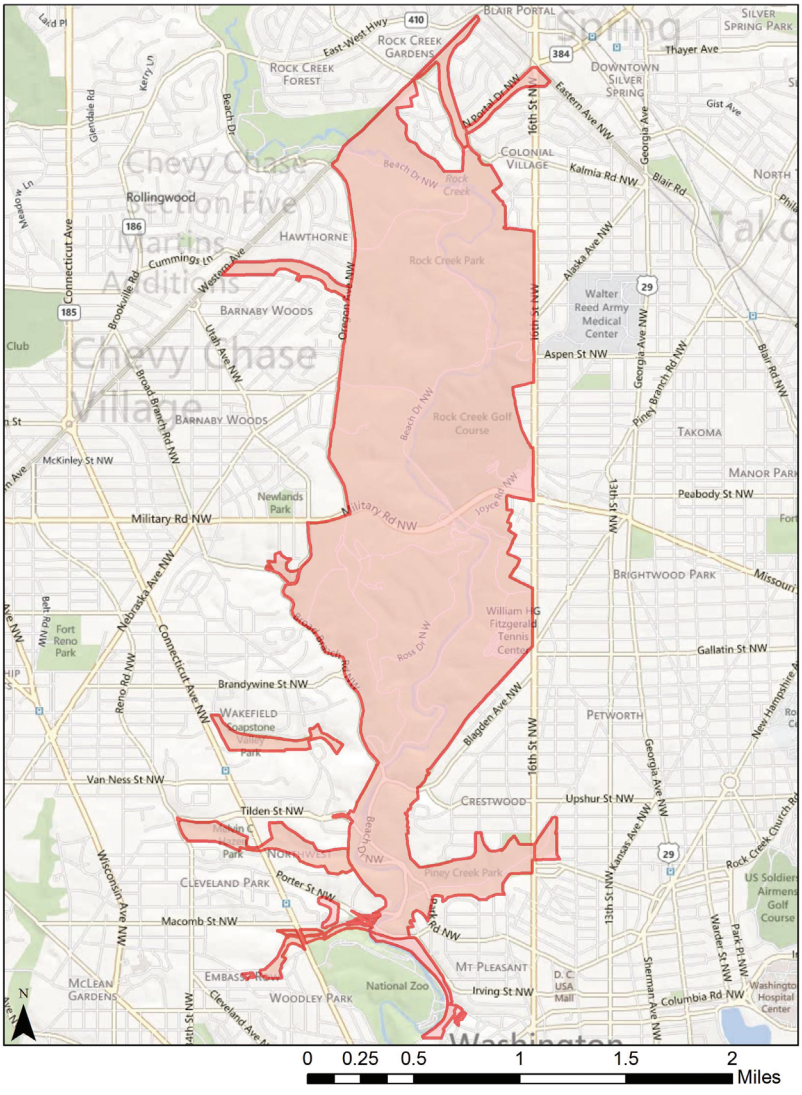



**Figure 0.1** Project Boundary for the Cultural Landscape Report: The Historic Trails of Rock Creek Park.

## METHODOLOGY AND SCOPE

The history and development of Rock Creek Park has been the subject of numerous studies. In particular, the Historic Resource Study of Rock Creek Park by William Bushong, Rock Creek Park: An Administrative History by Barry Mackintosh and the Rock Creek Park Road System by Timothy Davis provided the starting point for the research efforts of this report. These reports provided a background of the park's overall history and directed the team to further primary research at the National Archives, the Library of Congress, the National Capital Regional Office, the District of Columbia Public Library, the Historical Society of Washington, and the National Park Service Museum Resource Center. However, the complex nature of the park and its history has led to very little research on the specifics of the trail system prior to this report. An initial study was undertaken by the Cultural Landscapes Program in 1992, but this effort focused on several facets of the park and directed its final efforts to other cultural landscapes, including Linnaean Hill and Peirce Mill. The early research by Cultural Landscapes Program staff members Jennifer Hanna, Kay Fanning, and Judith Early provided additional material to initiate this study. This report builds on these efforts and previous studies to provide a comprehensive history of the physical development of the historic trail system of Rock Creek Park.

A major component of this report included developing a historic trails database utilizing ArcGIS to map the evolution of the historic trails system. This process involved geo-referencing more than 30 historical maps of the park area, and digitizing the roads and trails in and around the park from as early as 1608 to 2012. The park's current official trail system had been GPS located and transferred to ArcGIS by the park staff. The park's ArcGIS trail's data layer became a baseline from which to build the historic trails database. The current official trails (extant trails) were imported to the database, but kept in a separate file from the digitized historic (abandoned) trails. However, trail segments from the abandoned trails layer that matched one of the extant trail segments was identified and detailed within the extant trails layer alone. It is important to keep in mind that historic maps have varying degrees of accuracy. While every effort was taken to accurately depict the historic trail segments and match them to extant segments, some margin of error can be assumed. Future study which allows more detailed analysis may further the understanding of the trail system's evolution.

All trail segments in the database have been identified with the original construction date, original use type, dates abandoned, dates reopened, and changes in use. The primary sources for this information were the historical maps included in the database, and in some instances, textual records provided actual construction dates. Trail segments dated through the analysis of historical maps typically have a date range. For example, if a trail segment did not appear on a 1910 map, but then appeared on a 1916 map, its built date would be listed as 1911-

1915. Once the database was completed, it provided a unique and valuable tool for developing the period maps and for performing detailed analysis of the historic trails.

With the assistance of park staff, the cultural landscapes team completed a comprehensive survey of Rock Creek Park's trails in the fall of 2010 utilizing Trimble GPS units. All field data collected was then imported into a trails database in ArcGIS. Types of data collected for each trail included locating and mapping trail tread and width, damaged areas, waterbars, check dams, culverts, headwalls, signage, bridges, steps, stream crossings, boardwalks, benches, bollards, and other small-scale features along the trails. A few social trails and abandoned trail traces were mapped in the form of a point at the location where it crosses an official trail, or a line indicating the alignment of shorter social trail segments. The GPS survey was supported by photographic documentation and field notes for each trail surveyed. Additional field survey work was completed in the spring, summer and fall of 2011 to identify extant trail/road traces of abandoned historic trails and roads.

## HISTORICAL OVERVIEW

The origins of the Rock Creek Park trail system can be traced to the informal foot paths and trails created by American Indians hunting, fishing and quarrying stone in the Rock Creek Valley. The exact trails created are unknown, but historic maps and early settlers' comments indicate a strong possibility the Milkhouse Ford trail, and a few trails around the Piney Branch quarry site, originated with American Indians. Milkhouse Ford trail evolved into a road and provided the only east-west crossing of Rock Creek in the north section of the valley. As early as 1688, European colonists began to purchase land in the Rock Creek Valley and slowly began building farms, mills and homesteads. Landowners began to construct paths and roads to access their new property. In the 1830s, County Surveyor Lewis Carberry laid out several roads to access both the Peirce and Blagden mills. The first of these roads was Peirce Mill Road built in 1831. By 1860, the area within the future boundary of Rock Creek Park included at least 6.75 miles of roads and trails.

During the Civil War, forts and batteries were constructed in the future park as part of the Civil War Defenses of Washington. Roads and trails were built in and around the defenses to connect them to each other and provide internal circulation. . Civil War-era maps indicate minor roads connecting Batteries Smead and Kingsbury and Fort DeRussy, as well as branching off Milkhouse Ford Road into the site of the future park. Military Road was constructed in 1862 to connect the northern defenses and crossed through the future park just south of Fort DeRussy. Many of the war-era roads offered new routes through the valley and

Military Road provided an alternate east-west creek crossing, eventually replacing Milkhouse Ford Road as the major thoroughfare.

In January 1867, Major Nathaniel Michler of the U.S. Army Corps of Engineers developed the first formal proposal for establishing a park in the Rock Creek Valley. Michler noted that the picturesque valley included "charming drives and walks" along with ravines, forest and cultivated fields. The park would not be established until 1890, but roads and trails in the valley continued to develop at a significant pace after the war. These roads supported the valley's farmsteads, small tenant farmers and the Peirce and Blagden mills. By 1890 the future park site included approximately 20 miles of carriage roads and trails, most of which were converted to bridle trails after the park's establishment. About 6 miles of carriage roads pre-dating the park served as shared routes for cars and horses during the park's early years.

The trails and roads within the boundaries of Rock Creek Park have always been a related system of circulation. Once the area was established as a park, these routes shifted from utilitarian circulation to routes primarily focused toward recreation. This shift of purpose is the key to the development of the official trail system. Beginning with the adoption of old farm and mill roads to trails, the trail system has evolved throughout its history to meet the needs of current users. Construction of new trails began as early as 1897 and the system had the most significant amount of trail development between 1897 and 1910. During this period, 26.06 miles of new trails and carriage roads were constructed and 6 miles of the pre-park roads were abandoned.

Beginning in 1918, trail development primarily focused on simplifying and organizing the trail system. Routes were eliminated, reopened, adjusted, and organized into named trail routes. Significant trail closures occurred between 1918 and 1932 during the Office of Public Buildings and Ground's (OPBG) management with the closure of 18.5 miles of trail. These trails were simply abandoned and left for nature to slowly recover them. Based on the timing of the trail closures and master planning efforts of the Olmsted Brother's firm in 1917-1918, it is possible that Frederick Law Olmsted, Jr. could have influenced this trail streamlining period. The Olmsted Brothers submitted Rock Creek Park: a Report, the park's first master plan, in December 1918. The plan focused on setting overriding goals and a philosophy of preservation of the natural scenery, but provided little detailed guidance on the trail system.

Management of the park transferred to the National Park Service in 1933 as part of President Franklin D. Roosevelt's June 1933 executive order reorganizing the executive branch. Minimal development occurred on the trail system during the 1930s and 1940s, but existing trails were converted to a nature trail and a significant naturalist program was established. These programs included many ranger-led walks along the trail system and encouraged visitors to explore the

nature world within the park. These programs were greatly successful. As many as a thousand people per month were walking the nature trail during peak seasons and visitation remained high throughout the 1940s.

The next significant period of trail restructuring occurred during the 1950s when the National Park Service reorganized the bridle trail system. In November 1958 the park service unveiled its plan, which consisted of two primary north-south routes, the White and Black Horse Trails, and several Cross Trails that served as east-west connector routes. All of the newly designated bridle trails had been improved to a consistent width of 9 feet and close to 16 miles of trails had been abandoned. This marked the first period of formal organization for any portion of the trail system.

An increase in bicycle traffic in Rock Creek Park in the late 1960s reflected the growing nationwide interest in recreational and professional bicycling. Cycling clubs formed around the country as part of this "bicycle boom," and enthusiasts in the national capital region established the Washington Area Bicycle Association in 1972. The surge of bicyclists in the park prompted the NPS to conduct a study of bike use in Rock Creek Park and outlined potential actions to serve the increasing cycling population. The actions included adding new bike trails, automobile bans and a dedicated bike lane on Beach Drive from Broad Branch to Sherrill Drive. The park constructed the first dedicated bike trail in 1967 and by 1978 a total of 5.79 miles of bike trail had been designated or constructed. In 1972, the park implemented the first policy to permanently close portions of Beach Drive on Sundays to automobile traffic. This was a significant management decision that was later expanded to include weekends and holidays and additional roads. Today, this policy remains in effect and includes Bingham Drive, Sherrill Drive and additional segments of Beach Drive. The expanded use of these roads by cyclists, runners, in-line skaters and others has allowed the park to keep a minimum of dedicated bike (multi-use) trails throughout the park.

The trail system and the surrounding natural landscape have evolved since 1890. Although the number of trails has been reduced and alignment shifts have occurred, the system remains a means to access the scenic landscape of the Rock Creek Valley. User groups have also evolved since the park's founding. Today, the trails are enjoyed by a combination of equestrians, hikers, joggers, bird watchers, naturalists and cyclists.

## SUMMARY OF FINDINGS

The Rock Creek Park trails system's period of significance is 1890-1972. This encompasses the park's establishment through the early years of the bicycle boom. The focus of this significance is on the trail system as a whole. Several of

the trails have historical significance of individual merit and these trails contribute to the significance of the overall system. As it relates to the National Register of Historic Places, the trails are significant based on Criteria A, B and D. Criterion A is supported by the trails' association with significant events related to community planning, military history, outdoor recreation, landscape architecture, and social history as it relates to early milling and farming industries in Washington, D.C. Early efforts to establish a park were inspired by the development of public parks in other major American cities representing the Public Parks Movement. The trails system was part of the park's circulation system which was supported by the 1902 McMillan Plan. Many trails surrounding Fort DeRussy were developed as part of the circulation system for the Civil War Defenses of Washington and were utilized by Union troops stationed at the fort or associated batteries surrounding the future park. The trail system supported outdoor recreation and nature enthusiasts through its association with horseback riding, walking clubs and the cycling movement. Criterion B is supported by the trails association with Theodore Roosevelt and his impromptu meetings in the park and the planning efforts of Frederick Law Olmsted, Jr. The trails are significant under Criterion D because they have the potential to reveal archeological resources within the park related to the early milling and farming in the Rock Creek Valley.

The period of significance for the historic trail system begins in 1890, but many extant and abandoned trails predate the park and have historical significance beyond the trail system. The circulation system of the area originated as old farm or mill roads (carriage roads). When Rock Creek Park was established, most of these roads converted to trails with some still extant today; others were abandoned and left to re-vegetate on their own. A few of these abandoned road and trail traces are still easily read in the landscape and contribute to the overall significance of the trail system. However, some of these abandoned traces along with some of the extant trail segments potentially have historical significance as individual trails. A few of the more prominent individually significant trails are identified for further study, but a more focused study is suggested for identifying all individually significant trails and abandoned road traces within the park.



# Part I: History, Existing Conditions & Analysis of Significance and Integrity

**Section Title Page**
**Olmsted Job Photograph Album Collection,**
**Photo #2837-46, n.d.,**
**National Park Service,**
**Frederick Law Olmsted National Historic Site**

# Chapter 1: Site History

## EARLY HISTORY TO 1608

The Washington, DC area has been inhabited by humans for approximately 13,000 years, but settlements in the boundaries of present-day Rock Creek Park did not begin until approximately 2,000 BC, during the Late Archaic Period. During this period, Paleoindians established temporary camps along Rock Creek for hunting, fishing, and quarrying stone from the beds of ancient river cobbles located in the bluffs along the creek and its tributaries, Broad Branch, Piney Branch, and Soapstone Creek. Prior to this time, archeological evidence suggests that Rock Creek had primarily been a stopping point for hunting parties, but not a site for long-term settlements. No evidence of permanent villages has been discovered in the park.[1] However, during studies of the quarry sites conducted between 1889 and 1894, William Henry Holmes, head of the American Bureau of Ethnography, noted, "there are some evidences of primitive dwelling on terraces overlooking Rock Creek west of Mount Pleasant."[2]

The Late Archaic period residents quarried steatite (soapstone) to make cooking vessels, and quartzite, with which they constructed tools and spearpoints. Quartzite quarries were located along Piney Branch, Broad Branch, and Rock Creek, as well as sites near present-day American University and the Naval Observatory. The northernmost quarry found by Holmes was located near Connecticut Avenue and Peirce Mill Road. The Piney Branch quarry was located north of the Mount Pleasant neighborhood and west of 16th Street. Steatite quarries were found in Soapstone Valley and Rose Hill, located along Connecticut Avenue south of Albemarle Street and north of the National Zoo.[3]

### MILKHOUSE FORD ROAD

Evidence of Indian trails in Rock Creek Park cannot be found today, but historic maps revealed the presence of trails near the Piney Branch quarry sites. Given their location, it is possible these trails were developed by American Indians to access the quarry. Portions of these trails became local roads and part of the future park's trail system. It can be assumed additional American Indian trails traversed the valley to shallow points in the creek, such as at known fords, where crossing would be easier. An example of a long established valley and creek crossing is Milkhouse Ford Road. The Milkhouse Ford is one of at least six major fords located between the District-Maryland line and the National Zoo. Though its age

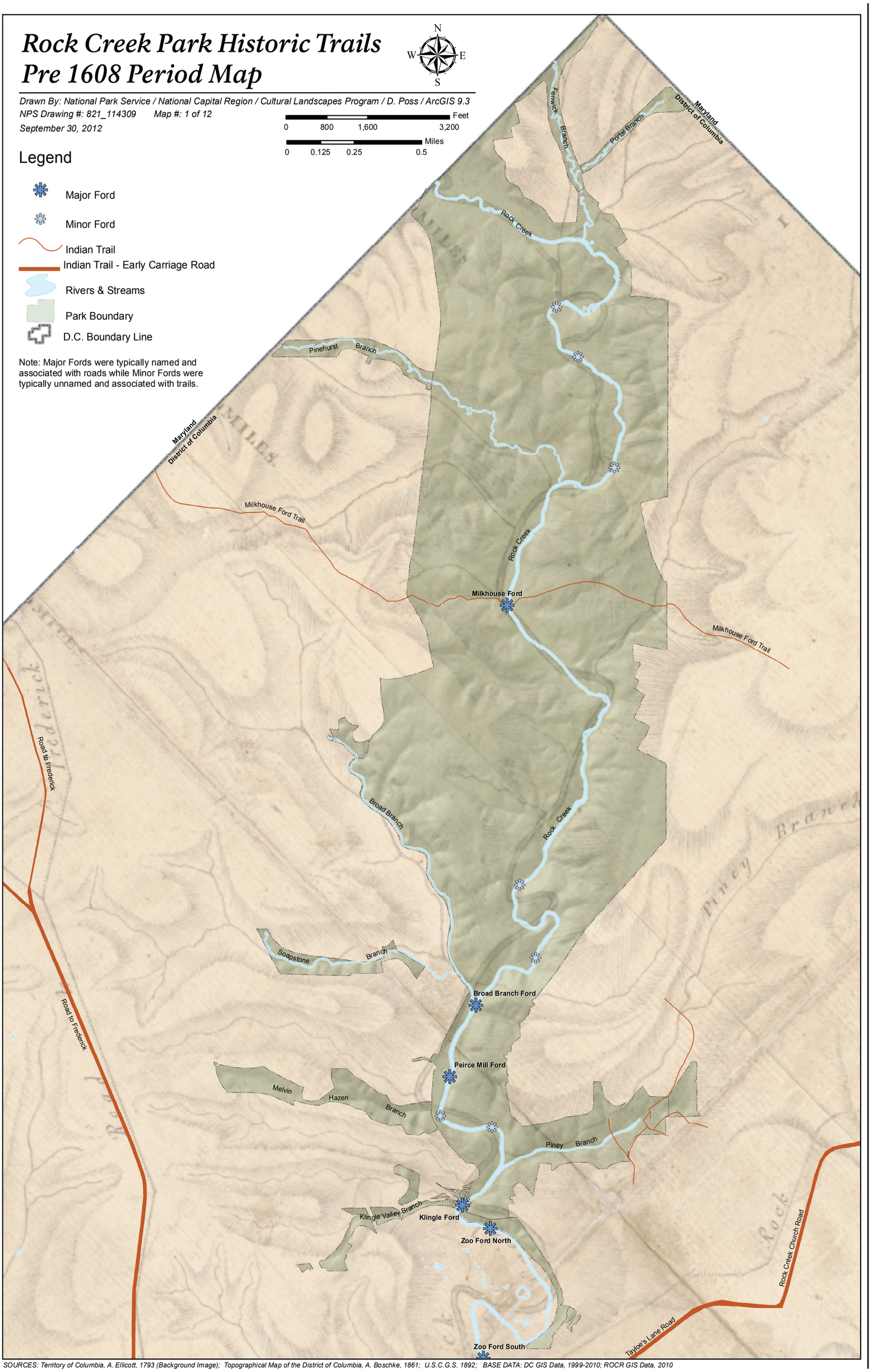
has not been determined, Milkhouse Ford Road is believed to be one of the oldest roads in Washington and possibly originated as an Indian trail. The road crossed much of the northern section of present day Washington. East of Rock Creek Park, portions of the thoroughfare, now known as Rock Creek Ford Road, are still in use today.[4] An early 1890s analysis of land records conducted as part of the acquisition of property for the park remarked on the age of Milkhouse Ford Road. Though the analysis does not provide a date for the establishment of the road, the document provides anecdotal evidence about its history. "The road is an ancient one and its history is not to be found in the District of Columbia." [5] Another deed stated "…the road has been used as a public road beyond memory of the oldest residents of the vicinity." [6]

Two major northwest Washington thoroughfares, River Road and Wisconsin Avenue, evolved from routes American Indians made between present-day Washington, Maryland, and West Virginia. These routes were maintained as foot and horse trails and later used for the transportation of tobacco. They were widened to accommodate carriages and carts.[7] Given its central location and history, Milkhouse Ford Road may share similar origins with these other historic roads.

### SUMMARY

Though their age has not been determined, Milkhouse Ford Road and the Piney Branch quarry trails were among the earliest transportation routes through Rock Creek Valley. They are among the most historic features in Rock Creek Park and portions continue to be a part of the circulation system.

Analysis of historic maps reveals that 1.69 miles of foot trails were extant in the Rock Creek Valley at the end of this period.




SOURCES: Territory of Columbia, A. Ellicott, 1793 (Background Image); Topographical Map of the District of Columbia, A. Boschke, 1861; U.S.C.G.S. 1892; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## MILLS AND EARLY VALLEY ROADS, 1609-1860

The first known European sighting of Rock Creek occurred during Captain John Smith's 1608 voyage around the Chesapeake Bay. Though other European explorers sailed the Potomac and Anacostia Rivers in the 1500s, Smith documented his explorations on his 1612 Map of Virginia. He identified Indian settlements and inlets around the bay and along the Potomac River. One of the inlets noted is likely Rock Creek, but no settlements were depicted along this waterway. Smith identified numerous nations or groups in the Washington area. They included the Nacotchtanck, who lived in a large village on the eastern bank of the Anacostia River, and the Piscataway, Tauxenent, and Pamukey villages along the Potomac River. [8] The Nacotchtanck village is believed to have been abandoned by 1673, when it was omitted from a map of the area created that year. The absence of permanent Indian settlements left the area relatively free for European colonists, but periodic raids in the area by the potentially hostile Senecas and Susquehannocks, and by the Nanticokes and Conoys of the Chesapeake region, affected English settlement for decades.[9]

European land acquisition along Rock Creek began in 1688 when Henry Darnall obtained patents for 6,000 acres in present day Washington and Montgomery County, Maryland. Darnall's 1,776 acre patent known as the Gyrle's (Girl's) Portion encompassed much of what was to become Rock Creek Park and the communities of Silver Spring, Forest Glen, and Takoma Park along the Maryland-District border.[10] Clouin Course (1714) and Argyle, Cowell and Lorne (1722) are among the other patents that included land that would became part of Rock Creek Park.[11]

In 1739, Charles Carroll of Annapolis became owner of Gyrle's (Girl's) Portion and Clouin Course, both located within the future park. Carroll leased some of the land in 1739 and 1740. Two house sites belonging to Carroll's tenants during the 1700s were uncovered in recent years. The remains found on Clouin Course land leased to William Hall were located in the northwest section of the park and bound by Wise Road on the south and Rock Creek to the north. Artifacts uncovered at the site indicate a small farm. The objects date between 1762 and 1820, but there is evidence the site may have been occupied as early as 1740. Rock Creek Valley residents, interviewed in 1762 to determine the boundaries of Clouin Course and Gyrle's (Girl's) Portion, reported that several people had resided in the Rock Creek Valley for decades.[12]

At the end of the 1700s, as preparations were made for relocating the nation's capital to Washington, Andrew Ellicott conducted an extensive survey of the site of the future city. His 1793 topographic map documented the major roads in the area, including the "Rock Creek Road" on the east side of the creek. This road is the closest east-west traveling route to Rock Creek. There has been speculation

that Rock Creek Road is Milkhouse Ford Road or Milkhouse Ford Road evolved from Rock Creek Road. Close study and overlay of historic maps reveals Rock Creek Road is better aligned with today's Rock Creek Church Road, which is located just north of the historic boundary of the city and is associated with St. Paul's Episcopal Church, founded in the early 1700s.[13]

### ROCK CREEK MILLS

In the early 1800s, several mills were located along Rock Creek from Georgetown to the Maryland-Washington line. Three of the mills—Peirce, Peter, and Blagden—were located within the future park. Others were located along what would become Rock Creek and Potomac Parkway or just outside the park's boundary. Built primarily from the mid-1700s and early 1800s, the mills produced flour, fertilizer, timber, and paper following the decline of tobacco cultivation in the piedmont region. [14] Georgetown mills built after construction of the Chesapeake and Ohio Canal in 1840 provided competition for the Rock Creek mills. Their proximity to commerce in Georgetown, river boats on the Potomac, and barges on the canal gave these mills an advantage over the Rock Creek mills operating nearby. The Peirce and Blagden Mills, located a few miles from the canal, were not as directly affected by the competition and continued to serve local customers. Some of the Rock Creek mills remained active and at times were prosperous through the mid-1800s. However, they declined following the introduction of new milling processes in the 1870s.[15]

Peirce Mill was among the mills that experienced periods of prosperity in the latter part of the 1800s. In 1794, Isaac Peirce purchased a 150-acre tract of land known as the "Gift," as well as an adjacent ten acre parcel.[16] The land included a farm, or-



**Figure 1.1**
**Pierce Mill, ca. 1897. Rock Creek Park Photo Collection, PM-60.**

chard, house, outbuildings, and a mill. By 1800, Peirce had acquired between 1,200 and 2,000 acres in what is now the section of Rock Creek Park between Military Road and the National Zoo. Several businesses operated on his property, including grist and saw mills, a farm, and nursery. Peirce built the present day mill by 1829 of native bluestone granite most likely quarried at Broad Branch.[17]

In 1823, Peirce gave his son Joshua 82 acres of land adjacent to and south of his farm. There, the younger Peirce built his estate, operated a farm, and developed a successful nursery business. He operated nurseries between 14th, 16th, R, and S Streets in the city, as well as on his Rock Creek Valley estate.[18] Maps of the Peirce property dating to the late 1850s document a "network of tree lined drives and paths," and extensive circulation system, "built for carriage rides through the property to examine the fruit and ornamental trees and shrubs on the grounds." [19] His estate was originally known as Lee Rig, but Peirce re-named it Linnaean Hill in honor of the Swedish botanist, Carl Linnaeus.[20]

Another of Isaac Peirce's sons, Abner, operated an extensive plantation on land inherited from his father. The elder Peirce died in 1841 and left Abner all of his property. On his 960 acres of land, Abner Peirce grew vegetables, wheat, and rye and kept livestock until his death in 1851. The plantation and the mill operated successfully for many years. The 1870s were particularly prosperous for the mill, but in the years following, business steadily declined and the mill ceased operations in 1897. Much of the Peirce land remained in the family until the founding of the park in 1890.[21]

Less is known about the other mills located within the park's boundaries. Isaac Peirce descendent Louis Shoemaker speculated that the first mill established along the creek was the Peter Mill. Located "north of the Blagden Mill and south of



**Figure 1.2**
**Blagden Mills Ruins, ca. 1890-1900. Rock Creek Park Photo Collection, Mills 9-2.**

Military Road," the land was patented under the name White's Mill Seat in 1634 and 1756, and then as Peter's Mill Seat in 1800. [22] There is no evidence the mill was in operation after that year. Shoemaker wrote that the old race was visible and foundation walls remained standing for some time, but were "obliterated" at the time he was writing in 1908.[23]

More is known about the Blagden, or Argyle, Mill. The mill was in operation prior to 1850, but its date of construction is not known. Thomas Blagden was a successful businessman and landowner who purchased the property in 1853. Located near the site of Boulder Bridge in Rock Creek Park, the complex included two mills and a miller's house. The mill ground wheat, rye, and flour and operated successfully until the 1880s when its revenue declined. The mill closed before the end of the decade. Along with the mill, Blagden operated a 375-acre farm where he grew Irish and sweet potatoes and kept livestock.[24] The farm was located adjacent to Abner Peirce's land and later Peirce Shoemaker's property. However, much of the farm fell outside the present day boundaries of the park and was located in what is now the Crestwood neighborhood.[25]

### MILL ROADS

During the early 1800s, roads were built at the request of property owners to access both the Peirce and Blagden mills. Several roads were laid out by County Surveyor Lewis Carberry to access Peirce properties, including Peirce Mill Road in 1831 and Broad Branch Road in 1839. Peirce Mill Road traveled from Mount Pleasant and across Piney Branch via a small footbridge, "fording Rock Creek at Peirce Mill, and climbing the west side of the valley to intersect with the Rockville Pike. Originally a private road, it was designated a public highway in 1861 and realigned slightly by District of Columbia Highway authorities several times over the ensuing decades." [26] The section of the road on the eastern side of the creek was frequently referred to as Linnaean Hill Road for its association with Joshua Peirce's estate. Broad Branch Road paralleled Broad Branch just north of Peirce's mill and became a public highway in 1854. Klingle Road, also known as Peirce's Road, was laid out in 1831 by Carberry. The road was located south of the Peirce/Klingle house and followed a ravine up the west side of the valley and connected with Linnaean Hill/Peirce Mill Road.[27] A road identified as Mill Road on an 1864 plat connected Peirce Mill with Blagden Mill.[28] Portions of Mill Road followed the approximate alignment of today's Beach Drive. The road ran along the west side of Rock Creek, west of Peirce Mill, and continued to Broad Branch Road. It then crossed the Broad Branch and traveled northeast and connected with Blagden Mill Road.[29] Blagden Mill Road, also known historically as Broadrup's Road and Argyle Mill Road, extended from Blagden Mill to Piney Branch Road.[30] In 1846 and 1857, Lewis Carberry laid out the sections of Blagden Mill Road that would later fall within Rock Creek Park's boundaries.[31]

### ENJOYING THE VALLEY

The roads associated with the Blagden and Peirce properties provided their owners and customers with access to their mills and other businesses. They also offered the public a means to enter and cross Rock Creek Valley for recreational and practical purposes. Beginning in the early 1800s, the Linnaean Hill-Peirce Mill area was a popular spot for picnickers and people escaping the city. The area was known for its fishing, bird watching, as well as its "simple and quiet beauty."[32] Linnaean Hill was described as having grounds that "were artistically treated… so beautifully arranged that the place was converted into a horticultural and rural park, where the people of the national capital sought pleasure, recreation and instruction." [33] An 1848 article in the *National Intelligencer* newspaper included an account by a visitor who, armed with sketchbooks in which to capture the scenery around Peirce Mill, described his walk through Rock Creek Valley on his way to the mill. He traveled along "roads which cross the channel of Rock Creek, and frequently run for a long distance along its winding vale." The visitor remarked that on the Rock Creek roads "you might walk for miles without meeting a human being…"[34]

Striking scenery, recreation, and picnicking spots on the eastern side of Rock Creek Valley were also sought after by local residents. For decades a race track drew people to the region to watch harness racing and other sports. Like Peirce Mill, the area around the track was a destination for city dwellers looking to spend the day in the country. Known by several names during its operation, including the Crystal Spring Race Track, the Piney Branch Race Course, and the Brightwood Driving Park, the track was established in the late 1850s. The nearby Crystal Springs, which opened a few years after the racecourse, was a successful hotel renowned for its fine spring water. Both the hotel and racecourse were located on land owned by Louise Shoemaker. The hotel closed in the late 1800s, but the race track operated through the early 1900s.[35]

### THE BOSCHKE MAP

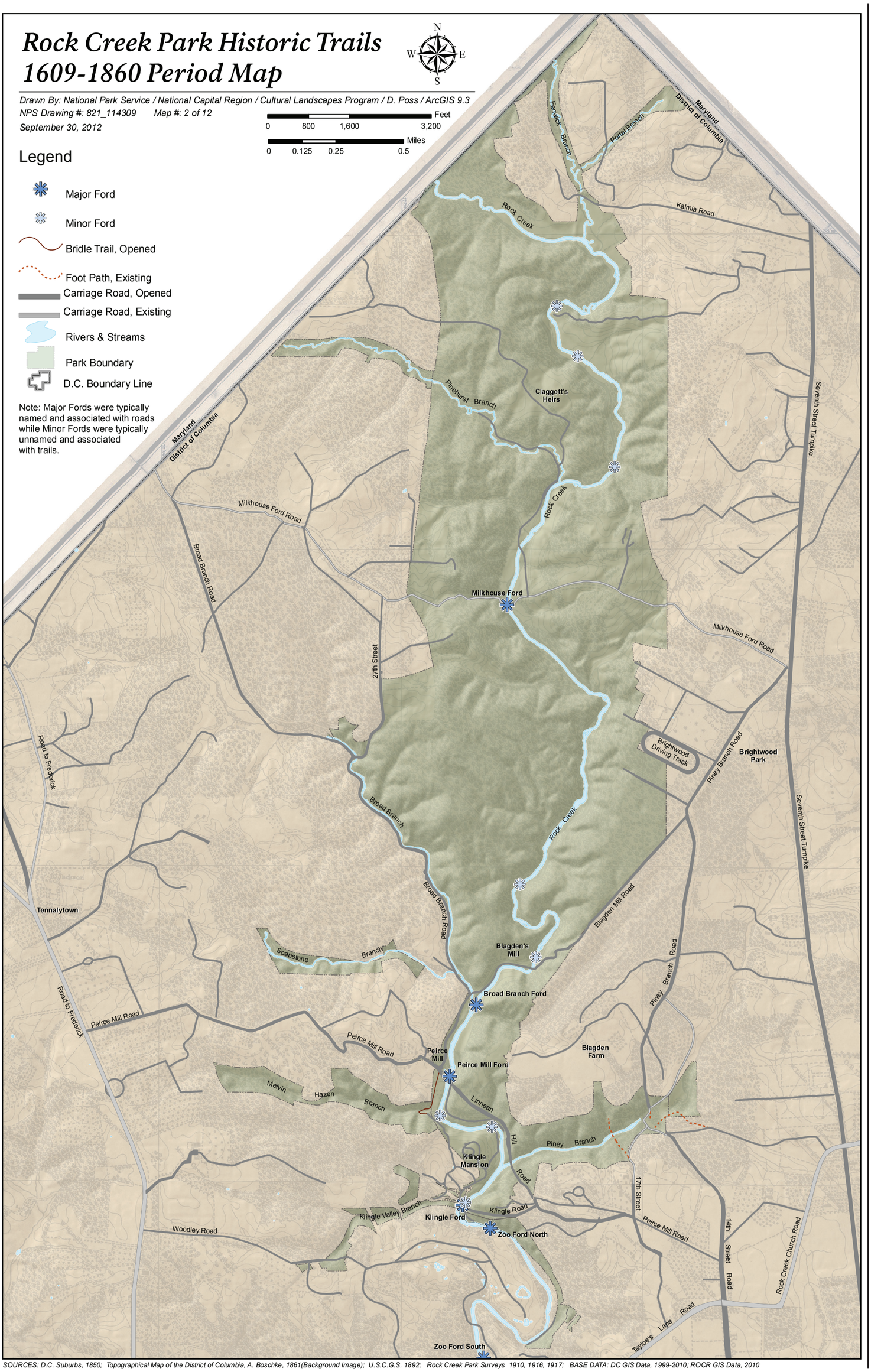
In 1861, Albert Boschke's Topographic Map of the District of Columbia was published (Appendix C). The German cartographer completed surveys of Washington between 1856 and 1859, and his map provided a detailed account of the development of the nation's capital. In Rock Creek Valley, as in the rest of the city and county of Washington, the map documented property owners, structures, roads, and landscape features. Boschke's map reveals the valley was home to several farms, dwellings, and country estates and illustrates the roads used to access these places. The Peirce and Argyle Mills and their respective mill roads, along with the major valley routes, including Broad Branch and Milkhouse Ford Roads, are clearly documented. Smaller roads, unnamed on the map, are shown connecting the major routes, illustrating an extensive circulation system

within the future park. Two north-south running roads connected Milkhouse Ford Road to Broad Branch Road west of the creek. The map illustrates a heavily wooded landscape mixed with pastures and fields. It also shows a larger number of settlements and farms in the upper section of the valley. Milkhouse Ford Road provided the major access to these and other properties. Several narrow roads branch off Milkhouse Ford Road connecting to these locations. Numerous small roads pass through the Peirce and Blagden properties and intersect with major east-west traveling routes through the valley.[36]

### SUMMARY

The development of mills, farms, homesteads, and recreational facilities in the late 1700s through the mid-1800s necessitated the construction of roads and trails to access the houses, businesses, and scenic locales found in Rock Creek Valley. These roads became the foundation on which the circulation system of Rock Creek Park was built; many are still in operation today as park streets or were converted to bridle or foot trails and serve today's valley visitors looking to escape the city.

Analysis of historic maps reveals that 0.21 miles of bridle trails, 0.39 miles of foot trails and 3.74 miles of carriage roads were extant in the Rock Creek Valley at the end of this period.




SOURCES: D.C. Suburbs, 1850; Topographical Map of the District of Columbia, A. Boschke, 1861(Background Image); U.S.C.G.S. 1892; Rock Creek Park Surveys 1910, 1916, 1917; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## CIVIL WAR CONSTRUCTION, 1861-1865

### THE DEFENSES OF WASHINGTON

At the beginning of the Civil War in 1861, Washington was protected by a single fort. Fort Washington, located along the Potomac River 12 miles south of the city, was first constructed in 1809 and then reconstructed and expanded over the course of the early 1800s. It was the only defensive work protecting the capital at the start of the war. General George McClellan realized the vulnerability of the nation's capital following the Union defeat at the First Battle of Manassas in July 1861. Shortly after the battle, McClellan, newly appointed Union Army Commander on the Potomac, supported the construction of a ring of forts, batteries and other defensive works around Washington to protect it from Confederate attack. Major John G. Barnard of the Army Corps of Engineers was appointed to oversee the design and construction of the defenses. Building began in and around Washington by the end of the summer. At the close of the war in 1865, 68 forts and 93 batteries, along with 20 miles of rifle pits and more than 30 miles of military roads, surrounded Washington.[37]

Numerous forts and other defensive works were constructed to protect the northern section of the nation's capital. In 1862, Fort DeRussy was constructed within the future park's boundaries and located west of Rock Creek just below Milkhouse Ford Road.[38] One soldier described Fort DeRussy as "situated two miles east of Tennallytown, upon a high knoll in the midst of farms cultivated with more than the usual care."[39] Fort DeRussy, along with Fort Stevens, located to the east of the present day park, was among the forts and batteries protecting Rock Creek Valley. Batteries Smead, Kingsbury, Sill, and the "Battery to the Left of Rock Creek," supported Fort DeRussy. They guarded Milkhouse Ford Road and crossings over Rock Creek.[40]

When constructing the defenses of Washington, land in front of the forts was cleared of trees for two miles to increase visibility. "At least fifty-six acres of




**Figure 1.3**
**Map of the Civil War Defenses of Washington depicting Fort DeRussy and Fort Stevens, ca. 1865. RG 77, National Archives and Records Administration, College Park, MD.**

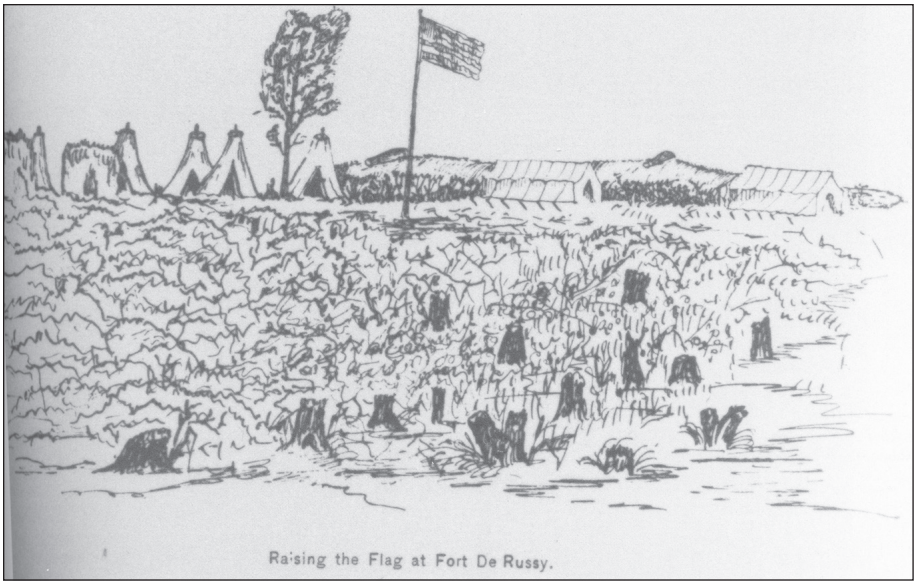



**Figure 1.4**
**Fort DeRussy with tree stumps from recently cleared trees surrounding fort, 1862-1865. Drawing reprinted from William Arnold Spicer, *History of the Ninth and Tenth Regiments, Rhode Island Volunteers, and the Tenth Rhode Island Battery, in the Union Army in 1862.* Providence: Snow & Farnham, Printers, 1892.**

trees surrounding Fort DeRussy were cut down to clear sight lines for the guns and provide lumber for the construction of the fort's quarters, outbuildings and abates."[41] The area around Fort Stevens was described as "swept bare or left with stands of tree stumps."[42] When completed, Fort DeRussy was a large complex of buildings and weaponry, which included two barracks, two mess halls, five officers' quarters, ordnance sergeants' quarters, a guard house, and two stables. The fort was a trapezoidal earthwork with a 190-yard perimeter surrounded by rifle pits that extended to Fort Stevens.[43]

In October 1862, Major Robert R. Honeyman, an officer at Fort DeRussy, made note of the setting of the fort and a road, possibly Military Road, soldiers were constructing through Rock Creek Valley.

> This is the wildest and most romantic country you were ever in. The road we are making is a splendid affair, going through ravines and fastnesses, and where you would think it impossible a road could be built, so as to be concealed from the observations of the enemy. 600 men at work felling trees, building bridges and digging into the mellow earth presents an animated scene.[44]

Soldiers stationed at Fort DeRussy enjoyed the close proximity of Rock Creek. They wrote about bathing in the creek and tramping in the woods. A soldier from Rhode Island reported, "On the first Sunday afternoon, the chaplain not having yet arrived, a company of us obtained permission for a tramp to Rock Creek. We kept together, as the neighborhood was considered unfriendly…The banks were lined with soldiers enjoying the cleansing and reviving influences of the water." [45] The soldier went on to describe walking through the woods from Fort DeRussy. "Yesterday afternoon Company D marched to Fort Pennsylvania to receive the new Enfield rifles. We went in single file over a narrow foot-path through the woods, with the trees often meeting overhead." [46]

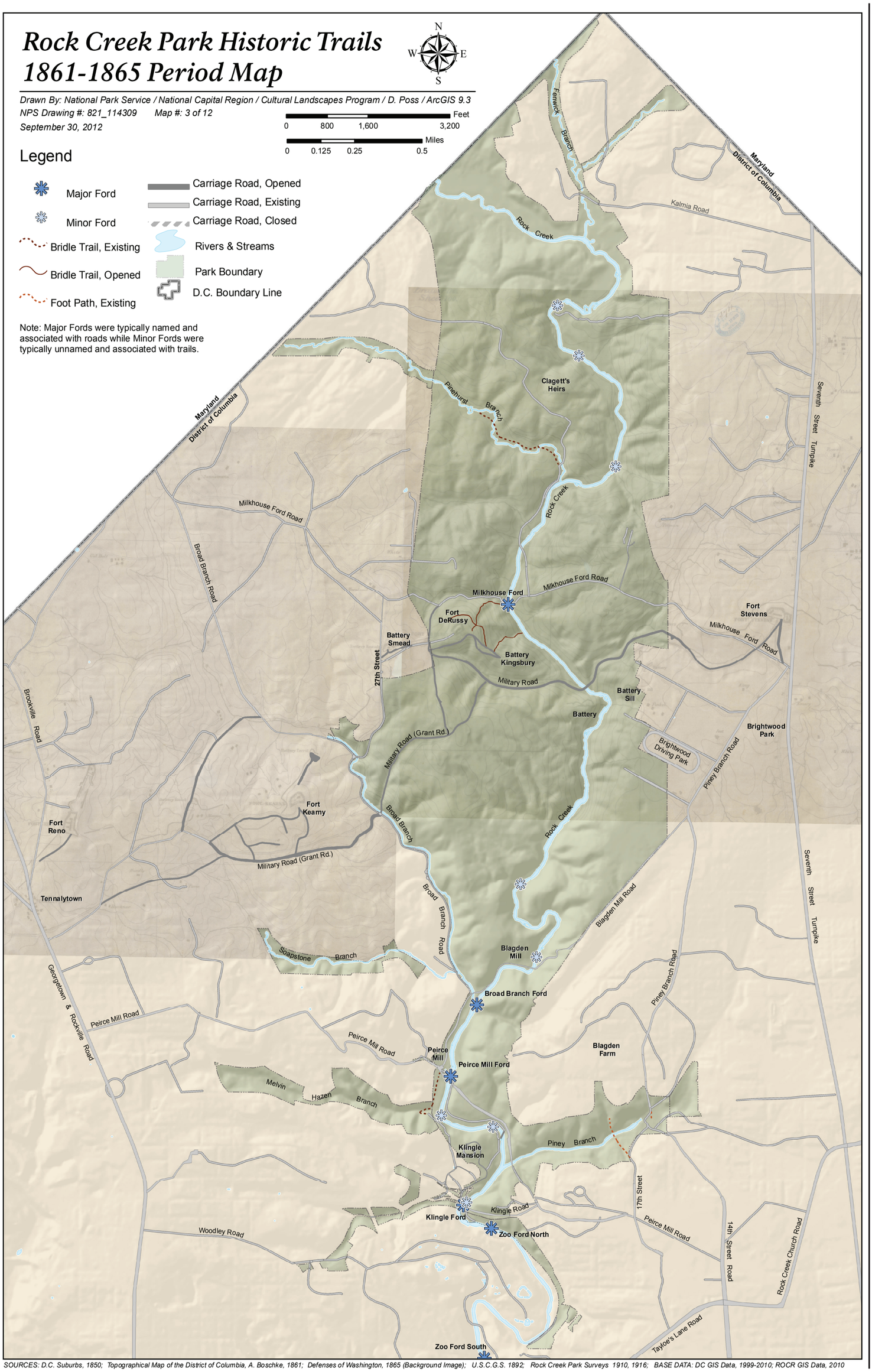
Civil War-era maps illustrate minor roads connecting Batteries Smead and Kingsbury and Fort DeRussy, as well as roads branching off to the north from Milkhouse Ford Road into the site of the future park. Some of these roads were recorded on the Boschke map, therefore pre-date the war. In September 1862, Military Road was constructed south of Fort DeRussy and initially ran between Fort Stevens and Fort Sumner, located near present-day Glen Echo, Maryland. As the war and the construction of the defenses progressed, it was extended to forts in northeast Washington. Military Road connected with other roads through Rock Creek Valley and provided an additional east-west route across Rock Creek. Over time it replaced Milkhouse Ford Road as the major route through the northern part of the valley.[47]

During the Battle of Fort Stevens in July 11-12, 1864, Fort DeRussy was engaged in the fighting against Confederate General Jubal Early's troops as they advanced towards Washington, DC. Most of the fighting took place around Fort Stevens, but fire from defensives to its west, including Forts DeRussy and Reno, and Forts Totten and Slocum to the east, contributed to the defense of the capital.[48] Skirmishes also took place in Rock Creek Valley. Fort DeRussy was engaged in heavy fire with Confederate snipers and infantry occupying a farmstead located northeast of the fort. The Union successfully defended the capital and the Confederates were driven back to Maryland. Following the Civil War, Fort DeRussy was closed and officially abandoned.[49]

#### SUMMARY

The Civil War Defenses of Washington greatly altered the landscape of the nation's capital and the surrounding region through the clearing of vegetation and the construction of roads, rifle pits, forts, and batteries. Once the war ended there was little use for Fort DeRussy and the other defenses located in Rock Creek Valley. Unlike the forts and batteries, many of the war era roads offered new or additional routes through the northern part of the city and the valley. Military Road provided an alternative east-west valley crossing and eventually replaced Milkhouse Ford Road as the major thoroughfare. Some smaller roads constructed in the valley as part of the defensive system fell into permanent disuse after the war, while others remained open, were re-opened, or converted to trails following the establishment of Rock Creek Park.

Analysis of historic maps indicates that 1.17 miles of bridle trails, 0.27 miles of foot trails and 5.11 miles of carriage roads were extant in the Rock Creek Valley at the end of this period.




SOURCES: D.C. Suburbs, 1850; Topographical Map of the District of Columbia, A. Boschke, 1861; Defenses of Washington, 1865 (Background Image); U.S.C.G.S. 1892; Rock Creek Park Surveys 1910, 1916; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## THE PUBLIC PARK MOVEMENT, 1866-1890

Following the Civil War, many American cities established large urban parks, including Fairmount in Philadelphia (1865), San Francisco's Golden Gate (1870), and Forest Park in St. Louis (1876).[50] New York's Central Park, which predated the war, influenced the establishment and design of parks in numerous American cities.

Central Park was designed by Frederick Law Olmsted and Calvert Vaux in 1857 and opened to the public in 1859. Olmsted, like influential nineteenth century landscape designer and park advocate Andrew Jackson Downing, believed parks were imperative to good health and provided physical and spiritual benefits to people. Spending time in nature was a calming escape from the pressures of city life.[51] Olmsted's park designs were influenced by aesthetic philosophies and landscape theories dating to the 1700s that characterized scenes of nature as sublime, beautiful, and picturesque and were meant to elicit a range of emotional and intellectual responses.[52] Olmsted designed landscapes with winding walks and drives that offered a variety of scenes as visitors moved through the site. Central Park included broad lawns, woodlands, water features, and rocky outcroppings. Separate roads and trails for carriages, pedestrians, and horseback riders wound through the park carrying visitors through a changing landscape.

Olmsted came to Washington several times during the Civil War while he was a member of the U.S. Sanitary Commission. While in the capital, he made several trips to Rock Creek Valley and believed the area was an ideal setting for a public park. The idea for establishing a public park in Rock Creek Valley was not new at the time of Olmsted's visits. The owner of an estate neighboring the valley suggested creating a park in the 1850s, but it was not until after the Civil War that the first formal proposals emerged and the citizens of Washington attempted to establish their own Central Park.[53]

### THE MICHLER REPORT

A little over a year after the Civil War's end, Vermont Senator Luke Poland introduced a resolution calling for the House Committee on Public Buildings and Grounds to look into acquiring land for a new site for the presidential mansion and a public park. Poland's resolution stipulated the park was to be at least 350 acres, but a second resolution introduced a few weeks later reduced the size to a minimum of 100 acres. It also stated "a practical landscape gardener or topographical engineer" would be hired to explore suitable sites, report on his findings, and suggest how to develop the land.[54] Major Nathaniel Michler of the U.S. Army Corps of Engineers was selected to lead the investigation. Michler, a West Point graduate and Civil War veteran, was appointed the first Officer in

Charge of Public Buildings and Grounds in 1867 when the care and development of Washington's infrastructure was assigned to the Army Corps of Engineers.[55]

In January 1867, Michler submitted his report on "a suitable site for a public park and presidential mansion."[56] Michler proposed 2,540 acres along Rock Creek Valley, a much larger area than Poland's resolution stipulated, but he included an alternative proposal of 1,800 acres if the larger scheme was considered extravagant. His report did not provide detailed recommendations on how and where to develop in the valley, but he highlighted what he thought were its major features and its strong potential as a public park. As Tim Davis noted in his study of the Rock Creek Park road system, Michler's report "is not only the first official statement on the development of Rock Creek Park, but a classic encapsulation of the aesthetics and ideology of nineteenth century parks."[57] In discussing the variety of scenery the public park should offer, Michler used the vocabulary of landscape aesthetics, suggesting "a happy combination of the beautiful and picturesque."[58] He praised the beauty of the valley and noted it already possessed much that was beautiful and picturesque, including "charming drives and walks," ravines, primeval forest, and cultivated fields. It could only be improved through "the taste of the artist and the skill of the engineer to enhance its beauty and usefulness."[59] Ponds and lakes for "useful and ornamental purposes," zoological and botanical gardens, and grounds for playing and promenading were among the improvements he envisioned. [60]

In addition to the abundant beauty of the valley, Michler noted its central location and its "accessibility to both Washington and Georgetown," as well as Tennallytown Road (Wisconsin Avenue) to the west, and Fourteenth Street Road (Mount Pleasant Street/17th Street) and Seventh Street Turnpike (Georgia Avenue) to the east.[61] These thoroughfares bordered the valley or intersected with roads, including Military and Milkhouse Ford, which provided the public access to the site. Michler stated, "from these main highways many branches cross the valleys or follow along the banks of the stream; these traverse roads already form beautiful drives." [62]

Walks and drives were a major feature in Michler's vision for the park. He noted "the many deep ravines setting in towards it can furnish romantic walks and quiet retreats for the pedestrian." [63] Michler stipulated that there should be a "spaciousness" in the park that allowed for "many miles of drives and rides and walks all independent of each other," and accessible throughout the year and in different weather. He called for "improving the roads and paths and the construction of new ones," but in discussing the walks, he did not specify which roads needed improvement or where new walks should be constructed.[64]

Despite Michler's high praise for Rock Creek Valley, his report did not convince Congress to create a park. In February 1867, Missouri Senator Benjamin Gratz Brown, Chairman of the Senate Committee on Public Buildings and Grounds,

introduced a bill calling for the creation of a 2,700 acre park similar to the one proposed by Michler. When the bill reached the House, it stalled and support for the park disappeared for many years.[65]

### THE CAMPAIGN FOR A PARK CONTINUES

The Rock Creek Valley continued to be a popular destination for locals and was Washington's de-facto public park.[66] As evidenced by accounts in local newspapers and articles in national magazines, residents and visitors appreciated the beauty of the valley and continued to advocate for the creation of a park. In May 1869, the *Atlantic Monthly* published "Spring in Washington, With an Eye to the Birds," which explored in depth the animal and plant life appearing along the creek in the months of April and May.

> Outside of the city limits, the great point of interest to the rambler and lover of nature in the Rock Creek region…Rock Creek has an abundance of all the elements that make up not only pleasing, but wild and rugged scenery…A few touches of art would convert this whole region…into a park unequalled by anything in the world. [67]

The author highlighted the valley's "dark recesses and hidden retreats." [68] He explored Piney Branch and remarked on the other visitors he encountered. "My walks tend in this direction more frequently than in any other. Here boys go too, troops of them, of a Sunday, to bathe and prowl around, and indulge the semi-barbarous instincts that still lurk within them."[69]

More than a decade after the article in the *Atlantic* was published, efforts were again underway to establish a park along the creek. Members of Congress and Washington's business community were behind the latest campaigns, but they too were unsuccessful. In 1886, Frederick Law Olmsted wrote in *The Century* magazine on the need for cities to preserve their natural resources. He cited Washington and Rock Creek as an example.

> At our national capital, while we are every year adding to its outfit new decorations in marble and bronze, formal plantations, specimen trees, and floral and busy millinery, we leave the charmingly wooded glen of Rock Creek in private hands, subject any day to be laid waste. Once gone, the wealth of the nation could not buy for Washington half the value of landscape beauty that would thus have been lost.[70]

Despite Olmsted's call for the preservation of the valley, and additional attempts to pass park legislation, it would take a few more years before a park bill was successful. Finally, the legislation establishing Rock Creek Park was signed into law by President Harrison on September 27, 1890. The law outlined the land acquisition process and included the creation of a park commission to determine boundaries and oversee the purchase of property. The legislation stipulated a limit of 2,000 acres and established the site's southern boundary at the Klingle



**Figure 1.5**
**Ford on Rock Creek, 1896. Library of Congress.**

Ford Bridge. [71] The Rock Creek Park Commissioners were left with the task of determining the width and boundary of the park north of Broad Branch.[72]

The park commission was made up of the Chief of Engineers of the United States Army, the Engineer Commissioner of the District of Columbia, and three citizens appointed by the president. The park came under the joint control of the Commissioners of the District of Columbia and the Chief of Engineers of the United States Army. Their duty was "as soon as practicable, to lay out and prepare roadways and bridle paths, to be used for driving and horseback riding, respectively, and footways for pedestrians."[73]

Roads and trails in the valley increased significantly since the Civil War and provided the commissioners with a foundation upon which to build the park's circulation system. Carriage roads spread throughout the new park and bridle trails could be found in several locations, including between Milkhouse Ford Road and Military Road; Peirce Mill and Klingle Mansion; and along Pinehurst Branch and an abandoned portion of Military Road. Also since the war, Military Road had been realigned to provide a more direct route across the valley. In addition,

numerous city streets had opened just outside the park's borders, particularly west of the Rock Creek.

### NEW PARKS

The founding of Rock Creek Park was a significant event for Washington. After years of advocacy, the nation's capital now had a public park to rival those in other American cities. The establishment of the park was also significant in the history of the future National Park Service. By early October 1890, Congress authorized the creation of several new parks that would later become units of the National Park Service. The first national battlefield parks, Chickamauga and Chattanooga National Military Park and Antietam National Battlefield, were established in August. On September 25th, the same day both houses approved legislation establishing Rock Creek Park, Congress authorized the creation of Sequoia National Park. Within days of the signing of the Rock Creek Park legislation, two additional parks, General Grant (predecessor of Kings Canyon National Park), and Yosemite were created in California.[74]

The enabling legislation that established Rock Creek Park borrowed language from the act which created Yellowstone National Park. The Rock Creek Park bill

**Figure 1.6**
**Ford on Rock Creek, ca. 1900. Library of Congress.**



stated the park was "dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people."[75] It called for regulations that "shall provide for the preservation from injury or spoliation of all timber, animals, or curiosities within said park, and their retention in their natural condition, as nearly as possible."[76] In 1916, when the National Park Service was created, the Organic Act establishing the service echoed the preservation and management principles outlined in the founding legislation of these early national parks.[77]

### SUMMARY

The creation of Rock Creek Park marked the end of a long struggle to preserve a natural landscape local residents and visitors to the city loved. The valley had all but officially been a park for many years. The valley's roads and trails, as well as the streets adjacent to the new park, provided park managers with a foundation upon which to build a circulation system and create the romantic walks and quiet retreats envisioned by Major Michler.

Analysis of historic maps reveals that 2.61 miles of bridle trails, 1.11 miles of foot trails and 12 miles of carriage roads were extant in the Rock Creek Valley at the end of this period.

# *Rock Creek Park Historic Trails 1865-1890 Period Map*

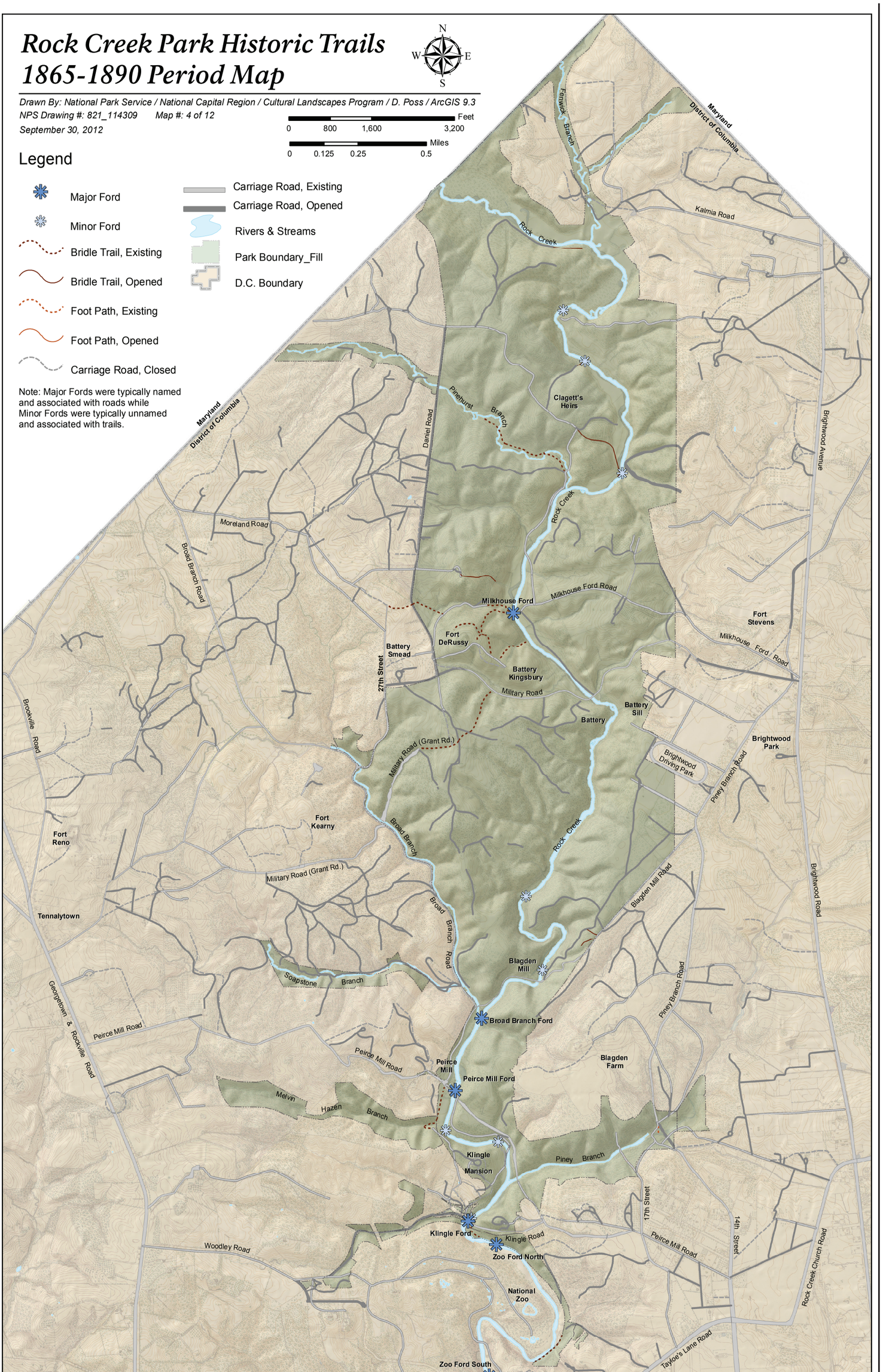
*Drawn By: National Park Service / National Capital Region / Cultural Landscapes Program / D. Poss / ArcGIS 9.3*
*NPS Drawing #: 821_114309 Map #: 4 of 12*
*September 30, 2012*

Feet: 0 800 1,600 3,200
Miles: 0 0.125 0.25 0.5

## Legend

- Major Ford
- Minor Ford
- Bridle Trail, Existing
- Bridle Trail, Opened
- Foot Path, Existing
- Foot Path, Opened
- Carriage Road, Closed
- Carriage Road, Existing
- Carriage Road, Opened
- Rivers & Streams
- Park Boundary_Fill
- D.C. Boundary

Note: Major Fords were typically named and associated with roads while Minor Fords were typically unnamed and associated with trails.




*SOURCES: Topographical Map of the District of Columbia, A. Boschke, 1861; Defenses of Washington, 1865; Hopkins Survey, 1878; U.S.C.G.S. 1892 (Background Image); Rock Creek Park Surveys 1910, 1916; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010*

## PARK ROADS, TRAILS AND PUBLIC ACCESS, 1890-1917

### ROCK CREEK PARK COMMISSION

Within a month of President Harrison's signing the park legislation, the Rock Creek Park commissioners set out to determine the park's boundaries. In October the commissioners explored the Rock Creek Valley by carriage, horse, and on foot. Following these trips they determined the tentative boundaries of the park to be 16th Street from Blagden's Mill to the Maryland border on the east side of the park. Daniel Road (Oregon Avenue), constructed in 1872, and Broad Branch served as the western boundary. By January 1891 the boundaries were solidified. By April, a map and the valuations of the land were forwarded to the president and the D.C. Recorder of Deeds.[78]

At the time of the park's founding, several families and individuals owned or rented houses and farms in the Rock Creek Valley. Twenty-one of the land parcels acquired for the park included buildings. The property also contained several roads, including Klingle, Peirce Mill, Blagden Mill, Broad Branch, and Military. Roads in subdivided land belonging to the Blagden family and other Rock Creek Valley property owners also became part of the circulation system in the park.[79]

Over the next three years, the commission worked out the frequently contentious, and at times litigious, details of compensation and condemnation of land for the park. The commissioners also revised the boundaries of the park and omitted nearly 300 acres in the northeast section, as the cost of the property exceeded the land purchase appropriation.[80]

### THE BOARD OF CONTROL AND THE ARMY CORPS OF ENGINEERS

On December 13, 1894, the Rock Creek Park Commission turned over administration of the park to the Board of Control of Rock Creek Park. The board was made up of the three Commissioners of the District of Columbia and the United States Army Chief of Engineers. On January 1, 1895, the board assumed responsibility for the nearly 1,606 acre site.[81]

The Army Corps of Engineers would have a major impact on the management and development of Rock Creek Park, as they did with the city of Washington. The engineers were responsible for much of the development of Washington's infrastructure and the construction of numerous public buildings beginning in the early 1800s and continuing through the mid-twentieth century. In 1867, lawmakers transferred the care of public buildings in the capital from civilian management to the Army Corps of Engineers under the newly created Office of Public Buildings and Grounds (OPBG). The OPBG was given exclusive control of all of federal reservations, which included Washington's public buildings,

parks, and all "public works and improvements of the government of the United States in the District of Columbia."[82] Major Nathaniel Michler was appointed the first Officer in Charge of Public Buildings and Grounds (OPBG), making him "the chief maintenance man for the federal buildings and the landscape architect of the federal reservations."[83] Under the care of engineers, Washington's many small public spaces created by Pierre L'Enfant's city plan were transformed from muddy lots to small green spaces. During the 1870s, the OPBG planted trees, flowers, and shrubs, and graded streets, installed benches, fountains, and lighting in the city's parks. They also turned the Washington Monument grounds into an inviting public space. In 1898, all the city's parks, with the exception of Rock Creek Park which was still managed by the Board of Control, were transferred to the care of the OPBG.[84] Additional public spaces were later placed under the OPBG's management and some were returned to the District Commissioners. The engineers' influence of Rock Creek Park is evident in the names of the park's roads, as several of them, including Beach, Morrow, Ross, Sherrill, and Bingham are all named for corps members who had a hand in the administration and improvement of the park.

### BRIGHTWOOD CITIZENS ASSOCIATION

During the first years of the board's operation, Congress made no appropriations for the park.[85] Funding for park improvements was not made until 1899, despite calls for roads to access the park and the development of trails and other recreational features by the public. In 1896, a neighborhood organization, the Brightwood Citizens' Association, passed a resolution calling for Congress to allocate "$100,000 to enable the legal custodians of the park to begin to carry out the provisions of the law, for laying out and preparing roadways and bridle paths to be used for driving and horseback riding, respectively, and foot paths for pedestrians..."[86] They also argued for adding Piney Branch Valley to the park and including the tracts along 16th Street that were not acquired during the park's establishment due to lack of funds.[87]

The growing community of Brightwood bordered the park to the east. The neighborhood included several prominent Washingtonians, among them Isaac Peirce descendent Louis P. Shoemaker and William Van Zandt Cox, a member of the influential Washington Board of Trade. In 1896, Cox served as president of the Brightwood Citizens' Association, which was founded in 1891 to promote the area and lobby for improvements.[88] The *Evening Star* newspaper covered the association's 1896 meeting, and copies of the association's park resolution were sent to the D.C. Board of Commissioners and the District subcommittees in Congress. The newspaper quoted Cox as saying,

> Yet so far as I am aware, not a single dollar has been spent in making it accessible to the people for whose recreation it was purchased. . .If this magnificent

> natural park is to be what it was intended to be, it is now full time that roads and pathways be made to and through it; but, in absolute harmony with all its wild surroundings, until this is done, our people cannot have free access to this, the most beautiful region possessed by any city or any country for a park.[89]

At this time, streetcars provided the public with access to the park, but stops were not located near park entrances. The closest lines ran along Connecticut Avenue to the west, Brightwood Avenue (Georgia Avenue) to the east, and Calvert Street to the south of the park. In 1900, Congress authorized the extension of streetcar lines. New stops on Park Road and Mount Pleasant Street brought the public closer to the park, but still required a good distance to walk.[90]

Despite the Brightwood Citizens' Association's lobbying efforts, again no money was allocated. The first improvements in the park took place the following year, but were not funded by an appropriation by Congress. Beginning in 1897, Assistant to the Chief of Engineers Lansing H. Beach arranged for chain gangs to maintain and construct roads, culverts, and bridges, as well as clear underbrush and mow grass. The labor provided by chain gangs was used on multiple occasions in the early years of the park to complete work when funding was limited. In 1898 they opened up a portion of Military Road south of Daniel Road that had been abandoned after the Civil War. A chain gang cleared trees and underbrush and laid out Ridge (Glover) Road in 1899. Grading of the road was completed in 1900 using convict and day labor. The road was macadamized in 1901.[91]



**Figure 1.7**
**Men clearing ford in Rock Creek, ca. 1906. Library of Congress, Prints & Photographs Division, Theodor Horydczak Collection, LC-H822-T-1723.**

Congress provided funding for the park in 1899 following extensive lobbying by the Washington Board of Trade. The board repeated previous arguments made by the Brightwood Citizens' Association on the inaccessibility of the park and the failure of the board to implement the provisions of the founding legislation. Again, the *Evening Star*, whose editor was a member of the board of trade, supported the call for improvements. The efforts were successful and Congress



**Figure 1.8**
**Unimproved carriage road along Rock Creek, ca. 1906. Library of Congress, Prints & Photographs Division, Detroit Publishing Company Collection, LC-D4-19152.**

amended the District appropriation bill and authorized the use of funds previously appropriated for land acquisition to improve the park.[92]

The injection of funds into the park allowed for several building and improvement projects, the most significant being the construction of a road along the creek from Blagden Mill Road to Military Road. Work began in May and the road was opened to the public by December 1899. The new road, originally called Rock Creek Drive, was later named Beach Drive in honor of Captain Lansing Beach. The remainder of the appropriation was spent on macadamizing the road connecting Broad Branch Road and Daniel Road, improvements to other roads, and construction of a rustic stone arched bridge over Piney Branch, the location of which reports do not identify.[93]

That same year, Thomas Blagden donated a roadway from 16th Street leading into the park. Known as Blagden Avenue, the road forded the creek and connected with Beach Drive following the construction of a small roadway. Blagden Avenue led to the abandonment of Bladgen Mill Road.[94]

At the close of the 1800s, as Rock Creek Park neared its tenth year, the much-delayed appropriations allowed for park improvements in the form of paving or expanding old roads and constructing Beach Drive and Ridge Road. The park's trails and access for pedestrians received little attention during this period. The public protests over park access, such as those led by the Board of Trade and the Brightwood Citizens' Association, would continue in the 1900s.

### THE MCMILLAN PLAN

The beginning of the 20th century marked the one hundredth birthday of the nation's capital. Plans to commemorate the anniversary were discussed and proposed by numerous individuals and groups, including the Washington Board of Trade and Senator James McMillan, chair of the Senate Committee on the District of Columbia. The proposals centered on the development of the city's monumental core and led to multiple hearings, counter-proposals, and debates. Ultimately, the Senate Park Commission, commonly known as the McMillan Commission, was assembled to study the city's parks and open spaces and the design and location of the city's public buildings. The commission was composed of architects Charles Burnham and Charles McKim, landscape architect Frederick Law Olmsted Jr., sculptor Augustus Saint Gaudens and McMillan's secretary, Charles Moore, also served as the commission's secretary. Their report, published in 1902, included several Park Improvement Papers on a variety of topics ranging from the need for additional parks and playgrounds, to equestrian statues in the city, and the history of Rock Creek Park.

The McMillan Commission's report and two of the improvement papers addressed the condition and development of Rock Creek Park. The report did not extensively discuss the park, but noted the skill with which Beach Drive had been laid out and the increased accessibility and visitation to the park because of the drive. In addition to praising the drive, the report also criticized the damage the road inflicted on the scenery and the possibility that increased traffic would lead to widening the road. An additional drive, or drives, in the northern part of the park away from the creek was suggested, though not without reservations. The report stated that both careful study of the park and the development of a comprehensive plan were necessary in order to protect the site's beauty and maintain its



**Figure 1.9**
**Ford in Rock Creek, ca. 1906. Library of Congress, Prints & Photographs Division, Detroit Publishing Company Collection, LC-D4-19150.**



**Figure 1.10**
**Rock Creek at Zoo Bridge, 1906. Library of Congress, Prints & Photographs Division, Detroit Publishing Company Collection, LC-D4-19149.**

resources.[95] This opinion would be one shared and expressed by many involved in park management until the first planning documents were developed in 1918.

The first park improvement papers covered the Washington Board of Trade's work in the development of the city's parks. The paper discussed Rock Creek Park's current state and additional improvements still necessary to make it accessible. The paper outlined the board's actions regarding the park and made suggestions for additional roads and improvements. They praised Beach Drive—whether traveled by vehicle, horse, bicycle, or on foot. "It is now possible to drive along Rock Creek, as it wildly dashes over falls and rapids, from the Zoological Park on the south to the Military road, west of Brightwood." [96] The board spoke favorably of road work completed to that point.

> We cannot commend too highly the work done by the officers in charge in constructing along the narrow gorges and between hills covered with most beautiful trees a driveway which will be enjoyed by pleasure seekers in carriages, on horse, and on wheel, as well as pedestrians, and by citizens of the northern end of the District who may desire to avoid streets and roads occupied by electric cars in going to and coming from the city.[97]

The paper went on to quote a June 28, 1899 editorial in the *Evening Star*.

> It is the opinion of experts in landscape gardening that the area inclosed (sic) within the limits of Rock Creek Park is an exceptionally beautiful bit of territory. The gorges of the valley, the sturdy growths of forest trees on the hillsides, the waters of the creek, and the rocks all combine to form a succession of picturesque views which cannot be exceeded in this portion of the country. It has long been held by the majority of citizens that the most satisfactory treatment of the park would be to permit as many as possible of the natural features to remain without change, while furnishing access into and through the park at such places as the topography suggests. There is little or no need of artificial gardening in the midst of such a profusion of natural beauty. [98]

The editorial noted that careful study of the park would serve a better purpose than "hasty performances intended solely to transform the park into a semi-artificial picnic ground or flower garden." [99] This sentiment—the desire to avoid "artificiality"—was one that had been stated since the founding of the park and would be repeated by park managers and the public over the coming years. They wanted to leave the park in its "natural" or "rugged state" and did not believe the park needed any improvements in the form of designed features such as those found in other major urban parks. They only desired routes to access a landscape they felt needed little enhancement.

The seventh improvement paper, "Notes on the Establishment of a National Park in the District of Columbia and the Acquirement and Improvement of the Valley of Rock Creek for Park Purposes," written by board of trade and Brightwood Citizens' Association member William Van Zandt Cox, outlined the development of the park. The paper quoted a September 1900 *Evening Star* article on the park which noted, "Steadily and surely it is being improved, and in the matter of drives and roads this particularly so." [100] The newspaper referred to Captain Lansing Beach as the guardian angel and, "the moving spirit in the transformation now in progress, and his effective vicar in the good work has been and is Mr. W.B. Richards, of the District engineer office." [101] Assistant Engineer William B. Richards would spend several years of his career managing Rock Creek Park and have a significant impact on its development.

#### APPROPRIATIONS AND IMPROVEMENTS

The Board of Control faced several recurring issues during the early 1900s, including the need for a park management plan, the development of foot trails, and sufficient public access to Rock Creek Park. These issues were the subject of letters to the Board of Control and articles in local newspapers, as well as topics of discussion in Congressional appropriation hearings. Appropriations were an additional challenge facing park managers during this period and directly affected the development of trails, roads, and access to Rock Creek Park.

Between 1900 and 1910, appropriations for Rock Creek Park fluctuated. The largest sums were allotted in fiscal years 1900 ($24,300) and 1902 ($37,500), but most years Congress granted $12,000 or $15,000 dollars. An unusually low appropriation occurred in fiscal year 1903 in the amount of $2,500. [102] During this period, the park spent the majority of funds on road construction and improvements, but some was spent on trails. The board's reports often did not specify the amount of money allocated for trails, but in fiscal year 1904, $500 went towards foot trails.[103]

Work completed during 1902 included the opening of Ridge Road "not in a finished state," the construction of Pebble Dash and Boulder Bridges, and a

new entrance to the park at Blagden Avenue. The Board of Control reported the construction of an unnamed macadam drive from Daniel Road to Military Road and Broad Branch Road.[104] Based on a review of historic maps the unnamed drive south of Military Road leading to Broad Branch appears to be a road segment that connected with Grant Road. The segment north of Military Road connecting with Daniel Road appears on maps prior to 1890. It is likely the board is reporting that this segment of road was macadamized in 1902, but constructed earlier.

At the end of 1902, during hearings for future park appropriations, the engineer commissioner for the District of Columbia expressed his desire for the construction of trails and bringing more pedestrians into the park. "I will simply say that we have this large park, which is only partly used, and we wish to put in more roads and paths to make it more accessible to the general public." [105] He went on to explain how he would like to spend the proposed appropriation. After listing the road and improvement projects, including paving the creek bottom at Milkhouse Ford and extending Blagden Avenue, the engineer commissioner said, "I wish to make the park accessible to pedestrians, and for that reason I am trying to open footpaths all through it. There are no shelters, and I desire to erect some sheds for pedestrians and also for people out driving."[106]

### PEDESTRIAN TRAILS

The matter of pedestrian access and use of the park was still an issue for the public, more than 12 years after the park's founding and five years after the Brightwood Citizens' Association's 1896 protests over the lack of improvements. Much had been done to improve horse and carriage access, but little for those on foot. In August 1903, an area resident wrote to the *Washington Post* concerning the attention paid to the needs of drivers, but not those of pedestrians visiting the park. "A great deal has been done in the last few years in making access to the park easy and comfortable for those who ride and drive. This is as it should be, although there is, perhaps, some danger of an excessive multiplication of driveways." The writer commented that "seven or eight years ago, walking in Rock Creek Park was much more agreeable than it is today." He complained that the trails were not connected, poorly maintained or blocked by fallen trees, and pedestrians were forced to walk on roads crowded with "rapidly moving carriages" during the late afternoon. "Is it not time that some consideration were shown the many residents of the District who take pride and pleasure in this, the finest of our parks, but can visit it only on foot? There is no other large body of woodland near the city at once so attractive and so easy of access."[107]

The public's call for improvements for pedestrians had supporters in the Board of Control, as evidenced by the engineer commissioner's remarks during appropriation hearings, and in Assistant Engineer Richards. In his recommendations for work to be completed during the next fiscal year, Richards

wrote, "A new feature of improvement that now suggests itself is the construction of foot-paths through the park leading somewhere near and in the general direction of Beach Driveway but on the opposite side of the creek. If the start can be made during the coming year it is suggested that the work be commenced at Klingle Ford and be carried northward as far as any appropriation would allow." He went on to say, "There are a number of fine springs in the park which need paths leading to them..." Richards also suggested that steps should be taken to begin locating and mapping the "particularly attractive points in the park so that any plan that might be adopted in the near future would have regard to exceptional places."[108] For the next fiscal year, $500 of the $12,000 appropriation was set aside for "opening up walks through the Park south of Military Road."[109]

In December 1903, the engineers reported on the state of the park and again expressed the desire to increase access and trails. "The popularity of the park is steadily growing, and it is hoped that all of this beautiful section of country can soon be provided with good roads and foot trails so as to open it up still further



**Figure 1.11**
**An Autumn Pathway, Zoo Park (Rock Creek), ca. 1906. Library of Congress, Prints and Photographs Division, Detroit Publishing Company Collection, LC-D4-19155.**

to the public."[110] That month, Richards wrote to the engineer commissioner of the District on the construction of trails. He recommended that,

> The main walk, like the main road, should be in the valley of Rock Creek and should be guided in its location and construction by the following considerations: First – To keep near the creek upon lines of fairly easy grade. Second – To keep the way as accessible and as easily traveled as possible. Third – To retain a rustic walk in harmony with its surroundings. [111]

Richards reported that a route had already been selected from Klingle Road to Military Road. This route would later become today's Valley Trail and portions of the Western Ridge Trail south of Broad Branch.

> Skirting the creek but located so as to cross the driveways at as few points as possible, and so as to be at some distance and not easily discernible from the main driveway along the creek. Although it is to follow along fairly easy grades, the monotony of such will be broken by occasional climbs, assisted in very rough places by steps constructed with as rustic effect as possible. [112]

Richards advised that people may enter the park from different locations, but they should be "readily and naturally guided" to the main walk along the creek. [113] He noted the trail should be constructed of a material such as "broken stone and rotten rock or cinders." [114] Unlike a dirt surface that would render a trail impassable for several months, he reasoned, these materials would allow the trail to be used throughout the year. Richards wrote that rusticity "has been a guiding



**Figure 1.12** Car crossing ford on Rock Creek, ca. 1906. Library of Congress, Prints & Photographs Division, Detroit Publishing Company Collection, LC-D4-19151.

feature in all park work" and had been dependent on the use of "boulders, roughly quarried stone, or random methods in planting."[115]

By August 1904, "a foot path has been graded on the west side of the creek from Klingle road to about Pierce Mill."[116] That same year the bottom of Milkhouse Ford was paved. This improvement "was considered vital due to the rough quality of the stream bed and the ford's status as the only practical crossing between Military Road and the north end of the park."[117]

Over the next two years, the engineers reported that significant trail work was completed. In 1906, the engineers stated that "during the winter and spring a good deal was done in the way of opening paths thru the park. . ."[118] The annual report did not identify where they were constructed or if they built foot or horse trails. However, that year the Board of Control published the first map of the park's bridle trails.[119]

In January 1907, the Washington Board of Trade passed a resolution on the continuing issue of access to and awareness of entrances to the park. "The Rock Creek Park is now well laid out in roads and paths which are virtually unknown to the mass of our citizens, and but little frequented by any but vehicle users and horseback riders. . ."[120] The board noted that a map of the park illustrates roads and trails, but does not list approaches or entrances from the street car lines which they referred to as "the vehicles of the people."[121] The board requested the commission include on the map entrances that can be accessed by pedestrians and street cars "in order that the people may come to a full enjoyment of this beautiful park." The board also resolved "that the honorable Commissioners of the District of Columbia be requested to place on the streets, roads and other points so designated finger posts pointing the way and showing the distance to the Park, and a sign in the street, road, etc., where it touches or enters the Park."[122]

Planning for a new eastern entrance began in 1907, when the park expanded through the acquisition of land along Piney Branch. That year a parkway was authorized along the new property and within two years a bridle trail was in place along the south side of Piney Branch. It later became a foot trail, and when Piney Branch Parkway was completed in 1938, the road roughly followed the alignment of the trail.[123]

### THE AUTOMOBILE

Traffic reports in June 1907 illustrated the popularity of the park on weekends, particularly among vehicle owners, and again pointed out the need for additional trails for walkers.

> A count of the vehicles passing a given point was taken on two Sundays in June, showing 2,750 on June 10th and 3,761 on June 17th, in addition to bicycles, equestrians, and pedestrians. It is respectfully recommended that in the next

> fiscal year a system of paths for pedestrians only be laid out and built. The roads and bridle paths are so crowded with vehicles on Sundays and holidays that walking is attended with danger and discomfort.[124]

Though the count of vehicles in the park does not distinguish between horse drawn carriages and automobiles, it is likely a significant number of the visitors to the park traveled by car based on vehicle registration and driver permit information from this period. In 1904, vehicle permits were issued to 858 Washington drivers and in 1907, 2,200 cars were operating in the city.[125] Based on the number of vehicles reported in June, many Washington car owners were visiting Rock Creek Park.

As the traffic report indicates, the growing number of vehicles in Rock Creek Park presented a challenge to managers and visitors, as pedestrians competed with drivers for space on the roads and equestrians shared bridle trails with vehicles. Park regulations in effect since the 1890s allowed for vehicles to use bridle trails, but they were banned from pedestrian trails.[126] Conditions on bridle trails were likely not as congested, as the number of equestrian users was much lower than pedestrian and vehicular visitors to the park. Also adding to the relief of bridle trail traffic, the Board of Control reported approximately 12 miles of bridle paths "cut through the park" in 1907.[127] Despite the overcrowded conditions on roads and the potential for accidents, an article in the *Washington Post* published in the fall of that year stated the Board of Control believed "the roads and paths in the park are sufficient for present needs."[128]

If conditions changed and park managers felt additional trails were necessary in 1908, no funding was available for new construction, as the bulk of that year's appropriation was spent on maintenance, bridge, and the construction of a nine-hole golf course.[129] However, park managers proposed measures to control traffic to make the park safer. Assistant Engineer Lee R. Grabill called for additional bicycle and horse patrols in the park to control speeding vehicles and heavy traffic. Grabill stated, "It is reported. . .that there was on last Sunday great need of bicycle officers in Rock Creek Park to prevent speeding of automobiles, etc., the drives being filled with vehicles and pedestrians. I respectfully suggest that a detail of not less than two bicycle officers be requested next Sunday and each Sunday and holiday thereafter during the driving season."[130]

The following year, the crowded roads were still an issue and it was clear that more pedestrian trails were necessary, as noted by park managers in a letter to a visitor. ". . .There are not sufficient foot paths at present to expect the pedestrians to keep off the roads. . .the remedy for the matter is to build additional foot paths paralleling the driveways. . .it will be my endeavor to construct such foot paths when sufficient funds are available for the purpose."[131]

Some funding was available as a new foot trail was constructed in 1909 "on high ground was cleared and graded on the east side of Beach drive, from the

zoo to the Military road, and a new bridle path was cut to the Daniels road at the upper end of the park." [132] Significant portions of this trail became today's Valley Trail. That year Assistant Engineer Grabill recommended constructing additional paths and increasing accessibility by opening a new entrance to the park "from 16th street by way of Piney Branch Parkway," and "a new masonry bridge be built on the upper end of Beach Driveway," during the next fiscal year.[133]

#### PUBLIC TRANSPORTATION

A new entrance to the park and additional paths met visitors' needs once they reached the park. However, for many simply getting to Rock Creek Park continued to be difficult. In 1909, the park was still inaccessible to the majority of Washingtonians. Street cars lines operated on Connecticut Avenue and near the east side of the park at Mount Pleasant and at Kennedy Street, "but by the standards of the time, the distance between the trolley stops and the park was considered excessive, especially when added to the lengthy circuits within the park." [134] The Washington Herald newspaper ran a series of articles about the issue of public access—particularly for the poor who did not have carriages and automobiles—and urged improvements. Residents wrote to the Board of Control and the city commissioners to pressure them to build streetcar lines to, and some suggested through, the park. The protests were reminiscent of those made in 1896 and 1902 by the Brightwood Citizens' Association and the Board of Trade. The Brightwood Citizens' Association later came out in support of extending streetcars through the park, again arguing that the park was not fulfilling its responsibility of providing access to all citizens of the city.[135]

At the end of the summer of 1909, the International Auto Sightseeing Transit Company applied for a permit to operate touring cars through the park.[136] Assistant Engineer Grabill endorsed the idea and suggested routes through the park that connected with three streetcar lines. The company shortly afterwards withdrew their application on the grounds it would be "impracticable to run such a machine in the park."[137] However, touring cars did begin to operate in the park in 1909, though it is unclear whether International Auto Sightseeing Transit Company was one of the operators. The cars transported people from Mount Pleasant to Brightwood via the zoo and the park.[138]

Despite the continued inaccessibility for many area residents, park visitation continued to be high. Traffic counts taken on a Sunday in April 1910 again indicated the park's popularity and provided information on how people were seeing the park, whether in vehicles, on horses, or on foot. "Passing Pierce's Mill, between 10AM and 6PM April 10, 1910: Pedestrians 1215, Equestrians 293, Two horse vehicles 350, One horse vehicles 1050, Bicycles 190, Motor cycles 43, Automobiles 1126. It is estimated that the number of individuals passing

Pierce's Mill was about 10,000. In addition to these, there were doubtless visitors to other parts of the Park who did not pass the mill."[139] The visitation numbers again indicated pedestrians and vehicles continued to compete for space on park roads.

In a letter to the Board of Control later that year, Assistant Engineer Richards, who was no longer involved in park management, provided suggestions to the Board of Control on park planning that reflected the growing need to accommodate visitors enjoying the park in automobiles and other vehicles. Richards wrote that no "elaborate scheme of development need be devised" for general park management, but roads should take priority in planning and other features should be developed around them. Richards suggested that trails avoid intersecting with roads, which would ensure the safety of pedestrians who competed for space on park roads.[140]

> A system of drives should hold precedence over any kind of development and must practically form a frame work with which other features harmonize… Equestrian or bridle paths need not be restricted either as to grade or width and can therefore be located with great freedom. While they may lead in the same general direction or may even follow the edge of the main road yet it is preferable that they be so located as to seldom cross or coincide with the walks and carriage ways. The existing bridle paths have been picked out mainly by equestrians and thus indicate very well the lines best adapted to such use. Foot paths are naturally the most numerous of all the lines of park travel and should lead with fairly easy grades to all points of the park. They should begin at all principal road entrances and wind across and through the park in a manner that will keep the pedestrian informed of his bearings or location. They should cross the roads at as few points as possible and then above or below grade if permissible without undue expense or without detriment to natural effect. Foot paths will need to be closer and more numerous in the vicinity of play grounds but it seems that the practice sometimes indulged in of making a labyrinth of small paths is not a desirable treatment.[141]

Over the next few years, improvements and extensions to the trail system continued, and money was allocated each year for the care and maintenance of the trails. Three additional bridges, "all substantial masonry structures of rustic design built of the native gray stone," were constructed in 1911 along upper Beach Drive.[142]

In 1912, the Board of Control published a report outlining the work completed in the park from its founding through June of that year. The report noted that the bridle trails "have usually been laid out on the lines of old foot paths or roads made through the woods by wagons hauling wood, and in construction very simple." [143] The board reported there were about 21.5 miles of bridle trails and approximately 4 miles of foot trails. Access, they admitted, was still an issue even with the opening of additional park entrances. The closest streetcar stops still required a considerable walk to reach the park.[144]

In the report, the board outlined future plans of improvement, including widening roads and the need to provide access. However, they reiterated the long-held

belief that the only necessary improvements or additions be made so as not to spoil the park. "The beauty of the Park lies in its closeness to nature, and only such roads, bridle paths, and foot paths should be opened as are necessary to take care of traffic."[145]

### PROMINENT PARK VISITORS

Work continued on expanding the bridle trails and foot trails in 1913 and 1914. In the 1913 annual report, 5 miles of foot trails and about 22 miles of bridle trails were noted. Also in 1913, park regulations were amended to prohibit vehicles from using bridle trails and horses were not allowed on foot trails. [146] The following year began with hearings on appropriations for the park. Senator Henry Cabot Lodge of Massachusetts introduced an amendment for $5,000 to remove "dead and down timber from the woods and streams of Rock Creek Park."[147]



**Figure 1.13** President Roosevelt, a frequent Rock Creek Park trail rider, taking a jump on his horse Bleistein, ca. 1902. Library of Congress, Prints & Photographs Division, LC-USZ62-4698.

In the hearings, Senator Lodge remarked, "I have seen most of the parks of the great cities of the world, and I think that for natural beauty this is the most beautiful park I know."[148] The senator remarked on the dead trees and timber damaging or blocking the bridle and foot trails. Senator Jacob Gallinger, who served as the chair of the Committee on the District of Columbia from 1903-1913, agreed with Lodge on the dead and down timber and lamented, "We have never appropriated as much money as we ought for the preservation and beautification of that great park."[149] The concerns about the park voiced by Senators Lodge and Gallinger apparently led to clearing timber from the trails. At the end of August 1914, Assistant Engineer Grabill noted in the annual report that $1,664.06 of the year's $21,000 appropriation was used in clearing dead timber from the park.[150]

Senators Gallinger and Lodge's concern and familiarity with Rock Creek Park reflected the range of visitors frequenting the site. Rock Creek Park was the local park for Washingtonians, some of whom were the nation's and the world's leaders. President Theodore Roosevelt and First Lady Edith Roosevelt, and later President Woodrow Wilson and First Lady Eleanor Roosevelt, were counted among the park's frequent visitors.

The *Washington Post* often reported on President Theodore Roosevelt's horseback rides and vigorous hikes in the park. "These excursions, often captured by newspaper photographers, had special rules governing the conduct of any guests riding with the president that were devised so as not to impede the pace of the ride."[151] The president did his own reporting on his trips to the park in letters to his children and in his autobiography. Towards the end of his presidency, Roosevelt was taking daily rides to Rock Creek Park or Potomac Park. Newspaper reporters, member of Congress, cabinet secretaries, diplomats,

military leaders, and the Secret Service sometimes accompanied the president riding or walking, and often failed to keep up as Roosevelt tramped through the woods.

One of the president's hiking partners was Jules J. Jusserand, who served as the French Ambassador to the United States from 1903-1925.[152] In a tribute to the ambassador held during World War I, speakers relayed stories of Jusserand's trips to Rock Creek Park with Roosevelt. "When Theodore Roosevelt was President, he maintained a steeplechase course in Rock Creek park, obstacles to surmount, rocks to climb, rivers to swim in a glorified and presidential game of following-leader…And of all the reliable steeplechasers of that period, no one climbed or swam or tennised more successfully than the able Ambassador of France." [153] In 1936, a memorial bench was dedicated in Jusserand's honor in the park.[154]

### WALKING CLUBS

The foot trails in Rock Creek Park received an enormous influx of visitors in 1914 with the organization of a walking club called "The Wanderlusters." As early as 1907 the founders of the club, who were interested in birding, rock collecting and botany, had been gathering for walks. According to an article in The *Washington Post*, the first organized hike on April 19, 1914 attracted 920 people. The founders of the club wanted to "invite the whole nature-loving, walk-loving public to go on a walk with them."[155]

One reason for the great attendance at The Wanderlusters inaugural hike was the expansion of streetcar service. New trolley stops closer to the park provided the public with the access they had long been requesting. The park's 1914 annual report noted an increase in pedestrians and the streetcar's effect on visitation, particularly in the south and central areas. "[T]he general use of the park by the public is largely increasing year by year, and especially the use by picnicking parties and pedestrians, for whose benefit many paths and footbridges have been built." [156] Pedestrians in these parts of the park "are becoming more numerous in proportion to the whole number of persons who frequent the park." [157]

Walking clubs such as The Wanderlusters originated in Europe during the late 1700s and early 1800s. Influenced by English poet William Wordsworth and changing attitudes towards nature presented by other writers and philosophers of the romantic era, walking became a way to encounter nature alone or in organized groups. [158] In England, walking or rambling clubs were founded beginning in the early 1800s. Many of the clubs were social, but some also included scientific exploration and mountaineering. American clubs were established later in the 1800s and the early 1900s, including the Appalachian Mountain Club (1876), the Green Mountain Club (1910) and the Sierra Club (1892), which included wilderness preservation in its mission.[159]







**Figure 1.14**
**Images of the walking club "The Wanderlusters." National Geographic Magazine, August 1919.**

The Wanderlusters' first hike was held in the upper Rock Creek Valley, and the founders didn't know whether to expect "10 or 10,000" walkers. Those who participated included people from a range of backgrounds, including members of Congress, clerks, "shop girls," and others with "a love of nature" who wanted to take an educational walk. [160] Night hikes became part of the club's schedule and in June 1914, at least 300 people tramped for five miles with the park foreman.[161] Later that summer, the *Washington Post* again reported on the club, noting,

> Rock Creek park, admittedly one of the most beautiful spots in this or any country, was thoroughly explored by the walking contingent of the Capital yesterday, and many beautiful scenes were presented that until then had been as

> a closed book to a large portion of the party. Some interesting studies in botany and entomology were also in order during the stroll.[162]

Membership in the Wanderlusters gradually decreased in the 1920s. New walking clubs were founded, but dissolved after a short time. In 1927, the Potomac Appalachian Trail Club (PATC) was established to build and maintain sections of the Appalachian Trail in the mid-Atlantic region. It drew members from the Wanderlusters and other defunct area walking clubs. [163] Another local walking club, The Wanderbirds, was established in 1934 and sponsored by the *Washington Post*. Both the Wanderbirds and PATC remain active today. In 1977, PATC partnered with Rock Creek Park to improve and maintain its foot trails.[164]

### EQUESTRIAN CLUBS AND BRIDLE TRAIL IMPROVEMENTS

Unlike the walking clubs, which established themselves many years after the park's founding, some businesses and organizations that served users of the bridle trails predated Rock Creek Park. The Washington Riding Academy, located at the eastern end of the P Street Bridge, opened in 1888. The academy offered stabling space and conducted riding lessons in the park. President Grover Cleveland was a member at one time. It was one of a few stables located near the park that provided Washingtonians with convenient access to the bridle trails. [165] Another club, the Wardman Park Saddle Club, opened in 1917. The club was operated by the Wardman Park Hotel, a luxury hotel and residence located just outside the park's boundaries and adjacent to the Rock Creek and Potomac Parkway. The saddle club provided space for guests and residents to stable their horses. An additional riding club operated by Wardman was located on the site of the Kennedy Center.[166]

Popular trails and roadways used by riding club members and other equestrians underwent modification and expansion in 1915. To alleviate the heavy vehicle traffic in the park, Ross Drive was macadamized that year. Plans were drawn up for a new bridle trail to replace the road, which was a favorite riding route. In April, the tentative route of the new trail ran from one end of Ross Drive to Daniel Road and then headed east along the north side of Military Road towards the creek. There it would meet up with north-south running trails.[167]

During the fall of 1915, members of the public and the engineer's department expressed their wishes for bridle trail improvements and modifications, including widths and trail location. Assistant Engineer Grabill described the work in a September memo to the secretary of the Board of Control, "The paths proposed follow existing trails, which will require to be widened to a minimum of eight feet for riding two abreast. The work of increasing the width of some of the park trails has already been undertaken, with the intention of finally widening all of them.

At the present time we are endeavoring to connect the many paths cut off by the construction of the Ross road."[168]

One voice protesting the changes in the horse trails belonged to a local rider who expressed her displeasure in a letter to Colonel William W. Harts of the Office of the Chief of Engineers. Harts was head of the Office of Public Buildings and Grounds and responsible for most of the city's parks.[169]

> My Dear Colonel Harts, I am turning to you as an authority for information on a subject about which all dwellers in Washington feel keenly. Someone with great zeal is broadening and leveling the riding trails in Rock Creek and alas despoiling them of their unique charm which is such a surprise to strangers and such a joy to residents. Rock Creek was different, and most of us truly believed more beautiful than any park in Europe or America. Its situation and uncultivated wildness make an appeal to thousands who like myself, are bored to death with the artificiality of Central Park, Hyde Park, or the Tiergarten. Here we had an exquisite bit of nature. Anyone who can ride or walk that far values the aloneness of our trails. Can you save the romance and beauty of them? I feel as though I were watching a friend being mutilated.[170]

In response to the letter, Harts wrote that the office had received several suggestions on trail width and a compromise needed to be reached to accommodate all the opinions. By the end of the year the work was completed and early in 1916 the trail "west of Rock Creek, between the Boulder Bridge and the Military road. . .is now being extended about 6,500 feet north of the Military road."[171]

Over the next year additional work on trails and footbridges was completed in the northern section of the park. A new footbridge allowed easier crossing of Piney Branch.[172] The bridle trail on the west side of the creek north of the Boulder Bridge was widened to allow for two horses to ride abreast. The trail was relocated for three-quarters of a mile and connected with trails in the west of the park.[173] The secretary of the Board of Control ordered a new bridle trail in the northeast section of the park to open in December where a temporary pasture for disabled horses stood.[174] Also in December, new foot trails were constructed along the Piney Branch Parkway, and "abutments for a bridge near Piney Branch" were erected, but the location of the bridge was not identified.[175]

One significant development in 1916 was the start of construction of Rock Creek and Potomac Parkway. The road was authorized in 1913, but the idea for a parkway connecting the Potomac waterfront and the monumental core to the Rock Creek Valley dated to the middle of the 1800s and was also discussed in the Senate Park Commission's 1902 report. Horseback riders were already using the route of the future parkway at the time construction started. A bridle trail linking Rock Creek Park and Potomac Park was created between 1911 and 1915. Parkway construction continued through the 1920s and the road was completed in 1936. Though it would not be directly connected with Beach Drive until the

opening of the zoo tunnel in the 1960s, the new roadway created additional traffic in Rock Creek Park as more people used Beach Drive and the parkway for commuting to downtown Washington. This contributed to the challenge of protecting the park and fulfilling its recreation and preservation mission, while adapting to its increasing use as a city thoroughfare, a challenge that continues to this day. [176]

### PARK PLANNING EFFORTS

The period between 1917 and 1920 was marked by several developments and changes in Rock Creek Park. In 1917, a number of trails were constructed, including a bridal trail parallel with Daniel Road from Military Road to the District-Maryland line and a new foot trail west of the Brightwood Reservoir to Beach Drive.[177] New footbridges were constructed in 1918 to replace those destroyed by an "ice jam" that winter, including the Riley Spring footbridge, which was rebuilt with chestnut timber and South Carolina pine. [178]

The most significant developments in 1917 and 1918 came not in construction, but in park planning. In early 1917, Chief of Engineers and Board of Control member Brigadier General William M. Black requested an assessment of Rock Creek Park by Colonel Harts. Harts reported there was an "urgent need of having a carefully considered plan for the entire park prepared by a competent landscape architect."[179]

He discussed multiple topics, including surveys, roads, bridle trails, forestry, bridges, and buildings. Harts was emphatic in his points, particularly the need for an adequate survey and map of the park, and argued for the transfer of jurisdiction to the Chief of Engineers from the Board of Control. Harts felt the Office of Public Buildings and Grounds had the benefit of a police force to patrol Rock Creek Park and staff trained in park design. The office did not have the "inexpert and untrained men" Harts felt were responsible for the "errors and blunders" that had occurred with the placement and construction of roads, bridges, and buildings while under the Board of Control.[180]

In his report, Harts stated that many of the bridle trails were found in locations "which should be occupied only by foot paths, while others show evidence of purely accidental location." [181] He added it appeared that no planning had gone into locating them, as evidenced by their frequent duplication. The trails had been created by "haphazard riding over some one route until its position became fixed." [182] He continued, "In many places the bridle path is too much in evidence on the hillsides where it forms scars wholly out of keeping with nature's plan."[183] Harts felt the number of trails was excessive, but the advantage of so many trails allowed for easier policing of the park, particularly in more remote sections. [184]

In April, Black submitted a memo to the board that reiterated the points made by Harts and summarized his findings, as well as gave an overview of past planning efforts, current conditions, and future development of the park.[185] In Black's memo to the Board of Control he wrote,

> A careful inspection of present conditions in Rock Creek Park, indicates that its development has proceeded under conflicting opinions, and suggests that, while the purpose for which the Park was established has been kept in view, none of the various individuals to whom the work of development was entrusted were in charge for a sufficient length of time to formulate a comprehensive plan. [186]

Black echoed Harts' thoughts on bridle trails, stating that no further construction should take place until the bridle trail system was thoroughly studied. Because a smaller user group enjoyed the trails, Black recommended,

> Great care should also be taken to prevent bridle paths from usurping positions where foot paths and drives would more advantageously serve the public. It is sometimes possible to plan temporary bridle paths which can be abandoned to the use of pedestrians when the need arises.[187]

His recommendations on the location and construction of bridle trails suggested that pedestrians and motorists in the park continued to grow in number and trails should cater to their needs.

On foot trails, General Black stated,

> The planning of foot paths to take full advantage of scenic effects is a very complicated matter. There are also interesting and historical sites which should be made easily accessible, such as old forts and camps, mill sites and fords, many of the former being good places for picnic grounds. The popularity of foot paths will be in direct proportion to their successful location, relative to scenic effects and to interesting park features and to their response to the public needs. Persons inclined to a more or less exclusive stroll will use the more retired paths, while those who have the tourist habit of wandering in groups will gather at the more frequented places.[188]

Black wrote that landscape and public use are always to be considered when planning, "for it is only by their happy combination that the maximum usefulness of the park can be obtained." He and Harts both stated that it would be a waste of time and effort to construct foot trails before adequate public transportation to the park was developed.[189]

#### THE OLMSTED REPORT

The Harts and Black memos were written a few months after the Board of Control contacted Frederick Law Olmsted Jr. to request the preparation of a comprehensive plan for the park. In May 1917, shortly after Harts and Black submitted their recommendations, a contract was signed with the Olmsted firm for a park planning document.[190]

The firm submitted their report in December 1918. The opening paragraph reiterated the founding legislation and the remarks of park managers and advocates since its founding. "The dominant consideration, never to be subordinated to any other purpose in dealing with Rock Creek Park, is the permanent preservation of its wonderful natural beauty, and the making of that beauty accessible to the people without spoiling the scenery in the process."[191]

The Olmsted report provided guidance on the construction of additional roads and trails to accommodate the increasing park visitation without marring the scenery the public had come to enjoy.[192] The report stated that the justification for the park is found in "the recreative value of its natural qualities," which included woodlands, meadows, a river valley, ravines, and rolling hills.[193] The park must be developed on three principles:

> First, its interesting, varied natural scenery must be saved intact insofar as possible, must in some respects be restored or perfected by intelligent, appreciative landscape development, and must not be replaced by other and more or less foreign types of 'treatment'. Second, the Park must be opened up to the driving, riding, and walking public; but the roads, paths, and other accompaniments of intensive use must be so located and so built that the essential qualities of the Park are impaired in the least possible degree. Third, adequate transportation must be provided to and into the Park for people dependent upon street car service.[194]

The report divided the park into four landscape types and landscape administrative units. A map accompanying the report illustrated the location of the following landscape types: natural forest (type I), open woodland (type II), "areas where an upland semi-open type of growth characterized chiefly of cedar should prevail" (type III), and open grass land (type IV).[195]

Landscape administrative units were differentiated by uses and by topographic and landscape features, including valley, meadow, woodland, and hillside. Division A, the valley, was "topographically and psychologically the backbone" of the park. Division B, "plateau recreation ground," was topographically conducive to the construction of recreation areas for tennis, baseball, and other sports. The Olmsted report discussed trails and pedestrian use of the park in Division C, "Woodland for Intensive Use"; Division D, "Open Hillside Section"; and Division E, "Wilder Woodland."[196]

The report stated that Division C, an area of about 300 acres located south of Military Road and stretching to the Soapstone Creek and from Broad Branch to just east of Rock Creek, was "well adapted for exploration and enjoyment by pedestrians, for it is much less subdivided into abrupt hills and valleys than most parts of the Park, avoiding thus the constant expenditure of effort not often appreciated or desired by people not looking primarily for exercise."[197] The report added, "we cannot now go far into the details of development and administration for a division of this type. Suffice it to say that roads and bridle paths should




**Figure 1.15**
**Plan No. 27 by the Olmsted Brothers for Rock Creek Park, 1918. National Park Service, Frederick Law Olmsted National Historic Site.**

be minimized" and there should be spots for picnicking, sitting and summer houses.[198] Areas free of undergrowth should be large and frequent enough "to encourage and accommodate a more or less unrestricted movement of the people about the woodlands regardless of fixed paths."[199]

The report discussed and encouraged pedestrian use of Division D as long as walkers did not damage the surroundings. "Walks on easy grades, occasional unobtrusive seats, groves or simple overlook terraces at points commanding outlook, and such roads and bridle paths as are required to reveal the beauty of the landscape – these are needed. Further than that, simple rolling pasture or mowed grass-land should prevail. Few defined walks will be needed, as pedestrians should be encouraged to spread over turf at will."[200]

Use by pedestrians of Division E, the "Wilder Woodland," should be limited to trails in order to protect the area, according to the report.

> Inaccessibility and topographical character do not invite an intensive use by the walking public, and the preservation of the finer details of the natural woodland scenery requires that pedestrians be more or less restricted to the walks and other defined ways … this division should be one where the wildness of the forest will be enjoyed from the paths, roads, and bridle paths, and shall remain unmarred by the wear and tear largely unavoidable in areas of more intensive use…[201]

Outside of the recommendations for walks and trails in the various divisions, Olmsted provided overall guidance on the location of future trails and their development in keeping with preserving the park while providing access to the public.

> For while serving their obvious purpose of enabling people to get about the Park, they should always and unmistakably fit into the landscape as harmonious and subordinate parts of the scenery through which they pass. Like other park construction they are primarily a means to an end – they merely enable the people to enjoy the refreshing beauty of the park scenery. If in the process they inflict injury upon that scenery or distract attention from it to their own assertive qualities, by just so much do they fail of their primary purpose.[202]

The report noted trails should not inflict harm on the scenery or distract from it. "These 'ways' of travel, therefore, should first of all exhibit to the maximum beauty and variety and charm of the scenery." [203] They should be planned so they "seem to belong where they are." [204] Olmsted noted that people tend to travel slowly on foot and bridle trails, and therefore they offered visitors the opportunity to see nature up close.[205]

> They should be adjusted carefully…to the existing rock formations, to the trees and tree groups, to the courses of brooks, to interesting groups of shrubs and other wild plants, in fact to the thousand and one details which make up the intricate beauty of the woodland scenery or the simpler beauty of the woodland scenery or the simpler beauty of the more open landscape. [206]

In addition, trails should be direct and easy—both mentally and physically. "In locating paths, therefore, effort must always be exerted to make them inviting, to lead the pleasure-seeker along with the minimum of mental and physical effort on his part…"[207]

In writing about the maintenance of undergrowth to maintain views and increase the experience of visitors, Olmsted stated that reducing the growth should be,

> Just enough to let the eye penetrate from the walks or roads…but hardly ever should this cutting be extensive enough to open the view from one road or walk to another, but it should be carried far enough to invite the eye – and so the interest – away from the path or road as such and into the surrounding woods. Without such subtle assistance the beauty and the value of these wonderful forests will remain only half known and less than half enjoyed.[208]

The Olmsted report suggested the development of additional narrow roads that wound in one direction through the park. Of the suggested roads, only two, Piney Branch Parkway and Bingham Drive, were built. They were already under consideration at the time the report was commissioned and Frederick Law Olmsted Jr. created the layout and design of Bingham Drive.[209]

On September 16, 1918, while the Olmsted firm was completing the report, Rock Creek Park was placed under control of the Office of Public Buildings and Grounds (OPBG) and the Board of Control was dissolved. Colonel Clarence S. Ridley of the Army Corps of Engineers was head of the OPBG and became responsible for the management of the park. Following the reorganization, Lee R. Grabill was no longer involved in park operations. Supervision of park staff fell to



**Figure 1.16**
**Cyclists outside Pierce Mill, ca. 1918-1920. Library of Congress, Prints & Photographs Divisions, National Photo Company Collection, LC-DIG-npcc-00001.**

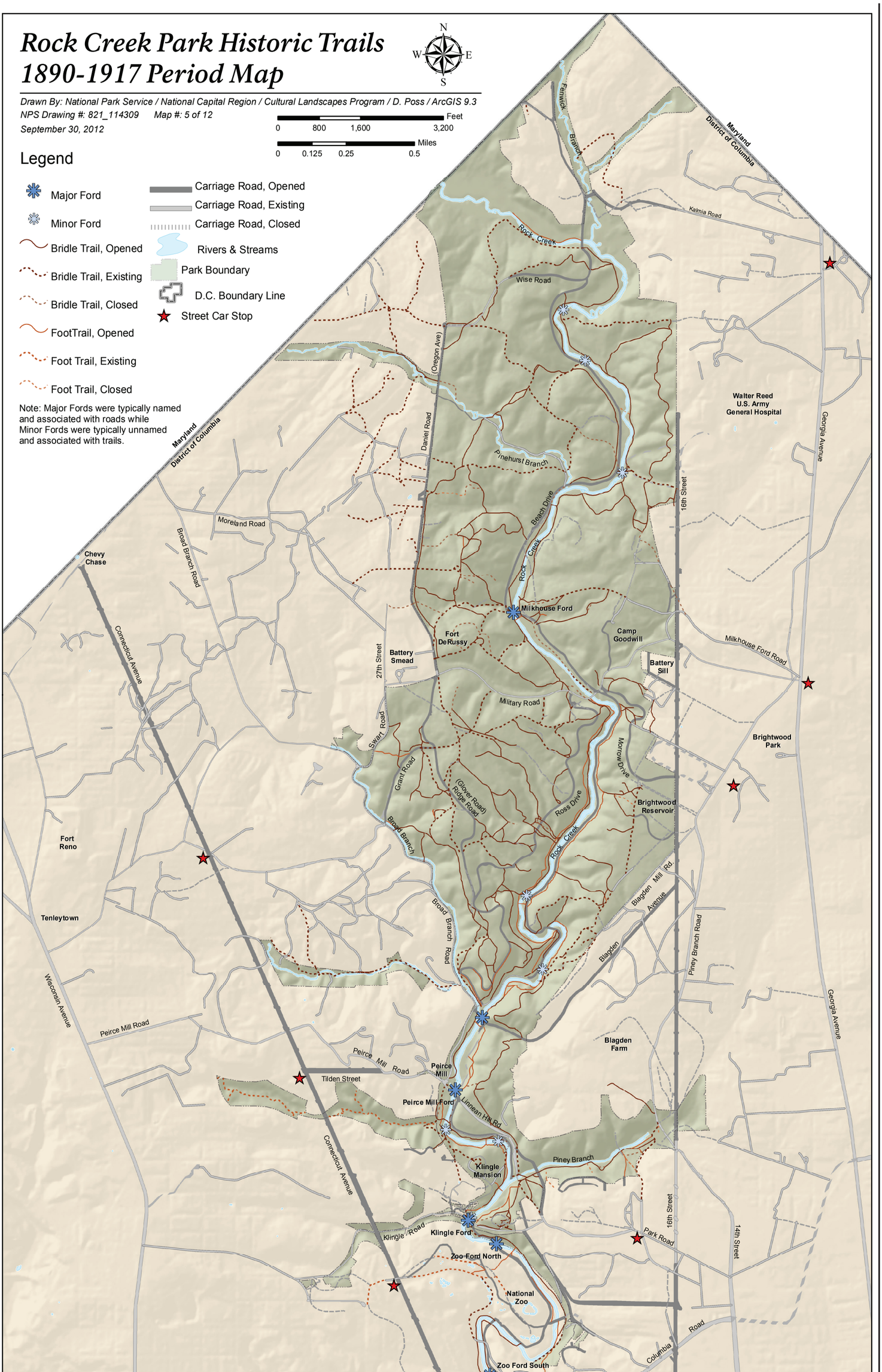
Francis Gillen, the civilian superintendent of the OPBG, who was also responsible for other city parks.[210]

### SUMMARY

Much was accomplished during the Board of Control's management. During this period the Rock Creek Park's primary roads were opened, including Beach Drive, Wise Road, Ross Drive, Ridge Road, Morrow Drive, and Grant Road. The trail work completed under the Board of Control's management included clearing and some realignment of old foot and bridle paths, the conversion of carriage roads to bridle trails, and the construction of connections between trails and roads. New foot and bridle trails were built, including segments of today's Valley and Western Ridge Trails from Military Road to the National Zoo. Five masonry bridges or viaducts, three stone and concrete bridges, two wood bridges, and several footbridges were also constructed during the tenure of the Board of Control.

The Board of Control period can be characterized by the physical developments in the park—the new roads, bridges and trails—but also by the growing popularity of the park, issues of access and transportation, and debates over how to manage the landscape. Many of the issues and arguments regarding management and public usage that erupted during the first decades of the park's operation would reappear throughout its history.

Analysis of historic maps indicates that 37.5 miles of bridle trails and 6.91 miles of foot trails were extant in Rock Creek Park at the end of this period.




SOURCES: Topographical Map of the District of Columbia, A. Boschke, 1861; U.S.C.G.S. 1892 (Background Image); Rock Creek Park Surveys 1910, 1916, 1917; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## THE OFFICE OF PUBLIC BUILDINGS AND GROUNDS, 1918-1932

The Office of Public Buildings and Grounds was a few months into their management of Rock Creek Park when the Olmsted report was declared "the official policy document" for the park. [211] In February 1919, Colonel Ridley instructed the staff that "nothing will be done hereafter in this park which is contrary to the letter or spirit of this report without specific approval in writing of the Officer in Charge of Public Buildings and Grounds." [212] He created an advisory board of landscape experts to oversee carrying out the report's recommendations.[213]

Also in favor of the report was James Greenleaf at the Commission of Fine Arts (CFA). Greenleaf was the CFA's authority on landscape architecture. He wrote to Ridley and summarized the major points of the report and added some of his own observations. He believed so strongly in the Olmsted report he said, "…because the development and maintenance of the Park are peculiarly and vitally associated, it would be well were a considerable part abstracted in printed form and read daily as their bible by those immediately in responsible charge of maintenance of woodland and meadow."[214] He reiterated the statements in the report on drives and walks.

> Drives and walks are essential to utility and to the appreciation of the natural scenery but do not in themselves add to it. Therefore they should be thoughtfully placed and carefully graded so as to meet the needs and be as unobtrusive as possible. The Report wisely recommends conservatism in paths and drive construction and careful study in detail by men trained in landscape development before any one piece of construction is undertaken.[215]

**Figure 1.17**
**Cars fording Rock Creek in front of Pebble Dash Bridge, 1920s. FORDS14-14, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**



Greenleaf criticized the "rusticity" in the park's buildings and structures, including retaining walls and bridges, and noted they need "not be wildly rustic in a vain attempt to blend with woodland scenery." [216]

In July 1919, the engineers submitted their first report on Rock Creek Park since falling under the jurisdiction of the OPBG. However, they did not include what, if any, of the improvements they proposed had been initiated or completed in the nine months since they took over the management of the park. They instead noted the work completed by the Board of Control. "The work done has consisted mainly of opening the fields and forests of which the park was formed by constructing a skeleton of roads, bridle paths and footpaths. . ."[217] The 1919 report noted "25.11 miles of bridle path were maintained in good condition" and 6 miles of foot trails existed in the park. [218]

The engineers' report went into greater detail the following year. New trail construction and maintenance continued and the engineers reported on the construction of Bingham Drive. "A footpath was constructed west from Sixteenth Street parallel to and north of Morrow Drive. The construction of a new road between Beach Drive and Daniels Road was commenced and a portion of it cleared and graded." [219] That year they also reported "25.11 miles of bridle path were maintained in good condition..." [220] The engineers also listed the following,

> 36 rustic tables and 67 rustic settees were made. . .7 brush jumps rebuilt, 3 hurdle and 1 stone jump repaired. . .10 rustic signs were made, lettered, and posted at entrances to park... 460 feet of footpath laid out. . .A new footbridge at the swimming pool, just north of Pebble Bridge, was constructed of chestnut logs, 46 feet long, with railings of sassafras 3 to 4 inches in diameter; 160 board-feet of pine was used for flooring.[221]

The Army Corps of Engineers' and the Board of Control's efforts towards developing and improving the park were praised in a 1920 article in the magazine The American City. "So well has everything been planned that a thousand automobiles, hundreds of horsemen and thousands of picnickers and pedestrians can use the park together without undue crowding." [222] The article went on to





**Figure 1.18**
**(Left) Rustic bridge in Rock Creek Park just below junction with Piney Branch, 1930. BRIDGES6-18, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

**Figure 1.19**
**(Right) Bridle Trail with rustic guardrail overlooking Rock Creek Park, 1965. TRAILS15-14, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**



**Figure 1.20**
**Trail in woods of Rock Creek Park near Daniel Road, 1917-1920. TRAILS15, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service**

state that, "Nowadays the wilderness, if it has good roads traversing it, is more popular than formal landscape. And city parks may be converted into such wilds by simply allowing Nature to have her way…Any city with an unsightly ravine or swampy river meadow may consider with profit the manner of improving Rock Creek in the District of Columbia." [223] Some park users, however, would not agree that the park conditions were as ideal as the magazine portrayed. Automobiles in particular were becoming an issue and pedestrian users of the park continued to feel neglected.

One pedestrian, Ewing Summers, who had hiked for many years with the leader of the Wanderlusters, wrote to the Washington Herald in June 1921 on the lack of consideration given to pedestrians, and complained about the development of roads and a golf course in the park.

> Charles C. Pinckney…originated the slogan, 'Millions for defence, but not one cent for tribute.' So these times the maxim is, 'Millions for automobile drives, but not one cent for footpaths for naturalists along our small water courses.' Now it is proposed that what little is left for lovers of wild nature in Rock Creek

> Park shall be completely destroyed by the invasion of automobile roads, besides one large block to be knocked out by golf grounds! [224]

Summers also wrote that the "original picturesque wilderness so greatly admired by all scientific naturalists of earlier times is already half ruined by automobile drives and clearings." [225] Summers included his editorial in a letter to Lieutenant Colonel Clarence O. Sherrill, who that year replaced Colonel Ridley as officer in charge of the park. Summers wrote, "I don't know who originated the project of so occupying every nook and corner of the wild forest with the omnipresent noise and stench of automobiles that natural-history strollers, scientists, and nearly all professional people cannot get away from them." [226] Sherrill replied that he sympathized with Summers and agreed on preserving the primeval condition and the natural beauty of the park "for the benefit of the naturalist and explorer."[227] New pedestrian trails did open under Sherrill's leadership, hopefully to the satisfaction of Mr. Summers. Some of these trails were not newly constructed, but bridle trails converted to pedestrian use. The majority of the foot trails were located on the eastern side of Rock Creek and south of Military Road.

Ewing Summers was not the only Washingtonian upset over development in the park. A month before his correspondence with Sherrill, President Woodrow Wilson also wrote to the lieutenant colonel expressing his outrage over the development of a golf course in the park.

> Is it possible that it is true that a golf course is to be laid out in Rock Creek Park? I am loathe to believe that such an unforgivable piece of vandalism is even in contemplation, and therefore beg leave to enter my earnest and emphatic protest. The park is the most beautiful in the United States, and to mar its natural beauty for the sake of a sport would be to do an irretrievable thing which subsequent criticism and regret could never repair. [228]

Sherrill tried to quell the president's outrage by explaining the plans were not definite, but the site under consideration was overgrown with brambles and was useful for few other purposes. A nine-hole course was eventually constructed



**Figure 1.21**
**View of Daniel Road (Oregon Avenue), 1926. ROADS7-30, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

and opened in 1923. A second nine-hole course opened by 1927 and required the closure of a significant portion of Milkhouse Ford Road east of Rock Creek.[229]

### THE OFFICE OF PUBLIC BUILDINGS AND PUBLIC PARKS OF THE NATIONAL CAPITAL

In 1925, the duties of the Office of Public Buildings and Grounds were absorbed by the newly created Office of Public Buildings and Public Parks of the National Capital (OPBPP). Lieutenant Colonel Sherrill was named the first director.[230] Sherrill also served as the executive secretary of the National Capital Park Commission, later re-named the National Capital Planning Commission (NCPC). The commission was established by Congress to preserve Rock Creek and develop the park, parkway and playground system in the capital, among other duties. In an effort to protect Rock Creek north of the District line the commission enlisted the state of Maryland's assistance in park planning and land acquisition. In 1927, the Maryland-National Capital Park and Planning Commission (M-NCPPC) was created by the state legislature to acquire land and administer parks bordering Washington. With the aid of federal funding, and following negotiations between the NCPC and the M-NCPPC on sewage disposal and storm water flow, Rock Creek Park was extended into Montgomery County. The Maryland portion of the park was administered by the state and over the next few years bridle and foot trails and Beach Drive were extended into Maryland.[231]

Over the course of the 1920s, significant construction projects were undertaken in the park. Bridges were among the major works. Five bridges, beginning with the Peirce Mill Bridge in 1921, were constructed: Sherrill (1924), Milkhouse Ford (1926), and Military Road and the Wooden Cantilever, both in 1929.[232] In 1922, three footbridges were built across the creek and that year the park reported having 27 miles of bridle trails running through it. By 1925 three new roads were added to the park: Bingham Drive, Sherrill Drive, and Joyce Road. [233] New foot trails opened around Sherrill Drive, but several bridle trails were closed adjacent to Bingham Drive and Joyce Road.

The closure of trails was common during the OPBPP period. Numerous trails, particularly bridle trails, were discontinued throughout the valley under their management of the park. An examination of historic maps suggests the OPBPP was attempting to simplify the trail system by eliminating routes that paralleled one another or did not connect with other trails. In some cases small realignments or connectors were constructed.

In 1926, a new equitation field off of Glover Road was dedicated and a bridle trail was built along the newly opened Rock Creek and Potomac Parkway, which connected Rock Creek Park and Potomac Park. Also that year, "two rustic

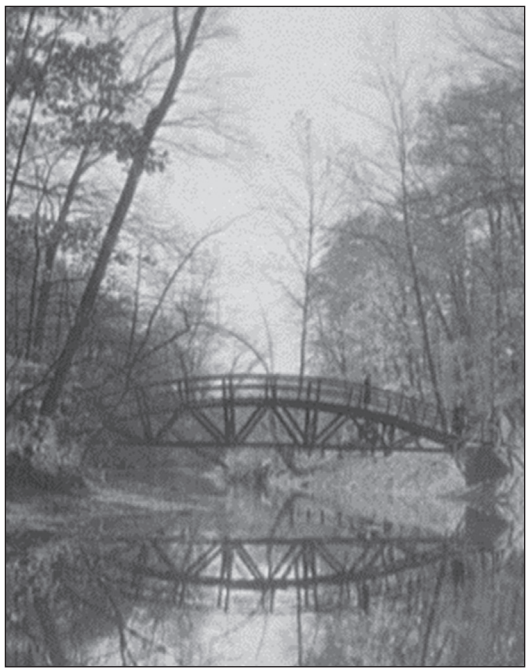


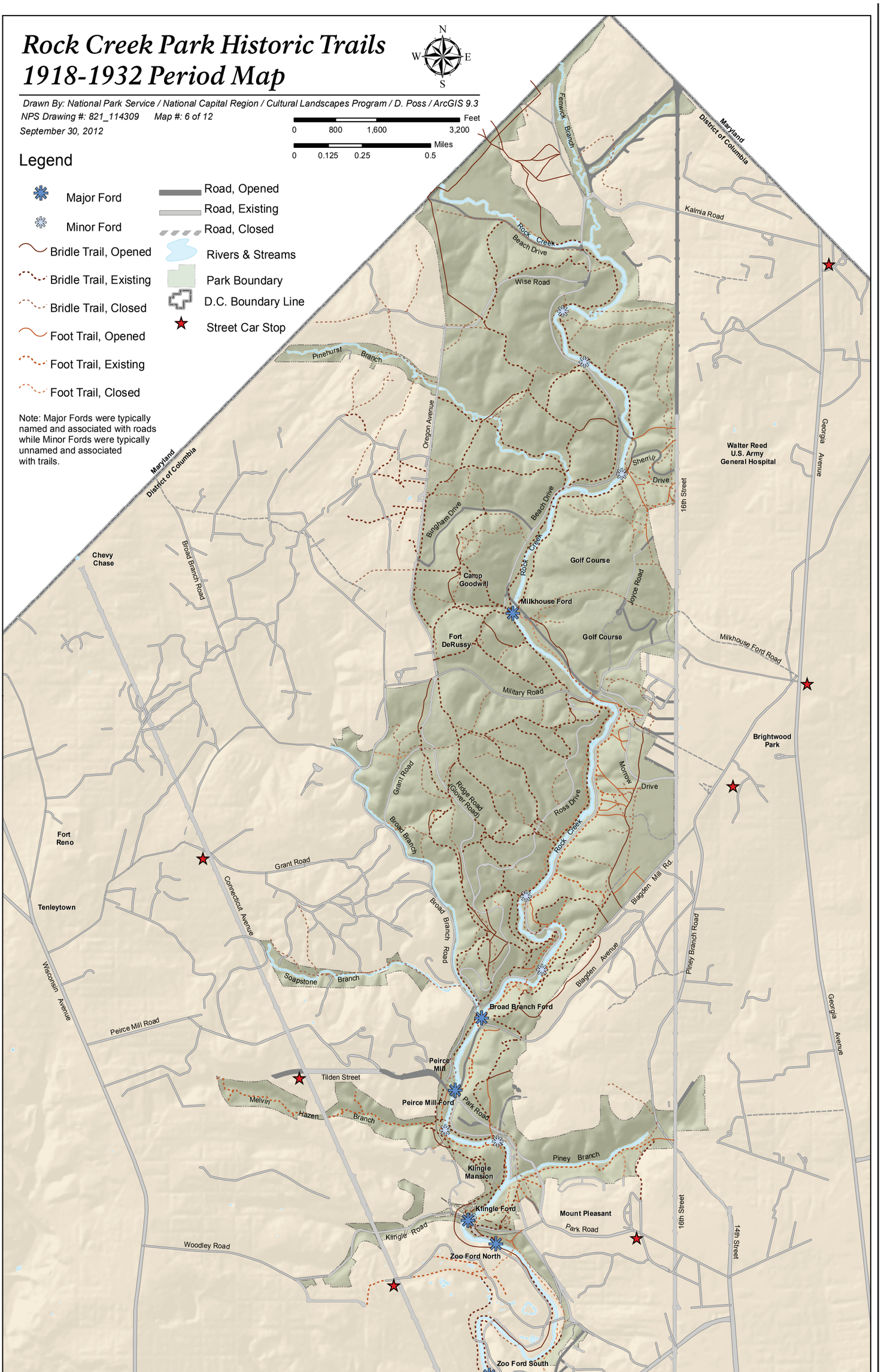
**Figure 1.22**
**Rustic style footbridge in Rock Creek Park, ca. 1920-1950. Library of Congress, Prints & Photographs Division, Theodor Horydczak Collection, LC-H823-B08-021.**

footbridges, approximately 38 feet long and 4 feet wide" were constructed over a stream adjacent to Military Road and "were used in connection with the Rock Creek golf course."[234] In 1927, the engineers reported that approximately a half-mile of bridle trails had been constructed and nearly that length resurfaced.[235] The following year, two new footbridges and a bridle trail bridge were constructed and in 1929 two additional footbridges were erected.[236]

## SUMMARY

During the Office of Public Buildings and Public Parks management of Rock Creek Park, the agency improved the trail system more frequently through the removal of existing trails, though there was some new trail construction during their tenure. New bridle trails opened throughout the park, including several south of Military Road. Additional trail work included the continuation of foot and bridle trails into Maryland following the extension of Rock Creek Park into Montgomery County. During this period, the public continued to voice their concerns to park managers about trail conditions and access. In response, new pedestrian entrances opened on the eastern side of the creek at the new Sherrill Drive. On the western side of the park, Bingham Drive was constructed and connected Oregon Avenue (formerly Daniel Road) to Beach Drive north of Fort DeRussy.

Analysis of historic maps from this period indicates that 25.03 miles of bridle trails and 7.84 miles of foot trails were extant in Rock Creek Park at the end of this period.




SOURCES: U.S.C.G.S. 1892 (Background Image); Rock Creek Park Surveys 1910, 1916, 1917; Map of Rock Creek Park 1907, 1911, 1921, 1933, 1939; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## EARLY NPS MANAGEMENT, 1933-1945

In August 1933, the management of Rock Creek Park was transferred to the National Park Service along with the other city parks, sites, and reservations under the jurisdiction of the Office of Public Buildings and Public Parks. The OPBPP was then abolished. The transfer took place following President Franklin D. Roosevelt's June 1933 executive order reorganizing the executive branch.[237]

The National Park Service's chief landscape architect, Thomas Vint, directed landscape architect Malcolm Kirkpatrick and plant pathologist E.P. Meinecke to conduct an assessment of the park's condition and needs shortly after Rock Creek Park came under NPS management. Their study was completed in 1934. Meinecke and Kirkpatrick's criticisms were similar to the 1917 remarks of Colonel Harts. Little of the Olmsted plan had been implemented and the park seemingly had been allowed to develop without any planning. Meinecke and Kirkpatrick were highly critical of the park's road system and the condition of the structures, vegetation, woodlands, and streams, all of which they blamed on poor management. Kirkpatrick stated that his report should be taken as a supplement to the Olmsted report. [238] About trails, he wrote, "Anything mentioned heretofore that would improve the landscape character of the park, will make possible keener enjoyment of these diversions. Riding and walking do not demand complicated treatment, but a sympathetic approach to construction and maintenance operations is vital." [239]

Kirkpatrick went on to criticize the design of structures and signs in the park, as well as boulders used as guard rails on roadsides, which he characterized as eyesores. Kirkpatrick described park signs as rustic in the worst sense of the word in their attempt to blend in with their natural surroundings. "This is an absurd notion that yields absurd results," he wrote. [240] Bridges, according to Kirkpatrick, "represent a fairly thorough cross-section of bad architectural and structural design." [241] He closed the report stating that Rock Creek Park had "a heritage



**Figure 1.23**
**Trail in Rock Creek Park just north of Peirce Mill, 1934. PM3-143, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

wealthy only in its possibilities" and reiterated what others had stated for years prior—the park needed a plan, well-trained personnel and large sums of money to carry out its objectives.[242]

### CCC AND PWA PROJECTS

Money did come the park's way in the 1930s in the form of Depression-era civil works projects completed by the Civilian Conservation Corps (CCC) and the Public Works Administration (PWA). The PWA-funded projects in the park included the construction of multiple bridges, buildings, and the Piney Branch Parkway, as well as the restoration of Peirce Mill. In the study area, Rolling Meadow and Bluff footbridges were built in 1934 and the following year Boundary and Riley Spring bridges were constructed. Additional bridges were constructed during this period with PWA-funds outside the study area. [243]

Marshall Finnan, Superintendent of the National Capital Parks, wrote to National Park Service Director Arno Cammerer in November 1933, informing him that work would begin immediately on surveying locations in Rock Creek Park for bridle and foot trails. Finnan stated he planned to use "Civil Works money" later to complete the work.[244] That year the park reported having nearly 30 miles of bridle trails.[245]

In January 1934, Cammerer announced that some of a $190,000 public works allotment for local parks would go towards bridle and foot trail construction and maintenance.[246] Days after the announcement, Secretary of the Interior Harold



**Figure 1.24**
**Construction of Piney Branch Road, 1936. PINEYBR9-52, Rock Creek Park Photo Collection.**



**Figure 1.25**
**Construction of 17th Street leading to Piney Branch Parkway, 1939. PINEYBR9-55, Rock Creek Park Photo Collection.**

Ickes wrote to Cammerer regarding the trails. "Before any changes in the roads or bridle paths are undertaken in Rock Creek Park I would like to be consulted."[247] Cammerer responded that no changes would be made for some time because survey work and mapping had yet to be completed. Cammerer wrote to Ickes, "A complete check-up of plans for such work in that park shows a paucity of material. In fact, there is so little in the way of planning that we have had 52 men on survey work in the park recently under CWA [Civil Works Administration] to prepare a basic topographic plan on which future plans for roads, bridle and foot paths can intelligently be studied and developed."[248]

At the end of March, Finnan reported the map was near completion. That month Finnan wrote to Cammerer regarding a letter the director received mentioning the poor condition of the trails. The writer had seen the announcement regarding



**Figure 1.26**
**(Left) Piney Branch Trail prior to the road project, ca. 1934. PINEYBR-55, Rock Creek Photo Collection.**



**Figure 1.27**
**(Right) Piney Branch Trail between 16th Street and Park Road prior to the road project, ca. 1934. PINEYBR9-12, Rock Creek Photo Collection.**

the funds allocated for trails and wanted to alert the director about the poor condition of foot trails. Finnan reiterated that nothing could be done without the completed topographic map, but felt pedestrian trails "should receive just as much consideration as that now given bridle paths and secondary highways." Finnan's remarks reiterated what park administrators and pedestrians had been expressing since the early part of the century—there was a need for additional walking trails.[249]

Over the next few years Public Works Administration funding was used for the completion of a bridle trail and pedestrian underpass below the Peirce Mill Bridge in 1937, and three bridle trail bridges near Peirce Mill in 1938. Public works funding was also used to construct the Piney Branch Parkway, a project that employed more than a hundred men daily. Between 1933 and 1942, the CCC constructed 2.2 miles of bridle trails in the park and eliminated old roads and trails. [250] A CCC camp operated in the park from 1938 to 1942. It was located on the site of Camp Goodwill, a summer camp for low-income white children, which operated at a location north of Fort DeRussy from 1923 to the mid-1930s.[251] From 1904 until 1923 the camp was located between Milkhouse Ford and 16th Street, the site of the present day golf course clubhouse. The CCC camp housed men involved in projects in Rock Creek Park and other regional parks and during World War II it was known as Camp King and used for civil defense training by the U.S. Army.[252]

**Figure 1.28**
**(Left) Ranger led nature walk, 1951. REC3-6, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

**Figure 1.29**
**(Right) Visitor entering Nature Trail in northwest Rock Creek Park, 1941. TRAILS15-1, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

### NATURE TRAIL AND NATURALIST PROGRAMS

In addition to the numerous construction projects in the 1930s, ranger-led nature programs were being developed in the park. They received attention through several articles in local papers. In 1934, the *Washington Post* promoted vacationing in the city and mentioned the guided trail walks held several times a week. The paper also covered a September hike to the Piney Branch quarries, the Joaquin Miller Cabin and Fort DeRussy. [253] The *Washington Star* later reported on the Nature Trail developed by Park Naturalist Donald McHenry in 1936, located








**Figure 1.30**
**Entrance sign and trailhead of Nature Trail, 1938. TRAILS15-16, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

west of Beach Drive near Sherrill Drive. Several bridle trails were used to create the little more than a mile long route. The trail wound through moist woodland, meadow, and pine forest in an area rich with native birds. Tags identified flora found along the trail, and the park planned to display examples of the 1,630 plants and trees indigenous to the park.[254] In June 1937, weekly nature walks for housewives and junior nature walks were established. The following year, the park reported 32.13 miles of bridle trails and 16.5 miles of pedestrian trails.[255]

Through the end of the 1930s and 1940s, the Nature Trail was a popular destination for school groups and visitors. A Junior Nature Outings program offered walks along the trail focused on native plants and animals and hunting trips for insects and mosses.[256] The April 1941 Park Naturalist report noted that the park naturalist and twelve African American children from John F. Cook Elementary School broadcast "Exploring the Nature Trail in Rock Creek Park" on a local radio station.[257] In 1942 and 1945, as many as a thousand people a month were walking the trail during peak season and visitation remained high throughout the decade. Organized bird walks were offered in collaboration with the Audubon Society through the 1950s.[258]

### HORSE STABLES AND RIDING SCHOOLS

While school children were enjoying the Nature Trail, First Lady Eleanor Roosevelt could be found riding her horse Dot on the park's bridle trails during the 1930s and 1940s.[259] During the Great Depression riding remained popular in the Washington area; at one time 18 to 20 riding schools were in operation around the city. Economic conditions forced some area stables and riding schools to close, but at least one new stable was established. Meadowbrook Stables, located





**Figure 1.31**
**(Left) Trail through the woods of Rock Creek Park, possibly near Ridge Road, 1934. TRAILS15-7, Rock Creek Park Historic Photographic Collection (ROCR 38225), Museum Resource Center. National Park Service.**

**Figure 1.32**
**(Right) Trail through the woods of Rock Creek Park, possible road trace, 1938. TRAILS15-6, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

along East-West Highway on the Maryland side of the park, opened in 1934.[260] In 1940, the Washington Bridle Trails Association was founded to encourage riding and improve the area's horse trails. The group partnered with the National Park Service to maintain trails in Rock Creek Park and along the Potomac. They also sponsored horse shows in the park.[261] During World War II, many horse riding schools and stables closed or reduced operations. At the end of the 1940s they began to reopen and there were at least eight riding academies or stables in and around Washington.[262]

Also during the 1940s, the National Park Service developed a recreation facilities master plan for the park that included new playgrounds, picnic areas, and trails. The 1941 plan proposed new bridle and foot trails as well as the abandonment of some older trails.[263] In 1943, Frederick Law Olmsted Jr. visited the park again. He commented on what he referred to as a preliminary study "for functional separation of bridle-paths and foot-paths throughout the Park; a highly desirable development..." [264] In the fall, the *Washington Post* reported that $20,000 allotted for a post-war construction program in the parks was to be spent on trails.[265]

One trail constructed during this time was located in the newly created Melvin Hazen Park. Established in 1941, the park was bounded by Reno Road, Connecticut Avenue, and Tilden, Sedgewick, and Rodman Streets.[266] By 1944, a trail starting at Reno Road and Rodman Street was blazed through the property and ran along a tributary of Rock Creek. [267] The trail continued to the west side of Connecticut Avenue, picked up on the east side of the avenue and continued towards Peirce Mill. The trail was only a minor component of significant plans developed in 1944 for the site. They included an outdoor theater capable of seating 1,600 people; children's play areas; horseshoe, shuffle board and croquet courts; multiple picnic and seating areas, some which included fireplaces; and sections of hardwood forest, including one set aside for nature study "for naturalists, scouts, conservationists, and nature lovers." [268] The trail was the only feature implemented.

### SUMMARY

In its first ten years administering Rock Creek Park, the National Park Service increased visitation by holding guided walks and naturalist programs. Some months these programs brought thousands of visitors into the park. Given the economic conditions of the period, the National Park Service did not undertake significant trail construction. However, they created the popular Nature Trail, and with the help of Public Works Administration funding, 2.2 miles of new bridle trails were added to the park and members of the CCC and PWA converted the Piney Branch trail into a parkway. Public works money also funded the construction of the pedestrian underpass below the Peirce Mill Bridge and the Boundary, Riley Spring, Rolling Meadow, and Bluff footbridges.

Analysis of historic maps indicates that 22.32 miles of bridle trails and 6.77 miles of foot trails were extant in Rock Creek Park at the end of this period.




SOURCES: U.S.C.G.S. 1892; Rock Creek Park Surveys 1910, 1916, 1917; Map of Rock Creek Park 1907, 1911, 1921, 1933, 1939, 1944, 1946, 1959; Recreation Master Plan of Rock Creek Park 1941; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## POST WORLD WAR II AND MISSION 66, 1945-1966

### BLACK HORSE AND WHITE HORSE TRAILS

The post-war period was significant for major building projects throughout the National Park Service. In the early 1950s, several structures were erected in Rock Creek Park, including the Carter Barron Amphitheater (1950) on 16th Street and the Park Police Stables (1954) south of Bingham Drive on the western side of the park.[269] Trail work in the park during this period consisted more of reorganization and modification than new construction.

During the 1950s the park reconfigured and simplified the bridle trail system by designating two main north and south riding trails: the White Horse Trail, located on the west side of the park, and the Black Horse Trail on the east. The two trails were linked by several east-west traveling cross-trails beginning at the north end of the park near the Maryland-District line and continuing south to the intersection of Broad Branch Road and Beach Drive. The reconfigured system utilized many of the existent trails, eliminated others, and constructed new trails. Most of the modifications took place on the west side of the park. Changes on the eastern side included the elimination of several foot trails. Writing about the bridle trail system a few years later, Acting Superintendent T. Sutton Jett said, "When the new system of 9-foot trails was constructed, all other trails on the west side of the valley were abandoned with the expectation that they would heal over in time by natural forest growth. This is being accomplished slowly, but surely."[270]

Also during this period, the Pine, Holly, and Whittier foot trails opened on the east side of the park. The trails provided additional access to the park from the neighborhoods along the eastern border.

**Figure 1.33**
**(Left) Horses on bridle trail in Rock Creek Park, 1967. TRAILS 15-12, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

**Figure 1.34**
**(Right) Horses on bridle trail in Rock Creek Park, 1967. TRAILS 15-13, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**







**Figure 1.35**
**Trails along Oregon Avenue, ca. 1960s. National Park Service, CLP Files.**

### ROAD IMPROVEMENTS

Several improvements and modifications to park roads occurred during the 1950s. In 1951, the National Park Service began the first of several upgrades to Beach Drive. This included repaving the road with material more suitable to modern vehicles, softening some of the road's sharp curves, and installing new drainage systems to combat flooding. A number of new grade separation structures and bridges were built, including a concrete girder bridge that replaced the 1902 Pebble Dash Bridge and another that replaced the timber bridge crossing Milkhouse Ford.[271]

The most significant change to the road system in the 1950s involved Military Road. Between 1958 and 1960 the D.C. Highway Department straightened and widened Military Road, transforming it into a four-lane divided highway to create

a "high-speed thoroughfare" bisecting the park. The reconfiguration required the construction of a new interchange at Ross Drive and new grade-separation structures over Beach Drive and Joyce Road.[272]

### MISSION 66

Road work completed towards the end of the decade was funded by the National Park Service's Mission 66 program. Proposed in 1955, the $1 billion, ten-year program was established to upgrade deteriorated facilities in the National Park System by the service's 50th birthday in 1966. Throughout the system, new visitor centers, comfort stations, administration buildings and other facilities were built under the program. In Rock Creek Park, the nature center and planetarium, maintenance facilities and two public stables were constructed using Mission 66 funds.[273] A new nature trail was constructed adjacent to the nature center and planetarium, replacing the 1930s trail located near Sherrill Drive.

The Mission 66 funded stables were the first public boarding facilities built within the park's borders. Prior to their construction, horses were boarded or rented at stables in Silver Spring and at 26th and D Streets in Washington. The first of the new stables, Rock Creek Stables, opened in 1958 and was located south of Military Road and east of Glover Road. The second, the Edgewater Riding Academy, opened in 1959 and was located near Connecticut Avenue and Calvert Street and Rock Creek and Potomac Parkway. During construction of the Metro system in the 1970s, the academy moved to a new location closer to the Rock Creek Stables. The two stables were later acquired by the Rock Creek Horse Center Inc., which remains in operation today. The Edgewater



**Figure 1.36**
**Nature Walk in front of newly constructed Nature Center, 1960. NC8-22, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**

Riding Academy stables built in 1959 became the equestrian training facility for the United States Park Police in 1979 and continue to be used for that purpose.[274]

## SUMMARY

As the National Park Service reached its 50th birthday, Rock Creek Park had several new buildings and facilities to attract visitors, as well as a simplified trail system. Mission 66 funding provided for the construction of the nature center and planetarium, stables, and a maintenance facility. Many bridle trails were abandoned as part of the organization of the Black Horse and White Horse trails, and a number of foot trails were discontinued. New foot trail construction included the Holly, Pine and Whittier trails routes along the eastern border of the park. A new nature trail opened near the nature center, replacing the popular Nature Trail that opened in the 1930s near Sherrill Drive.

Analysis of historic maps reveals that 24.22 miles of bridle trails and 7.9 miles of foot trails were extant in Rock Creek Park at the end of this period.



**Figure 1.37**
**Bicyclists on trail during Rock Creek Park Day, 1967. TRAILS15-10, Rock Creek Park Historic Photographs Collection (ROCR 38225), Museum Resource Center. National Park Service.**




SOURCES: Map of Rock Creek Park 1933, 1939, 1944, 1946, 1959; Rock Creek Park Brochures 1962, 1970, 1999, 2009; Bridle Trails of Rock Creek Park 1957; Recreation Master Plan of Rock Creek Park 1941; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

## BICYCLES, AUTOMOBILES, AND VOLUNTEERS, 1967-2011

### THE ENVIRONMENTAL MOVEMENT

At the end of the 1950s and during the early 1960s, Americans began to recognize the effect pollution was having on the country's natural resources. The publication of Rachel Carson's book Silent Spring in 1962, which focused on pollution's harm to human health, is largely seen as spearheading the environmental movement. During the Johnson and Nixon administrations a great number of environmental protection laws—including the Wilderness Act, the Clean Air Act, the National Environmental Policy Act, and the Clean Water Act—were created in an attempt to halt further pollution.

On February 8, 1965, President Johnson delivered his "Special Message to the Congress on Conservation and Restoration of Natural Beauty." The president's speech discussed the threats of development, pollution, and neglect to natural and cultural resources. His message called for "a new conservation" to protect the countryside and save it from further harm, and noting that "we must restore what has been destroyed and salvage the beauty and charm of our cities." [275] Johnson discussed new and recently developed programs including the Land and Water Conservation Fund, the Open Space Land Program, efforts to improve and create urban landscapes and parks, and historic building preservation. The president also outlined issues related to highways, polluted rivers, and clean air and water.[276]

Johnson also dedicated a section of his address to trails. He called for the secretary of the interior to work with federal, state, and local partners to recommend a cooperative program encouraging a national system of trails that will build upon the thousands of miles of trails in national forests and parks. "We can and should



**Figure 1.38**
**Beach Drive and adjacent bike trail, 1996. Library of Congress, Prints & Photographs Division Historic American Engineering Survey, HAER DC, WASH, 692-25.**

have an abundance of trails for walking, cycling and horseback riding, in and close to our cities. In the back country we need to copy the great Appalachian Trail in all parts of America, and to make full use of rights of way and other public paths."[277]

During the summer following Johnson's speech, Regional Director T. Sutton Jett reported on efforts within the region's parks to implement the president's message. Rock Creek Park was allotted $30,000 for reconstructing foot and bridle trails and $60,000 for bicycle trails in the 1967 construction budget.[278] In 1967 plans were drawn for 7.1 miles of additional trails and reconstruction of 2.4 miles of existing trails to be completed over the next two years, based on available funding.[279]

### THE NATIONAL TRAILS SYSTEM ACT

Johnson's message led to the 1966 publication "Trails for America," which called for legislation creating a national system of trails. The report suggested that metropolitan areas should plan for 25 miles of foot trails, 25 miles of bike trails, five miles of bridle paths and 15 acres for motorcyclists per 50,000 residents. The report included proposals for trails in the Washington area. One proposed trail was a 20 mile long route connecting Georgetown and Rock Creek Park, which passed by historic and cultural sites in northwest Washington.[280]

In 1968, Congress passed the National Trails System Act and Johnson signed it into law on October 2, 1968. The act created two scenic trails, the Appalachian National Scenic Trail and the Pacific Crest National Scenic Trail. Later, three additional classes of trails were created: National Historic Trails, National Recreation Trails, and Connecting Side Trails.[281]

Also in 1968, Rock Creek Park was included in the proposed Fort Circle Parks plan. The project was a 32-mile network of hiking and biking trails based on Fort Drive—a planned parkway linking the Civil War Defenses of Washington. The drive was first discussed in the late 1800s and proposed by the Senate Park Commission in 1901. The road was never realized, but much of the land was purchased and selected segments constructed. In 1968, the plan was revived and modified for bike and pedestrian traffic.

### BICYCLES

The conversion of the Fort Circle Parks plan to bicycle use reflected the growing popularity of cycling in the region and around the country. The plan was developed just as a boom in bicycle sales was beginning in the United States. Bicycle sales rose from 6 million to 13.9 million between 1970 and 1972.[282] By 1974, 40 million bicycles had been sold in the United States.[283] Three miles of the Fort Circle Parks trail were to travel through Rock Creek Park, but the trail system,

like the parkway, was only partially completed before the project was shelved. The completed sections included a 2.5 mile hiking and biking trail in the park and a trail in Fort Dupont Park. In 1971, the Fort Circle Park Trail was added to the National Recreation Trails System. At that time the system was made up of 26 other National Recreation Trails located in 19 states.[284]

As the number of bicyclists grew in the Washington area, they also increased in the park. Park managers implemented and experimented with trail and traffic modifications to accommodate the growing number of cyclists. Trail improvement plans developed in 1967 included new bike and foot trails north of Military Road. In the mid-1960s and early 1970s, the park began weekend and holiday closures of sections of Beach Drive, allowing cyclists and pedestrians free reign of the road. The traffic restrictions were not the first in the park to accommodate bicyclists. In 1970, the downhill lane of Morrow Drive from 16th Street to Joyce Road was restricted to two-way bicycle traffic 24 hours a day. Initially the Beach Drive closures did not prove to be popular and were cancelled. However, in 1972 interest re-emerged and the park permanently closed Beach Drive between Joyce Road and Broad Branch Road on Sunday mornings. The closure was later extended to include Morrow Drive. Concurrently, the park began paving some bridle and foot trails and converting them for bicycle use, as well as constructing new trails for cyclists. Three-and-a-half miles of trail north of the nature center were resurfaced with asphalt in 1966. In 1971, the main bridle trail along Rock Creek and Potomac Parkway between Connecticut and Virginia Avenues was paved. During the early 1970s, the park paved the trail along Beach Drive to Broad Branch Road and from Joyce Road north towards the Maryland line.[285]

At the end of the 1970s bicycling was again experiencing a nationwide boom in popularity and cycling. The trend could be felt in the Washington area and in Rock Creek Park. In 1978, the park participated in the Junior World Cycling Championship by permitting several roads to be used for the race. Cyclists from around the world filled the park's roads, including future cycling star Greg LeMond.[286] In 1980, the National Park Service released a study that examined biking in Rock Creek Park. The study outlined nine possible actions to serve cyclists that included new trails, automobile bans and a dedicated lane on Beach Drive for bicyclists between Broad Branch Road and Sherrill Drive. The proposals brought out supporters and protesters.[287]

One organization involved in the issue was the Washington Area Bicyclist Association (WABA). Founded in 1972, the group testified at public hearings held in 1981 and advocated closing sections of Beach Drive permanently to cars. They were unsuccessful, but one change implemented was the Saturday road closure of Beach Drive at Broad Branch Road, authorized that year by National Capital Region Director Manus (Jack) Fish.[288] In 1982, members of WABA and People's Alliance for Rock Creek (PARC) — a group founded by members of WABA that

consisted of cycling, environmental and other organizations— hosted "Pedals and Feet for Rock Creek." The event was held to support further reductions in traffic on Beach Drive. Beach Drive closures were extended to include the northern part of the drive from Picnic Grove 10 to the Maryland line. [289]

Studies on how to accommodate automobile and bicycle users of the park continued through the end of the decade, including one conducted by the WABA in 1988 at the request of the park. These studies advocated for a bike trail along Broad Branch Road and suggested two alternatives to current conditions in Rock Creek Park that, like previous studies, included closing Beach Drive to traffic during the weekday or providing a dedicated lane for pedestrians and cyclists.[290]

### ZOO TUNNEL

At the time bicycling was growing in popularity in the late 1960s, automobile traffic in the park was on the rise. A new tunnel, built to ease traffic along the Rock Creek and Potomac Parkway and through the National Zoo, was completed. The tunnel, which opened in 1966, was located near the National Zoo and connected Beach Drive and Rock Creek and Potomac Parkway. The tunnel's construction followed years of debate and negotiations between the Smithsonian Institution, the National Park Service, and other federal and city agencies. A tunnel under the zoo had been part of a long debated plan to convert the parkway into a six-lane expressway through Rock Creek Park that connected with highway 240 in Maryland. The thoroughfare was to accommodate commuters driving downtown from Washington neighborhoods adjacent to the park and the Maryland suburbs.[291] Prior to the opening of the tunnel, Rock Creek and Potomac Parkway traffic connected with Beach Drive by way of roads through the zoo. Traffic entered and exited the zoo via fords on its north and south sides when the zoo was open. When the zoo closed in the evening, or during bad weather, traffic traveled a circuitous route through the surrounding neighborhood to reach Beach Drive and the parkway. This had long been a problem for zoo managers; the heavy traffic was damaging zoo roads and upsetting the animals, and it was a problem for motorists who had to contend with frequent detours, delays, and traffic jams.[292] Following the opening of the tunnel and the connection of the two roads, automobile traffic in Rock Creek Park increased considerably.

### POTOMAC APPALACHIAN TRIAL CLUB PARTNERSHIP

In the late 1970s, Rock Creek Park gained a new partner and trail advocate whose focus was not on bicycles, but on the foot trails. The Potomac Appalachian Trail Club (PATC) began assisting Rock Creek Park staff with foot trail maintenance in 1977. The club was established in 1927 by members of The Wanderlusters and other area walking clubs after the dissolution of those groups. The organization had been maintaining other regional trails for many years when it partnered with

Rock Creek Park. They currently build and maintain thousands of miles of hiking trails in the mid-Atlantic region, including 240 miles of the Appalachian Trail. [293] In a 1977 article in the *Washington Post* describing PATC's relationship with the park, PATC Trails Construction Supervisor Tom Floyd stated there is "not a single properly laid out, marked and maintained foot trail in the whole park, yet there is more need for trails here than anywhere else we've ever worked."[294] Using volunteer labor, the group planned to build new trails that would introduce the public to the park's birds and avoid springs in order to discourage people from drinking the polluted water. Established trails would be improved or relocated if they bypassed interesting places in the park or were heavily eroded. [295]

Within their first few years of partnering with the park, the PATC rehabilitated 20 miles of trails, built a 75-foot staircase and bridge on the upper Melvin Hazen Trail, and a 120-foot log bridge along the Valley Trail near Riley Spring Bridge. The PATC and the park drew up plans for the Western Ridge Trail in 1978 using a combination of existing horse and bike trails as well as overgrown foot trails. The PATC and the park developed the initial plans for a 12-mile circular trail utilizing the eastern Valley Trail and the Western Ridge Trail. In 1979, work was underway on a trail through Soapstone Valley. In 1983, PATC built an addition to the Pinehurst Trail running from Western Avenue to Oregon Avenue on the western border of the park.[296]

#### HORSE TRAIL STUDY

In the early 1990s, attention shifted from bicyclists and commuters to the condition of the bridle trails and the needs of horse riders in the park. In 1993, the park published the Rock Creek Park Horse Trail Study. The report noted the state of the trails, published comments by trail users, and made recommendations for improvements. These recommendations included relocation and abandonment of some trails, development of a new system of directional signs, keeping trail logs and work records, the continued use of waterbars to drain the trails, and aligning trails more closely to the contours of the land. Riders voiced several concerns, including the condition of the trails, inadequately marked trails, and problems with people walking their dogs, running or biking on bridle trails. Modifications to the trails as a result of the study included re-grading a .08 mile segment west of Ross Drive and south of Military Road.

#### TRAIL FOR ALL PARK USERS

At around the same time the horse trail study was underway a different group of users were the focus of trail construction near the nature center. A loop trail was created to accommodate wheelchairs and mobility impaired park visitors and "provide an accessible, enjoyable and educational experience for all people." [297] According to project documents, in the early 1990s only 5% of visitors to the

nature center and Rock Creek Park were mobility impaired. The documents noted the new trail, referred to as the Trail for All Park Users, would serve all visitors, as well as the park service. "The park would benefit by having increased visitation within the impaired community, thereby spreading knowledge of the National Park Service's mission of preservation and protection of our environment. Ultimately, all populations will benefit from having a shorter educational trail available." [298] This was not the first trail in the park for special needs visitors. In the 1980s, a small loop trail with posts and ropes was constructed near the therapeutic riding barn for the visually impaired. It was removed in the 1990s after falling into disrepair. The new loop trail was constructed by volunteers and completed in 1994. In 2003, a local high school student added posts and ropes to the trail to adapt it for the visually impaired as part of an Eagle Scout project.[299]

### GENERAL MANAGEMENT PLAN

In the mid-1990s the park began developing a General Management Plan/ Environmental Impact Statement (GMP/EIS). In 1996, the park consulted with users and local agencies on how to improve the park. Based on their findings and consultation, the park proposed four alternatives for managing the park and parkway. The proposals ranged from no change in current practices to upgrading and rehabilitating trails, demolishing the Carter Barron Amphitheatre, and removing the golf course, community gardens and horse stables. Suggested vehicle restrictions were similar to those from previous studies and included banning cars from parts or all of Beach Drive, instituting high-occupancy vehicle restrictions during rush hour, or closing northern portions of Beach Drive to automobiles from 9:30 AM to 3:30 PM, essentially creating a large mixed-use trail during those hours.[300]

In 2002, the park issued a draft General Management Plan/Environmental Impact Statement. In 2007, the National Park Service issued a final decision. The preferred alternative chosen by the park service included improving trails following a comprehensive study of the trail system to determine trail condition, establish routes, and prepare preliminary designs. Under the preferred alternative, a limited number of new trails would be constructed and trails with severe drainage, erosion, and stability problems would be rerouted. Abandoned sections would be restored to natural conditions.[301] In addition to the trail work, the preferred alternative included rehabilitating historic structures and improving visitor facilities. The parkway's one-way rush-hour traffic restrictions in place since the 1930s would remain, as would the closure of sections of Beach Drive to vehicular traffic on weekends and holidays. The plan also called for developing methods to slow traffic and improve safety.[302]

### REGIONAL AND NATIONAL TRAILS

Rock Creek Park has become part of several regional and national trail systems. The park is part of the American Discovery Trail, a cross-country trail from Delaware to California in development since the 1990s. The 6,800-mile trail passes through rural, urban, and wilderness areas largely using pre-existing trails. Trails in Rock Creek Park included in the American Discovery Trail route are marked and begin at 16th and Rittenhouse Streets and overlap the Valley Trail from Joyce Road to Bluff Bridge. The trail heads out of the park south of Peirce Mill via the bike trail and connects with a route along the C&O Canal.[303]

In 2006, the park became part of the Captain John Smith Chesapeake National Historic Trail, which planners had hoped would open in time for the 400th anniversary of the founding of Jamestown in 2007 and Smith's exploration of the Chesapeake Bay. The trail is traveled by canoe and includes sites around the bay and its tributaries. The park is connected to the John Smith Trail at the mouth of Rock Creek as it meets the Potomac River. The official route is still in development, but many sections have been completed throughout the Chesapeake Bay region.

A revised version of the 1960s Fort Circle Parks plan was unveiled in 2010 with the creation of the Civil War Defenses of Washington Trail. The long-planned and discussed tour of the Civil War forts and batteries is becoming a reality through the collaboration of the National Park Service, WABA, and local governments. Some routes are still in development, but a segment of the hiking and biking trail passes by Fort DeRussy over existing trails.

### SUMMARY

Over the last 40 years, the development and maintenance of the trail system in Rock Creek Park has relied on collaboration and partnerships with organizations such as the PATC and the WABA. Public input and advocacy by the WABA led to weekend road closures and the conversion of some pedestrian and bridle trails to bicycle trails. In recent years, several of the bicycle trails have been converted to multi-use trails. With PATC's help the park's foot trails re-emerged and continue to be a vital recreational resource. Through their efforts, several trails no longer in use were cleared and brought back to life. The PATC also constructed new trails, including the Soapstone Valley and Pinehurst Trails, and with park management they reorganized several foot trails to create the Western Ridge and Valley Trails.

Analysis of historic maps reveals that 12.41 miles of bridle trails, 14.24 miles of foot trails, and 5.27 miles of bicycle trails were extant in Rock Creek Park at the end of this period.

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# Rock Creek Park Historic Trails 1967-2011 Period Map




SOURCES: Rock Creek Park Surveys 1910, 1916; Map of Rock Creek Park 1907, 1911, 1921, 1933, 1939, 1944, 1946, 1959; Rock Creek Park Brochures 1962, 1970, 1999, 2009; BASE DATA: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

# Chapter 2: Existing Conditions

## INTRODUCTION

This chapter provides an overview of the Rock Creek Park trail system's existing physical conditions, landscape characteristics, and features as researched and surveyed between the fall of 2010 and the fall of 2011. To document all visible above-ground features, on-the-ground field observations and site research supplemented topographical survey and GIS data. All field data was collected and converted into a trails database. Detailed descriptions of individual trails as collected in the project database are provided at the end of this chapter.

The trail system of Rock Creek Park creates a significant portion of the overall park circulation system and serves both recreational and commuter needs. Combined with park roads, the trails provide access into and a means to move through the park's diverse resource areas. Both systems are an extension of the other. Many of the trails (official and abandoned traces) evolved from old farm or carriage roads predating the park; today they serve as historical remnants of the early road system of the region. The trails also provide alternative modes of travel for local residents. Neighboring residents walk or bike from one adjacent neighborhood to another through the park by utilizing many of the trails. A notable example of this use would be the Melvin Hazen, Western Ridge and multi-use trails, which connect the neighborhoods of Mount Pleasant on the east and Cleveland Park on the west. The multi-use trails provide off-road routes for bicycle commuters to downtown Washington, D.C. from Maryland and adjoining neighborhoods. In addition, all of the park roads are shared by automobiles and bicycles, but sections of Beach Drive, Sherrill Drive, and Bingham Drive are closed to automobile traffic on weekends and holidays. Bicyclists, joggers, and in-line skaters use these closed roads heavily. Since the early 1980s, Ross Drive, Sherrill Drive, Bingham Drive, Morrow Drive, and portions of Glover Road have been closed during snow conditions for recreational activities such as cross country skiing. The trails are primarily used by joggers, dog walkers, horseback riders, bird watchers, nature enthusiasts, hikers, and cyclists.

## PARK ACCESS

Neighboring residents make up a large portion of the park's visitors; they access the park largely on foot through neighborhood access trails. Local residents living further from the park access the trails from bus stops along 16th Street, the Van

Ness and Cleveland Park Metro stations along Connecticut Avenue, by bicycle, and by automobile. For visitors arriving by automobile, trail access is generally provided at parking areas located at Boundary Bridge, the nature and horse centers, the maintenance yard, Broad Branch Road and Beach Drive intersection, Peirce Mill, the tennis center, Carter Barron Amphitheatre, and picnic groves. Most of the 29 picnic groves have limited parking for two to four cars, but a few larger parking areas are associated with groves that tend to be primary trail access lots. These include picnic groves one, two, six, seven, eight, nine, ten and thirteen. Public restroom facilities are located at groves one, six, ten, and twenty-four, as well as at the nature and horse centers. These facilities all serve as trailheads and are well distributed throughout the park, providing ample access to trails for visitors arriving in automobiles.

## TYPES OF TRAILS

The extant trails traverse over diverse terrain within the Rock Creek Valley. Some follow along the creek's edge and others climb up the slopes that create the deep valley, ranging from 33 to 348 feet in elevation. Rocky outcrops are a common feature for many trails. The trails are multi-use (bicycle and foot), bridle, foot, or nature trails. The nature trails are located adjacent to the nature center and planetarium and include a short asphalt paved trail that meets guidelines for the Americans with Disabilities Act and Architectural Barriers Act (ADA/ABA). The only other paved asphalt trails in the park are the multi-use trails; all other trails have either a gravel mix or compacted native soil tread. In addition, the park includes numerous miles of unauthorized social trails and abandoned trail/road traces, which the park does not maintain. All but 1.15 miles of the abandoned traces were once a part of the official trail system and approximately 8.23 miles of the social trails are abandoned trails. This report includes a limited study of the abandoned and social trails as they contribute to the trail system.

**Miles of Trails by Type:**

- Official Trails: 31.92 miles[1]
  - » Multi-use Trails (bike and foot trail): 5.27 miles
  - » Bridle Trails (horse and foot trails): 12.61 miles
  - » Foot Trails (includes nature trails): 14.04 miles
- Abandoned Trails: 43.56 miles[2]
- Abandoned Carriage Roads: 6.50 miles[3]
- Social Trails (unauthorized): 14.14 miles[4]

Many of the foot and bridle trails are suffering from various degrees of damage or erosion. Field survey data identified more than 5.5 miles and an additional 76 points of water related trail damage associated with erosion or entrenching. The cause of this erosion is typically from poor trail alignment, trail grades too steep for the capability and structure of the existing soil, trails running up the face of slopes, and cross slopes and outslopes that are missing or too flat. Currently, the

park addresses the erosion problems primarily by using waterbars and check dams. Waterbars have traditionally been considered an acceptable means of mitigation and still are today, however they are only stopgap measures requiring an increased amount of regular maintenance and are not considered a sustainable approach to trail maintenance. At the time of the field survey, there were almost 500 waterbars or check dams throughout the trail system.

## TOPOGRAPHY AND NATURAL FEATURES FROM AN ORGANIZATIONAL AND SPATIAL PATTERN PERSPECTIVE

The Rock Creek Valley straddles the physiographic boundary between two major provinces, the Piedmont and the Coastal Plain. The Piedmont is characterized by ancient rock that has been metamorphosed by heat, pressure, folding, and faulting deep in the earth over millions of years. The hard rocks underlying the Piedmont province resisted uniform erosion, which created the hilly and rocky terrain of today. Much of the surface has since weathered to clay. The Coastal Plain is much younger and consists of eroded and deposited sands, clays, and gravel. The sandy sediments are the deposits left from when the oceans once covered much of the earth's land surface. Rivers and streams, including Rock Creek and its tributaries, deposited weathered rocks, sand, and clay as they incised through the Piedmont.[5]

Rock Creek itself is regionally located on the center of the fall line, the area between the hard underlying rock of the Piedmont and the soft sandy Coastal Plain.[6] The creek itself has very few falls; it flows over bedrock, and has terraces that rise as much as 200 feet above the creek channel. Small and large tributaries feed into Rock Creek within the park boundaries by cutting channels through the terraces. Many locations within the valley and the creek itself contain large rocky outcrops. These geologic formations create interest and diversity for the trail alignments throughout the park. Existing trails take full advantage of these cliffs and the valley along the creek itself. The Valley and Black Horse Trails predominately travel along side slopes through the valley or directly along the creek's edge, while the Western Ridge and White Horse Trails have a greater tendency to climb up and down ridgelines of the cliffs and plateaus on the west side of the park. The cross trails tend to follow ridgelines or swales in an east-west pattern across the park.

Remnants of the Piedmont and Coastal Plain province are visible in the trail treads throughout the park. Most of the side slope and ridgeline trails tend to have a harder soil with rockier aggregates that become exposed through erosion. The lower elevation trails and swale line trails tend to exhibit more of the Coastal Plain attributes, with sandy soil treads where the entire trail bed becomes highly entrenched from years of wear. Overall, the trails provide a wide range of exposure to the types of topographic relief and geologic features within the park.

In return, the geologic features play a significant role in the design, layout, and maintenance requirements for the various trails. As a result, several of the trails have steep inclines of 20% or more, but a majority of the trails would still fall in an easy to moderate category.

## STRUCTURES

Several extant historic structures have played a role in the development of the trail system at Rock Creek Park, primarily the old farm and mill structures that predated the establishment of the park. Later park additions during the National Park Service (NPS) Mission 66 era centered on providing improved facilities for recreational and educational uses. The following are extant structures that contribute to the use and alignment of the trails:

- The Rock Creek Park Horse Center (1957): Provides the staging ground for trail rides in the park and offers public and private horseback riding and lessons that begin and end at the center. Other riders typically access the trails from Meadowbrook Stables just north of the park in Maryland.
- Rock Creek Park Nature Center and Planetarium (1960): Serves as the park's visitor center and primary trailhead. The nature center has ample parking for trail users, serves as a meeting place for interpretive or guided walks, sells trail maps, and provides restroom facilities and drinking fountains.
- Peirce Mill (1829; 1919; 1936) & Peirce Barn (ca. 1810; 1936): Portions of the extant trails originated as old mill roads associated with Peirce Mill, including roads through the park such as Park Road and portions of Beach Drive. Today, the mill and its associated structures provide historic context and setting for the trails in their vicinity. In addition, the trails within the Peirce Mill landscape serve as contributing features to the historic mill landscape and as access routes for interpretive walks of the site. Park management identified the site of Peirce Mill as an independent cultural landscape; detailed information on this landscape and associated trails is documented in the Peirce Mill Complex Cultural Landscape Report prepared by Quinn Evans Architects (2009).
- Linnaean Hill (1823; 1843; 1934-35): The Peirce family built one of the first permanent residential structures in the area of Rock Creek Park. Also known as Klingle Mansion, this structure was constructed in 1823, and included driveways and access roads to the main house and to Peirce Mill. Today, most of the trails along the steep slopes leading up to the mansion are remnants of the mid-19th century residential estate and serve as contributing features to this landscape. The contemporary use of Linnaean Hill as the park headquarters limits the use of the trails in this region to users on through routes. The mansion once housed the park's nature center and was a destination and trailhead. The parking lot associated with Linnaean Hill now primarily functions as staff parking and visitor parking for the offices. The parking lot is closed on nights and weekends and therefore limits the use of this area as a trailhead. The closest access point to Linnaean Hill is Picnic Grove 1 parking lot approximately 1/8 mile from Linnaean Hill. Adjacent roads also provide access to these trails, but parking restrictions tend to limit this access to

neighboring residents. Detailed information on this cultural landscape and its associated trails is documented in the Cultural Landscape Inventory of Linnaean Hill (2003).

- Blagden Mill (ca. 1830s): Ruins of the Blagden Mill Complex include bridge abutment ruins and traces of the old millrace. Two trail traces of roads associated with Blagden Mill are extant today. One was the Old Blagden Mill Road built in 1857, and the other was a smaller carriage road that tied into Old Blagden Mill Road just before crossing Rock Creek. The smaller road was built later, between 1865 and 1890, and still has an intact stacked stone wall and stone culvert that serve as an example of mid-19th century road construction for the region. Both road traces are visible in the landscape today and are used as social trails from the neighborhoods.

- Comfort Stations: There are four freestanding comfort stations located at Picnic Groves 1 (1958), Picnic Grove 6 (1950), Picnic Grove 10 (1950), and Picnic Grove 24 (1950). Although the picnic groves visitors primarily use them, they serve all park visitors, including trail users. They are located in convenient spots along the trail routes and provide a service to the trails rather than directing the trails alignment.

- Bridges: The park has seven major trail bridges that cross Rock Creek. The Army Corps of Engineers constructed most of these bridges between 1934-1935. They include Bluff Bridge (1934-1935), Rapids Bridge (1934-1935), Rolling Meadow Bridge (1934-1935), Riley Spring Bridge (1934-1935), and Boundary Bridge (1934-1935). The Hazen Bridge (1982), and Bike Trail Suspension Bridge (1991-1994) are the newest park trail bridges and both serve the multi-use (bike) trail. In addition, there are several road bridges that can be associated with the trails as an underpass, including Ross Drive Bridge (1907; 1968), and Peirce Mill Bridge (1872; 1895; 1921) and as viewshed features, such as Boulder Bridge (1901-1902). With the exception of Peirce Mill Bridge and the newer trail bridges, all of these bridges are features of the park rustic design style and provide key crossing locations along Rock Creek. Smaller trail bridges are discussed in the small-scale features section.

- Milkhouse Ford (1904): One of the oldest creek crossings in the park, Milkhouse Ford still serves as a crossing for the Black Horse Trail. The ford is a concrete paved area in a shallow portion of the streambed, which was open to vehicular traffic until the 1980s.

- Fort DeRussy (1861-1865): A few of the trails adjacent to Fort DeRussy originated as part of the fort's circulation system. Today, these trails provide access to the fort and east-west circulation across the park.

## VEGETATION

The trails of Rock Creek Park provide a means for recreation in, and access to, the natural scenery of the Rock Creek Valley. A primary feature of the natural scenery is the deciduous forest that covers approximately 80% of the park landscape. The Rock Creek Forest is a second growth forest that is more than a century old. While large tracts were cleared north of Military Road during the Civil War and later to accommodate farm fields and a supply of wood for building products, there are

still remnants of the old growth forest. This is especially evident south of Military Road, where there are a few large specimen oaks over 280 years old.[7]

The forested areas are made up of six forest associations based on the National Vegetation Classification System. The following descriptions are from the USGS-NPS Vegetation Mapping Program's Vegetation Classification of Rock Creek Park, March 1998.[8]

- American Beech-White Oak/Mayapple Forest System: Just over 70% of the total forest coverage is this association, including two variants the beech/mixed oak and beech/tulip poplar variants. Occurs on moist to somewhat drier slopes. In Rock Creek Park this forest is dominated by white oak *(Quercus alba)*, American beech *(Fagus grandiflora)* and tulip poplar *(Liriodendron tulipifera)* in the canopy and sub-canopy. Associates include other oak species *(Quercus rubra, Q. velutina, Q. prinus, Q. falcata),* hickories *(Carya spp.)* and black gum *(Nyssa sylvatica)*. Sweetgum *(Liquidambar styraciflua*) is rarely present in this community as it occurs in the park. Flowering dogwood *(Cornus florida)* is common and American holly *(Ilex opac*a) is characteristic but sparse. Maple-leaved viburnum *(Viburnum acerifolium)* is nearly always present, often forming a well-defined shrub layer. Herb composition may be fairly diverse and ranges from sparse to dense depending on soil type, disturbance history and moisture levels. Mayapple *(Podophyllum peltatum)*, jack-in-the-pulpit *(Arisaema atrorubens)*, and poison ivy *(Toxicodendron radicans)* are typical associates. Christmas fern *(Polystichum ascrostichoides)* may be locally abundant, typically on hillsides. Other associates include cucumber root *(Medeola virginiana)*, squawroot *(Conopholis americana)*, sweet cicely *(Osmorhiza claytonii)*, false solomons seal *(Smilacina racemosa)*, wild yam *(Dioscorea villosa)*, tick-trefoil *(Desmodium sp.)*, partridgeberry *(Mitchella repens)* and others. Non – native species such as garlic mustard *(Alliaria petiolata)*, Japanese honeysuckle *(Lonicera japonica)*, and Oriental bittersweet *(Celastrus orbiculatus)* are common to abundant in some locations.

    - Mixed Oak/Beech Variant: This is a dry-mesic forest of slopes and hilltops. In comparison to the typical examples of the beech – white oak/mayapple forest association, this mixed oak – beech variant is characterized by greater percent cover of oaks and less dominance by tulip poplar. The canopy is co-dominated by a mix of red oak *(Quercus rubra)*, black oak *(Q. velutina)*, and white oak *(Q. alba)* and chestnut oak *(Q. prinus)*. Beech usually occurs in the sub-canopy as a co-dominant with oaks, red maple *(Acer rubrum)*, black gum *(Nyssa sylvatica)* and hickory *(Carya spp.)*. Maple-leaved viburnum *(Viburnum acerifolium)* is common but spicebush *(Lindera benzoin)*, hornbeam *(Carpinus caroliniana)* and jack-in-the-pulpit *(Arisaema atrorubens)* are conspicuously lacking or sparse, a feature which distinguishes this variant from the typical beech – white oak/mayapple association.

    - Beech/Tulip Poplar Variant: This variant of the beech – white oak/mayapple association is characterized by a dominance of tulip poplar *(Liriodendron tulipifera)* and American beech *(Fagus grandiflora)* in the canopy and sub-canopy. Associates include red maple *(Acer rubrum)*, black gum *(Nyssa sylvatica)*, hickory *(Carya tomentosa)*, flowering dogwood *(Cornus florida)* and hornbeam *(Carpinus caroliniana)* in the canopy or sub-canopy. Hornbeam is

quite characteristic of this community; it is more prevalent in this variant than in the typical beech – white oak/mayapple association. Oaks *(Quercus spp.)*, sycamore *(Platanus occidentalis)* and boxelder *(Acer negundo)* may be present as well but usually in low abundance. Spicebush *(Lindera benzoin)* and viburnums *(Viburnum prunifolium, V. acerifolium, and others)* are common in the shrub layer. The herb layer may be diverse, with many of the components of the typical beech – white oak/mayapple association. Jack-in-the-pulpit *(Arisaema atrorubens)* is usually more prevalent in this variant. The beech – tulip poplar forest occurs on mesic mid – to lower slopes, often in proximity to streams but not on the floodplain itself.

- Chestnut Oak-Black Oak/Huckleberry Forest: Occurs on ridge tops, convex upper slopes, and south facing slopes on rocky, well-drained soils. Covers approximately 5% of the total forest canopy. In Rock Creek Park this forest association is characterized by a dominance of chestnut oak *(Quercus prinus)* and black gum *(Nyssa sylvatica)* and an absence or sparse cover of white oak *(Quercus alba)*. Red oak *(Quercus rubra)* and/or black oak *(Quercus velutina)* and red maple *(Acer rubrum)* are often present but sparse. Sassafras *(Sassafras albidum)* and serviceberry *(Amelanchier arborea)* are typical in the sub-canopy or tall shrub layer and vines such as greenbrier *(Smilax glauca and S. rotundifolia)* and grape *(Vitis spp.)* are common. Characteristic shrubs include heaths such as blueberry *(Vaccinium pallidum)*, huckleberry *(Gaylussacia baccata)*, mountain laurel *(Kalmia latifolia)* and azalea *(Rhododendron periclymenoides)*. The herbaceous layer tends to be sparse or absent.

- Loblolly Pine/Mixed Oak Forest: Composed of only 3% of the parks overall canopy, this association occurs on soils that are well-drained to excessively drained gravelly sandy loams of the coastal plain. At Rock Creek Park, this forest is distinguished by the relatively high diversity of tree species, including a number of species that are infrequent at other locations throughout the park. No single species is dominant in the canopy. This community is characterized by the presence of black cherry *(Prunus serotina)*, sweet gum *(Liquidambar styraciflua)*, loblolly pine *(Pinus taeda)*, blackjack oak *(Q. marilandica)*, chestnut oak *(Q. prinus)*, post oak *(Q. stellata)* and turkey oak *(Q. falcata)*. Willow oak *(Q. phellos)* is typical in the sub-canopy or shrub layer. Other oaks, hickory *(Carya tomentosa)*, and tulip poplar *(Liriodendron tulipifera)* may be present. American beech *(Fagus grandifolia)* tends to be sparse or absent. Typical shrubs and vines include Pennsylvania blackberry *(Rubus pensilvanicus)*, greenbrier *(Smilax glauca, S. rotundifolia)*, Virginia creeper *(Parthenocissus quinquefolia)*, arrow-wood *(Viburnum dentatum)*, poison ivy *(Toxicodendron radicans)* and grape *(Vitis spp)*. The herb layer tends to be patchy. Seedlings of many of the canopy tree species are represented in the herb layer.

- Sycamore/Green Ash Forest: Occurs primarily on moderately well-drained to somewhat poorly-drained soils of Piedmont floodplains covering approximately 8% of the forest canopy. At Rock Creek Park this association is characterized by sycamore *(Platanus occidentalis)* in the canopy and box elder *(Acer negundo)* in the canopy and/or sub-canopy. Red maple *(Acer rubrum)* and tulip poplar *(Liriodendron tulipifera)* are often co-dominant with the sycamore. Green ash *(Fraxinus pennsylvanica)*, white ash *(F. americana)*, and hickory *(Carya tomentosa, Carya glabra)* are frequent associates. Bladdernut *(Staphylea trifolia)* and river birch *(Betula nigra)* are occasional associates within the park. The shrub layer may be dominated by spicebush *(Lindera benzoin)* with black

haw *(Viburnum prunifolium)* occurring less frequently. Characteristic herbaceous species include jewelweed *(Impatiens capensis)*, mild water-pepper *(Polygonum hydropiperoides)*, jack-in-the-pulpit *(Arisaema atrorubens)*, enchanter's nightshade *(Circea quadrisulcata)*, skunk cabbage *(Symplocarpus foetidus)*, poison ivy *(Toxicodendron radicans)* and others. Jorling (1969) also describes wood nettle *(Laportea canadensis)* as a prominent herb in the floodplains. Weedy non-native species such as garlic mustard *(Alliaria petiolata)*, lesser celandine *(Ficaria verna)*, English ivy *(Hedera helix)*, stilt grass *(Microstegium vimineum)*, multiflora rose *(Rosa multiflora)*, and Japanese honeysuckle *(Lonicera japonica)* may be frequent.

- Tulip Poplar: Covers approximately 10% of the forested area and occurs on moist, mid-slope to low-slope sites previously cleared. In Rock Creek Park, this association is dominated by tulip poplar *(Liriodendron tulipifera)* with no co-dominants in the canopy. It is essentially a tulip poplar monoculture, with tulip poplar and/or box elder *(Acer negundo)* in the sub-canopy. Spicebush *(Lindera benzoi*n) and blackberry *(Rubus allegheniensis)* are present in the shrub layer. These sites tend to be weedy and non-native species such as multiflora rose *(Rosa multiflora)* and porcelainberry *(Ampelopsis brevipedunculata)* and lesser celandine *(Ficaria verna)* or fig buttercup may be prevalent.

- Virginia Pine/Oak Forest: A rare association for the park encompassing only 1.5% of the canopy coverage, this association occurs on well-drained soils of hilltops. At Rock Creek Park, this association contains sparse to moderate cover of Virginia pine *(Pinus virginiana)*. Historically, table mountain pine *(Pinus pungens)* was an infrequent component of this association but this species has since diminished or died out in the park. Associates include oaks *(Quercus rubra, Q. velutina, Q. prinus)*, tulip poplar *(Liriodendron tulipifera)*, and American beech *(Fagus grandifolia)*. Maple-leaved viburnum *(Viburnum acerifolium)* is typical in the shrub layer and herbs tend to be sparse. Species composition in the shrub and herb layers is consistent with the surrounding forest types of the beech-white oak/mayapple association and the chestnut oak association.

In general terms, the forested vegetation at Rock Creek Park has a thin understory layer impacted heavily by an overpopulation of deer. The close proximity to urban residential neighborhoods creates challenges with invasive horticultural species, such as oriental bittersweet *(celastrus orbiculatus Thunb.)*, porcelainberry *(Ampelopsis brevipedunculata* (Maxim.) Trautv.), English ivy *(Hedera helix)*, pachysandra *(pachysandra terminalis)*, and periwinkle *(Vinca* spp.), that tend to have a heavier coverage around the park borders. Over the past few years, the Washington, D.C. region has had several significant storms that caused tree loss throughout the park. The northwest portion of the park was hit especially hard by storms in the summer of 2010, which caused a large number of trees to uproot and fall across trails. These downed trees have created large gaps in the canopy that will allow new trees and understory to establish in these areas, including a potential increase in invasive vegetation. Fallen tree removal across the trails is an ongoing maintenance requirement for the park.

## VIEWS AND VISTAS

The topography of Rock Creek Park features significant elevation changes that range from 33 to 348 feet, and climb up to 200 feet above the creek channel. However, the terraces and side slopes are typically covered in a forest canopy and do not provide significant views. Interesting views of the park's natural and cultural resources are more noticeable on a micro level, such as views of the creek and of rocky outcrops found while walking on the trails. The Olmsted Brothers identified good vantage points and views during their reconnaissance fieldwork completed in 1917. These locations do not correspond with any of the existing pull-offs within the park and there is no indication that any of the trails were sited to take advantage of these views. The park does not actively manage viewsheds and no documentation has been found regarding a managed viewshed plan. The following are a few of the micro views identified by the cultural landscape staff during fieldwork for this report:

- The Valley Trail and Black Horse Trail offer numerous locations and vantage points for viewing Rock Creek.
- All trail bridges crossing Rock Creek offer exceptional views upstream and downstream of the creek.
- Although not located on an official trail, the old bridge abutments associated with Blagden Mill offer one of the best vantage points, with views overlooking Beach Drive and Rock Creek and towards the Pulpit Rock.
- Pulpit Rock is located on a high rocky cliff overlooking Beach Drive and the creek; however, this view is blocked today by vegetation within the viewshed.
- One of the most photographed features in the park is Boulder Bridge. It is best seen from the trails just south of the bridge while walking north on the Valley Trail. However, another vantage point is found walking east on Foot Trail #17 and on a parallel social trail. This view is best in winter when the leaves are off the trees, and is arguably a more serene view than that along the Valley Trail. A well-worn social trail parallel to the official trail provides a clearer view. Evidence of trampled vegetation indicates that many people are cutting over to this social trail.
- The southern leg of Western Ridge Trail, also known as the "Little Billy Goat Trail." Traveling south along this trail offers dramatic views downstream of Rock Creek from a high vantage point. Opposite the creek at this location is the cliff wall along Beach Drive that carries Park Road into the valley. The cliff wall and the elevation above the creek provide a canyon-like atmosphere.

## SMALL-SCALE FEATURES

Along the trails of Rock Creek Park, numerous historic and contemporary small-scale features can be found. These include bridges, culverts, stone headwalls, drainage channels, waterbars, check dams, walls, signage, and benches. Most of

the features are contemporary, but a few of the stone walls and stone headwalls were built in the park rustic style as early as the 1920s.

- Culverts and Headwalls: To date, no documentation has been found on the small trail culverts and stone headwalls, but drawings of road culverts constructed in a similar method were developed in 1921. In addition, these headwalls and culverts are often found along traces of older abandoned trail segments that were opened in the early years of the park's development. These historic culverts typically are constructed with concrete pipes and mortared stone headwalls. The contemporary culverts are constructed with metal or PVC pipes and earthen headwalls.

- Small trail bridges and boardwalks: These structures cross the intermittent streams and branches feeding into Rock Creek and are typically wood with wood or metal beams and wood handrails. (A few structures do not have handrails.) The date of these structures is unknown, but they likely were constructed after 1940. Because of the deteriorating nature of wood in moist environments, many of the existing bridges are likely replacements of earlier wood footbridges.

- Benches: Few benches are found along the trails. These are predominately replicas of the Mission 66 era modified rustic-style Washington Bench. The original Washington Bench was developed in the late 1920s.

- Waterbars and Checkdams: These are typically constructed of wood railroad ties or pressure-treated lumber. Their original installation date is unknown, but the practice likely began in the late 1970s.

- Signage: The trails have various types of signage that is either directional or regulatory. The directional signs are brown-painted wood signs and posts with routed white-painted letters that indicate mileage to other trails from the current location. Regulatory signage is typically a Plexiglas sign with list of regulations in typed small text format or a metal sign with brown background and white lettering indicating no bikes or no dogs off leash. These are all contemporary and date to the late 1970s. Occasionally a remnant old metal diamond trail sign is still attached to trees along the trails; these were formerly used to blaze the trail path.

- Walls: There are a few locations with historic stacked stone walls. A few of these features appear to be ruins of old dams or river walls, while others are small retaining walls along the trail. The contemporary walls are typically constructed out of wood.

The trails themselves have additional small-scale features that help to form the trail tread, hold it in place, or provide informal stream crossings. These include drainage features, stepping stones, steps, boardwalks, and trail edgings that will be discussed in more detail during the treatment section of this report.

## ENDNOTES

1 Mileage calculated from the modified ArcGIS data file for Rock Creek Park Trails provided by NCR GIS. The data file has been modified for this project to include historic data and eliminated duplicate trails that had been drawn for combined trails. For example, segments of the White Horse and Western Ridge Trails are one in the same, the source data layer included two separate lines (features) for these two trails. For the project data layer, we deleted one of the duplicate features and added the deleted feature name to the remaining trail feature.

2 The abandoned trails and carriage road mileage is calculated from the ArcGIS database of historic trails created for this project. The historic trails database contains a feature class (layer or file) for abandoned trails. Many of the early carriage roads within the park had been converted to bridle or foot trails at some point during the park's development. To track the origin and full history of all the trails within Rock Creek Park, the carriage roads needed documentation as well. The CLP team developed this feature class through digitizing historic park trail maps from 1855 to 2009. While every effort was taken to interpret the historic maps and trail alignments to the best of our ability, some margin for error is anticipated. Future study and overlay of field GPS alignments of visible traces will provide further refinement.

3 Ibid.

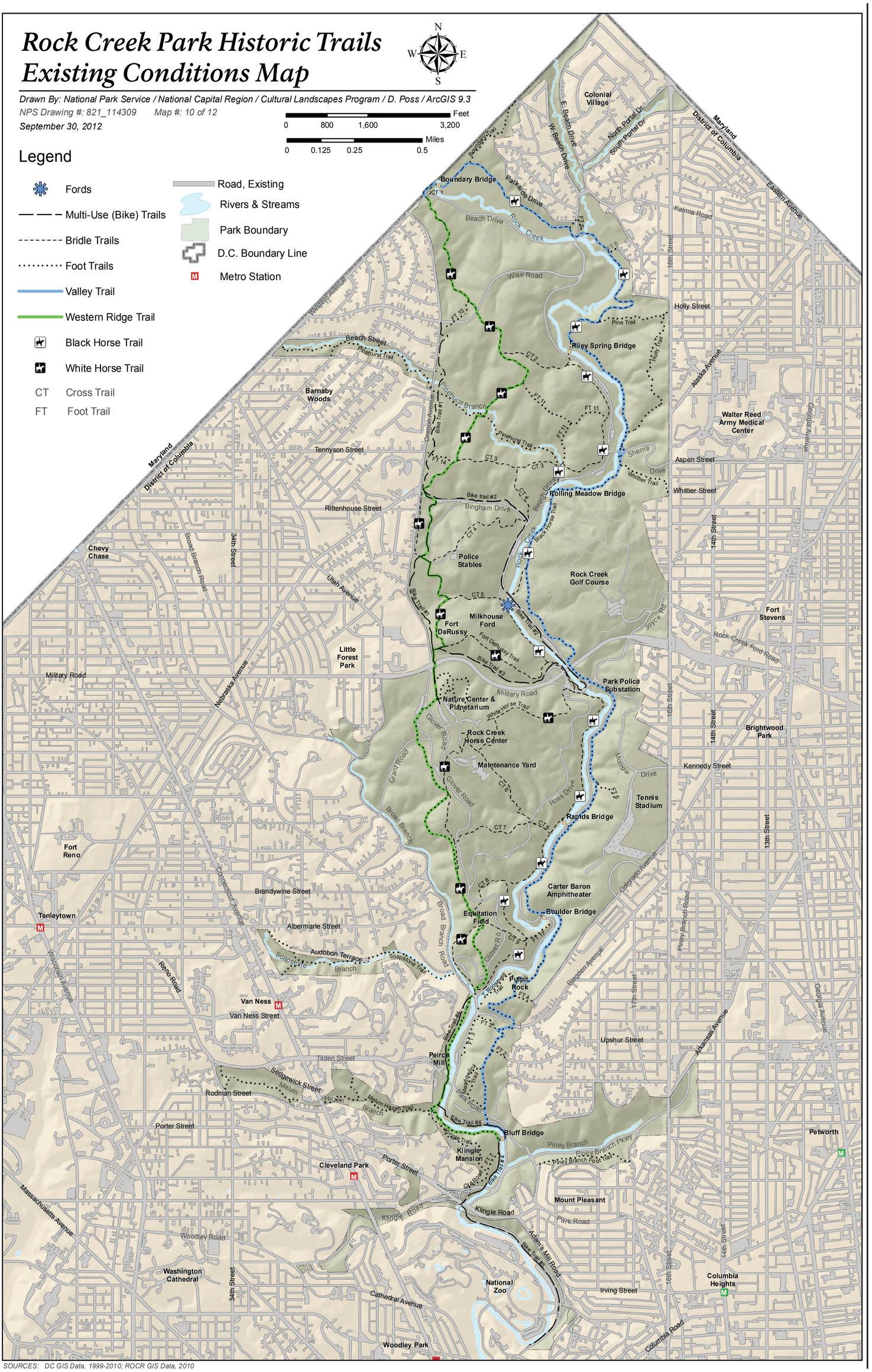
4 Social trail mileage calculated as of 7 June 2012 from a partial GPS field survey of social trails. Rock Creek Park staff is currently conducting a GPS field survey of the park's social trails. As of this date, the area surveyed covers only portions of the study area north of Broad Branch Drive and Beach Drive intersection. This is not an exhaustive study as of yet and additional social trails are known to exist south of Broad Branch.

5 Scott Southworth and Danielle Denenny, Geologic Map of the National Parks in the National Capital Region, Washington, D.C., Virginia, Maryland, and West Virginia (U.S. Geological Survey Open-File Report 2005-1331, 2006), pg. 19, available only online at http://pubs.usgs.gov/of/2005/1331/.

6 Ibid, pg. 21.

7 National Park Service, Rock Creek Park and the Rock Creek and Potomac Parkway Final General Management Plan / Environmental Impact Statement (Washington, D.C., 2005) pg. 142.

8 The Nature Conservancy, NBS/NPS Vegetation Mapping Program: Vegetation Classification of Rock Creek Park. March 1998, pg. 12-32. Accessed online at http://biology.usgs.gov/npsveg/rocr/index.html. The NPS Center for Urban Ecology has updated the vegetation classification and map for Rock Creek Park, however; the updated data has not been released for use as of June 2012.




SOURCES: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

# Chapter 3: Trail Descriptions

This chapter provides detailed descriptions of each of the extant trails at Rock Creek Park. These descriptions provide basic information regarding length, width, and type of trail, along with any known historical data and a description of the trail's route. The trails are organized alphabetically by trail type, including foot trails, bridle trails, multi-use trails, and neighborhood connector trails. The two primary foot trails, Western Ridge Trail and Valley Trail, and the two primary bridle trails, Black Horse Trail and White Horse Trail, have route descriptions that connect the two main trails as a clockwise loop starting from north to south and then south to north. Neighborhood connector trails are described from their entrance point at the park boundary to their connecting trail. The route descriptions for the cross trails and numbered foot trails typically begin at the trail end closest to a noted landmark.

## FOOT TRAILS

### WESTERN RIDGE TRAIL

Type: Main Foot Trail

Length: 4.61 Miles (4.26 Miles Historic)

LCS: Segments Listed / Additional Segments Eligible

Origin: In 1978, volunteer members of the Potomac Appalachian Trail Club (PATC) and park staff designated the Western Ridge Trail as a comprehensive north-south trail. The trail route is a compilation of existing or abandoned trail segments that were improved, re-opened, and designated as the Western Ridge Trail. Most of these existing trails originated as bridle trails, but a few were portions of the park's first official bike trails built in 1967-69. In addition, PATC constructed a few new trail segments to complete the north-south route.

For a more specific history of a particular trail segment, please refer to the trails database in ArcGIS.

Route: A green blazed trail traveling north-south along the west side of Rock Creek. The trail begins at the Maryland State line and travels south passing the nature center, equitation field and Peirce Mill until it reaches Bluff Bridge.

Description: The Western Ridge Trail is typically 4 to 5 feet wide on native soil, but increases to 8 to 15 feet wide on gravel soil when it is shared with the White Horse Trail. A few segments that travel through open fields tend to be narrower, measuring 1 foot wide, or no trail is apparent. Segments of the Western Ridge Trail are shared with the White Horse Trail and the Multi-Use (Bike) Trail.

**VALLEY TRAIL**

TYPE: Main Foot Trail

LENGTH: 5.52 Miles (4.74 Miles Historic)

LCS: Segments Listed / Additional Segments Eligible

ORIGIN: A large portion of the Valley Trail contains trail segments from old farm roads pre-dating the park, and segments adapted from the original 1897-1906 bridle trails. There was an effort in 1909 by the park's Board of Control to construct a foot trail on the east side of Beach Drive from Military Road to the zoo. According to the 1910 Map of Rock Creek Park, this effort was partially completed, but a few segments of the foot trail shared the same path with bridle trails and Beach Drive. The trail shared Beach Drive only at Boulder Bridge and Peirce Mill. The foot trail crossed Rock Creek at the Peirce Mill Bridge and then continued to the zoo on the west side of the creek. A good portion of this original planned footpath is extant today and consists of the segments from the police station just south of Military Road to just north of Picnic Grove 4, and a segment starting due north of Boulder Bridge to just before the trail's intersection with Old Blagden Mill Road.

The remainder of the trail evolved over time through the park's continuous effort at organizing the trail system. The name Valley Trail was first designated during the early collaboration between the park and PATC in 1978. At this time, several trail segments were built and improved with the current trail designation set for the new and existing segments. The identification and blazing of the Western Ridge and Valley Trail in 1978 was an effort to create a circular loop trail for the park totaling roughly 12 miles.

For a more specific history of a particular trail segment, please refer to the trails database in ArcGIS.

ROUTE: A blue blazed north-south route on the east side of Rock Creek. The trail starts at the west end of Bluff Bridge where it intersects the Western Ridge Trail southern terminus. It overlaps the multi-use (bike) trail for approximately 1/10$^{th}$ of a mile before turning north and crosses Beach Drive. The trail travels north paralleling Rock Creek and/or Beach Drive to Boundary Bridge.

DESCRIPTION: The Valley Trail is a narrow foot trail on native soil that varies in width from 1 to 4 feet. Segments of the trail are shared with the Black Horse Trail; these segments tend to be on a gravel mix tread and wider, around 8 to 10 feet.

**FOOT TRAIL #1 (NATURE TRAILS)**

TYPE: Nature Trail/Foot Trail

LENGTH: 0.62 Miles (0.62 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: Mission 66 era nature trails, constructed shortly after the nature center opened on June 4, 1960. Originally called, "Explore the Woodland Trail."

Route: The Edge of the Woods Trail is located to the west of the nature center and the Woodland Trail is located to the east. Both are loop trails.

Description: Approximately half of the Edge of the Woods Trail was paved (date unknown) with asphalt and improved to meet Universal Design Standards. The remaining portion of the nature trail is about 6 feet wide with native soil tread. The vegetation is a mixture of Chestnut Oak Forest, Mixed Oak / Beech Forest and Beech / White Oak Forest.

#### FOOT TRAIL #2 (UPSHUR STREET TRAIL)

Type: Foot Trail / Neighborhood Connector Trail

Length: 0.06 Miles (Not Historic)

LCS: Not Listed / Not Eligible

Origin: Opened in the 1970s or 1980s to connect the Mount Pleasant neighborhood to the Valley Trail.

Route: Begins at Upshur Street and ties into the Valley Trail just south of Blagden Avenue.

Description: A 4-foot-wide trail on native soil with a relatively consistent 4% slope in good condition.

#### FOOT TRAIL #3

Type: Foot Trail / Connector Trail

Length: 0.27 Miles (Not Historic)

LCS: Not Listed/Eligible

Origin: Opened between 1978-1990.

Route: This is really two trails that serve as connector routes from the Valley Trail and Theodore Roosevelt Trail to Beach Drive/Blagden Avenue intersection and Picnic Grove 2.

Description: The trail ranges from 2 to 3 feet wide and transitions from native soil tread to a gravel mix tread. The gravel tread is typically edged on the out slope side with log edging. This is predominately a side slope trail with approximately 0.06 miles of eroded tread. The entrance near Picnic Grove 2 is in need of edge definition and signage. In addition, the Beach Drive/Blagden Avenue intersection is challenging for pedestrians and needs a crosswalk and other traffic calming measures.

#### FOOT TRAIL #4 (COLORADO AVENUE TRAIL)

Type: Foot Trail/Neighborhood Connector Trail

Length: 0.07 Miles (Not Historic)

LCS: Not Listed/Eligible

ORIGIN: Opened between 1970-1991 as a neighborhood access trail.

ROUTE: Begins at the Colorado Avenue cul-de-sac and ties into the Valley Trail just south of Pulpit Rock.

DESCRIPTION: A 4-foot-wide trail on native soil and relatively flat terrain until the intersection of the Valley Trail where it drops down the face of slope at 13%. Most of the trail is in a Chestnut Oak forest. The trail is in good condition, but could use an entrance sign at Colorado Avenue.

**FOOT TRAIL #5**

TYPE: Foot Trail/Connector Trail

LENGTH: 0.015 Miles (0.015 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: One of the park's original bridle trail segments as noted on the 1907 Map of Rock Creek Park.

ROUTE: Starts at Beach Drive just northwest of Boulder Bridge and connects to the Valley Trail.

DESCRIPTION: A 2-foot-wide trail with native soil tread in good condition. There is a small social trail just off Foot Trail #5 that serves as a shortcut to head north and connect with the Valley Trail.

**FOOT TRAIL #6 (GROVE #24 TRAIL)**

TYPE: Foot Trail/Connector Trail

LENGTH: 0.11 Miles (0.11 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: Mission 66 Era connector trail built in 1961-1962.

ROUTE: Begins at Picnic Grove 24 at the east end of the trail and ties into the Valley Trail at a wooden boardwalk with wood handrails. It also connects the Tennis Center and Carter Barron Amphitheatre parking lot to the Valley Trail.

DESCRIPTION: A 2-foot-wide trail on native soil tread with steep slopes from 12-33%.

**FOOT TRAIL #7**

TYPE: Foot Trail

LENGTH: 0.08 Miles (0.08 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: One of the Rock Creek Valley's earliest carriage roads, it's possible this trail was constructed as early as 1823 by the Peirce family as a connector road between Peirce Mill and Klingle Mansion. By 1910,

the park's Board of Control converted it to a bridle trail. The old road first appears on the ca. 1850 DC Suburbs Map and on the 1861 Boschke map.

Route: Connects directly off the old Klingle Mansion driveway and ties into the Bike Trail #4 just south of Bluff Bridge.

Description: A 10 – to 12-foot-wide native soil tread trail cutting across a steep slope of 12-33%. Approximately half the trail is severely eroded with a deep cut, which indicates its age and the challenges of a trail on such a steep cross slope. The entrance at the Klingle Mansion driveway is marked with rows of stone boulders on both sides of the trail. These boulders are overgrown with vegetation and their date is unknown. The vegetation surrounding the trail is predominantly a beech/white oak forest and an open lawn/ meadow area at the Bike Trail connection. In addition, there are remnant trees of an allée planting along the trail suggesting its historic origins.

**FOOT TRAIL #8 (JUNIPER STREET TRAIL)**

Type: Foot Trail/Neighborhood Connector Trail

Length: 0.03 Miles (Not Historic)

LCS: Not Listed/Eligible

Origin: Constructed in 1971-1990 as a neighborhood connector trail.

Route: Begins at Juniper Street cul-de-sac and ties into the Valley Trail southeast of Fenwick Branch.

Description: The trail width is typically 6 feet wide, but narrows to 4 feet wide at the east entrance and widens to 12 feet when it meets the Valley Trail. Predominately flat, the trail has one steep area at the east entrance where a small set of wood stairs is located. The entire stretch of trail is within a beech/tulip poplar forest. It is in good condition.

**FOOT TRAIL #9 (VALLEY TRAIL SPUR)**

Type: Foot Trail/Neighborhood Connector Trail

Length: 0.11 Miles (Not Historic)

LCS: Not Listed/Not Eligible

Origin: Constructed in 1971-1990 as a neighborhood connector trail.

Route: Begins just east of West Beach Drive at the Valley Trail, turns north and crosses West Beach at Parkside Drive, where it turns back south to connect with the Valley Trail west of West Beach Drive.

Description: An 8 – to 10-foot-wide gravel mix trail with minimal erosion and a few waterbars to the east and a set of wood stairs on the west. The east side of the trail is predominately flat at 2-5% grade while the west section and the intersections with West Beach Drive are steeper, 10-12% slopes. The forest cover is varied between beech/ tulip poplar, sycamore/green ash and beech/white oak.

The entrances at Parkside Drive are marked with metal bollards. The trail is sometimes used as a bridle trail bypass during high water events that make the Black Horse Trail under W. Beach Drive impassable.

#### FOOT TRAIL #10

TYPE: Foot Trail

LENGTH: 0.16 Miles (0.04 Miles Historic)

LCS: Not Listed/Segments Eligible

ORIGIN: The segment south of Wise Road was one of the original bike trails in the park, constructed in 1967-1969 of crushed bluestone. The segment north of Wise Road opened around 1978 as a hiking trail and has technically been abandoned by the park, but is still used as a social trail.

ROUTE: Begins just south of the Wise Road/Oregon Avenue intersection from Bike Trail #1. It then travels northeast, crossing Wise Road, to connect with the Western Ridge Trail/White Horse Trail.

DESCRIPTION: South of Wise Road is a 6-foot-wide asphalt trail, and north of Wise Road is a 4-foot-wide native soil trail. Neither of the segments are signed or blazed.

#### FOOT TRAIL #11 (CLAGETT FARM TRAIL)

TYPE: Foot Trail/Cross Trails

LENGTH: 0.57 Miles (0.57 Miles Historic)

LCS: Segments Listed/Additional Segments Eligible

ORIGIN: Portions of this trail potentially date back to the early 1800s as an old tenant farm road. It is first identified on the 1892 U.S.C.G.S. map, but archival evidence of early tenant farming of the Carroll/ Clagett property suggests development in the area prior to the Civil War. This trail likely pre-dates the war based on locations of barns and structures that have been identified near the trail during and before the war. More research is needed to confirm this. In recent years, there has been some minor re-routing to the northeast segment due to damage repair work.

ROUTE: This trail has three legs that tie into/connect the Western Ridge/ White Horse Trail to the Black Horse Trail in the center of the park and sandwiched between Riley Spring Bridge, Pinehurst Trail and Picnic Groves 8 and 9.

DESCRIPTION: A 3 to 5-foot-wide native soil trail with varying slopes between 1% and 17%. The forest cover is predominately beech/mixed oak and beech/tulip poplar.

#### FOOT TRAIL #12

TYPE: Foot Trail/Alternate Connector Trail

Length: 0.01 Miles (Not Historic)

LCS: Not Listed/Not Eligible

Origin: Opened in c. 1978 as a foot trail.

Route: Connects the Pinehurst Trail with the Western Ridge Trail just southwest of the crossing of Pinehurst Branch.

Description: This is a very short segment of trail that serves as an alternate (short-cut) route to access the east segment of the Pinehurst Trail. It is approximately 4 feet wide on native soil.

**FOOT TRAIL #13**

Type: Foot Trail/Neighborhood Connector Trail

Length: 0.04 Miles (Not Historic)

LCS: Not Listed/Not Eligible

Origin: Opened between 1971-1990 as a foot trail.

Route: Begins at the Oregon Avenue/Beech Street intersection and travels southeast to meet the Bike Trail #1.

Description: A 6-foot-wide trail on native soil with some minor erosion damage. There are no signs or blazes to mark this trail.

**FOOT TRAIL #14**

Type: Foot Trail/Neighborhood Connector Trail

Length: 0.11 Miles (0.11 Miles Historic)

LCS: Not Listed/Eligible

Origin: An early small farm road/driveway first documented on the 1892 U.S.C.G.S. map. It was also one of the first roads converted to a bridle trail and documented on the 1907 Map of Rock Creek Park. The trail was abandoned in the late 1920s and re-opened sometime between 1971 and 1990 for use as a foot trail.

Route: Begins at the Oregon Avenue/Tennyson Street intersection and travels southeast to meet Bike Trail #1, then continues further to connect with the Western Ridge trail and White Horse Trail.

Description: A 7 – to 9-foot wide trail with native soil tread. A lightly sloping trail between 2-9% and in good condition.

**FOOT TRAIL #15**

Type: Foot Trail/Connector Trail

Length: 0.03 Miles (0.03 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: A majority of this trail segment was part of the original bridle trail system in 1907 as documented by the 1907 Map of Rock Creek Park. The remainder of the trail was added in the late 1920s. By 1991, the trail was converted to a hiking trail.

ROUTE: Begins at Beach Drive just north of Milkhouse Ford and travels north to meet the Black Horse Trail, which then connects with the Valley Trail.

DESCRIPTION: A 4-foot-wide, highly eroded trail with a gravel-mix tread.

**FOOT TRAIL #16**

TYPE: Foot Trail/Connector Trail

LENGTH: 0.02 Miles (Not Historic)

LCS: Not Listed/Not Eligible

ORIGIN: Opened in the mid-late 1960s after the new Broad Branch Road/ Beach Drive intersection was developed.

ROUTE: A short connector trail from Broad Branch Road to Beach Drive just north of the intersection.

DESCRIPTION: A 1-foot-wide native soil trail in mowed lawn.

**FOOT TRAIL #17 (BOULDER BRIDGE RIDGE TRAIL)**

TYPE: Foot Trail

LENGTH: 0.12 Miles (0.12 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: This trail segment was part of the original bridle trail system in 1907 as documented by the 1907 Map of Rock Creek Park. It was closed in the 1950s and re-opened sometime after 1991 as a foot trail.

ROUTE: Begins at the Black Horse Trail just north of Cross Trail #9. It traverses east down a ridge toward Beach Drive just east of Boulder Bridge.

DESCRIPTION: A picturesque short trail along a rocky ridge top overlooking Boulder Bridge and Rock Creek. The trail is approximately 2 feet wide on native soil and shows signs of erosion for most of the trail. An old trail that was abandoned in the 1950s is still evident parallel to this trail and downhill toward the creek. The abandoned trail is often utilized today for better views of Boulder Bridge. The vegetation is comprised of tulip, beech, oak and several thickets of laurel. The trail provides opportunities for good views of stone outcroppings, Boulder Bridge, and Rock Creek following leaf fall.

**FOOT TRAIL #18**

TYPE: Foot Trail/Bridge Crossing

LENGTH: 0.04 Miles (0.04 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: Opened in 1935 with the construction of Rapids Footbridge.

ROUTE: Connects the Valley Trail on the east with the Black Horse Trail on the west, crossing Rock Creek over the Rapids Footbridge.

DESCRIPTION: No Description

#### MEADOWLINK TRAIL

TYPE: Foot Trail/Habitat Zone Trail

LENGTH: 0.23 Miles (0.09 miles historic)

LCS: Not Listed/Segments Eligible

ORIGIN: The northern half of this trail was one of the earliest bridle trails in the park, constructed by 1910. This segment was closed in the 1950s and then re-opened in the 1980s as a side foot trail through the lightly forested meadow.

ROUTE: Loops off the Valley Trail just north of Park Road.

DESCRIPTION: An easy trail, 1.5 feet wide on native soil in good condition.

#### KLINGLE MANSION OLD ROAD TRACE

TYPE: Foot Trail/Historic Road Trace

LENGTH: 0.50 Miles (0.47 Miles Historic)

LCS: Segments Listed/Additional Segments Eligible

ORIGIN: These trails are old roads/driveways leading to Klingle Mansion and connecting Klingle with Peirce Mill. They potentially date back to 1823, with the exception of the northern-most segment running downhill toward the Hazen Branch, which was opened between 1971 and 1990. These trails were converted to bridle trails in the early years of the park's development. Additional history for this trail is available in the Linnaean Hill Cultural Landscape Inventory.

ROUTE: Begins on the north side of the Klingle Road interchange ramp, east of Beach Drive. The trail traverses upslope and turns west toward Klingle Mansion. It passes Klingle Mansion to the north and follows along the north side of the new park headquarters drive. The trail continues northwest into the forest running along the side slope. Just south of Hazen Branch, the trail turns east and slightly zigzags down the steep embankment to meet the Western Ridge Trail at the small Hazen Branch footbridge.

DESCRIPTION: This trail varies in width and character; it is better to discuss in segments. Segment one is the original drive to the Klingle Mansion from Klingle Road and is a 10-foot-wide gravel mix trail. The historic character is visible in the width of the trail and in low stacked stone retaining walls, old fence posts, allée planting of oaks, two lampposts, and the route of the trail.

Segment two is the section that turns northwest off the park headquarters driveway and is 4 feet wide with native soil tread. Evidence of a wider road bed is apparent. However, the route of the trail is the most telling, as it directly connects Klingle Mansion with Peirce Mill. Evidence of the abandoned northern segment is still apparent and utilized today as a social trail. This segment is highly eroded; especially the newest downhill segment.

#### THEODORE ROOSEVELT TRAIL

TYPE: Foot Trail/Side Trail

LENGTH: 0.23 Miles (0.2 Miles Historic)

LCS: Not Listed/Segments Eligible

ORIGIN: The majority of this trail was constructed from 1897-1906 and was one of the original bridle trails. It is identified on the 1907 Map of Rock Creek Park. By 1916, the trail was converted to a foot trail with an additional 0.06 miles. Some segments were abandoned around 1930 and the mid-1950s. The remaining segment to the south closed after suffering damage caused by Hurricane Agnes. The trail re-opened in 1977 through the efforts of PATC volunteers and was dedicated to Theodore Roosevelt.

ROUTE: Starts at the intersection of Blagden Avenue and Beach Drive and climbs uphill to meet the Valley Trail at Pulpit Rock.

DESCRIPTION: This is a steep side slope trail with approximately 75% of the trail in a highly eroded condition.

### NEIGHBORHOOD CONNECTOR TRAILS

#### BOUNDARY TRAIL

TYPE: Foot Trail/Neighborhood Connector Trail

LENGTH: 0.33 Miles (Not Historic)

LCS: Not Listed/Not Eligible

ORIGIN: Constructed in 1992 by the Potomac Appalachian Trail Club

ROUTE: Connects the Valley Trail/Black Horse trail with Primrose Street just southeast of Boundary Bridge

DESCRIPTION: Primarily a 4-foot-wide native soil trail that widens to 7 feet with gravel tread at the intersection with Grubb/Primrose Road. The majority of the trail has just over 12% grades in a beech/mixed or white oak forest. A few waterbars are located along the steepest segments about halfway through the trail.

#### HOLLY TRAIL

TYPE: Foot Trail/Neighborhood Connector Trail

LENGTH: 0.55 Miles (0.43 Miles Historic)

LCS: Not Listed/Segments Eligible

ORIGIN: The main north-south segment is one of the earliest bridle trails in the park. First documented on the 1907 Map of Rock Creek Park, its proximity and connection to Pine Trail indicates it could potentially pre-date the park. This segment closed before 1933. During that time, the southwestern segment opened as a foot trail connecting to the Valley Trail. This segment closed in the 1950s. The existing trail as delineated today was opened in the early 1960s as a neighborhood connecting foot trail.

ROUTE: Begins at the Pine Trail near 16th and Holly Streets and moves south to connect with the Valley Trail just north of Sherrill Drive.

DESCRIPTION: A 3-foot-wide trail with native soil tread traversing up and down hillsides with 9-16% slopes. The trail bed had deep rutting indicating its long historic use as a trail. The trail is in relatively good condition but does have several waterbars along the steepest slopes. There is one wood 7-foot-long footbridge near the intersection with Pine Trail. It is rotten and needs repair. The forest cover varies from Beech/ White Oak to Tulip Poplar.

**MELVIN HAZEN TRAIL**

TYPE: Foot Trail/Neighborhood Connector Trail

LENGTH: 1.0 Mile (1 Mile Potentially Historic)

LCS: Not Listed/Segments Eligible

ORIGIN: The existing trail re-opened in 1977 with the assistance of a volunteer, Carl Jones, and the PATC. Newspaper articles indicate that the trail was developed sometime prior to 1944 when Jones recalled leading a Wanderbirds Hiking Club group "along a little-known route" known as the Melvin Hazen Trail. Another article from the *Washington Post* dated May 2, 1943 shows the eastern most portion of the trail identified on a trail map, but it is unclear if the trail was completed at that time.

The Melvin Hazen parcel between Connecticut Avenue and Reno Road had been identified as Melvin Hazen Park in 1944 when an unfulfilled master plan was developed for that section. The master plan identifies trails, but does not indicate existing conditions at the time.

In addition, there is a quarry located just east of Connecticut Avenue off the north spur of the trail. This portion of the trail is overgrown and not receiving maintenance today, but it is still identified as an official trail on the park maps along with the quarry. The research efforts of this report have not found any documentation on this quarry and it is unknown as to when it was utilized. However, any quarry operation would have pre-dated the park and indicates that a trail in this general area would have also pre-dated the park. More research is needed to confirm.

ROUTE: Follows along the Hazen Branch connecting Reno Road and Rock Creek Park / Western Ridge Trail just south of Peirce Mill.

DESCRIPTION: A 2 – to 4-foot-wide trail on native soil that roughly follows the alignment of the Hazen Branch. It weaves north and south of the branch with several stepping stone stream crossings that sometimes include wood or stone stairs. There are several very steep segments at the access points from Reno Road and Connecticut Avenue. At a few points, the trail can be hard to follow due to the steep inclines in these areas. In addition, there are several social trails leading off turns at the steep inclines which can be confused for the official trail.

Melvin Hazen is a unique and challenging trail that gets a substantial amount of use from dog walkers and commuters. Its entrance along Connecticut Avenue is just over a quarter mile from the Cleveland Park Metro Station and provides easy access for public transit access to the park. Several portions of the trail show signs of erosion and trail damage due to use.

**PINE TRAIL**

TYPE: Foot Trail/Neighborhood Connector Trail

LENGTH: 0.28 Miles (0.25 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: An old farm road leading from D. Clagett's heir's farmstead, northeast of the park, to Rock Creek. There is another D. Clagett farmstead on the west side of the creek just south of the trail. This farm road is first identified in c. 1850 on the DC Suburbs Map. Both of the Clagett sites were discussed during the Civil War and Confederate soldiers could have utilized this trail during the Battle of Fort Stevens.

ROUTE: Begins at 16th Street just south of Holly Street and ties into the Valley / Black Horse Trail just north of Riley Spring Bridge.

DESCRIPTION: A 5-foot-wide trail of native soil with a gentle slope from 2-10% through a predominant tulip poplar forest. In good condition with only one waterbar on the far east side of the trail. This trail could easily be modified to meet ADA guidelines for an accessible route.

**PINEHURST BRANCH TRAIL**

TYPE: Foot Trail/Neighborhood Connector Trail

LENGTH: 1.36 Miles (0.60 Miles Historic)

LCS: Partially Listed/Additional Segments Eligible

ORIGIN: The oldest segment of the Pinehurst Trail potentially dates back to 1740 as a tenant farm access road. The tenant farm occupation was short, c. 1740-18001. The trail likely converted to a bridle trail (or road trace) sometime after the tenant farmer left and then converted back to a carriage road by 1916, which extended from Beach Drive to Daniel Road. A 2' x 2'6" sanitary sewer was laid down the Pinehurst Valley in 1914 in the same approximate location as the existing trail. Manholes are evident at locations in or immediately adjacent to the trail. The construction corridor

for the sewer may have used the previous road trace. By 1932, this stretch of the trail was used as a bridle trail. The park naturalist incorporated a segment of the trail into a nature trail from the early 1940s to the late 1960s. The segment between Beach and Daniel (Oregon Ave.) Roads converted to a foot trail in the late 1960s and the PATC built the final segment from Oregon Avenue to Western Avenue in 1983.

Route: Begins at the Black Horse Trail near the intersection of Pinehurst Branch and Beach Drive and extends to the District line at Western Avenue.

Description: A picturesque stream valley trail ranging in width from 3 to 6.5 feet, the native soil tread is on relatively flat terrain with a few short steeper segments at stream crossings that utilize timber stairs (some of which are in need of improvement). This is a moderate to easy trail with many stream crossings of varying type; several are simple rock crossings. The older segments are heavily eroded with deep trail beds, while the newer segments are beginning to show signs of erosion as well. In addition, there is an old stone dam and stone retaining wall at the east crossing of Pinehurst Branch. Additional research is needed on these structures.

**PINEY BRANCH FOOT TRAIL**

Type: Foot Trail/Neighborhood Connector Trail

Length: 0.37 Miles (Not Historic)

LCS: Not Listed/Not Eligible

Origin: Built between 1971 and 1990, it was reconstructed in 2010 by an SCA crew.

Route: Trail connects Park Road and 17th Street and parallels Piney Branch Parkway on the south.

Description: Primarily serving the adjacent Mt. Pleasant neighborhood, Piney Branch Foot Trail gets significant use by dog walkers. The trail is relatively easy, with an average 7 foot-wide crushed aggregate tread. The trail crosses two wood bridges, one with hand rails and one without and has a steep section (16% slope) that has been improved with a long set of stairs. Additional trail work has been completed on several social trails leading off the main trail and tie into the neighborhood streets. It is unclear if the SCA crew or a group of neighborhood residents completed this work.

**SOAPSTONE VALLEY FOOT TRAIL**

Type: Foot Trail/Neighborhood & Metro Connector Trail

Length: 0.95 Miles (0.56 Miles Historic)

LCS: Not Listed/Segments Eligible

Origin: PATC volunteers constructed this trail in 1979 utilizing old road traces for over half the alignment. The old road traces pre-date the park as old carriage roads identified on the 1892 U.S.C.G.S.

map. The Army Corps of Engineers converted the carriage roads to bridle trails by 1916 and then abandoned them sometime after 1927.

ROUTE: Connects to Connecticut Avenue via Windom Place 2 blocks north of the Van Ness Metro Station. A second segment to the north ties into Albemarle Street about a half block off Connecticut Avenue. The trail climbs down into the Soapstone Valley, following Soapstone Branch until it reaches Broad Branch Road about a tenth of a mile north of Beach Drive.

DESCRIPTION: No Description

#### WHITTIER TRAIL

TYPE: Foot Trail/Neighborhood Connector Trail

LENGTH: 0.23 Miles (0.18 Miles Historic)

LCS: Not Listed/Segments Eligible

ORIGIN: Originally an old farm road that connected several farms from the east to Rock Creek. It was converted to a bridle trail between 1897-1906, closed between 1922-1932, and reopened as a foot trail in 1960-61. First identified on the 1892 U.S.C.G.S map.

ROUTE: Connects 16th Street to the Valley Trail, just across the creek from Picnic Grove 8.

DESCRIPTION: Very steep trail, from a 10-33% slope with numerous timber steps leading up to 16th Street.

### BRIDLE TRAILS

#### BLACK HORSE TRAIL

TYPE: Main Bridle Trail

LENGTH: 4.73 Miles (4.65 Miles Historic)

LCS: Segments Listed/Additional Segments Eligible

ORIGIN: See also White Horse Trail Origin.

The Black Horse Trail is one of the two main bridle trails organized as part of Mission 66 efforts in the late 1950s. Many segments of this trail originated from old farm roads, or were created during the park's earliest development period, from 1897-1916. For a specific history of a particular trail segment, please refer to the trails database in ArcGIS.

ROUTE: The trail begins at the north end of Cross Trail #1 near the District of Columbia/Maryland Boundary line. It joins the Valley Trail and heads southeast along the park boundary to West Beach Drive. Here it begins to turn south along the eastern edge of the creek to Riley Spring Bridge. The trail crosses Rock Creek at the bridge and continues south along Beach Drive to Pinehurst Branch, where

it fords the branch and turns back to cross Beach Drive heading toward Rolling Meadow Bridge. The trail crosses Rock Creek again at Rolling Meadow Bridge and joins back up with the Valley Trail to continue south on the eastern side of the creek to Milkhouse Ford. Here it fords the creek and turns south to follow along the western creek edge to the Military Road underpass and on to Joyce Road. From here, the trail continues along the western edge of creek, climbing above Boulder Bridge, where Beach Drive crosses the creek. The trail then follows above the west side of Beach Drive to meet the White Horse Trail at the intersection with Broad Branch Road.

DESCRIPTION: Typically, the Black Horse Trail varies from 4 to 6 feet wide on a gravel mix tread, but there are a few highly variable segments on native soil that are as narrow as 1 foot and as wide as 7 feet. A few isolated areas have low wet spots that have caused the trail to extend beyond 7 feet.

**WHITE HORSE TRAIL**

TYPE: Main Bridle Trail

LENGTH: 4.75 Miles (4.6 Miles Historic)

LCS: Segments Listed/Additional Segments Eligible

ORIGIN: In the late 1950s, the park staff reorganized and streamlined the bridle trails into two north-south main trails and nine cross trails. The White Horse Trail is one of the main bridle trails that stays near the western boundary of the park and never crosses Rock Creek. These trails were developed through combining many existing trails and creating a few additional segments that helped to streamline the entire bridle trail system. The trails were blazed according to their new designation and a brochure was printed to identify the new trail system in November of 1958. Many segments of this trail originated as old farm roads, or were created during the park's earliest development period, from 1897-1916. For a more specific history of a particular trail segment, please refer to the trails database in ArcGIS.

ROUTE: The trail begins at the southwest end of Cross Trail #1, just south of the boundary for the District of Columbia and Maryland. It travels south to the Fort DeRussy Trail, mostly sharing the same route as the Western Ridge Trail. At this point the trail turns east and shares the Fort DeRussy trail to reach the Military Road underpass where it turns south on a combined segment with the Black Horse Trail. Once the trail clears Military Road and reaches Joyce Road, it then turns west toward the Rock Creek Park horse center. It weaves behind the horse center and picks back up north of the maintenance yard entrance drive. Crossing the drive, the trail continues to head south to Glover Road and Picnic Grove 16. Crossing Glover Road, the trail continues south to the equitation field where it passes on the west of the field and begins a southwesterly drop downhill to meet the Black Horse Trail at the Broad Branch Road and Beach Drive intersection.

DESCRIPTION: Typically, the White Horse trail is an 8-foot-wide trail with a gravel mix tread. There are a few locations where the trail narrows to 5 or 6 feet wide and others where it widens to 12 feet wide on native soil. In addition, there are a few minor segments in lawn where the trail is only 1 to 2 feet wide. This occurs along Oregon Avenue between Bingham Drive and the community garden.

#### FORT DERUSSY TRAIL/WHITE HORSE TRAIL

TYPE: Bridle Trail

LENGTH: 0.5 Miles (0.5 Miles historic)

LCS: Listed

ORIGIN: Approximately half of this trail was constructed during the Civil War as part of the Civil War Defenses of Washington. This trail segment was an access road into Fort DeRussy. Shortly after the park was established, the old Military Road was converted to a bridle trail in phases and completed by 1910. The segment nearest Military Road was re-aligned in 1959 with the interchange construction.

ROUTE: Begins just north of the Military Road interchange loop at the split between the Black Horse Trail and the White Horse Trail. It then travels west, going past the south border of Fort DeRussy until it connects with the Western Ridge/White Horse Trail.

DESCRIPTION: No Description

#### CROSS TRAIL #1

TYPE: Bridle Cross Trail

LENGTH: 0.05 Miles (Not Historic)

LCS: Not Listed/Not Eligible

ORIGIN: Constructed between 1971 and 1991.

ROUTE: Connects the Black Horse Trail and the White Horse Trail near Boundary Bridge and crosses over Beach Drive.

DESCRIPTION: A gravel mix trail that has a varying width from 4 to 8 feet in a beech/white oak forest. It is in good condition with some erosion/rutting on the south side of Beach Drive. The trail north of Beach Drive is lightly sloped at approximately 5% grade, and the shorter segment south of Beach Drive is rather steep at 20%.

#### CROSS TRAIL #2

TYPE: Bridle Cross Trail

LENGTH: 0.26 Miles (0.26 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: This cross trail is a combination of old farm roads and new construction. The earliest segment is very short and just west of Beach Drive. It was originally part of an early farm road identified on the 1892 U.S.C.G.S. map. This segment, combined with the adjacent segment heading west leads to a natural spring about halfway along today's trail. The portion of the trail from the spring to the Black Horse Trail was part of the original park bridle trails mapped in 1907. The segment to the spring closed between 1922 and 1933. It reopened in 1957-58 and was extended northwest to join the White Horse trail.

ROUTE: Begins just west of Riley Spring Bridge at the Black Horse Trail. It travels southwest, makes a slight backward sloping "c" curve and turns northwest for about 400 feet. It then curves west and keeps west to connect with the White Horse / Western Ridge Trail just south of Wise Road.

DESCRIPTION: This is a picturesque cross trail with boulder outcrops near Beach Drive and a small rocky branch following along its north side. The historic character is evident in the 6-foot-wide native soil trail through the well-worn path and the location of several stone culvert headwalls. There are numerous waterbars crossing the trail and a need for improved swale definition near the old headwalls. Steep slopes rise above the southern edge of the trail with lots of native ferns growing along the slope near the intersection with Beach Drive.

**CROSS TRAIL #3**

TYPE: Bridle Cross Trail

LENGTH: 0.40 Miles (0.40 Miles Historic)

LCS: Listed

ORIGIN: An old farm/carriage road first mapped on the 1892 U.S.C.G.S. map. The road began near the mouth of Pinehurst Branch and tied into the old farm road alongside the branch. By 1907, it was converted to a park bridle trail and is documented on the 1907 Map of Rock Creek Park.

ROUTE: Begins at the eastern edge of the Pinehurst Trail, just north of Beach Drive, and travels west to meet the Western Ridge/White Horse Trail.

DESCRIPTION: A 6 to 8 foot gravel mix trail with about 8 waterbars.

**CROSS TRAIL #4**

TYPE: Bridle Cross Trail

LENGTH: 0.7 Miles (0.7 Miles Historic)

LCS: Segments Listed/Additional Segments Eligible

ORIGIN: The trail segment between the police stables and Bingham Drive originated during the early years of park development; the Army Corps of Engineers completed construction by 1910. The

remaining trail segments north of Bingham Drive and southwest of the police stables were part of the Mission 66 effort and were developed between 1951 and 1958.

ROUTE: Begins at the midpoint along Cross Trail #3 and heads south toward the intersection of Bingham Drive and Beach Drive. After crossing Bingham Drive, the trail turns southwest and heads towards the police stables. The trail follows along the police stables driveway and ends at the White Horse Trail just east of the Old Bingham Drive entrance.

DESCRIPTION: The trail width varies from 4 to 7 feet wide and has a gravel mix tread. The majority of the trail crosses steep terrain of 10-15% slopes and 75% of the trail has erosion issues. Located within a predominately beech / white oak forest the trail includes views toward Beach Drive and passes historic culverts associated with Bingham Drive.

**CROSS TRAIL #5**

TYPE: Bridle Cross Trail

LENGTH: 0.23 Miles (0.23 Miles Historic)

LCS: Listed

ORIGIN: An original portion of the Milkhouse Ford Road (trail), which is one of the oldest known roads in the Washington area and potentially predates European settlement. This road provided the earliest east-west crossing of Rock Creek and was heavily used as a carriage road prior to the construction of Military Road in 1862. Once the park was established, it became part of the original bridle trail system as documented on the 1907 Map of Rock Creek Park.

ROUTE: Begins at Milkhouse Ford and heads west until it meets the White Horse Trail and Western Ridge Trail.

DESCRIPTION: The gravel mix trail is 9 to 10 feet wide

**CROSS TRAIL #6**

TYPE: Bridle Cross Trail

LENGTH: 0.5 Miles (0.5 miles Historic)

LCS: Not Listed/Eligible

ORIGIN: One of the original bridle trails developed between 1897 and 1906, the trail is first identified on the 1907 Map of Rock Creek Park. The section nearest the maintenance yard was constructed in 1959-1960 after the construction of the maintenance building. The middle segment of the trail between Ross Drive and the maintenance yard was abandoned in the 1920s, but later re-opened in the late 1950s during the bridle trail reorganization.

ROUTE: Begins at the Black Horse Trail, on the west side of Beach Drive and east of the Ross Drive Bridge. It heads northwest crossing under

Ross Drive and continues to the horse stables, passing the rear of the maintenance yard.

DESCRIPTION: No Description

**CROSS TRAIL #7**

TYPE: Bridle Cross Trail

LENGTH: 0.35 Miles (0.35 Miles Historic)

LCS: Listed

ORIGIN: About half of the trail east of Ross Drive originated as an old farm/carriage road, leading from today's Glover Road to a grassy knoll in the center of the park. It is possible that a trail had continued toward the creek prior to the park's establishment, but further research is required to make this determination. By 1907, the majority of this trail was part of the original bridle trail system for the park. The existing trail dates to about 1920, when some re-alignments were made around Ross Drive and the connection with Cross Trail #6. Additional modifications occurred during the Mission 66 Era, which included a new short segment west of Glover Road that connected with the White Horse Trail and the re-alignment of a central segment just west of the grassy knoll. The central segment was returned to its original alignment by 1970.

ROUTE: Begins just west of Glover Road at the White Horse Trail and Picnic Grove 17. The trail crosses Glover Road, immediately turns north for about 65 feet, and then heads east towards Ross Drive. The trail crosses over Ross Drive and drops down a very steep incline to meet up with Cross Trail #6.

DESCRIPTION: No Description

**CROSS TRAIL #8**

TYPE: Bridle Cross Trail

LENGTH: 0.2 Mile (0.2 Mile Historic)

LCS: Not Listed/Eligible

ORIGIN: The segment to the northeast of Glover Road is one of the first bridle trails in the park and dates back to 1897-1906. The segment southwest of Glover was developed in the late 1950s as part of the Mission 66 bridle trail reorganization. The original 1897-1906 trail closed in the early 1940s and was reopened again in the 1950s.

ROUTE: Begins just north of the equitation field at the White Horse Trail and heads northeast towards Glover Road. It then crosses Glover Road and heads north for about 60 meters when it turns east until it ends at the Black Horse Trail.

DESCRIPTION: No Description

#### CROSS TRAIL #9

TYPE: Bridle Cross Trail

LENGTH: 0.19 Miles (0.19 Miles Historic)

LCS: Listed

ORIGIN: One of the original bridle trails in the park, the segment east of Glover Road was constructed in 1897-1906. The segment west of Glover Road is not identified on trail maps until 1920. However, there is a clearing of the forest shown on the 1910 and 1916 park maps in the same alignment as this trail, indicating this was an informal connection to the equitation field as early as 1910. The 1920 trail was abandoned in the early 1940s and reopened again in the late 1950s during Mission 66 improvements.

ROUTE: Begins just south of the equitation field at the White Horse Trail and heads southeast toward Glover Road. After crossing Glover Road at Picnic Grove 26, the trail continues southeast until it meets the Black Horse Trail at Foot Trail #17.

DESCRIPTION: No Description

### MULTI-USE TRAILS (BIKE TRAILS)

#### BIKE TRAIL #1 – WISE ROAD SOUTH TO MILITARY ROAD

TYPE: Multi-Use Trail (Bike, Pedestrian)

LENGTH: 1.37 Miles (1.37 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: Current use originated in the late 1960s as part of the original bike trails constructed in the park. The segment of this trail between Fort DeRussy and just north of Moreland Place (0.29 miles) originated as bridle trails and was developed by 1916.

ROUTE: The trail travels roughly parallel to Oregon Avenue from Fort DeRussy to Wise Road.

DESCRIPTION: A 6.5 foot asphalt trail in good condition.

#### BIKE TRAIL #2 – BINGHAM DRIVE AND BEACH DRIVE

TYPE: Multi-Use Trail (Bike, Pedestrian)

LENGTH: 1.17 Miles (1.17 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: Bike Trail Movement, one of original bike trails constructed in the late 1960s.

Route: Runs parallel to the north side of Bingham Drive from Oregon Avenue to Beach Drive. At Beach Drive, the trail turns south and runs along the west side of Beach Drive to Military Road.

Description: A 6.5 foot asphalt trail in good condition. The trail is relatively flat, but does not currently meet Universal Design standards. Minimal modifications to running slopes would improve its ability to comply.

**BIKE TRAIL #3 – JOYCE ROAD WEST TO OREGON AVENUE ALONG MILITARY ROAD**

Type: Multi-Use Trail (Bike, Pedestrian)

Length: 0.67 Miles (0.67 Miles Historic)

LCS: Not Listed/Eligible

Origin: Bike Trail Movement, one of the original bike trails constructed in the late 1960s.

Route: Begins at intersection with Joyce Road and Beach Drive, it parallels Military Road and ties into Bike Trail #1 at the Fort DeRussy Trail.

Description: A 6.5 foot asphalt trail in good condition.

**BIKE TRAIL #4 – GLOVER ROAD SOUTH TO KLINGLE ROAD**

Type: Multi-Use Trail (Bike, Pedestrian)

Length: 1.07 Miles (0.79 Miles Historic)

LCS: Not Listed/Segments Eligible

Origin: Varies widely from an 1820s carriage road associated with Klingle Mansion and the Peirce family, to a 1904 foot path and 1910-1916 bridle trails. About 0.3 miles was recently built in the early 1990s specifically for use as a multi-use trail.

Route: Begins at the Broad Branch / Beach Drive intersection, heads south past Peirce Mill, under Tilden Street, past Picnic Grove 1, crosses Rock Creek at the Hazen Bridge and again at Bluff Bridge. It then follows along Rock Creek to Klingle Road.

Description: A 6.5 to 9.5 foot asphalt trail in good condition. Small portion near Broad Branch / Beach Drive intersection shares a paved road with parking lot driveway.

**BIKE TRAIL #5 – KLINGLE ROAD BRIDGE SOUTH**

Type: Multi-Use Trail (Bike, Pedestrian)

Length: 0.72 Miles (0.27 Miles Historic)

LCS: Not Listed/Segments Eligible

Origin: Bike Trail Movement, constructucted 1971-1974.

Route: Begins at the Klingle Road Bridge and follows on the west side of Beach Drive south to the Rock Creek and Potomac Parkway

leading to the National Mall and the Lincoln Memorial Bridge. The portion included in this study ends at the south boundary of the National Zoo.

DESCRIPTION: No Description

**BIKE TRAIL #6: NATURE CENTER TO MILITARY ROAD**

TYPE: Multi-Use Trail (Bike, Pedestrian)

LENGTH: 0.21 Miles (0.21 Miles Historic)

LCS: Not Listed/Eligible

ORIGIN: This is a small segment originally constructed as a carriage road during the Civil War to connect Ft. DeRussy and the old Military Road in ca. 1862. This segment was abandoned ca. 1872 and a new road segment connecting to Military Road from the modern day parking lot was located slightly west of this alignment. It re-opened as part of the first bike trails within the park in 1967-1969.

ROUTE: Connects the nature center parking lot with Military Road and Bike Trail #1. The Western Ridge Trail shares this route.

DESCRIPTION: A 6-foot-wide asphalt trail in good condition

ENDNOTES

1 Bold, Rocky & Picturesque, Vol. II. P. 139-140.

# Chapter 4: Analysis and Evaluation

## STATEMENT OF SIGNIFICANCE

There are two national laws and one pending law that provide for the protections of qualifying historical trails. They include the National Trails System Act, The National Historic Preservation Act and the pending National Discovery Trails Act. As these Acts provide the legal foundation for preservation of historic trails, a brief description of each acts' purpose is provided in this chapter. The remaining sections of the chapter will provide an overview of the Rock Creek Park trail system's historic significance based on the National Register criteria. This includes a statement of significance, analysis of historic integrity based on seven aspects of integrity, and an evaluation of the trail system's landscape characteristics and features.

### NATIONAL TRAILS SYSTEM ACT, 1968

In 1968, Congress enacted the National Trails System Act to "provide for the ever-increasing outdoor recreation needs of an expanding population and in order to promote the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the Nation." This act designated the National Appalachian Scenic Trail and the Pacific Crest National Scenic Trail as the initial components of that system and developed standards for creating four types of national trail: recreation, scenic, historic, and connecting trails. Benefits of the National Trails System include protection for the trail corridor, national significance, visibility, additional support and funding opportunities.

> National Recreation Trails (NRT) are required to be located in or reasonably accessible to urban areas. These trails can be located on federal, state, or private lands and the secretary of the interior must designate the trail with consent of the federal agency, state, or political organization with jurisdiction over the lands involved.
>
> National Scenic Trails (NST) must be a minimum 100 miles in length and located to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass. National scenic trails may be located to represent desert, marsh, grassland, mountain, canyon, river, forest, and other areas, as well as landforms that

exhibit significant characteristics of the physiographic regions of the nation. They are established through authorization and designation by an act of Congress.

National Historic Trails (NHT) must be a minimum 100 miles in length and follow as closely as possible and practicable, the original trails or routes of travel of national historic significance. The trail routes must be continuous, but the established or developed trail need not be continuous on site. The purpose of national historic trails is the identification and protection of the historic route and its historic remnants and artifacts for public use and enjoyment. They are established through authorization and designation by an act of Congress.

Connecting/Side Trails provide additional points of access to national recreation, national scenic, or national historic trails. They may also provide a means of connection between these trails. These trails can be located on public or private lands and are designated and marked as components of a national scenic, national historic, or national recreation trail by either the secretary of the interior or the secretary of agriculture with consent and approval by appropriate landowner.

Today, there are 11 national scenic trails, 19 national historic trails, and over 1000 national recreation trails. Currently, there are six national trails located in or travelling through Washington, D.C. These include the Potomac Heritage NST, Washington-Rochambeau Revolutionary Route NHT, Captain John Smith Chesapeake NHT, Black History NRT, Fort Circle Parks NRT, and the Potomac River Water NRT. Rock Creek Park is associated with two of these trails, primarily the Fort Circle Parks NRT (see Figure 4.1), which is also a connecting trail for the Potomac Heritage NST. It is likely that additional trails in Rock Creek Park, or possibly the trail system as a whole, are eligible for the National Recreation Trails designation.

A proposal detailing the trail's purpose, use, maintenance, and regulations is submitted and reviewed by the regional Rivers and Trails Conservation Assistance Program of the National Park Service and then forwarded to the secretary of the interior for approval. Once designated, a trail becomes eligible for funding through the Land and Water Conservation Act and numerous other grant programs, such as the Transportation Enhancements Program.

#### NATIONAL DISCOVERY TRAILS ACT, PENDING

Another nationally focused trail that incorporates trail routes within Rock Creek Park is the American Discovery Trail (ADT). Developed as the nation's first coast-to-coast, non-motorized trail, it is a new breed of national trail incorporating multiple features found in individual national trails. From Delaware to California, the ADT links communities large and small and a multitude of natural habitats,

deserts, forests, and mountains. The ADT connects 5 national scenic, 12 national historic and 34 national recreation trails, and is currently undergoing review for designation as a new type of national trail. Congress passed a law directing the National Park Service to complete a feasibility and desirability study about ADTs. Completed in 1995, the NPS study recommended the addition of the ADT to the National Trails System as the first of a new category of long-distance trails to be known as National Discovery Trails. Legislation for the National Discovery Trails Act was introduced to Congress and is pending congressional approval.

The American Discovery Trail enters Rock Creek Park at Joyce Road and 16th Street to the Valley Trail near intersection of Beach Drive and Joyce Road. Cyclists follow the bike trail south along Beach Drive and hikers turn south along the Valley Trail all the way to Bluff Bridge where it continues, overlapping the paved bike trail, south past the zoo and adjacent to the ROCR parkway until reaching the C&O Canal towpath where it leaves the park heading west. All segments of the ADT through Rock Creek Park share the existing trails and only add the ADT designation along the existing trail route.

### NATIONAL HISTORIC PRESERVATION ACT, 1966

The National Register of Historic Places, established under the National Historic Preservation Act of 1966, identifies, evaluates, and protects America's significant historic properties and archeological resources. The National Register provides four qualifying criteria for evaluating the eligibility of properties for listing on the register (see Table 4.1). Several properties in Rock Creek Park are listed on the National Register and the trails system, or individual trails, are contributing features to many of them. Table 4.2 lists all the current National Register listings and nominations that relate to the trails system.

**Figure 4.1**
**Map of Fort Circle Parks NRT through Rock Creek Park. NPS.**

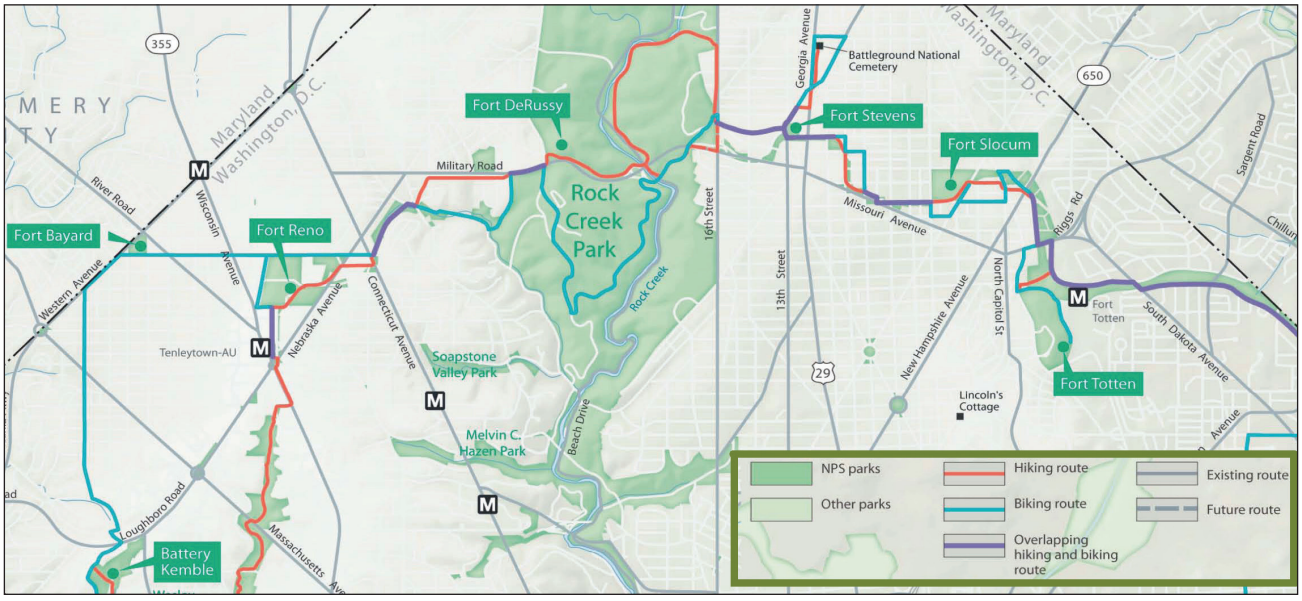


**Table 4.1 Criteria for Evaluation for the National Register of Historic Places**

| **A cultural landscape may be determined to have significance in American history, architecture (interpreted to include landscape architecture and planning), archeology, engineering, and culture based on criteria defined by the National Historic Preservation Act of 1966 and the National Register program. To be eligible, a cultural landscape must be shown to be significant for one or more of the following Criteria for Evaluation:** |
|---|
| A. Associated with events that have made a significant contribution to the broad patterns of our history. |
| B. Associated with the lives of persons significant in our past. |
| C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction. |
| D. Have yielded, or may be likely to yield, information important in prehistory or history. |

(Excerpted from the National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation)

**Table 4.2 List of National Register Nominated Sites associated with the Historic Trails System**

| Rock Creek Park NR Nominations | Published Date | NRIS # |
|---|---|---|
| Boulder Bridge and Ross Drive Bridge | 3/20/1980 | 80000348 |
| Civil War Fort Sites | 7/15/1974 | 74000274 |
| Civil War Monuments in Washington, DC | 9/20/1978 | 78000257 |
| Peirce Mill | 3/24/1969 | 69000014 |
| Peirce Springhouse and Barn | 10/25/1973 | 73000222 |
| Peirce-Klingle Mansion | 10/10/1973 | 73000223 |
| Rock Creek Park Historic District | 10/23/1991 | 91001524 |
| Rock Creek and Potomac Parkway Historic District | 5/4/2005 | 5000367 |
| Mount Pleasant Historic District | 10/5/1987 | 87001726 |
| Piney Branch Quarry Site | 3/24/1982 | 82005168 |

## ROCK CREEK PARK HISTORIC DISTRICT

Listed on the National Register of Historic Places on October 23, 1991, the Rock Creek Park Historic District currently has a period of significance of 1791 to 1941 based on criteria A, B, and C. The historic district nomination lists the historic trails as a contributing resource as part of the Circulation Network of Historic Roads and Trails. The National Register listing provides minimal details of the road system and specific historically significant roads are identified by name. The listing provides no details on the trail system, but does indicate historically significant trail segments on an associated map. All of these trails are currently identified in the List of Classified Structures database for the park and illustrated on Map 3.1 of this report found at the end of this chapter.

*The circulation system of the park built and improved between 1830 and 1941 also contributes a distinctive layered historic character to the park. Many of the historic trails were adapted from old farm roads. The existing parkway road system was largely adapted from the reuse of existing county roads or originally built as early twentieth century park carriage drives. All of the park's serpentine roads were designed as pleasure drives, which was a major recreational activity in the park before 1941. The present road system continues to reflect their original purpose of providing public access to the enjoyment of extraordinary rural scenery. Although adapted to the automobile, the designed alignment, width and environmental surroundings of these scenic roads has not substantially changed since the 1920s. The bridges of Rock Creek Park historic district, such as Pierce Mill Bridge (1872-1921), Boulder Bridge (1902), and Rapids Footbridge (1935), also clearly contribute to the historic development of the park. However, the most dominant physical characteristic of the district is the natural landscape itself. The exceptional natural beauty of this forested valley has determined or influenced historic events and associations in this historic district since intensive settlement in the region after 1790.*[1]

**ROCK CREEK PARK HISTORIC DISTRICT AREAS OF SIGNIFICANCE**
***(from the 1991 National Register Nomination)***

*Community Planning and Development*

*The historic district has strong associations with the planning history of Washington, D. C. Today the park is a vital reminder of. . .Pierre Charles L'Enfant's 1791 landscape plan to employ the surrounding forested hills of Washington as the frame for his formally designed city. In addition, Rock Creek Park has important ties to the historical development of the national capital's park system beginning with Major Nathaniel Michler's 1867 land surveys. The subsequent history of the park's establishment documents the influence of the nineteenth century sanitary reform and park movements and the origins of the City Beautiful movement in Washington, D. C. The district was a central component of the now famous 1901-1902 McMillan Plan for the park system of the national capital. Furthermore, the preservation of the Rock Creek watershed contributed an important impetus for the creation of modern regional planning agencies, the National Capital Planning Commission and Maryland National Capital Planning Commission, in the 1920s.*[2]

*Conservation*

*The establishment of Rock Creek Park was a significant event in the nineteenth century movement to preserve natural scenic areas in the United States. The park*

*was created by Congress in 1890 along with the first post Yellowstone (1872) national parks. The historic district does not approach the scale of its famous counterparts, the California wilderness preserves of Sequoia, General Grant, and Yosemite. However, it was a significant product of this nineteenth century conservation movement and helped pioneer scenic landscape preservation in the United States.*[3]

*Entertainment/Recreation*

*Rock Creek Park was established by Congress as a "pleasure ground" for the people of the United States in 1890. The creation of this open space for the enjoyment of the scenery, bicycle and horseback riding, strolls, picnics, and pleasure driving was considered a necessary antidote to urban growth. The district's historic roads and trails document the significance of these early leisure activities in the park. By the early 1920s the park accommodated more active recreational pursuits, including field sports, tennis and golf. Of the historic sites of these activities only the golf course retains sufficient integrity to recall this period of the park's recreational history.*[4]

*Landscape Architecture*

*Rock Creek Park possesses significance as a historic natural landscape, which was adapted and significantly enhanced as a public park by the U. S. Army Corps of Engineers and the National Park Service between 1890 and 1941. The influential 1918 Olmsted report, prepared by acknowledged master landscape architects Frederick Law Olmsted, Jr., and John C. Olmsted, established methods of landscape practice and a general development plan for the park which has guided management of the reservation's natural resources to the present day. Implemented in 1919 the plan was a significant early application of park landscape planning and scenic preservation. The principles outlined in the report also influenced the design of historic park structures and land uses in the park.*[5]

*Military*

*Rock Creek Park includes a significant military structure, which was once an integral component of the Union network of forts that encircled and defended the city from Confederate attack during the Civil War. Fort DeRussy has been individually listed in the National Register for its military significance as part of the Civil War Fort Sites nomination listed on September 9, 1978.*[6]

### ROCK CREEK PARK HISTORIC TRAILS STATEMENT OF SIGNIFICANCE

Trails were an integral component to the park's establishment and specifically identified in the park's enabling legislation. It specifies that bridle trails and footways shall be constructed and maintained to "provide for the preservation from injury or spoliation of all timber, animals, or curiosities within said park, and their retention in their natural condition, as nearly as possible."[7] After careful study of

the Rock Creek Park trails system, a period of significance has been determined to be 1890-1972, which encompasses the park's establishment through the early years of the bicycle boom. The focus of this significance is on the trail system as a whole. Several of the trails have historical significance of their own merit and these trails contribute to the significance of the overall system. A few of the more prominent individually significant trails are discussed at the end of this section, but more focused study is suggested for identifying all individually significant trails within the system.

While the period of significance begins at 1890, many extant and abandoned trails predate the park and have historical significance beyond the trail system. Most of the original park trails were converted from carriage roads used by the early mills and farm community of the Rock Creek Valley; of the extant trails, 7.5 miles originated as early carriage roads. Of the 20 miles of carriage roads and informal bridle trails identified within the park's boundary prior to 1890 (see Appendix A for trail mileage tables), all but 1 mile were adopted into the park's early circulation system and only 6.5 miles remained as carriage roads. Even though a few of the pre-park carriage roads never officially converted to trails, they essentially served as shared routes for cars and horses in the early years of the park. Because the line between carriage road and bridle trail can be hard to distinguish, this study includes the early carriage roads as contributing to the significance of the trail system.

The trails and roads within the boundaries of Rock Creek Park have always been a related system of circulation. Once the area was established as a park, these routes shifted from utilitarian circulation to routes primarily focused toward recreation. This shift of purpose is the key to the development of an official trail system. The development of the trails system has been a continually evolving process from the adoption of old farm and mill roads, the construction of new trails, converting the use of trails and the realignment of old trails. The system had the most significant amount of trail development between 1897 and 1910 (26.06 miles of new trails and carriage roads), with an additional 13.65 miles from this period originating prior to the park's establishment. Since 1918, the trail development primarily focused on simplifying and organizing the trail system. Routes were eliminated, reopened, adjusted, and organized into named trail routes.

The most significant periods of trail closures occurred from 1918-1932 during the Office of Public Buildings and Ground's (OPBG) management with the closure of 18.5 miles of trail. Based on the timing of the trail closures and the master planning efforts of the Olmsted firm in 1917-1918, it is possible that Frederick Law Olmsted Jr. could have influenced this trail streamlining period. However, current research has not found any written documentation to connect the 1918 Olmsted Brothers Report (Olmsted Plan) to the simplification of the trail system. The next round of significant trail closures occurred during the 1950s, with almost 16 miles of bridle trail closed by 1958. The purpose behind the closures during the 1950s

represented a push to reorganize the bridle trail system. NPS released a plan representing the updated bridle trail system in November 1958. This bridle trail plan organizes the trail system into the two north-south routes (White and Black Horse Trails) and east-west connector routes (Cross Trails). All of the newly designated bridle trails had been improved to a consistent width of 9 feet. This marked the first period of formal organization for any portion of the trail system.

The end of the period of significance in 1972 represents the beginning of the bicycle boom in Rock Creek Park, the Washington area, and the nation. Cycling clubs formed all over the country in the early 1970s and new European-style ten-speed bicycles sparked a growing interest in recreational, as well as professional, cycling.[8] Enthusiasts in the region established the Washington Area Bicycle Association (WABA) in 1972. In Rock Creek Park, the first trails built specifically geared toward bicycle use were constructed in 1967. By 1978, a total of 5.79 miles of bike trail had been designated or constructed. The surge of bicyclists prompted NPS to release a study of bike use in Rock Creek Park and outlined potential actions to serve the increasing cycling population. The list of actions identified included adding new bike trails, automobile bans and a dedicated bike lane on Beach Drive from Broad Branch to Sherrill Drive. In 1972, the park superintendent implemented the first policy to permanently close portions of Beach Drive on Sundays to automobile traffic. This was a significant management decision that has been expanded to weekends and holidays and additional roads have been added over time. Today, this policy remains in effect to include Bingham Drive, Sherrill Drive and additional segments of Beach Drive. The expanded use of these roads for bikes, runners, in-line skaters and other recreation means have enabled the park to keep a minimum of dedicated multi-use (bike) trails throughout the park.

### NATIONAL REGISTER CRITERIA: AREAS OF SIGNIFICANCE

The following section identifies the significance of the Rock Creek Park Historic Trails System as it relates to the National Register of Historic Places Criteria for Evaluation of historic properties. Of the four possible criteria areas, the trails are significant based on Criteria A, B and D. Criterion D refers to archeological resources, which will not be discussed in this report. The trails system does not embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, possess high artistic values, nor represents a significant and distinguishable entity. Therefore, the trails system is not significant based on Criterion C and this criterion will not be discussed further in this report.

*Criterion A*

Community Planning & Development

*Public Parks Movement, 1885-1914*

The trails system is locally significant under Criterion A for community planning during the period 1867-1972. The early roads and paths of the Rock Creek Valley served Washington, D.C. area residents and visitors beginning as early as the mid-1800s, possibly earlier. Many of the trails were in place when Major Nathaniel Michler surveyed the landscape for his 1867 report on a suitable site for a public park and presidential mansion. Michler mentions the valley's "charming drives and walks" within the "wild and romantic tract of country" when he identifies this valley as possessing the inherent attributes sought after by designers of city parks during the Public Parks Movement.[9] The advantage of the Rock Creek Valley was that these attributes were already present, in contrast to other cities that needed to create them, such as New York's Central Park (1859).

While the park itself took another 23 years for establishment, the valley had already been serving as a "*de facto* vernacular park" [10] since the beginning of the nineteenth century. Visitors used the old farm and mill roads and forged other paths throughout the valley well before the first significant effort to set aside the land as a public park in 1867. Michler, the first major advocate for the park's development, based his argument for a public park in Washington on the principles of the Public Parks Movement. This movement began as early as 1830, although the majority of parks developed between 1885 and 1914. Some of the existing trails originated as carriage roads from the early 1800s and helped to support Michler's claims of developing a picturesque park.

*City Beautiful Movement, 1890s-1900s and McMillan Plan, 1902*

The City Beautiful Movement sparked the 1902 McMillan Plan, which advocated for the revival and preservation efforts of Pierre L'Enfant's original plan for the Federal City. One of four noted designers of the time who were members of the McMillan Commission, Frederick Law Olmsted Jr. focused a lot of attention on the park system of the District of Columbia. In the McMillan Plan, Olmsted discussed the need for a comprehensive study of Rock Creek Park to plan appropriately for developing access to the park that enhances the natural scenery. The trail system was in its early stage of development at this time and was an integral part of the park's circulation system, which the McMillan Plan supported.

*Civilian Conservation Corps & Works Progress Administration, 1934-1942*

The Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) were both part of President Franklin Delano Roosevelt's New Deal emergency work relief programs. The CCC was the workforce component of the

Emergency Conservation Work (ECW) Act adopted in 1933 to provide forest conservation and relieve unemployment. Developing a young workforce from the unemployed and under employed, the CCC was able to provide low skilled labor to complete a significant number of conservation projects throughout the country. The WPA replaced the Federal Emergency Relief Administration in 1935 to provide funding for relief projects. Rock Creek Park benefitted from both the CCC and WPA programs.

Civilian Conservation Corps projects varied from landscaping, constructing a section of Beach Drive, building a stone addition to the United States Park Police Lodge, undertaking experimental erosion control projects, clearing the creek channel, removing trees, conducting park surveys, and constructed 2.2 miles of bridle trail with 0.3 miles of log hurdles. They completed all the work between 1934 and 1941, although the date of the trail work is unknown. The CCC Camp NP-8-VA, established in 1934 and discontinued in 1938, is cited for constructing the bridle trail.[11] The historic trails research identified only about a ¼ mile of new bridle trail segments built from 1934-1941. The location of the trail remains unknown; it may have been constructed in the Maryland portion of Rock Creek Park or along the Rock Creek and Potomac Parkway.

In relation to the historic trail system, the WPA had a more significant contribution. WPA funded the construction of the noted rustic trail bridges built during 1934-1935. They include Bluff Bridge (1934-1935), Rapids Bridge (1934-1935), Rolling Meadow Bridge (1934-1935), Riley Spring Bridge (1934-1935), and Boundary Bridge (1934-1935). These five extant bridges are part of a series of eight constructed during the depression era and emulate the modern rustic style promoted by Albert Good in his design catalogue, Park Structures and Facilities (1935).[12] In addition, the WPA funded construction of the Piney Branch Parkway (1935) and the Park Police Lodge (1935).

*Mission 66, 1956-1966*

Substantial increases in visitation after World War II taxed the park's aging infrastructure, which had seen little funding or improvements since the CCC era. National Park Service Director Conrad Wirth initiated the Mission 66 program as a response to the overburdened national park system. It was a 10-year program to implement much needed improvements to the parks by their 50th anniversary in 1966. During this period, Rock Creek Park saw numerous improvements to facilities including the development of the nature center and planetarium, stables, maintenance facilities, and several improvements to park roads. Trail improvements during this period included the major reorganization of the bridle trail system. The reorganization started at some point after 1950 and was completed by 1958. Additional research is needed to confirm the actual start date for this effort and to determine if it was funded by the Mission 66 program. The reorganization included closing over 16 miles of trails and designating two main north-south trail

routes, the Black Horse Trail and the White Horse Trail, along with east-west connector trails called cross trails. The first trail signage for the park was implemented along with the other bridle trails improvements.

Military History

The military constructed several roads to connect the Civil War Defenses of Washington which included a series of forts and batteries. Many of these old roads are extant today as a road, trail, or trace, and contribute to the military significance of the park's historic district. Several trails surrounding Fort DeRussy were developed as part of this circulation system and were utilized by union troops stationed at the fort or associated batteries surrounding the park. A few of the extant trails and roads that originated during the Civil War include portions of the Fort DeRussy Trail, Military Road, Grant Road, and portions of Bike Trail #1 (from the nature center parking lot to Military Road). Confederate and Union troop movement was active in the park as part of the Battle of Fort Stevens, but trails associated with that campaign have not been identified from current research.

Entertainment/Outdoor Recreation, 1848-1972

*Horseback Riding, 1890 to present*

Rock Creek Park is one of only a few urban parks in a major city continuing to provide a public riding program. Many city parks offer private stables and trails for use by horse owners, but few maintain horses for rent to the public for guided trail rides. Other city parks from the Public Park Movement era that continue to provide public stables and public horseback riding today include Fairmount Park in Philadelphia, Prospect Park in Brooklyn, and Audubon Park in New Orleans. Central Park in New York City is planning to reopen their stables and bridle trails in the near future. Rock Creek Park and Gateway National Recreation Area are the only national park units offering a public riding program in an urban area.

*Walking Clubs, 1914 to present*

Walking Clubs were established in various parts of the country during the late 1800s and early 1900s to promote social rambling, scientific exploration, and mountaineering. The trails of Rock Creek Park provided the infrastructure for the Washington area walking club, the Wanderlusters. Their first organized hike in the park included 920 people in 1914, according to the *Washington Post*.

*Cycling, 1967 to present*

Cyclists have enjoyed Rock Creek Park since its founding, but it was not until 1967 that the first official bike trails were constructed and designated in the park. This effort to develop trails specifically designated for cycling coincides with a nationwide rise in bicycling popularity in the early 1970s, spurred by the development of multi-gear bikes. Cycling enthusiasts established the Washington Area Bicycle

Association (WABA) in 1972. This association helped to promote bicycle use in the park and advocated for the closure of roads to increase routes dedicated for bicycles use. In 1972, NPS responded to the cycling enthusiasts and made a significant shift in policy for managing road use. Portions of Beach Drive were closed to vehicular traffic on Sundays. This policy soon expanded to include additional portions of Beach Drive, Sherrill Drive and Bingham Drive and expanded to weekends and holidays. Cycling continues to be a major recreational activity within the park, utilizing the 5.27 miles of designated multi-use (bike) trails and sharing park roads.

Landscape Architecture

The rustic style of landscape architecture is represented most notably in the five trail bridges crossing Rock Creek that were built in 1934-1935. These bridges include Bluff Bridge, Rapids Bridge, Rolling Meadow Bridge, Riley Spring Bridge, and Boundary Bridge. As discussed above under CCC & WPA, these bridges exemplified the style of rustic architecture Albert Good promoted in his design sourcebook, *Park Structures and Facilities* (1935). Additional small-scale features that represented this design style include the native stone culverts, stone fire pits, stone drinking fountains, the Washington-style benches, and rustic log picnic tables. "The policies and objectives Good sets forth. . .reflect the end of an era in park architecture and development."[13] The 1934-1935 modern rustic bridges and rustic small-scale features extant today continue to represent that era.

Social History

*Early Milling Industry of Rock Creek and Associated Trails, c. 1800-1890(97)*

The trails surrounding Peirce Mill and Linnaean Hill were developed and used by the Peirce family to travel from the mill, the Peirce homestead, and Linnaean Hill. The extant and abandoned trails in this area represent the connection between these two properties as they were utilized during the 1800s as homesteads, farms, nurseries, and the milling industry.

Trail and road traces associated with Blagden Mill are extant between the creek near Boulder Bridge and the Carter Barron Amphitheater. The Old Blagden Mill Road trace is still evident along with a smaller carriage road that parallels Blagden Mill Road trace. These road traces are abandoned, but still maintain sufficient landscape integrity to represent the early milling industry of Rock Creek and its associated infrastructure.

*Early DC farmsteads/tenant farms*

Historically, several 19th century farmsteads populated the area north of Military Road; many of these farms rented out plots and land for tenant farming. Many of the trails in this portion of the park originated from, or were used to access, these

farms. Most notably are Foot Trail # 11 and segments of Pinehurst Trail. These trails are some of the last remaining remnants of 19th century farming in the Washington area.

*Criterion B*

Significant Persons Associated with the Trails of Rock Creek Park

*Theodore Roosevelt*

Theodore Roosevelt was an avid explorer of Rock Creek Park and its trails. He was often found riding horseback on the bridle trails or holding impromptu meetings with military officials and dignitaries during a park expedition. In some sense, the park and trails served as extensions to the White House meeting facilities. The trails are significant based on their association with Roosevelt and his presidency.

*Frederick Law Olmsted Jr.*

Frederick Law Olmsted Jr. was the principle landscape architect from the Olmsted firm associated with the 1918 Olmsted Plan for Rock Creek Park. Through his direction and leadership, numerous extant trails of 1917 were documented through photographs, and a need for specific trail planning was identified. He supported the development of Rock Creek Park during his involvement with the 1902 McMillan Plan and was the primary author of the associated Park Improvement Papers, in which he discussed development plans for Rock Creek Park.

*Army Corps of Engineers Designers/OPBG*

The original managers and designers of the Rock Creek Trail System were the U.S. Army Corps of Engineers through the Board of Control of Rock Creek Park and the Office of Public Building and Grounds (OPBG). The Army Corps of Engineers were responsible for the initial implementation of the development of Washington, D.C. based on Pierre L'Enfant's 1792 plan. The Corps also was responsible for the development of many significant public buildings and public works projects in Washington from the late 1800s through the mid 1900s. Additional research is needed to support this group's significance, and it may need to be limited to the OPBG.

### INDIVIDUALLY SIGNIFICANT TRAILS

Some of the trails predate the park as carriage roads and have historical significance related to the milling and farming industry in the Rock Creek Valley. Additionally, several abandoned historic road traces are evident within the park. These trails and historic road traces potentially have their own individual significance earlier than 1890 and could be studied further for their own identification and list-

ing. While this report focuses primarily on the trail system as a whole, some noted significant individual trails and road traces are identified for further study:

- Milkhouse Ford Road trace from Beach Drive to Joyce Road through the golf course.
- Blagden Mill Road Trace and adjacent carriage road from Blagden bridge abutment to south of Carter Barron Amphitheatre.
- Extant segment of Milkhouse Ford Road: Cross Trail #5.
- Trails around Klingle Mansion and Peirce Mill, especially trails connecting the two.
- Abandoned portion of Bingham Road.
- Old Military Road Trace from Grant Road to Military Road.

## ANALYSIS OF LANDSCAPE INTEGRITY

Integrity is the ability of the property to convey its appearance from the period of significance. An evaluation of integrity requires an understanding of a property's physical features and how those features relate to the property's significance. The National Register identifies seven aspects of integrity: location, association, setting, design, materials, workmanship, and feeling. Several or all of these qualities must be present for a site to retain its integrity. The narrative on the proceeding pages provides an evaluation of integrity for a period of significance from 1890 to 1972 for community planning, outdoor recreation, conservation, and its association with people significant in our past. The historic trails at Rock Creek Park retain a high degree of integrity for this period of significance.

The Seven Aspects of Integrity

1. **Location** is the place where the historic trail was constructed and refers not only to the physical place where the trail was built, but also to the alignment of individual trails. The physical location of the trail system at Rock Creek Park has remained unchanged since the park's establishment in 1890. Thus, the location of the site retains a high level of integrity to the historic period of significance. Many of the individual trails have remained in the same physical location since their construction, but others have undergone minor reroutes of alignment and closures. Many of the closed, or abandoned, trails remain in the historic alignment as a trail trace. Thus, the location of individual trails and individual abandoned trails is dependent on the specific trail's alignment. This report focuses on the system as a whole, and does not cover individual trail integrity.

2. **Setting** is the physical environment of the trail system. The setting of the trail system has remained relatively unchanged since 1890. The trails still wind through

a primarily deciduous forest with the same predominate overstory that exhibit similar visual and functional relationships, but the setting has been impacted by a significant decline in the understory layer, an increase of invasive plants, and succession growth. The topography, creek, and tributaries have remained relatively unchanged. However, extensive erosion and channel incising of Rock Creek and tributaries due to increased storm water runoff has affected the setting along certain trails since the park's establishment. While there has been some changes in the woodland forest and creek channels, their impacts have not changed the trail's overall setting of a mixed deciduous forest with significant topographic changes and large rock outcroppings. The trail system's setting retains its overall character as it had in 1890 despite visual impacts to the understory and changing species composition and therefore retains integrity.

3. **Design** is the composition of elements that create the form, route, space, structure, and style of the trail system. The trail system has maintained the same level of design or lack of design since its establishment in 1890. The trail design has always been simple and basic. Routes were cut through the woodland with minimal clearing, utilizing mostly native soil treads and some compacted gravel treads. Many of the routes are in relatively the same alignment from when they were built and minimal structures were utilized to construct the trail. The most notable difference in design elements is the culvert designs. Historically all culverts were constructed with stone headwalls. Today they are constructed primarily without headwalls. All of the historic stone headwall culverts are still extant, although in various stages of condition. The design of Rock Creek Park trail system therefore retains its integrity to the historic period of significance.

4. **Materials** are the physical elements of a particular period, including the construction materials, paving, plants, and other landscape features. Many of the materials historically present along the trail system routes have remained with some exceptions. All the historic stone headwalls for culverts, in-kind replacement of the Washington Bench, stepping stone crossings, native soil treads, crushed aggregate treads, wood bridges, and larger concrete and wood bridges have all remained extant. Other features such as the wood rail fence, rusticated wood signage, the Mission 66 bridle trail signage and most of the tear drop light poles have been removed. There are enough remaining features from the historic period, and the materials that create those features retain their integrity.

5. **Workmanship** is the physical evidence of the crafts of a particular period. The early NPS management of the 1930s represented highly crafted workmanship based on the modern park rustic style. Their craftsmanship evolved to contemporary machine-made metal features during the Mission 66 era. Today the trail workmanship does not follow any period style. The highly crafted features from the earlier trail development periods have generally proved to be the most durable,

such as the stone culverts and 1930s trail bridges. Only these specific features retain historic integrity of workmanship.

6. **Association** is the direct link between an important historic event or person and the historic trail system. It also refers to associated connections and events that formed the original trails. The trail system at Rock Creek Park evolved from varying influences and evidence of those influences remaining extant. For instance, the numerous trails around Peirce Mill and Linnaean Hill are extant from mid-1800s and remain associated with these structures. One of the most prominent persons associated with the park is President Theodore Roosevelt. He utilized many of the trails in the park during his presidency and over 40% of the trail system remains intact from that period (1901-1909). Many of the trails relate to archeological sites and maintain a protected association to those sites. As a result, the association of the trail system retains integrity to the historic period of significance.

7. **Feeling** is the ability of the historic trail system to evoke the aesthetic or historic sense of a past period. The historic character of unpaved trail system meandering through a woodland has remained relatively unchanged from the historic period. There may be changes in plant species along the trails borders, but the vegetation coverage continues to provide the same wooded feeling as that from the historic period. The paved multi-use trails have a slight modification in the trail feeling from the unpaved sections, so there is a slight loss of integrity of feeling on these trails. The erosion along the sides of trails also impacts the trail system's integrity of feeling, but only slightly. The overall feeling of being transported out of the large surrounding city is even stronger today than during the historic period due to the increase in surrounding development. Thus, the feeling of the trail system retains integrity to the historic period of significance.

## EVALUATION OF LANDSCAPE CHARACTERISTICS AND FEATURES

Landscape Characteristics include tangible and intangible aspects, or features, of the trail system that are from the historic period. These features create the characteristics of the trail system and assist in understanding the trail system's historical value. The characteristics are overriding categories in which individual features are grouped. Features that contribute to the historical significance of the trail system need to have been present during the period of significance. The following discussion identifies the trail system's landscape characteristics and features and provides an analysis of their relationship to the period of significance: from the park establishment in 1890 to the development of dedicated bike trails in 1972. A summary table is provided at the end of the chapter.

### NATURAL SYSTEMS AND FEATURES

Natural systems and features are significant if they influenced the trail system development during the historic period and are still extant today. The Rock Creek Valley was selected and preserved as a public park because of its picturesque scenery, rocky creek bed, and gorge-like valley. Preserving as much of this natural scenery as possible has been a constant concern among park managers and designers throughout the park's history. As a result, the trail system is the means to access the natural scenery, where many trails are located along the creek and tributaries or follow the valley's steep slopes. Other trails lead the visitor up the face of cliffs and follow along ridge lines to highlight the diverse natural landscape within the valley.

Today, the park continues to maintain the trail system with the goal of preserving and providing access to the same natural scenery that prompted the establishment of a park. The natural systems and features visible along the trails in Rock Creek Park contribute to the significance of the park's trail system.

### SPATIAL ORGANIZATION

The overall organization of the trail system and the arrangement of the individual trail corridors are the major considerations of spatial organization. The trail corridor itself is studied for the elements of the ground, vertical, and overhead planes that create and define the corridor. The natural features of the park — the cliffs, valleys, creek, and tributaries — play an important role in the spatial arrangement of the overall historic trail system. The north-south trails tend to follow along the banks of Rock Creek where it is relatively flat, or along the western park boundary where traversing the terrain tends to be easier. Cross trails tend to follow the creek's tributaries and run in a southeasterly or southwesterly direction depending on which side of Rock Creek they are on. In the late 1950s, park management named and organized the horse trails into the White and Black Horse Trails, providing riders a loop system combined with the numbered cross trails. The Western Ridge and Valley Trail name designation and organization of the foot trails came in the late 1970s. While the designation of trails into a system organized by trail names was introduced in later periods, most of the physical trails date to the historic period.

The trails of Rock Creek Park evolved with the intent of creating the least amount of impact on the surrounding woodlands. Therefore, the trail corridors were just wide enough for the trail tread and included minimal vegetation clearing along the sides of trails. The ceiling was left open to the forest cover above and cleared as needed for low hanging branches. The trail floor was either an aggregate mix or native soil tread. The asphalt bike trails were added beginning in 1967.

- Foot Trails: narrow corridors, typically from 1 to 3 feet wide tread with minimal vegetation clearing along the sides of the trail. Fallen trees are typically cleared for the width of the trail only. The thin forest cover

provides a high ceiling effect that has a clearance of approximately 8 to 10 feet high.

- Bridle Trails: The average trail width is 6.7 feet with the ideal width at 8 feet. There are varying widths from as narrow as 1 foot to as wide as 18 feet. The wider widths tend to be located at the intersections with other trails and at low wet spots along the trail. The narrower widths tend to be along roads and within open grassy areas.
- Multi-Use (Bike) Trails: Typically 6.5 feet wide trail treads paved with asphalt. Several segments follow along roadways and are open on at least one side with lawn separating the road from the trail. A few segments traverse through the woodland and have minimal clearing along the trail edges and ceiling.

The different spatial qualities of the three trail types are generally obvious, but at times can be difficult to distinguish along a few bridle and foot trails. Typically, the varying widths and trail tread changes reflect the spatial organization of the trail system. The lines are blurred in areas that transition from shared use unpaved trails to single use unpaved trails.

### LAND USE & USER GROUPS

Land use refers to the principle activities of the landscape and how these uses organized, shaped, and formed the land. Before the establishment of Rock Creek Park in 1890, the Rock Creek Valley consisted of a combination of a few rural farmsteads (primarily north of Military Road), Peirce Mill and its associated outbuildings and structures, Linnaean Hill (a 19th Century country home), and the natural forested river valley. The few small farm and mill roads were commonly used for pedestrian access as well by local residents to the valley who walked and picnicked along Rock Creek. After the establishment of the park in 1890, the area became a protected natural landscape. Additional trails were constructed and old roads and paths were converted to recreational trails as their industrial and agricultural uses were slowly abandoned. Bridle trails made up the majority of trail types in the park, but footpaths developed soon after. Designated bike trails did not exist until the late 1960s, but cyclists used the roads and trails prior to the development of a paved or separate trail designation. Once a system of trails were developed specifically for bicycle use (now called multi-use), cycling was prohibited on all unpaved trails to protect park resources and minimize visitor use trail conflicts.

With the exception of the farms, some historic industrial structures, such as the buildings associated with the Peirce family, and old farm roads are still extant in the park. Many of the farm roads have been converted to bridle and foot trails, but some remain as road traces. As part of the park development, the trail and road network expanded, but only a few structures were added. All of these features are

related to recreational use, maintenance activities, and/or support structures for the trails.

Today, the trails maintain a combination of equestrians, hikers, joggers, bird watchers, and cyclists as the primary user groups. However, one of the largest sub-category user groups is dog walkers. There are a particularly large number of people in this group given the park's proximity to many bordering neighborhoods. Historical research performed to date does not mention dog walkers as a user group nor any issues concerned with dog walking in the park. However, in recent years park staff has noted that the number of dog walkers, as well as the number of dogs off leash, has increased. Current park regulations forbid off-leash dogs, as this practice significantly impacts the surrounding vegetation. Dogs running freely trample sensitive and young plants, scare other users, and present a safety hazard.

The trail use types and the surrounding natural landscape have evolved over the past 120 years. Although the number of trails has been reduced and alignment shifts have occurred, the natural landscape remains primarily a deciduous forest with areas of open lawn or meadow. This forested landscape utilized for recreation purposes for multi-use trails is a contributing feature to the trails system. In addition, the trail user groups have primarily remained the same throughout the history of the park, but shifts in the numbers of each type of user have occurred. For example, the primary user groups in the origins of the park were equestrians. Walkers quickly challenged the number of equestrians on the trails and today, walkers, hikers, naturalists, bird watchers, joggers, and cyclists far surpass the number of equestrians. The other significant increase in trail use is with dog walkers, which have not been historically documented in the park until recent years, but likely occurred in much smaller numbers. One of the major park users, but not trail users has always been automobile drivers. In the early years of the park it was very common for leisurely drivers to wind through the parks roads especially on evenings and weekends. Today, the number of cars in the park has increased and shifted to commuter drivers. The matrix of user groups is a contributing feature to the historic trails system.

### CIRCULATION

While the trail system is obviously a circulation network, it is important to study the connections of the trail system and the types of trails within this system. Roads and trails were developed throughout the 1800s by landowners, or at their request, and connected the estates to each other and to county roads adjacent to the valley. Two of the most recognized family estates were the Peirce Family estates, including the Peirce Mill Complex and Linnaean Hill estate, and the Blagden family estate, including Blagden Mill and the Blagden family farmstead. Not only did these estates provide a valuable agricultural and industrial enterprise to the region, they also created a picturesque landscape. The associated roads from both estates pro-

vided access for strolls through sections of the agrarian and woodland landscape along Rock Creek, which was a popular weekend excursion spot even before the park's development.

As the park was established and trail development ensued, many old farm or mill roads and trails were adopted by early park managers for recreation trails. Predominately, these early routes were used as bridle trails. Within the first 20 years of the trail system's development, the Army Corps of Engineers supplemented the adopted trails with new foot and bridle trails. The newly developed trails ran along the creek's edge, climbed the steep cliffs to run along the upper terraces, and followed along the many tributaries in the valley. Today, approximately 50% of the extant trails originated from this period or predate the park.

While the historical trail system offered opportunities for trail loops, developing looping trail routes was not the primary intent. Organization efforts of the National Park Service staff in the 1950s mark the first attempt to organize the bridle trails into designated routes that would create a large loop around the park. This was accomplished by the designation and organization of the White and Black Horse Trails, both of which run north-south on either the east or west side of the creek. To provide shorter trail routes, the NPS staff defined the nine east-west running Cross Trails to connect between the White and Black Horse Trails. Later in the 1970s, the NPS and the PATC focused on designating a similar foot trail looping system through the Western Ridge and Valley Trail designations.

Bridle trails have historically dominated the trail system in terms of trail type. The early bridle trails allowed pedestrians to share the route as they do today. Historical images indicate that cyclists would occasionally share these trails as well as share the early roads. Pressure from local residents, primarily from the Brightwood neighborhood, pushed park managers to develop additional foot trails dedicated solely for pedestrian use and for neighborhood access to the park. By 1917, the park had a noticeable increase in dedicated foot trails and neighborhood access trails. Dedicated bike trails arrived to the system much later in 1967, at the beginning of a new interest in recreational cycling. Currently the bike trails represent only 5% of the overall trail system.

Within the 1,935 acre study area, there are approximately 32 miles of official trails, 44 miles of abandoned trails, and at least 6.5 miles of abandoned carriage roads. Visitors continue to utilize more than 8 miles of these abandoned trails or roads as social trails. The park has a high number of unofficial social trails, approximately 14 documented miles and several more undocumented miles. Social trails negatively impact the surrounding natural resources and their continued presence indicates either a desire or need by the users for different routes than official trails provided or a need for improved management methods for closing trails.

The trail system has always provided a diversity of scenery and challenges within the various trail routes. These include lowland trails along the creek edge, narrow foot trails traversing varied terrain through the woodland, wide bridle trail routes, high cliff trails, climbing trails, and flat meadow trails. These varying trail routes persist today.

The extant trails still follow several of the early road routes and maintain many of the connections from the valley's farms and mills of the 1800s. The points of interest for the trails has remained unchanged to include the creek, tributaries, rocky outcrops, high vantage points, Peirce Mill, and entrance points for the park. The number of miles for each trail type has changed many times throughout the park's history, but the types of trails developed within the park remain the same. Bike trails were not officially included into the trail system until 1967; however, cyclists have used the park since its inception. The most noted difference is the shift from predominately bridle trails to an almost equal mileage of bridle and foot trails today. Circulation is a contributing feature to the trails system.

#### TOPOGRAPHY

As related to trails, topography refers to the percentage of slope, elevation, and orientation of the ground surface that creates the profile of individual trails. Historically, many of the trails of Rock Creek Park were adapted from old farm and mill roads and informal paths. These paths typically followed the shortest possible route from point to point and connected natural springs to farmhouses, quarries to county roads, and mills to miller's houses. Many of these trails climbed straight up the face of slopes, hugged the ridgelines or followed along the low-lying creek and tributaries. This created varied slopes and elevation for each of these trails. As the trail system converted from utilitarian infrastructure to recreational infrastructure, the varied slope and elevation changes remained to maintain a diverse range of trail challenges. Unfortunately, most of the steep face-of-slope trails have created serious erosion problems that are currently managed by structural solutions, such as waterbars and check dams. The trails vary from easy to moderate slopes with limited challenging trails.

The extant topography of the trail system remains intact from the historic period and is a contributing feature to the historic trails system.

#### VEGETATION

The vegetation of Rock Creek Park has always been an integral attribute of the trail system. The indigenous woodland is an element of the natural scenic landscape preserved by the park's establishment for the enjoyment of future generations. The trails provide a means to access and provide for passive and active recreation within this woodland habitat. Prior to the establishment as a park, portions

of the Rock Creek Park landscape were farmed, cut for timber, or cleared during the Civil War. The best description of the park vegetation after 1890 is from the 1918 report on Rock Creek Park (Olmsted Plan) prepared by the Olmsted Brothers firm and headed by Frederick Law Olmsted, Jr.. The Olmsted Plan focused on vegetation management by organizing the park into nine different vegetation zones based on the extant indigenous vegetation, identified the predominant and associate species, and provided recommendations for a preferred aesthetic for each zone. Once categorized into vegetation zones, the Olmsted Plan provided acceptable uses for each zone dependent on the appropriate level of recreation for each habitat. Olmsted's overriding goal for the vegetation was:

> ...to preserve and foster the existing growth or condition, but in many minor instances, and in some more important ones, we have proposed radical changes where the accidents of the past have produced conditions of lesser interest and beauty, and where there is opportunity to restore or create more appropriate and more beautiful types of landscape.[14]

When examining the Olmsted Plan, it is important to keep in mind that it is not an existing account of the 1918 vegetation, but is a proposed plan for vegetation improvements described in the report. The improvements Olmsted proposed were focused on aesthetic principles rather than ecological principles. Many of the vegetation zones were expanded, or decreased beyond their natural occurrences, to increase the proportion of evergreen forest in comparison and contrast to the deciduous hardwood forest. Olmsted desired to create a contrasting view between the deciduous and evergreen forest and wanted to increase the amount of winter foliage in the park, as the 1918 evergreen forest was minimal in comparison to the deciduous forest. The changes included planting a preferred dominant species in an area, which was not naturally growing in the park, and removing less desirable plants that were native to the park. For example, Olmsted recommended replacing all of the extant scrub pine, *Pinus virginiana*, with Canadian hemlock, *Tsuga Canadensis,* and better varieties of pine.[15] Although the Canadian hemlock has a native range from Nova Scotia to Minnesota and south along the mountains to Georgia and Alabama[16], its natural occurrences in the Washington, D.C. region are rare. In other areas, Olmsted recommended the creation of open woodlands with specimen trees and tree groupings to cover one-half to three-quarters of the area and the ground plane covered with lawn. The open woodland rarely occurred in the 1918 park landscape, but Olmsted indicated that "in most cases the present growth is such as can easily be developed into the desired type by judicious cutting, and occasionally by supplementary planting." [17]

Other ways the Olmsted Plan proposed changes included controlling the natural succession of forest growth. In the few areas where cedars were present, the Olmsted Plan proposed "systematic cuttings and weedings" of the interspersed sassafras, locust and pine "to remove inharmonious or injurious growth" in order to preserve the cedar stands, which would naturally transition out of the forest due to the increased shade created by the faster growing trees.[18] The plan recom-

mended the clearing of trees and understory to create views, enlarging the open area south of the Brightwood Reservoir to extend the playfield, and removing trees to restore the open meadows north of Rock Creek near the Maryland and District boundary.[19] The plan also called for selective removal of "old, decrepit or uninteresting" trees to preserve a more desired plant type, such as removal of several pines along the north east slopes to protect and preserve the kalmia understory. The kalmia were being shaded out by the pines and broken or destroyed by fallen trees.[20] While the plan does state its primary intent was to maintain and enhance the indigenous vegetation, it included many significant modifications to the natural landscape which conflict with current NPS natural resource vegetation management policies. (See Appendix B for an overlay plan depicting the 1918 Olmsted Plan vegetation zones (Landscape Units) compared to the 1998 vegetation composition.)

Even though the Olmsted Plan was never fully implemented, the guidelines and plan were fully adopted by park management in 1919. One of the major accomplishments of the plan was the elimination of a proposed arboretum for the park. The Olmsted Brothers were asked to review and provide direction on the proposed development of an arboretum in the park by the U.S. Forest Service. The plan studied the potential advantages and impacts this action would cause and recommended against its development.

> If the attempt shall be made to create an arboretum here, even without the glittering glasshouses and formal beds of a complete botanic garden, conflicts of purpose are certain to arise which will defeat in a measure the original purpose of Rock Creek Park. It is essential in any arboretum or botanical park worthy of the name to introduce many plants which not only are not native of the locality but which produce effects radically different from those which make the Rock Creek scenery what it is.[21]
>
> It is not necessary to express an opinion as to whether the purpose of a National Botanical Garden are more or less important than those for which Rock Creek was acquired. The point is that both purposes cannot dominate the management of one piece of ground without conflict, and this piece of ground was set apart by Congress for the preservation of its natural scenery.[22]

Olmsted's recommendation against the arboretum development in Rock Creek Park reinforced the enabling legislation of the park and set a precedent for the park's continued preservation of the natural scenery that is followed today. The park's management guidelines and planning documents continue to reference the Olmsted Plan as the master guiding document for the park's development. The recently adopted General Management Plan for Rock Creek Park suggests that it is built on the philosophy of the Olmsted Plan's scenic preservation philosophy, but the specifics of the Olmsted Plan have not been referenced by most on the ground park staff for many years

Of the goals the Olmsted Report outlined for managing the park's distinctive landscape types, the only goal park managers followed has been the effort to preserve and foster the native forest landscape. A forest is a living growing system which has

a natural growth and succession. Much of Olmsted's recommendations focused on controlling portions of the forest to remain unchanged from their 1918 state, or to restore areas to a slightly earlier time or stage of landscape development, in order to reach a preferred aesthetic. The plan does provide important details on the predominate vegetation types that were extant in 1918, identifying the majority of the forest to be a deciduous hardwood forest "composed chiefly of an extensive and interesting variety of oaks with undergrowth of young trees and dogwood, laurel, and redbud. Some hickory, tulip, maple, and beech are found with the oak, also a few pines and other evergreens, and occasionally small groves or groups of beech occurring in almost pure stands."[23]

The overstory vegetation surrounding the trails today is predominately an American beech, mixed oak and tulip poplar woodland. The understory vegetation is much thinner than during the historic period, largely due to deer overpopulation, which has led to the drastic decline of native saplings and understory establishment and increased invasive vegetation population. While park staff does not actively manage the vegetation zones as outlined in the Olmsted Plan, they do attempt to restore the vegetation to deter the use and creation of unauthorized social trails. Further vegetation management strategies include exotic plant and integrated pest management practices, all of which are followed by the park staff today and reflect the NPS Natural Resource Management Guidelines for managing native plant communities.

While modifications in the vegetation from the historic period exist due to an increased invasive vegetation layer, natural succession growth, lack of tree regeneration, and the loss of understory, their impacts do not diminish the cultural landscape integrity of the vegetation as it relates to the historic trail system. Although the ecological health of the forest are compromised according to natural resource values, the cultural landscape values related to the visual, structural and functional relationship of the forest are still intact, despite the impacts to the composition.

The extant vegetation is a contributing feature to the historic significance of the trail system.

#### BUILDINGS AND STRUCTURES

At the park's establishment, the Rock Creek Valley was populated by only a few structures, all related to the various mills and farmsteads that pre-dated the park. Isaac Peirce was one of the most prominent landholders of the 1800s. The Peirce complex of structures included a farm house, several barns, outbuildings, a springhouse, potato house, cow barn, wagon stable, a miller's house, saw mill, Peirce Mill, stone mill raceway, dam, and a ford in Rock Creek. Peirce constructed these structures mostly of native bluestone granite quarried locally from Broad Branch, but some of them were constructed from wood. Peirce Mill operated

from 1829 until 1897. An associated Peirce family estate, Linnaean Hill, was constructed by Joshua Peirce in 1823. Built of native bluestone granite, it is located just south of Peirce Mill near today's Klingle Road. These structures provided the purpose for many of the original trails and roads in the southern portion of the park and most were built by or for the Peirce family operation.

Several of the Peirce Mill structures are extant today and they continue to evoke the picturesque landscape of a bygone era. Many of the extant trails in this portion of the park are remnants of the old Peirce trails and roads and they maintain the historic connections with the extant Peirce structures. All remaining structures relating to the Peirce Mill and Linnaean Hill estates are contributing features to the trail system.

There were a handful of other mills and tenant farms that populated the area. One of them included Blagden Mill, located just upstream from the Peirce Mill and operated as early as 1850 until the 1880s. The mill complex consisted of a gristmill, at least one out building, and millrace. The Blagdens also owned a 375-acre farm just outside the park boundaries. A small farmstead located in the area of today's golf course consisted of a farmhouse and at least two outbuildings. Several small structures are identified on the 1857-60 Boschke map along Old Military Road and Daniel Road (Oregon Avenue); these likely are related to tenant farms. By 1892, several other small structures associated with tenant farms were located within the heart of the park along today's Foot Trail #11 north of Pinehurst Branch. All of these structures dictated the location of trails and roads adjacent to them, but the structures are not extant today. However, the trails or traces of the trails remain. There are remnants of the bridge abutment from where Blagden Mill Road once crossed Rock Creek. There are also traces of Old Blagden Mill Road, an associated carriage road parallel to Blagden Mill Road, and remnants of the millrace. The road traces are in good condition and utilized as social trails today. These remnant structures are contributing features to the historic trail system.

During the initial development of the park from 1890 to 1932, the Army Corps of Engineers park managers focused construction efforts primarily on roads and trails with minimal development of park structures. The structures from this period consisted primarily of paved ford crossings of Rock Creek, such as Milkhouse Ford (1902), and road bridges such as the Peirce Mill Bridge (1921) and Boulder Bridge (1902). While these structures primarily served the roadways, they were associated with the trails through shared use and views. Milkhouse Ford remains part of the bridle trail system today, but is no longer used for auto crossings. Boulder Bridge, a concrete arched bridge with boulder face, remains one of the most photographed structures in the park with views from the Valley Trail and Foot Trail #17. Boulder Bridge also serves as a shared use for cars and pedestrians by providing the link between the two foot trails. The remaining early park bridges and crossings are contributing features to the historic trail system.

Once the park transferred to NPS management, the NPS Design and Construction department designed and built eight major trail bridges crossing Rock Creek in the modern park rustic style from 1934-1935. They include Bluff Bridge (1934-1935), Rapids Bridge (1934-1935), Rolling Meadow Bridge (1934-1935), Riley Spring Bridge (1934-1935), Boundary Bridge (1934-1935) Devil's Chair Bridge (1934-1935), Saddle Club Bridge (1934-1935), and one unknown bridge. Devil's Chair and Saddle Club Bridges are located just south of the study area along the Rock Creek and Potomac Parkway. All of these bridges constructed with concrete and wood are part of a series of eight trail bridges constructed during the depression era and emulate the modern rustic style promoted by Albert Good in his design catalogue, Park Structures and Facilities (1935).[24] The extant bridges are contributing and character-defining trail features representing the modern park rustic style. They are part of the trail system and shaped trail alignments based on their ability to cross Rock Creek.

The next building boom in the park occurred between 1955-1966 during the Mission 66 era. Many park and trail-related structures were constructed during this era to provide improvements to the park system for the National Park Service's 50-year anniversary in 1966. The structures from this era that have associations with the trail system include the Rock Creek Nature Center and Planetarium, the Rock Creek Horse Center, and several comfort stations. The design of these structures has a modern look with clean lines constructed of wood, concrete, and stone. Bridle trails connect to the horse center and stables and several foot trails and a bike trail connects to the nature center. The comfort stations provide a service to the trails for drinking water and restrooms, and are located adjacent to multiple trails but did not redirect trail routes, as the stations were constructed along extant trails. They are contributing features of the trail system representing the construction style and methods of the Mission 66 era. The Maintenance Yard is also from the Mission 66 era but is not associated with the trails system.

Few trail-related structures have been constructed since the Mission 66 era; they primarily consist of two major trail bridges crossing Rock Creek, Hazen Bridge (1982) and Klingle Ford Bridge (1975), and an additional Picnic Shelter with Comfort Station at Picnic Grove 1 (1958). While these structures support the trail system, they do not serve as contributing features of the historic trail system.

### VIEWS AND VISTAS

Historically, Rock Creek Park has not managed view sheds or vistas. However, informal views of the rocky valley, the picturesque creek, and the remnant cultural resources have been a constant draw for park visitors. In 1918, Frederick Law Olmsted Jr. identified many possible views that could be created with minimal clearing of vegetation. Many of these views were along the already constructed roadways, but others were proposed for undeveloped areas. While the park staff

has never managed any of these views, many are still evident in the landscape. It is best to identify these viewsheds in winter when the vegetation is thin and not as much of an obstacle.

The picturesque nature of Rock Creek Park was a key purpose behind its selection as a national park in 1890. Providing opportunities to see the landscape from key vistas and viewpoints helps to preserve the picturesque qualities the park was founded on and enables visitors a chance to embrace the park for its true scenic value. All scenic views and vistas evident along the trails today are considered significant resources to the historic trail system.

### SMALL-SCALE FEATURES

Small-scale features are the elements that provide detail and diversity combined with function and aesthetics to the trail system. In the earliest years of the park's development, between 1900 and 1930, the Army Corps of Engineers maintained a rustic design philosophy for all built features within the park. The small scale features of this period included rustic wood benches, rustic wood signs, chestnut log footbridges, stepping stone stream crossings, boulder guardrails, stacked stone retaining walls, culverts with native stone headwalls, log rail fencing, and native soil trail treads. These early features represent the Army Corps of Engineers design intent of creating simplistic rustic-style structures that reflect the natural surroundings. This translated into using unfinished wood logs and routed wood signs built in the most basic and informal manner.

During the early NPS management of Rock Creek Park, from 1933 to 1950, the design style evolved from the very informal rustic style to a more modern rustic style best represented in the various foot and bridle trail bridges constructed across Rock Creek from 1935-1937. The materials shifted from rustic unfinished wood to milled and painted wood and formed concrete that evoked a more sophisticated design and permanent structure. It took years for the design style to evolve, and many of the Corps' simple rustic features persisted through this period, including the rustic Washington Bench, rustic stone grills, and rustic wood picnic tables.

The Mission 66 era trail improvements focused heavily on streamlining the trail system and moved away from any semblance of a rustic design style. New trail signs were installed to identify the newly organized White and Black Horse Trails. The new signage utilized metal posts painted black with painted metal signs. Wood and boulder bollards were replaced with 30-inch-tall, black-painted metal pipes. The bridle trails were resurfaced with a compacted aggregate mix tread. Research has not uncovered when the concrete bridle crosswalks were installed, but there is a good chance it was in the late 1950s or early 1960s in connection with all the other bridle trail improvements. The new built features from this era maintained a clean and modern appearance.

Today, there are elements remaining from each historical period, as well as some new materials and design approaches related to small-scale features. The Western Ridge and Valley Trails are marked with painted blazes, but other trails have either no or limited guidance. Most foot trails have painted and routed wood signs provided by the Potomac Appalachian Trail Club identifying the trail name, mileage, and direction of routes. The bridle trails are not currently marked. New culverts tend to be corrugated metal or PVC pipes without headwalls or loosely laid stacked stone headwalls. The tread for foot trails is native soil, and the bridle trails tread is compacted crushed aggregate. The bike trails are paved with asphalt.

All remaining historic small-scale features are contributing to the historic trail system. More detailed information on these features is provided in the treatment section of this report and listed in the Summary of Landscape Characteristics, Table 4.3.

ENDNOTES

1 William Bushong, National Register of Historic Places Nomination: Rock Creek Park Historic District, Approved: 23 October 1991, sec. 7, pg. 2

2 Ibid, sec. 8, pg. 1

3 Ibid, sec. 8, pg. 2

4 Ibid, sec. 8, pg. 2

5 Ibid, sec. 8, pg. 3

6 Ibid, sec. 8, pg. 3

7 The Rock Creek Park Authorization, Fifty-first Congress, Sess. I. CH. 1001, September 27, 1890

8 David V. Herlihy, Bicycle: The History (Yale University Press, 2004), pg. 365.

9 Michler, 2-3.

10 Timothy Davis, Rock Creek Road System, pg. 24

11 Lisa Davidson and James Jacobs, CCC Activities in the National Capital Region (Historic American Building Survey No. DC-858, 2004), pgs. 39, 41, and 106-107

12 William Bushong, Historic Resource Study, pg. 178-180.

13 Randall J. Biallis, foreword to Park and Recreation Structures, by Albert H. Good (New York: Princeton Architectural Press, 1999 reprint of 1938 edition).

14 Olmsted Brothers, Rock Creek Park: A Report (Unpublished Report, 1918), pg. 20.

15 Ibid, pg. 22.

16 Michael Dirr, Manual of Woody Landscape Plants (Champaign, Illinois: Stipes Publishing Company, 1990), pg. 868.

17 Olmsted Brothers, pg. 22-23.

18 Ibid, pg. 23.

19 Ibid, pg. 24.

20 Ibid, pg. 26.

21 Ibid, pg. 19.

22 Ibid.

23 Ibid, pg. 21.

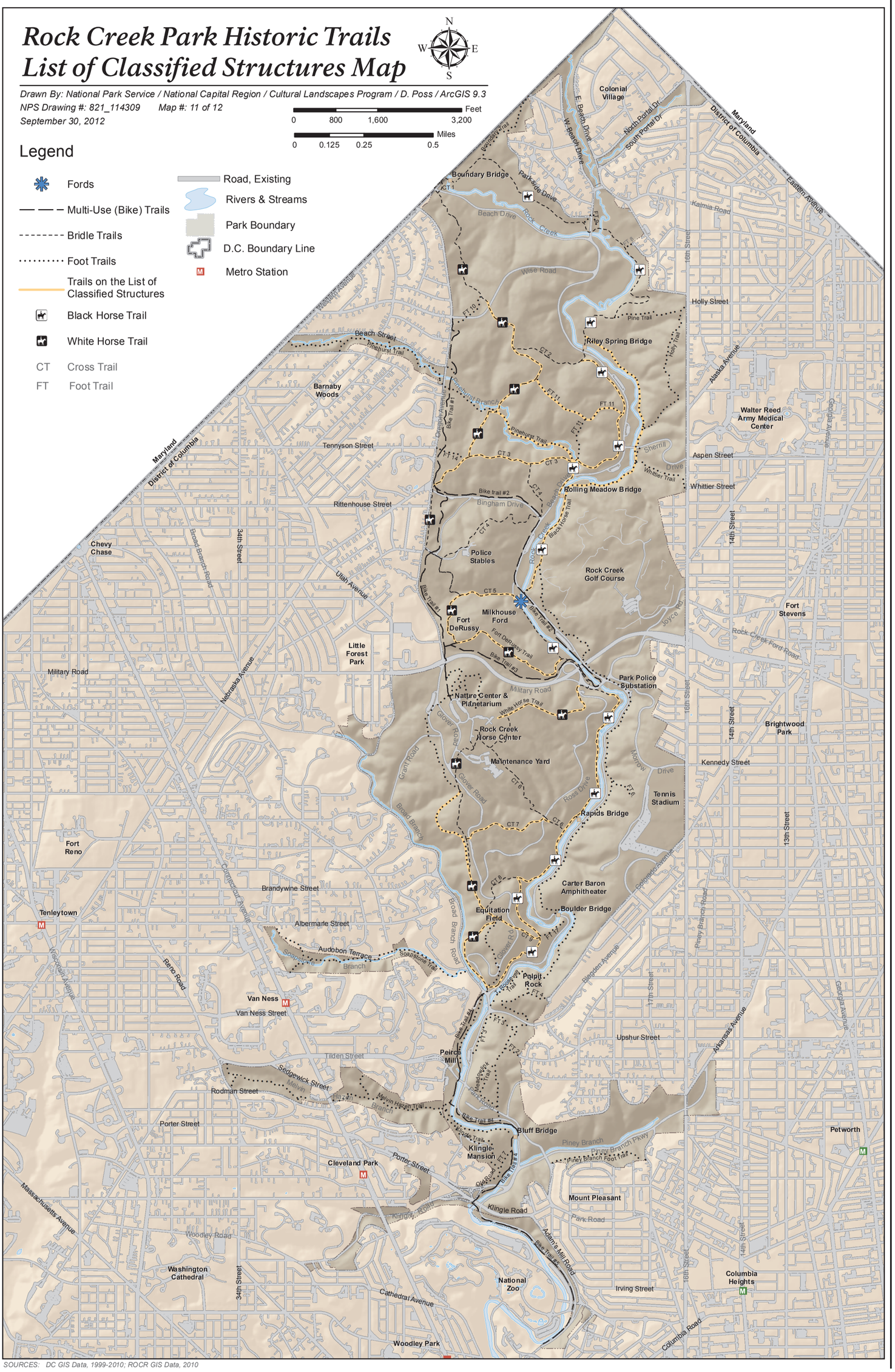
24 William Bushong, Historic Resource Study, pg. 178-180.

**Table 4.3 Summary of Landscape Characteristics**

| CHARACTERISTIC OR FEATURE | EXTANT 1941 | EXTANT 1972 | EXTANT 2011 | CONTRIBUTING | NOTES |
|---|---|---|---|---|---|
| **Natural Systems and Features**<br>• Cliffs, plateaus, valleys, rivers, streams, springs, geological formations, and botanically unique areas associated with the trail system | Yes | Yes | Yes | Yes | |
| **Spatial Organization**<br>• Overall trail system, north-south primary trails with east-west cross trails | Yes | Yes | Yes | Yes | |
| • Black Horse and White Horse Trail designations and organization. | No | Yes | Yes | Yes | The naming designation is from the late 1950s, but most of the physical trails that compose this system date from the earliest historic period. The trails are contributing to all historic periods, but the naming designation is only contributing to the second historic period. |
| • Western Ridge and Valley Trail designations and organization. | No | No | Yes | No | The naming designation is not historic, but most of the physical trails that compose this system date from the historic period. The trail itself is contributing, but the naming designation is not contributing. |
| • Narrow trail corridors of 1-3 feet wide for foot trails.<br>• Trail corridors of 6-8 feet wide for bridle trails. | Yes | Yes | Yes | Yes | |
| • Trail corridors of 6.5 feet wide for bike trails. | No | Yes | Yes | Yes | |
| **Land Use**<br>• Forested Valley, protected for its natural resources and outdoor recreation opportunities | Yes | Yes | Yes | Yes | |
| **Circulation**<br>• A recreational system of trails, including bridle paths, foot paths and bike paths | Yes | Yes | Yes | Yes | |
| • Informal earthen foot paths | Yes | Yes | Yes | Yes | |
| • Formal gravel bridle trails | Yes | Yes | Yes | Yes | |
| • Formal asphalt bike trails | No | Yes | Yes | Yes | |

| CHARACTERISTIC OR FEATURE | EXTANT 1941 | EXTANT 1972 | EXTANT 2011 | CONTRIBUTING | NOTES |
|---|---|---|---|---|---|
| **Topography**<br>• The trails have varied topography and range from steep slopes that climb up and down the ridges and valley and many trails that follow along the contour lines creating relatively flat trails along steep hillsides. Other trails follow along the creek and many tributaries at a relatively gentle slope. | Yes | Yes | Yes | Yes | |
| **Views**<br>• Scenic views of Rock Creek from the trails | Yes | Yes | Yes | Yes | |
| • Scenic views of Boulder Bridge | Yes | Yes | Yes | Yes | |
| • Scenic views from Pulpit Rock | Yes | Yes | Yes | Yes | |
| • Scenic views of rocky cliffs in the valley | Yes | Yes | Yes | Yes | |
| **Vegetation**<br>• The trails are located in a native woodland that predominately includes a beech-oak forest and 5 other forested habitats. | Yes | Yes | Yes | Yes | |
| **Structures**<br>• Milkhouse Ford and flanking stone benches | Yes | Yes | Yes | Yes | |
| • Bluff Bridge, Rapids Bridge, Rolling Meadow Bridge, Riley Spring Bridge, and Boundary Bridge | Yes | Yes | Yes | Yes | |
| • Klingle Ford Bridge and Hazen Bridge | No | No | Yes | No | |
| • Comfort Stations | No | Yes | Yes | Yes | |
| • Linnaean Hill, Peirce Mill | Yes | Yes | Yes | Yes | |
| • Old Blagden Mill Road Trace<br>• Old Blagden Mill Carriage Road<br>• Blagden Mill Bridge Abutment | Yes | Yes | Yes | Yes | |
| • Milk House Ford Road Trace<br>• Old Military Road Trace | Yes | Yes | Yes | Yes | |
| • Rock Creek Nature Center and Planetarium | No | Yes | Yes | Yes | |
| • Rock Creek Park Horse Center | No | Yes | Yes | Yes | |
| • Jusserand Memorial | Yes | Yes | Yes | No | |

| CHARACTERISTIC OR FEATURE | EXTANT 1941 | EXTANT 1972 | EXTANT 2011 | CONTRIBUTING | NOTES |
|---|---|---|---|---|---|
| **Small Scale Features**<br>• Concrete culverts/stone headwalls<br>• Stone retaining walls<br>• Soil Tread<br>• Gravel Mix Tread<br>• Wood Bridges<br>• Wood Boardwalks<br>• Stepping Stones<br>• Horse Trough<br>• Fords | Yes | Yes | Yes | Yes | |
| • Waterbars<br>• Check Dams<br>• Trail Signs<br>• Interpretive Signs<br>• Trail Blazes<br>• Trail Steps<br>• Wood Retaining Walls<br>• Benches<br>• Metal Bollards<br>• Boulder Bollards<br>• Washington Light Posts | No | No | Yes | No | |
| • Single Rail Fence<br>• Decorative tear drop light posts | Yes | Remnants | Remnants | Yes | There are only a few of the light posts and a few segments of rail fence extant. |


Rock Creek Park Historic Trails
List of Classified Structures Map
Drawn By: National Park Service / National Capital Region / Cultural Landscapes Program / D. Poss / ArcGIS 9.3
NPS Drawing #: 821_114309 Map #: 11 of 12
September 30, 2012
Feet
0 800 1,600 3,200
Miles
0 0.125 0.25 0.5
N
W
E
S
Legend
Fords
Multi-Use (Bike) Trails
Bridle Trails
Foot Trails
Trails on the List of Classified Structures
Black Horse Trail
White Horse Trail
CT Cross Trail
FT Foot Trail
Road, Existing
Rivers & Streams
Park Boundary
D.C. Boundary Line
Metro Station
Maryland
District of Columbia
Colonial Village
Boundary Bridge
Beach Drive
Rock Creek
Wise Road
Riley Spring Bridge
Holly Street
Pine Trail
Holly Trail
Beach Street
Pinehurst Trail
Barnaby Woods
Tennyson Street
Rittenhouse Street
Bingham Drive
Rolling Meadow Bridge
Whittier Street
Aspen Street
Walter Reed Army Medical Center
Police Stables
Rock Creek Golf Course
Milkhouse Ford
Fort DeRussy
Fort Stevens
Rock Creek Ford Road
Little Forest Park
Military Road
Nature Center & Planetarium
Park Police Substation
Rock Creek Horse Center
Maintenance Yard
Brightwood Park
Kennedy Street
Tennis Stadium
Rapids Bridge
Fort Reno
Brandywine Street
Carter Baron Amphitheater
Boulder Bridge
Tenleytown
Albermarle Street
Equitation Field
Audubon Terrace
Soapstone Branch
Pulpit Rock
Van Ness
Van Ness Street
Upshur Street
Peirce Mill
Tilden Street
Sedgewick Street
Rodman Street
Porter Street
Bluff Bridge
Petworth
Klingle Mansion
Cleveland Park
Piney Branch Parkway
Piney Branch Foot Trail
Mount Pleasant
Klingle Road
Park Road
Woodley Road
Washington Cathedral
National Zoo
Irving Street
Columbia Heights
Cathedral Avenue
Woodley Park
Columbia Road
Connecticut Avenue
Nebraska Avenue
Broad Branch Road
Grant Road
Glover Road
Ross Drive
Harvey Road
Piney Branch Road
Georgia Avenue
Alaska Avenue
Kalmia Road
Eastern Avenue
Western Avenue
Chevy Chase
Broad Branch Road
34th Street
Utah Avenue
Reno Road
Massachusetts Avenue
Arkansas Avenue
Adams Mill Road
16th Street
14th Street
13th Street
Beach Trail #1
Bike Trail #2
Bike Trail #3
Bike Trail #4
Bridle Trail
Melvin Hazen Trail
Soapstone Trail
Western Ridge Trail
Fort DeRussy Trail
Pinehurst Trail
Whittier Trail
Black Horse Trail
Glover Road
Newlands Trail
Oregon Ridge Trail
Sherrill Drive
Morrow Drive
Joyce Rd
CT 1
CT 2
CT 3
CT 4
CT 5
CT 6
CT 7
CT 8
FT 1
FT 2
FT 3
FT 4
FT 5
FT 6
FT 8
FT 10
FT 11
FT 14
SOURCES: DC GIS Data, 1999-2010; ROCR GIS Data, 2010



# Part II: Treatment

**Section Title Page**
**Detail of South Side of Western Pier**
**Rapids Footbridge**
**HAER 569-3, 1988**

# Treatment Introduction

Located in the center of one of the most populated and dense American cities, the existing trails of Rock Creek Park are easily accessible to a large and ever growing population of recreational trail users. In addition, many of these trails are more than 100 years old and reflect a long evolution and history of circulation patterns within the Rock Creek Valley. The age and heavy use of the park's trail system make it one of the most fragile and important resources within the park. The treatment guidelines presented in this report provide a foundation for preserving this resource.

## TREATMENT PHILOSOPHY & APPROACH

The treatment plan for the Historic Trails at Rock Creek Park outlines a long-term management plan and preservation strategy for the trail system as a whole. The guidelines provided are founded on the principles of National Park Service (NPS) stewardship of cultural landscapes as outlined in the Director's Order NPS-28: *Cultural Resource Management Guideline* (NPS 28), *Management Policies 2006: The Guide to Managing the National Park System*, and *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Secretary's Standards). The *Rock Creek Park and the Rock Creek and Potomac Parkway General Management Plan/ Environmental Impact Statement* (GMP/EIS) provides the overall framework for the study of the historic trail system and for the development of this treatment document. Park staff provided invaluable support and guidance for the treatment guidelines through numerous draft reviews and consultations on the treatment alternatives. The final treatment guidelines outlined in this report represent a multi-disciplined approach agreed upon by the National Capital Region Cultural Landscapes Program, and by the Superintendent and staff at Rock Creek Park.

The Secretary's Standards outline four potential overriding treatment approaches including preservation, rehabilitation, restoration, and reconstruction. The *preservation* treatment alternative is the act of applying measures necessary to sustain the existing form, integrity, and materials of an historic property; and *restoration* is the process of accurately depicting a cultural landscape to a specific period in time and includes the removal of features developed after the identified period. Both of these treatment alternatives would restrict improvements to the trail system that are needed to minimize erosion, protect natural resources, and sustain the trail system. *Reconstruction* is an alternative approach rarely selected for the treatment of cultural landscapes and is the act of depicting the form, features, and detailing

of a non-surviving landscape through new construction to a specific period. Substantial documentary and physical evidence of a vanished landscape is required to enlist this treatment approach. A majority of the historic trail system is still intact and the available historical documentation for the abandoned trails is not sufficient to justify this alternative approach.

Of the four alternatives, *rehabilitation* best fits the needs identified in the analysis and evaluation of the trail system. According to the Secretary's Standards, rehabilitation is the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. This approach allows for the necessary modifications for providing safe, sustainable trails that can withstand the increases in use and wear while preserving the integrity and character of the historic trail system. The following guidance from the Secretary's Standards for rehabilitation provides the framework for this approach.

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new constructions will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.[1]

## TREATMENT PLAN FORMAT / METHODOLOGY

The treatment plan documentation is broken into the various characteristics of the trail system, such as route, views and vegetation, trail cross-section, tread, retaining walls, bridges, and signage to name a few. Chapter 5 focuses on some overriding general guidelines that either organize the trail system or relate to all trail types. The following chapters focus on one feature type, but there may be multiple methods of construction within a feature discussion. For example, within the trail cross-sections chapter, three types of cross-sections are discussed.

Each chapter represents a single feature type and begins with a definition or brief discussion of what that feature represents. Once the feature is defined, the chapter is broken into three categories, Treatment Guidelines, Specifications and Routine Maintenance. Treatment Guidelines define the various issues that currently impact the historic character of that feature. Action items are provided for addressing issues that impact historic character and items for preservation are identified. The next section, Specifications provides the techniques and methods for constructing new features to best compliment the historic features. Each chapter is completed with a section outlining the basic needs for Routine Maintenance for that feature.

## SOURCES FOR TREATMENT GUIDANCE

The treatment guidelines prescribed in this report are based on the research and analysis presented in this volume, *Part I: History, Existing Conditions & Analysis of Significance and Integrity*. The purpose of the guidelines is to provide a treatment methodology for maintaining the historic trail system for the current and future needs of the park, to minimize impacts to resources, and to maintain the historic integrity of the trail system.

The following resources served as primary source material for the construction and maintenance guidelines that follow. They are listed in order of use priority.

**Brown, Margaret Coffin, Christian S. Barter, J. Tracy Stakely, Gary J. Stellpflug**
2006 *Acadia Trails Treatment Plan: Cultural Landscape Report for the Historic Hiking Trail System of Acadia National Park*. Boston, MA: Olmsted Center for Landscape Preservation, National Park Service.

**U.S. Fish and Wildlife Service**
2010 Training: *Trail Management: Plans, Projects, and People*. Shepherdstown, WV: National Conservation Training Center.

**U.S. Department of Agriculture, Forest Service**

2007 *Trail Construction and Maintenance Notebook*. Missoula, MT: USDA Forest Service, Missoula Technology and Development Center. Available on the Internet at <http://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232806>.

2007 *Equestrian Design Guidebook for Trails, Trailheads, and Campgrounds*. Missoula, MT: USDA Forest Service, Missoula Technology and Development Center. Available on the Internet at <http://www.fhwa.dot.gov/environment/fspubs/07232816/pdf07232816dpi72all.pdf>.

2010 Trail Bridge Catalog. Website: USDA Forest Service, Technology and Development. Available on the Internet at <http://www.fs.fed.us/eng/bridges/index.htm>.

**Birkby, Robert C.**

2005 *Lightly on the Land: The SCA Trail Building and Maintenance Manual*. Second Edition. Seattle, WA: The Mountaineers Books.

**Appalachian Mountain Club**

2008 *AMC's Complete Guide to Trail Building and Maintenance*. Fourth Edition. Boston, MA: Appalachian Mountain Club Books.

**Forest Products Laboratory**

2010 *Wood Handbook – Wood as an Engineering Material, General Technical Report FPL-GTR-190*. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.

ENDNOTES

1 National Park Service, U.S. Department of the Interior, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, edited by Charles A Birnbaum with Christine Capella Peters (Washington, DC: Government Printing Office, 1996) 49.

# Chapter 5: Overall Trail Guidelines

This chapter discusses the overall goals, principles, and polices that should guide the future maintenance and rehabilitation efforts for the historic trail system. These items include park specific goals and agency mandated policies that should be considered and incorporated when feasible into every trail rehabilitation project whether large or small. To meet these goals, management actions for the trail system are recommended. Prior to the execution of any management action, compliance is required to meet the requirements under the National Environmental Policy Act, 1970, Section 106 of the Historic Preservation Act, 1966 and the Architectural Barriers Act, 1968 as amended.

### TRAIL REHABILITATION PRIMARY GOALS

- Maintain the historic character of the trail system and its character defining features.
- Manage trail use for natural and cultural resource preservation, while providing a diversity of safe, high quality visitor experiences. Focus primarily on rehabilitating the trail system toward a sustainable model that minimizes erosion, trail widening and maintenance needs. When structural features are necessary, they should be incorporated as seamlessly into the landscape as possible. The less obstructions and protrusions, the less noticeable features will be. The intent is to provide a safe accessible route for visitors to recreate and experience the natural surroundings with minimal fabricated intrusions.
- Before rehabilitation for any trail, evaluate to determine its feasibility and appropriateness for meeting standards established under the Americans with Disability Act (ADA) and the Architectural Barriers Act (ABA). If found feasible and appropriate, the trail should be rehabilitated in such a way as to provide access to those with disabilities.
- Enhance efforts to provide resource protection through education for trail rehabilitation efforts. This includes efforts to increase compliance with dog leash regulations, to reduce hiker impacts through education, to eliminate social trails, and to enhance understanding of the history and importance of the trail system.
- Promote native revegetation efforts in areas where gaps occur along the trail due to severe erosion deer browsing and/or invasive vegetation removal projects.
- Enhance monitoring of official and social trails to visitor behaviors. Utilize this data to inform park management on future trail development and refinements to the existing trail system.

## NPS MANAGEMENT POLICIES

The *National Park Service Management Policies* (2006) are the primary guiding document for the management of all facets of a National Park. Relating to trails, the policies provides some key guidance for managing trails within the National Park System with an overriding principle that "trails and walks…will be planned and developed as integral parts of each park's transportation system and incorporate principles of universal design." Trails serve as management tools to help control the distribution and intensity of park use and should be carefully situated, designed, and managed to accomplish the following:

- Reduce conflicts with automobiles and incompatible uses
- Allow for a satisfying park experience
- Allow accessibility by the greatest number of people
- Protect park resources

All of these points resonate with the desired goals for the Rock Creek Park trail system and serve, along with the Secretary's Standards for rehabilitation, as the foundation for these treatment guidelines.

## UNIVERSAL DESIGN

The Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) merged into a single guiding document in 2004. The combined guidelines set the baseline standards for designing public spaces to provide access for people of all levels of physical ability; or more simply termed as universal design. NPS Management Policies require parks to provide accessibility to the greatest number of people and universal design practices are the best practices to adopt to follow this policy. The most pertinent universal design guidelines for the trail system at Rock Creek Park are the Accessibility Guidelines for Outdoor Developed Areas.

### DRAFT FINAL ACCESSIBILITY GUIDELINES FOR OUTDOOR DEVELOPED AREAS, OCTOBER 2009

The Draft Final Accessibility Guidelines for Outdoor Developed Areas (Outdoor Accessibility Guidelines) provides specific guidance for recreation areas and trails that generally are not covered in the ADA or ABA guidelines. This document has been fully vetted and is waiting on a final ruling and adoption to become part of the Federal Register. Once adopted, it will apply to all Federal Land Management Agencies, including: the National Park Service, Fish and Wildlife Service, and private entities, local governments and nonprofit organizations developing facilities on Federal land. While the draft guidelines have not been adopted, they provide

the most current and best management practices for dealing with universal design in outdoor areas such as Rock Creek Park.[1]

The Outdoor Accessibility Guidelines have a direct impact to the management of the trails system at Rock Creek Park. Once adopted, the park will be required to comply with these guidelines anytime improvements are made to a trail or facility within the park. As it relates to trails, the following is a General Overview of Key Specifications outlined in the guidelines:

- Foot trails and the multi-use (bike) trails are covered under the guidelines. Bridle trails are not covered.[2]
- Not all foot trails would be required to meet the guidelines. They apply only to newly designed and constructed trails, and altered portions of existing pedestrian trails that connect to an accessible trail or designated trailhead (parking/ access point).
- A clear tread width is required to be a minimum of 36 inches.
- Trails must have a firm & stable tread surface.
- The running slope for universal design of walks is typically required to be less than 5%. Outdoor Accessibility Guidelines allow for short segments of a trail to have up to a 12% running slope with some restrictions.
- Handrails are not required for slopes greater than 5%.
- Once a trail or trail segment is adapted to the guidelines it is required to be identified as an accessible trail on entrance signs, websites, and trail maps.

Exceptions are allowed for not following the Outdoor Accessibility Guidelines:

- Overcoming challenging terrain would create too big an impact on the natural landscape
- Prevailing construction practices would not allow for meeting the guidelines
- If it would fundamentally alter the function, purpose or setting of the trail
- Will conflict with natural and cultural resource laws
- Exceptions should be documented and indicate an effort to comply with the guidelines

All new foot trail projects and alterations to existing trails should make a good faith effort to meet the universal design standards outlined in the new draft Outdoor Accessibility Guidelines. If a comprehensive trail assessment determines that it meets one of the exceptions outlined above, a complete documentation of the assessment is required and must be filed as part of the park's permanent records. Trail segments that can meet the guidelines should be adapted even if other segments of that trail have been identified as exceptions to the guidelines. The guidelines provide distinctions between trail alterations and routine maintenance. See below for this distinction.

***Advisory T202.3 Alterations.*** The following guidance is provided to assist designers and operators distinguish between actions considered "maintenance or repair" and those considered an "alteration." Where actions are considered an "alteration," certain technical provisions will apply. Routine or periodic maintenance activities do not trigger the technical and scoping provisions. For example, if an entirely new bridge were installed to replace a step stone crossing, the bridge would be required to comply with the relevant provisions. The trail on either side of the new bridge may not require modification.

As a general rule, alterations are performed to change the original purpose, intent, or design of a facility. Examples of actions that would be considered alterations include, but are not limited to:

- Installation of a new trail tread surface, bridge, boardwalk, railing, safety barrier, signage, and puncheon;
- Construction, reconstruction, or installation of a new trail segment, new built features such as restrooms or picnic areas, bridges, gates, benches, safety barriers, and steps;
- Removal of existing features;
- Hardening of trail surfaces; and
- Rerouting or widening a significant portion of an existing trail.

Maintenance and repair are performed to return a facility to the standards or conditions to which it was originally designed and built. This type of work is not an alteration because it does not change the original purpose, intent, or design of the facility. It is recognized that in outdoor environments, the ability to maintain a facility is usually much more limited than in the built environment. Except in highly developed areas, maintenance and repair occurs relatively infrequently. Examples of actions that would be considered maintenance and repair includes, but are not limited to:

- Removal of debris and vegetation such as downed trees or broken branches in the trailway, clearing the trail of encroaching brush or grasses, and removing rock slides;
- Maintenance of the trail tread such as filling ruts and entrenchments, reshaping the trail bed, repairing the trail surface and washouts, installing rip rap (rock placed to retain cut and fill slopes), and constructing retaining walls or cribbing to support the trail tread;
- Replacing or installing necessary drainage structures such as drainage dips, waterbars, or culverts, and realigning sections of trail to deter erosion or avoid boggy or marshy areas; and
- Repair of trail and trailhead structures, including painting, removing graffiti, and replacement of deteriorated, damaged, or vandalized parts of structures such as sections of bridges, boardwalks, information kiosks, fencing, and railings.
- Although not required, resource managers are encouraged to maximize the opportunity to improve the accessibility of outdoor facilities through maintenance and repair activities. Every time a facility is maintained, the opportunity to improve access is present.

**Excerpt from the *Draft Final Accessibility Guidelines for Outdoor Developed Areas***

#### TREATMENT RECOMMENDATION

The park should plan a proactive approach to improve the outdoor accessibility of the trail system for universal access to the park's resources. A comprehensive accessibility study of the existing trails is recommended to determine trails that

would be required to meet the proposed Outdoor Accessibility Guidelines and trails that would meet the guidelines in their existing condition or with minimal modifications.

As improvements to the trail system are performed, Outdoor Accessibility Guidelines should be incorporated into the trail designs as appropriate.

## SUSTAINABLE TRAILS

The management goal for the trail system should be adapted to achieve trail sustainability. To achieve this goal, the size of the trail system and existing maintenance needs to be matched with the available number of maintenance staff. It may be necessary to modify some existing methods of trail maintenance to create a trail system that can be properly maintained with minimal staff resources. Material choices should be determined based on its source and availability as well as its ability to support the number and type of users. Current and future funding availability should play an important factor in the decision making process. Given the current trends toward minimizing government spending, the focus should be to strive for a trail system that maintains its historic character, minimizes resource damage, and provides safe routes for all users with minimal maintenance requirements.

Some of the decisions that may be considered are the following:

- Approach to maintaining highly eroded trails. All trail erosion should be solved by first identifying the source point of the erosion. This may be from loss of curbing on an adjacent road, inadequately sized drain inlets, a trail built too steep for the existing tread to manage, or a trail that simply needs an improved outslope or drainage. Once the source is identified, an approach to solve the erosion can be determined by first correcting the source problem and then making required improvements to the trail. The goal is to develop a long term solution to trail erosion that does not require substantial routine maintenance.
- Approach to social trails. The park has identified a significant number of social trails within the park boundary. These trails create a negative impact to natural and cultural resources and disorient visitors trying to follow official routes. The use of these trails needs to be analyzed to determine an approach to management. Simply closing a well-used social trail would be counterproductive and an ongoing effort. With an understanding of why or how a social trail is used, a more successful long term management strategy can be developed.
- Approach to expansion of the trail system. As decisions for managing visitor use evolve through time, demands for additional trails uses may be requested. Decisions for adding new trial segments to the existing official trail system should be studied carefully and only allowed after a determination can be made that the additional trail segment would not pose any undue strain on all park resources (natural, cultural, and staff).

## ARCHEOLOGICAL CONCERNS

Rock Creek Park has substantial underground archeological resources. The construction of any new structure or feature that requires a ground disturbing activity has the potential for adverse impacts to these fragile resources. Consult with the park cultural resources manager prior to any ground disturbing activity related to trail construction or maintenance. Additional archeological survey work may be required prior to any ground disturbing activities. Allow ample time for cultural resources review as part of initial scoping plans for potential new construction or maintenance work resulting in ground disturbing activities.

## HISTORICAL TRAIL MANAGEMENT ZONES

During the landscape evaluation, the CLR team identified five periods of trail development with historical significance for the Rock Creek Park trail system. These periods represent the age of the trail and the philosophy behind trail development during the specified years. All of the trails identified by these historical periods contribute to the overall significance of the trail system and comprise the trail system's period of significance. All of the trails have historical integrity, but there is greater significance the older trails. To guide the treatment and preservation approach for the trail system, the trails are categorized into management zones where the degree of significance determines the preservation approach. For instance, Zone I are trails that have the highest degree of historical significance and require a stricter preservation approach while Zone V are trails that have the lowest degree of historic significance and are the most flexible where rehabilitation of the trail may be warranted.

### ZONE I: PRE-PARK TRAILS, 1609-1889

Trails with a high degree of historical significance relating to all historic management zones. They are outside the trail system's period of significance, but have significance as a circulation feature related to the early development of Washington, DC. These trails predate the park, were converted to official park trails and have maintained their use as an official trail throughout the park's history.

#### Zone I Recommendations

The treatment approach for these trails is preservation.

- Preserve and maintain the historic alignment, features and materials of the individual trails through non-destructive cyclic maintenance practices. Reroutes to the trail alignments are not recommended.
- Repair historic features and materials. This may include applying the historic tread material over a newly stabilized base or invisible structural

improvements. Structural improvements should be limited, but are preferred over trail realignment.

- Replace extensively deteriorated portions of historic features in-kind. For example, severely deteriorated historic culverts and headwalls should be replaced with new materials that match the old stone or concrete in composition, design, color and texture. For severely eroded trails that can't be repaired with minimal or invisible structural improvements after solving all above grade drainage issues, abandonment in place is recommended after substantial survey and documentation.

### ZONE II: ARMY CORPS OF ENGINEERS TRAILS, 1890-1932

Trails with a high degree of historical significance relating to four historic management zones. These trails were developed during the earliest years of the park's existence and remain part of the official trail system today. They represent the early park management by the Army Corps of Engineers.

#### Zone II Recommendations

The treatment approach for these trails is rehabilitation.

- Preserve and maintain the historic alignment, features and materials of the individual trails through non-destructive cyclic maintenance practices. Reroutes to the trail alignments are not recommended.
- Repair historic features and materials. This may include applying the historic tread material over a newly stabilized base or invisible structural improvements. Structural improvements should be limited, but are preferred over trail realignment.
- Replace extensively deteriorated portions of historic features in-kind. For example, severely deteriorated historic culverts and headwalls should be replaced with new materials that match the old stone or concrete in composition, design, color and texture. For severely eroded trails that can't be repaired with minimal or invisible structural improvements after solving all above grade drainage issues, abandonment in place is recommended after substantial survey and documentation.
- Compatible trail alterations may be allowed to accommodate new uses or necessary improvements of severely deteriorated trails that can't be replaced with in-kind or compatible materials. For example, Slight realignments may be necessary to preserve the trail and reduce erosion; these situations should be reviewed carefully to minimize loss of trail character and the number of slight adjustments to each trail. Survey and document any segments of the trail which have been abandoned or realigned.

### ZONE III: EARLY NPS TRAILS, 1933-1955

Trails with historical significance relating to three historic management zones. These trails represent the earliest years of NPS management in the park.

#### Zone III Recommendations

The treatment approach for these trails is rehabilitation.

- Preserve and maintain the historic alignment, features and materials of the individual trails through non-destructive cyclic maintenance practices. Reroutes to the trail alignments are not recommended.
- Repair historic features and materials. This may include applying the historic tread material over a newly stabilized base or invisible structural improvements. Structural improvements should be limited, but are preferred over trail realignment.
- Replace extensively deteriorated portions of historic features in-kind. For example, severely deteriorated historic culverts and headwalls should be replaced with new materials that match the old stone or concrete in composition, design, color and texture. A compatible substitute material may be considered if the in-kind material is not technically, economically or environmentally feasible.
- Compatible trail alterations may be allowed to accommodate new uses or necessary improvements of severely deteriorated trails that can't be replaced with in-kind or compatible materials. For example, limited reroutes to trail alignments are allowed, but should be done judiciously. Structural improvements should be limited and designed to be as minimally intrusive as possible. If significant structural improvements are required to repair heavily eroded segments, reroutes and slight realignments are preferred over structural improvements. Survey and document any segments of the trail which have been abandoned or realigned.

### ZONE IV: MISSION 66 TRAILS, 1956-1966

Trails with historical significance relating to the last two historic management zones. These trails represent reorganization efforts by the NPS to improve the quality of the park before the fifty year anniversary of the NPS in 1966.

#### Zone IV Recommendations

The treatment approach for these trails is rehabilitation.

- Preserve and maintain the historic alignment, features and materials of the individual trails through non-destructive cyclic maintenance practices. Reroutes to the trail alignments are not recommended.
- Repair historic features and materials. This may include applying the historic tread material over a newly stabilized base or invisible structural improvements. Structural improvements should be limited, but are preferred over trail realignment.
- Replace extensively deteriorated portions of historic features in-kind. For example, severely deteriorated historic culverts and headwalls should be replaced with new materials that match the old stone or concrete in composition, design, color and texture. A compatible substitute material may be considered if the in-kind material is not technically, economically or environmentally feasible.

- Compatible trail alterations may be allowed to accommodate new uses or necessary improvements of severely deteriorated trails that can't be replaced with in-kind or compatible materials. For example, limited reroutes to trail alignments are allowed, but should be done judiciously. Structural improvements should be limited and designed to be as minimally intrusive as possible. If significant structural improvements are required to repair heavily eroded segments, reroutes and slight realignments are preferred over structural improvements. Survey and document any segments of the trail which have been abandoned or realigned.

### ZONE V: BICYCLE MOVEMENT, 1967-1972

Trail with historical significance relating to the final historic management zone. These are the first dedicated bike trails built in Rock Creek Park and represent the parks role in the growing national bicycle movement of the late 1960s and early 1970s.

#### Zone V Recommendations

The treatment approach for these trails is rehabilitation.

- Preserve and maintain the historic alignment, features and materials of the individual trails through non-destructive cyclic maintenance practices. Reroutes to the trail alignments are not recommended.
- Repair historic features and materials. This may include applying the historic tread material over a newly stabilized base or invisible structural improvements. Structural improvements should be limited, but are preferred over trail realignment.
- Replace extensively deteriorated portions of historic features in-kind. For example, severely deteriorated historic culverts and headwalls should be replaced with new materials that match the old stone or concrete in composition, design, color and texture. A compatible substitute material may be considered if the in-kind material is not technically, economically or environmentally feasible.
- Compatible trail alterations may be allowed to accommodate new uses or necessary improvements of severely deteriorated trails that can't be replaced with in-kind or compatible materials. For example, limited reroutes to trail alignments are allowed, but should be done judiciously. Structural improvements should be limited to edge structures and designed to be as minimally intrusive as possible.

## GENERAL TRAIL GUIDELINES BY TYPE

| | |
|---|---|
| **BRIDLE TRAILS** | |
| Width: | 9 feet maximum |
| Tread: | Gravel Trail Mix (RC 6) |
| Clear Width: | Extends 2 feet from the trail edge, both sides. |
| | Remove woody material two feet on each side of the trail. Herbaceous plants up to 30 inches will be selectively pruned in this two-foot area. Native herbaceous vegetation greater than 30 inches will be selectively pruned in this two-foot area. All native trees greater than 1" DBH will be grandfathered in. |
| Clear Height: | 10-12 feet |
| | When bridle trails encounter a bank, the area will be selectively pruned 1 ft back from the toe of the slope. The clear height would remain at 10 to 12 ft. |
| **FOOT TRAILS** | |
| Width: | 3 feet maximum |
| | If dedicated a Universal Access Trail, width may increase to 5 feet maximum |
| Tread: | Native Soil/ Gravel Trail Mix (RC 6) |
| Clear Width: | Edge of Trail |
| | Vegetation selectively pruned to width of trail tread only. Overhanging branches or branches that extend into trail tread should be selectively trimmed. Trees 1 inch DBH and above are grandfathered in and should not be removed. |
| Clear Height: | 8 feet |
| **MULTI-USE (BIKE) TRAILS** | |
| Width: | 6 feet = Trails North of Military Road |
| | 6 feet minimum = Trails South of Broad Branch Road |
| Tread: | Bituminous Asphalt |
| Clear Width: | Extends 1 foot from the trail edge, both sides. |
| | Remove woody material one foot on each side of the trail. Herbaceous plants up to 30 inches will be selectively pruned in this one-foot area. Native herbaceous vegetation greater than 30 inches will be selectively pruned in this one-foot area. All native trees greater than 1" DBH will be grandfathered in. |
| Clear Height: | 10 feet |

The corridor width guidelines were provided by park staff, in an effort to further protect the native understory along the trail corridors. The corridor width maintenance strategy is more restrictive than standard trail management best practices, due to current impacts from deer browsing, which limits the regeneration of the forest herbaceous and woody vegetation. Once the impacts from deer browsing are reduced and the overall condition of the forest improves, the maintenance strategy for the corridor width should be reassessed and follow standard trail management best practices for trail edge pruning widths. See associated chapters on tread, route, and vegetation for additional trail guidelines pertaining to width, tread and selective pruning.

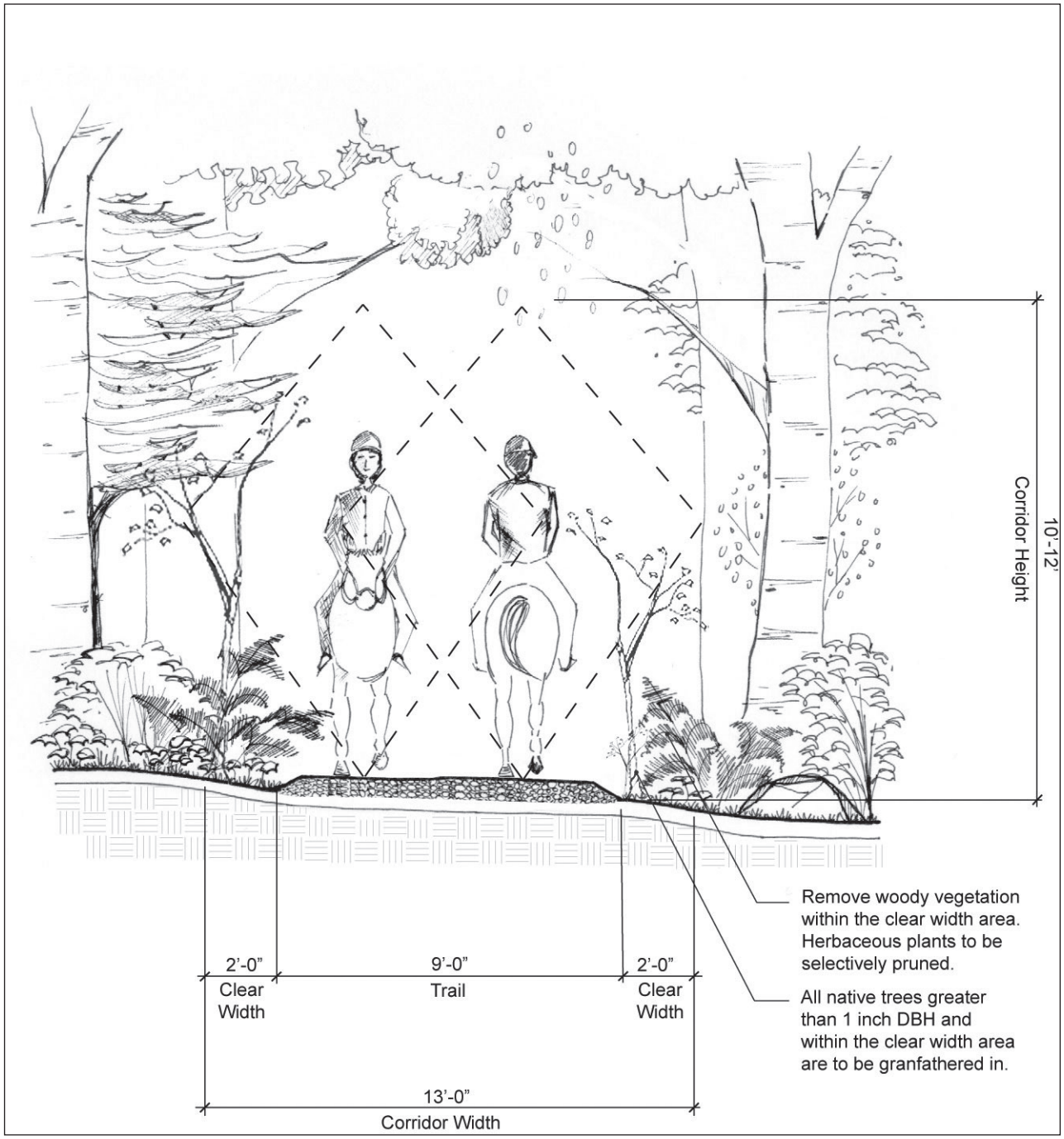



**Figure 5.1**
**Bridle trail corridor. NCR CLP, 2012.**

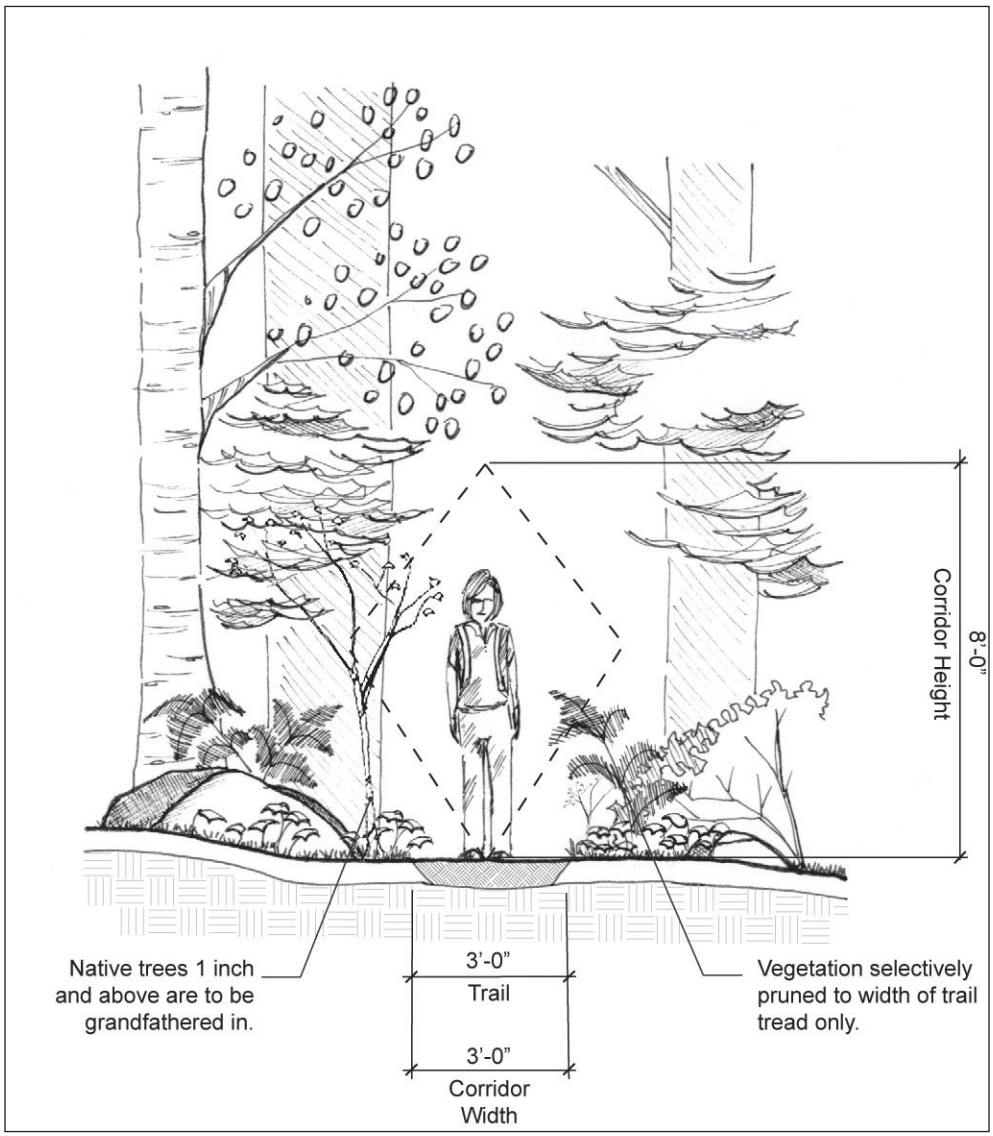



**Figure 5.2**
**Foot trail corridor. NCR CLP, 2012.**

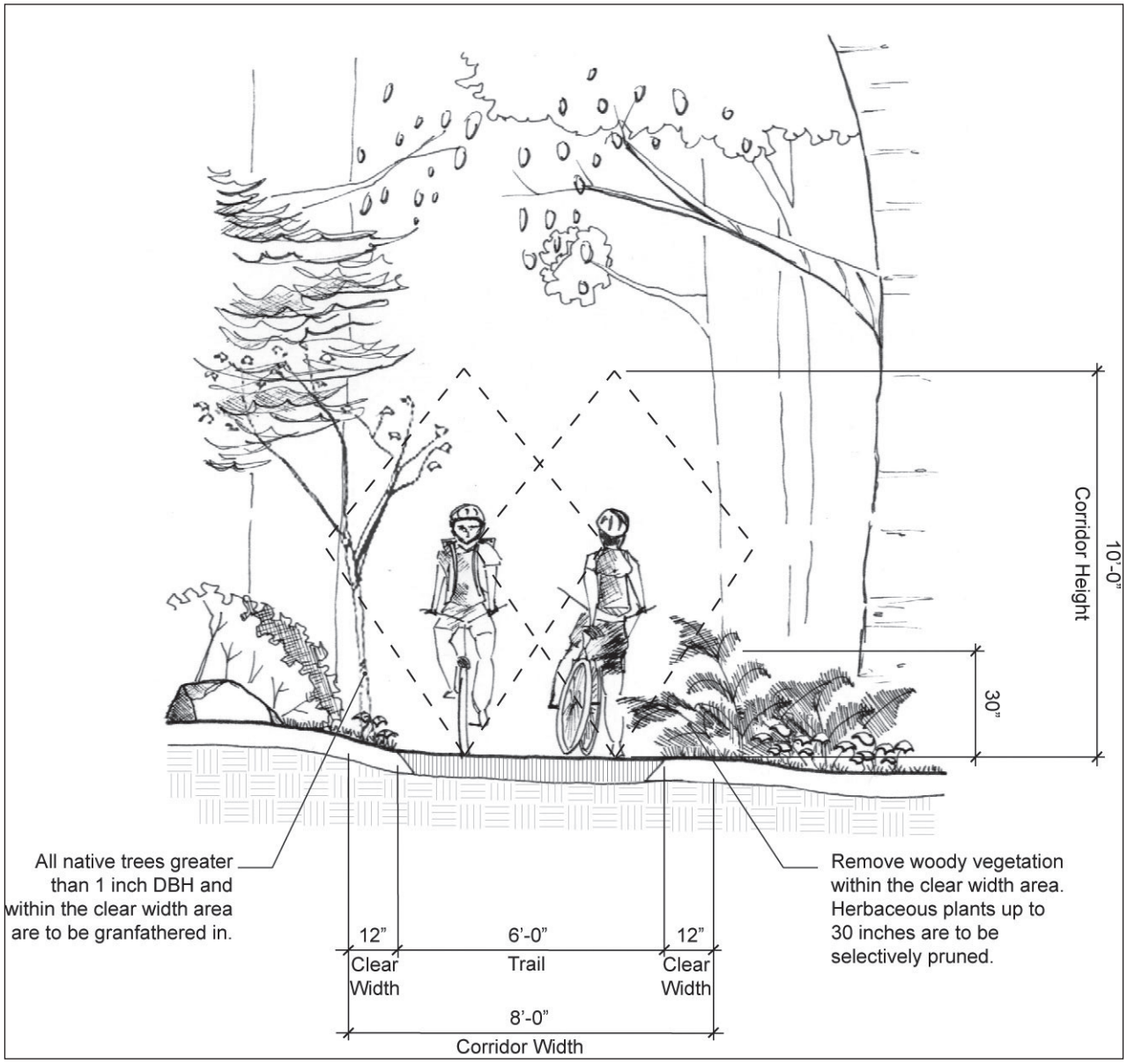


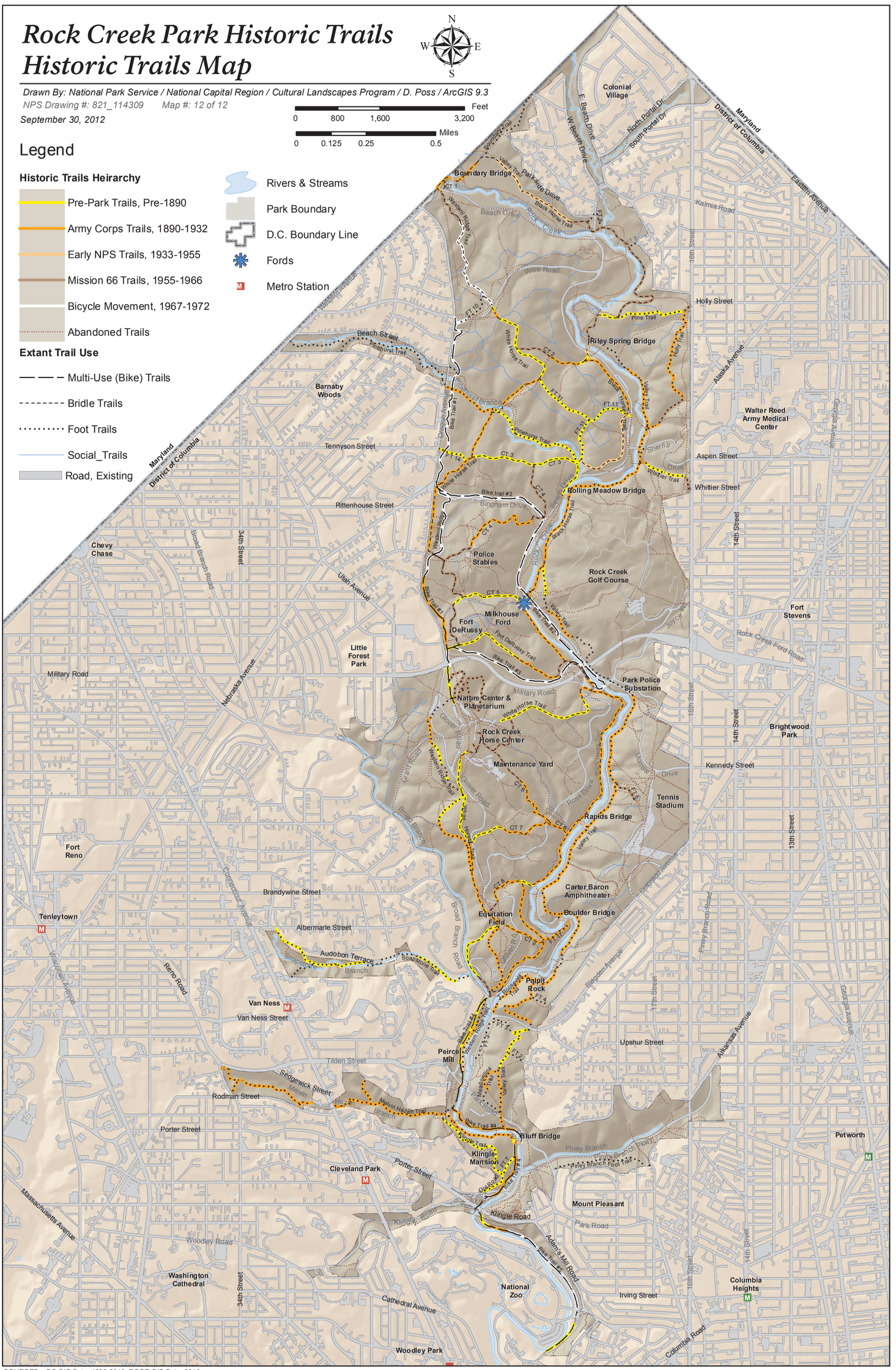

**Figure 5.3**
**Multi-use (bike) trail corridor. NCR CLP, 2012.**

ENDNOTES

1 United States Access Board, *Draft Final Accessibility Guidelines for Outdoor Developed Areas*, 2009, http://www.access-board.gov/outdoor/draft-final.htm#12

2 Currently trails designated as "multi-use" are required to follow the Outdoor Accessibility Guidelines because hiking is one of the designated and designed for uses. The guidelines do specify that they are planning further study on the requirements for multi-use trails and changes could be anticipated. Verify the current standing for multi-use trails prior to determining any improvements to those trails. The bridle trails do not exclude pedestrians, but they are designated and designed as horse trails, therefore exempting them from the guidelines.

# *Rock Creek Park Historic Trails*
# *Historic Trails Map*




SOURCES: DC GIS Data, 1999-2010; ROCR GIS Data, 2010

# CHAPTER 6: ROUTE

A trail's **route** is the actual alignment or path a trail follows along the landscape. In other words it is the means that a trail takes to get between two control points. **Control points** are locations or features that create the beginning and end of a trail segment. Trails can have varied alignment types and each trail can typically be defined by one of these alignments.

A **sidehill route** follows the contours of a hillside and is achieved through a form of bench construction. Much of the Valley Trail is a sidehill route. Sidehill routes are the most sustainable of all trail alignments.

A **ridgeline route** is an alignment that follows the high points of a ridgeline. The segment of the White Horse Trail between the Equitation Field and Picnic Grove 16 is a ridge-line trail.

A **fall line route** ascends a hillside perpendicular to the contours of that hillside and is the same route that water takes to descend a hillside. This type of alignment is the most problematic for erosion concerns. An example of a fall-line trail is the segment of the White Horse Trail between Pinehurst Branch Trail and Foot Trail #11.

A **switchback** route is similar to a sidehill route and follows along the contours of a hillside, except it continually reverses direction to work its way up the face of a hillside. This alignment type is not used very much at Rock Creek Park, but is found along a portion of the Valley Trail just south of Blagden Avenue.

A **lowland route** either follows the edge of a stream or the edge of a low meadow. It generally follows along the low edge of a hillside on one of the lower contour lines. Much of the Soapstone Valley Trail is a lowland route.

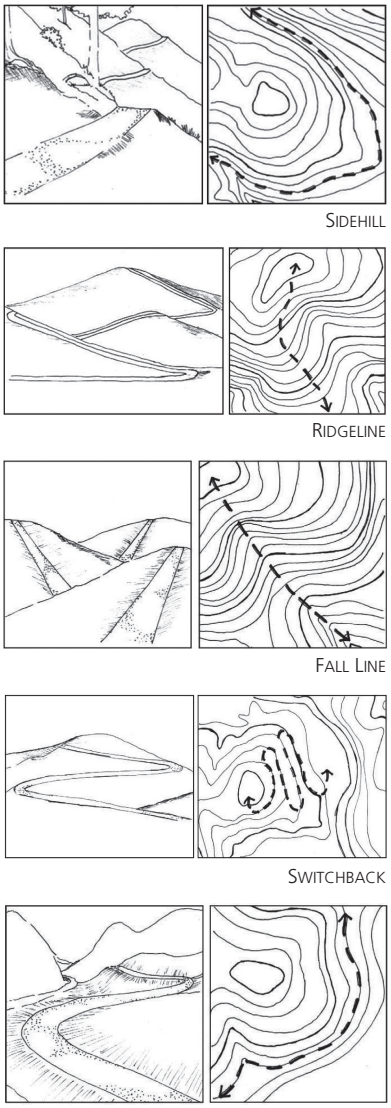



**Figure 6.1**
**Diagrams of trail route types. NCR CLP, 2012.**



**Figure 6.2**
**Sidehill trail route on Valley Trail. NCR CLP, 2011.**




**Figure 6.3**
**Fall line trail segment on Valley Trail north of Milkhouse Ford. NCR CLP, 2011.**

## TREATMENT GUIDELINES

- **Poor Alignments & Reroutes**
  Many trails in Rock Creek Park have severe erosion problems that are caused by poor layout and alignment. They require frequent maintenance and the addition of structural elements to mitigate the erosion problems. Many of these trails are also historic routes inherited when the valley converted to a park. Historic alignments are a very important feature for historic trails and modification of that alignment could seriously impact the individual trail's integrity. Modification of an individual route or segment will have only a minimal impact on the trail systems integrity. On the other hand, adding structural features to mitigate the erosion problems of the historic alignment can have similar impacts to the individual trail's integrity and the trail system's integrity. Historically, the trails within Rock Creek Park were constructed with minimal if any structural features; the addition of these features changes the overall character of the trail and the system.

  The decision to modify a historic alignment needs to be carefully considered by a multi-disciplinary team consisting of a landscape architect, cultural resource specialist, natural resources specialist and trails maintenance specialist. Utilize the trail database developed from this study to identify the significance and history of the individual trail. The team needs to determine a structural solution that would mitigate the erosion impacts, and assess the impacts to the individual trail and to the system with the added structural features. If considering a trail reroute, first assess the impacts to the surrounding natural resources and compare those impacts to the existing impacts caused by erosion. One

additional alternative to consider is closing the trail altogether. Once all the alternatives have been assessed, the team should weigh the impacts of all alternatives to come up with a plan that is the least intrusive to all resources. The following factors should be considered:

Consider a trail reroute or closing if:

- The existing trail is impacting rare and endangered species or water quality.
- The existing route is not maintainable or requires excessive maintenance and a new, sustainable route has been identified.
- The trail has been identified for improvements to meet universal design standards and a modification to the present route would enable the trail to meet the standards.

Avoid reroutes and closings if:

- Unique or substantial character defining features are present on the trail in question.
- The current route is the only viable route to connect with other park features.
- The current route is the only viable route that does not affect natural resources.
- A viable new route cannot be developed to meet the sustainable trails standards.
- Trail reroutes for asphalt trails should only be considered in extraneous circumstances and is an option that should be avoided.

**Figure 6.4**
**(Left) Heavily eroded and poorly laid out segment of Valley Trail. Reroute needed. NCR CLP, 2011.**

**Figure 6.5**
**(Right) Alternate view of heavily eroded and poorly laid out segment of Valley Trail. Reroute needed. NCR CLP, 2011.**





- **Social Trails**
  Social Trails are a significant problem in Rock Creek Park. There are approximately 14 miles of documented social trails and several more miles of undocumented social trails within the park. A majority of the park's boundaries are adjacent to residential neighborhood with residents and visitors wanting easy access to the park. The neighborhoods generally provide a positive relationship with the park, the open boundaries between the park and the neighborhoods do create increased challenges to minimizing social trails. Many of these neighbors think of the park as an extension to their property or treat sections more like a neighborhood dog walk rather than a national park. Off-leash dogs are a frequent problem throughout the park, but are especially problematic in areas directly associated with residential neighborhoods and contribute to the social trail problem.

  Social trails can be found in other areas of the park and are not just concentrated along park edges. The purpose for these trails is not presently known, but may have been created to access interesting viewpoints, access the edge of creeks, provide a shortcut between trails, negotiate around deteriorated or blocked trail segments, for simple curiosity, for privacy or to engage in illicit acts. Regardless of the reason for the trail, the sheer number of social trails is posing a negative impact to park resources. However, attempts to close these trails without a clear understanding of why they exist will be futile.

  A comprehensive study of social trails within Rock Creek Park is recommended. This study would utilize the park's current documentation of social trails to verify locations and add any newly identified social trails. Once all social trails have been identified, they should be analyzed to best determine the current use of the trail. The analysis should study the number of visitors that use the trail, if there



**Figure 6.6**
**(Above) Social trail highlighted in NW section of park with attempts to educate public to reasons for staying on the official trail. NCR CLP, 2011.**




**Figure 6.7**
**(Right) Resource protection sign used at social trail entrance. NCR CLP, 2011.**

are any identifiable features along the trail or at the trail's end point, if the trail is a shortcut between official trails or if it is an additional access into the park. The goal of the analysis would be to identify the reason for each social trail's existence and how frequently it is used. Treatment strategies can then be developed to minimize and close social trails while addressing user needs identified in the study. Treatment strategies should focus on resource protection and may consider closing trails, providing access to highly sought features, rerouting trails to minimize resource impacts, allowing trails to remain with provisions to reduce resource impacts, and implementing methods to discourage the use, creation or maintenance of abandoned or social trails. These are just a sample of treatment approaches that may be considered and many others may develop during the study.

## SPECIFICATIONS

- **Identify points of connection**: All new trail routes including a new trail proposal and trail reroutes. At a minimum they will include a beginning and an end. Points of interest along the route should also be included.
- **Research landform data**: Study the topography and soil data for the area between all points of connection for a new or rerouted trail. Identify steep slopes and the slope capacity for soils in the area based on trail use. Identify all natural drainages including micro drainages between the points. Identify sensitive areas to avoid such as environmentally sensitive areas and archeologically sensitive area.
- **Identify major control points**: Utilize the points of connection, interest points and landform data to develop a set of major control points. These will be either points the trail needs to hit, such as a great view of the creek, or points it needs to avoid, such as an endangered species habitat.
- **Develop initial trail alignment**: Utilize a detailed topographic map of the area and mark it with all control points identified. Sketch out an initial trail alignment based on all the above research. Attempt to work with sidehill routes following the contours of the land incorporating switch-backs when absolutely necessary to maintain a sustainable grade for the soil type. Keep in mind that water is the most influential factor in the design and layout of trails. Aligning the trail following natural contours is the best way to work with the natural runoff patterns of stormwater. Pay special attention to natural and ephemeral drainages to ensure the trail alignment does not impede or divert these drainages.
- **Reconnaissance**: Field test the sketched alignment for the trail. Identify any minor control points, or additional features that may influence the alignment, such as large trees. Fully investigate any stream crossings and drainages to ensure proper trail crossing at these points. Take note of changes in the soil conditions, pay close attention to areas of sandy soils which can develop deep ruts and clay soils which can lose structure with moisture. Note any additional sensitive areas previously unidentified, safety concerns, interesting views, rock outcroppings, and specimen trees or plant groupings. Indicate all minor control points on the topographic map and notate with rough grades tracked with a clinometer.
- **Resource Specialist review**: Consult with natural and cultural resource specialists to review the draft trail alignment and identified control points for the trail.

- **Final trail alignment flagged**: Modify the draft trail alignment to incorporate all minor control points from the field reconnaissance and any recommendations from the resource specialist. The alignment can now be flagged in the field. If sensitive conditions are present, resource specialists may also request to review the final flagged alignment before construction.
- **Identify strategy for all drainage crossings**: Prior to beginning construction of trail, verify that a sustainable solution has been developed for all drainage crossing including ephemeral drainages. Ensure that all design solutions do not intercept or divert water flow from its natural runoff flow.
- **Construct the trail**.
- **Repair all impacts**: During construction, it may have been necessary to impact trail edges. These should be repaired and revegetated.

#### ROUTINE MAINTENANCE

1. Inspect all trail routes annually. Identify problem areas and their causes. Monitor sensitive areas and current route relationships to those areas. Consider reroutes and closures as warranted by the adverse conditions.
2. Monitor social trails quarterly. Identify and map any new social trails and monitor success of closed social trails.
3. Replace brush and debris at social trail entrances when needed. Replace signage for protected areas when needed.

# CHAPTER 7: VEGETATION & VIEWS

**Vegetation** represents the entire plant cover for an area and includes all plant communities such as woodlands, meadows, wetlands and grasslands.

## TREATMENT GUIDELINES

- **Maintaining Character**
  At Rock Creek Park, the vegetation is a primary landscape feature that helps create the natural scenic landscape and provides a framework or space for the trails to travel within. In return, the trails provide the access for scenic enjoyment of the mixed hardwood forest, meadows, and riparian areas within the park's boundaries. Individual trees or shrubs may provide interest to the character of the trail system; however, the inherent nature of a forest is a living system that evolves and changes throughout time. As such, the overall effect of the hardwood forest surrounding the trails is the greatest contribution to the trail's character.

  Preservation of the extant vegetation to the greatest extent possible is critical to maintaining the overall character of the trail system. Some vegetation management is required to maintain the trail corridor, maintain views and eliminate insect pests and exotic invasive species. All vegetation management efforts should be conducted under the coordination and approval of the natural and cultural resource management team. The goal should be to ensure the association between the trail system and the surrounding vegetation remains mutually beneficial, providing opportunities to experience and appreciate both resources without degrading either.



**Figure 7.1**
**Existing vegetation character along a foot trail. NCR CLP, 2011.**

- **Trailside Vegetation Pruning**
  Vegetation continually grows and attempts to fill in trail corridors. Fallen logs and encroaching side vegetation create a significant impact to the trail's structure, pushing trail users to divert off the trail or walk near one edge of the trail. Pruning of trailside vegetation is required to maintain a safe and passable trail corridor. This includes maintaining the tread surface clear of all vegetation and the direct line-of-sight unobstructed. Adjacent branches should be selectively pruned in a manner to prevent branches from soaking a hiker after rain or snowfall, getting caught in bike pedals or horse stirrups and to provide a safe and inviting route for all visitors.

  - Pruning should occur on a routine, cyclic yearly basis, focused on heavy pruning every 3 years. The goal is to minimize selective pruning efforts to light pruning rather than heavy cutting.
  - Maintain specified corridor width for each trail through pruning.
  - Cutting should be limited to prevent trail widening and subsequent erosion.
  - All heavy pruning should be done in winter or during the dormant months to avoid damage to spring ephemeral plants and other herbaceous plants. Light pruning should be done in summer when all vegetation is leafed out. Avoid pruning in the spring to avert conflicts with bird nesting season.

- **Trailside Revegetation**
  During trail rehabilitation work, it is often required to disturb existing vegetation to complete required work. This work will require revegetation to mitigate the impacts to the natural resources. During revegetation efforts, take precautions to eliminate introduction of any non-native plants or insect pests. To minimize and mitigate impacts, the following treatment guidelines should be followed for revegetation efforts.

  - Trail work sites and areas trampled and eroded are required to be revegetated as part of all trail work orders.
  - All revegetation efforts should utilize native plants and plant placement approved by the vegetation specialist, landscape architect, park arborist, and park horticulturist.
  - Utilize weed free, clean top soil or an appropriate organic soil mix for fill or topdressing areas to be revegetated.
  - Schedule IPM specialist to monitor all work sites for three years for invasive species. If needed, work sites should be treated with an integrated pest management approach.

- **Selective Pruning for Views**
  Viewshed management has not historically been a priority at Rock Creek Park. However, early park planning efforts of Frederick Law Olmsted, Jr. identified several great views within the park that could be capitalized on. The views identified by Olmsted are not all visible today due to the growth of the forest since 1918, and widespread clearing for these views today is not warranted or recommended. In the instance that an identifiable Olmsted viewshed is located in an easily accessible location along an extant trail, selective pruning to highlight this view would be recommended.



**Figure 7.2**
**View of Rock Creek from social trail next to Foot Trail #17. NCR CLP, 2011.**



**Figure 7.3**
**View of Boulder Bridge from Foot Trail #17. NCR CLP, 2011.**

There are a few areas that would benefit from minimal selective pruning to open up a slightly hidden view. One example is along Foot Trail #17 just to the west of Beach Drive at Boulder Bridge. This particular trail has access to a great view of Boulder Bridge and Rock Creek from a higher elevation. A short social trail is currently located just downhill and parallel to Foot Trail #17 for the distance of the optimal view and offers better vantage points of this notable bridge and the creek. While there has not been a scientific study to determine if this social trail has been created for accessing the better views, it does not however lead to any destination, does not lead down to the creek and is more than likely used for the purpose of views. Either way, spot pruning for optimal views of Boulder Bridge from the official trail would minimize the number of people taking the social trail and would provide an enhancement of the trail system for users. Selective pruning for views is not recommended for widespread use throughout the trail system, but this is one example of where the practice would provide a mutual benefit to the trail, trail users, and the adjacent forest.

The park should consider selective pruning in specific areas to provided enhanced views within the park. Views identified in the Olmsted Plan and areas like the one mentioned above should be considered for selective pruning to open up the view. Coordination for this effort should include both natural and cultural resources staff.

#### SPECIFICATIONS

- **Corridor Width**: The corridor width varies based on trail type and use. Foot trails will typically be narrow with the least amount of corridor pruning and bridle trails will require the greatest amount of pruning and the widest trails. All selective pruning efforts for trails shall be limited to minimal corridor widths to help combat voluntary trail widening and side trail erosion. To help maintain a natural character, pruning limits should not be rigid lines, but instead should meander to create a loosely defined edge for pruning. However, the edge of the tread should be a very clear line defined by low vegetation.

  The following corridor width guidelines were provided by park staff, in an effort to further protect the native understory along the trail corridors. The corridor width maintenance strategy is more restrictive than standard trail management best practices, due to current impacts from deer browsing, which limits the regeneration of the forest herbaceous and woody vegetation. Once the impacts from deer browsing are reduced and the overall condition of the forest improves, the maintenance strategy for the corridor width should be reassessed and follow standard trail management best practices for trail edge pruning widths.

  - Foot Trails:
    Corridor Width = Edge of trail tread.

    Vegetation selectively pruned to width of trail tread only. Overhanging branches or branches that extend into trail tread should be selectively trimmed. Trees 1 inch DBH and above are grandfathered in and should not be removed. Trail realignment will be considered when a tree starts growing too close to the tread. Minor trail adjustments can be made as needed to accommodate any tree growth adjacent to the trail tread. Park staff will work together to determine solutions for instances where trails cannot be moved to accommodate vegetation, or where keeping specific woody plants would ultimately result in resource or trail damage.

  - Bridle Trails:
    Corridor Width = Extends 2 feet from the trail edge, both sides.

    Remove woody material two feet on each side of the trail. Herbaceous plants up to 30 inches will be selectively pruned in this two-foot area. Native herbaceous vegetation greater than 30 inches will be selectively pruned in this two-foot area. All native trees greater than 1 inch DBH will be grandfathered in. Trail realignment will be considered when a tree starts growing too close to the tread. Minor trail adjustments can be made as needed to accommodate any tree growth adjacent to the trail tread. Park staff will work together to determine solutions for instances where trails cannot be moved to accommodate vegetation, or where keeping specific woody plants would ultimately result in resource or trail damage. In addition,

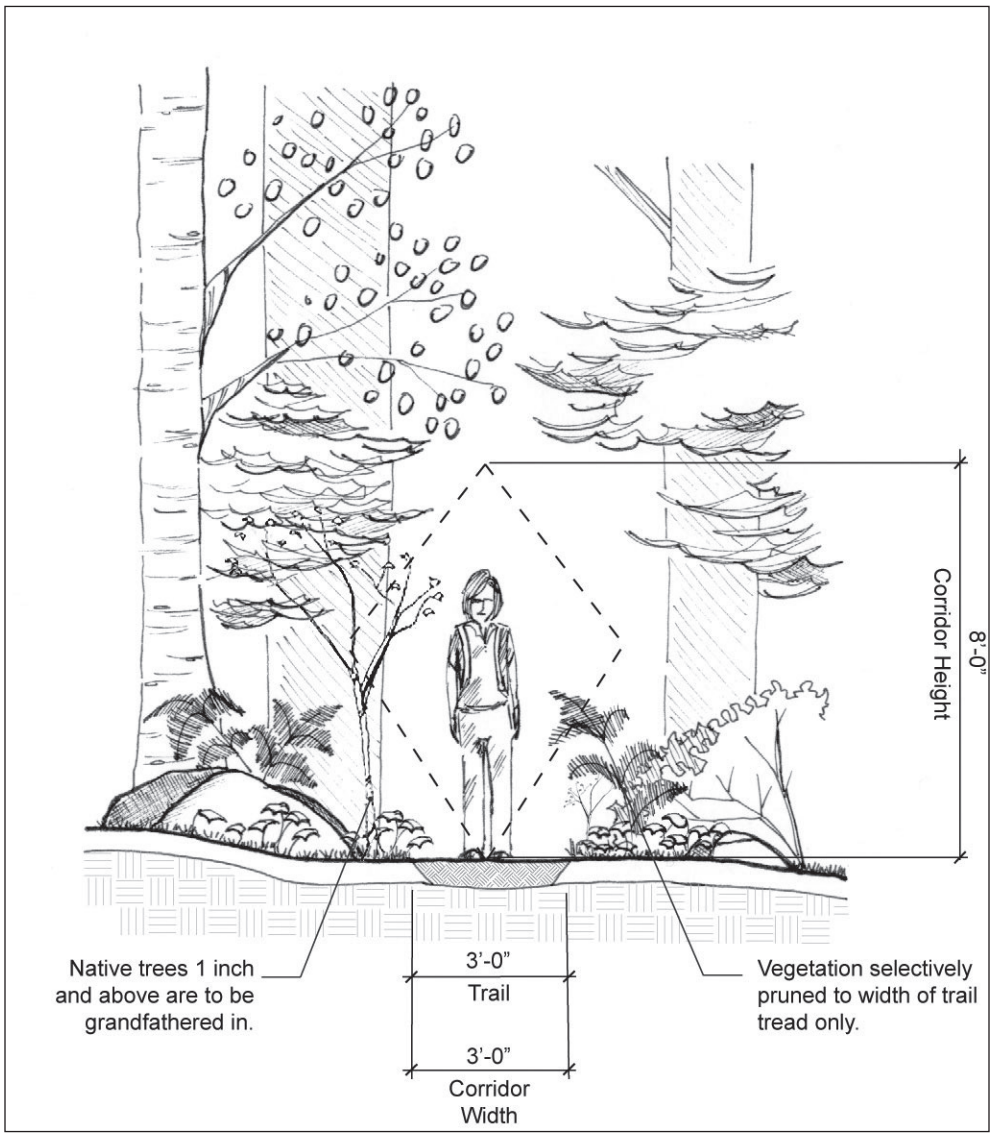



**Figure 7.4**
**Foot trail corridor with vegetation pruning requirements. NCR CLP, 2012.**

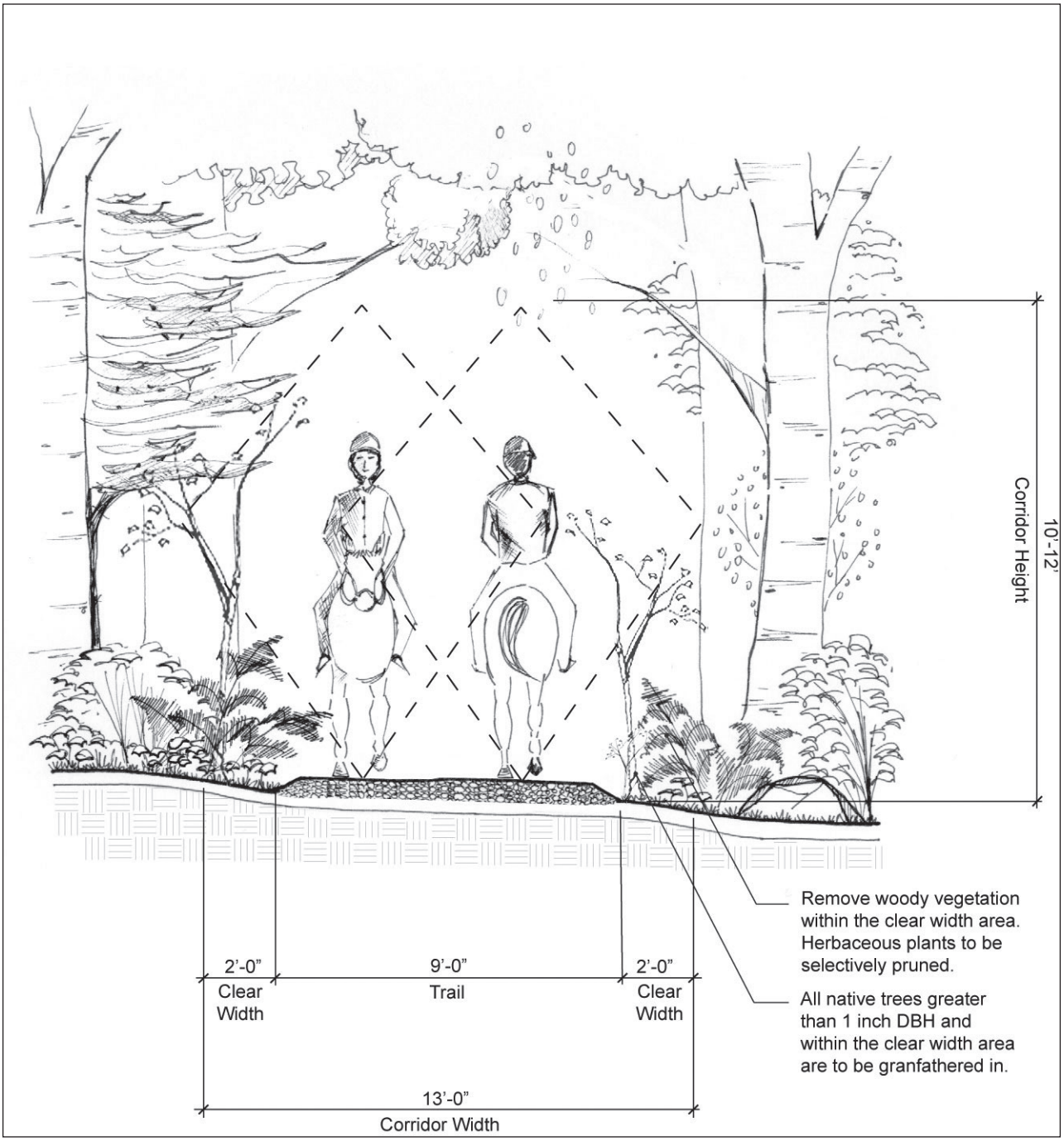



**Figure 7.5**
**Bridle trail corridor with vegetation pruning requirements. NCR CLP, 2012.**

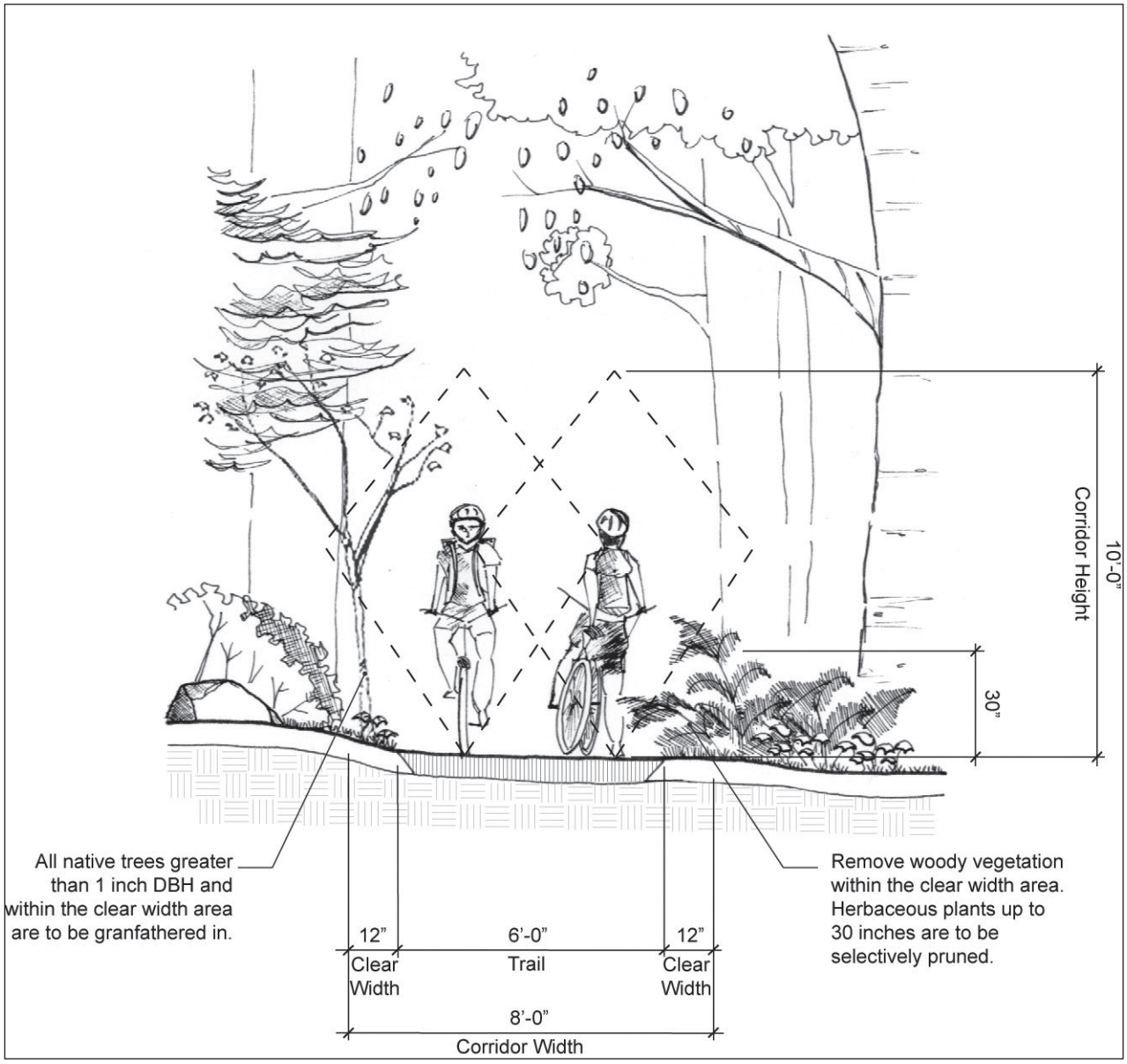



**Figure 7.6**
**Multi-use (bike) trail corridor with vegetation pruning requirements. NCR CLP, 2012.**

native trees greater than 1 inch DBH may be removed within the trail corridor where safety is a concern, specifically where corners impair visibility.

° Multi-Use (Bike) Trails:
Corridor Width = Extends 1 foot from the trail edge, both sides

Remove woody material one foot on each side of the trail. Herbaceous plants up to 30 inches will be selectively pruned in this one-foot area. Native herbaceous vegetation greater than 30 inches will be selectively pruned in this one-foot area. All native trees greater than 1 inch DBH will be grandfathered in. Trail relocation should not be considered for asphalt trails. Heaving of the trail should be prevented through selective root pruning. Park staff will work together to determine solutions for instances where trails cannot be moved to accommodate vegetation, or where keeping specific woody plants would ultimately result in resource or trail damage. In addition, native trees greater than 1 inch DBH may be removed within the trail corridor where safety is a concern, specifically where corners impair visibility.

The above referenced guidelines provided by park staff have the potential to impact historic trail routes and to create additional short social trails. Prior to any trail relocation or realignment, the overall trail alignment needs to be considered in relation to the tree growth and reviewed by a landscape architect to eliminate sudden zigzags in the trail route.. All trail adjustments that result in any level of realignment to an identified historic trail shall be reviewed by cultural resources staff for section 106 compliance prior to any modification.

- **Vegetation as Trail Guide:** If used as a guide, cut logs can extend right up to the trail edge. An example of a cut log used as a guide would occur on moderate to steep side slopes. Travel along the outer (downhill) edge of the tread commonly causes tread failure. Maintaining trailside vegetation or logs close to the outer trail edge will help hold traffic to the center of the tread. Rocks, logs, and limbed trees can all be used to



**Figure 7.7**
**Specimen / historic tree north of Military Road to be preserved. NCR CLP, 2011.**

guide traffic back to the center of the trail. However, verify that the guide material does not prevent water from draining off the trail or interfere with travel. For example, cyclists will need enough room for their pedals to clear the backslope and the guide materials.

Cut and remove guide material on the uphill side of the trail farther from the centerline. For example, on side slopes steeper than 50% cut fallen logs or protruding branches 6 1⁄2 feet or more from the centerline (horizontal distance). This is particularly necessary for bridle trails because horses tend to shy away from objects at the level of their head.

- **Corridor Height**: Selectively prune trail corridors to a height that keeps hikers, cyclists, and horseback riders from reaching any branches above the trail. Foot trails require a clear height of 8 feet, bike trails require a clear height of 10, and bridle trails 10 to 12 feet. When bridle trails encounter a bank, the area will be selectively pruned 1 foot back from the toe of the slope. The clear height would remain at 10 to 12 feet.

- **Cutting and Pruning**: Work with natural vegetation patterns to soften the edges of pruning work leaving no straight lines. Train all trail maintenance workers, volunteers and contractors in proper pruning techniques. Prune tree branches and limbs to branch collar. In the rare instance that a low shrub or small trees must be removed, cut trunk flush with the ground to prevent tripping hazards and have certified staff treat stumps with herbicide to prevent sprouting. Round tree and shrub stumps to eliminate all pointed edges. Scatter and toss the resulting debris as far as practical away from the trail and turn stems and branches so cut ends do not face the trail. If the debris is from an exotic invasive plant, they should be completely removed from the area per guidance from a natural resource specialist. Another option for debris is to remove and chip for mulch, chip and disperse in natural landscape where appropriate or compost the material for other park uses.

  Trail segments to be pruned need be coordinated in advance with natural resources team so that areas can be checked for the presence of rare and threatened species and to identify significant resources that need to be protected.

- **Logging out**: Is a term used to describe cutting away tree sections that have fallen across a trail. This work can be hazardous and should be performed by skilled workers trained and certified in utilizing chainsaws for bucking and felling trees.

  Fallen tree sections crossing a trail should be cut 1 foot past the trail edge on both sides of the trail. Leave remaining tree trunk in place and roll cut log pieces a minimum of 1 foot off the trail. When many trees are cut adjacent to each other, if possible scatter the cut logs on the downside of the trail to minimize visibility from the trail. On bridle or multi-use (bike) trails, cut logs may be chipped and then scattered in the natural area to promote faster decomposition and minimize visual impacts to the trail. Never leave log segments across swales or waterbar outflows.

  Sometimes trees may fall parallel with the trail. If the trunk of the tree is outside of pruning limits, it may be left in place. However, it may be necessary to prune limbs from the trunk to clear them from the trail limits. Prune the limbs flush with the trunk. It may be desirable to limb the tree so it rests on the ground to increase trunk decay.

Provide special consideration when deciding whether or not to remove trees that have not fallen but are leaning across the trail. If the tree is leaning within the trail corridor, it should be removed. When the tree is leaning outside the trail corridor, an assessment of the tree is required before removing. Consult with natural resource specialist and park arborist to determine the structural soundness of the tree, and the potential hazard the leaning tree is creating. Felling a leaning tree can be very hazardous, especially one that is hung up in other trees. Only highly qualified workers should fell or remove leaning trees.

### ROUTINE MAINTENANCE

1. Routine maintenance is essential to minimize the effort of trail pruning at any one time. Monitor all trails bi-annually (spring/fall) and selectively prune any trail sections as needed.

2. A cyclic schedule for trail pruning and vegetation maintenance is set for every 3 years for focused/ heavy pruning efforts with some routine light pruning every year.

3. Provide ongoing training for all new trail workers on corridor pruning, vegetation pruning and debris removal techniques. The natural resources team should be included in the development and implementation of this training.

4. All invasive exotic plant species within the trail corridor can be removed regardless of size and disposed of properly according to the park standard operating procedures.

# Chapter 8: Trail Cross-Sections

The **trail cross-section** includes the actual trail walking surface (trailbed), the backslope, the fill/ front slope, and the any associated berms. The method used to build the trail cross-section creates the basic foundation of any trail and determines the trails durability and longevity. This chapter discusses three types of trail cross-sections that have been used at Rock Creek Park:

- Bench Cuts
- Fall Line cuts
- Causeways

Proper trail cross-section design and maintenance will provide stable, obstacle-free treads for hundreds of years. Most of the trails at Rock Creek Park are from 50 to 100 years old. A few trail segments have withstood the test of time, but most are in poor condition with heavy erosion, exposed roots, severe ruts, trail widening, and loss of tread material. The following chapter provides guidance on rehabilitating these trails to be sustainable; minimizing impacts and degradation to resources.

## BENCH CUT TRAILS

Bench cuts are types of trail construction used on side hill trails to create a level walking surface. There are two types of bench cuts discussed in this section, the full-bench cut and the partial bench cut. The main difference between the two is the amount of the trail built by cutting through the hillside or by adding fill material on the downslope side of the trail.



**Figure 8.1**
**Example of a bench cut segment of the Valley Black Hourse Trail. NCR CLP, 2011.**



**Figure 8.2**
**Partial bench cut segment of the Valley Trail. NCR CLP, 2011.**



**Figure 8.3**
**Bench cut trail segment on Valley Trail without an outslope. NCR CLP, 2011.**

A **full-bench cut** is a method of trail construction where the full width of the tread is cut into the hillside and excavated soil is cast as far from the trail as possible. This method requires more excavation and creates a larger backslope than partial-bench construction, but the trailbed will be stronger and requires less maintenance. Use full-bench construction whenever possible.

**Partial-bench** construction is an alternate method of trail construction, where the trail tread is part hillside and part fill material. Partial-bench cuts are more challenging to construct, require more maintenance, and are less stable than the full-bench method. Use this method only when full-bench is not physically possible or would create too significant of an impact to the surrounding landscape.

In both methods, the excavated area exposed above the tread surface is the backslope. Partial-bench cuts will have an area of fill on the downhill side of the tread. Both the backslope and the fill slope are graded to the angle of repose, determined by the soil composition, to create a stable slope. In some instances, the backslope or fill slope may require additional stabilization in the form of a retaining wall or cribbing.

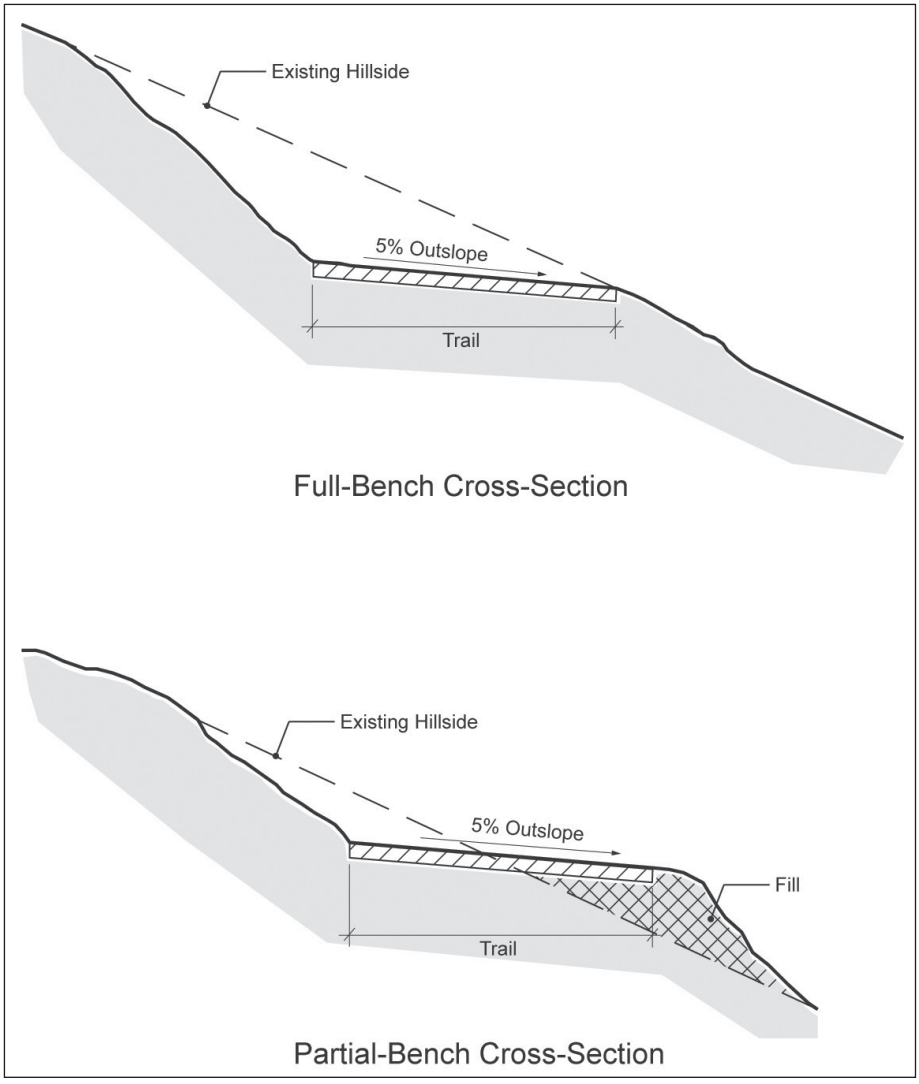



**Figure 8.4**
**Bench cut cross-sections. NCR CLP, 2012.**

### TREATMENT GUIDELINES

- **Maintaining Character**
  Side slope trails in Rock Creek Park were historically constructed with a type of bench cut. However, very few if any visible structural materials were used in their construction.

  To maintain the character of the park's trails, any new or improved bench cuts should be built without retaining walls or cribbing unless absolutely required. If a retaining wall or cribbing must be used, it should be constructed of dry-stacked stone matching the local stone along the trail. Revegetate the disturbed area around the retaining wall or cribbing with native vegetation that blends the wall into its surroundings.

- **Eroded Trail**
  Many of the trails at Rock Creek Park have substantial erosion problems. Poor trail design and insufficient maintenance are major factors that have led to erosion on these trail segments.

  When constructed and maintained properly, bench cuts create the most durable and least intrusive tread on side hill slopes. Include maintenance of bench cuts as a high priority to a cyclic trail maintenance program. To prevent trail erosion, establish and maintain proper tread cross-slopes and eliminate outside berms along the tread.

- **Natural Resources**
  Creating new bench cuts can also be a severe impact to surrounding trees. The damage caused by cutting smaller tree roots is typically outweighed by the benefits of a clear non-eroding treadway that minimizes future degradation to the woodland. However, some roots are essential to important trees and should be left in place by adjusting the route of the trail or height of the bench surface. Consult with a natural resources specialist, arborist and landscape architect prior to the maintenance or construction of any trail impacting tree roots.

- **Archeological Concerns**
  Rock Creek Park has substantial underground archeological resources. The construction of bench cut cross-sections has the potential for adverse impacts to these fragile resources. Partial-bench cut cross sections or a built up bench may be required in sensitive areas.

  Consult with the cultural resources manager prior to any ground disturbing activity related to bench cut construction or maintenance. Additional archeological survey work may be required prior to any ground disturbing activities. Allow ample time for cultural resources review as part of initial scoping plans for potential new bench cut trails or maintenance work resulting in ground disturbing activities.

### SPECIFICATIONS

- **Type of Bench Cut**: Utilize full-bench cuts as the primary type of cross-section on side hill slopes. They are the most durable and stable of all bench cuts. Partial-bench cuts should be used sparingly and only when conditions do not allow the construction of a full-bench. Stabilize partial-bench cuts with geotextile or stone retaining walls on the fill slope.

- **Construction of Bench**: If construction of new bench cuts is required,

follow standards of practice as set in the Trail Construction and Maintenance Notebook by the USDA Forest Service

- Construct trail width to match that of existing trail.
- Slope tread with a ½ inch per 1 foot (5%) outslope cross-slope to the outside edge of the trail).
- Construct all backslopes and fill slopes to meet the angle of repose for the particular soil composition. Consider the surrounding landscape and create a slightly gentler backslope than necessary. Opt for native stone retaining walls instead of severe cut of the hillside. Maximum slope for all soils is 1:1.
- Inspect all soil and gravel sources for the presence of invasive non-native species prior to transport to the work site. If necessary, treat soil and gravel to prevent the introduction of non-native species and pests. Consult with the Integrated Pest Management Team (IPMT) for inspection assistance.
- Blend all new backslopes and fill slopes with their natural surroundings.
- Round off all slope edges for the backslope and the fill slope to allow improved sheet flow of water across tread.
- Construct any required drainage structures along with new bench cut.
- Revegetate all disturbed areas with consultation from park landscape architect and natural resource specialist. Utilize weed free, clean top soil or an appropriate organic soil mix for fill or topdressing areas to be revegetated.

- **Use of Retaining Wall**: Retaining walls are required when a sustainable backslope or fill slope cannot be graded to meet the angle of repose or on the fill slope of any partial-bench cut trails. Construct retaining walls in the most subtle manner possible with native fieldstone or geotextiles. Dry stack native field stone and hide any mortar joints or setting beds through the placement of the stones or with vegetation. Completely cover geotextile walls with soil fill and revegetate slope with native vegetation. Allow free flow of water over the top of the wall for any downhill retaining wall.

### ROUTINE MAINTENANCE

1. Provide a cyclic maintenance schedule to re-grade and maintain all bench cut outslopes. Grade any fallen uphill material onto the treadway and remove any berms that have formed on the outside trail edge.
2. Monitor the backslope and front slopes for signs of failure or collapse. If needed, re-grade the slope to a sustainable angle of repose or construct the proper type of retaining wall to mitigate the slope.
3. Maintain any associated structures along the bench cut trail according to that feature's specifications.

## FALL LINE TRAILS

**Fall Line Trails** are trails constructed along the fall line of a hillside, or perpendicular to the contour lines. As water tends to flow down a hillside along the fall lines, these types of trail alignments become channels for water and heavy erosion. They require substantial maintenance to keep in good condition and many drainage structures to assist with minimizing erosion.

### TREATMENT GUIDELINES

- **Heavy Erosion**
  Fall line trails in the park are subject to heavy erosion and require substantial maintenance with the addition of waterbars and check dams placed throughout the trail segment.

  These trails should be primary trails for consideration of a reroute or closure/abandonment. See Chapter 6: Route for discussion of the process involved in considering reroutes and closures.

### SPECIFICATIONS

Avoid fall line trail alignments for any new trail segments constructed. Instead, look for alternative routes to enable curvilinear side-hill trail construction. As this method of trail construction is not recommended, specifications are not provided for fall line trails.

### ROUTINE MAINTENANCE

1. Inspect fall line trails on a quarterly basis.
2. Clean out waterbars and other erosion control structures as needed and after any major storm event.
3. Re-tread trail as needed to replace lost tread surface due to erosion.



**Figure 8.5**
**Example of a severely eroded fall line trail on the White Horse – Ft. DeRussy Trail. NCR CLP, 2011.**



**Figure 8.6**
**Example of fall line trail erosion on the Valley Trail. NCR CLP, 2011.**

## CAUSEWAY

*(Portions adapted from the Acadia Trails Treatment Plan)*

A **causeway** is a raised constructed trail cross-section traditionally used to create a high ground for the trail through low, wet areas. It can be used to create an elevated dry treadway in relatively flat terrain and must be accompanied by culverts and other drainage structures to provide the free flow of water across the causeway.

### TREATMENT GUIDELINES

- **Maintaining Character**
  Causeways can be constructed with or without sidewalls, historically at Rock Creek Park they have been used without sidewalls and were typically used on bridle trails. The wall-less causeway is the least imposing structural form for a causeway and helps to maintain the look of a minimally constructed trail.

  If a new causeway is deemed an appropriate solution for preserving and sustaining a trail alignment, it should be a wall-less causeway to minimize impacts to the historic trail character. The guidelines and specifications provided are for wall-less causeways.

- **Drainage Traps**
  A causeway often becomes a dam, blocking the natural drainage patterns it crosses. Areas that had a wide swath of sheet flow drainage are diverted to one or more culverts or drainage is blocked to form a small storm water detention area. The increased volume at single points created by the use of culverts tend to create erosion or channeling on the uphill and downhill sides of the causeway. In other instances, it may be beneficial to create small detention areas to help slow and dissipate stormwater, but this method may affect the habitat by changing the soil moisture content of the area.

  Proper drainage design and structures are critical to the success of a causeway. Consult with a civil engineer prior to the installation of any new causeway construction to develop an appropriate drainage plan that meets approval of the natural resources specialists. Rehabilitation of existing causeways should undergo the same approach unless making minor adjustments to tread loss. However, identifying the reason for the tread loss is required. If failing drainage structures are the cause of tread loss, a new design per above approach is required.

### SPECIFICATIONS

- **Layout**: Choose a route for the trail causeway that allows for straight or gently curving trail with minor changes in elevation. Verify trail location has adequate room for drainage structures on the sides of the trail or that side areas drain away from the trail. Stake the treadway by placing pairs of stakes on both sides of a properly sized corridor. Provide ample stakes along curves to maintain the curve shape. The width should conform to standards for the type of trail being constructed. Attach a line to the stakes at the desired height of the causeway. Keep in mind clearances for any drainage crossings and select the longest run feasible for any grade changes.



**Figure 8.7**
**Wall-less causeway on the White Horse Trail. NCR CLP, 2011.**

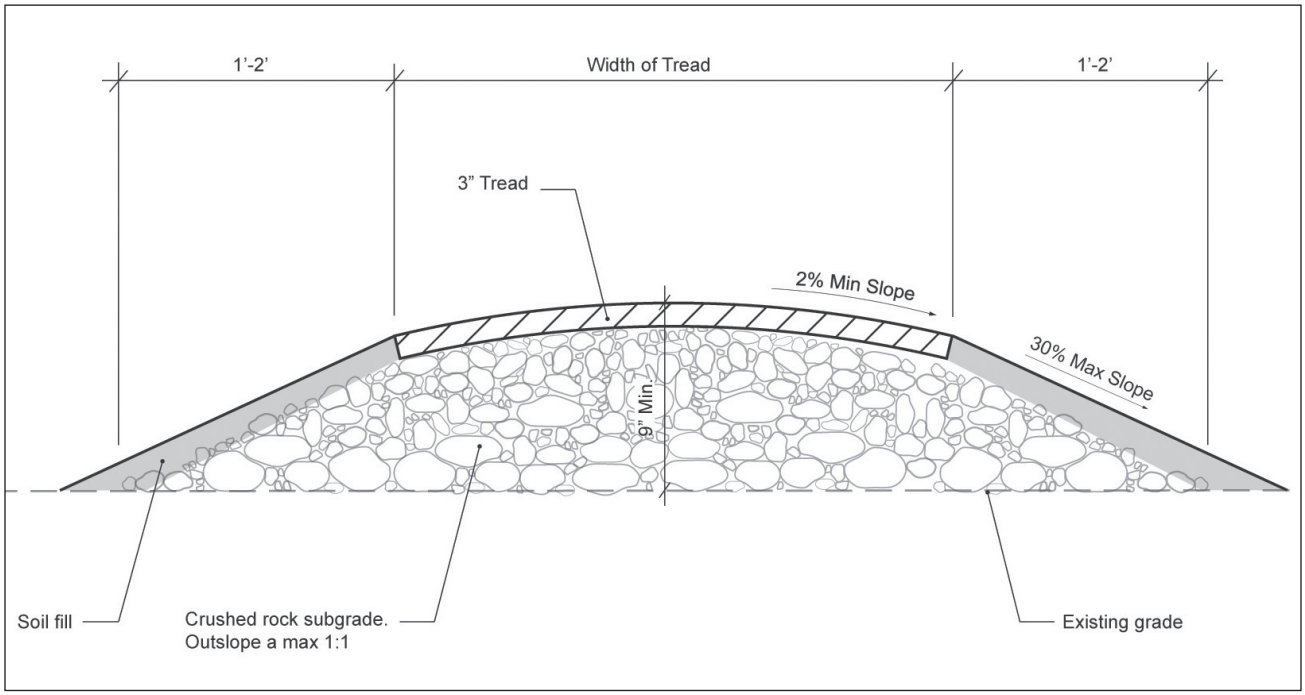



**Figure 8.8**
**Section of a wall-less causeway. NCR CLP, 2012.**

- **Drainage**: Identify appropriate low spots along the trail and place appropriate drainage structure to provide proper drainage through the causeway (see Chapter 10: Drainage). Place all drainage structures prior to constructing causeway.
- **Excavation & Base**: Remove all organic material from the corridor until a compacted base is reached. Excavate for the width of the trail and sidewalls. Place approximately 9 inches of crushed rock subgrade across the treadway and extend 2 to 3 feet on both sides of the trail. Form the sidewalls by tapering the crushed rock subgrade, maximum 1:1 slope, to transition up to the raised causeway. Set larger stones along the outside of the rock subgrade as needed to help retain the sidewall. Consult with cultural resource manager prior to any excavation work to assess the potential for impacts to archeological resources.
- **Berms**: Pile loam and soil along the outsides of the staked lines up to the line height. Taper the grade to the ground at a maximum of a 30% slope. Cover the exposed soil with jute mat and plant with low native vegetation. The jute mat will decompose as plants take root and grow, eventually becoming a living wall.
- **Treadway**: The area between the two newly created berms becomes the treadway. Fill the treadway with gravel tread, as specified in above section, to meet the staked line at the edges. Add approximately 3 inches of gravel tread to form a crown down the centerline of the trail. Compact the gravel tread and verify a minimum 2% slope is maintained for the crown.
- **Finished Dimensions**: The finished causeway will extend 2 to 3 feet on both sides of the required tread width and the minimum height for the centerline of the trail will be 12 inches above the existing grade.

#### ROUTINE MAINTENANCE

1. Inspect causeways and all associated drainage structures annually. Verify drainage structures are clear of debris and provide free flow for water. Inspect gravel tread for tread loss.
2. Identify the cause of any tread loss and remedy the cause prior to replacing tread. If tread is recoverable, it should be replaced prior to bringing in new tread.
3. Inspect the crown annually and reestablish as needed to maintain positive drainage off the trail. Rake the surface of the tread smooth to remove any divots or hollows. If needed, add additional gravel tread. Tamp and compact the rehabilitated surface to compact the tread.
4. Remove any vegetation growing in the treadway.
5. Reestablish any collapsed or eroded sidewall berms with soil and new vegetation as needed.

# Chapter 9: Tread

**Tread** is the walking surface of a trail. At Rock Creek Park, trail use determines which of the three types of tread will be applied to each trail. The three tread types include native soil tread, gravel-mix tread, and asphalt tread.

## NATIVE SOIL TREAD

**Native soil tread** is minimally constructed utilizing the native soil as the main tread material. In some instances native soil tread has been supplemented with outside material to increase soil stability, however, most foot trails at Rock Creek Park are constructed of native soil tread without any additive material.

### TREATMENT GUIDELINES

- **Maintaining Character**
  Native soil tread has been used for trail development in Rock Creek Park since the park's origin in 1890. All of the original foot trails and horse trails began from clearing the path, and compacting the soil to create the route. Bridle trails have since been modified with aggregate mix tread fill, but foot trails within the park still maintain the native soil tread.

  Native soil tread is a character-defining feature for the historic foot trails and is the most sustainable tread material with proper trail layout. Preserve the extant native soil tread whenever possible.

- **Exposed Roots**
  In many areas, tree roots are often exposed across eroded native soil treads. They can create obstacles, become tripping hazards and potentially channel water down the trail. Tree roots are often providing



**Figure 9.1**
**Exposed roots on the Valley Trail. NCR CLP, 2011.**



**Figure 9.2**
**Heavy erosion on the Valley Trail. NCR CLP, 2011.**

stabilization for the remaining trail tread. Removing them can create more erosion, and negatively impacts associated trees.

If the roots are relatively flush and do not pose a tripping hazard, leave them in place as they are. If roots are large and create a tripping hazard or run parallel with the trail, the area needs to be improved to minimize the impacts of the roots.

- First, study the trail and areas uphill from the exposed roots to look for causes of the erosion problem.
- Correct uphill drainage problems at the source, before the water gets to the exposed area.
- Add supplemental soil, carefully fill around roots and gently compact once drainage issues are corrected. When roots have been exposed due to heavy erosion, carefully filling around and covering the roots with supplemental soil is advisable. Consult arborist prior to adding fill soil or compacting.
- Cutting and removing tree roots is a last resort. It is only advisable if other strategies have proven unsuccessful and the condition poses

a serious hazard. Consultation with an arborist is required prior to cutting or removing any tree roots.

- **Heavily Eroded Trails**
  Approximately 15% of the trail system has been surveyed as having some form of erosion problem. Most of these instances are from poor trail layout compounded by heavy traffic which leads to poor drainage and deteriorated trails. The structural solutions provided in this report will help mitigate the erosion on the native soil treads, but they also alter the historic character of the minimally constructed trail.

  The most sustainable approach to treatment of heavily eroded tread is to study the trail's layout and how water flows on the trail. Look for the source of the problem and consider appropriate drainage solutions to address the problem. The preferred solution is to incorporate rolling grade dips and knicks while maintaining a positive outslope on all trails (see Chapter 10: Drainage). These offer the least visible impact to the minimally constructed trails. In worse case scenarios, a trail reroute will ultimately be the best option. Chapter 6: Route provides a discussion on the considerations for trail segment reroutes.

## SPECIFICATIONS

- **Route Selection**: It is ideal to develop trails on soil that already contains a good material matrix, staying away from sandy or heavy clay soils. Suitable soil will compact while maintaining moisture content and it will sustain desired grade (slope) and heavy use.

- **Soil Type**: The best soil type for trail tread is a mixture of clay, silt, and sand. If the trail's soil is lacking any one of these, it may be susceptible to rutting and erosion. Test existing soil mixture and attempt to add what is missing.

**NPS Management Policies, 2006:**

Heavily used trails and walks in developed areas may be surfaced as necessary for visitor safety, accessibility for persons with impaired mobility, resource protection, and/or erosion control. Surface materials should be carefully selected, taking into account factors such as the purpose and location of a trail or walk and the potential for erosion and other environmental impacts.

- **Tread Surface**: Foot trails designed for a universal audience and ease of use should have a smooth and compacted tread surface with minimal root and rock exposure. More challenging trails can have a rougher surface with obstacles such as rocks and tree roots.

- **Outsloped Tread**: To keep water from running down the trail, it is critical to construct a tread surface with a 5% minimum slope across the tread to create an outsloped tread. This is one of the most critical characteristics of side sloped trails. The outslope allows water to naturally sheet flow across the trail and continue on its natural path.

- **Roots and Rocks**: Many roots and rocks assist in the stabilization of native soil treads and should not be removed from the trail surface. If the tree roots are perpendicular to the tread, roughly flush, and not a tripping hazard, leave them in place. Upon approval and guidance of the park arborist, remove any tree roots that are parallel with the tread as they funnel water down the trail leading to ruts. When rerouting trail

segments, locate new routes above large trees; routing trails below large trees will undermine the tree's root system.

### ROUTINE MAINTENANCE

1. Monitor tread outslopes on all trails regularly and reestablish as needed. Outslope loss is the first maintenance issue to develop on unpaved trails and the most important to maintain and correct. Maintain outsloped tread at a minimum of 5%.

2. Remove and scatter slough material that collects at the inside trail edge and berm material that collects at the outside trail edge.

3. Maintain the tread at the designed width.

4. Remove all the debris that has fallen on the tread such as sticks, stones, and trash.

5. Maintenance includes removing obstacles such as protruding roots and rocks on easier trails. It also means repairing any sections that have been damaged by landslides, uprooted trees, washouts, or boggy conditions.

6. Compact all tread and sections of backslope that were reworked.

## GRAVEL TREAD

**Gravel tread** is a surfacing material for treadways. A specifically designed matrix of soil and aggregates combined and applied to the top surface of a trail.

Some eroded native soil treads can have substantial exposed aggregates on the trail surface; these are not considered gravel tread.

### TREATMENT GUIDELINES

- **Maintaining Character**
  It is currently unknown when the park first started using gravel for trail tread, but it has been at least since the Mission 66 Era and limited to use on bridle trails. The gravel tread has always been a mix of crushed aggregate and imported or local soil, blending well into the environment. However, various blends of a gravel mix have been used though the years.

  With a few exceptions, gravel tread should be limited to use on bridle trails. Develop a gravel mix that blends well with the natural environment in the light brown color family. Do not use aggregates in the gray color family. Limit gravel tread to slopes less than 5%, anything steeper is unstable for the loose nature of gravel and will erode easily.

- **Selective use on Native Soil Trails**
  In a few instances along foot trails with native soil tread, areas with obstacles such as heavy roots or moist soil create constant problem areas for hikers. Replacing the soil tread in these areas with gravel tread can provided the added structural support for a more stable walking surface.

  Reconstructing these problem areas with gravel tread can provide a means to sustain the trail alignment in place, but it will alter the historic character of the trail. Improving the trail in its current location is preferable to altering the trail route; care must be taken to minimize the impacts to the historic character. New gravel tread in these areas should utilize local gravel or stone to match color and consistency of local gravel. Mix the local or imported gravel with local soil to help blend into the native soil tread. Geotextiles can also be used in especially muddy areas to provide structural stability to the tread.

- **Maintaining Gravel Tread/ Minimizing Erosion**
  Erosion and tread loss is a significant problem for many trails in the park, especially for gravel tread trails. Gravel is an imported material and unless placed properly on a well-designed trail, it has a tendency to be easily carried downhill by water.

  During trail rehabilitation, it is important to investigate and correct the cause of the erosion prior to replacing lost tread. Study the existing drainage patterns and cross slopes of the trail. Repair any damaged structures or trail cross slopes. Look for areas that may need additional drainage structures and develop a revised drainage plan. Consider a trail reroute if other solutions are not sufficient to correct the problem or if they create significant impacts to the historical trail character. All trail improvements must have approval from both the natural resource specialist and the cultural resource manager prior to installation. Regardless of the solution, it is imperative to correct all uphill drainage

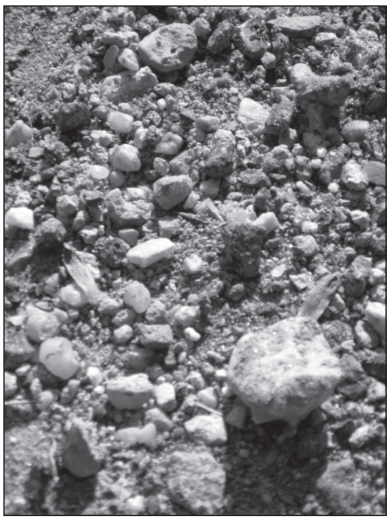


**Figure 9.3**
**Eroded gravel tread exposes large rounded rocks which are harmful to horse hoofs. NCR CLP, 2011.**



**Figure 9.4**
**Angular gravel needed for good gravel tread mix. NCR CLP, 2011.**



**Figure 9.5**
**Blended and compacted gravel tread mix. NCR CLP, 2011.**



**Figure 9.6**
**Gravel tread on White Horse Trail. NCR CLP, 2011.**

problems prior to any trail rehabilitation. Otherwise, the tread will continue to erode creating a never-ending cycle of maintenance.

## SPECIFICATIONS

- **Gravel Mix**: Gravel is a loose material of small rocks (aggregates) that have a tendency to move easily with water flow. Alone, they can only be used in very flat terrain, less than 3% slopes. Combined with imported soil and crushed, the gravel can be compacted and bound together to create a more sustainable and durable tread surface. A good sustainable gravel tread matrix will contain the following:
    - Angular fractured rock and shale crushed to no larger than 1.5 inches in diameter
    - A loamy soil with a mix of silt, sand, and clay

      The park's current gravel tread mix is composed of both requirements and is specified as RC-6. This is a suitable gravel tread mix and its use within the trail system should be continued.
- **Excavation**: Remove all organics from the top layer of soil and excavate to the layer of mineral soil. Keep large roots in place and rocks that do not protrude above the finished trail grade. Save sod and duff to be used along the trail edge. Follow layout markings to excavate the shape of the trail to the desired trail route.
- **Drainage**: Working with the natural drainage patterns around and across the trail corridor is a key element to developing a sustainable trail. Design a comprehensive drainage plan and install all required subgrade and below grade drainage structures prior to laying gravel. All drainage plans to be approved by the natural and cultural resource managers.
- **Execution**:
    - Place gravel mix for a minimum of 3 inches deep across the full tread width.
    - To keep water from running down the trail, it is critical to construct a tread surface with a 2% minimum outslope or cross slope. For raised treads, provide a ridgeline or crown in the center of the trail and for all other cross sections, outslope the tread to the lower or downhill side of the trail.
    - Compact the surface of the trail with a vibrating tamper until smooth and hard without any dips or lumps.

## ROUTINE MAINTENANCE

1. Inspect gravel tread annually for tread loss, or signs of erosion.
2. Regularly inspect and clean all associated drainage structures.
3. If washouts or tread loss is noticed, identify the cause and correct with appropriate drainage structures (such as water dips or culverts). Replace tread only after the cause of the erosion has been solved.

## ASPHALT TREAD

**Asphalt tread** is a surface material used primarily for multi-use trails or for areas where a firm surface is desired. Specialized equipment is needed to properly install the top coat and to heat-up the hot mix asphalt.

Asphalt pavement is a smooth, flexible, joint free, and long lasting surface. This pavement works particularly well on trails that are used for cycling, in-line skating, walking, and jogging. Paving techniques allow asphalt pavement to be placed on minor slopes, over undulating topography, and blended into the existing topography. In addition, asphalt can be colored to preserve natural setting.

### TREATMENT GUIDELINES

- **Maintaining Character**
  When bicycles became more popular in the 1960s and into the 1970s, an asphalt paved bike trail system was designated. In some areas, former bridle trails were converted to the new use and in others new bike trails were constructed. This effort to develop trails specifically designated for cycling coincides with a nationwide rise in bicycling popularity in the early 1970s, spurred by the development of multi-gear bikes. Cycling continues to be a major recreational activity within the park, utilizing the 5.27 miles of designated multi-use (bike) trails (only 5% of the overall trail system) and sharing park roads. The existing multi-use (bike) trails are 6 feet wide and paved with hot mix asphalt paving.

  The Edge of the Woods Nature Trail was converted to asphalt tread in the 1960s to improve the trail surface and by happenstance, made it more accessible to the general public.

  The asphalt tread should be limited to use on multi-use trails and for areas potentially for access areas associated with the nature center or other trail head facilities.

- **Sustainable Alternatives**
  If feasible, the park should explore using porous asphalt as a replacement for the impervious asphalt currently used on the multi-use trails. Porous asphalt, also referred to as open graded asphalt concrete, refers to a mix that adds a significant amount of air space, or voids, to the gravel and petroleum binders that make up asphalt paving. The material is promising because it combines the ability to drain away moisture with a firm surface for wheeled users and saves on maintenance costs by hastening snow melt and improving drainage.

  Porous asphalt is created by eliminating the smaller, graduated sizes of crushed rock and using a uniform-sized aggregate. The particle size is typically 1/2” or 3/8” with a goal of 18% air voids. In addition, recycled rubber and polymer binder replaces much of the petroleum used in standard asphalt mixes. Finally, impervious and porous asphalt both use the same mixing and application equipment.



**Figure 9.7**
**Asphalt tread on Bike Trail. NCR CLP, 2011.**

## SPECIFICATIONS

- **Asphalt Mix**: The hot mix asphalt mixture specified for the multi-use trails at Rock Creek Park should provide adequate strength and durability. Realizing that the asphalt trails at the park are not subjected to heavy loading and many are constructed in areas difficult for large equipment to access, the park should use a hot mix asphalt mixture with reasonably high asphalt cement content (or binder), such as the super pave, PG 64-22.

- **Subgrade**: Prior to construction, vegetation should be cleared and stumps and roots removed along the trail. The trail should be constructed to follow the existing topography as closely as possible. However, a cross slope of approximately 2% should be incorporated provide adequate drainage. Following removal of vegetation and topsoil, the asphalt should be placed on a compacted aggregate sub-grade that is approximately six inches in depth and extends a minimum of 1 to two feet beyond the edge of pavement. The edge of pavement should be feathered with native soil to avoid any drop from the trail edge. Prior to placement of the asphalt pavement it is recommended the sub-grade be proof rolled to highlight areas of non-compacted or unstable soil.

- **Placement and Compaction**: The hot mix asphalt, consisting of super pave 9.5 MM or 12.5 MM, PG 64-22 should be placed based on thickness recommendations from a civil engineer. The width of the

**Asphalt Paving Keys to Success:**

- Design to meet the needs of user;
- Follow guidelines in AASHTO Guide for the Development of Bicycle Facilities for path width, sight distances, clearance, grade, signage, etc;
- Determine load carrying capacity of native soil;
- Provide good drainage;
- Design asphalt mixture to meet loading requirements;
- Properly compact asphalt pavement; and
- Plan preventative maintenance.

paved trail should be a minimum of 6 feet. Compact and roll asphalt immediately after placement.

#### ROUTINE MAINTENANCE

Asphalt pavement maintenance is kept to minimum through proper design and construction. Repairs can be made quickly and less costly and can be easily blended into the existing pavement structure.

1. Normal periodic maintenance, depending on path location and drainage, should include sweeping the trail of debris.
2. The trail should be inspected on an annual basis to determine the overall condition of the drainage, pavement markings, asphalt pavement, and vegetation growth.
3. Drainage should be improved and repaired and vegetation should be removed from the pavement and surrounding areas where it could affect use of the path.
4. The asphalt pavement should be inspected for cracks, raveling, disintegration, and premature signs of failure. Cracks should be cleaned, dried, and filled with sealant.
5. Preventative maintenance should include sealing the surface of the asphalt pavement.

# Chapter 10: Drainage

Historically, drainage solutions for the trails at Rock Creek included grading trails for sheet flow runoff and the use of culverts to allow intermittent drainage channels to flow underneath the trail. In essence, the historical methods followed closely to the sustainable design principles that require minimal control of water and focus instead on the natural hydrologic flow. Even with this sustainable approach to drainage design, proper trail design and maintenance are required for success. With many of the trail alignments developing over continued use and from adopting old carriage roadbeds, they have a tendency to be poorly designed, or not designed, and located on unstable soils and along fall lines. The well-designed trails within the park have suffered from a lack of regular or periodic maintenance resources over many years and they too contribute to the erosion and drainage concerns of the overall trail system.

As the city has grown around the park, an increase in non-permeable surfaces such as city roads, park roads and parking lots have developed. Stormwater runoff from these paved surfaces has caused serious erosion on many park trails. It became necessary to find a quick fix to the heavily eroding trails. Waterbars and check dams (discussed further under retaining structures) were the go-to solution starting in the mid-1970s and are still used today. Unfortunately these solutions require constant maintenance and provide a short-term solution to a much larger problem. To create a sustainable trail system, longer-term solutions need to be considered as part of the trail rehabilitation plans. These solutions must include a comprehensive review to locate the point source for water drainage issues, such as curb failure or storm inlet failure on adjacent roads. Correcting these larger problems will allow trail drainage to be implemented in a more sustainable manner, minimizing staff resources for maintenance and resource damage to the surrounding landscape. The following points provide the foundation behind a sustainable trail drainage system and should be incorporated into all new trail rehabilitation efforts.

- Water: Work with it not against it!
- Sheet flow runoff is not diverted or accumulated and is allowed to continue on its normal flow path.
- Drainages are not captured, diverted or coupled with other drainages by the trail.
- Water is not allowed to accumulate on the trail and is not drained off onto the landform where natural drainages do not exist.
- Adjacent road drainage is diverted away from trails.

## CULVERTS

**Culverts** are a type of vessel used to channel water underneath a trail. Typically, a pipe, stone or brick structure is constructed or placed with a round or half-round opening along the centerline of a stream or ephemeral stream that crosses the path of the trail. The vessel is then covered with soil and sometimes, features headwalls on the up and down stream sides. This construction creates a seamless route for the trail to cross a stream.

### TREATMENT GUIDELINES

- **Maintaining Character**
  The culverts and their stone headwalls are the most documented small-scale feature from the trail system. The culvert headwalls and stone retaining walls along trails are the same style as the roadway culverts built between 1900 and 1930. The culverts were constructed of concrete and tied into stone retaining headwalls. The headwalls are stacked native stone walls with mortar joints and a few dry-stacked. They represent the Army Corps of Engineers design intent of creating rustic style structures that are reflective of the natural surroundings. Many of these stone culvert headwalls persist along the trails today and contribute to the historic significance of the trail system. Culverts from the 1950s through today tend to be constructed out of concrete, corrugated metal or PVC pipes without headwalls and are non-contributing features.

  The stone headwall from the historic culverts enables the culvert to be easily identifiable and helps support the structure of the trail at the culvert. Many instances of culverts without headwalls have issues with the trail or side slope falling into the outfall of the culvert creating a blockage or dam in front of the culvert.

  To maintain the historic character of the trail system and to improve the function and maintenance requirements for all culverts, a stacked stone headwall in character with the historic stone headwalls is required for all new culverts over 6 inches diameter. The culvert pipe should be concrete for diameters over 6 inches. Smaller culverts less than 6 inches diameter may be non-flexible PVC without headwalls. All existing metal pipes should be replaced with concrete pipes as they fail.

### SPECIFICATIONS

- **Stone Headwall**: Construct a stone headwall (see retaining structures) on both sides of the culvert at the outfall and inflow. Culvert should penetrate thru the headwall and provide a continuous flow for water to enter and exit culvert. The headwall should penetrate 6 to 12 inches above grade on the trailside of the wall. The ends of PVC pipes do not require headwalls, but they should be well hidden from the trail and may require loose stone strategically placed to conceal the pipe at the inflow or outflow.

- **Pipe**: The pipe culvert should be concrete if diameter is larger than 6 inches or white hard PVC for pipes 6 inches diameter or smaller. Avoid the use of flexible PVC pipes as they have a tendency to fail structurally. A



**Figure 10.1**
**(Top left) Typical historic culvert with stone headwall and (top right) as viewed from trail. (Bottom left) Typical metal pipe culvert. (Bottom right) Typical PVC culvert showing signs of collapse at end. NCR CLP, 2011.**

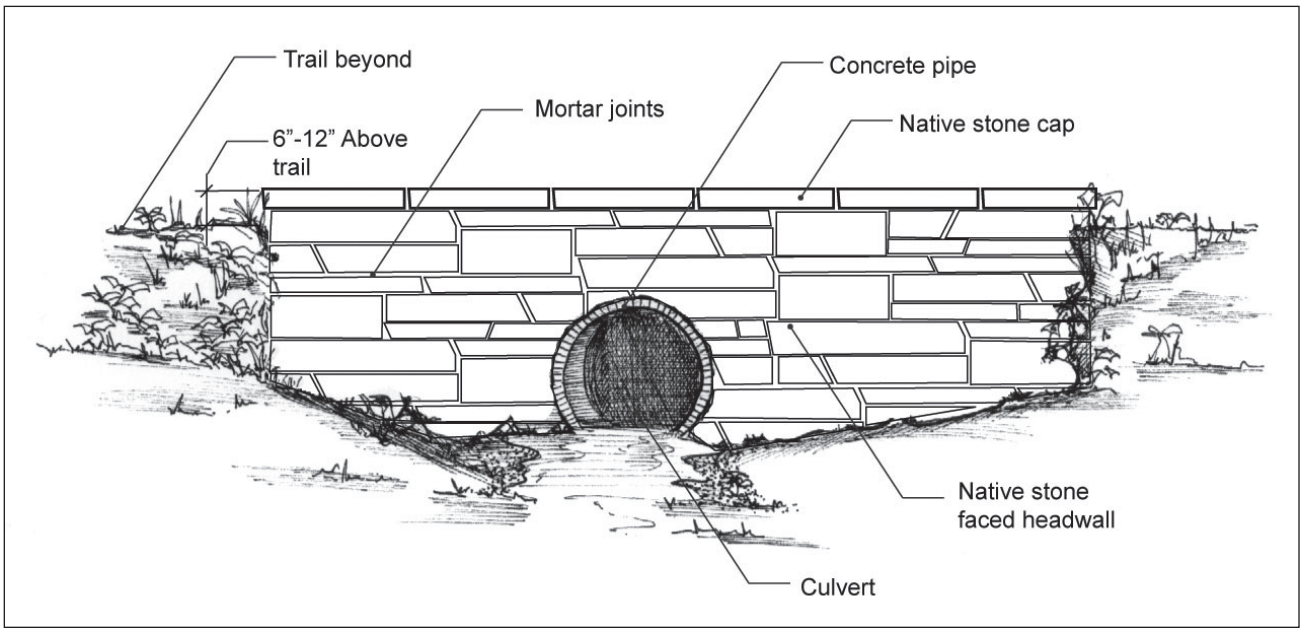



**Figure 10.2**
**Elevation of concrete culvert with stone headwall. NCR CLP, 2012.**



**Figure 10.3**
**(Top) PVC culvert clogged and in need of cleaning, (middle) clogged stone and concrete culvert, and (bottom) historic stone and concrete culvert clogged and in need of cleaning and repair. NCR CLP, 2011.**

civil engineer is required to size all culvert pipes based on calculating the flow of water to be conveyed through the culvert. The pipe placement is critical to maintain unimpeded flow into, through and out of the pipe. A minimum of 1.5% slope is allowed for all culvert pipes, consult engineer for best grade placement of culvert pipes.

- **Cover**: Fill over pipe culvert with a minimum of 6 inches of soil and tread material. The pipe could extend well past the edge of the trail; maintain the minimum cover requirements for the entire length of the pipe.

### ROUTINE MAINTENANCE

1. Inspect all culverts annually and after major storm events for loose or damaged stones, clogged pipes and exposed or damaged pipes. Maintain culverts free of debris, dirt and stones.
2. Repair all damaged pipes as needed.
3. Clear pipe passage from all leaves and other debris as needed.
4. Replace broken stones and repair cracked mortar with park approved mortar and pointing as needed.
5. Inspect outfall locations and look for signs of erosion. Reinforce outfall with large stones and aggregates as needed to prevent erosion. If erosion problems persist, consult with civil engineer for design solutions.
6. Reset any dislodged pipes and re-tread trail as needed.

## ROLLING GRADE DIPS

**Grade Dips** (or grade reversals) are a method of working with the natural folds within the terrain of steep side hill trails by descending the grade into low points and then slowly reversing the grade to divert water off the trail.

It is best to survey grade dips into the design of a new trail, but rolling grade dips can be used to effectively drain water off existing trails. The design of rolling grade dips with long gentle and shallow slopes is hardly noticeable in the landscape, and therefore has the least effect on trail character of all drainage solutions. They are relatively maintenance free; leading many trail managers to use them frequently as a replacement for the more intensively maintained waterbars. The barrier free drainage provided by grade dips make them ideal for use on universally designed trails, allowing wheelchairs to roll in and out of the dips unaffected (seeFigure 10.5).

### TREATMENT GUIDELINES

- **Maintaining Character**
  Rolling Grade Dips have not been widely utilized on trails in Rock Creek Park, but their incorporation into the trail system will provide a tool for improving trail drainage, minimizing trail maintenance, and improving trail character. Many of the steeply sloping trails in the park currently use waterbars for dealing with drainage issues. Waterbars are a contemporary treatment method and negatively impacts the historic character of the trail system by adding a structural object into the trail profile, they also required regular maintenance to clear built up sediment from behind the waterbars.

  Rolling Grade Dips are the preferred alternative for treating surface drainage problems on existing trails. Consider the use of other drainage treatment only after exploring the feasibility of installing a rolling grade dip. Study trails with extensive waterbar use to explore the replacement of waterbars with rolling grade dips.

  An effective grade dip requires lower ground adjacent to the trail allowing water a place to drain.

### SPECIFICATIONS

- Locate grade dips in areas where a trail crosses an ephemeral drainage swale or folds in the terrain. Utilized grade dips along the mid-slope of a trail and do not use at the top of a grade.
- Descend the trail with a slight increase from the prevailing grade into the low point along the trail and then gently reverse the grade out of the low point to create a rise in elevation to approximately one foot. Return to the prevailing grade to continue the trail's descent.
- Determine height of dip to enable water to divert off the trail and to withstand the impact of use by hikers or horses.

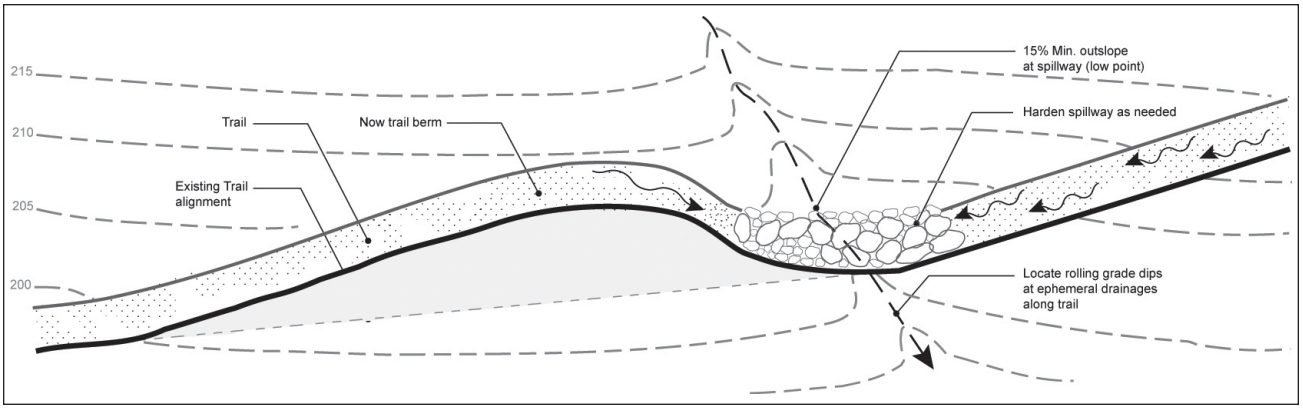



**Figure 10.4**
**Detail of a rolling grade dip. NCR CLP, 2012.**

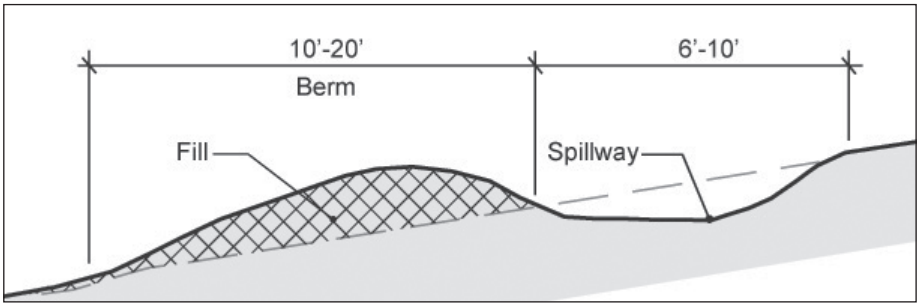



**Figure 10.5**
**Trail cross-section of an existing rolling grade dip. NCR CLP, 2012.**

- Outslope the grade dip directing water to the spillway (or low point). At the spillway, increase outslope to about 15%.
- Armor excessively steep spillways with course rocks to resist scouring.
- Locate the spillway so that the drainage does not reenter the treadway. Ideally, locate spillway to drain into a swale or ditch that is diverted away from the treadway.
- Angle the spillway at approximately 45 degrees across the trail.
- Do not construct grade dips in locations where the outflow of the spillway will direct sediment into active streams.
- Incorporate enough grade dips into a trail so that water does not build up enough volume and velocity to erode tread off the trail.

## ROUTINE MAINTENANCE

1. Inspect and clean rolling grade dips annually and after severe storms. Verify grades and rebuild if necessary to maintain original slopes into and out of grade dip as well as the outslope.
2. Monitor success of each grade dip. For dips that continue to fill with excessive silt, re-grade with steeper slopes. If scouring or erosion at the spillway is noted, reinforce spillway with course rocks or re-grade dip with shallower slopes. If problems persist after correcting slope grades, replace grade dip with an alternative drainage structure.

## KNICKS

*(*from *USDA Forest Service, Trail Construction and Maintenance Notebook*, 2007*)*

A **knick** is an effective outsloped drainage swale that is constructed into existing trails.

### TREATMENT GUIDELINES

- **Low Wet Spots**
  Flat portions of trails have a tendency to form puddles or low wet spots that create the potential for modifying trail character. Hikers tend to avoid these wet spots by walking around them and widening the trail and by stepping along the edge of the trail creating tread creep. Standing water left on trails also tends to weaken the trail tread and backslopes leading to slope and tread failure.

  Maintain positive drainage on flat trails by incorporating relatively invisible knicks where needed.

### SPECIFICATIONS

- Knicks must have lower ground adjacent to the trail to direct the water.
- Construct a squashed semi-circle about 10 feet long and protruding just off the downhill side of the treadway.
- Re-grade the semi-circular area to have a center outslope (slight swale) of about 15% to direct water off the trail. Smooth all contouring; knicks should have gentle slopes that are unnoticeable to users.
- Optional: Place a few larger stones at the outfall of the knick to dissipate water as it escapes the trail tread.

### ROUTINE MAINTENANCE

1. Inspect and clean knicks annually and after severe storms. Verify grades and rebuild if necessary to maintain original slopes into and out of knick as well as the outslope.

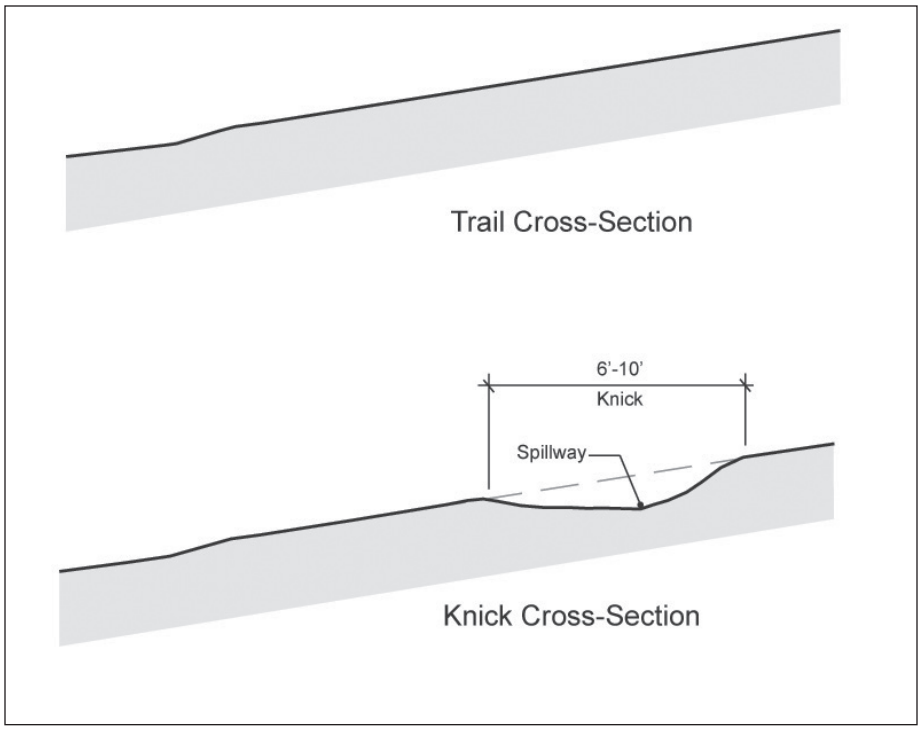



**Figure 10.6**
**Knick cross-section.**

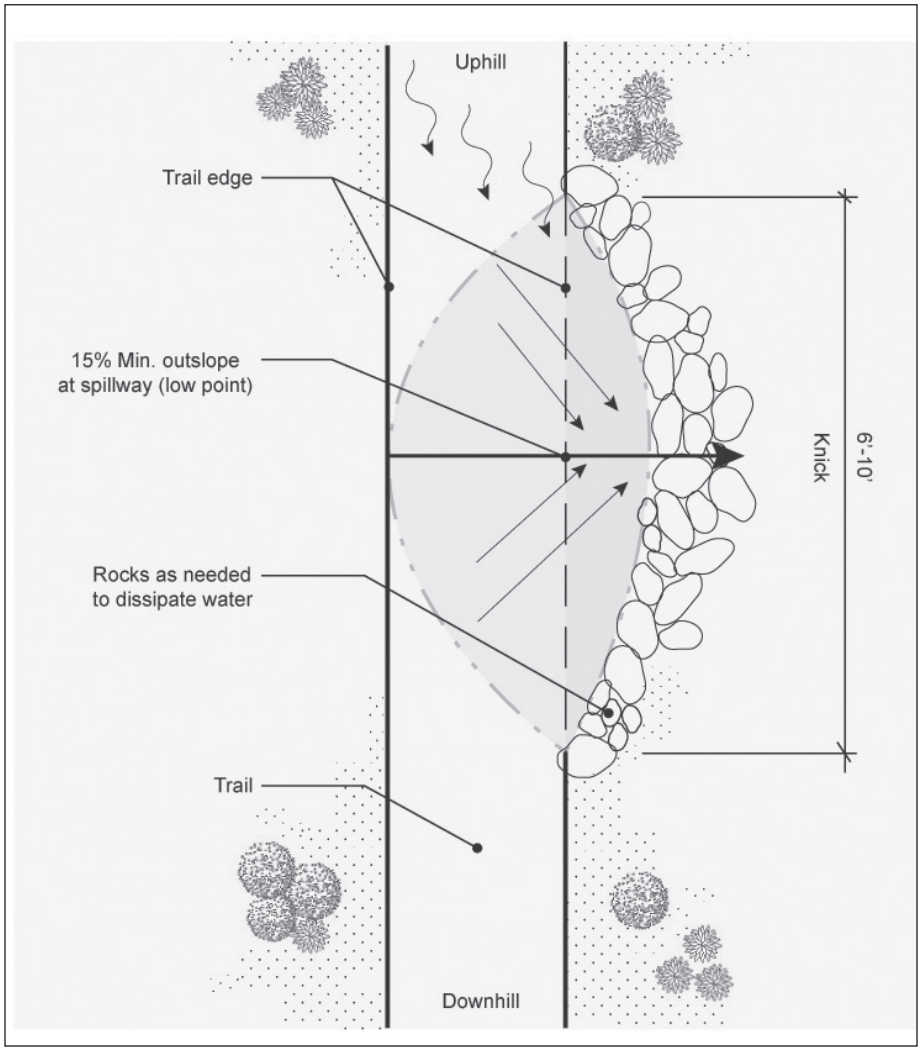



**Figure 10.7**
**Plan detail of knick. NCR CLP, 2012.**

## DRAINAGE LENS

**Drainage lenses** are similar to a French drain, but in a horizontal alignment. They are a drainage solution for low saturated soils with muddy unstable tread and saturated soils crossing an ephemeral spring or seep.

### TREATMENT GUIDELINES

- **Solution for Low, Muddy Saturated Soils**
  Low wet spots along the trail create problems primarily of trail widening in these areas by hikers circumventing the wet area and creating a social trail or just a wider trail. Trail widening creates impacts to natural resources by encroaching into the adjacent woodland and it increase drainage problems through the increased exposed area of trail.

  A Drainage lens can provide a treatment option to improve drainage in low saturated areas along the trail.

### SPECIFICATIONS

- **Area Preparation**: Work the existing grade to maintain a smooth outslope, minimum of 5% grade.
- **Base layer**: Place a layer of non-woven geotextile fabric across the saturated area of trail.
- **Drainage Layer**: Fill area with a minimum of 3 inches of angular quarry rock to form the lens layer. The base of the aggregate should extend slightly further than the trail width.
- **Separation Layer**: Cover aggregate layer with a woven geotextile fabric.
- **Tread Fill**: Cover geotextile layer with gravel or soil tread mix and compact surface. Slope tread grade to meet existing trail elevation, maintaining a gentle and subtle slope with a minimum of 5% outslope on the trail. Verify geotextile fabric is fully covered.

### ROUTINE MAINTENANCE

1. Inspect drainage lenses on an annual basis and repair as needed.
2. Verify geotextile fabric remains covered by soil and rock.
3. Verify rocks and soil tread are stable and in-place, replace as needed.
4. Clean out any leaves or debris on the uphill side of the drainage lens to maintain good water flow.

## CHECK DAMS

Check dams are used to restore tread on severely eroded and entrenched trails. Wood or stone is placed perpendicular across the trail and raised similar to a step to prevent further erosion and allow silt to build up behind the structure. They are best used to restore abandoned trails, but can be used to re-contour old tread on foot trails. They are not suitable for use on bridle trails or bike trails.

### TREATMENT GUIDELINES

- **Maintaining Historic Trails**
  Many of the historic trails at Rock Creek Park are located on unstable soils along the fall line slope of a hillside. These trails tend to have severe washout of tread surface material and have developed deep eroded gullies.

  Check dams are available tools that can be used to restore and maintain poorly designed historic trail alignments to their original grade and preserve the historic character of the trail.

### SPECIFICATIONS

- **Material**: Use 4 inch by 12 inch untreated dimensional lumber long enough to expand 12 inches on each side of the trail tread. A 4-foot trail requires a 6-foot-long check dam.
- **Placement**: Place dimensional lumber a minimum of 6 inches into the uphill side of the trail perpendicular to the flow of travel. Maintain 6 to 10 inches above the trail tread on the downhill side. Embed a minimum of 12 inches into the undisturbed side embankments to keep water from running around sides of check dam.
- **Reinforcement**: Secure check dam with two to three #4 rebar, 24 inches long.
- **Spacing**: The spacing between check dams varies according to the steepness of the old grade and the level of restoration desired. Always place check dams evenly apart along trail.
  - Determine height of desired trail restoration. Severely eroded and gullied trails will need a phased approach with 10-inch maximum grade increases per phase.
  - Determine the overall rise of the existing trail in inches.
  - Divide the overall rise by the height of the check dam riser (between 6-10 inches). Example: A 5-foot trail rise with 6-inch check dams would require ten check dams. (60” / 6” = 10)
  - Determine the length of trail segment and divide by the number of required check dams for the distance between checks. Assume the trail segment example is 50 feet. Divide 50 by 10 for a check dam spacing of 5-feet apart.

    - Do not use check dams on grades greater than 25%, in these situations steps or terraced steps are more appropriate.

- **Backfill**: Once they are firmly set in place, backfill on the uphill side of check dams with small stones.

#### ROUTINE MAINTENANCE

1. Inspect check dams annually to verify they remain firmly set into the trail.
2. If checks dams are not holding fill, evaluate slope to determine if the slope is too steep for check dam use. Consider other trail treatment options such as steps or terraced steps.
3. Install a second tier of check dams after first tier is full of soil and sediment. Stagger each tier of checks so that the second layer of check dam is halfway between two check dams on the first layer.

## WATERBARS

A **waterbar** is a drainage structure that uses a log, dimensional lumber, or a row of stones to create a small angled dam across a trail. As water moves down the trail and hits the waterbar, it is diverted off the lower side of the trail. Most trail managers discourage the use of waterbars and prefer the use of rolling grade dips. The USDA Forest Service published the following about grade dips and waterbars in their *Trail Construction and Maintenance Notebook*:

> **Dips Are In, Bars Are Out**
>
> For existing trails with water problems, we encourage the use of rolling grade dips or knicks instead of waterbars. Here's why. By design, water hits the waterbar and is turned. The water slows down and sediment drops in the drain.
>
> Waterbars commonly fail when sediment fills the drain. Water tops the waterbar and continues down the tread. The waterbar becomes useless. You can build a good rolling grade dip quicker than you can install a waterbar, and a rolling grade dip works better.[1]

### TREATMENT GUIDELINES

- **Maintaining Character**
  It is unknown when waterbars were first installed on trails in Rock Creek Park, but they can be generally assumed as a contemporary structure. It is possible that they originated in the park by the 1970s when the Potomac Appalachian Club began assisting with maintenance on the foot trails. Waterbars provide a much needed means to mitigate erosion and tread loss from trails with poor drainage, however it negatively impacts the historic trail character by adding a structural feature that is not compatible with the historic trail.

  To preserve many of the historic alignments without any reroutes, drainage features such as waterbars are required. Other drainage structures such as the rolling grade dip can often solve the drainage problem with minimal impacts to trail character and should be considered a preferred option. Replace existing waterbars with rolling grade dips to improve historic trail character. Limit use of waterbars for areas where rolling grade dips will not sustain mechanical wear. Consider a trail reroute for trails with extensive use of waterbars.

- **Tripping Hazard**
  Waterbars create a tripping hazard for high use foot trails and bridle trails. They also create a step in trails and are not suitable for universal access.

  Waterbars should be removed from all bridle trails and foot trails designated for universal access. Identify the source of the stormwater runoff and correct problems where they first occur, such as milling roads to expose buried curbs or correct failures in curbing or drainage structures. Once runoff source is solved, assess the trail for possible improvements to mitigate the loss of the waterbar. This may include replacing waterbars with rolling grade dips, improve trail outslopes or consider slight reroutes. If a reroute is deemed appropriate, consultation with the cultural resources specialist is required. Avoid adding any new waterbars to bridle trails or designated universal access trails.

**SPECIFICATIONS**

- **Bar**: Use 8 x 8 pressure treated dimensional lumber in a length long enough to span entire width of trail plus approximately 12 inches on either side of the trail. Use 24 inch long rebar #7 or #8 embedded into bar, flush with top.

- **Apron**: Grade approximately 5 feet of the uphill tread to slope toward the waterbar and to leave approximately the top 4 inches of the bar exposed. This portion of tread sloped toward the waterbar is called the apron. It should have a 5% to 8% outslope that flares the tread, and water, out from the edge of the trail. The apron ends up looking similar to a funnel shape with the wide end at the waterbar. To slow water before it hits the waterbar, begin to reverse the grade of the apron upward toward the waterbar about 1 foot uphill. In other words, create a slight swale about 1 foot uphill from the waterbar. Grade the center of the swale 6 – to 12-inches below the top of the waterbar.

- **Bar Placement**: Angle all waterbars across a trail toward the outslope side of the tread. For trails with less than 15% slopes, angle waterbars across the trail set at 20 to 30 degrees. For trails with 15% to 20% slopes, angle the bar 45 degrees.

  Select a location for a waterbar along the trail that allows the water to outflow into natural drainage channels.

- **Outlet Ditch**: Dig an outlet ditch beginning at the low point of the apron and continuing downhill away from the trail, typically perpendicular from the trail or in line with the waterbar angle. "Steep sideslopes may not require ditches at all, while a waterbar ditch on a moderate hillside may extend several yards or more. Cut each ditch wider than the blade of a shovel to facilitate easy maintenance in years to come. On steeper slopes, stones placed below the end of the ditch will dissipate the force of exiting water and help protect the downslope from erosion."[2]

- **Securing Downhill Side of Bar**: Place and pack any soil removed during construction on the downhill side of the waterbar. This helps to stabilize and reinforce the waterbar while minimizing the hurdle of the step over the structure.[3]

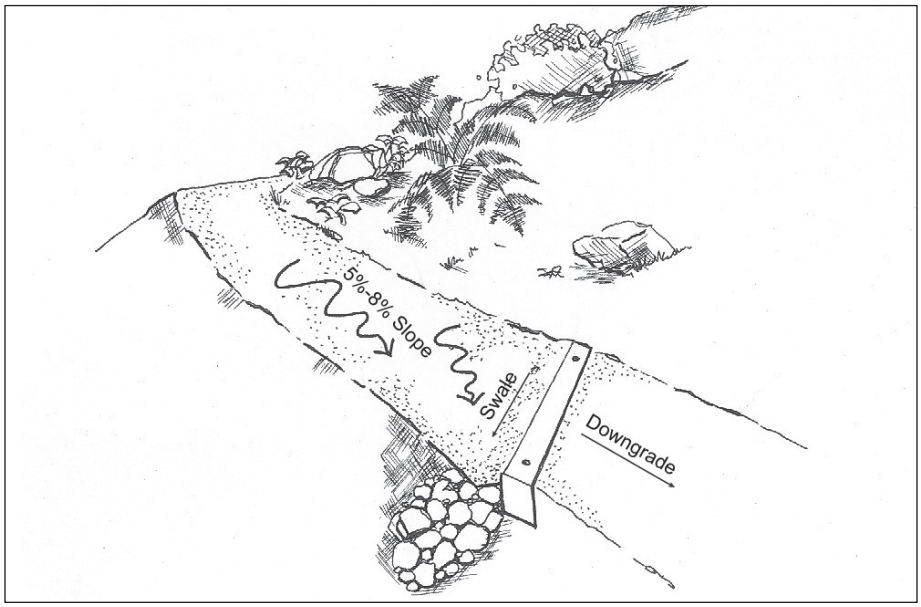



**Figure 10.8**
**Diagram of a waterbar. NCR CLP, 2012**

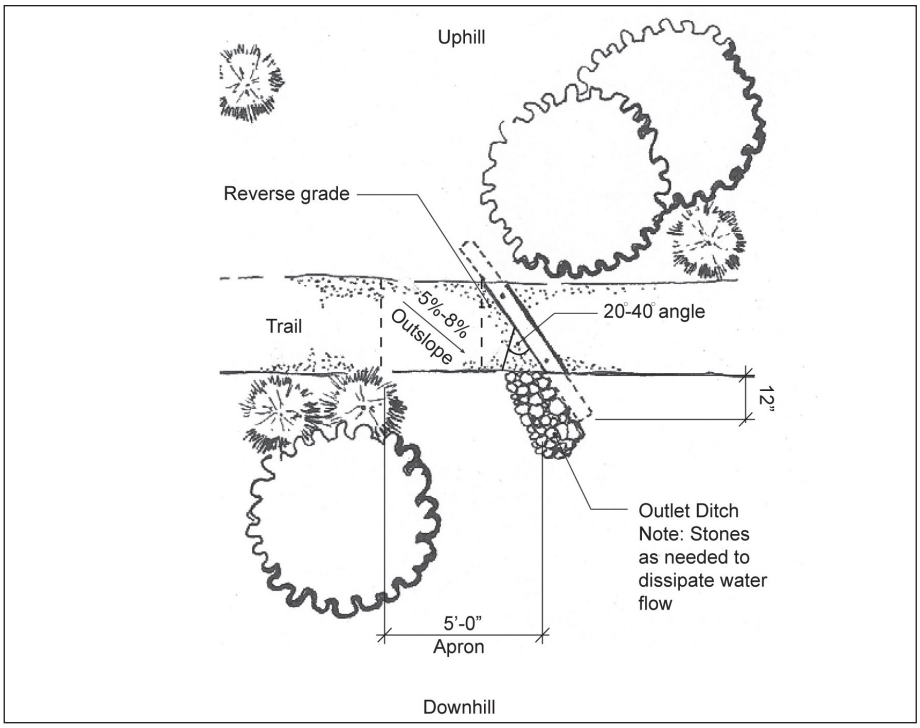



**Figure 10.9**
**Plan detail of waterbar. NCR CLP, 2012.**

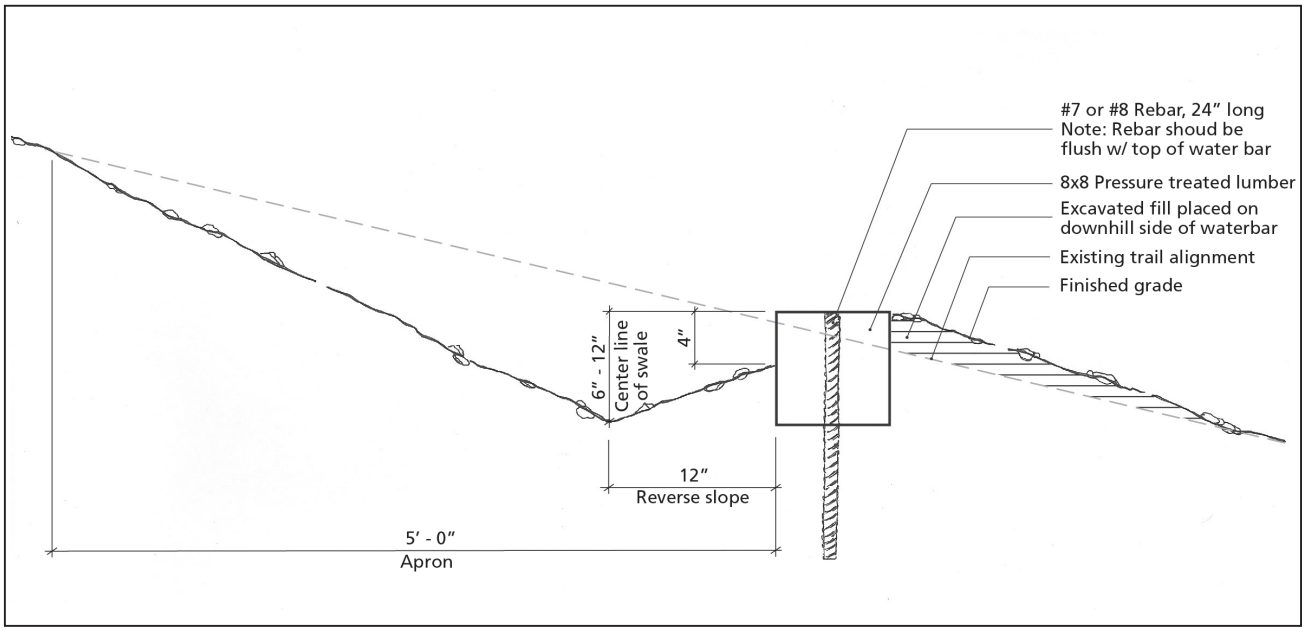



**Figure 10.10**
**Cross-section detail of waterbar. NCR CLP, 2012.**

### ROUTINE MAINTENANCE

1. Inspect waterbars quarterly and after severe storms. Clean out sediment from uphill side of bar as necessary.

2. Thoroughly dig deposited sediment from apron swale for a minimum width of two shovels blades wide. Place dug out sediment on downhill side of waterbar and pack down. Take care not to dig apron out too deeply and maintain the 4-inch depth of waterbar above grade.

3. Reset timber bar if loose or missing. Replace timber waterbars that are showing signs of decay or rotting.

4. If waterbar continually fills quickly, reset the bar at a 45-degree angle. If water continues to scour the apron or outfall ditch, reset the bar at a shallower angle.

ENDNOTES

1 *Trail Construction and Maintenance Notebook*,. Missoula, MT: USDA Forest Service, Missoula Technology and Development Center, <http://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232806>

2 Robert C. Birkby, *Lightly on the Land: The SCA Trail-Building and Maintenance Manual* (Seattle: The Mountaineers, 2005), 162.

3 Birkby, 162.

# CHAPTER 11: CROSSINGS

The most prolific features along the trail system are the various types of stream crossings. Stepping-stones and non-paved fords at ephemeral stream crossings are traditionally used along the trail system. Some of these may have shifted or disappeared as the creek and trails changed course. Modern practice has moved away from ford crossings, but stepping stone crossings can still be found along several trail routes, especially when trails cross the small tributary streams. These crossings evoke the informal trail style of the historic routes and are contributing to the historic trail system. Other areas required small bridges or boardwalks constructed in a rustic style. The only documentary evidence we have found of bridges before 1935 are of larger scale rustic log bridges crossing Rock Creek. These bridges have since been replaced with concrete and steel bridges during the mid-1930s and are discussed in the buildings and structures section in the Existing Conditions and Analysis and Evaluation chapters of this report. Based on the use of the rustic style for all the other features prior to 1935, we can deduce that any small-scale wood bridges constructed prior to this period were of similar rustic design style.

**NPS Management Policies, 2006:**

Trail bridges may be used for crossing swift waters areas prone to flash-flooding, and other places that present potential safety hazards. Less obtrusive alternatives to bridges (such as, fords) and trail relocation will be considered before a decision is made to build a bridge. A bridge may be the preferred alternative when necessary to prevent stream bank erosion or protect wetlands or fisheries. If a bridge is determined to be appropriate, it will be kept to the minimum size needed to serve trail users, and it will be designed to harmonize with the surrounding natural scene and be as unobtrusive as possible.

## BRIDGES AND BOARDWALKS

### TREATMENT GUIDELINES

- **Maintaining Character**
  Historically, bridges in Rock Creek Park evolved from extreme rusticated bridges to the park rustic style depicted in Albert Goode's sourcebook *Park Structures and Facilities*, to wood bridges with no discernible style. The historic period's bridge character is best represented in the design of the four 1934-1935 park rustic style footbridges crossing Rock Creek: Boundary Bridge, Rolling Meadow Footbridge, Riley Springs Footbridge and Rapids Footbridge. These character-defining footbridges are constructed of concrete or stone and concrete structures with metal, concrete or decorative wood railings. While these bridges are built with different materials, the style and character is of the same family. Typically, for these and a majority of smaller bridges, the railings include only two or three horizontal rails with openings as wide as 1 or 2 feet between rails.

  Current building codes require guardrails with tighter openings and required heights. New bridge construction is required to meet current building codes while maintaining a compatible character with the historic bridges over Rock Creek. New bridge railings will need to have a modified design with openings less than 4 inches or a wire screen added behind similarly designed rails.



**Figure 11.1**
**OPBG rustic foot bridge in Rock Creek Park. NCR CLP Files Bridges 10-28, 2012.**



**Figure 11.2**
**OPBG Rustic foot bridge in Rock Creek Park. NCR CLP Files Bridges 10-27, no date.**



**Figure 11.3**
**Detail of bridge railing, Rapids Bridge. HAER, 1993.**

- **Material Finishes**
  Many of the bridges constructed in recent years have an unpainted and weathered finish for railings that is not compatible with the historic character of the trail system. The historic bridge railings were finished with a dark paint or stain that helps blend the structure into the natural surroundings. The bright tones of milled lumber for newer bridge elements stand out too much and distract from the landscape.

  Paint or stain all new wood bridges and boardwalks in a manner to blend the structure into the surrounding landscape. Utilize solid stains and paints for all visible vertical surfaces and minimize use of clear or semitransparent stains for decking.



**Figure 11.4**
**NPS rustic foot bridge, Rapids Bridge. NCR CLP Files, Bridges 10-29, ca. 1936.**

**SPECIFICATIONS**

- **Bridge & Boardwalk Structure**: A qualified structural engineer shall design all bridge structures to meet load, span, and external stress requirements. Structural members of the bridge can be wood, steel eye-beams or concrete depending on the span and load requirements.

- **Elevation**: All bridges crossing intermittent and perennial streams shall be designed to minimize flood damage to the bridge. This could include locating the bridge outside the 100-year flood plain or designing the structure to withstand the expected annual flood level.

- **Railing**: Bridges and boardwalks are all required to maintain a curb rail, handrail or guardrail depending on the conditions of the particular site. These requirements are based on the 2006 International Building Code (IBC) and guidelines from the 2004 Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines (ADA and ABA Accessibility Guidelines). The following lists the critical elements for each type of rail system, but refer to the actual code or guideline for additional requirements.

  ° Guardrails are required on all bridges with drops greater than 30 inches. Top of guardrail must be a minimum of 42 inches above the bridge walking surface. Openings in guardrails must not allow a 4 inch diameter sphere to pass through the lower 34 inches of the guardrail and an 8-inch sphere must not pass through the upper guardrail, between 34 – 42 inches.

  ° Curb Rails are a low raised edge along the sides of a bridge or boardwalk used as a visual and physical guide for hikers, horses and cyclists. They are required on bridges with drops less than 30 inches and on all boardwalks. A curb rail is required to be a minimum of 2 inches above the walking surface along both edges of the deck.

  ° Handrails are single rails between 34-38 inches above the walking surface and are required for all boardwalk ramps with a rise greater than 6 inches. They are required on both sides of the ramp and shall be continuous for the full length of the ramp run. The gripping surface of handrails shall have a maximum cross-section of 2 ¼ inches, 2 inches if circular. They shall have rounded edges and be free of any sharp or abrasive elements. Handrails shall extend horizontally above the landing for 12 inches minimum beyond the top and bottom of ramp runs and return to a wall, guard or landing surface.

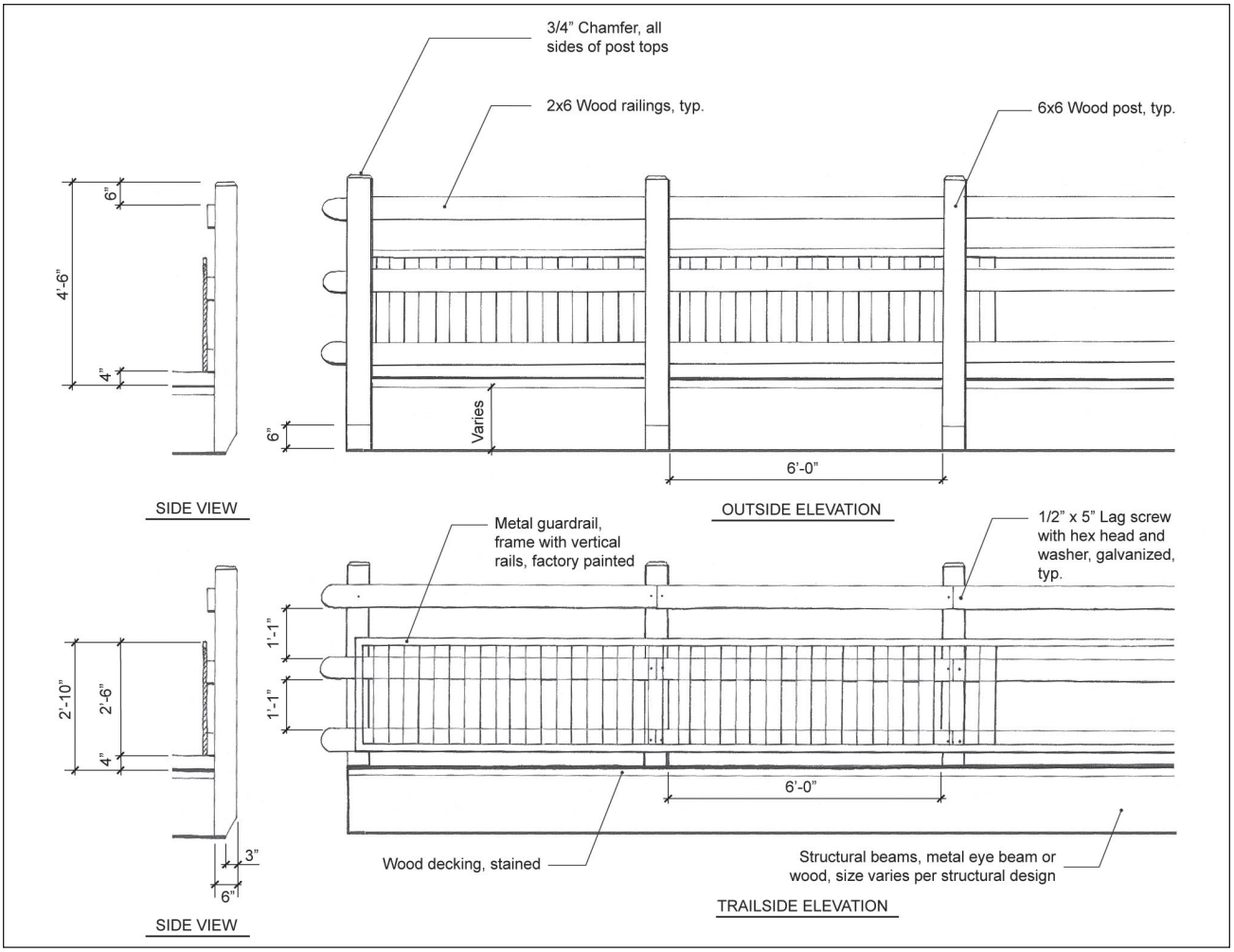



**Figure 11.5**
**Bridge railing detail. NCR CLP, 2012.**

- **Decking**: Major bridges over Rock Creek may utilize concrete or wood decking and all other trail bridges should utilize rough sawn lumber for decking materials. Provide 3-inch thick by 8-inch wide planks for bridle trail bridges and 2-inch thick by 6-inch wide planks for bike and foot trail bridges. All plank decking should be laid perpendicular to the travel way.

- **Materials & Finishes**: Select bridge and boardwalk materials that complement existing historic bridges and blend well with the natural landscape.

    - Wood is the primary building material for all bridge and boardwalk crossings and is to be certified by the Forest Stewardship Council (FSC) or the Sustainable Forestry Initiative (SFI).

        - Use rough sawn hewn lumber for all wood bridges and boardwalks. Visible wood members should be lightly sanded to remove splinters, rough knots, sharp edges and to smooth overall surface.

        - Use pressure-treated wood rated by the American Wood Protection Association (AWPA) for ground contact (UC4A) or better for all wood substructures. Do not use chromate copper arsenate (CCA) pressure-treated wood on any bridge structures.

        - Use decay resistant or above ground rated (UC3B) treated wood for decking and other superstructure members.

- Use Eastern White Pine for all guardrails, posts and railing wood members.
- Protect wood from water and sunlight prior to delivery and while stored at the construction site. Avoid any contamination with dirt, oil, or other contaminants.
- Finish wood immediately after installation.
- Protect all wood from water, mildew and decay by applying a liberal coating of water repellent preservative (WRP) to all end grain surfaces and any area vulnerable to water. Prior approval from NPS Integrated Pest Management is required before using any WRP or semitransparent stains. Cautions are required to protect adjacent plants and soil surrounding work site from accidental contamination from WRP.
- Finish all visible vertical wood members with one coat oil-alkyd or latex primer and two coats of solid color stain or paint. Use a medium brown color matching existing wood bridges for stain or paint.
- Finish all decking with two coats of an oil based semi-transparent stain. Apply stain keeping wet edges to prevent lap marks and apply second coat before first coat completely dries. Once the first coat dries, it will prevent the second coat from penetrating the wood.

° Fasteners: Use galvanized (or comparable non-corrosive material) nails and bolts for fastening wood members. Pre-drill holes for nails and bolts to prevent splitting wood.

° Steel Beams: Use non-corrosive steel with a painted brown finish.

° Guardrails: Constructed of standard weight steel bars and tubing free from surface blemishes and color coated to match NPS specifications for standard brown color.

- **Ramps and Approaches**: When there is a required elevation change from the trail walking surface to the bridge walking surface, a ramp is required. In very rare circumstances, on foot trails only, steps may be utilized after an analysis determines this to be the least intrusive on the landscape. Included in the analysis will be whether access to the specific bridge is limited, remote or only accessible by steps or extreme slopes. Steps are not permitted for bridge approaches on trail routes that are designated or have the potential to be designated for universal access. Grade and construct all approach ramps out of the same material as the trail tread or match deck planking. Provide approach rails to match bridge guardrails on all horse trails. Approach rails help to guide horses onto the bridge and keep them from searching alternate routes.

- **Re-vegetation & Clean-up**: Maintain the work site clean and free of debris during and after construction. Properly dispose of all remnant pressure treated material off-site. Maintain silt fencing for sediment and erosion control along stream banks and remove once construction is complete. Restore all disturbed areas after construction with review and approval of re-vegetation plantings by a landscape architect and natural resources specialist.

See Figure 11.5 for additional bridge details and specifications.



**Figure 11.6**
**Example of existing approach ramp for trail bridge. NCR CLP, 2011.**

## ROUTINE MAINTENANCE

1. A bridge or boardwalk lifespan can range from 20-100 years depending on selection of material, type of finish and maintenance. Bridges that reach 50 plus years of age are typically built from steel, concrete or carefully selected and graded timber treated with preservatives and finished with protective coatings of WRPs, moisture repellent semitransparent stains and coatings. To increase the lifespan of all park bridges and boardwalks, it is imperative to develop an annual inspection and maintenance plan.

    a. Inspect superstructure, substructure, and railings for decay and structural integrity.

    b. Inspect abutments for shifting or failure.

    c. Check decks and railings for raised nails, splintering, or paint chipping and pealing. Replace nails or hammer flush as needed. Sand or remove splintering or splitting wood pieces. Touch-up chipped or peeling paint / stain areas as needed.

    d. Inspect approach tread and re-grade as needed to maintain smooth consistent slopes that meet bridge deck with minimal transition.

2. Replace any decaying wood member as needed and finish per specifications.

3. Replace entire bridge or boardwalk deck once indication of decay is noticeable in the first plank.

4. Re-stain deck planking every 3-6 years depending on wear of stain.

5. Clean out any dams or jammed logs from below the bridge, along piers and abutments, and surrounding banks.

6. Routinely clean bridge and boardwalk decks of fallen leaves and debris.

## STEPPING STONES

**Stepping stones** are a line of individually placed stones within the stream to provide an elevated walking surface for crossing. Stones are typically large with flat upper surfaces and are placed an easy stride distance apart to allow comfortable stepping and water to flow between stones.

### TREATMENT GUIDELINES

- **Stepping Stone Use**
  The park's early years had limited funding for trail development and structures such as bridges were limited to major crossings. As a result, fords, log crossings and stepping stones served smaller branch and stream crossings for both bridle and foot trails. Fords and log crossings have disappeared from the park with the exception of Milkhouse Ford, which remains in use along the Black Horse Trail. Stepping stones have persisted along foot trails for smaller stream crossings. The contemporary use of stepping stones support the historic character of the trail systems and provide a more challenging trail experience, but their use limits access to only more experienced and able bodied trail users.

  Extant stepping stones should be maintained and preserved unless the trail is upgraded for universal accessibility. Replace existing stepping stones per specifications below as needed to maintain a stable crossing. Avoid constructing any new stepping stone crossings as they create limitations on the type of user for that trail.

- **Approach Steps**
  Most of the extant stepping stone crossings require steps on the stream bank to access crossing. These steps are in poor condition and need replacement or repair.

  Develop a cyclic maintenance plan to inspect all crossing and approach steps. Follow guidelines for maintaining and constructing steps as outlined in Chapter 13: Steps.

- **Difficult to Follow & Identify**
  All of the streams within Rock Creek Park are rocky and have large boulders present. Many of the extant stepping stone crossings take advantage of these naturally occurring stones and utilize them for the stream crossing. This approach can sometimes be confusing for the hiker to know where the actual crossing should occur. There are often stair approaches and exits from the stream crossing, but they are not always in a straight line across the stream. As the stream channel dries up, the banks become wide and provide many opportunities for assumed landings on the banks to reach the stepped approaches.

  Providing safe, stable, and easy to follow stream crossings is important to keep hikers on the right trail, minimize stream damage and potential falls in the stream. To improve the ease of use for stepping stone crossings, large flat topped stones should be selected. Supplement naturally occurring stones with placed stones to create a definitive line of stepping stones. Strive for approximately 12 inches between each stone. Continue the stepping stones along the shallow banks all the way to the approach stairs. Place clear and visible blazes (see Chapter 14: Guidance) for the

trail on each side of the stream as close as possible to the approach stairs.

### SPECIFICATIONS

- **Stone Selection**: Select naturally occurring large stones that are securely located along the trail centerline. Ideal stones will be rectangular with flat topped surfaces and similar in size to supplemental stones. Add supplemental stones as needed along the trail centerline. Supplemental stones need to be similar in size as naturally placed stones and match as closely as possible to the color and texture of the existing native stone. Stones should be a minimum of 12 inches wide, 18 inches long, and roughly 6 inches above the typical water elevation.
- **Stone Placement**: Place stones in a uniform line, straight or curvilinear, with a level treadway. Provide equal spacing between stones, ideally 12 inches wide.
- **Stone Base**: Place supplemental stones directly in the streambed or on a stone base. Secure the stone or stone base by placing it below any organic soil on a firm and stable foundation along the centerline of the trail.

### ROUTINE MAINTENANCE

1. Inspect stepping stones four times a year.
2. Inspect crossing for any loose, shifted, or sunken stones.
3. Reset stones and rebuild footings as needed.
4. Clean out any debris or mud build-up behind stones as needed.
5. Monitor condition of approach steps and replace or repair as needed.



**Figure 11.7**
**Stepping stone crossing. NCR CLP Files, Rec 3-2, ca. 1890.**

# CHAPTER 12: RETAINING STRUCTURES

## RETAINING WALLS

**Retaining walls** hold back soil and provide a quick change in elevation by holding up soil behind the wall to the height of the wall. They are used on trails to reinforce backslopes and downhill slopes that are too steep to remain stable on their own, to retain the trail tread on steep side slopes, to enable quick grade changes at switchbacks or climbing turns, and to reinforce bridge abutments from stream erosion.

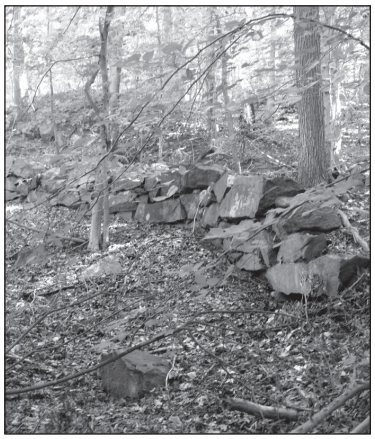


**Figure 12.1**
**Dry-stacked historic retaining wall from Old Blagdon Mill Road. NCR CLP, 2011**



**Figure 12.2**
**Historic stone retaining wall with mortar at Pinehurst Branch. NCR CLP, 2011.**

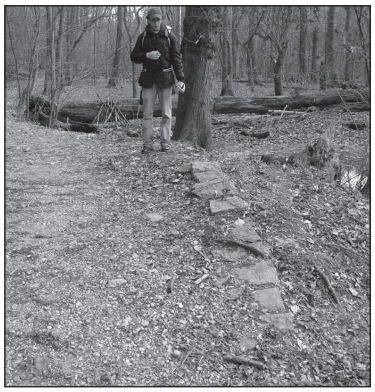


**Figure 12.3**
**Historic stone edging. NCR CLP, 2011.**

### TREATMENT GUIDELINES

- **Maintaining Character**
  Historically all retaining walls constructed in the park were stacked-stone or mortared stone retaining walls. The walls were typically either dry-stacked stone walls or faced stone walls with mortar joints constructed with locally quarried stone. These walls are found as part of culvert headwalls, bridge abutments and in limited locations along trail side-slopes. One of the best examples of the historic use and character of these stone retaining walls is found on an abandoned carriage road to hold the elevation change at a switch back. Contemporary construction methods have introduced dimensional-wood retaining walls. Neither wall type has a significant presence along the trail system.

  In order to maintain the minimally constructed character of the historic trail system, new uses of retaining walls should be minimized and considered carefully.

  - Maintain and preserve all extant historic stone retaining walls.
  - The wood retaining walls do not represent the character of the historic trail system; isolate any future use to areas not visible from the trail system.
  - When a retaining wall is required to preserve the trail alignment and minimize embankment loss, consider less visible means of retaining the embankment such as through hidden geotextile walls.
  - Construct stacked stone retaining walls when hidden geotextile walls are not a viable option. Utilize fieldstone or quarried stone to match color and texture of native stone found in the park.
  - Design any new wall to have as minimal a profile as possible.

- **Conflicts with Tree Roots**
  The nature of the trail system within a mature forest creates conflicts with structural needs of the trail and the structural needs of the forest trees. In some locations, tree roots are heavily exposed on side slopes

and across the tread. Constructing walls in these locations will typically create a conflict between the space needs for the wall footing and the tree's need for maintaining its root system.

Prepare a thorough analysis of all proposed locations for new retaining wall structures. Consider alternative wall locations, or trail rehabilitation solutions, such as the use of a "crush wall", that would minimize tree impacts. Include a natural resources specialist and arborist as part of the analysis team and identify all potentially impacted trees. Review the current health of the tree, size of the tree, and size of roots to be removed. The natural resources specialist and arborist will determine if the roots can effectively be removed without harming the tree. If determined to remove roots, the natural resource specialist and arborist will supervise and approve all ground disturbing work. If the roots are determined critical to the trees survival, an analysis of potential tree removal is then required. It may be more appropriate to consider slight alignment adjustments of the trail to avoid the tree altogether, but this decision will require the review and approval of the cultural resources manager.

- **Archeological Concerns**
  Rock Creek Park has substantial underground archeological resources. The construction of retaining walls and foundations has the potential for adverse impacts to these fragile resources.

  Consult with the cultural resources manager prior to any ground disturbing activity related to retaining wall construction or maintenance. Additional archeological survey work may be required prior to any ground disturbing activities. Allow ample time for cultural resources review as part of initial scoping plans for potential new retaining walls or maintenance work resulting in ground disturbing activities.

## SPECIFICATIONS

The following specifications are for four potential retaining wall types approved for use within the historic trail system. They include dry-laid stacked stone walls, stone faced walls with mortar joints, crush walls, and hidden geotextile walls. The use of any other retaining wall type requires prior approval from the cultural resources specialist.

### Dry-Laid Stacked Stone Walls

*(*adapted from *Acadia Trails Treatment Plan)*

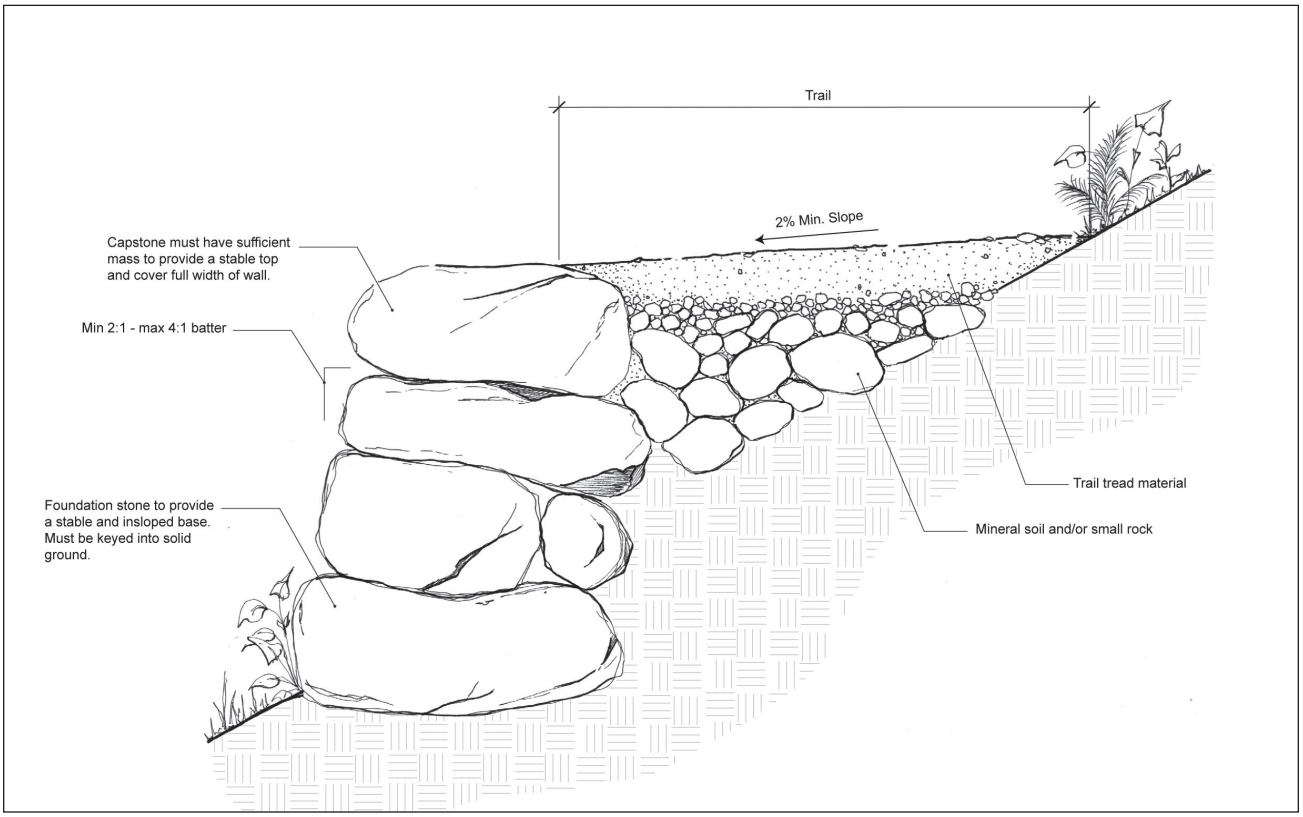
Dry-laid stacked stone walls are appropriate for use along the trails when short walls are needed to hold up a top slope or down slope. Wall heights should not exceed 2 feet without review and approval by a structural engineer. These walls are meant to have a batter and should not be utilized where a 90-degree vertical wall is required (see Figure 12.4).

- **Excavation**: The entire length and width of the retaining wall should be excavated a minimum 6 inches deep, until firm, stable soil or solid rock, free of organic material, is reached. The width of the base, and therefore the excavation channel, of a retaining wall should be at least one-third the height of the completed wall. The ground at the bottom of the excavated

area should be level or sloping slightly toward the interior of the wall, never sloping out. When building a wall in water, such as for a bridge abutment, the excavation and foundation should extend a minimum of 30 inches deep. If this is not possible, then the excavation should go as deep as practical.

- **Foundation**: The foundation is the first tier of the wall, which is partially or fully beneath the ground. It should project 4 inches or more beyond the face of the main wall. At least 50% of each front foundation stone should be directly beneath the main wall; these stones should be at least 12 inches long in the direction perpendicular to the wall. Foundation stones should provide a flat, or slightly in-sloping, top surface on which to lay the main wall.
- **Wall Face**: Stones should be chosen and laid so that an appropriate face is showing. If the desired face of a finished wall is to be smooth, then flat, even faces should show on each stone, and be flush at the fronts. If the face is to be rough, then rounded, sloping, or jagged faces can be used, and must be used at least part of the time. When a wall is being laid in water, the face should curve, or "wing back," into the embankment to protect it from water getting behind.
- **Batter**: The batter, or relationship of rise to run in the face of a retaining wall, should be determined in part according to the precedents of relevant historical work, as outlined, and in the specific requirements of individual trails. However, some general rules should be adhered to whenever possible.
    - A 3:1 batter (rise: run) should be used for walls that retain active slopes, or soils which carry large amounts of running or freezing-and-thawing water. A 4:1 batter should be used for walls that retain soils which carry a moderate amount of water.

**Figure 12.4**
**Dry-laid stacked stone wall detail. NCR CLP, 2012.**



#### Stone Faced Walls with Mortar Joints

Stone faced walls are typically constructed with a concrete or concrete masonry unit structural wall and then faced with stone held in place by mortar joints. They can be less expensive to build than comparable sized dry-stacked walls and utilize less stone. They have historically been used throughout the park to construct the stone headwalls for culverts. Stone faced walls are an appropriate wall choice for short or tall wall segments when a 90-degree vertical wall is required. They should also be utilized for new culvert headwalls. All walls exceeding 2 feet in height require review and approval by a structural engineer. (See Figure 10.2 on page 241 for detail of stone faced walls with mortar joints used for culvert headwall.)

- **Excavation**: The entire length and width of the retaining wall should be excavated at least 30 inches deep plus the depth of the footing, or until solid rock, free of organic material, is reached. The width of the base, and therefore the excavation channel, of a retaining wall should be at least one-third the height of the completed wall. The ground at the bottom of the excavated area should be level or sloping slightly toward the interior of the wall, never sloping out.
- **Foundation**: The foundation is the first tier of the wall, which is fully beneath the ground. It should project 6 inches or more beyond the front and back face of the wall. The footing should be a minimum of 6 inches deep and constructed of concrete, reinforced as required.
- **Wall Structure**: The structure of the wall can be constructed of concrete masonry units (CMU) or poured-in-place concrete; either should be reinforced as required. The wall structure shall be a minimum width of 4 inches wide extending from the footing to the base of the wall cap.
- **Wall Face**: Stones selected for face of wall should be between 1 ½ – 2 ½ inches thick and match the existing stone walls in character, size and color. Stones should be chosen and laid so that flat, even faces should show on each stone, and be flush at the fronts. A consistent thickness is preferred, but stones may vary in thickness by ½ inch. Face stones should be mortared in place with a minimum of ½ inch mortar joint. Mortar to match existing stone face walls in color and character.
- **Wall Cap**: The wall cap should be constructed to match the wall face. Stones should be placed flat along the top of wall and mortared in place. The top of the wall should be level and extend 6 inches above the finished grade on the high side of the wall.

#### Crush Walls

(from *Acadia Trails Treatment Plan*)

Crush walls are contemporary structures used to treat areas with many exposed roots, or where it is desirable to obscure the use of a retaining wall. A crush wall is often easier to build than a retaining wall, especially at the top course, where a retaining wall requires uniform stones to satisfy height, width, and contact. However, as opposed to simply angled crush, crush walls use a retaining wall base to anchor the structure and gain the initial elevation vertically, reducing the need for additional width and material. The drawbacks of crush walls include the difficulty

of constructing them over 3-feet tall, or where there is a need for a vertical structure, and the large amount of crushable rock required to build them (see Figure 12.5 and Figure 12.6).

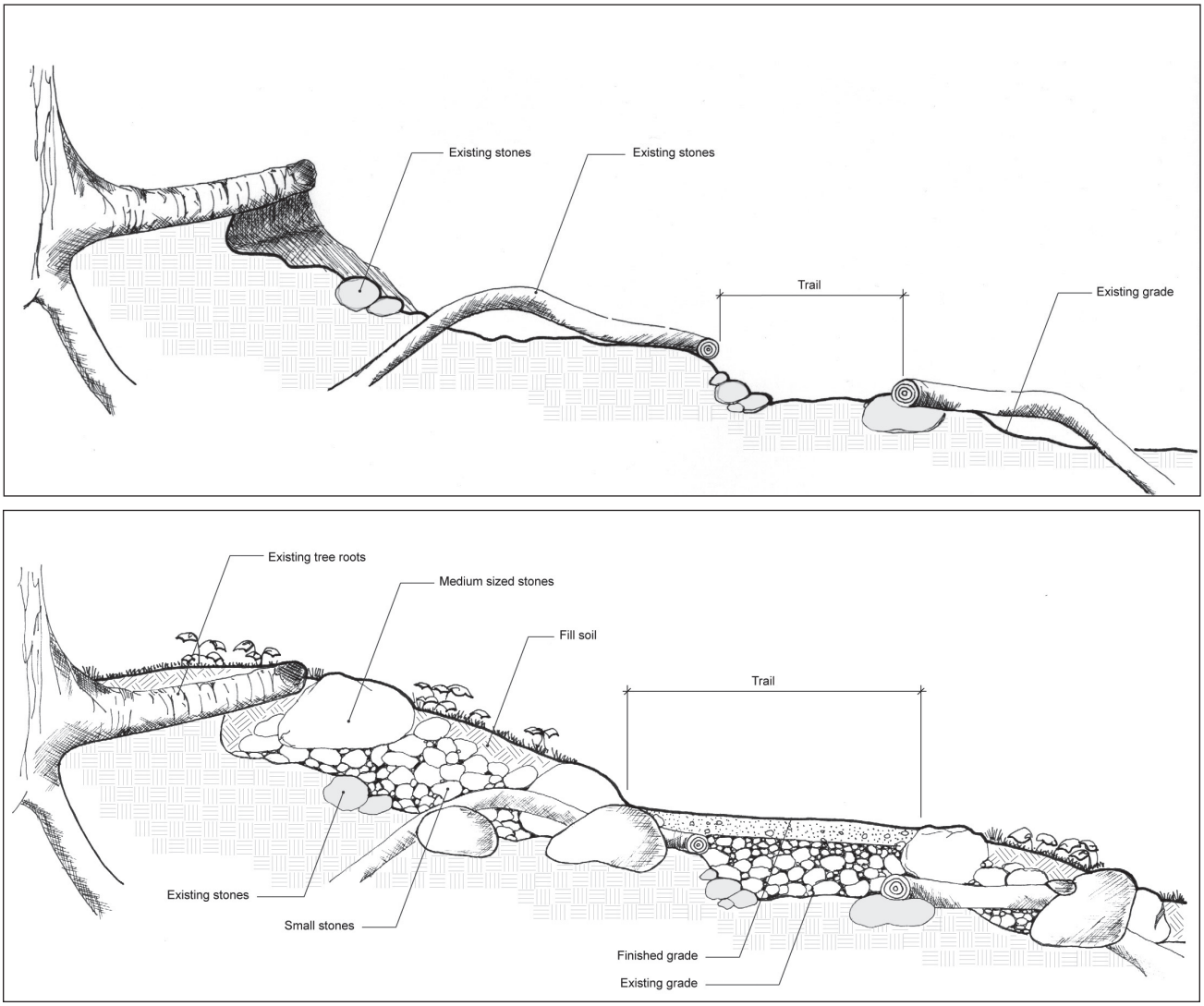
- **Excavation**: The trail corridor is excavated plus enough width in the downhill side for angled crush on top of the foundation stones. A 1:1 batter is the steepest recommended for crush material; therefore, every unit of height needed above the height of the foundation stones requires an equal distance from the trail edge. For instance if 2 feet of height is required, and rocks are to be set that will stand 1 foot tall after being set in the ground, the edge will be excavated at least 1 foot for the crush, plus whatever is needed to properly set the stone header-style (a few inches at least).

  Large roots need not be removed, but smaller roots may need to be cut to allow placement of larger stones. Inward sloping holes are excavated between the large roots to hold the foundation stones.

- **Setting the Foundation**: Foundation stones are set header-style and in-sloping, at least several inches in the ground. They are set in the holes between large roots and they need not contact each other, though flared stones that contact each other over the roots between them are ideal.

**Figure 12.5**
**(Top) Example of existing erosion around tree roots before a crush wall is installed. NCR CLP, 2012.**

**Figure 12.6**
**(Bottom) Example area after a crush wall is installed. NCR CLP, 2012.**



Non-contacting foundation stones should be locked in with stones set in from above and from the inside of the wall jammed between them. Because foundation stones are not as locked in as wall stones, the need to be large (2 cubic feet is a good target) and set well, always header-style, with any gaps around them crushed in.

- **Laying the Crush**: The crush is laid into the tread and onto the foundation stones as in a well-less causeway, with higher crush rocks pounded into the lower crush to fill all gaps and ensure that stones are locked together. The retaining edge of the crush base should be 1:1 or shallower. The crush fill is worked around the roots. Crush fill is brought up to 1 inch below line at the retaining edge, and cupped to 3 inches below the line in the treadway. Note that the crush portion of the wall is not a veneer wall, which will quickly disintegrate, but the outer edge of a crush-fill subgrade.
- **Vegetating the Sides**: Topsoil, mud, or organic material from the forest floor is worked into the retaining edge and local vegetation (grasses and forest sods are best) is planted up to the mason's line. No organics are used inside the treadway, which is gravel-surfaced with the proper crown or outslope.



**Figure 12.7**
**(Top) Hidden geotextile retaining wall just after installation and revegetation; (middle) early stages of vegetation growth over hidden geotextile wall; and (bottom) fully vegetated hidden geotextile wall.**

**Karl Knapp & Stephen Fisher, California State Park, Operations Road and Trail Division; .**

#### Hidden Geotextile Retaining Wall Systems

Geotextiles are developed in many shapes, sizes and styles. They are a useful structural mechanism that when incorporated into a hillside and covered with soil and plants, they create a hidden but structurally reinforced hillside. Three types of geotextile retaining wall systems are recommended for use along the trail system.

- **Geocell Retaining Walls**
  - Very easy to transport into work site, cells transport flat in panels.
  - Fill with native soil or aggregate.
  - Additional steps required to cover the cells, must be completely covered to prevent deterioration from the sun.
  - Cover with a Jute Mat, native soil and then planted for a more "invisible" look.
  - Very stable, quick to build, cost for material is expensive for what you get in materials.
- **Geotextile Fabric Retaining Walls**
  - Geotextile fabric layered with soil fill on top of each other. Also called structured fill.
  - Very easy to build, low skill level, must have abundant fill material or it needs to be brought to the work site.
  - Fabric is very light and can be packed into work site on rolls.
  - Needs to be covered for aesthetics and sun protection. Can be covered by jute mat, native soil and then planted for a more "invisible" or natural look.





**Figure 12.8**
**(Above left) Geocell retaining wall.**

**Figure 12.9**
**(Above right) Geotextile fabric retaining wall.**

**Karl Knapp & Stephen Fisher, California State Park, Operations Road and Trail Division; .**

- **Gabion Retaining Walls**
  - Can use a variety of stone or recycled material to fill gabions.
  - Can be covered by geotextile fabric, jute mat, native soil and then planted for a more "invisible" or natural look.
  - Traditional use from road and urban environments. Very stable and easy to build with.
  - Easy to transport, need rock source to fill. Can line baskets with geotextile fabric and use small class of materials.

## ROUTINE MAINTENANCE

1. Inspect retaining walls annually for signs of wall failure. Repair or replace wall portions as necessary.
2. Maintain any associated drainage structures quarterly and keep clear of debris.
3. Inspect wall face and joints, and fill all voids.
4. Remove any trees growing out of, directly in front of or behind the wall. Remove all trees less than 6 inches in diameter within 3 feet of the wall, as they will become a threat to the wall. Remove trees larger than 6 inches in diameter that are an extreme threat to a historic wall only if their removal will not cause additional damage to the wall. Consult the cultural resources specialist and park arborist for assessment of tree and wall conflicts.
5. Replace or reset missing or displaced stones.
6. Inspect hidden geotextile walls for erosion of topsoil and exposed areas of the geotextile fabric. Replace fill soil as needed to maintain full coverage of geotextile. Inspect any exposed geotextile fabric for signs of failure and replace as necessary.
7. Inspect surrounding vegetation for signs of erosion and vegetation loss surrounding wall. Investigate cause of erosion, correct problem and revegetate area.

# CHAPTER 13: STEPS

Steps, or a staircase, are a series of structures consisting of a riser and a tread. A riser is a vertical surface of a step and the landing is the horizontal or flat surface of a step.



**Figure 13.1**
**Example of wood stairs extending into side slopes with good riser spacing. NCR CLP, 2011.**

## TREATMENT GUIDELINES

- **Maintaining Character**
  Historically the trails system has avoided the use of steps with only a few exceptions. The increased use of trails occurred predominately in the mid to late 1970s, and most are located along the outlying neighborhood connector trails, Soapstone Valley Trail (1979), Melvin Hazen Trail (rebuilt 1977) and the extended Pinehurst Trail (1983). Along all three of these trails, steps are utilized at stream crossing with stepping-stones.

  Ideally, trail construction and alignment should be designed and contoured to avoid the use of steps. However, there are often unavoidable conditions that require them; they are generally recommended for short segments of trail that exceed a 25% grade or have unstable soil. The use of steps is not recommended for horse trails and is not approved for universal design trails.

- **Stair Maintenance**
  One of the primary uses for steps at Rock Creek Park is at the embankments of shallow streams with stepping stone crossings. These steps are typically wood and held in place with rebar. Many of these wood steps are pulling apart from each other and slipping from the embankment by soil washing away from the bottom step. Others have signs of decay, especially on the lower step. Some locations would benefit from additional steps on the lower elevation to create a smoother transition from the stream to the bank.



**Figure 13.2**
**Example of trail section in need of steps. NCR CLP, 2011.**





**Figure 13.4**
**Examples of stairs leading to creek in need of repair. NCR CLP, 2011.**

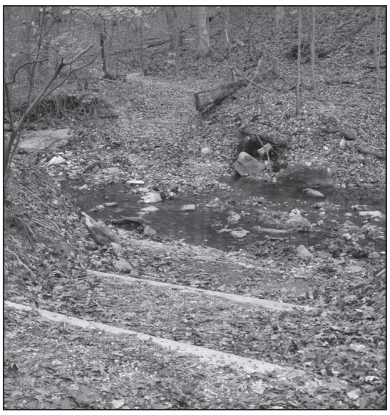


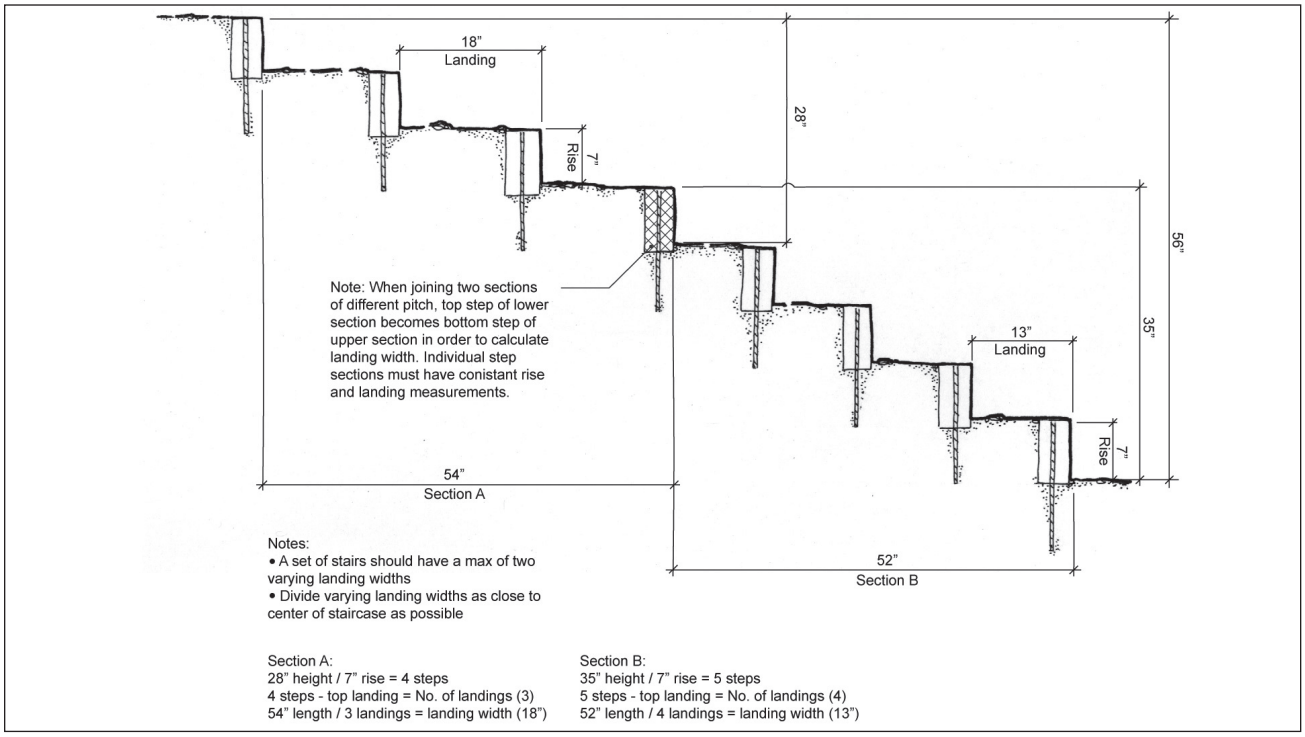
**Figure 13.3**
**Example of stairs leading to creek which properly extend into side slopes. NCR CLP, 2011.**

Increased maintenance is required for all wood steps at stream crossings. Replace all broken, slipping and damaged steps with new steps built into the embankment following specifications below. See Figures 13.1 – 13.4 for examples of existing step conditions.

### SPECIFICATIONS

- **Layout**: Install steps from the lower elevation and work up the slope, placing the first step at the break in the grade.
    - Carefully consider the location of steps to help encourage hikers to stay on the trail. If an easy passage can be created next to the steps, hikers will opt for that route creating a mini social trail. Keep this in mind when locating steps and work steps into areas with natural side barriers or extend steps well into the side embankment.
    - Evenly space all risers to create uniform landing widths for all steps in a set. Otherwise, hikers will have a tendency to avoid the steps. In some instances, it is necessary to incorporate more than one landing width within a set of steps. In these cases, a landing width may not change more than once for a set of steps (see Figure 13.5).
    - To improve drainage and the overall aesthetics of the set of steps, create curvilinear staircases by including bends and twists. Another option is to offset some of the steps. Either option should maintain the average stride of a hiker.
    - Risers: Use a 6 to 8 inch high, wood or stone structure to create the vertical rise in elevation.
        - Number of Risers: Utilize a clinometer to determine the total height required for a set of stairs. Divide that number by the desired riser height to determine the number of steps required.

**Figure 13.5**
**Detail for calculating riser spacing.**
**NCR CLP, 2012.**



Example: An overall climb of 28 inches with a 7 inch riser (28 ÷ 7 = 4 steps)

- Landing: Create a 13 to 18 inch landing between risers. The landing may consist entirely of the wood or stone structure or may include the top of the riser backed with soil or gravel fill. Maintain a 2% to 5% outslope for the full depth of the landing.
  - Length of Landing: There will be one less landing than number of risers (ex: 4 risers equal 3 landings). Measure the total length of the desired set of steps and divide by the number of landings required. Example: a total stair length of 54 inches with 3 landings (54 ÷ 3 = 18 inch landing width).
- Sidewalls: The walls running along both sides of the stairs parallel to the direction of travel. A set of steps may or may not require a sidewall, they are generally used to help stabilize the grade along the side of the steps or provide a clean look to the edge of the steps. Construct sidewalls from wood or stone to match the material of the steps. Most of the existing steps along the trail system are built without sidewalls. Minimize the use of sidewalls and only use them when conditions require a wall to stabilize the side grade of steps.

- **Materials and Finishes**: If the best solution for a trail segment leads to creating steps, wood or stone steps may be constructed. Keep in mind that while stone steps will cost more to build and requires greater skill, they are more durable and will last longer if built correctly. Wood steps are easier to build and cost less than stone, however wood will decay and require frequent replacement.
  - Stone: Any stone used to construct steps or cheek walls shall match in color and texture to local stone from the Rock Creek watershed.
    - Slab Risers: Stone used for slab risers needs to be large and sturdy, extending the full width of the trail and a minimum of 6-inches thick. The stones are required to be a third larger than the length of the landing as well as meet the thickness and length requirements. Example: A 3-foot-wide trail with 7-inch risers and 14-inch landings would require a stone that is 36 x 7 x 21 inches. (see Figure 13.6).

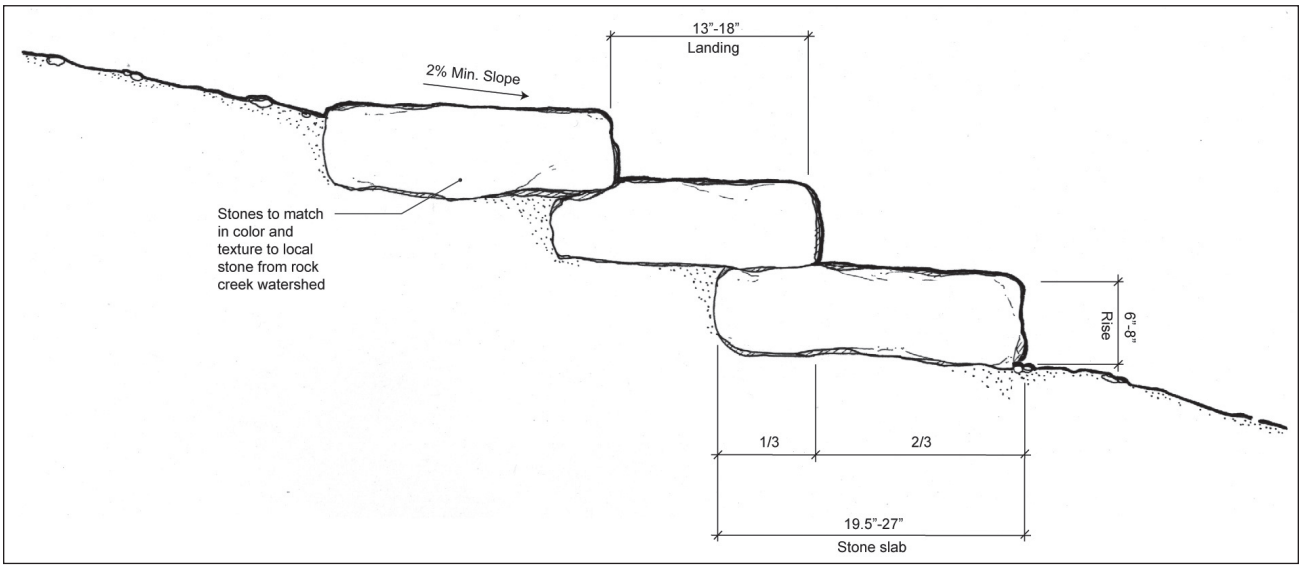



**Figure 13.6**
**Detail of stone steps with slab risers. NCR CLP, 2012.**

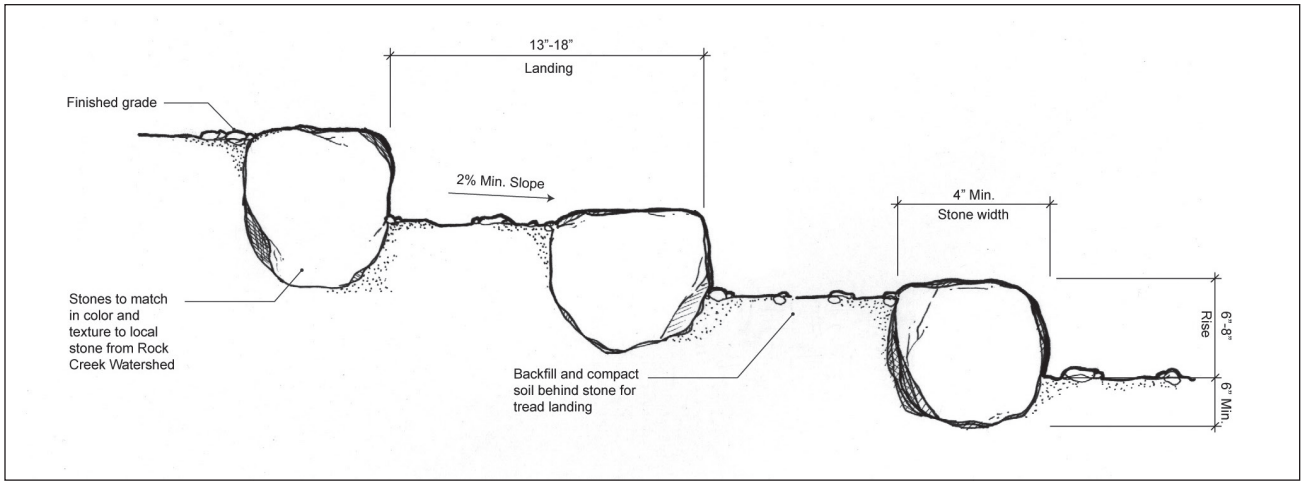



**Figure 13.7**
**Detail of stone steps with stone face risers. NCR CLP, 2012.**



**Figure 13.8**
**Existing example of wood box steps. NCR CLP, 2011.**

- Stone Face Risers: A stone riser with tread fill behind should extend a minimum of 6 inches into the ground with a minimum 4-inch width and be as long as the tread width. Example: A 6-inch stone riser would require a 12-inch-tall stone (see Figure 13.7).

- Wood: Use pressure-treated wood rated by the American Wood Protection Association (AWPA) for ground contact (UC4A) or better for all wood steps. Do not use chromate copper arsenate (CCA) pressure-treated wood on any step structure.

  - Select dimensional wood lumber thickness to at least a third larger than the riser height.

  - Wood stairs should extend beyond the width of the trail and extend into the banks on both sides of the trail for 12 inches. The extended step length will help stabilize the landing tread, improve drainage, and keep hikers on the trail (see Figure 13.10).

  - Another option for wood steps is to create crib or box steps. These steps are created from building a wood box to match the dimensions of the trail width and step landing. Fill the box with small rocks and capped with compacted mineral soil to create the step landing (see Figure 13.8).

See details on the following pages for additional specifications on constructing steps. Step construction can be difficult and requires a lot of skill. For a more in-depth discussion of step construction, The AMC's *Complete Guide to Trail Building and Maintenance* provides a good overview in their section on steps.

#### ROUTINE MAINTENANCE

1. Inspect and inventory all trail steps annually.

2. Reset steps as needed and replace rebar or other supports if missing or damaged.

3. Correct or add any drainage structures as needed to protect the steps and tread surrounding steps.

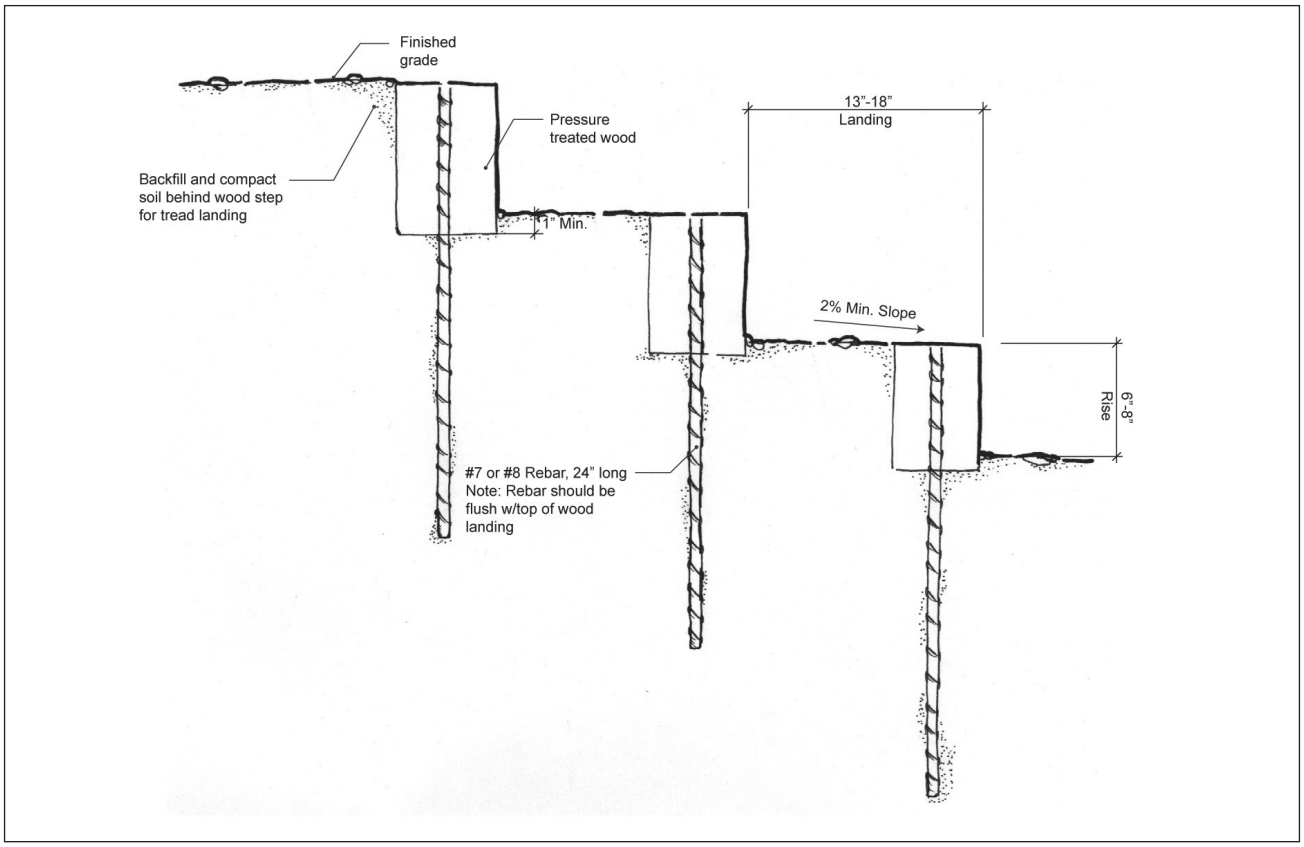



**Figure 13.9**
**Detail of wood steps. NCR CLP, 2012.**

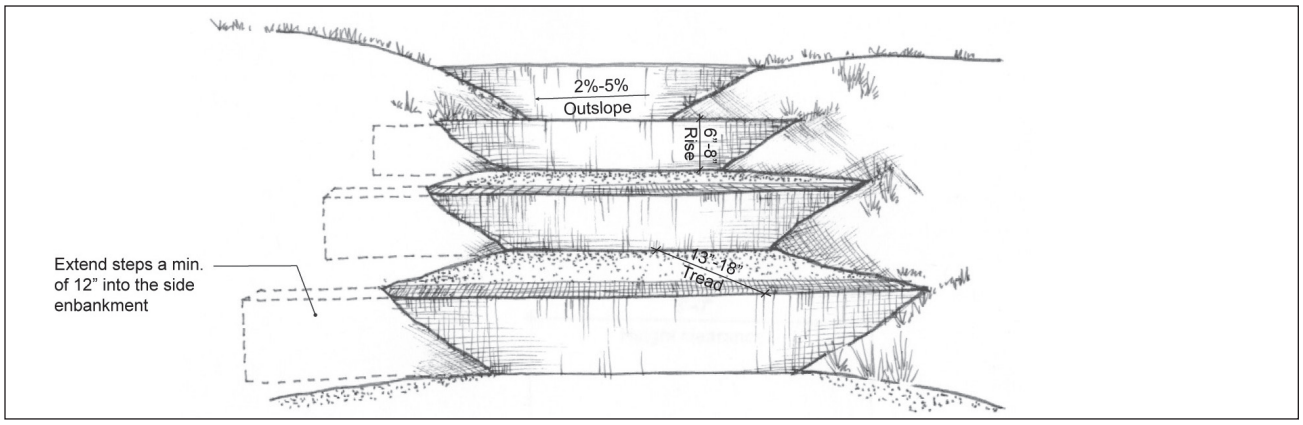



**Figure 13.10**
**Perspective view of wood steps showing detail for extending into side slopes. NCR CLP, 2012.**

# CHAPTER 14: GUIDANCE

## BLAZES

A blaze is typically a painted mark along a trail. This mark helps to guide hikers by identifying the trail route. They can be placed at the beginning and end of trails, at intersections, and at areas where the route can be unclear.

### TREATMENT GUIDELINES

- **Maintaining Character**
  The Western Ridge Trail (Green Blazed) and the Valley Trail (Blue Blazed) are the two main blazed trails within the Rock Creek Park Trail System.[1] The park organized and named these two trails beginning in 1978 and sometime after added the blazes. A few other connecting side trails, such as the Soapstone Valley Trail, have been blazed with yellow markings. Trail blazes are not a historic feature of the Rock Creek Park trail system, but they play an important role in guiding visitors along the identified routes and have no significant impact on the historic character of the trail system. The continued and improved use of the blaze system is encouraged.

- **Ineffective Blazing**
  Many of the trails in Rock Creek Park connect up with other trails in multiple locations, cross several roads and other trails, and have winding segments with varied terrain. The current blazes can sometimes be difficult to notice and are not apparent to some new park visitors. While the current level of blazing is helpful, in some instances it falls short of providing a route that is effortlessly followed. Several areas along the blazed routes need additional blazed markers or the current blaze is located too high.



**Figure 14.1**
**(Left) Challenging section of trail with no blazes; (right) irregularly painted blaze (circled). NCR CLP, 2011.**

It is recommended that an assessment of existing trail blazing be undertaken by park staff and a new plan adopted to increase the effectiveness of the paint-blazed system. Increase awareness of the blazing system used at the park by providing additional information at trail entrance signs and park maps.

- **Irregularly Shaped Blazes**
  Many locations along the trail have messy blazes with paint drip lines and irregularly shaped blazes. This creates a messy appearance for the trail system and weakens the blaze identity.

  Maintain all trail blazes in a strict 2x6 inch rectangle painted parallel to the direction of travel. Correct any existing messy blazes. See Figure 14.2.

- **Trail Volunteers**
  Currently PATC volunteers assist with the execution of painting blazes along trails. The park needs to provide guidance to these volunteers to ensure uniform and consistent standards are met for all painted blazes.

#### SPECIFICATIONS

Long or winding trails with multiple crossings should incorporate painted blazes, however short trails such as neighborhood connectors will generally not require blazing. The Appalachian Mountain Club's Complete Guide to Trail Building & Maintenance provides good direction on placing and painting trail blazes. The specifications provided follow their recommendations.

- **Location**: Provide a sufficient number of blazes along the trail so hikers can effortlessly travel the route without creating visual clutter to the natural surroundings. Keep in mind that blazes are to assist hikers unfamiliar with the trail or area.
  - Complete the painted blazes for one direction prior to painting any blazes in the return direction. Do not place blazes on either side of the same tree.
  - Locate the next blaze point by looking straight down the trail in the direction of travel and note the most visible tree. Walk to that tree and paint the next blaze, this may be anywhere from 20 to 200 feet from the last blaze. The actual distance between blazes will vary depending on the complexity of a particular trail segment. When a trail has a lot of curves and turns, place blazes more frequent and if a trail is mostly straight with a clear path, place blazes further apart.
  - Blazes may be on either side of a trail and should be located where they are most visible.
  - Place blaze immediately beyond any road, trail, or stream crossing even if a directional sign is in the same area. Add an additional blaze 20 to 50 feet from the crossing.
  - Place blaze at all important changes in the trail or route and near social trail intersections to clearly identify the official route.
  - Locate the painted blaze at eye level along the tree, approximately 5 to 6 feet above the ground.

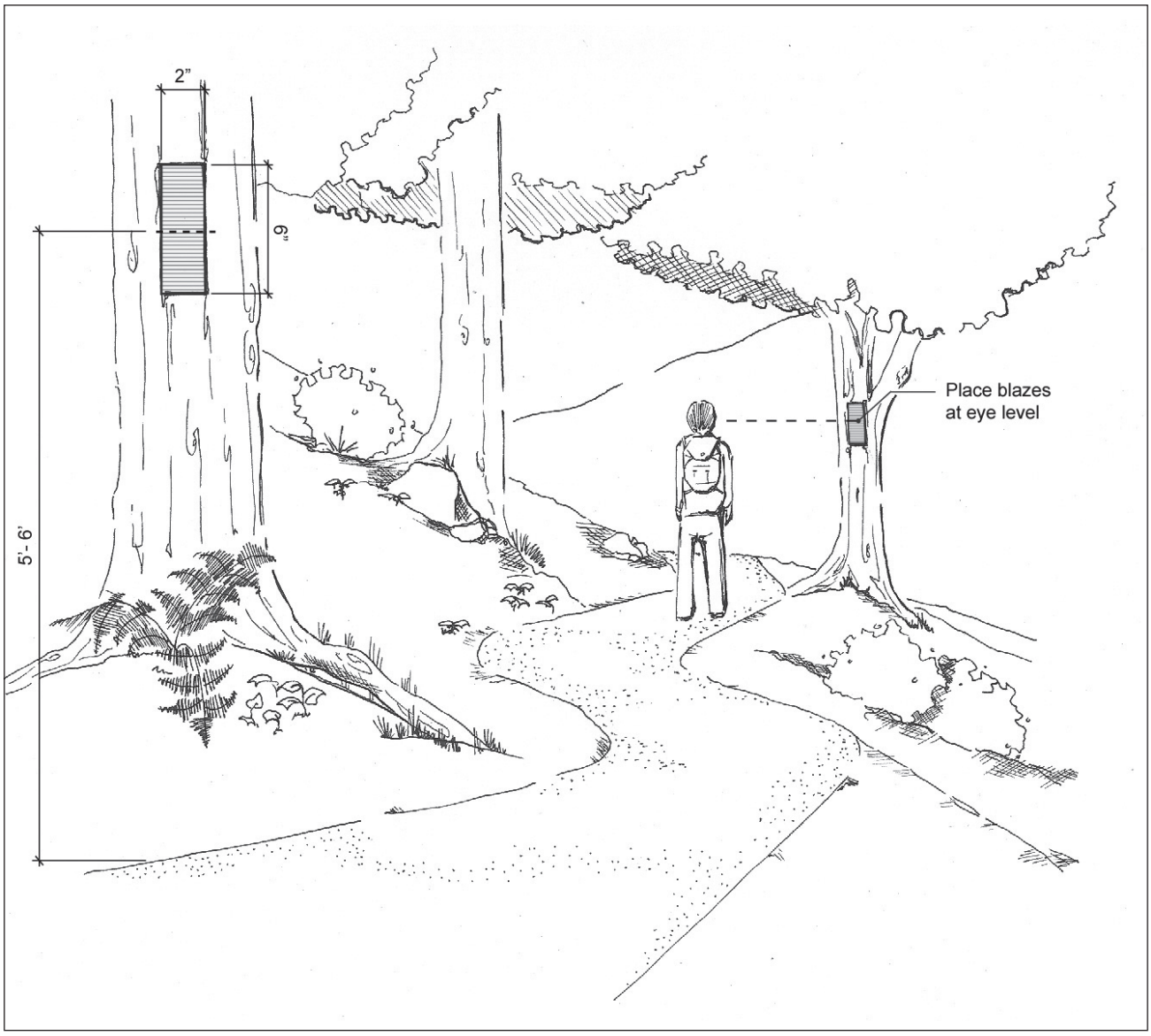



**Figure 14.2**
**Proposed blazing diagram. NCR CLP, 2012.**

- **Paint**:
  - Use an exterior acrylic latex paint in uniform color for the full length of the trail.
  - Paint colors for the existing defined blazed trails:
    - Green Blazed Western Ridge Trail
    - Blue Blazed Valley Trail
    - Yellow Blazed Neighborhood Connector Trails

- **Execution**:
  - Prepare the tree for painting by cleaning or scraping the area to be painted. On smooth bark trees, use a wire brush to scrape away any dirt or lichens. On rough bark trees, use a paint scraper to create a smooth, flat surface for painting.

- Painted blazes should be 2 inches wide by 6 inches tall creating a rectangular blaze running parallel to the trail. See Figure 14.2.
- Apply paint with a 1-inch wide brush. Keep all edges neat avoiding drips on the ground or tree.

- **Abandoned Trails**: If a blazed trail segment is ever abandoned, remove all blazes along the abandoned route.
  - Scrape paint off the tree or use a brown or grey oil-based paint to cover blaze.

#### ROUTINE MAINTENANCE

1. Inspect all blaze markings annually during the summer and look for faded or obstructed paint blazes.
2. Trim all vegetation that is obscuring blazes. If the visibility of the blaze is not solved through trimming vegetation, then relocate the blaze.
3. Reblaze the entire trail once blazes have faded and are hard to identify. Avoid "spot" blazing as it creates a non-uniform look for the trail.

## DIRECTIONAL SIGNS

Directional Signs assist trail users with finding their way through the trail system by providing a descriptive sign to indicate trail names, connecting trails, trail mileage, and distance to connecting trails. They are generally located at trail entrances, road crossings and major trial intersections.

### TREATMENT GUIDELINES

- **Maintaining Character**
  The sign standards for directional signs are contemporary features originating less than 30 years ago. Similar to other trail features, signs evolved from an early rustic style used during the Corps of Engineers management, to a park rustic style in the early NPS days, and then a modern/ contemporary style during Mission 66. The changes in signage materials similarly evolved from rustic log lumber, to painted dimensional lumber, and then to metal signs. The majority of the directional signs within the park today are along foot trails and provided by the Potomac Appalachian Trail Club (PATC). They are painted dimensional lumber signs and posts with routed and white-painted letters.

  The PATC wood directional signs are compatible with the character of the historic trail system and reflect a similar style as the NPS park rustic. They have the modernized rustic style similar to the Washington bench and other associated trail features. They blend well with the natural landscape while providing key wayfinding information. It is recommended that this sign type remain the standard for all directional signage within the park and be incorporated along all trails. However, these signs are not in keeping with the NPS UniGuide Sign Standards. The park needs to work with the Office of NPS Identity to develop an overall signage strategy for the park and request an exception for the continued use of the PATC wood directional signs.

- **Sign Uniformity**
  Even within the PATC provided directional signage; there are some minor but noticeable differences, notably within the sign dimensions. Most of the directional signs are strict rectangles, but have varying heights and widths. However, a few newer signs have been built with rounded edges and some are substantially smaller rectangles than the other signs.

  Construct all directional signs to a uniform standard size regardless of the length of information provided on the sign. Maintain the width the same and vary the height to accommodate the necessary information. Construct all posts to a standard height and locate all signs at the same distance from the top of the post.

- **Sign Placement**
  While many of the trails throughout the system are very well marked, others have few, if any, directional signs. Several neighborhood connector trails are missing directional signs at their entrances. Well-marked trail entrances help to invite hikers into the park and help to reinforce the use of official trails over social trails.




**Figure 14.3**
**New PATC directional signage. NCR CLP, 2011.**




**Figure 14.4**
**Existing PATC directional signage indicating variations in size, shape, and damage. NCR CLP, 2011.**

The trail system would benefit from a sign location plan to develop standards for locating all directional and informational signage. At a minimum, all trail entrances and trail crossings should be marked with a directional sign, which includes the trail name and the distance to any connecting trails or major destinations. Survey data collected and incorporated into the historic trails geodatabase will provide a useful starting point for this analysis. All directional signs visible at the time of the survey have been mapped.

- **Sign Damage**
  Many directional signs are showing signs of wear and many others have significant damage or are in need of repainting. In other cases, several sign posts have only been painted about half or a third of the post height.

  All damaged signs and partially painted posts should be replaced and/or re-painted. A cyclic maintenance plan should be incorporated for sign maintenance and improvements made as needed.

### SPECIFICATIONS

These specifications are for the PATC wood directional signs and should be used once approval from the Office of NPS Identity has been provided.

- **Materials & Finishes**:
  - Wood is to be certified by the Forest Stewardship Council (FSC) or the Sustainable Forestry Initiative (SFI).
    - Use rough sawn hewn lumber for all wood signs and posts. Visible wood members should be lightly sanded to, remove splinters, rough knots, sharp edges and to smooth overall surface.
    - Use pressure-treated wood rated by the American Wood Protection Association (AWPA) for ground contact (UC4A) or

better for all wood posts. Do not use chromate copper arsenate (CCA) pressure-treated wood on any post structures.

- Use above ground rated (UC3B) treated or decay resistant wood, such as cedar for wood signs.
- Protect wood from water and sunlight prior to delivery and while stored at the construction site. Avoid any contamination with dirt, oil, or other contaminants. Finish wood immediately after installation.
- Protect all wood from water, mildew and decay by applying a liberal coating of water repellant preservative (WRP) to all end grain surfaces and any area vulnerable to water. Prior approval from NPS Integrated Pest Management is required before using any WRP or semitransparent stains. Cautions are required to protect adjacent plants and soil surrounding work site from accidental contamination from WRP.
- Finish all visible vertical wood members with one coat oil-alkyd or latex primer and two coats of solid color stain or paint. Use Duron Chestnut Brown or Egwil paint color matching existing wood bridges for stain or paint.

° Fasteners: Use galvanized (or comparable non-corrosive material) nails and bolts for fastening wood members. Pre-drill holes for nails and bolts to prevent splitting wood.

- **Posts**: Use 4 x 4 inch pressure treated dimensional lumber. Post height should be 5 feet above grade with a minimum of 30 inches below grade for the foundation. Cut top of post at a 45-degree angle.
- **Signs**: Use 1 ½-inch thick wood to create uniform signs at 12 inches wide. The sign height will vary based on the amount of text required for each sign. Heights of each sign may be a minimum of 4-inches tall with a maximum height of 12-inches.
- **Letters**: Routed 1 ½-inch tall letters painted white.
- **Placement**: Signs may be placed on all four sides of the post if warranted. Place the top of the highest sign on the tallest post face, 5-inches from the top of the post. Place each additional sign with a ½-inch space between each sign. Place signs perpendicular to the direction of travel.

## ROUTINE MAINTENANCE

1. Inspect all directional signs annually during the summer for signs of disrepair and damage or need of replacement.
2. Replace signs when damaged and beyond repair.
3. Re-paint wood signs and posts when paint has faded or is missing.







**Figure 14.5**
**Variations in pets-on-leash signage. NCR CLP, 2011.**

## REGULATORY SIGNS

Regulatory Signs provide trail users with critical regulatory information about a specific trail such as allowed users, park hours, natural and cultural resource protection notices, and pet polices. These signs are typically located at trail and park entrances.

### TREATMENT GUIDELINES

- **Maintaining Character**
  There are inconsistencies within the regulatory signs posted along the trail system in Rock Creek Park, especially with the Dogs on Leash signs. The existing signs are contemporary structures that do not have a historical connection and do not meet the NPS UniGuide Sign Standards.

  The park should work with the Office of NPS Identity to develop a comprehensive signage strategy for the park and transition to the UniGuide Sign Standards. Figures 14.7 – 14.8 provide an example of what these sign standards represent.

### SPECIFICATIONS

Follow signage specification standards from the 2008 *Visitor Information Sign System: VIS and Wayside Hardware Specification Manual* provided by the Office of NPS Identity. This document can be found online at **www.hfc.nps.gov/uniguide** or by contacting the NPS UniGuide Sign Program at 304-535-4069.

### ROUTINE MAINTENANCE

1. Inspect all signs annually during the summer for signs of disrepair and damage or need of replacement.
2. Replace signs when damaged and beyond repair.




**Figure 14.6**
**Existing PATC regulatory signage showing variations in message and type. NCR CLP, 2011.**

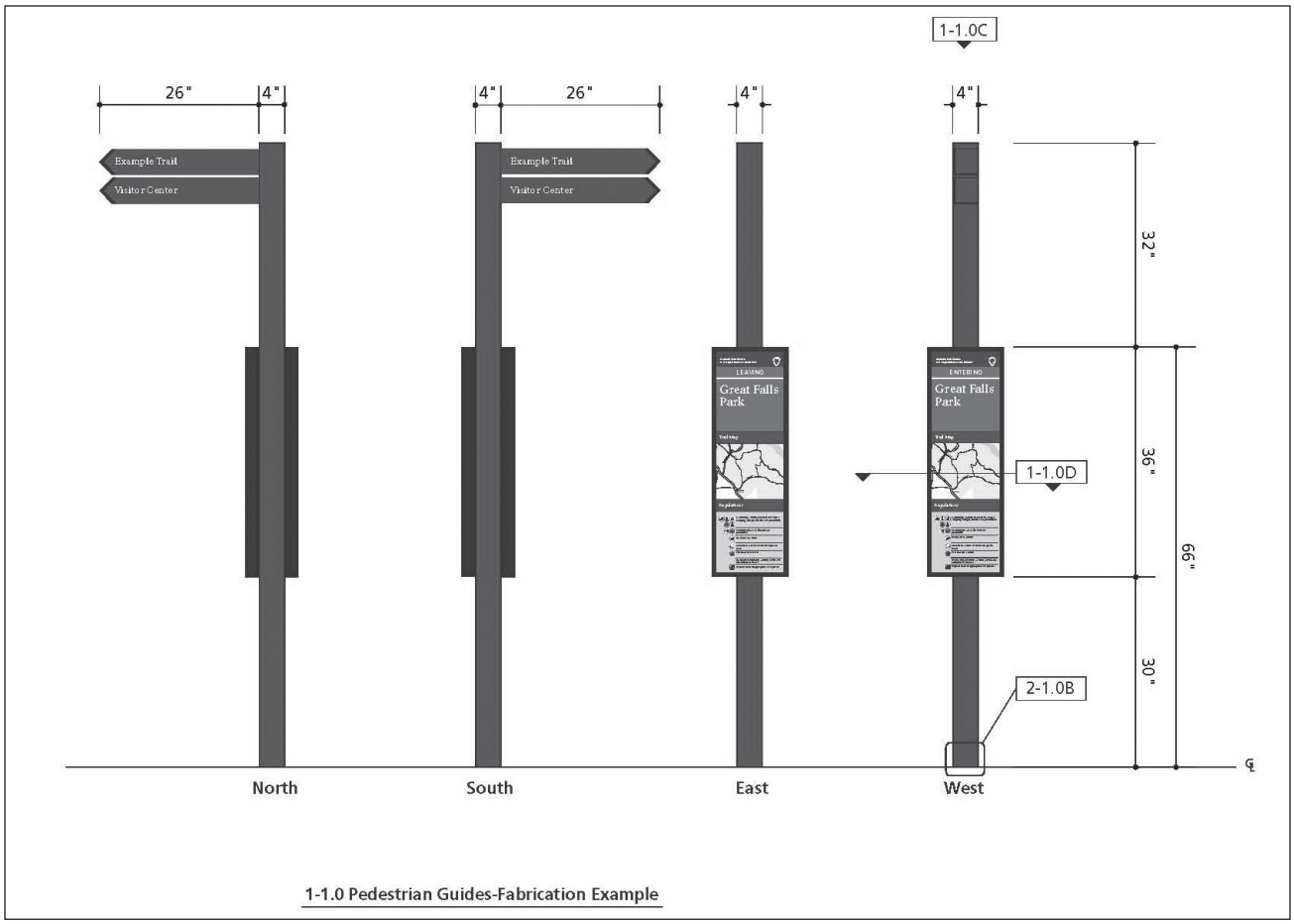



**Figure 14.7**
**NPS UniGuide fingerboard signs as planned for Great Falls Park trails. NPS UniGuide Sign Program, 2009**

**Figure 14.8**
**NPS UniGuide upright signs providing regulatory and trail information along the Billy Goat Trail at Chesapeake & Ohio Canal NHP. NPS CLP, 2012**






## ENDNOTES

1 The Glover-Archbold Trail is a reservation unit of Rock Creek Park and has a yellow blaze. However, it is outside the boundaries of the Rock Creek Park Historic District and is not included in this study.

# CHAPTER 15: ASSOCIATED STRUCTURES

## BENCHES

A Bench is a type of site furniture designed and placed along the trail to provide a place to rest or view the scenery.

A few benches can be found along the trails at Rock Creek Park. The Harpers Ferry Job Corps constructed these extant benches to match the Mission 66 Era modified Washington Bench. The original Washington Bench is from the late 1920s and was used in several National Capital area parks. The following is a brief outline of the evolution of this historic bench.

### *Washington Bench*

- Designed by staff of the National Capital Parks office during the Office of Public Buildings and Public Parks management sometime between 1925 and 1929.[1]
- Originally constructed out of hand-hewn cedar logs.
- In late 1920s and early 1930s, the rustic bench was used in many National Capital Parks including Rock Creek Park, Mount Vernon Memorial Highway (George Washington Memorial Parkway), Potomac Park, and Langdon Park.[2]
- The drawings and photos of the rustic bench along with the matching rustic picnic table were printed in the April 1934 issue of Landscape Architecture Magazine.
- The bench became popular in the early 1930s with park managers nationwide, many of them requesting information for the supplier of the "famous park bench."[3] Interested parks included George Washington Birthplace National Monument, Colonial National Monument, and U.S. Courthouse in Foley Square, New York. In addition, individuals from all over the country requested information on how to obtain the bench including inquiries from North Carolina, Nebraska and New York.
- The Cork Cedar Products Company of Alpena, Michigan (later Ossineke, Michigan) manufactured the original bench.
- Park officials last purchased the rustic log bench in 1939, just before the World War II.
- Michigan Roadside Table Company in Ossineke, Michigan took over manufacturing the bench when Cork Cedar Products Company closed in 1940.
- As of 1950, no additional benches had been purchased for the park.

### *Accolades for the Washington Bench*

*"We want to begin a manual training course for certain selected boys in the C.C.C. camp here, making furniture for the park, and your design is the most satisfactory I have seen, both for work by this class and for fitness for this park."*

G.B. Arthur
Superintendent
Colonial National Monument
May 24, 1934

*"I admired the type of rustic benches you use. At the picnic grounds at Mt. Vernon I used one of these benches and was very much impressed with the real comfort they afforded. It seemed to me that they were so well designed; the smoothness of the finish and the use of bolts and screws instead of nails."*

Mrs. James H. Glover
Scotia, New York
October 4, 1933

*"....was widely proclaimed to be the year's greatest inducement to indolence."*

Charlie C. Castella
Superintendent, New York Group
November 23, 1937

- During the Mission 66 improvement efforts, park officials purchased a new shipment of the Washington Bench for the park. These were modified from the original design by the use of dimensional lumber to replace the rustic log construction.
- Replicas can be found of the modified Washington Bench from the Mission 66 Era in the park today.

## TREATMENT GUIDELINES

- **Maintaining Character**
  The Washington Bench has been the primary bench style used in picnic areas and along the trails in Rock Creek Park since the late 1920s. A modification from log to dimensional lumber is the only noticeable difference from the benches used today to the original benches. Based on historical photo documentation and historic correspondence, it is determined that the dimensional lumber construction method was in use during the Mission 66 Era and that a number of these benches were purchased and placed in the park by 1966. There is no evidence of the original 1920s Washington Bench in the park today and the modified version has become historic in its own right. The modified Washington Bench is in keeping with the general character of the original Washington Bench and provides a more durable option than the original rustic log construction.

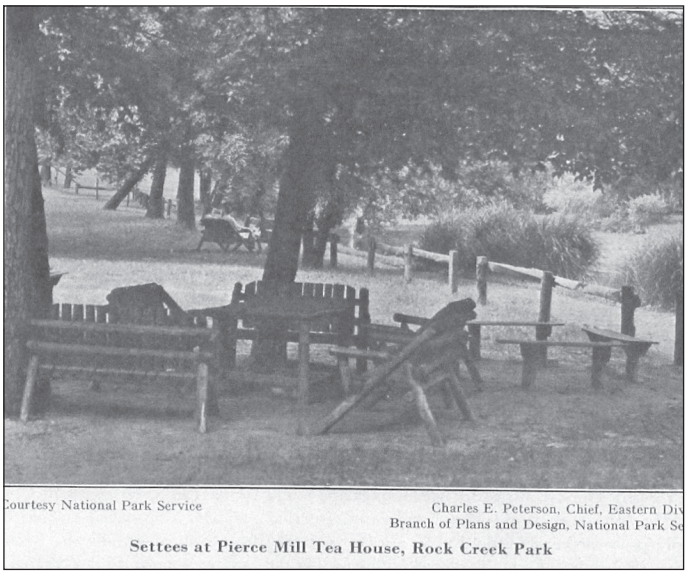
  All extant replica benches should remain and be properly maintained. New benches needed or desired along the trail system should match the modified Washington Bench from the Mission 66 Era.

- **State of Disrepair**
  Many of these extant benches have missing slats or broken legs and wood decay. All benches should be maintained in good condition and those currently in need of repair should be improved or replaced accordingly.

- **Bench Locations**
  The locations of benches along the trail are haphazard and unplanned with very few locations. Only seven total benches were present during the field survey in November 2011 and they all have been documented.

**Figure 15.1**
**(Left) Rustic Washington Bench. NPS, 1934 (Courtesy of *Landscape Architecture Magazine*.)**

**Figure 15.2**
**(Right) Modified Washington Bench from Mission 66. NCR CLP files, 1966.**






To validate the current locations of benches and the potential need for additional benches, a bench assessment by park staff is recommended.

### SPECIFICATIONS

Washington Bench specifications should match the details of construction shown in Figure 15.3 with the exception of replacing log lumber with dimensionally cut lumber. Preference is for all lumber to be cedar.

### ROUTINE MAINTENANCE

1. Inventory and inspect all benches annually for decay and deterioration.
2. Replace or repair all lumber or fasteners in-kind as needed.

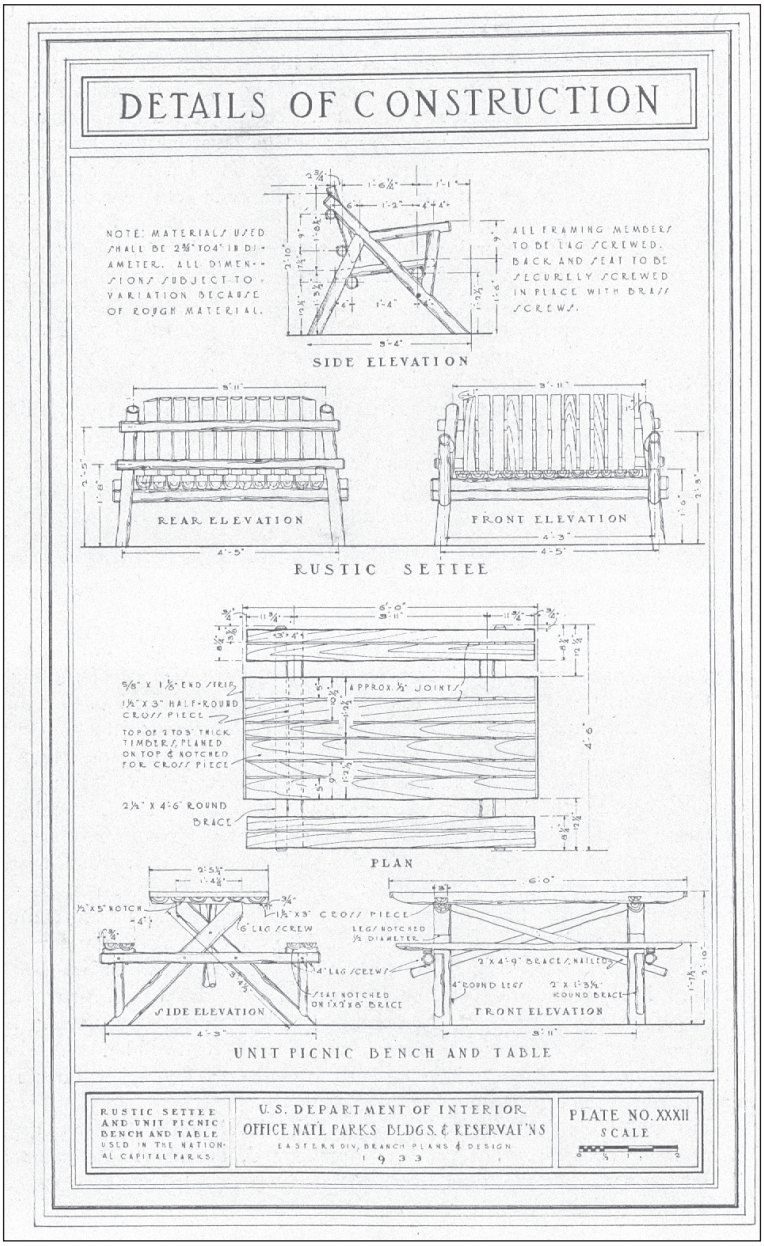



**Figure 15.3**
**Detail drawings of Washington Bench and rustic picnic tables as printed in *Landscape Architecture Magazine*. NPS, 1933 (Courtesy of *Landscape Architecture Magazine*.)**

## BOLLARDS

A bollard is a type of associated trail structure used to create a barrier to prevent vehicle access to trails. They are low and typically narrow structures that maintain a sense of openness and allow passage for horses, cyclists and pedestrians, while keeping vehicles out.

Three types of bollards are used along the trail system, boulder bollards, wood bollards, and metal bollards. The boulder bollards represent the style of barrier used within the park since the early rustic days and was historically used along roads and at trail entrances. A shift away from boulder bollards began during the early NPS management of the park, but minimal changes occurred until after World War II with the Mission 66 improvement efforts. As with many other features, the design of the Mission 66 Era bollards moved away from the rustic design style to a contemporary and streamlined design. The Mission 66 bollards, which are extant today, were 24-inch tall round metal bollards painted black. In the 1990s, the metal bollards were painted white with a red reflective band around the top third of the bollard. This was a response to a lawsuit on the C&O Canal when someone ran into a bollard that they could not see. More recently, in 2001-2002, large rectangular wood bollards were placed near trail entrances adjacent to road intersections. The wood bollards relate more to the road, but do assist in keeping cars from driving off road and onto the trail.

### TREATMENT GUIDELINES

- **Maintaining Character**
  The few remaining boulder bollards represent the park rustic period and should be preserved and maintained. The metal bollards of the Mission



**Figure 15.4**
**Bollards and bridle trail signage during Mission 66 era. NPS CLP files, Trails 15-15, ca. 1958.**



**Figure 15.5**
**Existing bollards with chipped paint and damage. NPS CLP, 2011.**

66 era have been modified, but do hold the potential to represent this era of park development. They also provide a means to incorporate needed removable bollards at wide trail intersections. The bridle and bike (multi-use) trails are wide enough for a vehicle to access. Maintenance and safety needs require occasional access to these trails by vehicles or maintenance equipment, but other vehicles need to be prohibited access. The boulder bollards of the park rustic period create a permanent blockade to the trails, but the Mission 66 era metal bollards provide an option for removable bollards.

To maintain character and allow for the required safety and maintenance access of wide trails, a combination of both metal bollards and boulder bollards is recommended. A single metal removable bollard should be placed in the center of the trail with large boulders placed in line with the metal bollards flanking each side of the trail entrance. The metal bollards should be painted black as they were during the Mission 66 era, but a white reflective bans should be added to the top third of the bollard to address visibility issues.

- **State of Disrepair**
  Based on the historic trails database and inventory of existing conditions, 54 of the 103 bollards throughout the trail system are classified as damaged. This may include peeling paint (most common), rusting, knocked over or completely missing. Damaged features negatively impact the overall character of the trail system and often fall short of providing the intended use for the feature. For example, a missing or substantially leaning bollard no longer provides the required barrier at trail entrances.

  All of the extant metal bollards should be removed and replaced with the removable bollard and boulder bollard combination discussed above. Extant removable bollards in repairable condition can be modified and reused per the updated specifications. A cyclic maintenance schedule should be incorporated to maintain all bollards in good condition.

### SPECIFICATIONS

- **Location**: When a trail entrance is adjacent to or potentially accessible from a road, place two boulder bollards to flank each side of the trail entrance. Add a single removable metal bollard in the center of these trails that are 6 feet or wider. Place boulders so the front face is a minimum of 3 feet behind an intersecting curb or 1 foot offset from an intersecting trail. In cases where the trail has a gap between the beginning of the trail and a road, the bollard face should be located a maximum of 1 foot behind the entrance line for the trail. The inside edge of the boulders should be located 6 to 12 inches away from their associated trail.

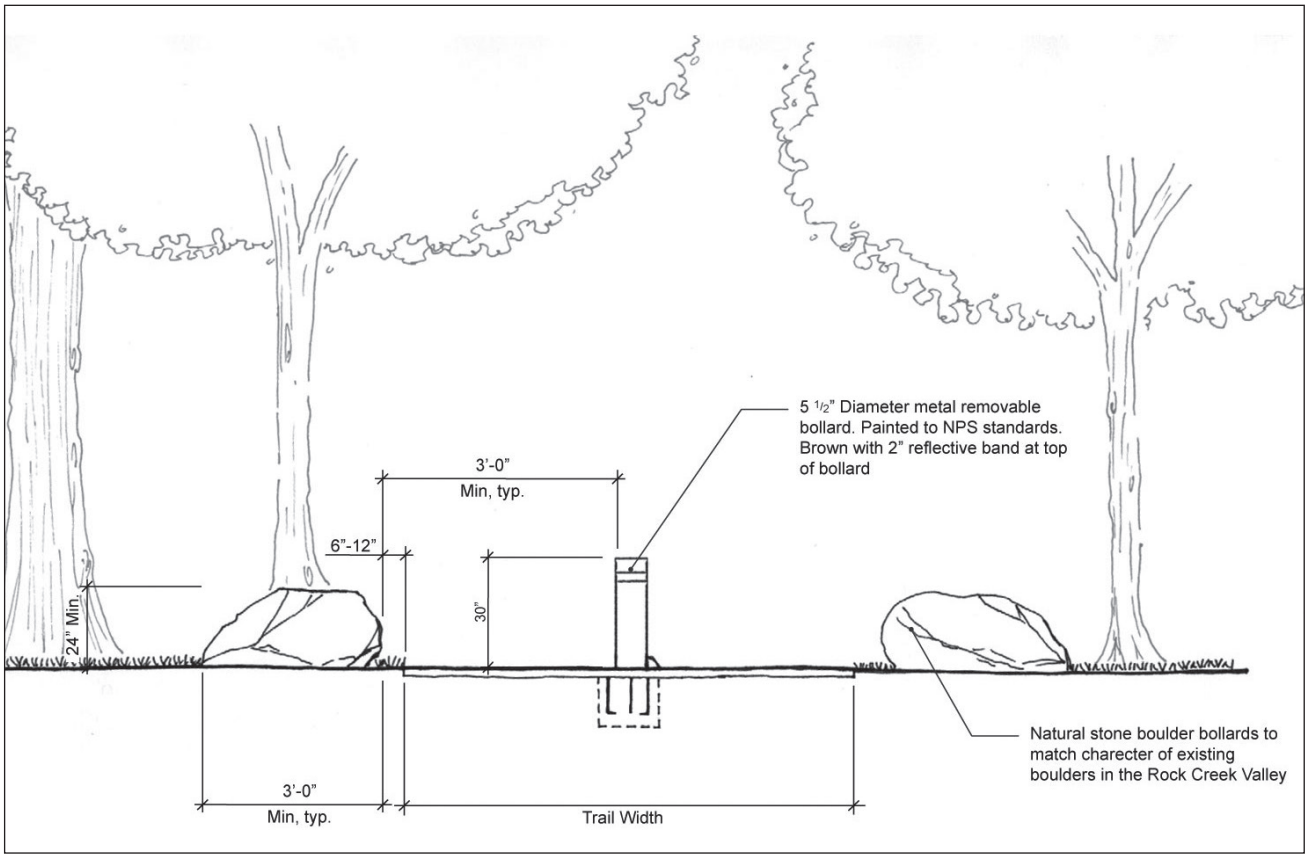
- **Materials & Finishes**:

  - Boulder Bollards: Hand select boulders to match the color and character of natural stone found within the Rock Creek Valley. They should be a minimum size of 24 inches high by 36 inches wide.

  - Removable Bollards: Constructed of standard weight seamless steel pipe free from surface blemishes and color coated to match NPS specifications for standard brown color. Bollard height should be 30 inches with a diameter of 5.5 inches. Bollard should include locking plate and master lock and be set in a reinforced concrete base.

See Figure 15.86 –Figure 15.78 for additional bollard specifications.

**Figure 15.6**
**Plan of proposed boulder bollards with single removagle bollard. NPS CLP, 2012.**



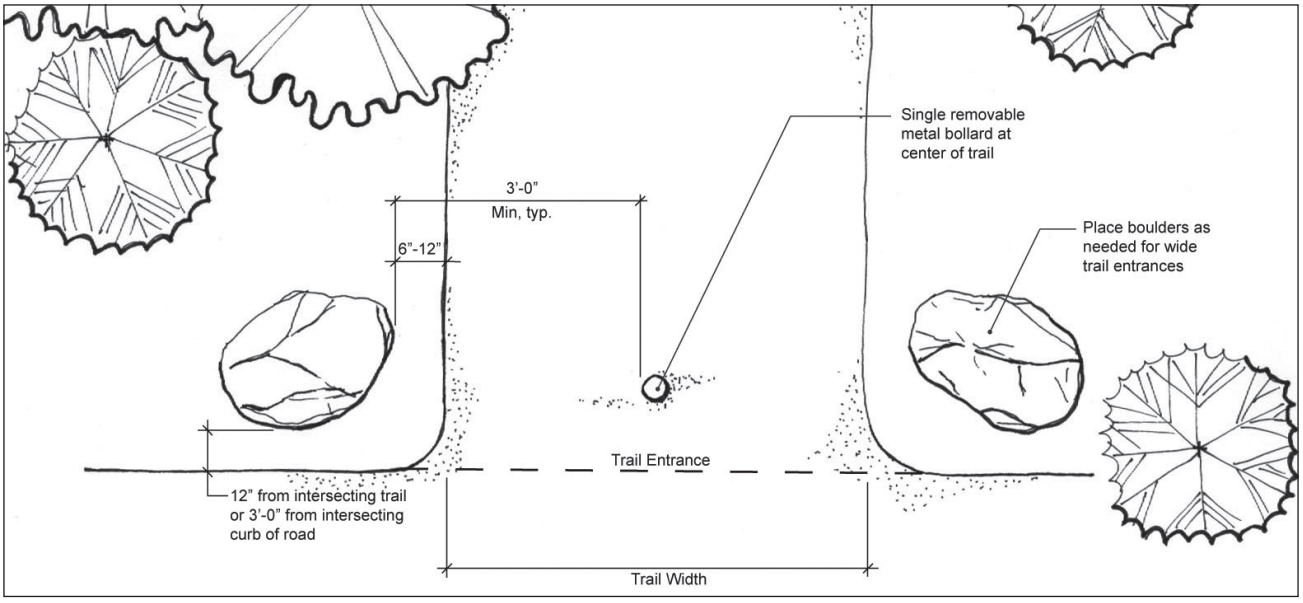



**Figure 15.7 Detail of removable bollard. NPS CLP 2012**

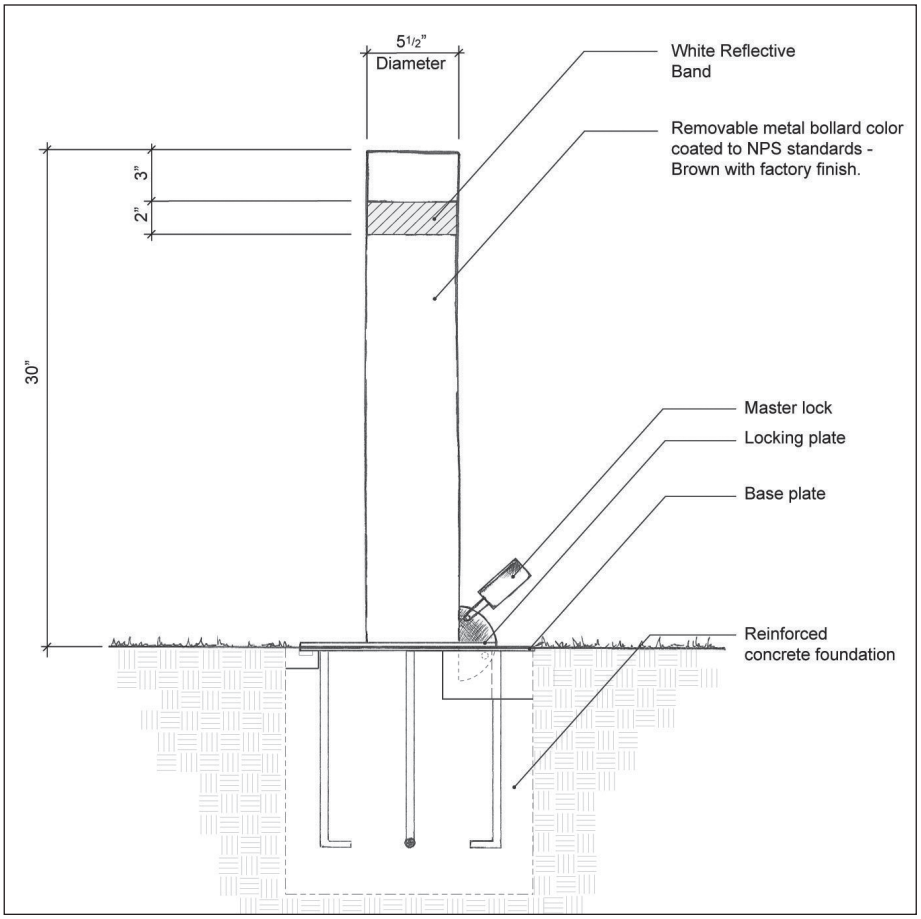



**Figure 15.8**
**Elevation of proposed boulder bollards with single removable bollard. NPS CLP, 2012.**

#### ROUTINE MAINTENANCE

1. Inspect and inventory all bollards annually.
2. Touch up paint on bollards as needed to maintain a clean appearance and prevent rusting.
3. Repair or replace damaged bollards to maintain all bollards in upright condition.

## COMFORT STATIONS & PICNIC SHELTERS

Comfort stations and picnic shelters provide trail amenities such as drinking fountains, restrooms, and shelter from heat and unexpected storms. They can also serve as trailheads and points of interest for trail users. However, they are not a part of the trail system and detailed treatment guidelines for these structures are not part of the scope of this report. The guidelines provided below, focus instead on trail access to these structures.

### TREATMENT GUIDELINES

- **Lack of Park Information**
  Most of the picnic shelters and comfort stations are located adjacent to a parking area. With limited parking areas, these shelters in turn act as trailheads. However, limited trail information is provided in these areas and primarily at picnic shelters 6 and 10.

  Improve informational and regulatory signage at all comfort stations and trailheads. Incorporate a sign kiosk adjacent to the shelter or incorporate a bulletin board under shelter to place park and trail information. Include current trail maps and identify shelter location on map.

- **Access and Universal Design Standards (ADA/ABA)**
  The associated parking at most picnic shelters and comfort stations provide ideal locations for disabled access to the trail system. Several of these shelters are actually disconnected from the trail system and do not have an official trail tying them into the system. In addition to providing trail access, these shelters also provide important trail amenities such as drinking fountains and restrooms.

  Develop connector trails between comfort stations and picnic shelters and the trail system based on the draft Outdoor Accessibility Guidelines.

### SPECIFICATIONS

There are no specifications for Comfort Stations and Picnic Shelters in this report. Consult appropriate park staff and the Regional Historical Architect for this guidance.

### ROUTINE MAINTENANCE

1. Maintain unobstructed trail access and visibility to the comfort stations and picnic shelters from the adjacent trails.
2. Regularly inspect and maintain the comfort stations and picnic shelters in good working order. Verify facilities are clean and operable.
3. Consult the regional historical architect for guidance on preservation of comfort stations and picnic shelters.

## FENCES

A fence is a linear structure used to enclose, divide, or demarcate a space and is also used to create a barrier for protection.

### TREATMENT GUIDELINES

- **Maintaining Character**
  Fences are not currently used along the trail system, but had been incorporated into several bridle trails dating back to about 1919. A single rail fence of rustic log lumber lined some of the bridle trails along the downhill side of the trail. During this same period, similar single rail fences were also used at a shorter height for guardrails along some park roads. A few segments of old log fencing is extant along the bridle trails and provides examples of the early rustic style use of associated trail features from the Army Corps of Engineers management period.

  The remaining fence segments contribute to the overall historic character of the trail system and require preservation.

- **New Fencing**
  The park has identified a potential need for adding new fencing along portions of the bike (multi-use) trail. These trails have never had fencing before, but the need for improved safety would require their addition. A new design has been developed for fencing along multi-use trails which is in keeping with the railings of trail bridges.

  Any necessary new fencing should comply with the design standards set forth for bike (multi-use) trails. If other trail types are determined later to need fencing, this design should be modified to meet the required safety standards for that trail, but maintain the design characteristics of the provided design and specifications below.

### SPECIFICATIONS

- **Materials & Finishes**:
  - Fence: Wood is the primary building material for all trail fencing and is to be certified by the Forest Stewardship Council (FSC) or the Sustainable Forestry Initiative (SFI).
    - Use rough sawn hewn lumber for all wood bridges and boardwalks. Visible wood members should be lightly sanded to remove splinters, rough knots, sharp edges and to smooth overall surface.
    - Use pressure-treated wood rated by the American Wood Protection Association (AWPA) for ground contact (UC4A) or better for all wood substructures. Do not use chromate copper arsenate (CCA) pressure-treated wood on any fence structure.
    - Use decay resistant or above ground rated (UC3B) treated wood for railings.
    - Use Eastern White Pine for all posts and railing wood members.

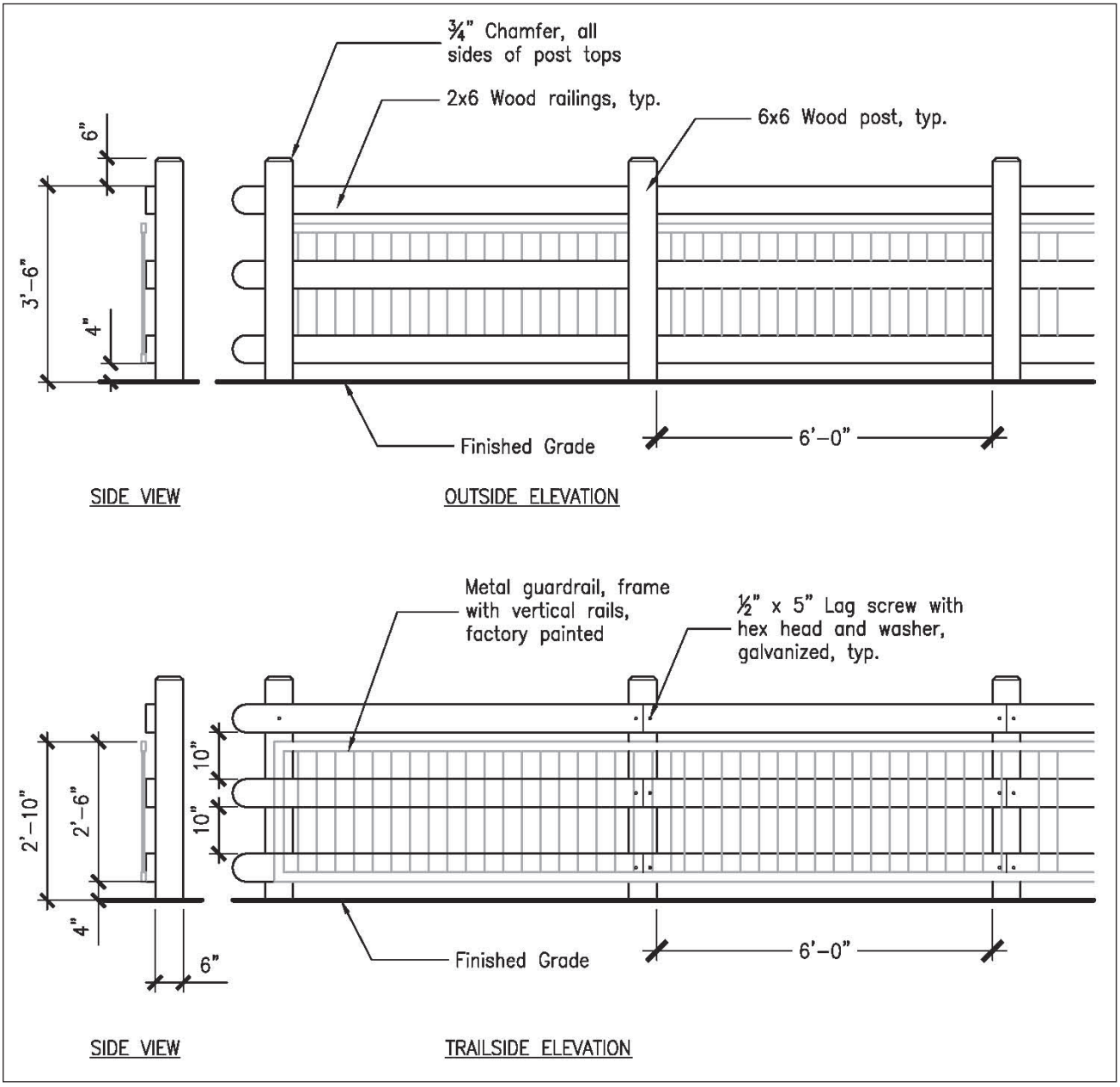



**Figure 15.9**
**Elevation details of proposed bike fence railing. NPS CLP, 2012.**

- Protect wood from water and sunlight prior to delivery and while stored at the construction site. Avoid any contamination with dirt, oil, or other contaminants.
- Finish wood immediately after installation.
- Protect all wood from water, mildew and decay by applying a liberal coating of water repellant preservative (WRP) to all end grain surfaces and any area vulnerable to water. Prior approval from NPS Integrated Pest Management is required before using any WRP or semitransparent stains. Cautions are required to protect adjacent plants and soil surrounding work site from accidental contamination from WRP.
- Finish all visible vertical wood members with one coat latex primer and two coats of solid color stain or paint. Use NPS standard brown paint or stain.

° Fasteners: Use galvanized (or comparable non-corrosive material) nails and bolts for fastening wood members. Pre-drill holes for nails and bolts to prevent splitting wood.

° Guardrails: Constructed of standard weight steel bars and tubing free from surface blemishes and color coated to match NPS specifications for standard brown color.

- **Guardrails**: are required when adjacent drops in grade are greater than 30 inches. The top of the guardrail must be a minimum of 42 inches above the walking surface. Openings in guardrails must not allow a 4 inch diameter sphere to pass through the lower 34 inches of the guardrail and an 8-inch sphere must not pass through the upper guardrail, between 34 – 42 inches.

  See Figure 15.9 for additional fence specifications.

### ROUTINE MAINTENANCE

1. Inventory and inspect the extant historic fence segments on an annual basis.
2. Preserve and maintain the remaining single rail fence segments in their current state and location. Implement provide preservation techniques that will prolong their lifespan as needed.
3. Consult with the regional architectural conservator for guidance on preserving and maintaining the historic fence segments.
4. Develop cyclic maintenance schedule for any new fence constructed along the trail system.

## LIGHTING

Trail lighting is a structure added along the sides of trails to emit light for safety or aesthetic purposes.

### TREATMENT GUIDELINES

- **Maintaining Character**
  Rock Creek Park Trails close at dark and lighting does not currently exist for the trail system. Lighting has historically been directed only along roads. Many of the extant trails originated as old roads, several of these old roads included post-mounted streetlights. A few remnant historic road lamp posts are located along old Bingham Drive and trails near Beach Drive. These lamp posts are the last remaining of their kind and their locations have been incorporated into the trails GIS database.

  Preserve the few remaining historic lamp posts in their existing state. Do not add any additional trail lighting to the historic trail system.

### SPECIFICATIONS

There are no specifications for lighting features as new or replacement lighting is not warranted for the trail system.

### ROUTINE MAINTENANCE

1. Inventory and inspect all historic light standards annually for deterioration and stabilization as needed for preservation.

2. Consult the regional architectural conservator as needed for guidance on preserving the extant historic light standards.

ENDNOTES

1 Frank T. Gartside to Mrs. James H. Glover, Letter dated October 11, 1933 (CLP General Vertical Files: Site Furniture Folder)

2 Photographs of benches in Langdon Park dated February 4, 1938 found in CLP General Vertical Files: Site Furniture Folder

3 Charles C. Castella, Superintendent for the New York Group, Foley Square to Malcom Kirkpatrick, Letter dated November 23, 1937 (CLP General Vertical Files: Site Furniture Folder)



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**Section Title Page**
**Riley Springs Footbridge, Looking East**
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# Terminology

**Berm**

Soil that has built up on the outside of a trail tread and forms a barrier that prevents water from sheeting off the tread.

**Blaze**

Typically, a painted mark used to guide hikers by identifying the trail route.

**Bridge Substructure**

The abutments, piers or pilings, and supports for the bridge superstructure.

**Bridge Superstructure**

The stringers and/or deck of the bridge.

**Fall Line Trail**

A trail constructed along the fall line of a hillside, or perpendicular to the contour lines.

**Felling**

To cause a tree to fall down by cutting or striking, typically with a chainsaw.

**Full-Bench Construction**

A method of trail construction where the full width of the tread is cut into the hillside and excavated soil is cast as far from the trail as possible.

**Grade Dips (also grade reversals, water dips, terrain dips, Coweeta dips, or swales)**

A method of working with the natural folds within the terrain of steep side hill trails by descending the grade into low points and then slowly reversing the grade to divert water off the trail. Grade dips are surveyed into new trails.

**Outsloped Tread**

A tread that is lower on the outside or downhill side of the trail than it is on the inside or bankside.

**Rolling Grade Dip**

A modified grade dip for use on existing trails.

**Slough**

(Pronounced "sluff.") Soil, rock, and debris that has fallen downhill to the inside of the tread, narrowing the tread. Slough needs to be removed as it is a main contributor to pushing trails downhill.

**Trail Corridor**

The area encompassing the trail's treadway and the area above and to the sides of the treadway. Limits of vegetation clearing typically defines the trail corridor.

**Trailbed or Treadway**

The defined walking surface of the trail.

**TREAD**

The actual travel surface of a trail which is constructed to support its designated use.

**WATERBAR**

A drainage structure that uses a log, dimensional lumber, or a row of stones to create a small angled dam across a trail. As water moves down the trail and hits the waterbar, wit is diverted off the lower side of the trail.

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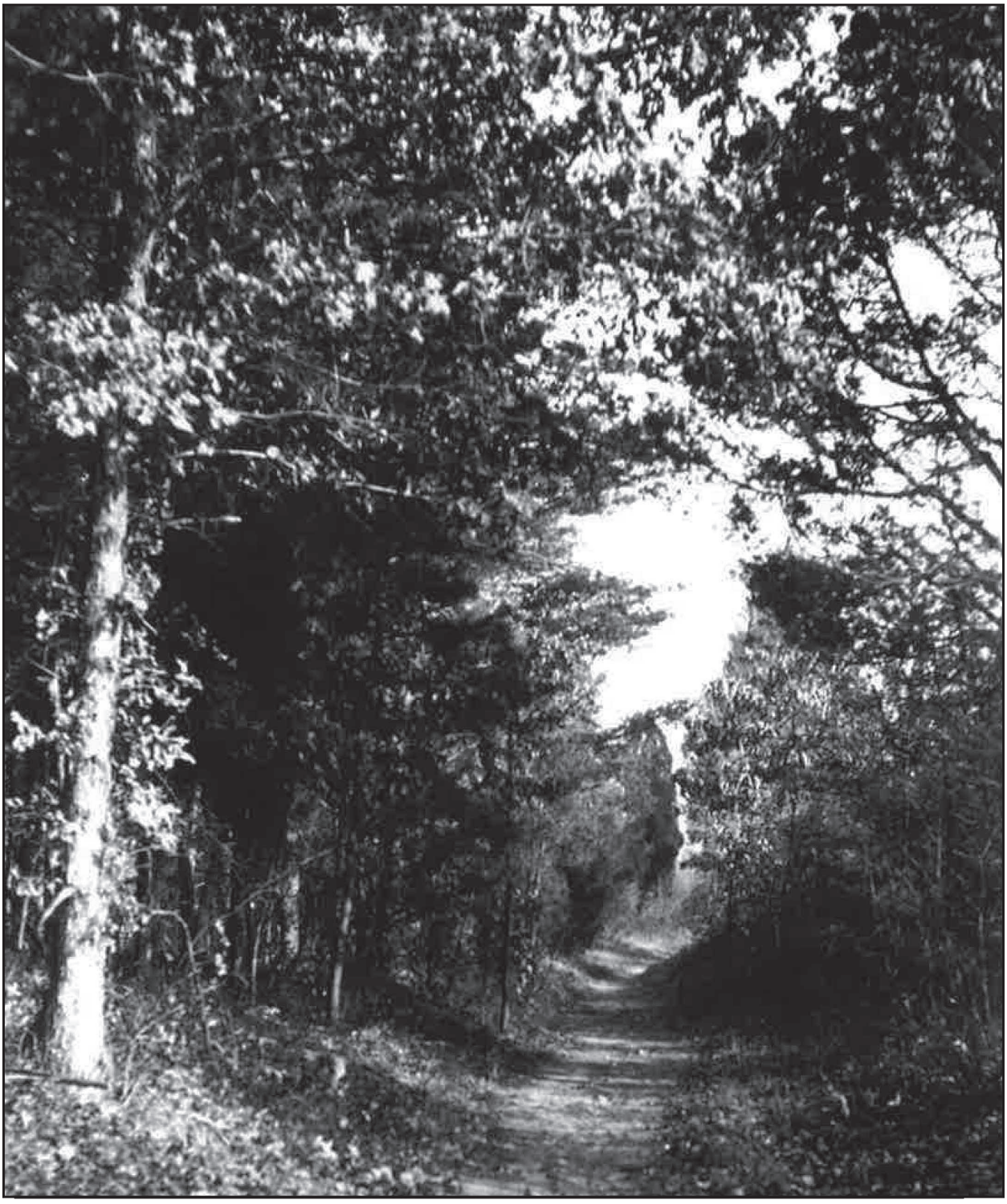
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# Appendices

**Section Title Page**
**Olmsted Job Photograph Album Collection,**
**Photo #2817-53, n.d.,**
**National Park Service,**
**Frederick Law Olmsted National Historic Site**

# Appendix A
# Trail Mileage Spreadsheets

# *Historic Trails of Rock Creek Park*

## Origins of Extant Trails

2/27/2013

| Historic Use | Early Road | Bridle | Foot | Bike Trail | Total |
|---|---|---|---|---|---|
| Pre-Park Trails, 1609-1889 | 5.64 | 0.58 | 0.29 | 0 | **6.51** |
| Army Corps Trails, 1890-1932 | 0.28 | 8.63 | 2.95 | 0 | **11.86** |
| Early NPS Trails, 1933-1955 | 0 | 1.01 | 0.06 | 0 | **1.07** |
| Mission 66 Trails, 1956-1966 | 0 | 3.17 | 1.05 | 0 | **4.22** |
| Bicycle Movement, 1967-1972 | 0 | 0 | 0 | 3.41 | **3.41** |
| Contemporary Trails, 1973-2011 | 0 | 0.51 | 3.58 | 0.76 | **4.85** |
| | | | | | |
| **TOTAL MILES** | **5.92** | **13.9** | **7.93** | **4.17** | **31.92** |

* Mileage data indicates total number of miles built during development period and the original trail type. Mileage is based on GIS Database prepared for the Historic Trails of Rock Creek Park CLR.

## *Historic Trails of Rock Creek Park*

### Total Trails per Historical Period (Includes early roads)

6/14/2012

| Pre-1608 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **1.4** | **0.29** | **1.69** |
| Opened | 1.4 | 0.29 | 1.69 |
| Opened-Closed | 0 | 0 | 0 |
| Existing | 0 | 0 | 0 |
| Closed | 0 | 0 | 0 |

| 1609-1860 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **4.3** | **2.44** | **6.74** |
| Opened | 2.9 | 2.15 | 5.05 |
| Opened-Closed | 0 | 0 | 0 |
| Existing | 1.4 | 0.29 | 1.69 |
| Closed | 0 | 0 | 0 |

| 1861-1865 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **6.12** | **2.86** | **8.98** |
| Opened | 1.8 | 0.42 | 2.22 |
| Opened-Closed | 0 | 0 | 0 |
| Existing | 4.32 | 2.44 | 6.76 |
| Closed | 0 | 0 | 0 |

| 1866-1890 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **13.41** | **6.66** | **20.07** |
| Opened | 8.35 | 3.87 | 12.22 |
| Opened-Closed | 0 | 0 | 0 |
| Existing | 5.06 | 2.79 | 7.85 |
| Closed | 0.63 | 0.07 | 0.7 |

| 1890-1917 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **29.44** | **15.94** | **45.38** |
| Opened | 21.99 | 9.74 | 31.73 |
| Opened-Closed | 1.89 | 0.13 | 2.02 |
| Existing | 7.45 | 6.2 | 13.65 |
| Closed | 5.86 | 0.37 | 6.23 |

| 1918-1932 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **18.41** | **14.91** | **33.32** |
| Opened | 6.09 | 1.57 | 7.66 |
| Opened-Closed | 2.66 | 0.2 | 2.86 |
| Existing | 12.32 | 13.34 | 25.66 |
| Closed | 15.77 | 2.74 | 18.51 |

| 1933-1945 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **14.97** | **14.74** | **29.71** |
| Opened | 0.51 | 0.35 | 0.86 |
| Opened-Closed | 0 | 0 | 0 |
| Existing | 14.46 | 14.39 | 28.85 |
| Closed | 3.88 | 0.71 | 4.59 |

| 1945-1966 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **2.1** | **17.77** | **19.87** |
| Opened | 0.7 | 7.31 | 8.01 |
| Opened-Closed | 1.58 | 0.12 | 1.7 |
| Existing | 1.4 | 10.46 | 11.86 |
| Closed | 13.41 | 3.86 | 17.27 |

| 1967-2011 | Abandoned | Existing | Total |
|---|---|---|---|
| **Total** | **0** | **31.92** | **31.92** |
| Opened | 0 | 13.52 | 13.52 |
| Opened-Closed | 1.05 | 0 | 1.05 |
| Existing | 0 | 18.4 | 18.4 |
| Closed | 2.75 | 0 | 2.75 |

* Mileage data is based on GIS Database prepared for the Historic Trails of Rock Creek Park CLR.
* Abandoned: Trails that are no longer listed as part of the official trails system.
* Existing: Trails that are extant today.
* Trails represented as Opened, Existing, Opened-Closed or Closed during the historic period.

## Trail Development by Park Management (includes early roads)

6/11/2012

| Pre-1890 (Pre-Park) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 14.45 | 0.63 |
| Existing Trail Miles | 6.73 | 0.07 |
| **Total Miles, Pre 1890** | **21.18** | **0.7** |

| 1890-1910 (ROCR Board of Control) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 18.56 | 5.81 |
| Existing Trail Miles | 7.5 | 0.45 |
| **Total Miles, 1890-1910** | **26.06** | **6.26** |

| 1911-1917 (ROCR Board of Control) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 4.91 | 3.59 |
| Existing Trail Miles | 1.96 | 0.02 |
| **Total Miles, 1910-1915** | **6.87** | **3.61** |

| 1918-1932 (OPBG) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 6.09 | 15.77 |
| Existing Trail Miles | 1.57 | 2.74 |
| **Total Miles, 1919-1932** | **7.66** | **18.51** |

| 1933-1944 (Early NPS) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 0.51 | 3.23 |
| Existing Trail Miles | 0.31 | 0.54 |
| **Total Miles, 1933-1939** | **0.82** | **3.77** |

| 1945-1955 (Post WWII) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 1.94 | 12.84 |
| Existing Trail Miles | 2.3 | 4.1 |
| **Total Miles, 1940-1955** | **4.24** | **16.94** |

| 1956-1966 (Mission 66) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 0.72 | 2.89 |
| Existing Trail Miles | 2.66 | 0.05 |
| **Total Miles, 1956-1966** | **3.38** | **2.94** |

| 1967-2011 (Contemp. NPS) | Opened | Closed |
|---|---|---|
| Abandoned Trail Miles | 0.27 | 2.75 |
| Existing Trail Miles | 8.28 | 0 |
| **Total Miles, 1960-2011** | **8.55** | **2.75** |

* Opened mileage represents the first time a trail alignment was opened, many trails closed and re-opened throughout the park's history and these trails are not accounted for in this spreadsheet.
* Abandoned: Trails that are no longer listed as part of the official trais system.
* Extant: Trails that are extant today.
* Mileage data is based on GIS Database prepared for the Historic Trails of Rock Creek Park CLR.

## *Historic Trails of Rock Creek Park*

### Trail Development by Trail Type

6/14/2012

| Pre-1608 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 0 | 0.29 | 0 |
| Abandoned Trails | 0 | 1.4 | 0 |
| **TOTAL** | **0** | **1.69** | **0** |

| 1609-1860 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 0 | 0 | 2.69 |
| Abandoned Trails | 0.21 | 0.39 | 3.7 |
| **TOTAL** | **0.21** | **0.39** | **6.39** |

| 1861-1865 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 0.39 | 0 | 2.47 |
| Abandoned Trails | 0.78 | 0.27 | 5.2 |
| **TOTAL** | **1.17** | **0.27** | **7.67** |

| 1866-1890 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 0.7 | 1.01 | 4.95 |
| Abandoned Trails | 1.91 | 0.1 | 11.54 |
| **TOTAL** | **2.61** | **1.11** | **16.49** |

| 1890-1917 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 12.76 | 2.45 | 0.73 |
| Abandoned Trails | 24.74 | 4.46 | 2.21 |
| **TOTAL** | **37.5** | **6.91** | **2.94** |

| 1918-1932 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 11.95 | 2.96 | 0 |
| Abandoned Trails | 13.08 | 4.88 | 0.44 |
| **TOTAL** | **25.03** | **7.84** | **0.44** |

| 1933-1945 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 10.88 | 3.86 | 0 |
| Abandoned Trails | 11.44 | 2.91 | 0.64 |
| **TOTAL** | **22.32** | **6.77** | **0.64** |

| 1945-1966 | Bridle | Foot | Early Road |
|---|---|---|---|
| Extant Trails | 12.78 | 4.99 | 0 |
| Abandoned Trails | 11.44 | 2.91 | 0.64 |
| **TOTAL** | **24.22** | **7.9** | **0.64** |

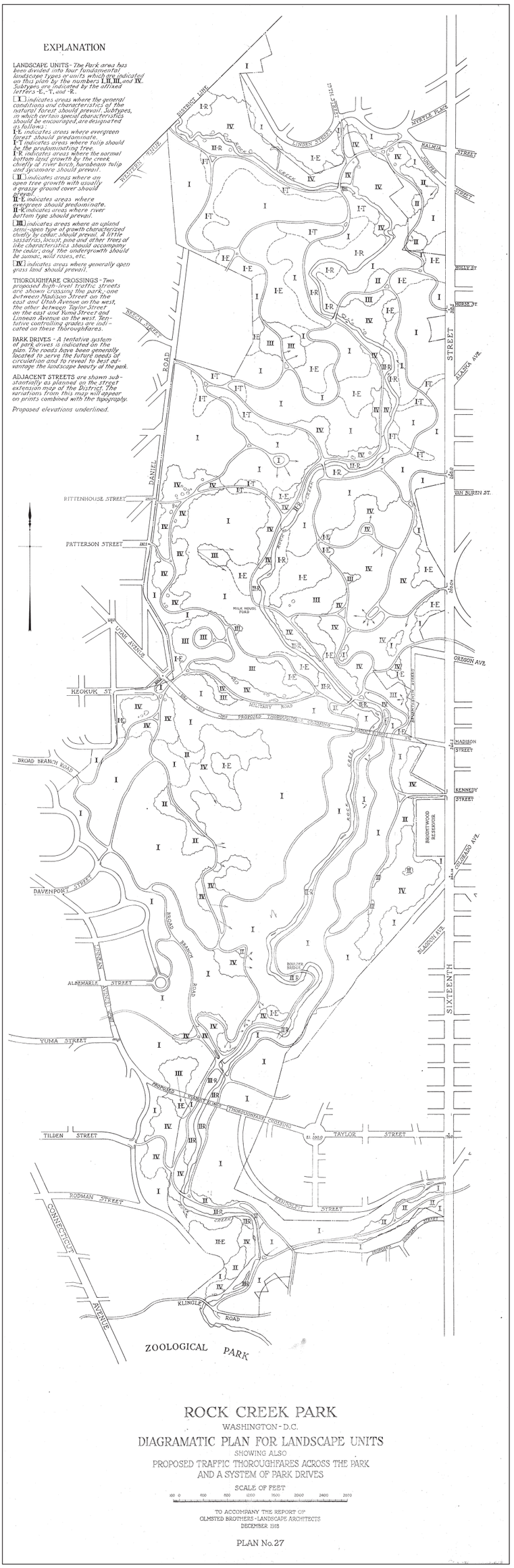
| 1967-2011 | Bridle | Foot | Early Road | Bike |
|---|---|---|---|---|
| Extant Trails | 12.41 | 14.24 | 0 | 5.27 |
| Abandoned Trails | 0 | 0 | 0 | 0 |
| **TOTAL** | **12.41** | **14.24** | **0** | **5.27** |

* Mileage data indicates total number of miles per trail type at the end of the historical period and is based on GIS Database prepared for the Historic Trails of Rock Creek Park CLR.

* Abandoned: Trails that are no longer listed as part of the official trais system.

* Extant: Trails that are extant today.

# Appendix B
# Olmsted Plan No. 27




# ROCK CREEK PARK

WASHINGTON - D.C.

## DIAGRAMATIC PLAN FOR LANDSCAPE UNITS

SHOWING ALSO

PROPOSED TRAFFIC THOROUGHFARES ACROSS THE PARK
AND A SYSTEM OF PARK DRIVES

SCALE OF FEET

0 400 800 1200 1600 2000 2400 2800

TO ACCOMPANY THE REPORT OF
OLMSTED BROTHERS - LANDSCAPE ARCHITECTS
DECEMBER 1918

PLAN No. 27

# ROCK CREEK PARK

WASHINGTON - D.C.

DIAGRAMATIC PLAN FOR LANDSCAPE UNITS

SHOWING ALSO

PLAN No. 27

## EXPLANATION

LANDSCAPE UNITS - *The Park area has been divided into four fundamental landscape types or units which are indicated on this plan by the numbers* **I**, **II**, **III**, *and* **IV**. *Subtypes are indicated by the affixed letters* -E, -T, *and* -R.

[**I**] *indicates areas where the general conditions and characteristics of the natural forest should prevail. Subtypes, in which certain special characteristics should be encouraged, are designated as follows:*

**I**-E *indicates areas where evergreen forest should predominate.*

**I**-T *indicates areas where tulip should be the predominating tree.*

**I**-R *indicates areas where the normal bottom land growth by the creek chiefly of river birch, hornbeam tulip and sycamore should prevail.*

[**II**] *indicates areas where an open tree growth with usually a grassy ground cover should prevail.*

**II**-E *indicates areas where evergreen should predominate.*

**II**-R *indicates areas where river bottom type should prevail.*

[**III**] *indicates areas where an upland semi-open type of growth characterized chiefly by cedar, should prevail. A little sassafras, locust, pine and other trees of like characteristics should accompany the cedar; and the undergrowth should be sumac, wild roses, etc.*

[**IV**] *indicates areas where generally open grass land should prevail.*

THOROUGHFARE CROSSINGS - *Two proposed high-level traffic streets are shown crossing the park, - one between Madison Street on the east and Utah Avenue on the west, the other between Taylor Street on the east and Yuma Street and Linnean Avenue on the west. Tentative controlling grades are indicated on these thoroughfares.*

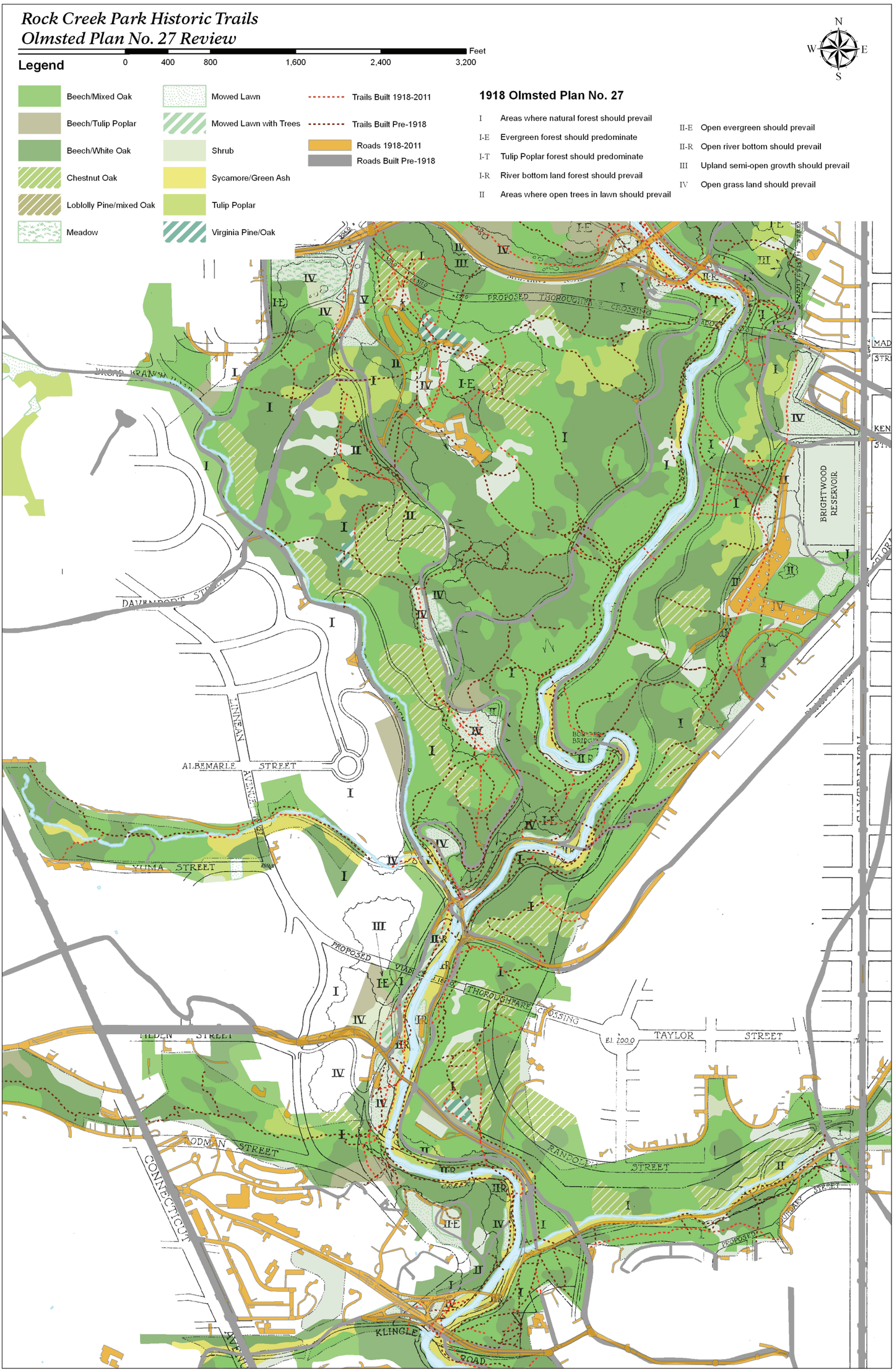
PARK DRIVES - *A tentative system of park drives is indicated on the plan. The roads have been generally located to serve the future needs of circulation and to reveal to best advantage the landscape beauty of the park.*

ADJACENT STREETS *are shown substantially as planned on the street extension map of the District. The variations from this map will appear on prints combined with the topography.*

*Proposed elevations underlined.*




1917 Olmsted Plan No. 27 North Section




1917 Olmsted Plan No. 27 South Section

# Appendix C
# Selected Historical Maps




**1861 Boshke Map showing Rock Creek.**



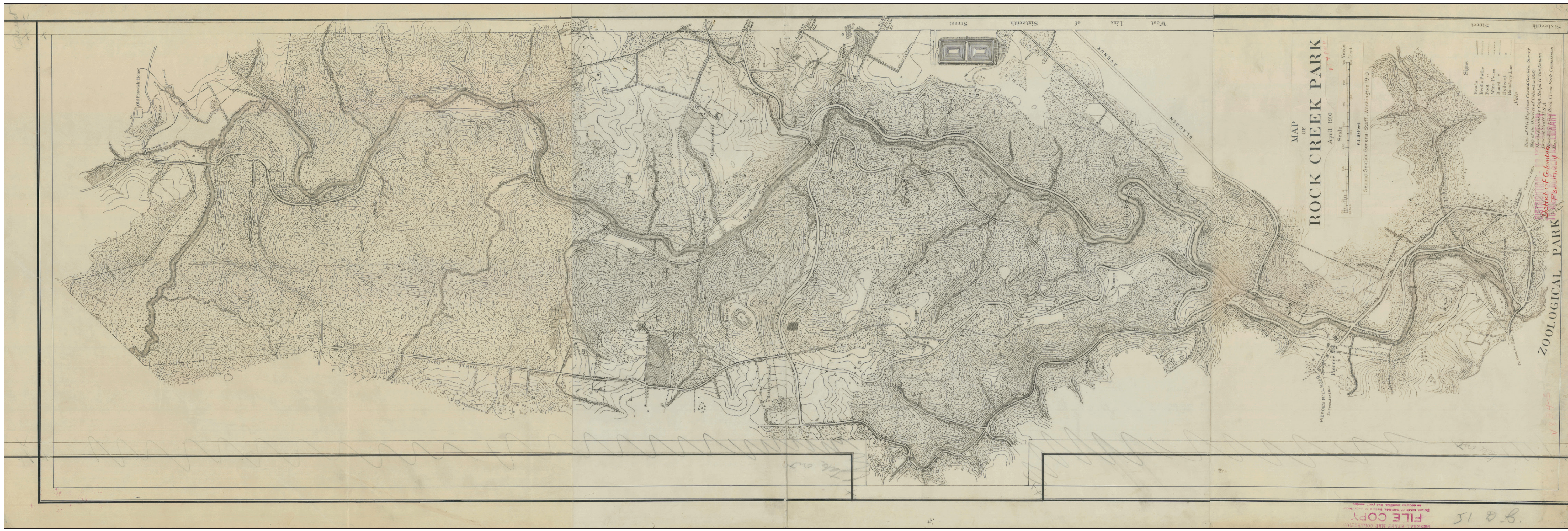

**1867 Michler Map showing Rock Creek**



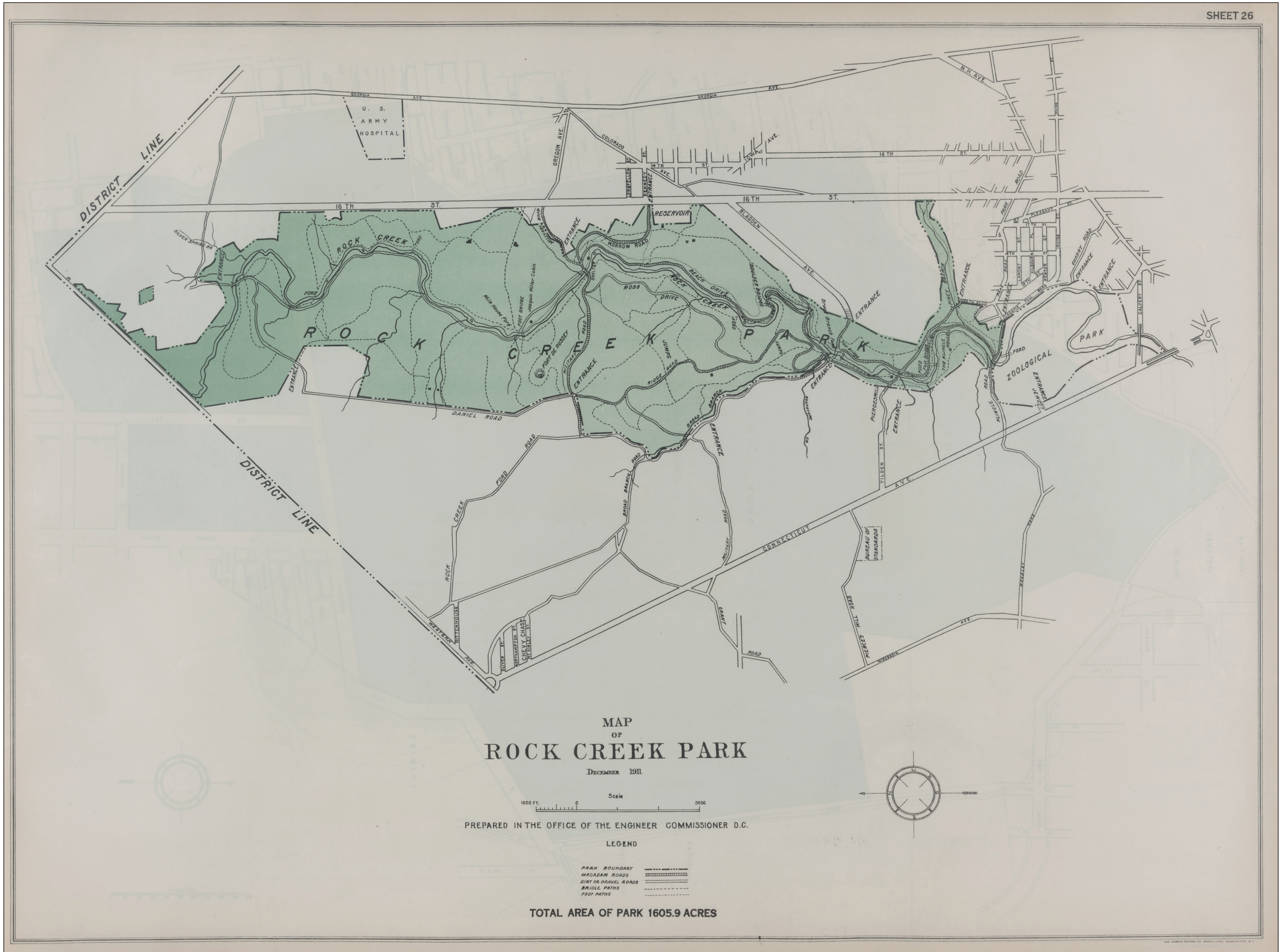
**1892 District of Columbia, U.S. Coast and Geodetic Survey**



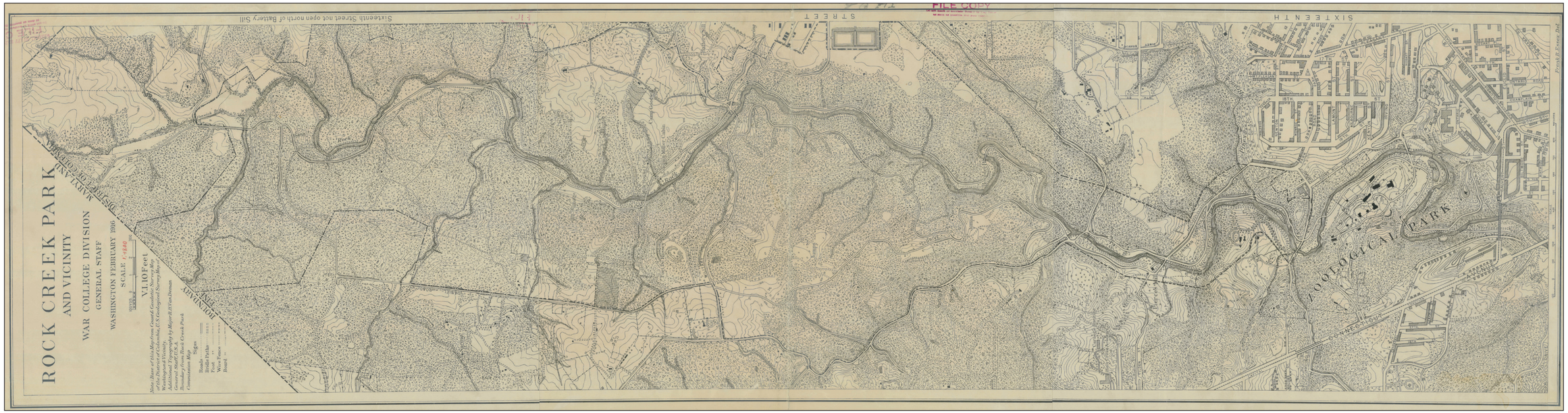

1907 Map of Rock Creek Park showing Bridle Trails



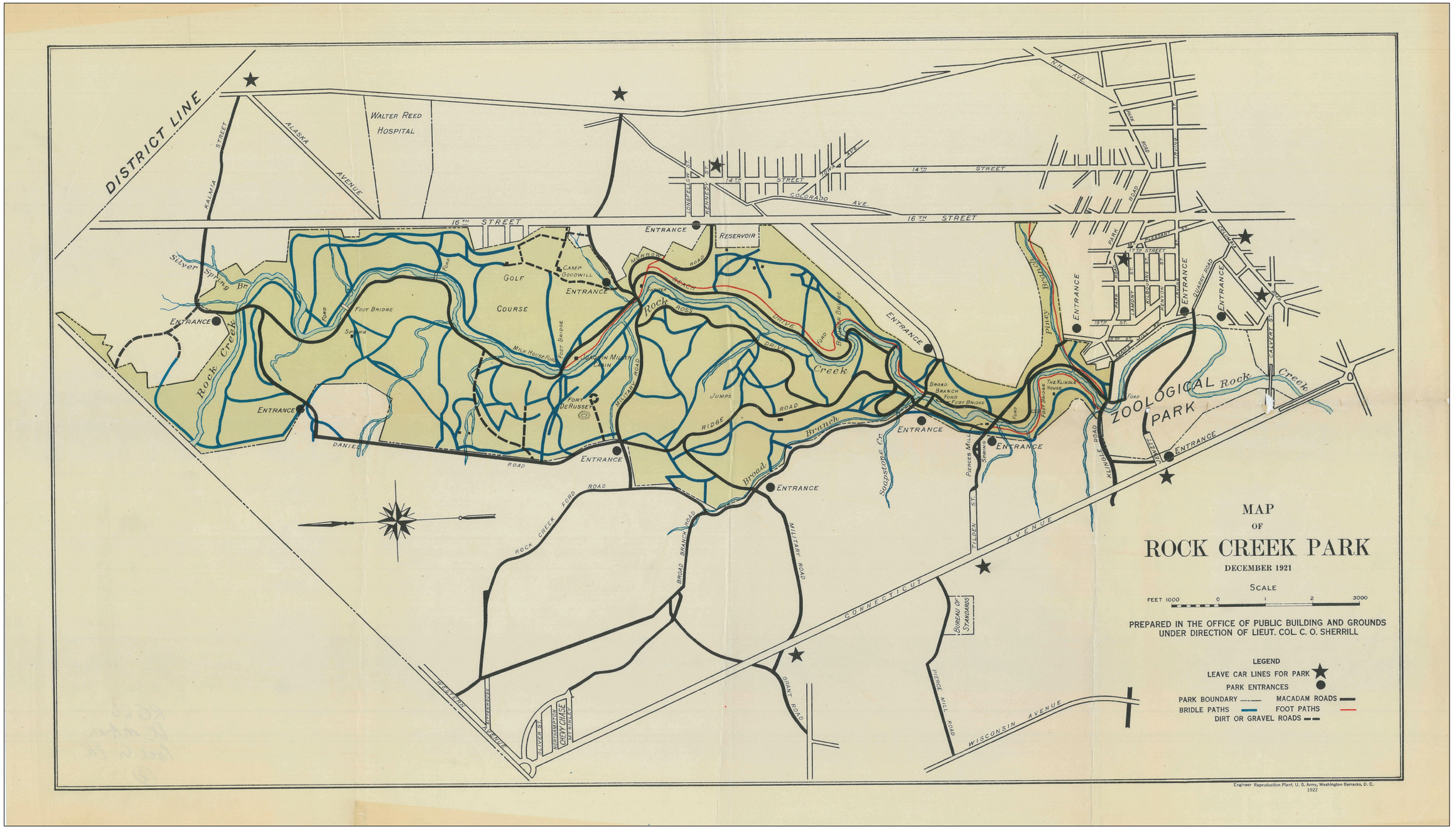

**1910 Map of Rock Creek Park**



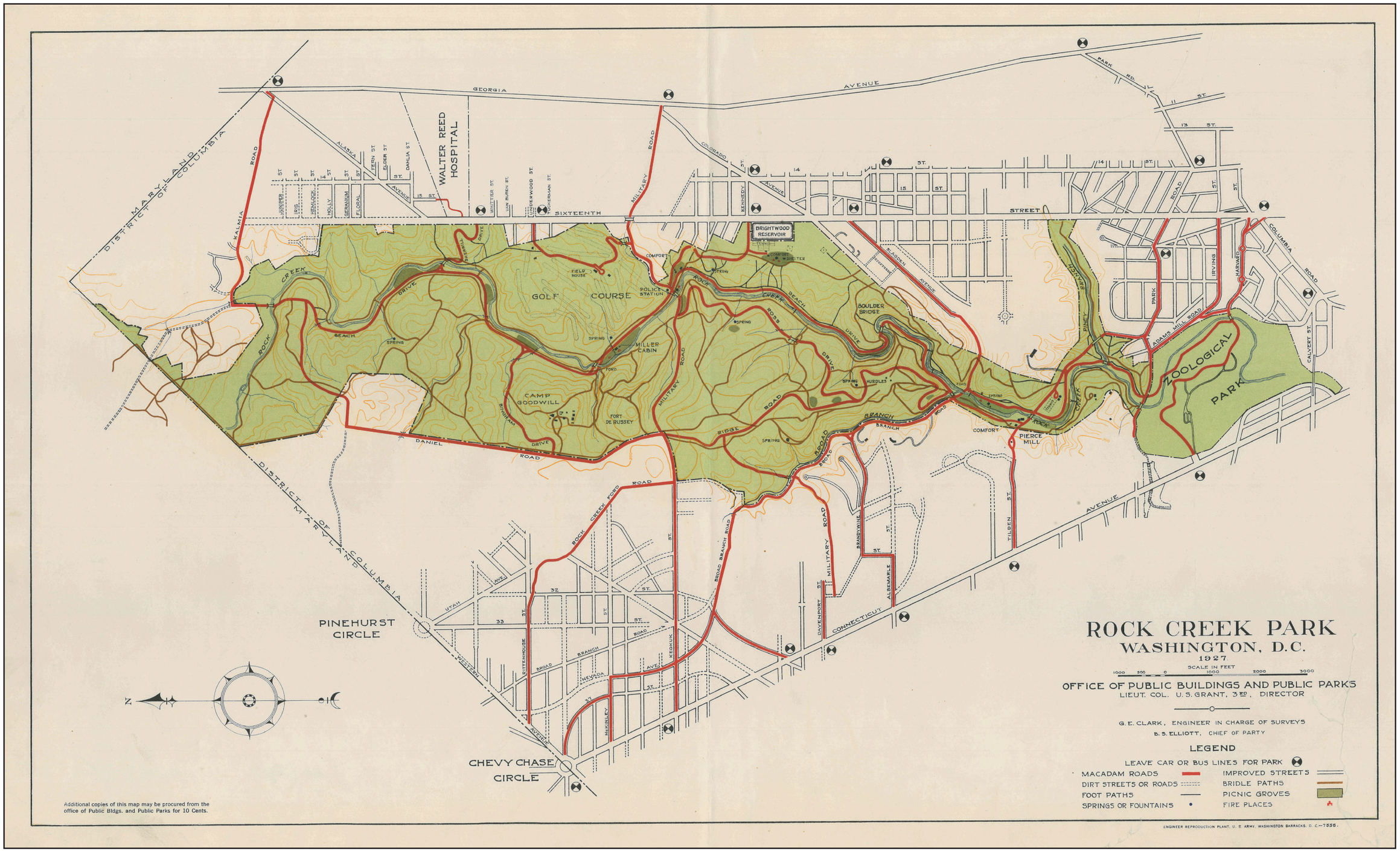

**1911 Map of Rock Creek Park**



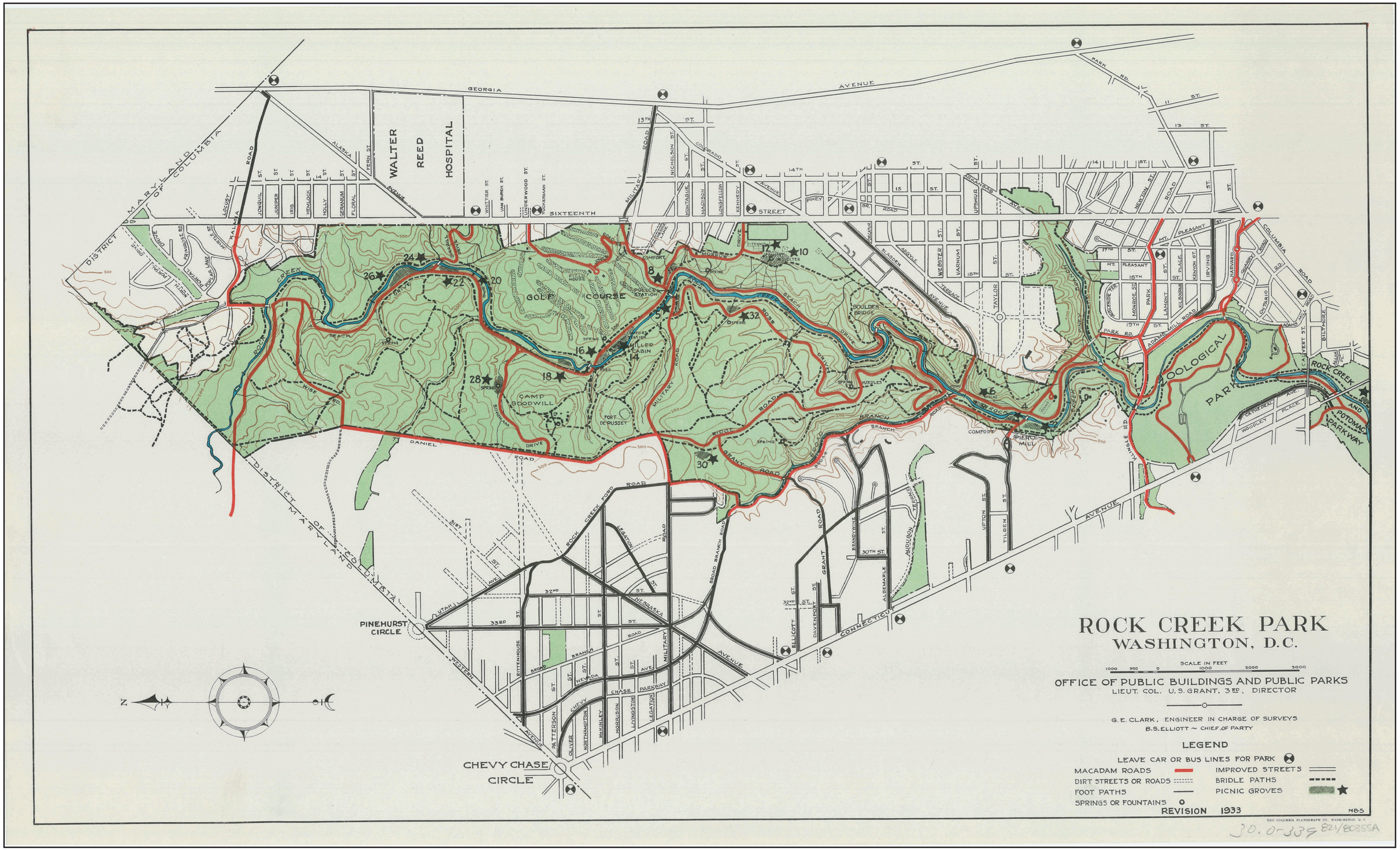

**1916 Rock Creek Park and Vicinity, War College Division**



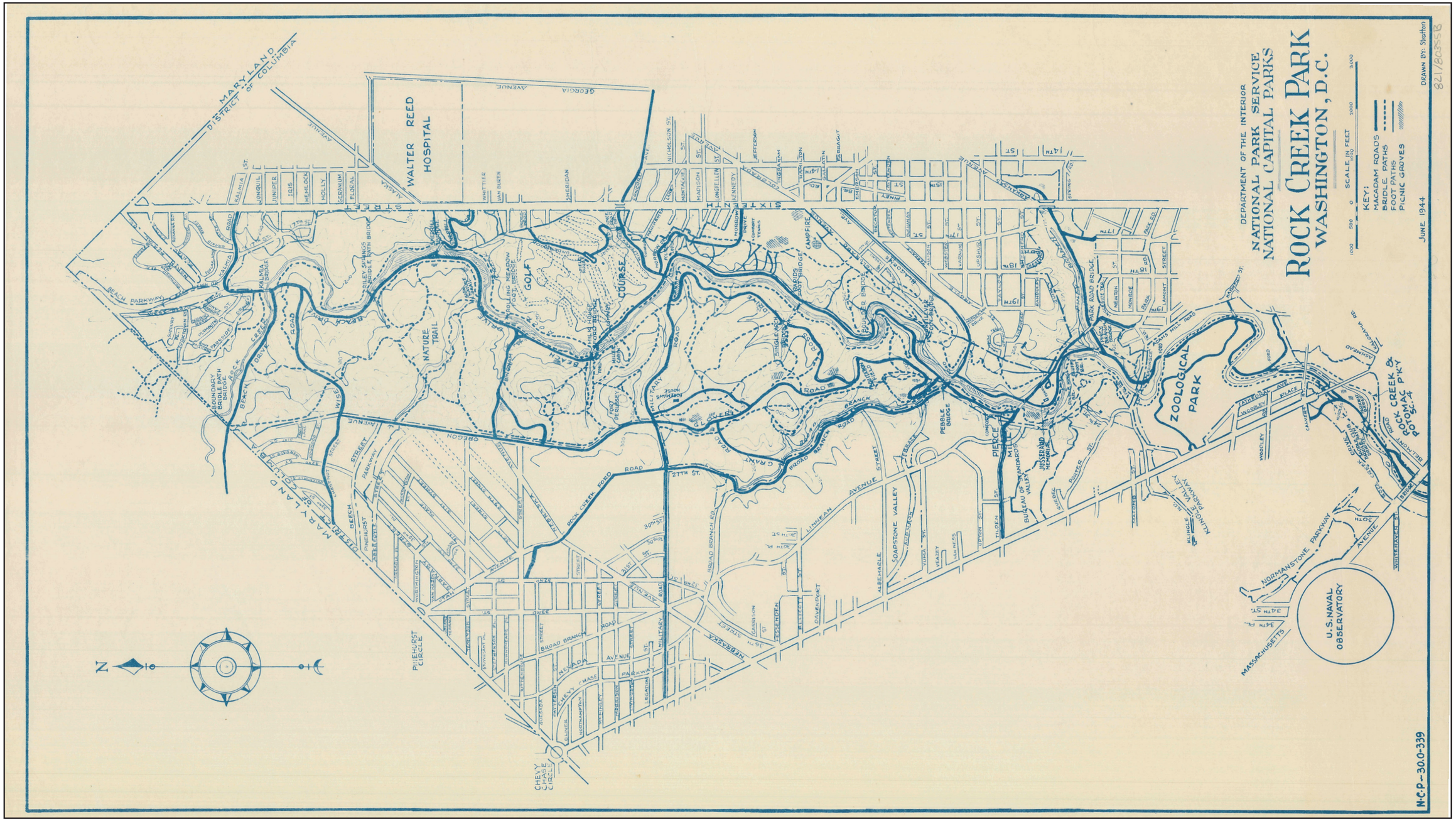

**1921 Map of Rock Creek Park**



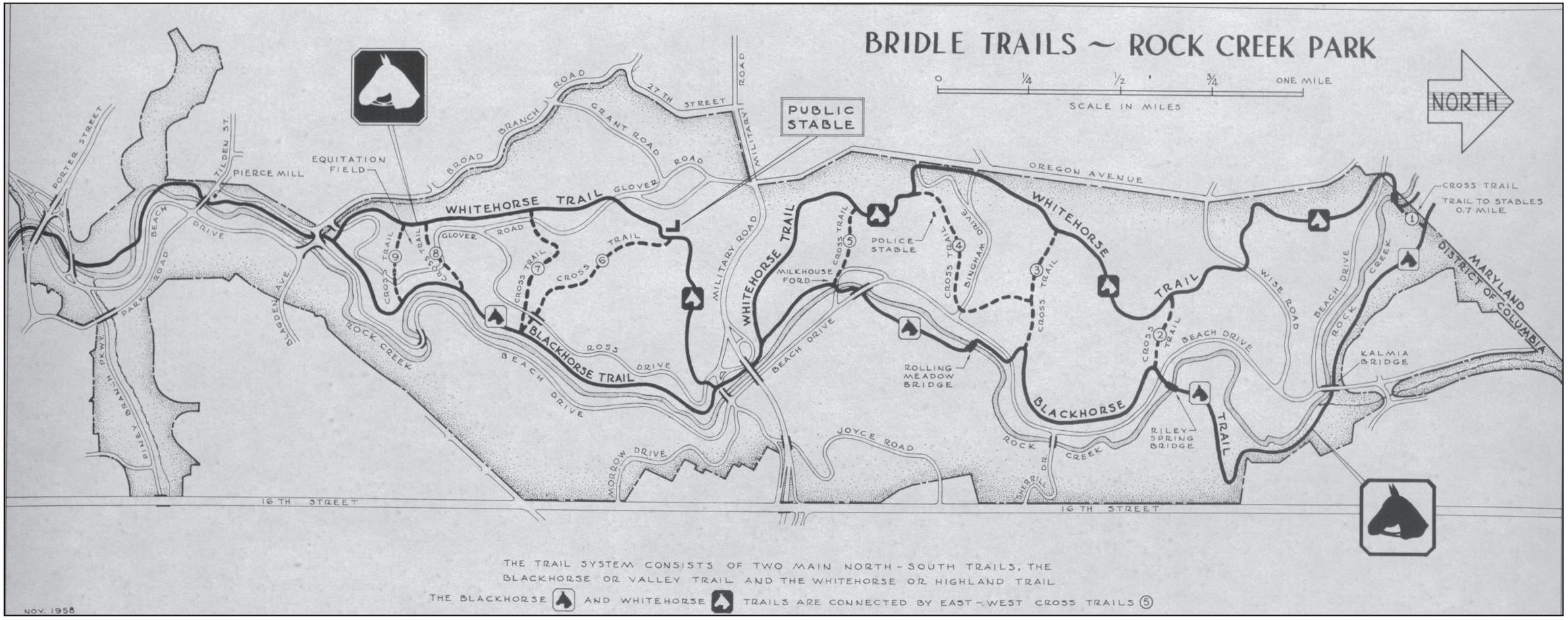

**1927 Map of Rock Creek Park**



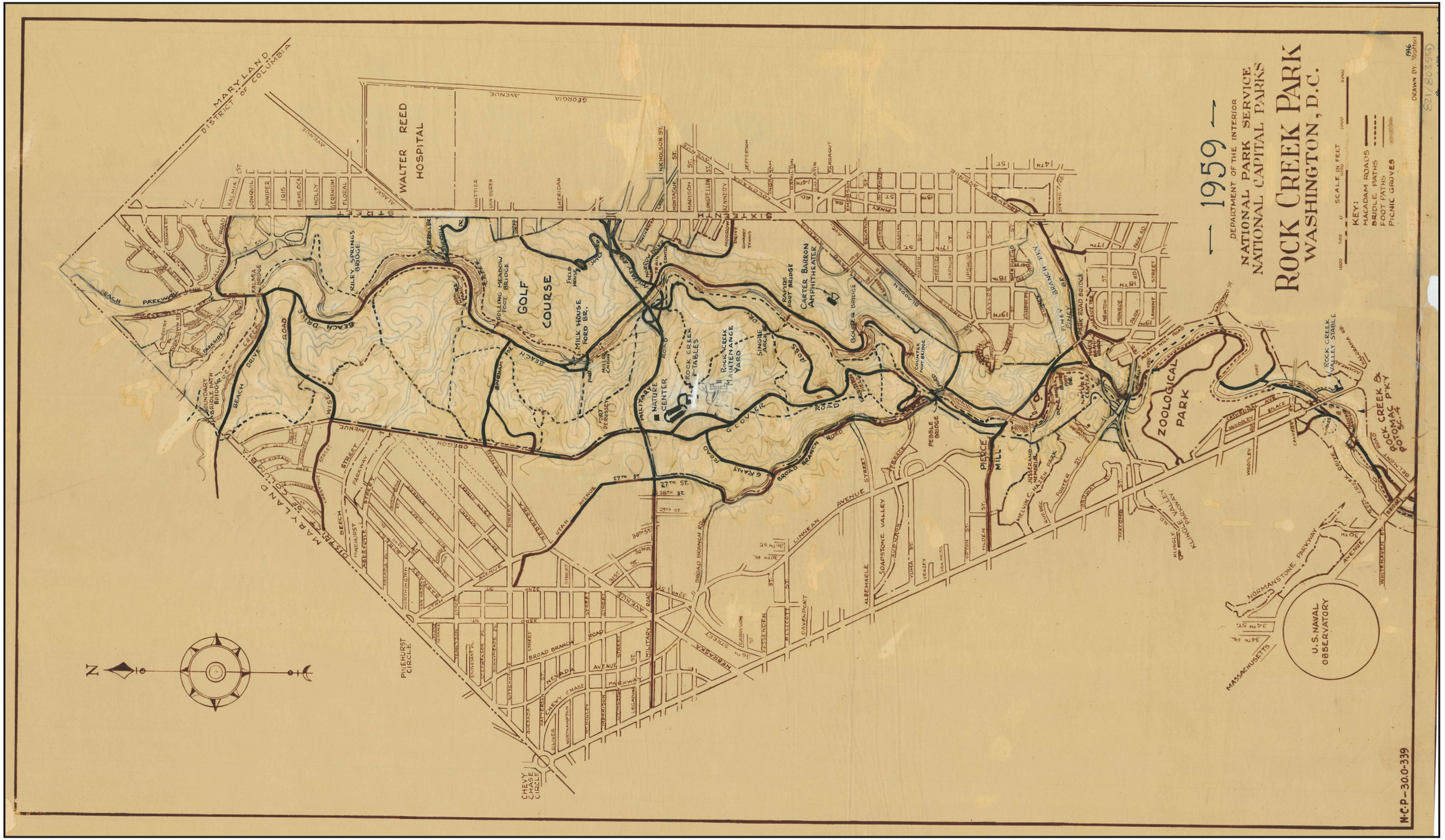

**1933 Map of Rock Creek Park**



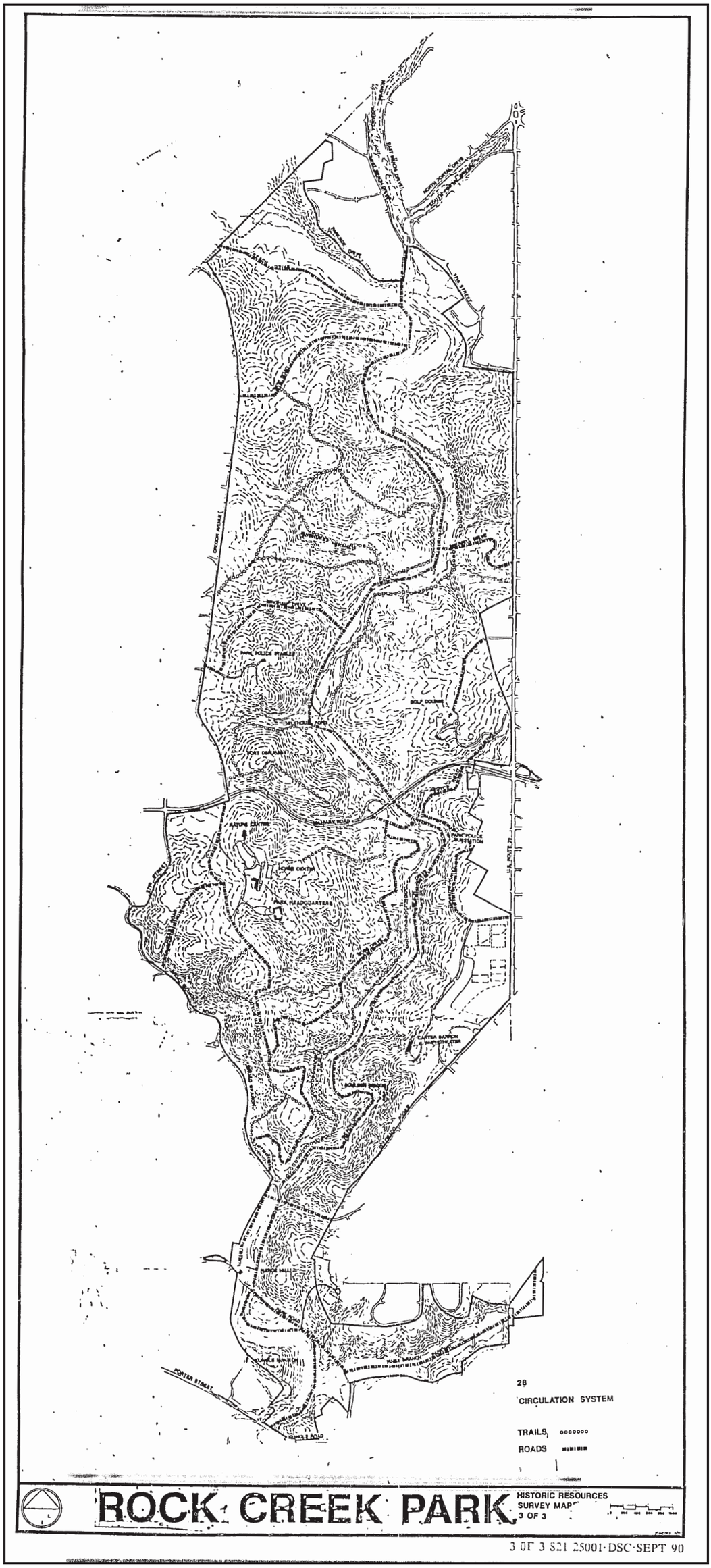

1944 Map of Rock Creek Park, National Park Service




**1957 Map Bridle Trails for Rock Creek Park**




**1959 Map of Rock Creek Park, National Park Service**




1990 Map of Circulation System for Rock Creek Park, Historic Resources Survey

National Park Service
U.S. Department of the Interior

Rock Creek Park
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