National Park Service
U.S. Department of the Interior

Chattahoochee River National Recreation Area
Georgia

DRAFT
ENVIRONMENTAL ASSESSMENT

Proposed Trail Connection Project
Bowmans Island West, Johnson Ferry South, and Cochran Shoals/Sope Creek Park Units

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Prepared for:
National Park Service
Southeast Regional Office
100 Alabama Street SW
Atlanta, Georgia 30303

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) was prepared for the National Park Service (NPS) to support the proposed construction of three trail connection projects within the Chattahoochee River National Recreation Area (the park). These projects comprise the Chattahoochee River Trail Connection Plan. The park consists of a series of 16 park units along a 48-mile stretch of the Chattahoochee River between Peachtree Creek, Atlanta, and Buford Dam, just north of Atlanta, Georgia. Encompassing nearly 10,000 acres of land, the park provides about three-quarters of the green space in the greater Atlanta area, and provides outdoor recreation for almost three million visitors per year. The proposed trail connection projects are located within three of the park's units, including Bowmans Island West, Johnson Ferry South, and Cochran Shoals/Sope Creek.

The EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the NPS regulations for implementing NEPA. This EA examines the consequences of the proposed project on the environment, cultural and historic resources, and visitor use and experience. This EA presents the alternatives considered during the NEPA process, the affected environment, the impacts associated with the proposed projects, and agency consultation and coordination that was conducted to support this project.

Alternatives are being considered for each of the park units. At the Bowmans Island West unit, one action alternative is being considered. Alternative A would consolidate the two parallel trails that currently exist into one single improved trail and would close approximately ½ mile of eroded trails. Three bridges would also be installed over three eroding streams. Two alternatives are being considered for the Johnson Ferry South unit. Both alternatives would close approximately 1/2 mile of social trails and construct a 0.1 mile segment of new trail to connect the existing trail to a planned underpass on Johnson Ferry Road. Alternative A would allow only hikers to use the trail system and Alternative B would allow multiple users (hikers and bikers) to use the trail. Two alternatives are being considered at the Cochran Shoals/Sope Creek unit. Both alternatives would include constructing approximately 4.3 miles of new trails and closing approximately 5.3 of eroded trails. Alternative A would allow for only hikers to use the new trail system and Alternative B would allow for multiple users on 6.7 miles of trails and hikers only on 3.0 miles of trails.

The potential duration of the impacts (short-term or long-term), the intensity of the impacts (negligible, minor, moderate, or major), and the classification of the impacts as beneficial or adverse were analyzed in detail for these projects for each alternative. Cumulative effects were also considered. By analyzing all alternatives including the No Action Alternative, and identifying mitigation measures that would minimize adverse effects, this EA assists in the decision-making process for the proposed projects.

Bowmans Island West

Impacts associated with the trail improvement at the Bowmans Island West unit include negligible impacts to soils, air quality, water quality, aquatic resources, vegetation, aesthetics, and public health and safety during the bridge construction period. Minor, short-term, adverse impacts to noise, wildlife, visitor use and experience, and park operations are also expected during the bridge construction period. The operation of the new trail system would create long-term, beneficial impacts to soils, water quality, aquatic resources, vegetation, wildlife, archaeological resources, aesthetics, public health and safety, visitor use and experience, and park operations. Long-term, minor, adverse impacts to archaeological resources are also anticipated. There would be no impact to historic resources at this unit. The proposed action would not cause impairment to park resources.

Johnson Ferry South

Impacts associated with new trail construction and trail closure include minor, short-term, adverse impacts to noise, vegetation, wildlife, and park operations at the Johnson Ferry South unit. Impacts to soils, air quality, water quality, aquatic resources, public health and safety, visitor use and experience, and aesthetics would also be expected during trail construction and closure; however, these impacts are expected to be negligible. The operation of the new trail system would create beneficial impacts to soils, vegetation, wildlife, public health and safety, visitor use and experience, and park operations. There would be no impact to archaeological and historic resources. The proposed action would not cause impairment to park resources.

Cochran Shoals/Sope Creek

Impacts associated with new trail construction and trail closure at the Cochran Shoals/Sope Creek unit would include minor, short-term, adverse impacts to soils, air quality, noise, water quality, aquatic resources, vegetation, wildlife, aesthetics, visitor use and experience, and park operations. Beneficial impacts are expected during the operation of the new trail system. Beneficial impacts would include soils, water quality, aquatic resources, vegetation, wildlife, aesthetics, public health and safety, and park operations. In terms of visitor use, Alternative A would have long-term, moderate, adverse impacts to mountain bikers in this area, but beneficial impacts to hikers. There would be no impact to archaeological and historic resources. However, the proposed trail corridor would be routed to avoid the chimney remains within site 9CO649 any new trail alignments would be surveyed if they fall along an unsloped area (<15% slope) that has not been previously surveyed. The proposed action would not cause impairment to park resources.

Public Comment

Note to reviewers and respondents:

If you would like to comment on this EA, you may mail comments to the name and address below, or you may submit comments online at the Planning, Environment and Public Comment (PEPC) website (http://parkplanning.nps.gov). This document will be on public review for 30 days. Please note that names and addresses of people who comment become part of the public record. If you wish for us to withhold your name and/or address, you must state this prominently at the beginning of your comment. All submissions from organizations, businesses and individuals identifying themselves as representatives or officials of organizations or businesses will be made available for public inspection in their entirety.

Superintendent
Chattahoochee River National Recreation Area
1978 Island Ford Parkway
Sandy Springs, GA 30350

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LIST OF ACRONYMS

ARC	Atlanta Regional Commission
BMP	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CRCP	Chattahoochee River Corridor Plan
CWA	Clean Water Act
DO	Dissolved Oxygen
DOI	Department of the Interior
EA	Environmental Assessment
EPD	Environmental Protection Division
ESA	Endangered Species Act
F	Fahrenheit
FONSI	Finding of No Significant Impact
GDNR	Georgia Department of Natural Resources
IDT	Interdisciplinary Team
L	Liter
mg	Milligrams
ml	Milliliters
MRPA	Metropolitan River Protection Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_x	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Services
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O_3	Ozone
OCGA	Official Code of Georgia Annotated
Park	Chattahoochee River National Recreation Area
Pb	Lead
PCB	Polychlorinated Biphenyl
PM	Particulate Matter
ppm	parts per million
RM	River Mile

SO_2	Sulfur Dioxide
TCP	Traditional Cultural Property
TMDL	Total Maximum Daily Load
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds

1.0 PURPOSE AND NEED

1.1 INTRODUCTION

The National Park Service (NPS) is preparing this Environmental Assessment (EA) to consider the environmental consequences related to three proposed trail connection projects within the Chattahoochee River National Recreation Area (the park). These projects comprise the Chattahoochee River Trail Connection Plan.

1.2 PROJECT LOCATION

The Chattahoochee River National Recreation Area consists of a series of 16 park units along a 48-mile stretch of the Chattahoochee River between Peachtree Creek, Atlanta, and Buford Dam, just north of Atlanta, Georgia (Figures 1-1 and 1-2). With an authorized boundary of 10,000 acres, the park provides about three-quarters of the green space in the greater Atlanta area, and provides outdoor recreation (hiking, biking, horseback riding, fishing, boating, nature study, and other outdoor activities) for nearly three million visitors per year. The project involves three of the 16 park units which are shown on Figure 1-3 and described below.

Bowmans Island West Unit

After dropping 197 feet, the Chattahoochee River emerges from the base of Buford Dam in Forsyth County and flows through the Bowmans Island West unit of the park (Figure 1-3). This unit consists of 811 acres in Forsyth and Gwinnett County near Suwannee, Georgia. The Bowmans Island West unit consists of a larger northern and southern portion joined together by an undeveloped narrow strip of park property. The undeveloped strip of land consists of approximately 21.5 acres and is 4,000 feet in length and 250 feet wide.

Johnson Ferry South Unit

The Johnson Ferry South unit, located within Cobb County, consists of approximately 74 acres of parkland between Columns Drive and Johnson Ferry Road (Figure 1-3). This unit currently offers approximately 1.5 miles of trails that border the Chattahoochee River. The trails were once a dirt farm road when the area was farmed in the early twentieth century.

Cochran Shoals/Sope Creek Unit

The Sope Creek area, located within Cobb County, is a secluded entrance to the Cochran Shoals area, one of the largest and most popular units within the park (Figure 1-3). Sope Creek flows

from its headwaters in Marietta southeasterly over 12 miles to join the Chattahoochee River. The creek traverses the north end of the Cochran Shoals unit of the park.

Figure 1-1. Regional Location of Chattahoochee River National Recreation Area

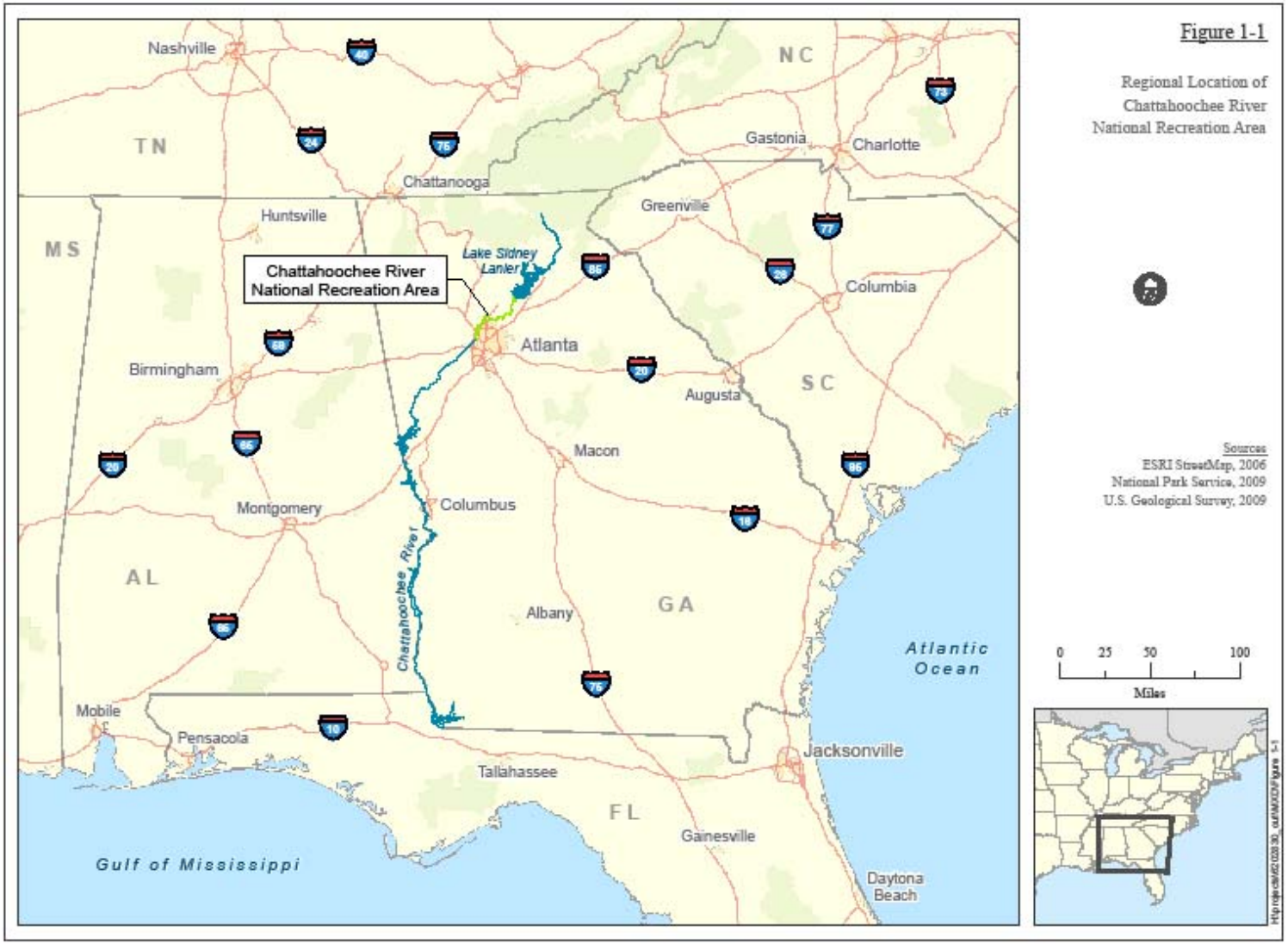


Figure 1-2. Vicinity Map of Chattahoochee River National Recreation Area

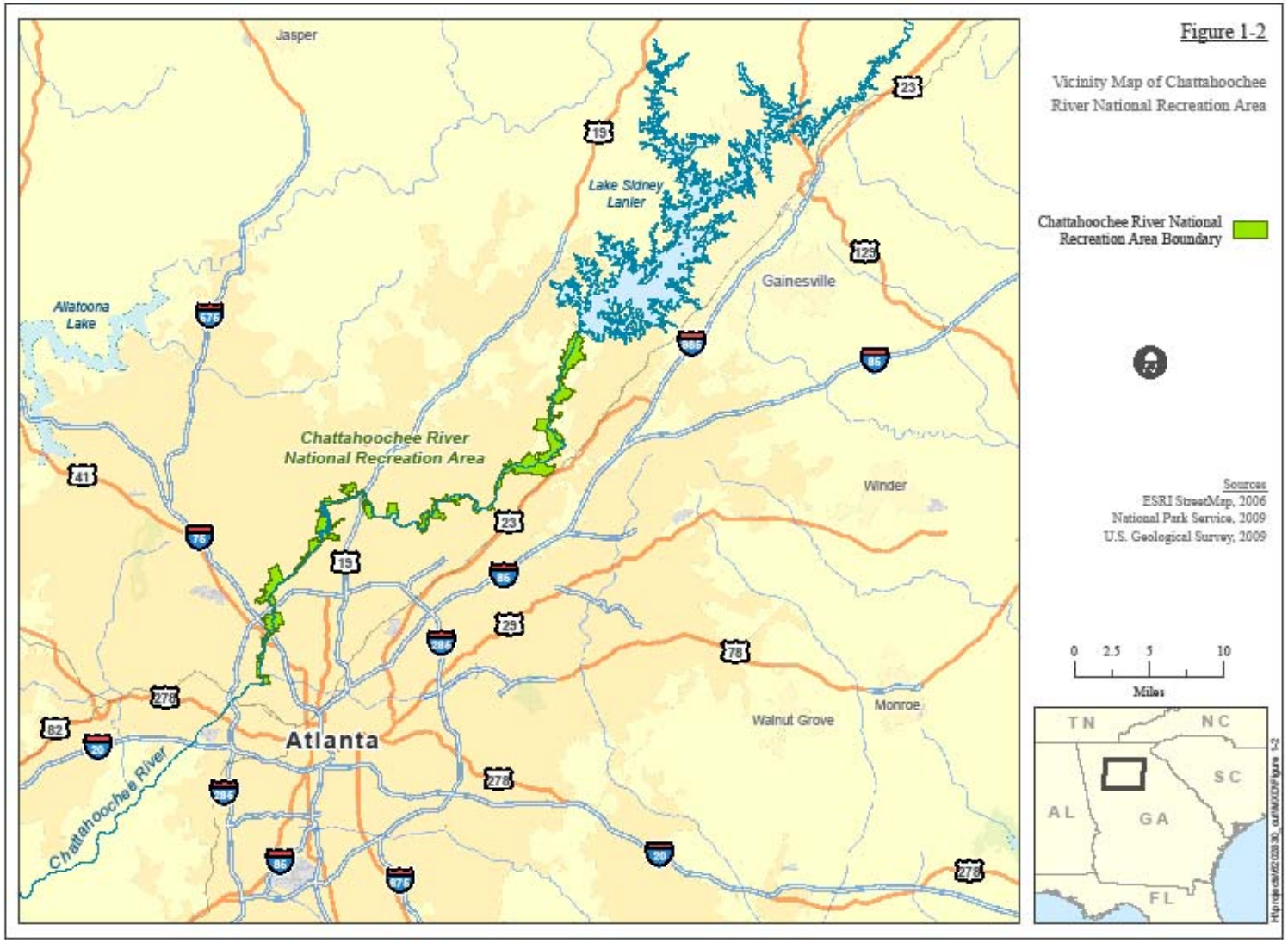
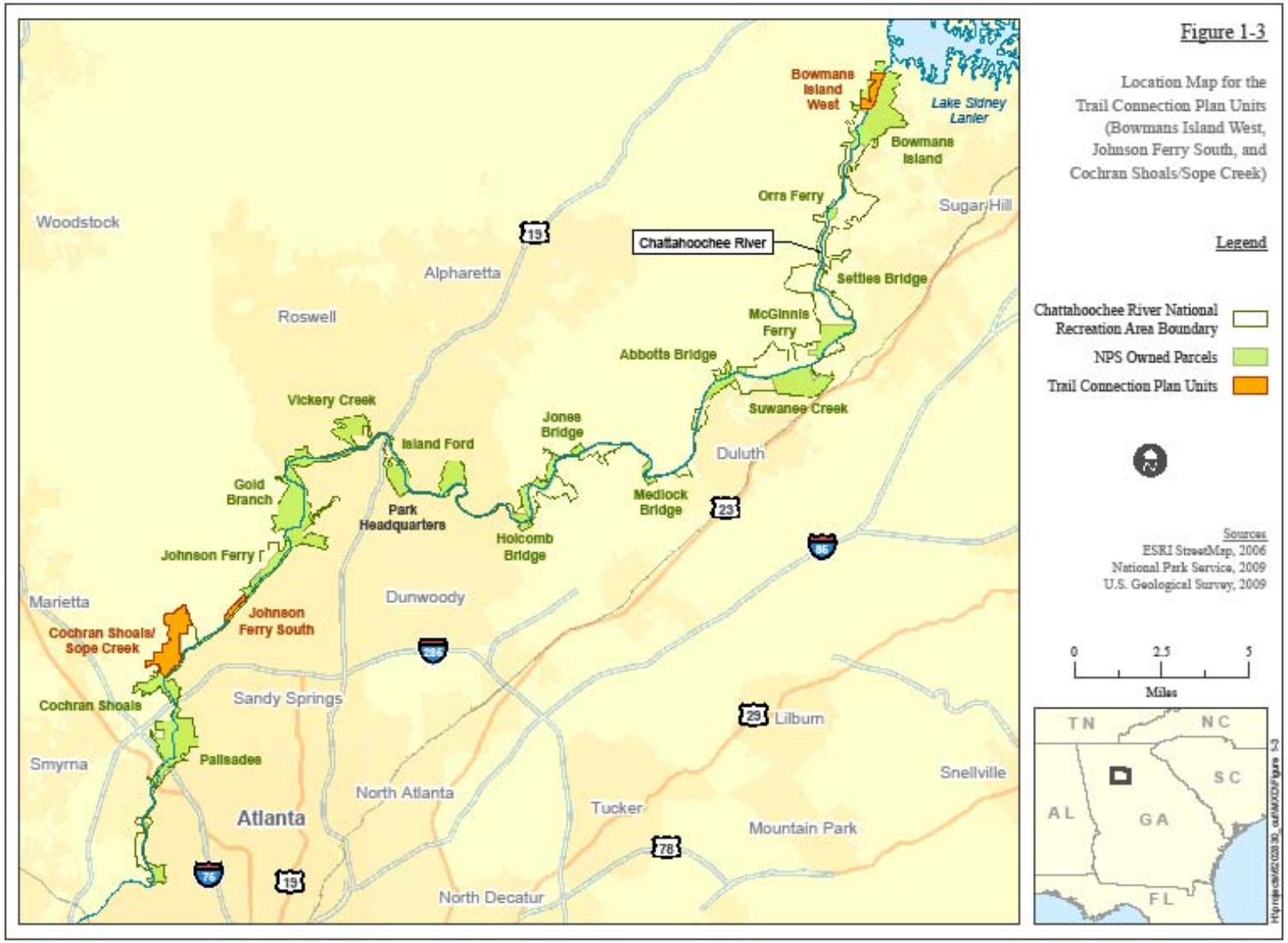


Figure 1-3. Location Map of the Trail Connection Plan Units



1.3 PROJECT BACKGROUND

Chattahoochee River and Chattahoochee River National Recreation Area

In the early 1970's a group of people realized that the city of Atlanta was especially fortunate to have a river as beautiful as the Chattahoochee running through a major metropolitan area. The combination of scenic vistas, urban location, geologic features and biodiversity qualified the area to meet the strict standards for inclusion in the NPS. Today, the park has an authorized boundary encompassing 10,000 acres of beautiful natural area, which is utilized as a valuable outdoor recreation resource by over 3.7 million people located within the Atlanta metropolitan area as well as other visitors from around the world. The park contains a rich assemblage of natural resources and the park's green space provides a variety of outdoor recreation opportunities as well as cultural and educational activities. As the Atlanta Regional Commission (ARC) has pointed out, the Chattahoochee River is more than a water source, and stands out as a thread of nature running through a bustling, growing major metropolitan area, offering an irreplaceable asset that adds immensely to Atlanta's quality of life.

The 540-mile Chattahoochee Rivers begins in northern Georgia, high in the Blue Ridge Mountains and flows generally south into Lake Lanier. From there it passes through the suburbs north of Atlanta and continues to the Florida Gulf. In the 1970's, the resources that made the river valley a special place to so many people were being threatened. Congress determined that the "natural, scenic, recreation, historic, and other values of a 48-mile segment of the Chattahoochee River and certain adjoining lands in the State of Georgia from Buford Dam downstream to Peachtree Creek are of special national significance, and that such values should be preserved and protected from developments and uses which would substantially impair or destroy them." On August 15, 1978, President Jimmy Carter signed legislation that set aside the Chattahoochee River National Recreation Area as a National Park. The park boundaries were expanded in 1999 to 10,000 acres and today the Park is 48 miles long, located in an urban and suburban area between Atlanta and Lake Lanier, Georgia.

Park Units within the Project Area

Bowmans Island West

The Bowmans Island West unit offers many recreation activities varying from horseback riding and hiking to boating and trout fishing. Bowmans Island West has restrooms and a boat launch for canoes, kayaks, and rafts only. Currently, two roughly parallel trails are located along the river and are designed for mixed use (i.e., hiking and horseback riding.) Within the park, in accordance with the Code of Federal Regulations (CFR) - Title 36 Chapter 1 §2.16, horses are

only permitted on the designated equestrian trails located on the Forsyth County side of the Bowman's Island unit. In accordance with 36 CFR 4.30, bicycles are only allowed on the unpaved Bowmans Island unit access road and parking lot; bicycles are not allowed on the trails.

Johnson Ferry South

Johnson Ferry South has restrooms, picnic tables, and a picnic pavilion. In accordance with 36 CFR 4.30, bicycles are only allowed on the Johnson Ferry unit access roads and parking lots.

Cochran Shoals/Sope Creek

Named for a Cherokee holdout from the Trail of Tears, Sope Creek is a picturesque stream that flows into the Chattahoochee River. The creek traverses the north end of the Cochran Shoals unit of the park. The Sope Creek cultural landscape contains many features including the ruins of the historic Marietta Paper Mill and associated outbuildings. Archeological resources are also located on both sides of Sope Creek. Featuring gentle trails to scenic Sibley Pond and a more challenging trail for mountain bikers, Sope Creek is an important recreation resource located near the heart of the metropolitan area.

In accordance with 36 CFR 4.30, bicycles are allowed on the parking lots and access roads in the Cochran Shoals/Sope Creek unit. Bicycles are also allowed on unpaved roads closed to public vehicular traffic. Some trails at this unit are wider than a normal foot trail and permit multiple uses. These trails have been designed specifically for multi-use including bicycles. These routes have previously been evaluated under the National Environmental Policy Act (NEPA) and found to be consistent with the protection of park resources and will not disturb park wildlife. This use is in keeping with the park's national recreation area status.

NPS plans for improvements in the connectivity and sustainability of Cochran Shoals/Sope Creek bicycle and pedestrian trails that were developed in 2001 will form the basis for environmental review of the changes proposed for this unit.

1.4 PURPOSE AND NEED OF THE PROJECT

The NPS has a challenging mandate of "preserving and protecting" the park "for this and future generations" while providing a recreation area to a rapidly growing metropolitan area. The Bowman Island West, Johnson Ferry South, and Cochran Shoals/Sope Creek units are popular, heavily used areas within the park, and it is important that both goals of enhanced visitor experience and protection of natural and cultural resources are met in the execution of this project.

The park aims to make each of the 16 separate park units part of an accessible and integrated park system along the Chattahoochee River corridor. In order to fulfill these goals at the park level, the need for this project is to develop a more cohesive trail network within individual park units to enhance visitor use and experience, while at the same time protecting natural resources.

Currently, many of the existing trails within the three proposed project locations suffer from erosion and poor maintenance. Most of the erosion and sediment issues are a direct result of poor trail design. In many areas where a trail crosses a drainage or stream, the trail is routed along the fall line directly down the hill. Prolonged use of these steep trails accelerates erosion (exposing bedrock and roots) and creates deep ruts causing users to make the trail wider by traveling around these obstacles. Additionally, many unauthorized trails have developed, creating a maze of unmanageable trails. The long-term solution is to reroute some of the trails to a more manageable grade and create a sustainable trail system that is more aesthetically pleasing and requires less maintenance.

User conflict is an issue that needs to be addressed within the park. Conflicts between pedestrians and bicyclists are primarily caused by the difference in speeds between the users. Wide, smooth trails allow bicyclists to travel at higher speeds, and the speed differential between bicyclists and pedestrians reduces communication between the users, startles pedestrians, and increases the odds of conflict. Redesigning trails to reflect a loop-style system, rather than a traditional out-and-back style trail, would also lessen conflict by reducing traffic at a given point on the trail and reducing congestion. Loop-style trails would help to reduce the number of users that cut through or create unauthorized trails in order to avoid repetitive scenery. Additionally, directional traffic on the trails will be implemented as a means of lessening bicycle-pedestrian conflicts.

Therefore, the purpose of this trail connection plan project is to replace badly eroded trails and create a new system of connected trails in order to reduce long-term impacts to the environment and enhance recreation endeavors at these three park units.

This EA will examine alternatives for a newly developed trail system at each of the park units, as well as evaluating hiking only versus multi-use trails at the Johnson Ferry South and Cochran Shoals/Sope Creek units. This document will assist in the determination of the environmentally preferred alternative for the three trail connection projects.

1.5 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This EA was prepared in accordance with NEPA guidelines, and it examines the consequences of proposed actions on the environment. This EA examines the consequences of a proposed action and alternatives on the environment and analyzes the short-term, long-term, and

cumulative effects of the proposed actions for the trail connection plan as well as the "no action alternative." By comparing the proposed actions with other alternatives, identifying an environmentally preferred alternative, and identifying mitigation measures that would minimize adverse effects, this EA will assist stakeholders in the decision-making process.

1.6 ORGANIZATION OF THE ENVIRONMENTAL ASSESSMENT

Chapter 1 discusses the location and background of the project, the history of the park, the purpose and need of the project, the scope of the EA (discussed in Sections 1.1. though 1.5), organization of the EA (Section 1.6), impact topics considered, evaluated, and dismissed (Section 1.7), applicable statutory and regulatory requirements (Section 1.8) and required permits and applications (Section 1.9). Chapter 2 discusses the no action alternatives and the action alternatives at the Bowmans Island West, Johnson Ferry South and Cochran Shoals/Sope Creek Units. Chapter 3 describes the affected environment and discusses the physical, natural, human, and cultural resources in relation to the alternatives. Chapter 4 presents the environmental consequences for the described alternatives for the trail connection plan to physical, natural, human, and cultural resources. Chapter 5 discusses the public involvement and scoping process that occurred throughout the NEPA process and agency consultation coordination. Chapter 6 is the list of document preparers and is followed by a list of document references (Chapter 7) and appendices.

1.7 IMPACT TOPICS

Issues can be defined as the relationship between the alternatives and the human physical and natural environment (NPS 2001). Issues are used to define which environmental resources may experience either negative or beneficial consequences from an action. They do not predict the degree or intensity of potential consequences that might result from an action. Issues were identified by the NPS, local and Federal agencies, and by the public during the scoping process. For more information, see Chapter 7 on Public and Agency Involvement and Consultation and Coordination. From these issues, impact topics were developed for each affected environmental resource area. Impact topics are used to define and focus the discussion of resources that would be affected by the alternatives, and are the focus in the evaluation of the potential environmental consequences of the alternative.

Potential impact topics were identified based on legislative requirements, executive orders, topics in Director's Order #12 and Handbook (NPS 2001), NPS Management Policies (NPS 2006a), guidance from NPS, input from other agencies, public concerns, and resource information specific to the park. A summary of impact topics analyzed or dismissed from further analysis is provided below, along with the rationale for their inclusion or dismissal.

1.7.1 Impact Topics Evaluated in Detail

Soils— Soil disturbance during the construction of new trails, as well as continued disturbance based on the type of usage of these trails is expected to have implications for this resource.

Air Quality—During construction of the proposed new trails and associated vegetation clearing, the operation of construction equipment is expected to generate some pollutant emissions, including carbon monoxide and particulate matter.

Noise—The construction phase of this project, including associated vegetation clearing would require the use of equipment that is expected to create short-term noise impacts at the park.

Water Resources—The construction of new trails adjacent to the river may impact the water quality of the river.

Aquatic Resources—Aquatic resources (fish and benthic invertebrates) have the potential to be impacted during construction activities.

Terrestrial Resources—Vegetation and wildlife habitat at the park is expected to be disturbed and impacted during trail construction activities.

Species of Special Concern—Protected species occur within the park and have the potential to be impacted during construction and implementation of the new trails.

Cultural Resources—Since the park contains cultural resources there is a possibility that the proposed actions could impact these resources.

Visitor Use and Experience—The proposed actions may cause minor alterations to visitor experience during the construction phase of the project and it may take time for visitors to adjust to the new system of trails after they are completed.

Recreation—Trail construction activities may temporarily affect recreation activities at the park.

Aesthetics—Aesthetics of the site are expected to be temporarily altered during trail construction.

Public Health and Safety—Construction activities have the potential to affect public health and safety.

Park Operations—Operations at the three units would be impacted during the construction and implementation of the proposed actions.

1.7.2 Impact Topics Dismissed From Further Analysis

Geology—Construction of the proposed projects is not expected to impact the geology at any of the three park units.

Topography—The elevation of the three park units is generally between 500 feet and 1,000 feet above mean sea level. There would be no impact to the topography of the land along the trail since the new trail system would follow the existing topography of the land.

Climate change/greenhouse gasses—Construction of the proposed projects will have negligible greenhouse gas emissions at the three park units.

Prime and Unique Farmland—A number of the soil types in the three park units have been classified as prime farmland or farmland of statewide importance. No unique farmland has been identified within park boundaries. There would be no impact to prime farmland because none of the proposed actions would result in permanent loss of the soil resource.

Floodplains—Portions of the trail system would be located within the 100-year floodplain at each of the three park units. At Bowmans Island West, property located immediately adjacent to the Chattahoochee River lies within the 100-year flood zone. This area is approximately 150 feet in width. The construction of three new bridges over existing streams and proposed trail closures would not result in the alteration or modification of floodplain hydrology at this unit. The lowest level of the bridges would be placed 1 foot higher than the 100-year flood level. In addition, the structures that hold the bridge would be placed outside of the stream cross section so that the structures would not impede the flow of water during flood events. Therefore, there would be no adverse effect to floodplains as a result of the proposed action.

At Johnson Ferry South, the 100-year floodplain extends from the river to Columns Drive (approximately 750 feet). The current trail system is located within the 100-year floodplain (FEMA 2008). The construction of 0.1 miles of new trail and proposed trail closures would not result in the alteration or modification of floodplain hydrology at this unit; the existing natural terrain at the unit would be utilized for the new trail. Therefore, there would be no adverse effect to floodplains as a result of the proposed action.

At the Cochran Shoals/Sope Creek site, the 100-year floodplain extends approximately 250-500 feet from the riverbed into the adjacent forest. The current trail system along the river is located within the 100-year floodplain. The adjacent land approximately 100 feet from Sope Creek lies

within the 100-year floodplain (FEMA 2008). The current trail system that follows the creek is within this floodplain area. The existing upland trails within this unit are located outside of the 100- and 200-year floodplains; therefore no impact to floodplains would result from the proposed new trail construction and trail closures at this unit.

Wetlands—Wetlands are located at each of the three park units. The Chattahoochee River within the three park units is considered deepwater habitat according to the Cowardin definition of wetlands (Cowardin et al 1979). Wetlands within the Bowmans Island West unit include two small palustrine, forested wetlands located within the floodplain in the southern portion of the unit. The construction of three new bridges over existing streams and proposed trail closures would not impact the wetlands at this unit. There would be no filling of wetlands associated with the proposed action.

Wetlands within the Johnson Ferry South unit include two palustrine, scrub/shrub wetlands. The wetland located in the north of the site is approximately 0.5 acres and is located adjacent to the current trail system. The wetland located in the south of the site is approximately 1 acre and is adjacent to Columns Road (USFWS 2009). Proposed trail closures and construction of 0.1 mile of new trail would not impact the wetlands at this unit. There would be no filling of wetlands associated with the construction of the new trail; the existing natural terrain at the unit would be utilized for the new trail. Therefore, no impacts to wetlands would occur at this unit.

An extensive wetland complex is located at the southern end of the Cochran Shoals/Sope Creek unit and includes palustrine emergent, lacustrine, and scrub/shrub wetlands on the floodplain next to the river. A series of elevated boardwalk trails currently provide visitors with an opportunity to observe the wetlands (NPS 2008). According to the National Wetland Inventory (NWI) maps, approximately 25 acres of wetlands have been identified throughout the unit (USFWS 2009). These wetlands include a mix of palustrine forested, palustrine scrub/shrub, and palustrine emergent wetlands. The proposed construction of the new trail system is not located in these wetland areas. Therefore, no impacts to wetlands would occur at this unit.

Coastal Zone—The park is outside of the 11 coastal counties in Georgia's Coastal Zone Management Area and, therefore, the proposed actions would have no impact on coastal zones.

Coastal Barriers—The park is located outside of Georgia's 11 coastal countries and does not include any coastal barriers. Therefore, the proposed actions would therefore have no impact on coastal barriers.

Ecologically Critical Areas—According to the U.S. Fish and Wildlife Service (USFWS), there are no ecologically critical areas located within the park boundaries or along the Chattahoochee River (USFWS 2009).

Designated Natural Areas—Natural areas in Georgia are managed by the Georgia Department of Natural Resources (GDNR) for the conservation of rare species and natural communities. There are no designated natural areas located within park boundaries (GDNR undated).

Wild and Scenic Rivers—The Chattahoochee River is not a federally designated Wild and Scenic River, and therefore no impacts would occur.

Land Use—The proposed actions would affect only NPS owned land and implementing the proposed project would not conflict with current land use plans for the park.

Socioeconomic Resources—The proposed actions would have a negligible effect on the socioeconomic resources located outside the park boundaries, such as demographics, economy, or housing. Many of the trail connection activities are planned to be performed by park staff and volunteers.

Environmental Justice—Although there are minority and or low-income populations in the vicinity of the park, implementation of the proposed actions would not result in any identified effects specific to any minority or low-income population or community. The alternatives would not alter the character of any local community in a negative way.

Energy Requirements and Conservation—While the proposed actions would require the use of energy during the trail construction phase of this project, the amount would result in negligible impacts to regional energy resources.

Cultural Landscapes— Cultural landscapes are defined as "geographic areas, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or that exhibit other cultural or aesthetic values" (Gerdes and Messer 2007:105). Only one cultural landscape has been defined within the project area. This cultural landscape is for the Sope Creek area located within the Cochran Shoals unit.

The Sope Creek cultural landscape begins downstream from Paper Mill Road and includes the Marietta Paper Mill ruins and landscape features associated with early water-powered industry. The Mill ruins date to the late 1860s. The original mill was destroyed by Union troops during the 1864 Atlanta Campaign. Today two mill foundations of the Marietta Manufacturing Company remain among the ruins of adjacent outbuildings. The original roadbed, retaining wall, dam, and raceway piers also survive along the creek (Wheeler 2009). Under both alternatives no new trails would be constructed within the Sope Creek cultural landscape. As a result, none of the proposed trails would have an adverse effect on the location, material, setting, design, association and feeling of the area.

Indian Sacred Sites and Indian Trust Resources—Designated Indian Trust Resources do not exist within the park and therefore would not be impacted by any alternative. No Native American sacred sites have as yet been identified within the park. Project-specific consultation has been initiated with potentially interested Tribes; however, this has not led to the identification of any sacred sites in the park. No impacts to sacred sites are predicted from the proposed alternatives.

Traditional Cultural Property—A traditional cultural property (TCP) is defined generally as one that is eligible for inclusion in the National Register of Historic Places (NRHP) because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and important in preserving the cultural identity of the community (Parker and King 1998). There are no known TCPs in the proposed trail areas.

1.8 APPLICABLE LAWS AND REGULATIONS

Applicable Federal policies, executive orders and NPS policies are listed in Table 1-1 below. In addition, NPS *Management Policies* (NPS 2006a) was used for guidance for numerous impact topics. Other regulations specific to NPS include the Director's Orders listed below, the Organic Act of 1916, and the Omnibus Act of 1998.

Table 1-1. Applicable Laws, Executive Orders, and NPS Policies

Resource	Relevant Laws and Regulations
Aesthetics	NPS Organic Act
Air Quality	Clean Air Act NPS Organic Act
Aquatic Resources	Fish and Wildlife Coordination Act
Cultural, Historic, and Archaeological Resources	National Historic Preservation Act Archaeological Resources Protection Act Director's Order #28 NPS Organic Act
Ecologically Critical Areas	Endangered Species Act
Energy Requirements and Conservation	Energy Policy Act Executive Orders 13031, 13123, 13149
Environmental Justice	Executive Order 12898
Floodplains	Executive Order 11988 Director's Order #77-2
Indian Sacred Sites and	Department of the Interior (DOI) Secretarial Orders No. 3206,

Resource	Relevant Laws and Regulations
Indian Trust Resources	3175 Director's Orders #66 and #71B Executive Orders 13007, 13175
Noise	Director's Order #47 Noise Control Act
Park Operations	NPS Organic Act
Prime and Unique Farmlands	Farmland Protection Policy Act Memorandum on Prime and Unique Agricultural Lands and NEPA (CEQ 1980)
Public Health and Safety	Architectural Barriers Act Americans with Disabilities Act (ADA) Director's Orders #42 and #83 Executive Order 13045
Socioeconomic Resources	Director's Orders #2 and #12
Soils, Geology, Topography	National Cooperative Soil Survey Standards Erosion and Sedimentation Control Act
Terrestrial Resources	Migratory Bird Treaty Act Wilderness Act Executive Order 13112
Threatened and Endangered Species	Endangered Species Act NPS Organic Act
Visitor Use and Experience	NPS Organic Act Director's Order #12 Architectural Barriers Act
Water Quality, Hydrology	Clean Water Act Rivers and Harbors Appropriation Act Executive Orders 11514, 12088 Estuary Protection Act
Wetlands	Executive Order 11990 Clean Water Act Executive Order 12088 Director's Order #77-1 Rivers and Harbors Appropriation Act
Wild and Scenic Rivers	Wild and Scenic Rivers Act Director's Order #46
Wildlife	Migratory Bird Conservation Act Migratory Bird Treaty Act

NPS *Management Policies* (NPS 2006a) manual was published by the NPS to provide service-wide policy compliance with the laws and statutory authorizes outlined in Table 1-1 and was used for guidance for numerous impact topics. *Management Policies 2006* states that the NPS will strive to ensure that park resources and values are passed on to future generations in a condition that is as good or better than the conditions that currently exist.

NEPA requires that all federal agencies find a balance between use and preservation of natural and cultural resources. NPS policy guidance for compliance with NEPA is found in the Director's Order #12 handbook, *Conservation Planning, Environmental Impact Analysis, and Decision Making*.

The NPS Organic Act of 1916 created the U.S. National Park Service as well as the purpose of the national parks: "The fundamental purpose of the parks is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The National Parks Omnibus Act of 1998 provides additional guidance directly related to this document. The act was written in order to provide for improved management and increased accountability for certain NPS programs. Additionally, NPS will follow the CFR, Title 36, which provides the regulations "for the proper use, management, government, and protection of persons, property, and natural and cultural resources within areas under the jurisdiction of the National Park Service" (36 CFR 1.1(a)). This EA will refer to these applicable documents for broad NPS interpretation of laws and to the park's founding legislation for park specific guidance. This project will also comply with all applicable state regulations and laws.

Chattahoochee River National Recreation Area Founding Legislation

Public Laws 95-344 and 98-568 (the park founding legislation) identify the specific purpose and need of the Chattahoochee River National Recreation Area. Public Law 95-344 established the Park on August of 1978, while Public Law 98-568 further clarified the Park's purpose in 1984. Public Law 95-344 states:

> The Congress finds the natural, scenic, recreation, historic, and other values of a forty-eight mile segment of the Chattahoochee River and certain adjoining lands in the State of Georgia from Buford Dam downstream to Peachtree Creek are of special national significance, and that such values should be preserved and protected from developments and uses which would substantially impair or destroy them.

The park's enabling legislation charges the NPS with the responsibility of administering, protecting, and developing the recreation area in accordance with the NPS Organic Act and any other statutory authorities for the conservation and management of historic and natural resources.

State Regulations, Acts, and Laws

Metropolitan River Protection Act

In 1973, the Georgia General Assembly enacted the Metropolitan River Protection Act (MRPA) (Georgia Code 12-50-440 et seq.). The Act established a 2,000-foot wide river corridor on both banks of the Chattahoochee River and its impoundments, including the streambed and any islands, for the 48 miles of river between Buford Dam and Peachtree Creek. In 1998, the General Assembly amended the act, extending the corridor another 36 miles to the downstream limits of the Atlanta Region (Fulton and Douglas Counties). The act requires the ARC to design a plan to protect the land and water resources of the Chattahoochee River Corridor, and adopt procedures to implement the plan and the act. The act also authorizes the ARC to review development proposals for consistency with plan standards and to issue findings based on these reviews. The ARC is the authority on all impervious surface changes within the proposed project area, while NPS has jurisdiction over all lands within the park.

As required by the MRPA, the ARC adopted the Chattahoochee River Corridor Plan (CRCP). This plan is based on the Chattahoochee Corridor Study conducted by ARC in 1972. The plan includes development principles and standards to minimize the negative effects of development on the river, and uses the natural characteristics of the existing terrain, soils and vegetation as a guide to identify development suitability.

All work proposed in this EA for the three trail connection projects would not increase existing land disturbance or impervious surface.

Rules and Regulations for Water Quality Control

Although the study area for the proposed project is located outside of Georgia's Trout stream counties, the Chattahoochee River is a designated secondary trout stream. While there has been no evidence of naturally breeding trout populations, the river is capable of supporting trout throughout the year and a naturally reproducing population of brown trout has been established in the northern section of the park. Therefore, the Chattahoochee River is still listed as a secondary trout stream according to the latest revision of the Rules and Regulations for Water Quality Control (Chapter 391-3-6; amended on November 27, 2005).

Erosion and Sedimentation Act of 1975 (amended in 2003)

Georgia's Erosion and Sedimentation Act of 1975 (amended in 2003) states that:

> There is an established 50-foot buffer, as measured horizontally from the point where vegetation has been wrested by normal stream flow or wave action, along the banks of any state waters classified as "trout streams"… The director may grant a variance from such buffer to allow land-disturbing activity, provided that adequate erosion control measures are incorporated in the project plans and specifications and are implemented.

The GDNR Environmental Protection Division (EPD) develops and enforces rules based on state laws. Environmental Rule 391-3-7, Erosion and Sedimentation, applies to the project area based on the Erosion and Sediments Act of 1975. Section 391-3-7.05 of this rule establishes certain conditions under which impacts to the area within the 50-foot buffer of the Chattahoochee River can occur.

Buffers on state waters are valuable in protecting and conserving land and water resources; therefore, buffers should be protected. The buffer variance process will apply to all projects legally eligible for variances and to all state waters having vegetation obtained from the channel by normal streamflow, provided that adequate erosion control measures are incorporated in the project plans and specifications and are implemented.

GDNR Stream Buffer Variance Application for a 50-foot vegetation buffer encroachment in accordance with the Erosion and Sedimentation Act of 1975, as amended by Official Code of Georgia Annotated (OCGA) 12-7-6(b)(15) is required in the event of impacts to the 50-foot buffer set by the Erosion and Sedimentation Act. All work proposed in this EA for the three trail connection projects would be outside of the 50-foot buffer.

1.9 REQUIRED PERMITS AND APPLICATIONS

No environmental permits or applications are required for the projects proposed within the Trail Connection Plan.

2.0 DESCRIPTION OF THE ALTERNATIVES

This chapter provides a description of the No Action Alternative and the Action Alternatives for each of the park units (Bowmans Island West, Johnson Ferry South, and Cochran Shoals/Sope Creek) included in the trail connection plan.

2.1 NO ACTION ALTERNATIVE

The No Action Alternative is required for the NEPA process to review and compare all feasible alternatives to the existing baseline conditions. Under the No Action Alternative, the planned trail connection projects would not be implemented at any of the three locations within the park. Without the trail connection plan, visitors would continue to use the existing trails at the three units, and the trails would remain how they were originally established and would require no action outside of how they are currently managed.

Bowmans Island West

The Bowmans Island West unit consists of approximately 21.5 acres and is 4,000 feet in length and 250 feet wide (Figure 2-1). This unit has a network of existing trails including some unauthorized social trails that are mainly used by hikers and for fishing access. As these unauthorized social trails have developed over time, they have created a maze of poorly designed and unmanageable trails. Currently, one main trail parallels the river to the south and subsequently forms two parallel trails to the north. The branch of the trail located closest to the river has visitor safety issues. Over the years, travel on this unauthorized trail has exposed rock and roots, and has created ruts causing users to travel around these obstacles, making the trail wider and less aesthetically pleasing. Four stream crossings are necessary along this trail. Erosion is evident in three of the four stream crossings, and there are safety concerns for visitors traversing these trails. However, one stream crossing is stable and has no signs of erosion due to a bedrock stream substrate. The trails in the Bowmans Island West unit are used for both pedestrian and equestrian use.

Johnson Ferry South

This unit currently contains approximately 1.5 miles of trails that border the river (Figure 2-2). The trails were once a dirt farm road when the area was farmed in the early twentieth century. The trail is currently used by visitors for walking, running, dog walking, and biking. Several small creek crossings are necessary along this trail. No visitor safety or erosional issues are associated with this unit.

Figure 2-1. Existing Trails at Bowmans Island West

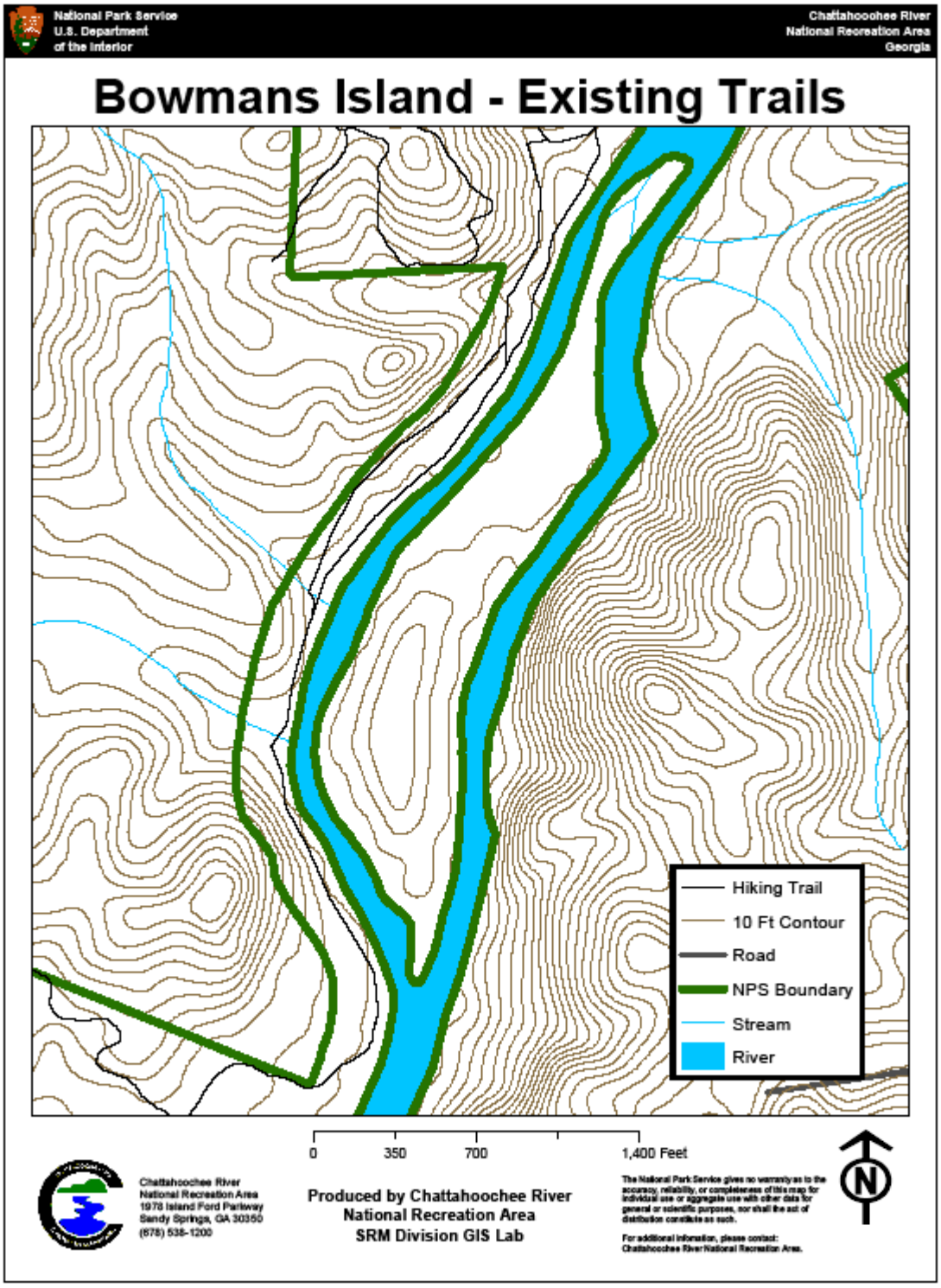
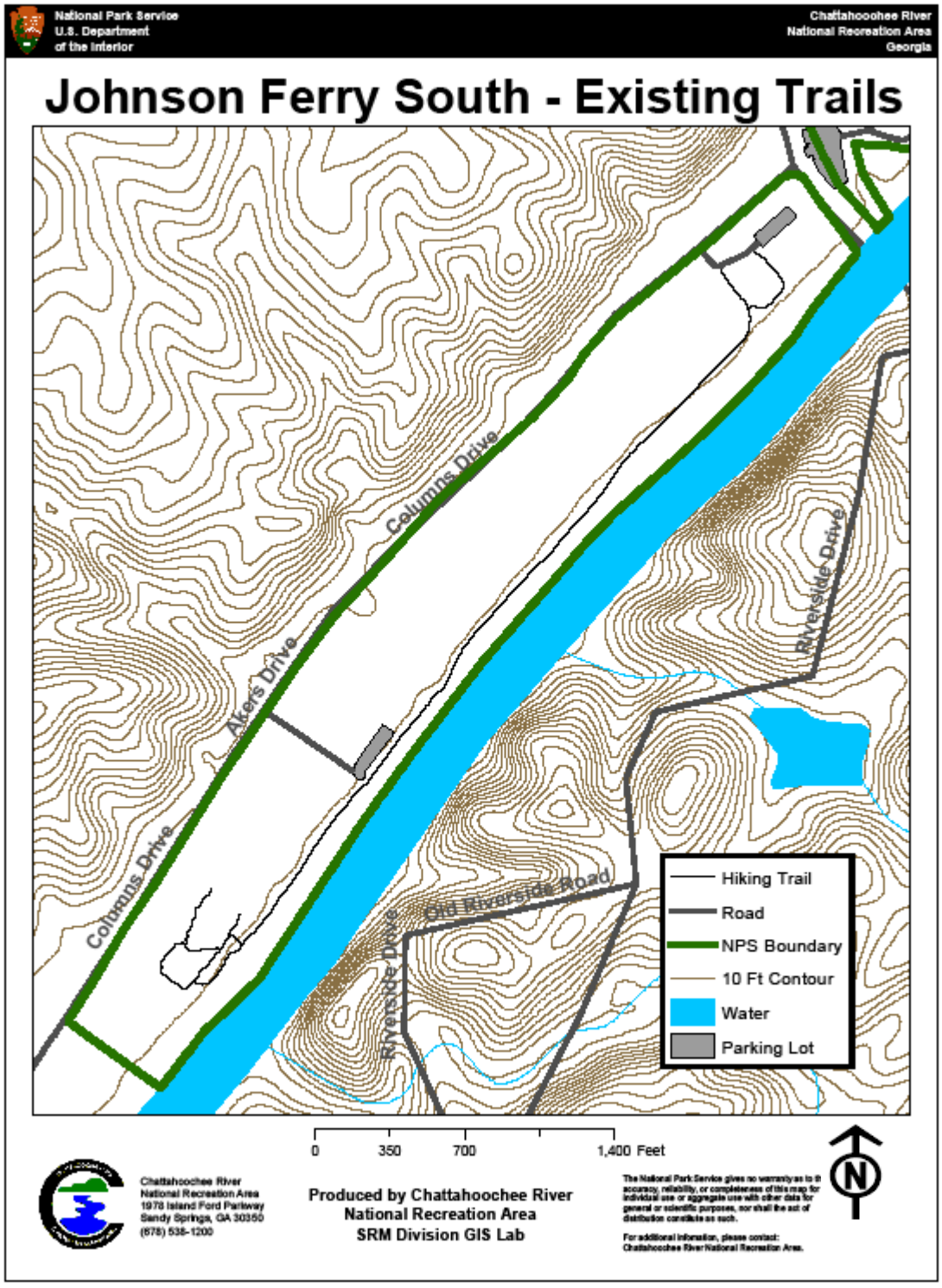


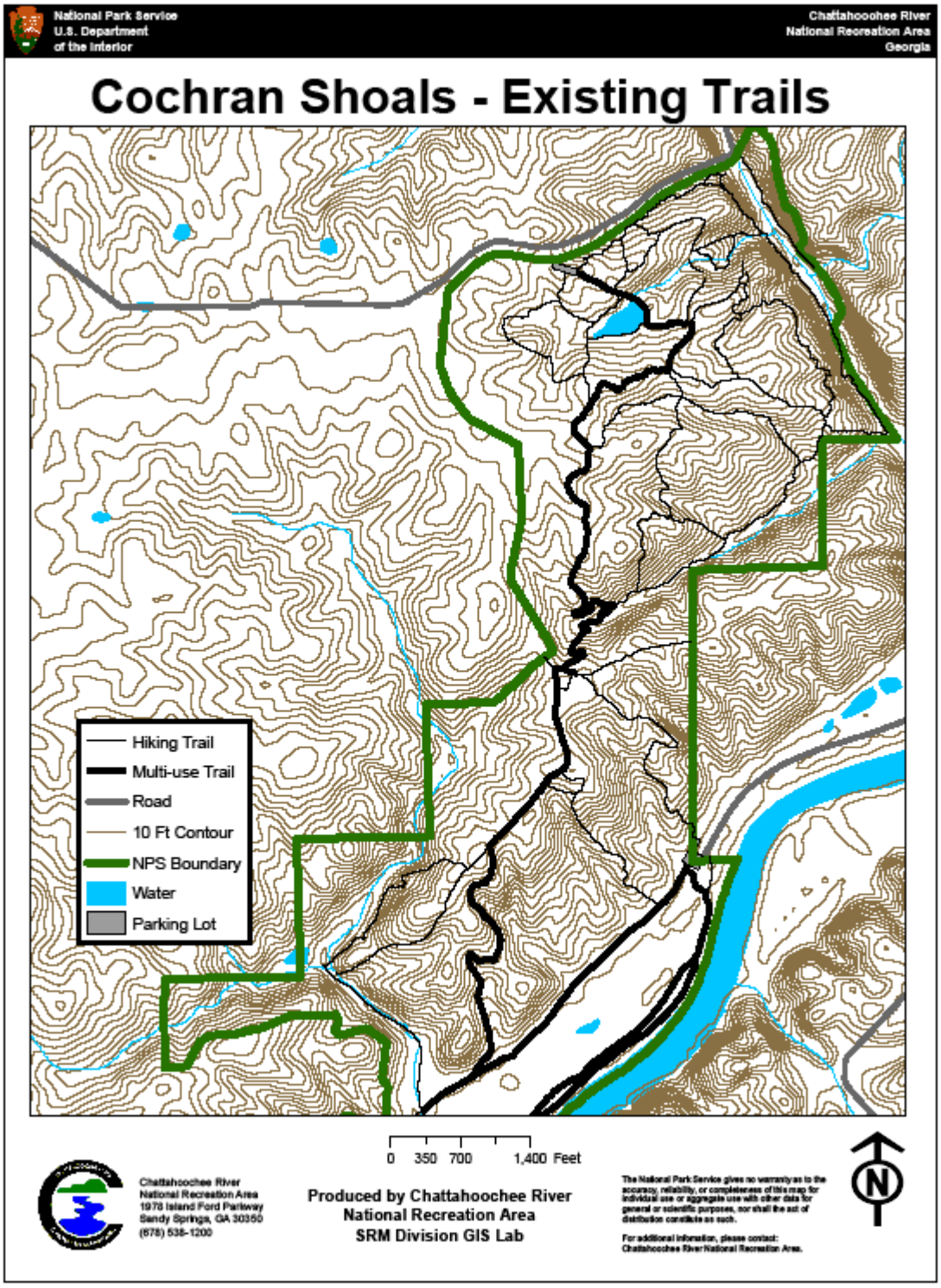
Figure 2-2. Existing Trails at the Johnson Ferry South Unit



Cochran Shoals/Sope Creek

The Cochran Shoals/Sope Creek unit has approximately 10 miles of trails ranging from a mixture of heavily eroded and poorly designed trails to trails in good condition (Figure 2-3). Visitors to this area use the trails for hiking, mountain biking, running, and dog walking. Throughout this unit, many miles of unauthorized social trails have developed, resulting in visitor safety and erosion issues as well as management problems. Most of the erosion issues are a direct result of poor trail design. In many of the areas where streams or drainages are crossed, the trail follows the fall line directly down the hill. This method of trail routing encourages increased erosion and directs all materials loosened by users into the nearest waterway. Over the years this trail use has exposed bedrock and roots, and has created deep ruts causing users to travel around these obstacles, making the trail wider and less aesthetically pleasing.

Figure 2-3. Existing Trails at the Cochran Shoals/Sope Creek Unit



2.2 ACTION ALTERNATIVES

2.2.1 Bowmans Island West

Alternative A - Hiking Trail

This alternative would create a trail system within this unit that is safer for visitors, benefits natural resources, is more aesthetically pleasing, and requires less maintenance. At the Bowmans Island West unit, the two roughly parallel trails located along the river would be consolidated into a single improved trail (Figure 2-4). The trail alignment closest to the river would be closed and revegetated, and the remaining trail alignment would be improved with the construction of three new bridges over the existing streams. The bridges to be constructed are prefabricated fiberglass pedestrian/equestrian bridges, which are designed to be carried and installed in remote locations without the use of vehicles or machinery. The bridges would span between 20 – 30' to cross the streams, and would be anchored on each end with concrete foundations. To prevent the bridges from altering or modifying the floodplain hydrology at this unit the lowest level of the bridges would be placed 1.0 foot higher than the 100-year flood level. In addition, the concrete structures that hold the bridge would be placed outside of the stream cross section so that the structures would not impede the flow of water during flood events. The portion of the trail to be closed is approximately ½ mile in length. Pedestrian and equestrian use of the trail system would be allowed under this alternative.

2.2.2 Johnson Ferry South

These action alternatives would create a new trail segment within this unit connecting to existing trails. In addition, Alternative A offers a hiking only trail system, while Alternative 2 offers an option for portions of the trail to be multi-use for bicyclists and hikers.

Alternative A - Hiking Trail

At the Johnson Ferry South unit, this alternative would close ½ mile of several small social trails and construct a 0.1 mile segment of new trail to connect the existing trails to a planned underpass on Johnson Ferry Road (Figure 2-5). The trail would originate as a planned pedestrian trail at this underpass. The new trail construction would include a 4-foot wide trail surface with the associated clearing of vegetation to allow a 6-foot wide trail corridor to a height of 8-feet overhead. This alternative would result in a total of 3.5 miles of hiking-only trails.

Alternative B – Multi-Use Trail

This alternative is similar to Alternative A except that the southern portion of the unit would be for hiking only and the northern portion of the trail would be for multi-use activities (hiking and biking) (Figure 2-6). The same social trails would be closed and the new trail segment to connect into the planned underpass would be constructed as described in Alternative A. The trail would originate as a planned pedestrian and bicycle trail at this underpass. Upon the completion of the trail connection there would be 1.3 miles of hiking trails and 2.2 miles of multi-use trails.

Figure 2-4. Proposed Trails at Bowmans Island West – Alternative A

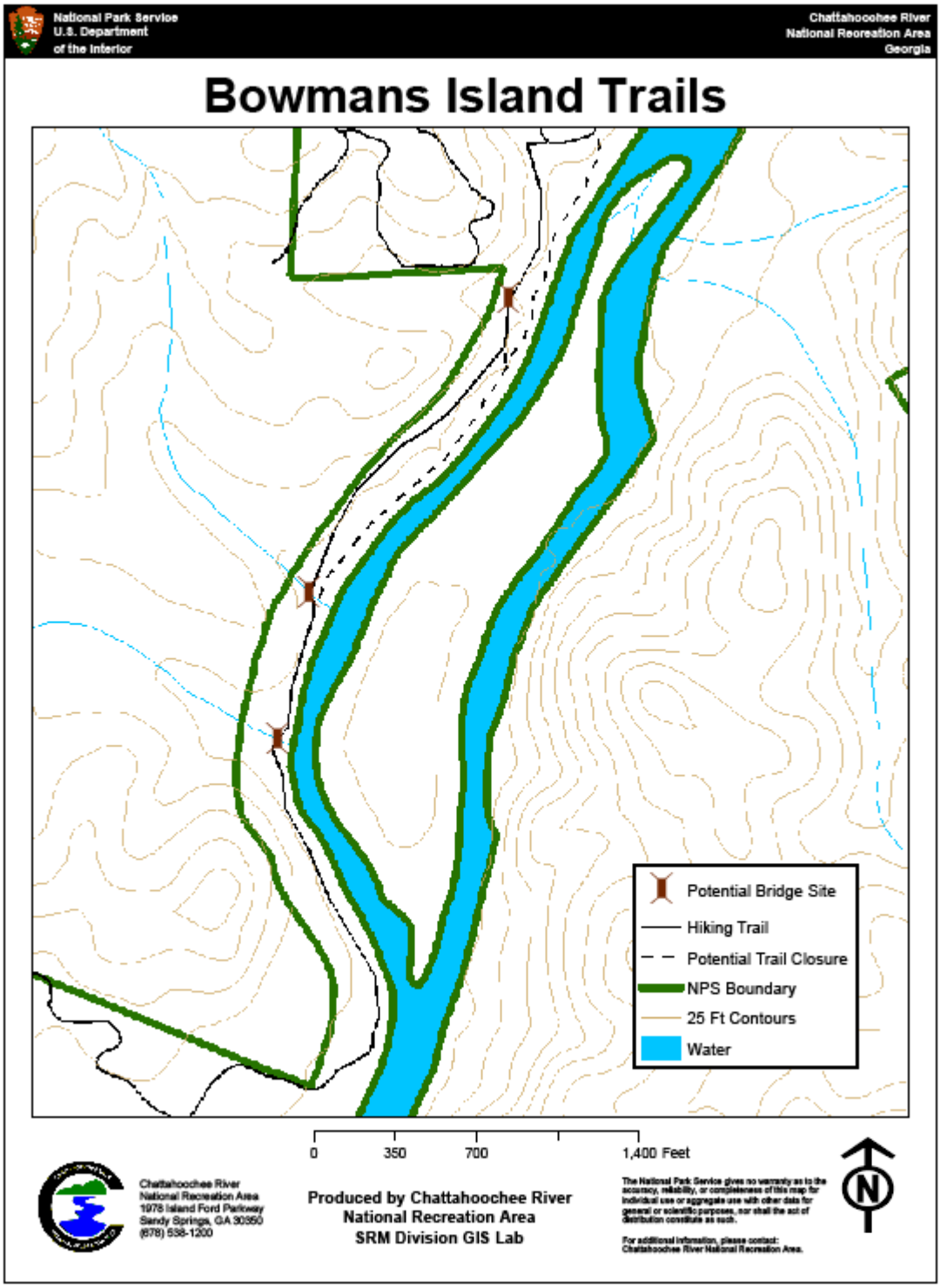


Figure 2-5. Proposed Trails at Johnson Ferry South – Alternative A

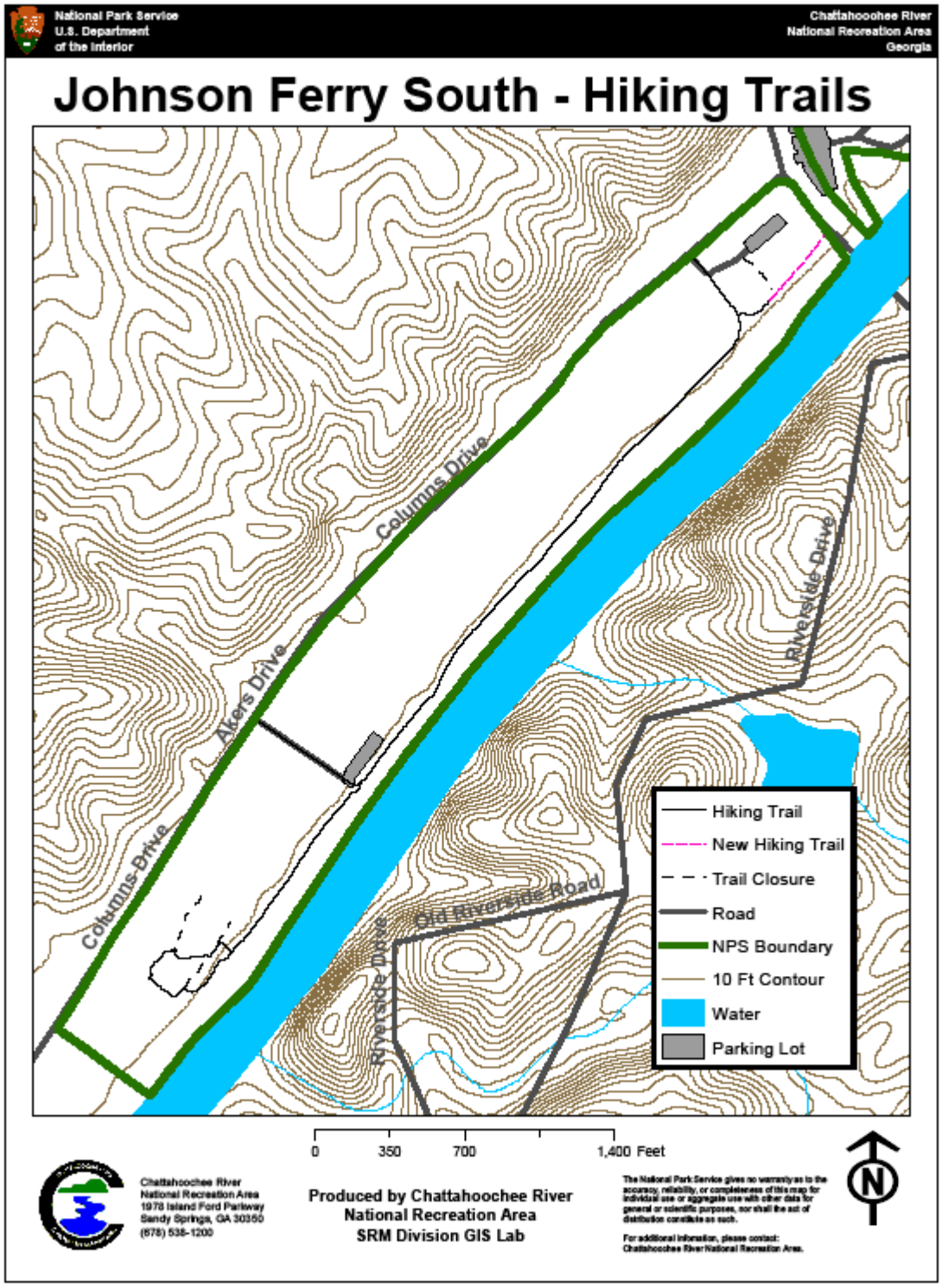
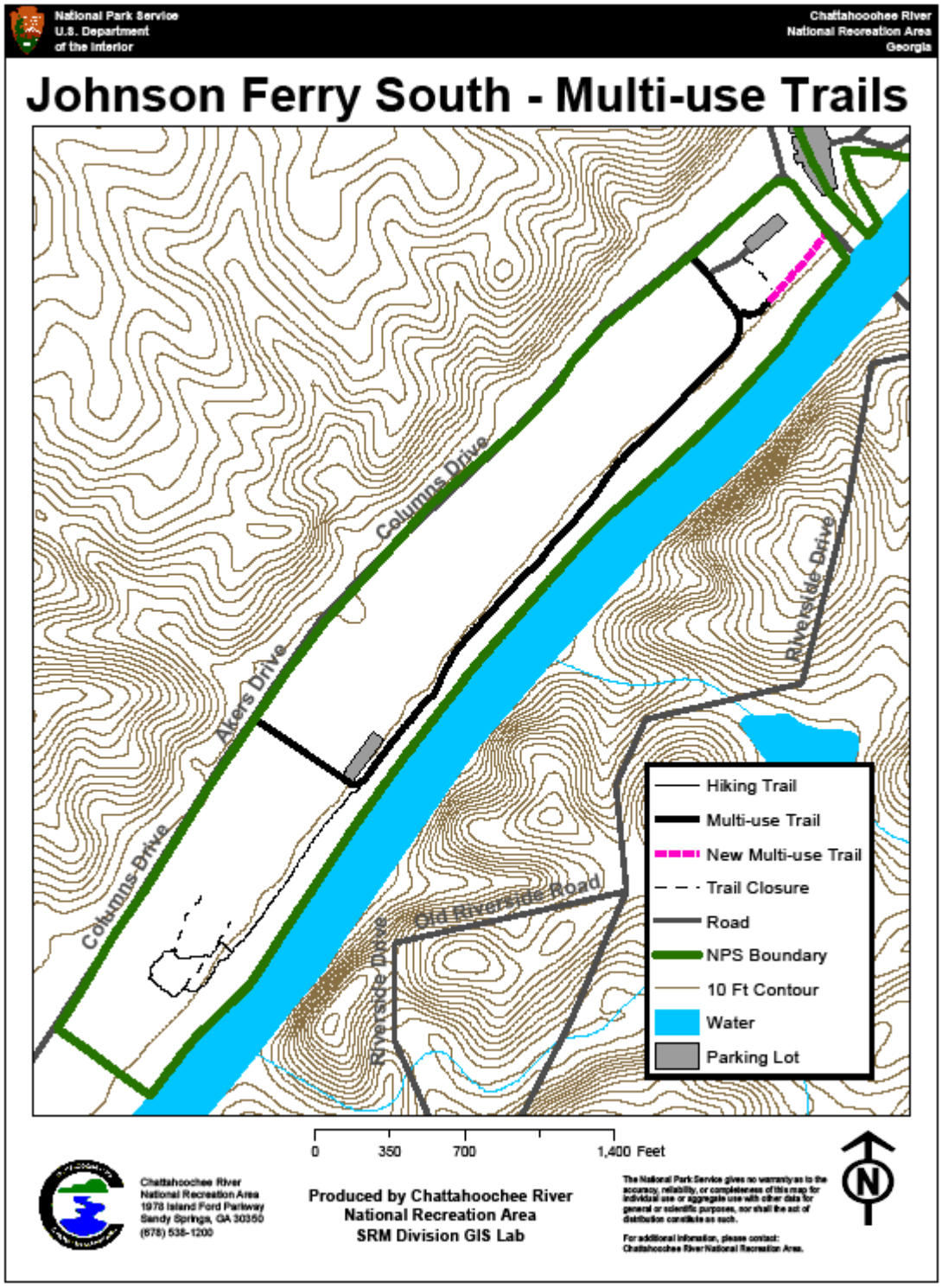


Figure 2-6. Proposed Trails at Johnson Ferry South – Alternative B



2.2.3 Cochran Shoals/Sope Creek

These action alternatives would create a trail system within this unit that is safer for visitors, benefits natural resources, is more aesthetically pleasing, and requires less maintenance. In addition, Alternative A offers a hiking only trail system where as Alternative 2 offers an option for portions of the trail to be multi-use.

Alternative A - Hiking Trail

At the Cochran Shoals/Sope Creek unit, this alternative would include the construction of several new trails (Figure 2-7). Trail design would incorporate a 4-foot wide trail surface with the associated clearing of vegetation to allow a 6-foot wide trail corridor to a height of 8-feet overhead. The newly constructed trails would total approximately 4.3 miles. The existing 5.3 miles of eroded and poorly designed trails would be closed and re-vegetated following the construction of the new trails. The unit currently has a single bike trail, and the new trail system would have a pair of connected loop trails that would be authorized for hiking only. A total of 9.7 miles of hiking trails would result from implementation of this alternative.

Alternative B – Multi-Use Trail

This alternative is similar to Alternative A except that some of the trails at the unit would be designated for multi-use activities (hiking and biking) (Figure 2-8). The same eroded and poorly designed trails would be closed and new trail construction would be as described in Alternative A. This alternative would result in a total of 6.7 miles of planned multi-use trails and 3.0 miles of hiking-only trails that would total 9.7 miles of trails available at this unit.

Figure 2-7. Proposed Trails at Cochran Shoals/Sope Creek – Alternative A

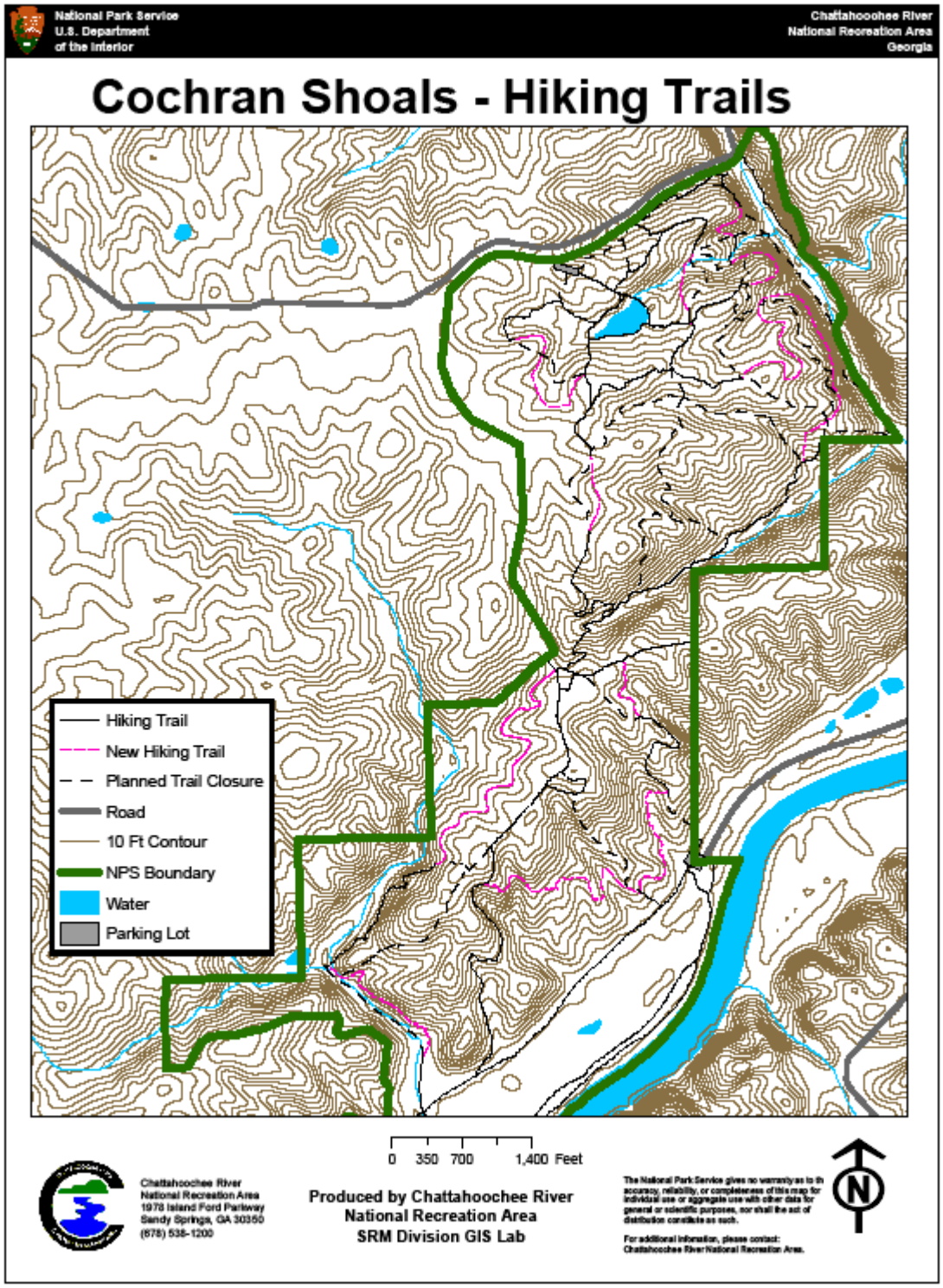
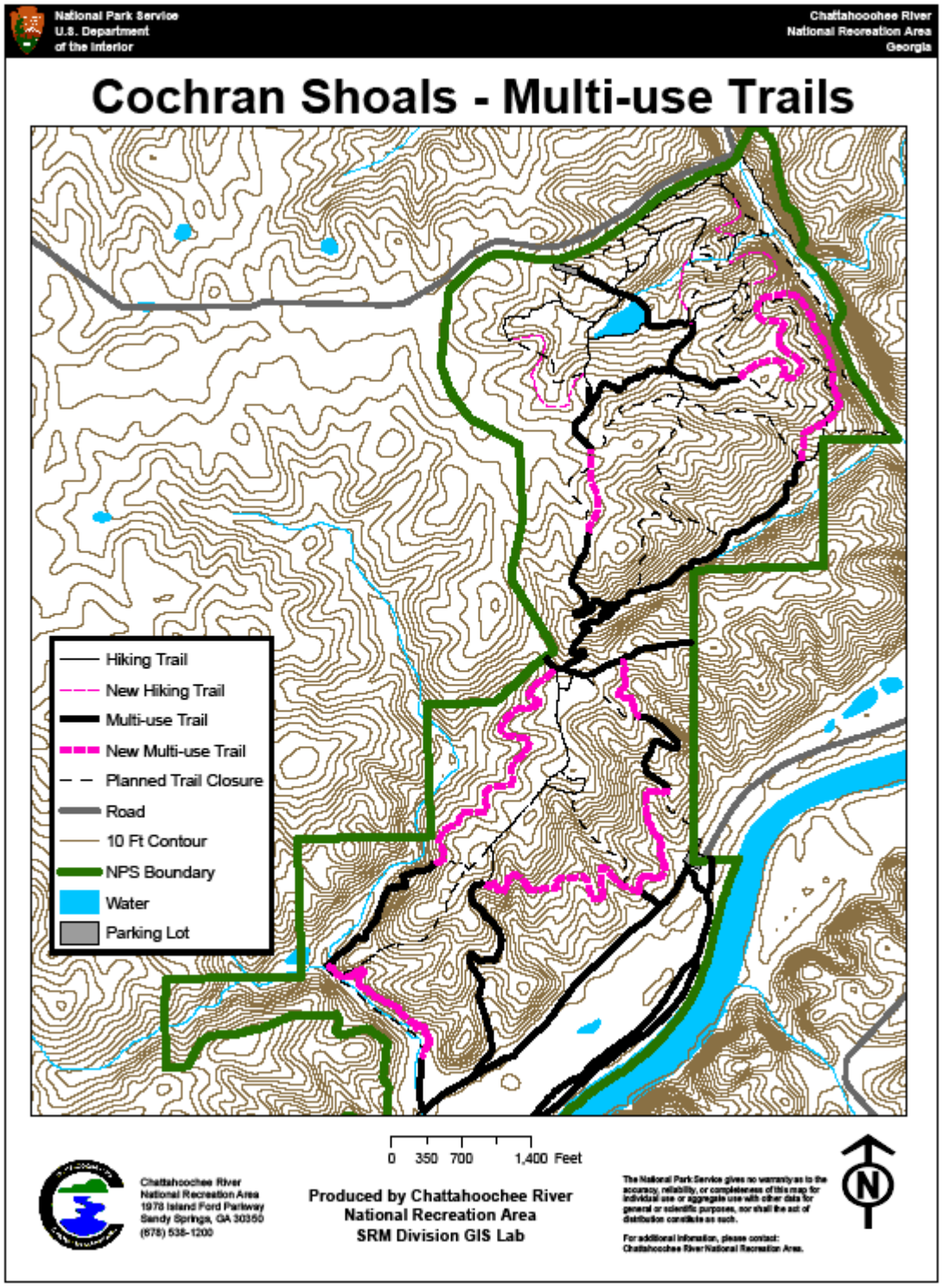


Figure 2-8. Proposed Trails at Cochran Shoals/Sope Creek – Alternative B



2.3 CONSISTENCY WITH SECTION 106(b) OF NEPA

NPS policy requires the identification of an environmentally preferred alternative to aid NPS decision-makers in choosing among the alternatives. The environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed by NEPA. This includes alternatives that meet the six goal statements of Section 101(b) of NEPA, which are listed in Table 2-1. A summary of the alternatives and whether each would meet the goal statements are also presented in Table 2-1.

The environmentally preferred alternative for Bowmans Island West is Alternative A. Alternative B was chosen as the environmentally preferred alternative for Johnson Ferry South and Cochran Shoals/Sope Creek because it provides a safe, aesthetically pleasing opportunity for multiple user groups at the park.

Table 2-1. Selection of the Environmentally Preferred Alternative

NEPA Goal Statement	Bowmans Island West		Johnson Ferry South			Cochran Shoals/Sope Creek		
	No Action Alternative	**Alternative A – Hiking**	**No Action Alternative**	**Alternative A – Hiking**	**Alternative B – Multi-Use**	**No Action Alternative**	**Alternative A – Hiking**	**Alternative B – Multi-Use**
(1) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal by improving the resource condition through reducing erosion and implementing a sustainable trail system.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through the construction of a sustainable trail system.	Contributes toward meeting this goal through the construction of a sustainable trail system.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal by improving the resource condition through reducing erosion and implementing a sustainable trail system.	Contributes toward meeting this goal by improving the resource condition through reducing erosion and implementing a sustainable trail system.
(2) Assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings.	Interferes with meeting this goal as existing trail conditions are unsafe and unsightly.	Contributes toward meeting this goal by increasing recreational opportunities through implementing an improved trail system.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal by increasing recreational opportunities through implementing an improved trail system.	Contributes toward meeting this goal by increasing recreational opportunities through implementing an improved trail system.	Interferes with meeting this goal as existing conditions are unsafe and unsightly.	Contributes toward meeting this goal by increasing recreational opportunities through implementing an improved trail system.	Contributes toward meeting this goal by increasing recreational opportunities through implementing an improved trail system.

NEPA Goal Statement	Bowmans Island West		Johnson Ferry South			Cochran Shoals/Sope Creek		
	No Action Alternative	**Alternative A – Hiking**	**No Action Alternative**	**Alternative A – Hiking**	**Alternative B – Multi-Use**	**No Action Alternative**	**Alternative A – Hiking**	**Alternative B – Multi-Use**
(3) Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.	Interferes with meeting this goal as existing trail conditions are impacting resources and are unsafe.	Contributes toward meeting this goal as improved trail system would enhance resource condition and increase safety.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal as improved trail system would increase access while protecting resources and ensuring safety.	Contributes toward meeting this goal as improved trail system would increase access while protecting resources and ensuring safety.	Interferes with meeting this goal as existing trail conditions are impacting resources and are unsafe.	Contributes toward meeting this goal as improved trail system would enhance resource condition and increase safety.	Contributes toward meeting this goal as improved trail system would enhance resource condition and increase safety.
(4) Preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through an improved trail system with reduced erosion.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through an improved trail system with reduced erosion that connects to existing trails.	Contributes toward meeting this goal through an improved trail system with reduced erosion that connects to existing trails.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through an improved trail system with reduced erosion that connects to existing trails.	Contributes toward meeting this goal through an improved trail system with reduced erosion that connects to existing trails.

NEPA Goal Statement	Bowmans Island West		Johnson Ferry South			Cochran Shoals/Sope Creek		
	No Action Alternative	**Alternative A – Hiking**	**No Action Alternative**	**Alternative A – Hiking**	**Alternative B – Multi-Use**	**No Action Alternative**	**Alternative A – Hiking**	**Alternative B – Multi-Use**
(5) Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through a more sustainable trail system allowing for increased access and decreased resource impacts.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through a more sustainable trail system allowing for increased access and decreased resource impacts.	Contributes toward meeting this goal through a more sustainable trail system allowing for increased access and decreased resource impacts.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through a more sustainable trail system allowing for increased access and decreased resource impacts.	Contributes toward meeting this goal through a more sustainable trail system allowing for increased access and decreased resource impacts.
(6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through the use of existing natural materials in trail construction and integration with existing trails.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through the use of existing natural materials in trail construction and integration with existing trails.	Contributes toward meeting this goal through the use of existing natural materials in trail construction and integration with existing trails.	Neither interferes or contributes with meeting this goal as existing conditions would be maintained.	Contributes toward meeting this goal through the use of existing natural materials in trail construction and integration with existing trails.	Contributes toward meeting this goal through the use of existing natural materials in trail construction and integration with existing trails.

2.4 ALTERNATIVES CONSIDERED BUT DISMISSED

An Interdisciplinary Team (IDT) of park staff was organized to develop a set of alternatives based upon the purpose and goals contained in this EA. Alternatives that were considered but dismissed by the IDT are presented below:

Bowmans Island West

The IDT considered keeping the trail closest to the river open and closing the other trail that runs parallel to it. However, this option was dismissed since the trail closest to the river has visitor safety issues as well as problems with erosion. Over the years, travel on this unauthorized trail has exposed rocks, roots, and has created ruts causing users to travel around these obstacles, making the trail wider and less aesthetically pleasing. Due to safety and erosion issues of the trail located closest to the river, the option of keeping this trail open was dismissed.

Johnson Ferry South

No other alternatives were considered at this unit.

Cochran Shoals/Sope Creek

The IDT considered the possibility of creating a hiking-only trail system that would connect the Sope Creek parking lot with the fitness trail along the bottom edge of the proposed multi-use trail. The IDT initially felt that this may help to alleviate some of the potential for hiker/biker conflicts along the multi-use trails by allowing hikers to have a dedicated trail system. However, this option was dismissed after closer examination of the topography made it clear that there was not enough space to add additional sustainable trails. Listed below are several of the component trail segments of this overall hiking-only trail alignment that were dismissed after consideration:

1. Along the southern boundary of the lower proposed loop trail, there are two entrance points to the multi-use trail from the existing fitness loop trail. The IDT considered constructing a new trail segment that would connect the rerouted trail along the creek on the southern edge of the loop to a single trail access point on the fitness loop. After consideration, it was determined that the existing trail was maintainable and in good repair, and the additional disturbance of creating a new trail was unwarranted.
2. There is a trail currently scheduled for closure that leads from the circular cemetery trail on the ridge in the lower multi-use loop down to the existing fitness loop trail. This trail is in marginal condition, and largely follows the fall line directly down the hill, contributing to increased erosion in several places along the trail. The IDT considered

rerouting this trail, but the topography and the limited area available did not permit development of a satisfactory alternative route.

3. Several trails are currently scheduled for closure inside the upper multi-use trail loop, in the Sope Creek area. These trails have their origins as social trails, and were not designed as a sustainable, long-term trail system. The IDT considered developing a new trail within this area of closures, but determined that a satisfactory trail was not feasible due to the topography, the high number of existing trail closures in the same area, and the limited space available for potential trail alignments.
4. There is a trail appearing on park maps parallel to Sope Creek in the northeast corner of the park unit. The IDT initially considered rerouting this trail, which travels along the top of a bluff overlooking the creek. The current alignment is an unsafe steep and rocky social trail. The terrain and topography do not permit development of a sustainable trail in this area, so realignment of this trail was considered but dismissed.

2.5 COMPARISON OF ALTERNATIVES

Tables 2-2 through 2-4 summarize the direct and indirect impacts to the resources at the three different units at the park for the proposed actions and the No Action Alternatives.

Table 2-2. Summary of Impacts at Bowmans Island West

Resource	No Action	Alternative A – Hiking Trail
Soils	Long-term, minor, adverse impacts due to the continued erosion of the trails.	Negligible impacts during bridge installation. Long-term, beneficial impacts due to the closure of eroded trails, bridge installation, and operation of the new trail system.
Air Quality	No impact.	Negligible impacts during the installation of the three bridges.
Noise	No impact.	Short-term, minor, adverse impacts during bridge installation and trail closure. No impacts during the operation of the new trail system.
Water Quality	Long-term, minor, adverse impacts due to the continued degradation of water quality from trail erosion.	Negligible impacts during the bridge construction. Long-term, beneficial impacts due to the closure of the eroded trails and operation of the new trail system.

Resource	No Action	Alternative A – Hiking Trail
Aquatic Resources	Long-term, minor, adverse impacts due to continued degradation of water quality.	Negligible impacts during bridge construction. Long-term, beneficial impacts due to the closure of eroded trails and operation of the new trails.
Vegetation	No impact.	Negligible impacts due to the possible removal of small amounts of vegetation during bridge construction. Beneficial impacts due to closure and re-vegetation of eroded trails.
Wildlife	No impact.	Short-term, minor, adverse impacts due to noise disturbance during bridge construction and trail closure. Long-term, beneficial impacts due to the trail closure.
Species of Special Concern	No impact.	No effect on listed animal species. Listed plant species would not likely be adversely affected.
Archaeological Resources	Long-term, minor, adverse impacts to site 9FO251.	Long-term, minor, adverse impact due to the placement of bridges at two archaeological sites. Long-term, beneficial impacts due to the decrease of erosion.
Historic Resources	No impact.	No impact.
Aesthetics	No impact.	Short-term, negligible impacts during the bridge construction phase. Long-term, beneficial impacts due to the improvements of the trails.
Public Health and Safety	Long-term, minor, adverse impacts due to the continued use of unsafe trails.	Negligible impacts during the bridge construction. Long-term, beneficial impacts due to the trail improvements.
Visitor Use and Experience	No impact.	Short-term, minor, adverse impacts during bridge construction and trail closure. Long-term, beneficial impacts during operation of the new trail system.
Park Operations	Long-term, minor, adverse impacts due to the continued maintenance of poorly designed trails.	Short-term, minor, adverse impacts during bridge construction and trail closure. Long-term, beneficial impacts during the operation of the new trail system.

Table 2-3. Summary of Impacts at Johnson Ferry South

Resource	No Action	Alternative A – Hiking Trail	Alternative B – Multi-Use Trail
Soils	No impact.	Negligible impacts during trail construction and trail closure. Long-term, beneficial impacts due to having only hikers on the trails.	Negligible impacts during trail construction and trail closure. Long-term, beneficial impacts due to proposed rules to limit soil disturbance and erosion.
Air Quality	No impact.	Negligible impacts to air quality during trail construction and trail closure.	Negligible impacts to air quality during trail construction and trail closure.
Noise	No impact.	Short-term, minor, adverse impacts during the removal of vegetation for trail construction. Negligible impacts during the implementation of the new trail connection.	Short-term, minor, adverse impacts during the removal of vegetation for trail construction. Negligible impacts during the implementation of the new trail connection.
Water Quality	No impact.	Negligible impacts during trail construction and during operation of the trail.	Negligible impacts during trail construction and during operation of the trail.
Aquatic Resources	No impact.	Negligible impacts during trail construction.	Negligible impacts during trail construction.
Vegetation	No impact.	Long-term, minor, adverse impacts due to the removal of vegetation during trail construction. Beneficial impacts due to trail closure and re-vegetation of closed trails.	Long-term, minor, adverse impacts due to the removal of vegetation during trail construction. Beneficial impacts due to closure and re-vegetation of closed trails.
Wildlife	No impact.	Short-term, minor, adverse impacts due to noise disturbance during trail construction. Negligible impacts during the operation of the trail. Long-term, beneficial impacts from the closure and re-vegetation of closed trails.	Short-term, minor, adverse impacts due to noise disturbance during trail construction. Negligible impacts during the operation of the trail. Long-term, beneficial impacts from the closure and re-vegetation of closed trails.

Resource	No Action	Alternative A – Hiking Trail	Alternative B – Multi-Use Trail
Species of Special Concern	No impact.	Special status animal species would not be affected and it is likely that the project would not adversely affect special status plant species.	Special status animal species would not be affected and it is likely that the project would not adversely affect special status plant species.
Archaeological Resources	No impact.	No impact.	No impact.
Historic Resources	No impact.	No impact.	No impact.
Aesthetics	No impact.	Negligible impacts during trail construction and implementation of the new trail connection.	Negligible impacts during trail construction and implementation of the new trail connection.
Public Health and Safety	Long-term, minor, adverse impacts due to the continued chance of hiker/biker incidents.	Negligible impacts during the construction of the new trail. Long-term, beneficial impacts due to proposed rules to minimize incidents between user groups.	Negligible impacts during the construction of the new trail. Long-term, beneficial impacts due to proposed rules to minimize incidents between user groups.
Visitor Use and Experience	No impact.	Negligible impacts during new trail construction and trail closure. Long-term, beneficial impacts during operation of the new trail connection.	Negligible impacts during trail construction and closure. Long-term, beneficial impacts during operation of the new trail connection.
Park Operations	Long-term, minor, adverse impacts due to the continued maintenance of social trails.	Minor, short-term, adverse impacts during trail construction and closure. Long-term, beneficial impacts during the operation of the new trail connection.	Minor, short-term, adverse impacts during trail construction and closure. Long-term, beneficial impacts during the operation of the new trail connection.

Table 2-4. Summary of Impacts at Cochran Shoals/Sope Creek

Resource	No Action	Alternative A – Hiking Trail	Alternative B – Multi-Use Trail
Soils	Long-term, minor, adverse impacts due to the continued erosion of the trails.	Long-term, minor, adverse impacts during trail construction. Long-term, beneficial impacts due to the implementation of the new trails and closure of eroded trails.	Long-term, minor, adverse impacts during trail construction. Long-term, beneficial impacts due to the implementation of the new trails and closure of eroded trails.
Air Quality	No impact.	Short-term, minor, adverse impacts during trail construction due to the addition of 4.3 miles of new trails.	Short-term, minor, adverse impacts during trail construction due to the addition of 4.3 miles of new trails.
Noise	No impact.	Short-term, minor, adverse impacts during the removal of vegetation and construction of new trails. Negligible impacts during the implementation of the new trail system.	Short-term, minor, adverse impacts during the removal of vegetation and construction of new trails. Negligible impacts during the implementation of the new trail system.
Water Quality	Long-term, minor, adverse impacts due to continue erosion of soils which leads to degraded water quality.	Short-term, minor, adverse impacts during trail construction. Long-term, beneficial impacts during the operation of the new trail system and closure of eroded trails.	Short-term, minor, adverse impacts during trail construction. Long-term, beneficial impacts during the operation of the new trail system and closure of eroded trails.
Aquatic Resources	Long-term, minor, adverse impacts due to the continued potential degradation of water quality.	Short-term, minor, adverse impacts during trail construction. Long-term, beneficial impacts due to the closure of eroded trails and operation of new trail system.	Short-term, minor, adverse impacts during trail construction. Long-term, beneficial impacts due to the closure of eroded trails and operation of new trail system.

Resource	No Action	Alternative A – Hiking Trail	Alternative B – Multi-Use Trail
Vegetation	No impact.	Long-term, minor, adverse impacts due to the removal of vegetation during trail construction. Beneficial impacts due to closure and re-vegetation of eroded trails.	Long-term, minor, adverse impacts due to the removal of vegetation during trail construction. Beneficial impacts due to closure and re-vegetation of eroded trails.
Wildlife	No impact.	Short-term, minor, adverse impacts due to noise disturbance during trail construction and closure. Long-term, minor, adverse impacts due to the permanent removal of vegetation. Long-term, beneficial impacts from the closure and re-vegetation of 5.3 miles of trails.	Short-term, minor, adverse impacts due to noise disturbance during trail construction and closure. Long-term, minor, adverse impacts due to the permanent removal of vegetation. Long-term, beneficial impacts from the closure and re-vegetation of 5.3 miles of trails.
Species of Special Concern	No impact.	No effect to special status animal species and not likely to adversely affect special status plant species.	No effect to special status animal species and not likely to adversely affect special status plant species.
Archaeological Resources	No impact.	No impact. The proposed trail corridor would be routed to avoid the chimney remains.	No impact. Any new trail alignments would be surveyed if they fall along an unsloped area (<15% slope) that has not been previously surveyed.
Historic Resources	Minor, long-term, adverse impacts on the Scribner Cemetery.	No impact.	No impact.
Aesthetics	Long-term, minor, adverse impacts due to the continued degradation of the trails.	Short-term minor, adverse impacts during trail construction and closure. Long-term, beneficial impacts due to the improvements of the trail system.	Short-term minor, adverse impacts during trail construction and closure. Long-term, beneficial impacts due to the improvements of the trail system.
Public Health and Safety	Long-term, minor, adverse impacts due to the continued use of unsafe trails.	Negligible impacts during the construction of the new trails. Long-term, beneficial impacts due to the trail improvements.	Negligible impacts during the construction of the new trails. Long-term, beneficial impacts due to the trail improvements.

Resource	No Action	Alternative A – Hiking Trail	Alternative B – Multi-Use Trail
Visitor Use and Experience	No impact.	Short-term, minor, adverse impacts during trail construction and closure. Long-term, beneficial impacts during operation of the new trail system. Long-term, moderate, adverse impacts to mountain bikers.	Short-term, minor, adverse impacts during trail construction and closure. Long-term, beneficial impacts during operation of the trail system.
Park Operations	Long-term, minor, adverse impacts due to the continued maintenance of poorly designed trails.	Short-term, minor, adverse impacts during trail construction and closure. Long-term, beneficial impacts during the operation of the new trail system.	Short-term, minor, adverse impacts during trail construction and closure. Long-term, beneficial impacts during the operation of the new trail system.

2.6 MITIGATION MEASURES

Best management practices (BMPs) and mitigation measures would be used to prevent or minimize potential adverse effects associated with trail development at all three units. Every effort will be taken to utilize existing trails whenever possible; however, some of the trail system exists in a manner that invites erosion, requiring that some of the trails ultimately be closed and replaced. These practices and measures would be incorporated into the project construction documents to ensure that adverse impacts would not occur. Mitigation measures undertaken during project implementation would include, but not strictly be limited to, those listed in Table 2-5.

Table 2-5. Mitigation Measures

Potential Adverse Effect	Mitigation Measure or Best Management Practice
Direct effects from construction activities on natural resources such as terrestrial species, non cleared vegetation and water resources	Utilize the minimum amount of land required for trail construction activities in order to protect against potentially adverse activities. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities beyond the trail construction zone.
Erosion resulting from construction-related surface disturbance	Erosion prior to, during, and following ground disturbing activities would be controlled. These activities are expected to be limited, and hand clearing will be used whenever feasible. Natural revegetated areas will slow the movement of water over land, allowing the trail to exist without adversely affecting the natural landscape.
Construction of previously undisturbed areas	Existing trails would be used to the maximum extent possible to minimize effects on vegetation. New trails will be routed to minimize impacts to vegetation and avoid mature trees.
Disruption to visitor use during and after construction activities	Final cleanup will include the removal of all construction materials (i.e. flags, flagging tape, stakes). Cleared brush will be dispersed instead of left as a pile of debris along the side of the trail. This attention to detail during cleanup will contribute to a more natural trail appearance and will reduce the initial user shock to the changed trail system.

3.0 AFFECTED ENVIRONMENT

3.1 CHAPTER OVERVIEW

Chapter 3.0 describes the general existing environmental conditions within the park and the specific environmental conditions of the three park units included in the Trail Connection Plan. The information in Chapter 3.0 is organized by the same environmental topics used to organize the impact analysis in Chapter 4.0. The descriptions, data and analyses focus on the specific conditions or consequences that may result from implementing the alternatives as required by *NPS Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making*, which sets forth the policy and procedures by which the NPS will comply with NEPA (NPS 2001). A description of the alternatives can be found in Chapter 2.

Chapter 3.0 addresses the topics that were not dismissed from further consideration as described in Chapter 1.0. The topics are organized by physical, natural and human environment.

3.2 PHYSICAL RESOURCES

This section discusses the physical environment at the park, including soils, air quality, noise, and water resources.

3.2.1 Soils

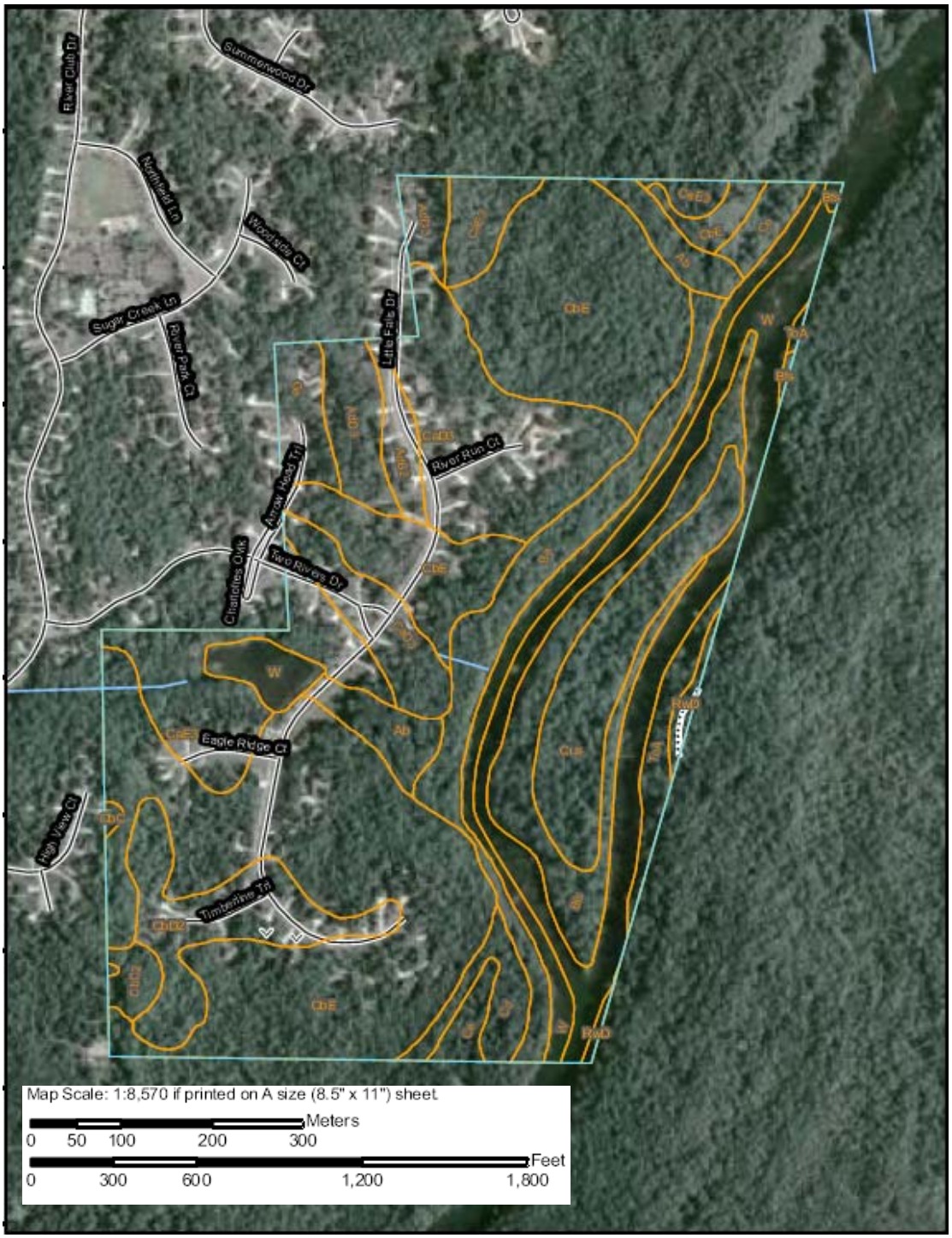
The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) surveyed soils in each of the three park units between 2006 and 2007. Custom soil reports were generated using this data for each of the three park units.

Bowmans Island West

The USDA NRCS surveyed the soils in Forsyth County in 2007. Figure 3-1 shows the mapped soils for the proposed project area. Five soil types were delineated and described within the corridor for the proposed trail improvements in the Bowmans Island West unit (Table 3-1) (USDA NRCS 2007; USDA NRCS 2006a). Soils include alluvial land, a moderately well drained soil derived from floodplains with a 0 to 2 percent slope. Buncombe loamy fine sand soils consist of very deep, excessively drained sandy soils. These soils are located on relatively flat or gently sloping floodplains in the Piedmont and Coastal Plain and are formed in sandy alluvium washed from soils formed in residuum from schist, gneiss, granite, phyllite and other metamporphic and igneous rocks with a 0 to 2 percent slope. Soils from the Cecil series are also present at this unit and consist of very deep, well drained, moderately permeable soils on ridges and side slopes of the Piedmont uplands. Soils also include Chewacla silt loam, derived from alluvium with a 0 to 2 percent slope and somewhat poorly drained. Soils from the Congaree

series consisting of deep, well to moderately-well drained, moderately permeable loamy soils formed in fluvial sediments with slopes from 0 to 2 percent are also present in the trail area (USDA undated).

Figure 3-1. Bowmans Island West Soil Map



Source: USDA NRCS 2006a, USDA NRCS 2007

Table 3-1. Characteristics of Soils at the Three Park Units

Soil Name	K Factor	Erosion Hazard Rating	Rating Reason
Bowmans Island West			
Alluvial land, moderately well drained	.10	Slight	
Buncombe loamy fine sand	.10	Slight	
Cecil clay loam, severely eroded moderately steep phase	.28	Moderate	Slope/erodibility (0.50)
Cecil fine sandy loam, gently sloping phase	.24	Slight	
Cecil fine sandy loam, eroded sloping phase	.24	Moderate	Slope/erodibility (0.50)
Cecil fine sandy loam, moderately steep phase	.24	Moderate	Slope/erodibility (0.50)
Chewacla silt loam	.32	Slight	
Congaree fine sandy loam	.24	Slight	
Johnson Ferry South			
Cartecay silt loam, silty variance	.32	Slight	
Toccoa soils	.10	Slight	
Cochran Shoals/Sope Creek			
Cartecay silt loam, silty variant	.32	Slight	
Louisburg stony sandy loam	.10	Severe	Slope/erodibility (0.95)
Louisa gravelly sandy loam	.17	Moderate	Slope/erodibility (0.5)
Louisburg sandy loam	.24	Severe	Slope/erodibility (0.95)
Louisa soils	.17	Severe	Slope/erodibility (0.95)
Madison clay loam	.28	Moderate	Slope/erodibility (0.50)
Madison clay loam	.28	Severe	Slope/erodibility (0.95)
Madison sandy loam	.24	Moderate	Slope/erodibility (0.50)
Madison sandy loam	.24	Moderate	Slope/erodibility (0.50)
Madison sandy loam	.24	Severe	Slope/erodibility (0.95)
Madison and Pacolet soils	.28	Severe	Slope/erodibility (0.95)
Madison and Pacolet soils	.24	Severe	Slope/erodibility (0.95)
Pacolet sandy loam	.20	Moderate	Slope/erodibility (0.50)
Toccoa soils	.10	Slight	

Source: USDA NRCS 2006a, 2006b, 2007, and 2008

Johnsons Ferry South

The USDA NRCS surveyed the soils in Cobb County in 2006. Figure 3-2 shows the soils mapped within the proposed project area. Two soil types were delineated and described within the corridor for the proposed trail improvements in the Johnsons Ferry South unit (Table 3-1). The unit is mainly composed of Toccoa and Cartecay silt loam, silt variant. These soils (defined by the USDA) are characterized by a 0 to 2 percent slope, and are found in floodplains from alluvium parental material with somewhat poor drainage to moderately well drainage characteristics (USDA NRCS 2006b).

Cochran Shoals/Sope Creek

The USDA NRCS surveyed the soils in Cobb County in 2006. Figure 3-3 shows the soils mapped within the proposed project area. Six soil types were delineated and described within the corridor of the proposed trail improvements in the Cochran Shoals/Sope Creek unit Table 3-1 (USDA NRCS 2006b). Soils present at this unit include soils from the Louisburg series which consist of deep, well drained, rapidly permeable soils that formed in material weathered from felsic igneous and metamorphic rock, primarily granite and granite gneiss. These soils are commonly found on summits and side slopes of the Piedmont uplands with slopes ranging from 15 to 45 percent. Soils from the Louisa series consist of shallow, somewhat excessively drained soils which formed over mica gneiss and schist bedrock, occurring in Piedmont uplands with slope of 10 to 60 percent. The Madison series, consisting of well drained, moderately permeable soils that formed in residuum weathered from felsic or intermediate, high-grade metamorphic or igneous rocks high in mica content. These soils are present on gently sloping to seep uplands in the Piedmont with slopes ranging from 10 to 25 percent. The Pacolet series is also present and consists of very deeply, well drained, moderately permeable soils that formed in residuum weathered mostly from felsic igneous and metamorphic rocks of the Piedmont uplands with slope ranges from 10 to 25 percent. Toccoa and Cartecay soils are also present at this site (USDA NRCS undated).

Figure 3-2. Johnson Ferry South Soil Map

Source: USDA NRCS 2006b, USDA NRCS 2008

Figure 3-3. Cochran Shoals/Sope Creek Soil Map

Source: USDA NRCS 2006b, USDA NRCS 2008

Soil Erosion Factors

Erosion factor K, for whole soils, is a soil property used in evaluating the soil for potential erosion (Table 3-1). Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Sheet erosion is the uniform removal of soil from an area without the development of conspicuous water channels. The channels are tiny and tortuous, exceedingly numerous and unstable, and they enlarge and straighten as the volume of runoff increases. Sheet erosion can be serious in soils that have a slope gradient of only 1 or 2 percent, however, as slope gradient increases, it is generally more serious. Rill erosion is the removal of soil through the cutting of numerous small, but conspicuous channels where runoff is concentrated (USDA NRCS 1993). These estimates are based mainly on the percent of silt, sand, and organic matter as well as soil structure and saturated hydraulic conductivity. Values of K generally range from 0.02 to 0.69, and with other factors being equal, the soil with the highest K value is the most susceptible to sheet and rill erosion by water (USDA NRCS 2006a). Values of K at the three sites range from 0.10 to 0.32.

Table 3-1 also includes erosion hazard ratings for each of the park units. Erosion hazard ratings indicate the hazard of soil loss due to off-road and off-trail area disturbance activities that expose the soil surface. The ratings are based on slope and soil erosion factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by disturbance such as vegetation clearing for a trail. A hazard rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that it is likely that there will be some erosion and erosion-control measures may be necessary; "severe" indicates that erosion is very likely and that erosion-control measures, including re-vegetation of bare areas will most likely be necessary; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely and erosion-control measures may be costly and most likely impractical. At the Bowmans Island West unit, erosion hazard ratings are only slight to moderate, and at the Johnson Ferry South unit, ratings are slight. However, at the Cochran Shoals/Sope Creek unit, erosion hazard ratings for soils from the Louisburg series, Louisa series and Madison series are severe (Table 3-1).

3.2.2 Air Quality

The Federal Clean Air Act (CAA) requires all Federal agencies to comply with Federal, State, and local air pollution control laws and regulations. The United States Environmental Protection Agency (USEPA) set National Ambient Air Quality Standards (NAAQS) required by the CAA for air pollutants that cause health threats. The CAA defines six criteria pollutants. These criteria pollutants are carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with sizes less than 10 μm^3 and 2.5 μm^3 (PM_{10} and $PM_{2.5}$), nitrogen oxides (NO_x), ozone (O_3), and lead

(Pb). Volatile organic compounds (VOCs) are not criteria pollutants, but are of interest since they participate in the formation of ozone.

The CAA requires that each NAAQS be revised every five years to reflect the most recently available health information. Areas of the country where air pollution levels persistently exceed the NAAQS standards are normally designated as nonattainment areas.

Georgia's EPD, Air Protection Branch is responsible for evaluating and controlling the State's air resources, implementing programs designed to ensure that Georgia's air quality meets federal standards and bringing nonattainment areas into attainment with air quality standards.

The USEPA recognizes three levels of air quality protection concerning land areas. National parks over 6,000 acres and national wilderness areas over 5,000 acres are given Class I protection status, the highest level of air quality protection. The park is considered a Class II protection area, while the land surrounding the park is considered a Class III protection area. In addition to air quality requirements mandated by the NPS, this additional air quality protection for the park requires that the park remedy existing impacts to air pollution and prevent future impacts to air pollution.

The park is located within one of the most rapidly developing areas in the United States, with counties surrounding the park (Forsyth County, Gwinnett County and Cobb County) being among the fastest growing in the nation (NPS 2008). Metropolitan Atlanta air emissions generated by the large volume of cars, trucks, and airplane traffic in Atlanta have frequently resulted in poor air quality within the park. Within the Atlanta, Georgia region, Forsyth, Gwinnett and Cobb counties are in nonattainment for ozone and $PM_{2.5}$ criteria pollutants (USEPA 2009a).

Georgia's EPD calculates ground-level ozone design values for a certain year based on actual air measurements over the previous three-year period. According to USEPA, the design value at a particular site is the pollutant concentration that must be reduced to or maintained at or below the NAAQS to assume attainment. The Atlanta, Georgia region has an 8-hour design value of 0.091 parts per million (ppm), which is above the 0.075 ppm (8-hour average) USEPA air quality standard for ozone. Therefore, as of June 15, 2005, these counties were collectively designated as a moderate 8-hour ozone nonattainment area (USEPA 2009a).

Since 2005, Forsyth, Gwinnett and Cobb counties also have levels of particulate matter smaller than 2.5 micrometers ($PM_{2.5}$), that are in nonattainment with USEPA air quality standards of 15µg/m3 ($PM_{2.5}$) (USEPA 2009b).

3.2.3 Noise

Current noise sources in the park are predominately the result of human activities such as current recreation (hiking, biking and equestrian) as well as traffic from the local roadways. Additionally, sounds of everyday life from the surrounding neighborhoods, such as lawnmowers, leaf blowers and residential construction are common within each of these units. Another predominant noise source is associated with the use of motor boats and other boating activities, which are allowed along all areas of the Chattahoochee River. A secondary source of sound in the park is natural and includes calls from birds and other wildlife and the sound of the river flowing.

Bowmans Island West

Bowmans Island West is bordered to the west by Little Falls Drive and River Run Court, which are small residential roads that create little noise.

Johnson Ferry South

Johnson Ferry South is bordered by two major suburban thoroughfares, Columns Drive and Johnson Ferry Road. Although no formal noise surveys have been conducted at this unit, traffic noises can be heard at all times of the day.

Cochran Shoals/Sope Creek

Significant roads surrounding the Cochran Shoals/Sope Creek unit include Paper Mill Road and Columns Drive. Other minor neighborhood roadways with minor traffic patterns and occur in the vicinity of this unit.

3.3 WATER RESOURCES

This section discusses the water resources at the park.

Water Quality

Within the park boundaries, the Chattahoochee River flows 48 miles from the Buford Dam near Sugar Hill to the confluence with Peachtree Creek in Atlanta. The portion of the Chattahoochee River encompassed by the park drains 416 square miles below the Buford Dam. Since the Atlanta area relies on surface water for 98 percent of its water usage, the Chattahoochee River Basin supplies 80 percent of the water for the metropolitan Atlanta area. Within the park boundary, approximately 415 million gallons of water per day are withdrawn from the river by four municipalities: Cobb County-Marietta Water Authority, DeKalb County Water System, City of Atlanta, and Atlanta-Fulton County Water Resources Commission.

The flow of the river is dominated by controlled release from Buford Dam and storm events. Buford Dam is managed and operated by the U.S. Army Corps of Engineers (USACE). The average daily flow rate of the Chattahoochee River near Buford Dam between 2004 and 2008 was 1,271 cubic feet per second (USGS 2009). To provide for the protection of water quality, aquatic life, aquatic habitat, and recreation, the Georgia EPD has established a minimum flow requirement of 750 cubic feet per second at the confluence of the Chattahoochee River with Peachtree Creek.

The Chattahoochee River is surrounded by rapidly developing urban and suburban areas, which channel a large amount of nonpoint source runoff into the river. Erosion and sedimentation (usually caused by runoff from storm events) carry sediment from construction sites and impervious surfaces such as roads, parking lots, driveways, and rooftops into the river. Erosion and sedimentation raise the levels of suspended soils in the water, increasing the turbidity levels. Suspended sediments also have an adverse impact on aquatic life by clogging fish gills and filling in or coating benthic habitat in pools and riffles. Elevated turbidity can also affect stream temperatures and dissolved oxygen (DO) levels. Substantial sand and silt deposition behind the Morgan Falls Dam impoundment is evidence of the erosion and sedimentation that affect the Chattahoochee River.

Major tributaries associated with the proposed project sites include Haws Creek and Richland Creek in the Bowmans Island West area; Willeo Creek and March Creek in the Johnsons Ferry South area; and Sope Creek in the Cochran Shoals/Sope Creek area. Water quality in the river and its tributaries within park boundaries are protected under law by Georgia's water use classifications and standards. These regulations include standards for fecal coliform bacteria, DO, pH and temperature. The Chattahoochee River from Buford Dam to Peachtree Creek is classified as drinking water, recreation uses, and for the protection of aquatic life. The following water quality standards have been established for areas classified as drinking water and recreation by the Georgia Rules and Regulations for Water Quality, Chapter 391-3-6-.03, for the Chattahoochee River within park boundaries:

- Fecal coliform: During the months of May through October, when water contact recreation activities are expected to occur, fecal coliform is not to exceed a mean of 200 colonies per 100 milliliters (ml). This is based on the collection of at least four samples from a given site within a 30-day period at intervals not less than 24 hours. During the months of November through April, fecal coliform levels should not exceed 1,000 colonies per 100 ml.
- DO: A daily average of 6.0 milligrams per liter (mg/L) and no less than 5.0 mg/L at all times for waters designated as trout streams. A daily average of 5.0 mg/L and no less than 4.0 mg/L at all times for water supporting warm water species of fish.
- pH: Within range of 6.0 to 8.5

- Temperature: Not to exceed 90 degrees Fahrenheit (ºF).

There are reaches of the river and tributaries within the park that do not meet the water quality standards described above, primarily for the exceedance of fecal coliform levels. Section 303(d) of the Clean Water Act (CWA) requires states to list their waters not supporting their designated uses or water quality standard. It is estimated that stormwater runoff is the primary reason for 99 percent of the designated use violations in streams within the metropolitan North Georgia Water Planning District (NPS 2008). Besides the water quality parameters described above, there are other harmful microorganisms, including those that can cause typhoid fever, hepatitis, gastroenteritis, dysentery, and ear infections also present in the Chattahoochee River.

Bowmans Island West

The Chattahoochee River within the Bowmans Island West unit, specifically from Buford Dam to Dicks Creek, supports the designated water use classification requirements for drinking water (GEPD 2008). In addition, Haw Creek (a tributary that drains into the river at Bowmans Island) also meets the requirements for its designated use. Richland Creek, located just south of Bowmans Island does not meet its designated use due to high fecal coliform levels primarily from urban runoff. A Total Maximum Daily Load (TMDL), which is a calculation for the maximum amount of pollutant that a water body can receive and still meet water quality standard was completed for fecal coliform on this tributary (GEPD 2008).

Johnson Ferry South

The Johnson Ferry South unit is located just south of Morgan Falls Dam. The river reach from the dam to Peachtree Creek, which includes this unit, does not support the designated water use classification for drinking water or recreation (GPED 2008). Urban runoff is the potential cause of increased fecal coliform levels and polychlorinated biphenyls (PCBs) in this area. A TMDL was completed for fecal coliform and PCBs for this 12-mile reach of the river. Willeo Creek enters the Chattahoochee River just north of the Johnson Ferry South park unit. This creek's designation is for fishing and it is currently not being met due to fecal coliform levels. A TMDL was completed for the criteria violation (GPED 2008). March Creek tributary enters the Chattahoochee River in the middle of the Johnson Ferry unit. This tributary is also designated for fishing and fails to meet the requirements due to high fecal coliform levels. A TMDL was also completed for this violation (GPED 2008).

Cochran Shoals/Sope Creek

The Cochran Shoals/Sope Creek unit is located south of the Johnson Ferry South unit. This site falls within the same river reach from Morgan Falls Dam to Peachtree Creek, as discussed above. This site does not meet its designated water use for fecal coliform and PCBs (GPED 2008). Sope Creek enters the Chattahoochee River at the northern tip of this unit. Sope Creek is

designated for fishing and does not meet the water quality standards for fecal coliform due to urban runoff. A TMDL was created for this tributary (GPED 2008).

3.4 NATURAL RESOURCES

This section discusses the natural resources at the park, including aquatic resources, terrestrial resources, and species of special concern.

3.4.1 Aquatic Resources

Aquatic habitats include the main stem of the Chattahoochee River, wetlands located in the floodplain, and the tributaries located within the park boundaries. These areas provide important habitat for fish, benthic macroinvertebrates, amphibians, and reptiles. Construction of Buford Dam and its impoundment, Lake Lanier, has substantially changed the type of habitat available to aquatic organisms in the Chattahoochee River. Water to support river flow exits Buford Dam from the bottom of Lake Lanier, causing the river to flow cold throughout the year. The cold water effect is mitigated somewhat by Morgan Falls Dam, located 35 miles downstream.

Fish

According to the NPS, 31 species of fish currently inhabit the Chattahoochee River and tributaries within the park. Some of these species include blacktail shiner (*Cyprinella venusta*), chain pickerel (*Esox niger*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochirus*), brown trout (*Salmo trutta*), brown bullhead (*Ameiurus nebulosus*), and channel catfish (*Ictalurus punctatus*) (NPS undated). An additional 21 species have been identified by the park as likely occurring within the park. Some of these species include golden shiner (*Notemigonus crysoleucas*), creek chub (*Semotilus atromaculatus*), smallmouth bass (*Micropterus dolomieu*), and black bullhead (*Ameiurus melas*) (NPS undated). Site specific fish data for the park units are unavailable at this time.

The Chattahoochee River, within the park boundary is divided into two fisheries management sections. The Lanier Tailwater Section extends from Buford Dam downstream to the headwaters of the Bull Sluice Reservoir; the Bowmans Island West unit is included in this section. The Morgan Falls Tailwater Section extends from Morgan Falls Dam to the Interstate 285 West Bridge, located just south of the Cochran Shoals/Sope Creek unit. The Johnson Ferry South and Cochran Shoals/Sope Creek units are both located within this management section.

The Lanier Tailwater Section is a designated coldwater trout fishery managed by the GDNR. Brook trout (*Salvelinus fontinalis*), brown trout, and rainbow trout (*Oncorhynchus mykiss*) have been stocked within the Lanier Tailwater Section. In the 1990s, brook trout stocking was discontinued due to poor survival and angler return. In 2005 brown trout stocking was

discontinued to facilitate an evaluation of the wild brown trout population. Currently rainbow trout is the only species stocked at this time with annual stocking numbers ranging between 150,000 to 160,000 fish since 2004 (NPS 2008).

The Morgan Fall Tailwater Section was originally managed as a put-grow-and-take fishery. Brown trout less than 6 inches long (fingerling) were stocked in order to allow the species to harvest until they reach a size that anglers found acceptable to keep. In 2000, GDNR discontinued the stocking of fingerling trout and began to focus on the river segment from the mouth of Sope Creek to Paces Mill, which includes the Johnson Ferry South and Cochran Shoals/Sope Creek units. Approximately 50,000 rainbow and brown trout are stocked each year between November 1 through May 14 (NPS 2008). Anglers may fish during this season, but are no longer allowed to harvest the fish. From May 15 through October 31, anglers may fish this section and harvest the fish. This process is called delayed harvest. The Morgan Fall Tailwater Section also supports habitat for warm water fish species such as shoal bass (*Micropterus cataractae*) and striped bass (*Morone saxatilis*). Shoal bass are a native to the Chattahoochee River and occupy the extensive shoal habitat downstream of the dam. The GDNR and the NPS began a shoal bass stocking program in 2003, which lasted for three years. A five year monitoring study is being conducted to see how the stocking affected population growth and survival (NPS 2008).

Benthic macroinvertebrates

Benthic macroinvertebrates live on the rocks, logs, sediment, debris, and aquatic plants of the Chattahoochee River. Benthic macroinvertebrates include crustaceans such as crayfish, mollusks such as clams and mussels, aquatic worms, and immature forms of aquatic insects such as stoneflies and mayflies. These organisms play a critical role in the natural flow of energy and nutrients. Benthic macroinvertebrates are an excellent indicator of the overall health of an aquatic system. Biological health of an aquatic system is typically expressed as biotic integrity, which is defined as "the ability to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region" (Karr and Dudley 1981).

Benthic macroinvertebrate data collected from the park for 8 years (1998 through 2005) were analyzed by the University of Georgia. Samples were collected from many sites throughout the park including Bowmans Island and Morgan Falls (immediately north of Johnsons Ferry South and Cochran Shoals) (NPS 2008). The results were presented in the form of biotic indices, which are based on the pollution tolerance of the benthic organisms. Pollution tolerant species are usually abundant in degraded systems. Based on the number of pollution tolerant species, Morgan Falls and Cochran Shoal/Sope Creek sites were rated as good and Bowmans Island was rated as fairly poor (NPS 2008).

Mussels are also an important bio-indicator of the health of aquatic habitats because they are sensitive to changes in the aquatic environment. Mussels have specific substrate preferences and are also filter feeders; therefore mussels typically have a negative response to sedimentation and toxic substances entering the water. A freshwater mussel survey was conducted in the park in 2003. A weathered valve of the sculptured pigtoe (*Quincuncina infucata*) was found in the mainstem river at the Cochran Shoals/Sope Creek unit. Other species found in the mainstem of the river included aquatic snails (*Pleuroceridae*) and the invasive Asian clam (*Corbicula fulminea*). During the survey, Asian clams were found in the mainstem river at Cochran Shoals and Johnson Ferry and also in Sope Creek (NPS 2003). No mollusks were found in the river near Bowmans Island during this survey (NPS 2003). An undocumented native bivalve species belonging to the fingernail clam group (*Spheriidae*) was found during surveys in the Johnson Ferry wetlands in 2006 (NPS 2008).

3.4.2 Terrestrial Resources

3.4.2.1 Vegetation

The park lies within the Piedmont physiographic province and contains a wide variety of terrestrial habitat types including fields, ravines, floodplains, hills, and cliffs. The park is aligned along a northeast/southwest gradient where a variety of coastal plain and Appalachian species overlap within the Piedmont province. As a result, the park has some of the most diverse vegetation in the country. In 2004, flora studies indicated at least 982 plant species are present in the park including algae, mosses (byrophytes), ferns, pines, cedars, sedges, rushes, grasses, orchids, willows, maples, oaks, hollies, and asters (NPS 2004a). Residential development adjacent to the park has introduced several invasive plant species including privet (*Ligustrum* sp.), English ivy (*Hedera helix*), kudzu (*Pueraria montana*), Japanese honeysuckle (*Lonicera japonica*), mimosa (*Mimosa* sp.), princess tree (*Paulownia tomentosa*), and periwinkle (*Vinca* sp.). Despite these issues, the Georgia RiverCare 2000 Assessment assigned a rating of "outstanding" for forest resources within the park (Miller et al. 1998).

The general vegetative habitats throughout the park include oak-hickory forest, oak-hickory-pine forest, southern floodplain forest, and southern mixed forest. Dominant species throughout the park include loblolly pine (*Pinus taeda*), sweetgum (*Liquidambar styraciflua*), poplar (*Populus* sp.), pignut hickory (*Carya glabra*), mockernut hickory (*Carya alba*), water oak (*Quercus nigra*), red maple (*Acer rubrum*), southern red oak (*Quercus falcate*), northern red oak (*Quercus rubra*), and white oak (*Quercus alba*) (NPS 2004b).

<u>Bowmans Island West</u>

The Bowmans Island West trails begin with a shrub and herbaceous area that contains approximately 5 acres of kudzu, blackberry (*Rubus* sp.), and Japanese honeysuckle. After this herbaceous area, the trail goes through a deciduous forest with a relatively thick understory.

During a April 2009 site visit the following tree species were observed along the current trail system within the project area: box elder (*Acer negundo*), river birch (*Betula nigra*), poplar, and sweetgum. The following shrubs and herbaceous species were noted: yellow buckeye (*Aesculus flava*), red buckeye (*Aesculus pavia*), switchcane (*Arundinaria gigantean*), fern species, silver bell (*Halesia sp.*), trillium (*Trillium* sp.), crossvine (*Bignonia capreolata*), *Leucothoe* sp., mayapple (*Podophyllum peltatum*), hornbeam (*Carpinus* sp.), and cohosh (*Caulophyllum* sp.). Invasive species in this area included approximately 5 acres of kudzu, Japanese honeysuckle, privet, greenbrier (*Smilax* sp.), and blackberry.

Johnson Ferry South

The Johnson Ferry South unit is a mixture of herbaceous, shrub, and deciduous habitat. Due to intensive farming, no mature trees remain in this unit. The river buffer varies from 30 to 60 feet with relatively mature vegetation. Maintained, frequently mowed, exotic pasture and lawn grasses dominate the Toccoa bottom, with portions of the backwater slough that have naturally progressed into secondary ecological succession. However, succession in the backwater slough has been partially inhibited by maintenance activity associated with the easement held by Colonial Pipeline Corporation.

On the April 2009 site visit the following species were recorded: box elder, American pokeweed (*Phytolacca americana*), grass species, buttercup (*Ranunculus* sp.), Japanese honeysuckle, trillium, dogwood species (*Cornus* sp.), and pine species. The dominant tree species was box elder. Invasive species noted along the trails included privet and Japanese honeysuckle. Privet was removed from this area in late December 2007 and early 2008, but was beginning to grow back by 2009.

Cochran Shoals/Sope Creek

The beginning of the trail in this unit is paved and surrounded by high grasses. As the trails enter the uplands, the vegetation is comprised of a deciduous forest. Dominant tree species recorded during the site visit included sweetgum, box elder, and dogwood species. Other species noted include trillium, kudzu, and Japanese honeysuckle.

3.4.2.2 Wildlife

The park provides habitat for a wide variety of wildlife, including birds, mammals, reptiles, and amphibians. The oak-hickory climax forest is the most widespread terrestrial habitat in the park, however, these areas are characterized by low species diversity. The mesic bluffs and bottomland habitats, though not as common throughout the park, have the greatest wildlife diversity.

Mammals throughout the park vary with the age of tree stands, the percent of deciduous trees within an area, the proximity of openings, and the presence of bottomland forest types and water. Potential mammal species occurring within the park boundary include white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), eastern cottontail rabbit (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*), fox squirrel (*Sciurus niger*), eastern chipmunk (*Tamias striatus*), white-footed mouse (*Peromyscus leucopus*), pine vole (*Microtus pinetorum*), short-tailed shrew (*Blarina brevicauda*), and cotton mouse (*Peromyscus gossypinus*). Most large predatory mammals, such as black bear (*Ursus americanus*) and mountain lion (*Puma concolor*), no longer occur in the park. A small mammal survey was completed in 2004 by the University of North Carolina. In addition a summer bat survey was completed in 2004 (NPS 2008). The park staff has a list of mammals that have been documented at each of the park units. This is discussed below.

The diverse wetland and upland areas throughout the park provide habitat for as many as 240 bird species, including neotropical migrant songbirds, raptors, waterfowl, and shorebirds. A complete avian inventory study plan is being prepared by the NPS Southeast Coast Inventory and Monitoring Network. The most common bird species present in mature southern mixed forests are the pine warbler (*Dendroica pinus*), cardinal (*Cardinalis cardinalis*), summer tanager (*Piranga rubra*), Carolina wren (*Thryothorus ludovicianus*), ruby-throated hummingbird (*Archilochus colubris*), blue jay (*Cyanocitta cristata*), eastern towhee (*Pipilo erythophthalmus*), and tufted titmouse (*Baeolophus bicolor*) (NPS 2004b). Other birds within the park include hooded warbler (*Wilsonia citrine*), red-shouldered hawk (*Buteo lineatus*), eastern screech-owl (*Otus asio*), barred owl (*Strix varia*), northern flicker (*Colaptes auratus*), downy woodpecker (*Picoides pubescens*), common crow (*Corvus brachyrhyncho*), mourning dove (*Zenaida macroura*), common nighthawk (*Chordeiles minor*), American goldfinch (*Carduelis tristis*), Carolina chickadee (*Poecile carolinensis*), eastern phoebe (*Sayornis phoebe*), and white-breasted nuthatch (*Sitta carolinensis*). Birds preferring woodlands or edge areas may include thrushes, flycatchers, vireos, and woodpeckers. Ducks, geese, ospreys (*Pandion haliaetus*), herons, and shore birds are found in wetlands and along the river and its tributaries. In recent years, bald eagles (*Haliaeetus leucocephalus*) have entered the area and peregrine falcons (*Falco peregrinus*) have been reintroduced to the area (NPS 2004b).

A total of 23 amphibian species and 40 reptile species have been documented in the park. Reptiles and amphibians use all types of habitats throughout the park including wetlands, forested areas, grassland areas, and the river itself. Reptiles and amphibians occurring within the forested habitats throughout the park may include the American toad (*Bufo americanus*), Fowlers toad (*Bufo fowleri*), Southern red backed salamander (*Plethodon serratus*), ring-necked snake (*Diadophis punctatus*), corn snake (*Elaphe guttata*), common kingsnake (*Lampropeltis getula*),

Eastern fence lizard (*Sceloperus undulatus*), and the Eastern box turtle (*Terrapene carolina*). Amphibian and reptiles are very dependent on the moist, low lying, wetland areas of the park. Species commonly found within the wetlands include spring peeper (*Pseudacris crucifer*), Southeastern chorus frog (*Pseudacris feriarum*), spotted salamander (*Ambystoma maculatum*), Eastern newt (*Notophalamus viridescens*), queen snake (*Regina septemvittata*), snapping turtle (*Chelydra serpentine*), and the common mud turtle (*Stenotherus odoratus*). In addition, the Chattahoochee River provides habitat for numerous reptiles and amphibians. Larger frogs such as the bull frog (*Rana catesbianna*) and green frog (*Rana clamitans*) are commonly found along the river banks. Snake species such as the plain-bellied water snake (*Nerodia erythogaster*), Northern water snake (*Nerodia sipedon*), and the venomous copperhead (*Agkistrodon contortrix*) are often found in the river feeding on fish and frogs. The river is home to many species of aquatic turtles such as the painted turtle (*Chrysemys picta*), river cooter (*Pseudemys concinna*), Florida red bellied turtle (*Pseudemys nelsoni*), and the common slider (*Trachemys scripta*).

Bowmans Island West

During the April 2009 site visit the following species were recorded while walking along the current trail system: mallard (*Anas platyrhynchos*), yellow-crowned night heron (*Nyctanassa violacea*), white-tailed deer, and Eastern cottontail rabbit. Park staff has recorded mammal species including beaver, bobcat (*Lynx rufus*), coyote, Eastern chipmunk, Eastern mole (*Scalopus aquaticus*), golden mouse (*Ochrotomys nuttalli*), gray squirrel, Northern short-tailed shrew (*Blarina brevicauda*), raccoon, swamp rabbit (*Sylvilagus aquaticus*), white tailed deer, and woodland vole (*Microtus pinetorum*) within the Bowmans Island West unit.

Johnson Ferry South

During the 2009 site visit the following species were recorded along the current trail system: cardinal, beaver, gray squirrel, and turkey vulture (*Cathartes aura*). Wood duck (*Aix sponsa*) nesting boxes were also observed. In addition, scat from coyote and white-tailed deer were noticed along the trail. Mammal species occurring in the Johnson Ferry South unit that have been recorded by park staff include coyote, Eastern chipmunk, Eastern mole, gray squirrel, hispid cotton rat (*Sigmodon hispidus*), marsh rice rat (*Oryzomys palustris*), mink (*Mustela vison*), raccoon, and swamp rabbit.

Cochran Shoals/Sope Creek

During the 2009 site visit, gray squirrel and pileated woodpecker (*Dryocopus pileatus*) were recorded along the current trails. Mammal species recorded by park staff within the Cochran Shoals/Sope Creek unit include swamp rabbit, beaver, Eastern chipmunk, Eastern mole, gray squirrel, and raccoon.

3.4.3 Species of Special Concern

For the purposes of this EA, "special status species" are defined as those listed by either the USFWS as endangered, threatened, candidate, or special concern; by the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS) as endangered or threatened; or by the state of Georgia as endangered, threatened, candidate, or a sensitive species. The terms "threatened" and "endangered" generally describe the official federal status of vulnerable species, as defined by the Endangered Species Act (ESA) of 1973. The term "candidate" is used officially by the USFWS when describing those species for which sufficient information on biological vulnerability and threats is available to support issuance of a proposed rule to list, but rule issuance is precluded for some reason. The federal "species of concern" status is applied to those species for which listing may be warranted, but further biological research and field study are needed to clarify their conservation status.

For Georgia state-listed species, animals are categorized as threatened, endangered, candidate, or sensitive by the GDNR. Rare plants are listed in one of six categories (endangered, threatened, sensitive, possibly extirpated [no longer present], review status, or watch status) by the Georgia Natural Heritage Program. *NPS Management Policies* dictate that federal candidate species, species of concern, and state-listed threatened, endangered, candidate, or sensitive species be managed to the greatest extent possible as federally listed threatened or endangered species (NPS 2006a). Therefore, all of these special status species are included in this discussion.

Under the consistency clause (Section 7[a]) of the ESA, NPS is required to consult with USFWS and NMFS if federally protected special status species may be present in the area affected by a proposed project. NMFS and USFWS share authority over certain federally protected species and have total jurisdiction over others. Georgia provides habitat for 22 plants and 50 animals protected under the federal ESA.

The GDNR identifies 163 animals and 155 plants as species of special concern in Georgia. These species are believed to be sufficiently rare as to warrant the collecting of occurrence information to better determine their status.

Table 3-2 lists the federally and state protected species potentially occurring within the park. The occurrence of special status species within each of the 3 park units is unknown at this time.

Table 3-2. Federally and State Listed Species Potentially Occurring in the Park

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
BIRDS				
Peregrine Falcon	*Falco peregrinus*	--	Rare	Rocky cliffs & ledges
Whooping Crane	*Grus americana*	--	Threatened	Freshwater marshes; bays; fields
Greater Sandhill Crane	*Grus canadensis tabida*	--	Rare	Freshwater marshes; bays; fields
Bald eagle	*Haliaeetus leucocephalus*	--	Threatened	Edges of lakes & large rivers; seacoasts
FISH				
Bluestripe shiner	*Cyprinella callitaenia*	--	Rare	Flowing areas in large creeks and medium-sized rivers over rocky substrates
Shoal Bass	*Micropterus caracterae*	--	Rare	Shoals and riffles of large streams to rivers
Apalachicola Redhorse	*Moxostoma* sp. 1	--	Rare	Habitat data unavailable
Highscale shiner	*Notropis hypsilepis*	--	Rare	Flowing areas of small to large streams over sand or bedrock substrates
INVERTEBRATES				
Brother spike	*Elliptio fraterna*	--	Critically Imperiled	Sandy substrates of river channels with swift current
Shinyrayed pocketbook mussel	*Lampsilis subangulata*	Endangered	Endangered	Sandy/rocky medium-sized rivers & creeks
Sculptured Pigtoe mussel	*Quincuncina infucata*	--	Rare	Rivers and large streams with moderate current in sand and limestone rock substrate
PLANTS				
Jack-in-the-Pulpit	*Arisaema triphyllum* ssp. *triphyllum*	--	Rare	Mesic forests
Boott Sedge	*Carex picta*	--	Rare	Dry, oak-hickory or chestnut oak forests
Dark Green Sedge	*Carex venusta var. minor*	--	Rare	Floodplains and bottomlands
Pink ladyslipper	*Cypripedium acaule*	--	Rare	Upland oak-hickory-pine forests; piney woods

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Yellow lady slipper	*Cypripedium parviflorum* var. *pubescens*	--	Rare	Upland oak-hickory-pine forests; mixed hardwood forests
Dwarf mountain witch alder	*Fothergilla major*	--	Threatened	Rocky (sandstone, granite) woods; bouldery stream margins
Shuttleworth's ginger	*Hexastylis shuttleworthii* var. *harperi*	--	Rare	Low terraces in floodplain forests; edges of bogs
Goldenseal	*Hydrastis canadensis*	--	Endangered	Rich woods in circumneutral soil
Florida Anise Tree	*Illicium floridanum*	--	Endangered	Steepheads, floodplain forests
Canada Lily	*Lilium canadense*	--	Rare	Openings in rich woods
Bunchflower	*Melanthium latifolium*	--	Rare	Mesic deciduous hardwood forests
Ozark bunchflower	*Melanthium woodii*	--	Rare	Mesic hardwood forests over basic soils
Loose Watermilfoil	*Myriophyllum cf. laxum*	--	Rare	River sinks and shallow freshwater pools
Indian Olive	*Nestronia umbellula*	--	Rare	Transition oak-hickory-pine woods
Ginseng	*Panax quinquefolius*	--	Rare	Mesic hardwood forests; cove hardwood forests
Stone Mountain Mint	*Pycnanthemum curvipes*	--	Rare	Open, mesic woods
Bay starvine	*Schisandra glabra*	--	Threatened	Rich woods on stream terraces and lower slopes. Known to bloom adjacent to the shoals within the Cochran Shoals/Sope Creek unit
Biltmore carrion-flower	*Smilax biltmoreana*	--	Rare	Deciduous forests
Heartleaf Goldenrod	*Solidago sphacelata*	--	Rare	Rich calcareous bluffs
Mountain camellia	*Stewartia ovata*	--	Rare	Mesic hardwood forests; bluff forests
Georgia aster	*Symphyotrichum georgianum*	Candidate	Threatened	Upland mixed forests and openings
Piedmont barren strawberry	*Waldsteinia lobata*	--	Rare	Stream terraces and adjacent gneiss outcrops

** No Federal Status indicated by --*

Source: NPS 2006b

3.5 CULTURAL RESOURCES

This section describes the cultural chronology for north central Georgia and the cultural resources found specifically within the Bowmans Island, Johnson Ferry, and Cochran Shoals units of the park. Cultural resources include archaeological sites; historic resources, which are defined as buildings and structures that are 50 years old or older; cultural landscapes; and TCPs associated with Native American tribes or other cultural groups.

Background

The land currently included within the park is located within North Georgia in the Piedmont physiographic region. Evidence of past human activity in this area is divided into six periods: the Paleoindian Period (10,000-8000 B.C.), the Archaic Period (8000-700 B.C.), the Woodland Period (700 B.C.- A.D. 1050), the Mississippian Period (A.D. 1050-1550), the Protohistoric period, and the Historic period.

Paleoindian

The Paleoindian tradition in Georgia dates from 10,000 to 8000 B.C. and is characterized by small bands of nomadic hunters and gatherers. The artifacts most commonly associated with the this period are fluted and unfluted stone points, which at the time would have been affixed to wooden shafts to form spears for killing game. This time period is split into early, middle, and late phases. These phases are differentiated primarily by changes in chipped stone points. Paleoindian sites in Georgia have been found on levees, terraces, upland edges, and uplands (Anderson et al. 1990). The floodplains of small streams are not expected to contain many sites.

Archaic

Dating from 8000–700 B.C., the Archaic Period is split into three phases: Early, Middle, and Late. The Early Archaic (8000-6000 B.C.) was very similar to the Paleoindian Period. The social organization during this time consisted of egalitarian bands that hunted and gathered. Projectile points were smaller and more refined than those found during the preceding period (Caldwell 1957; Anderson and Joseph 1988). The Palmer and Kirk points are diagnostic markers of the time (Coe 1964). The Middle Archaic (6000-3500 B.C.) saw an increase in trade and the appearance of semi-permanent base camps along waterways. Ground stone tools and Stanly, Morrow Mountain, and Guilford projectile points are common markers of the Middle Archaic. During the Late Archaic (3500-700 B.C) groups began using horticulture to supplement their hunting and gathering. It was also at this time that people started producing fiber-tempered pottery. Late Archaic projectile points include the Savannah River and Otarre Stemmed (Blanton et al. 1987; Coe 1964; Wauchope 1966).

Woodland

The Woodland Period (700 B.C-A.D. 1050) is marked by the appearance of sand and grit tempered ceramics, sedentism, and the increased use of horticulture for subsistence. This period is commonly split into three phases that are differentiated by ceramic and point types and on the presence or absence of burial mounds. Early Woodland (700-200 B.C.) groups used horticulture, but were still largely dependent on hunting and gathering. Sand-tempered, conoidal-based vessels are a marker of this phase. During the Middle Woodland (200 B.C.-A.D. 650) domesticated products played an increasing role in diet (Jeffries 1976). An increase in vessel form diversity and bold surface decorations (Cartersville Check Stamped, Cartersville Simple, and Swift Creek Complicated Stamped) are also seen in the archaeological record (Espenshade 2008). Additionally, the first burial mounds were constructed in North Georgia (Cable and Raymer 1990). It is during the Late Woodland (A.D. 650-A.D. 1050) that evidence suggests maize became an important garden crop and settlements were inhabited for long durations (Markin 2007). Platform mounds are present in the Late Woodland as well.

Mississippian

During the Mississippian Period (A.D. 1050-1550), a complete shift was made to an agriculturally based subsistence economy. This shift to agriculture resulted in a population increase. The archaeological record also indicates that there were more conflicts, perhaps due to competition over arable land (Bense 1994). The Mississippian is split into three phases. The Early Mississippian (A.D. 1050-1200) was a time when simple chiefdoms developed. The artifact assemblage from this phase includes better-made pottery in an expanded suite of container styles. Complex chiefdoms arose during the Middle Mississippian (A.D. 1200-1400). The archaeological record indicates that during this time numerous mound centers were constructed, abandoned, enlarged, and revitalized. These changes indicate that there were many power shifts between chiefdoms. The Savannah Culture, which spread over most of present-day Georgia and includes the Etowah mound complex, is an example of a Middle Mississippian culture. During the Late Mississippian (A.D. 1400-1550) there was a reorganization of the population. Political turmoil increased and mound centers were abandoned or diminished in size. In Georgia we see a transition from the Savannah culture to the Lamar culture. Representative artifacts include Stamp Creek ceramics (Ledbetter et al. 1986; Wood 1989).

Protohistoric

The Protohistoric Period in Georgia begins with the Spanish explorations of de Soto, de Luna, and Pardo, in the mid-sixteenth century. Hernando de Soto was the only one of the three to visit the Piedmont on his mission to find precious metals. Archaeological evidence suggests he may

have visited several Georgia sites including Bullard's Landing, Cowart's Landing, the Lamar site, the Shinholser site, the Shoulderbone site, and the Dyar site, before he ventured into South Carolina (Smith 1992). Diseases spread by de Soto's expedition are thought to have had a devastating effect on American Indian populations.

Though the Spanish were the earliest European explorers in Georgia, it was the French and British that settled in Georgia. During the late 1600s there was increasing tension between the Creek and Cherokee Indians over land in North Georgia. Battles at Blood Mountain and Ball Ground resulted in Cherokee victories and the Creeks were forced to relinquish lands between the Chattahoochee and Coosa Rivers. The Chattahoochee River became a neutral zone between the two tribes.

Historic

The Georgia colony was founded in 1733. As settlement of Georgia spread from the coast into the uplands, the Creeks and the Cherokee were gradually forced out of the territory through a series of battles and treaties. By 1827 all Creek claims to Georgia land had been nullified and by 1838 the Cherokee were rounded up in Georgia and forced to leave the state for land in present-day Oklahoma.

Settlement of the study area increased rapidly in the early 1800s as land was ceded from the tribes in the area. Gwinnett, Forsyth, and Cobb Counties were all established between 1818 and 1832 from former Cherokee and Creek lands. Fulton County was created from part of Dekalb County in 1853. The agricultural and industrial development in the area caused rapid growth. During this time cotton became the most important agricultural crop in Georgia, so much so that Georgia ceased to grow many other crops and instead imported these products from other states.

Fulton and Cobb were both impacted by General Sherman's Atlanta Campaign during the Civil War. Three of the eight battles that were fought in the march to Atlanta took place in Cobb. The presence of railroads and factories made the county a target for the Union forces (Roth 1988). After the war most of Georgia was hit hard by reconstruction and remained rural and poor for much of the remainder of the nineteenth century. Atlanta recovered well and became the permanent capital of Georgia in 1868. Atlanta's recovery benefited the counties nearby and allowed them to recover more quickly than other areas of Georgia.

Into the 20th century much of study area remained rural. Most of the area was under cultivation and although dairy products, fruit, poultry, and vegetables were produced, much of the land was used for cotton. In the 1930s as the depression, the boll weevil, and low cotton prices came to bear; many farmers left their land in search of employment (Gerdes and Messer 2007).

Since World War II the area has seen tremendous growth. Locales that were once rural farms have become part of the larger metropolitan Atlanta area and have been converted to residential, recreational, and commercial land.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR Part 800), requires Federal agencies to consider the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment. The purpose of the NHPA is to ensure that Federal agencies consult with state and local groups before non-renewable cultural resources are impacted or destroyed and ensures that preservation values are factored into Federal agency planning and decisions.

3.5.1 Archaeological Resources

Information regarding the sites within the Bowmans Island, Johnson Ferry, and Cochran Shoals Units of the park was collected from the recreation area offices and the Georgia Archaeological Site Files. A total of 79 sites were located within the three units. Forty-six are within the Bowmans Island unit, four are within the Johnson Ferry unit, and 29 are within the Cochran Shoals unit. Of these 79 sites, 21 are located within the corridors of the proposed trail improvements. Table 3-3 lists the sites located within the proposed trail corridors of the three units.

Table 3-3. Recorded Archaeological Sites within Proposed and Existing Trail Corridors

State Site No.	NPS Site No.	Site Name	Unit Location	Description	National Register of Historic Places Recommendation
9FO250	None	None	Bowmans Island	Woodland Artifact Scatter	Recommended Eligible
9FO251	None	None	Bowmans Island	Prehistoric Artifact Scatter	None
9FO264	None	None	Bowmans Island	Prehistoric / Historic Artifact Scatter	Ineligible
9FO361	None	None	Bowmans Island	Prehistoric Lithic Scatter	Ineligible

State Site No.	NPS Site No.	Site Name	Unit Location	Description	National Register of Historic Places Recommendation
9FO362	None	None	Bowmans Island	Prehistoric Lithic Scatter	Ineligible
9FO368	None	None	Bowmans Island	Prehistoric Quarry	Ineligible
9FO382	None	None	Bowmans Island	Prehistoric Lithic Scatter	Ineligible
9FO466	None	None	Bowmans Island	Woodland/ Mississippian Lithic Scatter	Ineligible
None	None	Rock Shelter #1	Bowmans Island	Rock Shelter	None
9CO128, 9CO81, 9CO143	CHAT00094	Atlanta Polo Fields Site #1	Johnson Ferry	Woodland/ Mississippian Artifact Scatter	Potentially Eligible
9CO129, 9CO2, 9CO145	CHAT00095	Atlanta Polo Fields Site #2	Johnson Ferry	Woodland/ Mississippian Village Site	Recommended Eligible
9CO376, 9CO45, 9CO1	CHAT00096	Shelly Charles Site #2	Johnson Ferry	Archaic/ Woodland/ Mississippian Village Site	Potentially Eligible
9CO75, 9CO35, 9CO218	CHAT00037	Silby Site	Cochran Shoals	Mississippian Artifact Scatter	None
9CO77, 9CO223	CHAT00036	Cousin's Village Site	Cochran Shoals	Mississippian Village	None
9CO93, 9CO113, 9CO222, 9CO9258	CHAT00031	Marietta Paper Mill Ruins	Cochran Shoals	Historic Mill	Listed
9CO369	CHAT00033	Sope Creek Mill House	Cochran Shoals	Historic Homesite	None
9CO373	CHAT00032	None	Cochran Shoals	Prehistoric Lithic Scatter	None

State Site No.	NPS Site No.	Site Name	Unit Location	Description	National Register of Historic Places Recommendation
9CO647	CHAT00071	Cochran Lithic Scatter	Cochran Shoals	Archaic Lithic Scatter	None
9CO649	CHAT00073	Cochran Homesite #2	Cochran Shoals	Historic Homesite	None
9CO650	CHAT00074	Cochran Homesite #3, Scribner Cemetery	Cochran Shoals	Historic Homesite and Cemetery	None
None	None	23rd Corps Earthworks	Cochran Shoals	Civil War Earthworks	None

Bowmans Island West

Nine archaeological surveys have been conducted in the Bowmans Island unit (Hamilton 1974; O'Grady and Poe 1980; Gresham 1987; Webb and Gantt 1995; Webb 1996a; Webb 1996b; Webb and Gantt 1996; Webb and Burns 1997; Jordan 2004; Hardy 2007). Four of these surveys uncovered sites that fall within the proposed or existing trail corridors. These surveys are discussed in the following paragraphs.

In 1986 Southeastern Archaeological Services, Inc., conducted an intensive survey of 323 hectares of the proposed Lake Sidney Lanier reregulation dam and lake area (Gresham 1987). The survey took place on both sides of the Chattahoochee River in Forsyth and Gwinnett Counties. Much of the survey area overlapped with the current Bowmans Island Unit. A total of 15 sites were located within the unit boundaries. Only two (9FO250 and 9FO251) were located within the proposed trail area. Site 9FO251 is a deeply buried lithic scatter measuring 20 meters by 20 meters. Site 9FO250 was a prehistoric artifact scatter with its southern edge falling within the Bowmans Island Unit.

R.S. Webb & Associates further investigated 9FO250 through Phase II Testing (Webb 1996a). The Phase II work was conducted for the Silver Creek Development area, which is located directly west of the Bowmans Island unit. The investigation revealed that the site was occupied from the Early Archaic through the Early Mississippian. Intact deposits were located in the central portion of the site outside of the proposed trail area, but the outer areas of the site were severely disturbed by cultivation, terracing, and silviculture. Due to the intact archaeological deposits and the high research potential, the site was recommended eligible for the NRHP.

In the mid 1990s a series of surveys were conducted in association with the Silver Creek Development (Webb and Gantt 1995; Webb 1996b; Webb and Gantt 1996). These surveys were carried out by R.S. Webb and resulted in the discovery of eight sites that now fall within the Bowmans Island Unit. Sites 9FO361, 9FO362, and 9FO368 are located in or on the edge of the proposed trail alignment. Site 9FO361 is a prehistoric and late 19th – early 20th century artifact scatter. It consisted of very few artifacts and was disturbed by erosion. Site 9FO362 is a small prehistoric lithic scatter. The site consisted of undiagnostic artifacts and appeared disturbed. Site 9FO368 is a sparse prehistoric lithic scatter. The site was located on the surface and was severely eroded. All three sites were recommended not eligible to the NRHP (Webb 1996b).

In 1997 R.S. Webb & Associates conducted a cultural resources survey of the proposed trail system in the Bowmans Island Unit of the park (Webb and Burns 1997). Silver Creek L.L.C initiated the survey in cooperation with the NPS. Six archaeological sites were encountered as well as two rock shelters. One site (9FO382) and one rock shelter (Rockshelter #1) are within the proposed trail area. Site 9FO382 is a sparse, subsurface prehistoric lithic scatter. The site was eroded and did not produce any diagnostic artifacts, so it was recommended not eligible to the NRHP. Rockshelter #1 was investigated, but not fully delineated. A quartz artifact observed on the surface indicated that the shelter might have been used in prehistoric times. Nearby shovel tests did not uncover subsurface artifacts. An NRHP assessment was not made for the rock shelter.

In 2004 R.S. Webb & Associates conducted a Phase I archaeological survey of 39 tracts within 12 NPS units of the park to locate and identify archaeological sites. A total of 27 sites were located. Two of these sites (9FO464 and 9FO466) were situated within the proposed trail corridors for the Bowmans Island Unit. Site 9FO464 was a prehistoric lithic scatter. Artifact density was low and no diagnostic artifacts were located. Site 9FO466 is a Woodland/Mississippian artifact scatter. This site appeared eroded and contained a low density of artifacts. Both sites were recommended not eligible for the NRHP (Jordan 2004).

Johnson Ferry South

Three archaeological surveys have been conducted in the southern half of the Johnson Ferry Unit (Garrow 1978; Pluckhahn and Gresham 2003; Jordan 2004). Two of the surveys resulted in the discovery of sites within the proposed trail corridor. In 1978 a survey was carried out along Columns Drive within the unit prior to construction of a proposed 40-inch pipeline (Garrow 1978). During this survey, sites 9CO128 and 9CO129 were identified. Both sites were Woodland/Mississippian village sites that were recommended eligible to the NRHP. The surveys indicate that the southeastern edges of both sites overlap with the proposed trail alignment.

During their survey of proposed fuel reduction areas, R.S. Webb & Associates focused on two parcels within the southern portion of the Johnson Ferry unit (Jordan 2004). These parcels overlapped with portions of the trail alignment. During this survey, site 9CO128 was further delineated. Additionally, one other site was located and delineated (9CO376). Site 9CO376 was originally identified in 1973 by Lawrence Meier (Meier 1973). The site is a deeply-buried Late Woodland/Early Mississippian village site that is recommended potentially eligible for the NRHP.

Cochran Shoals/Sope Creek

Six official surveys have been conducted within the Cochran Shoals Unit (O'Grady and Poe 1980; Hamby and Reed 1995; Frazier 1997; Jordan 2004; Lawson 2004; Hardy 2007). The earliest large scale archaeological survey conducted in this unit is O'Grady and Poe's 1980 survey. The survey was conducted because of the formation of the park and it covered many of the areas slated for new trails. The survey resulted in the discovery of ten new sites. Five sites (9CO75, 9CO77, 9CO93, 9CO369, and 9CO373) are located within the proposed trail corridors.

Site 9CO75 is an Archaic surface artifact scatter and Site 9CO77 is a prehistoric habitation site. Both sites were partially destroyed during construction of a pipeline along the river and neither site has an NRHP recommendation. Site 9CO93 is the ruins of the Marietta Paper Mill Site. This site includes structures on both the east and west sides of Sope Creek. The pulp mill remains are located on the west side of the creek near proposed trail corridors. Due to its historical significance the site is listed on the NRHP. Site 9CO369 contains a standing chimney and chimney ruins. This site could be associated with the Marietta Paper Mill Site, but there is no definitive evidence linking the two. Site 9CO373 was a Mid Archaic/Early Woodland lithic scatter. The site had undergone some disturbance when a sewerline was installed in the area. No NRHP recommendation was made for either 9CO369 or 9CO373.

In 2002 the Southeast Archaeological Center conducted surveys of proposed trail areas in the southern portion of the Cochran Shoals unit (Lawson 2004). The survey covered most of the proposed trails in that portion of the unit. Five previously unrecorded sites were located and two were within the proposed trail corridors. Site 9CO649 is a historic home site. This site contained the remains of a stone chimney and a nineteenth century artifact scatter. Site 9CO650 contains the Scribner Cemetery, the remains of a stone chimney, and an artifact scatter. The cemetery dates to the mid-19th Century and artifacts indicate that the homesite dated to that time period as well. No NRHP determinations were made for these sites.

Analysis of historic documents has also indicated the existence or probable location of several sites within the park unit. Examination of files at the park indicates that the 23rd Corps Earthworks site is present within the Cochran Shoals unit. The site area was identified through

The *War of Rebellion* (Scott 1880). Documentation from site files and the park do not indicate that this site has been located through fieldwork.

3.5.2 Historic Resources

There are five historic resources within the three park units slated for trail improvements. The historic resources are the Bowmans Island Fish Weir (9GW344), the Cochran Fish Dam (9CO78), the Marietta Paper Company (9CO93), the Scribner Cemetery (9CO650), and the Civil War Rifle Pits (9CO374). All five are also recorded as archaeological sites.

The Bowmans Island Fish Weir located in the Bowmans Island West unit, and the Cochran Fish Dam located in the Cochran Shoals/Sope Creek unit, are both historic fish traps, but neither is located in an area that will be impacted by trails improvements. The Civil War Rifle Pits are located in the southern portion of the Cochran Shoals unit. The resource is recommended potentially eligible to the NRHP, but trail alternatives do not impact the resource. The Marietta Paper Company within the Cochran Shoals unit is listed on the NRHP because of its utility during the Civil War. Currently trails run next to and through the paper mill ruins. The Scribner Cemetery is a 19th Century cemetery within the Cochran Shoals unit and is not eligible for the NRHP. This resource currently has a trail running adjacent to it.

3.6 HUMAN ENVIRONMENT

This section of the EA discusses the human environment at the park, including aesthetics, public health and safety, and visitor use and experience.

3.6.1 Aesthetics

The Georgia MRPA of 1973 protects land use planning and includes language that allows the NPS to protect park aesthetics and viewsheds in the vicinity of the park (General Assembly of Georgia 1973). The act was designed by the ARC to protect visitor experiences and improve development controls in the Chattahoochee River watershed. The act established a 2000 foot wide corridor on both banks of the river for the entire length of the park. In 1998, the Metropolitan River Protection Corridor Act extended an additional 36 miles to the downstream limits of Fulton and Douglas Counties. The act required the ARC to adopt a plan that would result in protection of the land and water resources of the Chattahoochee River Corridor and to develop procedures to implement the plan and the act. Local governments in the corridor have the responsibility to implement the plan as well (NPS 2008).

The MRPA makes it illegal to engage in any land disturbing activity not in compliance with or not certified under the Chattahoochee Corridor Plan. This includes restricting any land clearing

activity within a 50 foot buffer of the river and prohibiting impervious surfaces within 150 feet of the river. Additionally, it requires a 35 foot vegetated buffer along tributaries to the Chattahoochee River and precludes any land or water uses within the floodplain. When enforced, these provisions help protect the viewshed along the river corridor (NPS 2008).

A large portion of the protected land and greenspace in the Metro-Atlanta area is located within the park. One principal reason for park visitation is to appreciate the beauty and serenity of the natural environment. The three park units for the proposed project are surrounded mainly by large single-family homes and associated urban development, which are visible from some portions of the trails, specifically at the Bowmans Island West unit (NPS 2008). Artificially contained wetlands, artificially straightened streams and clear-cut open fields are prized by local residents and visitors as a natural area relative to the urban landscape of Atlanta. Unfortunately, due to the influence of agriculture and urban development prior to the implementation of Chattahoochee River National Recreation Area as a National Park, there is very little unaltered natural habitat within these units. Although visitors enjoy the current aesthetic as a natural landscape and a pleasant escape from urban development, it does not reflect the beauty of a truly natural area.

Proposed developments adjacent to the park increasingly concern area residents, park visitors and adjacent property owners. Visitors identify aesthetics and viewsheds of the park and the river corridor as important issues. While NPS cannot change historical modifications to the natural landscape within the park, it does aim to ensure that the minimum amount of high rises and nearby developments are not obvious from inside the park. No county or city governmental regulations other than the MRPA provides controls or guidelines for protection of the park viewsheds. However, the Cobb Galleria Community Improvement District, which incorporates 25,000 acres of land in the vicinity of the Palisades and Cochran Shoals, provides an effective means of improving visitor experience at site specific developments and for leveraging private sector voluntary support for aesthetics and viewshed protection. In a unique public-private partnership, the district negotiates for joint funding of trails, amenities, and park area improvements in exchange for height and density waivers (NPS 2008).

3.6.2 Public Health and Safety

Existing public health and safety conditions within the park and each of the three park units are primarily associated with bicycle accidents. Accidents involving bicycles are the result of rough terrain or smooth wide trails that allow bicyclists to travel at high speeds, thus causing injury to themselves or other visitors (TDS 2001). Other injuries that may occur on the trails include slipping on wet surfaces or stream/river banks and falling or tripping along obstacles in the trail such as roots and rocks.

Fecal coliform bacteria levels, and the presence of other harmful microorganisms, including those that can cause typhoid fever, hepatitis, gastroenteritis, dysentery, and ear infections are present in the Chattahoochee River and pose a threat to public health. Levels of fecal coliform and other water quality issues are discussed in more depth in Section 3.3.

3.6.3 Visitor Use and Experience

Park Visitation

Visitors to this park consist mainly of residents from the Atlanta metropolitan area. However, because the area is a national park, many people from all over the country also visit the park. Visitors are from diverse backgrounds and represent a wide variety of ethnicities and socio-economic status. Park staff collect annual visitation statistics by deriving estimates from traffic counts at each site. The annual visitation at the park for the last 10 years is displayed in Table 3-4. Overall, annual visitation at the park has decreased since 1998. The lowest visitation was observed in 2005; however visitation did increase in the subsequent three years.

Table 3-4. Annual Visitation 1998-2008 at the Park

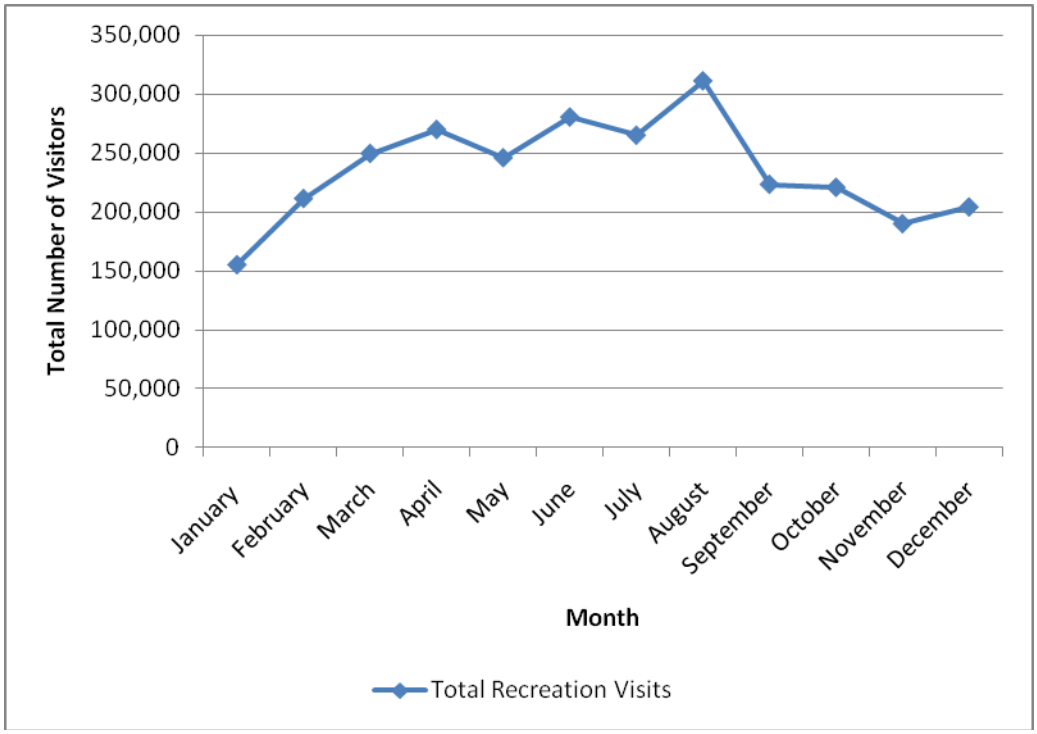
Year	Annual Visitors
1998	2,935,043
1999	2,898,155
2000	2,659,709
2001	2,751,256
2002	2,806,578
2003	2,694,541
2004	2,672,138
2005	2,511,306
2006	2,842,670
2007	2,836,077
2008	2,826,171

Source: NPS 2009

Figure 3-4 shows the total monthly visitation throughout 2008. Visitation ranged from 155,293 visitors in January to 310,904 visitors in September (NPS 2009). The park receives the most visitors between March and August; however a consistent flow of visitors still remains during the fall and winter (NPS 2009). The most visited area within the park is the Cochran Shoals/Sope Creek unit, with 747,504 visitors in 2008. The least visited area throughout the park is the Suwannee Creek unit, with 12,683 visitors in 2008 (NPS 2009). The Bowmans Island West unit and Johnsons Ferry South unit are also considered popular areas in the park. In 2008 visitation

was 279,202 and 198,557, respectively. The NPS also records the number of visitors within the Columns Drive area separately. This road extends from Johnson Ferry South unit to the Cochran Shoals/Sope Creek unit. In 2008, there were 472,356 visitors within the Columns Drive area (NPS 2009). Together the three subject units for this project received approximately 60 percent of the total park visitation in 2008 (NPS 2009).

Figure 3-4. Monthly Visitation at the Park in 2008.



Source: NPS 2009

Park Recreation

Visitors use the park for a variety of recreation activities and the duration of their stay is dependent on the activity in which they partake. The NPS manages over 10,000 acres within the legislative boundaries. The park consists of 15 park units spread out along the 48 miles of the Chattahoochee River. Although these park units are not all connected, there are a number of ways to access each park unit and most include one or more parking areas.

The park is open year round from dawn to dusk. The 15 park units offers a variety of recreation activities for visitors including bird watching, nature walking, running, hiking, biking, dog walking, horseback riding, picnicking, and wildlife viewing. Visitors also use the river year

round for a number of aquatic activities such as canoeing, kayaking, rafting, fishing, and motor boating. The park entrance fee is $3.00 a day or $25.00 for the year.

The park headquarters and visitor contact station is centrally located within the Island Ford park unit at River Mile (RM) 320. The visitor contact station includes information about the history of the river and wildlife at the park. Park visitors can obtain park maps and information on scheduled activities throughout the different park units. A small gift shop and conference room is also located in the center. Visitors often begin their visit at the Island Ford Visitor Contact Station, which is open from 9:00 AM to 5:00 PM year round. The park has partnered with the Chattahoochee Nature Center to provide unique learning experiences to connect people to the natural world and teach people how to positively impact the local environment. Learning on the Log is another partner that utilizes the park to provide sensory based programs for children.

Fishing the Chattahoochee River is permitted year round for trout, bass, catfish, and other game species. Fishing is available to visitors between dawn and dusk; night fishing is prohibited. The park has authorized three local businesses to conduct guided fishing trips and fly fishing lessons within the park.

The 48 miles of the Chattahoochee River are available for raft, canoe, kayak, motor boat, and other small boat use year round. Nighttime boating and jet skiing are not permitted within the park. On days when the water is not being released from Buford Dam, the river below the dam is calm "flat water" with an occasional class I or II rapid. The river is accessible by boat north of Morgan Falls Dam at Bowmans Island, Abbotts Bridge, Medlock Bridge, Jones Bridge, Island Ford, and Chattahoochee River Park. Below Morgans Falls Dam, boat access is available at Morgan Falls Park, Johnson Ferry, Powers Island, and Paces Mill. For visitors who do not own boats, the park has authorized six licensed vendors that offer boat rentals and shuttle service.

One of the main uses of the park is the nearly 100 miles of hiking trails. Most park units contain numerous hiking trails. Trail maps for each park unit are available at the Visitor Contact Station. Some trails offer wildlife viewing areas, wayside exhibits, boardwalks, and scenic overlooks. In some areas, bicycles are allowed on paved park roads and parking areas open to public vehicle traffic. At Vickery Creek, Palisades, and Cochran Shoals/Sope Creek park units, bicycles are permitted along limited multi-use trails. Some visitors use the park trails to exercise their pets, dog walking on leash is allowed on most park trails.

Picnicking is another popular recreation activity for park visitors. All park units except Bowmans Island, Orrs Ferry, McGinnis Ferry, Suwannee Creek, and Holcomb Bridge offer some type of picnicking activity. All of the remaining park units have picnic tables available on a first come first serve basis. Abbotts Bridge, Island Ford, Johnson Ferry, Powers Island, and Paces

Mill have picnic pavilions available for larger groups; special use permits are required for these areas.

The park schedules a variety of activities for visitors of all ages throughout the different park units. Some of the programs include wildflower hikes, night hikes, trout lily strolls, snake hikes, bird watching walks, and frog walks. Each of these activities is led by a park ranger and unique vegetation and wildlife are identified and explained to the visitors. The park also holds kids fishing events throughout the year within the Island Ford unit. On Mother's Day and Father's Day, children are encouraged to bring their parents to the park for a day of fishing on the Chattahoochee River. During the kids fishing events, children are taught all the basics of the sport.

Special events are also held at the park on an annual basis including the Chattahoochee River Race and Festival. This event marked its 7th year in 2009 with over 200 paddlers, and includes 8-mile and 10-mile kayak and canoe races from Holcomb Bridge to Riverside Park. In August, the park holds the annual Chattahoochee River Paint Out. During this event, amateur and professional painters gather for 3 days to paint the Chattahoochee River in select areas throughout the park. On the final day, the park holds a celebration and prizes are awarded to the top paintings.

Table 3-6 presents the principal recreation opportunities available the three park units.

Table 3-6. Principal Recreation Amenities

Park Area	Boating	Boat Launch	Fishing	Hiking	Parking	Picnic Area	Restrooms	Other
Bowmans Island West	X	X	X	X	X		X	Equestrian
Johnson Ferry South	X	X	X	X	X	X	X	
Cochran Shoals/Sope Creek	X		X	X	X	X	X	Off-road bicycling and fitness trail

Bowmans Island West

The Bowmans Island West unit offers a variety of activities including hiking, boating, trout fishing and horseback riding. Currently horses are only permitted on the designated equestrian trails located on the Forsyth County side of the Bowmans Island West unit. Limited trail

mileage and steep sections with erosion issues result in the impracticality of horses in many areas of the park. This unit also has restroom facilities and a boat launch.

Johnson Ferry South

An annual event called the "Chattahoochee Summer Splash" is held in the Johnson Ferry unit. This event is a six-mile kayak, canoe, or rafting trip from the Morgan Falls Dam to Powers Island, in the Cochran Shoals unit. Park staff shuttle paddlers to the dam and provide music and food at the conclusion of the trip at Powers Island. This is a family friendly event where visitors are encouraged to enjoy the beauty of the Chattahoochee River.

Visitors to this unit enjoy leisurely walks, bird watching, fishing, and hiking along any of the 1.5 miles of trails that border the river. This unit also offers a boat launch, picnic tables, a picnic pavilion, and restroom facilities.

Cochran Shoals/Sope Creek

The park holds many educational programs and events within the Cochran Shoals unit. During the spring, park rangers lead guided night hikes to educate park visitors on the nocturnal wildlife of the park. Visitors in this program are also encouraged to join the ranger around a campfire and roast marshmallows. During the spring visitors can also go on a guided wildflower walk with a park ranger. During this two-mile walk, visitors stop by the Wildlife Viewing boardwalk over the wetland area to look at the lush vegetation and search for signs of wildlife. During the summer, the park presents "Evening in the Park", a two hour program that provides insight into the sites, signs, and sounds of the Chattahoochee River. Visitors are encouraged to enjoy the summer evenings, sing songs, listen to stories, and roast marshmallows around the campfire.

This unit is one of the biggest units in the park and is the most popular among visitors for many different recreation uses such as picnicking, walking, boating, and hiking. The NPS has authorized fitness services for the park and the Kodiak Fitness Training Group offers group fitness classes at this unit. This unit has three miles of fitness trails that draw more than 5,000 people every day from early first morning light to dusk. Many people use the trails for bird watching or wetlands discovery. There are also a number of designated trails for biking as well as another area specifically for off-trail mountain biking. Signs indicate unpaved roads that allow bicycles but are closed to public vehicular traffic. Restroom facilities are also available at this unit.

3.7 PARK OPERATIONS

This section of the EA describes the existing conditions related to park operations and administration.

The park headquarters, located at the Island Ford unit, serves as the operations center for all park staff. The park consists of a legislated boundary of 10,000 acres of land, with facilities consisting of picnic areas, hiking and bicycling rails, river access facilities, restrooms and parking areas. Park staff provide the full scope of functions and activities to accomplish management objectives for the park. There are currently 32 full time employees that perform duties associated with five different functional roles including:

- The **Science and Resource Management** division is responsible for all activities related to the management, preservation, and protection of the park's cultural and natural resources. Activities include research, restoration activities, species-specific management programs, archives and collections management, and historic site protection.
- The **Resource Education** division is responsible for all park activities related to providing visitors with an educational park experience. Duties include interpretation, visitor center management, and interpretive media. Volunteer activities are also managed under this division.
- The **Ranger Activities** division is responsible for law enforcement, emergency services, and public health and safety within the park.
- The **Maintenance** division is responsible for all activities related solely to prolonging the life of park assets and infrastructure through substantial repair, replacement or rehabilitation of park assets, such as buildings, roads, trails, utilities, fleet vehicles, and equipment. This work includes cyclic and routine maintenance activities, inspection, and general preventive maintenance and renovation projects.
- The **Administrative** division is responsible for all park-wide management and administrative support activities, park-level planning, human resource management, information technology, park leadership, and financial management. This staff also coordinates daily internal operations at the park and works with external constituencies.

Park staff work with a variety of agencies and organizations such as the GDNR Wildlife Resources Division in order to aid the park in achieving its mission and meet the increasing demand for park staff to address connectivity with local, city, and county parks.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 CHAPTER OVERVIEW

NEPA requires the disclosure of environmental impacts associated with the alternatives including the No Action Alternative. This section presents the environmental impacts of the action alternatives and the No Action Alternative on physical resources, natural resources, cultural resources, the human environment, visitor use and experience, and park operations for the three park units included in the Trail Connection Plan. These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate for impacts. NPS policy also requires that "impairment" of park resources be evaluated in all environmental documents.

Chapter 4 describes and analyzes potential environmental effects on the physical, natural and human environment associated with the alternatives. In addition, cumulative impacts, as defined in regulations developed by the Council on Environmental Quality (CEQ) (40 CFR 1508.7) are discussed throughout this chapter for each resource.

4.1.1 Methods for Evaluating Environmental Effects

The method of analysis of potential effects is based on the DO #12 Handbook [sec 5.4(f)] (NPS 2001). Four categories of effects are considered: direct effects, indirect effects, cumulative effects and impairment. The context, duration, and intensity of the impacts must also be defined. Impacts can be long term or short term. Impacts can also be negligible, beneficial or adverse. Intensity of effects and thresholds of significance are defined only for adverse effects. Intensity can be minor, moderate or major. Terms are further defined in Sections 4.1.1.1 and 4.1.1.2.
Where quantitative data were not available, best professional judgment was used to determine impacts. In general, the thresholds used come from existing literature, consultation with subject experts, and appropriate agencies.

To analyze impacts, methods were selected to predict the potential change in park resources that would occur with the implementation of the alternatives. Evaluation factors were established for each impact topic to assess the changes in resource conditions with each alternative. The study area was defined to include resources on and in the immediate vicinity of the three locations being analyzed for the Trail Connections Plan.

4.1.1.1 Impact Categories

Three impact categories are used in this analysis and defined below.

Direct Effects – Direct effects are impacts that are caused by the alternative at the same time and in the same place as the action.

Indirect Effects – Indirect effects are impacts caused by the alternative that occur later in time or farther in distance than the action.

Impairment – The NPS *Management Policies 2006* requires an analysis of potential effects to determine whether or not actions would impair park resources. The primary purpose of the NPS, as established by the Organic Act and reaffirmed by the General Authorities Act, as amended, is to conserve park resources and values. Impacts to park resources and values are allowed when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Impairment is an impact that would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

NPS Management Policies state that an impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; or

- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or

- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park (NPS 2006a). Topics such as recreation, aesthetics, public health and safety, visitor use

and experience and park operations do not constitute park resources and therefore, impairment is not analyzed for these topics.

Cumulative Impacts – A cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of who undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The following list of past, present, and planned projects throughout the park are considered in the cumulative impact discussion:

- Johnson Ferry Right of Way Acquisition - This project is managed by Georgia Department of Transportation. It includes road improvements along Johnson Ferry Road.
- Johnson Ferry Wetland Restoration – The Georgia Corporate Wetlands Restoration Partnership is working with the NPS on a Natural Systems Enhancement Project at the Johnson Ferry unit of the park. The project's goals are to rehabilitate the wetlands, streams, and terrestrial habitats, as well as protect cultural resources and enhance educational and recreational opportunities within the 47-acre site. This project began in 2005.
- Cochran Shoals/Sope Creek Trail Re-Routes – In February 2009, the park began limited re-routes of four sections of trails in the Cochran Shoals/Sope Creek unit. The purpose of the work is to address erosion and trail deterioration along the re-routed segments by establishing modified trail routes that follow natural landscape contours. The work will only adjust limited sections of existing trails and will not open any trails to new uses. No trail closures were necessary during the re-routes.
- Sope Creek Parking Lot – This project included the closing the Sope Creek parking lot for pavement repairs from July 2009 through August 2009. The large sinkhole in the parking lot was repaired in addition to seal coating and restriping the parking lot.
- Cochran Shoals Restroom – The installation of a new restroom facility at the Columns Drive entrance of the Cochran Shoals park unit was completed in October 2009. The restroom will replace the porta-potties at Columns Drive with a permanent restroom facility and meet American Disability Act requirements.
- Island Ford Trail Extension – The City of Sandy Springs has proposed to extend the Island Ford Trail system by providing a trail connection across property owned by the City to complete a loop trail. An EA was completed for this project in January 2009. This project is located in the Island Ford park unit.
- Island Ford Sidewalk Construction – In October 2009 new sidewalks were installed adjacent to the entrance road to the park. The sidewalk was installed to separate pedestrians from vehicle traffic from entering the park. This project is located in the Island Ford park unit.

- Hewlett Field – This project will improve public access to the canoe launch boat ramp at the Island Ford Unit. This project is proposed to be complete in June 2010.
- Pedestrian Bridge at Morgan Falls Dam – The park has proposed a bridge that would connect a planned Overlook and riverside parks in Sandy Spring with NPS property. The proposed trail connections would originate as a single trail beginning in Cobb County terminus of the bridge. The main trail would run approximately 1.5 miles along a maintained Colonial Pipeline easement and connect to existing NPS trails and parking at the Johnson Ferry North park unit.
- McGinnis Ferry Road Bridge Replacement – This project (proposed by the Department of Transportation) includes the replacement and widening of the existing bridge on McGinnis Ferry Road over the Chattahoochee River and widening of the adjacent roadway. The project would widen the existing two-lane roadway and bridge to four lanes to reduce traffic congestion and improve safety within the project area. The project corridor passes along the northern boundary of the McGinnis Ferry unit of the park.

4.1.2.1 Impact Definitions

Each potential impact is described in terms of its context (site-specific, local, or regional), duration (short-term or long-term), and intensity (negligible, beneficial or adverse). If the impact is adverse, the intensity of the impact is further qualified as minor, moderate or major. For the purposes of analysis, the following definitions, unless stated otherwise, are used for all impact topics:

Duration

Short-term impacts: Impacts that might occur during trail construction, improvements, and closure or in the short-term (1 to 6 months) after trail construction, improvements, and closure.

Long-term impacts: Those impacts occurring from trail construction, improvements, and closure through the next 10 years.

Intensity

Negligible: Impacts would have no measurable or perceptible changes to the resource. If the impact is negligible, the impact will not be further qualified.

Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition. Impacts would range from perceptible to substantial improvement to the resource

and would enhance the viability of the resource, in either the local area or the surrounding community and beyond.

Adverse: Impact would move the resource away from a desired condition or detract from its appearance or condition.

Minor

Impacts would be measurable or perceptible but would be localized within a relatively small area. The overall viability of the resource would not be affected and, if left alone, would recover.

Moderate

Impacts would cause a change in the resource; however, the impact would remain localized.

Major

Impacts to the resource would be substantial, highly noticeable, and permanent.

4.2 PHYSICAL RESOURCES

This section discusses the impacts of the alternatives including the No Action Alternative on the physical environment, including soils, air quality, and noise.

4.2.1 Soils

Bowmans Island West

Alternative A (Hiking Trails): Negligible impacts to soils are expected during the installation of three bridges over the eroded streams. During the installation there is potential for disturbance of soils. The closure of the trail closest to the river would create long-term, beneficial impacts to soils. Soils in this area are heavily eroded. Since there would be no more hiking activities along this segment, the rate of erosion would be minimized. In addition, three bridges would be placed over the streams along the trail that is currently eroding. The placement and use of the bridges would create long-term, beneficial impacts to soils since visitors and horses would no longer be crossing the streams and climbing along the stream banks. Overall, the implementation of the new trail system would create long-term, beneficial impacts. Areas with high erosion would no longer be open to park visitors.

Cumulative Impacts: Since the proposed action would benefit soils, there would be no cumulative impacts to soils at this unit.

No Action Alternative: Under the No Action Alternative, the trail improvements would not be implemented at this park unit and the unauthorized, unmanageable social trails would continue to be used. Existing pedestrian and equestrian uses would continue. Inevitable erosion would be accelerated after prolonged use and would have long-term, minor, adverse impacts to soils at this unit.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The closure of the eroded trails, placement of bridges over streams, and implementation of the new trail system would create long-term, beneficial impacts to soils because erosion would be minimized. Long-term, minor, adverse impacts to soils would continue under the No Action Alternative. There would be no cumulative impacts to soils associated with this project. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternatives A and B: During the trail construction phase of the project, 0.1 mile of new trails would be constructed. Surface soils would be disturbed during this period; however these impacts would be negligible. The existing terrain would be used to create the new trail, minimizing the need to disturb soil. The new trail would also be constructed and designed to reduce erosion. A small portion of the existing trail would be closed resulting in long-term, beneficial impacts to soils since these areas would be re-vegetated.

Alternative A (Hiking Trails): Under Alternative A the new trail system would only allow hikers to use the area. Limiting the trail to hikers only would have long-term, beneficial impacts to soils since mountain bikers would not be allowed on the trail under this alternative reducing the movement of soils and erosion.

Alternative B (Multi-use Trails): Alternative B would allow both hikers and bikers on the trail. Although allowing bikers on the trail has the potential to cause movement to the soils and erosion, long-term, beneficial impacts are still expected. The park will also initiate additional measures at this unit such as prohibiting bikes on the trail within 24 hours of a rain event, in addition to the parkwide speed limit of 10 miles per hour, all of which would minimize impacts to soils.

Cumulative Impacts: When combined with other projects such as the Johnson Ferry Right of Way project, long-term, minor, adverse impacts to soils are expected due to the movement of surface soils throughout the Johnson Ferry area.

No Action Alternative: Under the No Action Alternative, there would be no connection to existing trails and no trails would be closed. No impact to soil is anticipated under this alternative.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Soil impacts during the trail construction phase are expected to be negligible due to the use of the existing terrain. The implementation of both Alternatives A and B would create long-term, beneficial impacts to soils due to the measures that the park would take to prevent degradation of the new trail. Under the No Action Alternative, there would be no impact to soils. Cumulative impacts are expected to be long-term, minor, and adverse due to the movement of surface soils throughout the Johnson Ferry area. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: During the trail construction phase of the project, surface soils would be disturbed to construct approximately 4.3 miles of new trails. Long-term, minor, adverse impacts to soils are expected. To minimize impacts to soils, BMPs would be used to help prevent erosion. Many of the trails that have been previously used by bikers are highly eroded. These trails would be closed and re-vegetated creating a long-term, beneficial impact to soils.

Alternative A (Hiking Trails): Alternative A would only allow hikers on the new trail system. Long-term, beneficial impacts to soils would result from this alternative. The trails that have been previously damaged by mountain bikers would be closed and re-vegetated. The new trail system would be constructed and designed to prevent erosion from occurring.

Alternative B (Multi-use Trails): Alternative B would allow for both mountain biking and hiking to occur on the new trail system. Long-term, beneficial impacts to soils would result from the implementation of this alternative. The new trails would be constructed and designed to minimize erosion from mountain bikers. The trails that are highly eroded would no longer be used by park visitors. To further reduce the impact from mountain bikers, the park will prohibit bikes on trails within 24 hours of a rain event, limit bikes to 10 miles per hour, and have directional flow of traffic.

Cumulative Impacts: When combined with other projects occurring within this park unit, including restroom restoration, parking lot restoration, and trail re-routes, long-term, minor, adverse cumulative impacts to soils are expected from the disruption of soils in the area. In

addition, long-term, beneficial cumulative impacts would result from the stabilization of trails from this project and the previous trail re-routes.

No Action Alternative: Under the No Action Alternative, park visitors would continue to use the eroded trails within the Cochran Shoals/Sope Creek unit. The trails would continue to degrade, creating long-term, minor, adverse impacts to soils.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The construction of the new trails would create long-term, minor, adverse impacts to soils due to the movement of surface soils. The closure of eroded trails, and implementation of Alternative A or B would create long-term, beneficial impacts. Long-term, minor, adverse impacts to soils would continue under the No Action Alternative. Cumulative impacts would be long-term, minor, and adverse due to the disruption of soils throughout the park unit, but long-term, and beneficial due to the trail closure of eroded areas. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.2.2 Air Quality

Bowmans Island West

Alternative A (Hiking Trails): The installation of the three new bridges would create negligible impacts to air quality. Impacts would result from an increase in vehicles to and from the site and a short-term increase of particulate matter from dust. No impacts to air quality would result during the operation of the new trail system.

Cumulative Impacts: Since this project would only result in negligible impacts to air quality, no cumulative impacts to air quality are anticipated.

No Action Alternative: There would be no impact to air quality under the No Action Alternative. No changes to the current trail system would be made.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Negligible impacts to air quality are expected during the trail improvement phase of the proposed project. There would be no impact to air quality under the No Action Alternative. There would be no cumulative impacts. None of the alternatives would cause impairment to park resources as none of the alternatives have more than a negligible impact to air quality.

Johnson Ferry South

Common to Alternatives A and B: During the trail construction phase, negligible impacts would result due to the increase in vehicles and the use of pollution emitting equipment to clear vegetation. A total of 0.1 miles of new trail would be created. The park would choose the new trail to be routed along a path where the least amount of vegetation would need to be cleared. There would be no impacts to air quality during the operation of the new trail.

Cumulative Impacts: Since this project would only result in negligible impacts to air quality, no cumulative impacts to air quality are anticipated.

No Action Alternative: There would be no impact to air quality associated with the No Action Alternative.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Construction of the new trail at the Johnson Ferry South unit would create negligible impacts to air quality. There would be no impact to air quality associated with the No Action Alternative. No cumulative impacts are expected. None of the alternatives would cause impairment to park resources as none of the alternatives have more than a negligible impact to air quality.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Short-term, minor, adverse impacts to air quality would result from the construction of new trails in the Cochran Shoals/Sope Creek unit. This proposed project would create approximately 4.3 miles of new trails. Construction emissions would result from an increase of construction vehicles to and from the site and from the use of pollution emitting equipment. The removal of vegetation would temporarily increase the amount of fugitive dust in the area. Impacts would be minimized by using hand clearing equipment whenever feasible. In addition, the park would choose a path that would require the least amount of vegetation removal. There would be no impacts to air quality during the operation of the new trails.

Cumulative Impacts: Cumulative impacts to air quality at this site would be short-term, minor, and adverse. When this project is combined with the construction of a new restroom, repaving of the Sope Creek parking lot, and the trail re-routes, potential criteria pollutants may be emitted during construction processes.

No Action Alternative: There would be no impact to air quality associated with the No Action Alternative.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Construction of the new trail system within the Cochran Shoals/Sope Creek unit would create short-term, adverse, impacts to air quality. Impacts would be minimized from the use of hand clearing equipment when feasible. There would be no impact to air quality associated with the No Action Alternative. Cumulative impacts to air quality would be short-term, minor, and adverse during trail construction. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.2.3 Soundscape

Bowmans Island West

Alternative A (Hiking Trails): During the bridge construction, short-term, minor, adverse impacts to the soundscape are expected. The use of equipment, vehicles, and the increase of workers on site would add to the amount of noise within the park unit. Impacts would be short-term, lasting only the duration of the construction period and would be localized to specific areas of the trails. There would be no impacts to the existing soundscape during the operation of the new trails.

Cumulative Impacts: There would be no cumulative soundscape impacts at this site, since no other projects are ongoing or planned.

No Action Alternative: Under the No Action Alternative, the trail improvements would not be implemented at this park unit, therefore no impacts to the existing soundscape would result.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The construction phase of the project would create short-term, minor, adverse impacts to the soundscape due to the use of equipment and the increase of workers in the area. There would be no impact to the soundscape under the No Action Alternative. No cumulative impacts are anticipated. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternative A and B: Impacts during the trail construction phase would be short-term, minor, and adverse due to the increase in noise from equipment, vehicles, and park staff on site. Since the proposed action would connect this unit to existing trails, visitation to the area is likely to increase; however, impacts from addition visitors would be negligible.

Cumulative Impacts: Construction activities associated with the Johnson Ferry Right of Way in combination with the construction activities of the proposed trail connection would have short-term, minor, adverse cumulative impacts to the soundscape at the Johnson Ferry South unit.

No Action Alternative: No impacts to the soundscape would result under the No Action Alternative. Noise levels would remain the same.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The trail construction phase of the project would create short-term, minor, adverse impacts to the soundscape. The operation of the new trail system would have negligible noise impacts. No impacts to the soundscape are expected under the No Action Alternative. Cumulative impacts are expected to be short-term, minor, and adverse. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Trail construction impacts would be short-term, minor, and adverse; while trail operation impacts would be negligible.

Cumulative Impacts: When combined with the other projects within this park unit, cumulative impacts to the soundscape are expected to be short-term, minor, and adverse. An increase in noise would result from the various construction projects.

No Action Alternative: Under the No Action Alternative, the new trail system would not be built; therefore no noise impacts are anticipated.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Short-term, minor, adverse impacts to noise would be expected during the trail construction phase of the project for Alternatives A and B due to the use of equipment and the increase in workers within the area. The operation of the new trails would create negligible impacts to the soundscape. No noise impacts would result under the No Action Alternative. Cumulative impacts to the soundscape would be short-term, minor, and adverse. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.3 WATER RESOURCES

This section discusses the impacts of the alternatives including the No Action Alternative on the water resources.

Water Quality

Bowmans Island West

Alternative A (Hiking Trails): The proposed trail for the Bowmans Island West unit would run parallel along the Chattahoochee River and cross over four small streams. During the bridge construction, impacts to water quality may occur. There is a potential for an increase in turbidity within the four small streams and the mainstem river due to the movement of soils and removal of vegetation required for the new bridge crossings; however, these impacts are expected to be negligible.

The closure of the existing trail in the north area would create long-term, beneficial impacts to water quality. This portion of the trail is heavily eroded in some areas and may contribute to turbidity in the streams and river. The closure of the trail would prevent visitors from using the area and thus reducing the erosion process, thereby decreasing impacts to water quality.

Overall, the operation of the Bowmans Island West trail would create long-term beneficial impacts to water quality. Bridges would be placed over three of the eroding streams so that pedestrians and equestrians would no longer be walking on the stream banks and through the stream.

Cumulative Impacts: There would be no cumulative impacts to water quality associated with this project since no other projects have occurred or are proposed within this park unit.

No Action Alternative: Under the No Action Alternative, existing pedestrian and equestrian use would continue and the current trails would continue to erode and degrade, creating long-term, minor, adverse impacts to water quality due to the potential increase in turbidity levels.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The bridge construction would create negligible impacts to water quality. The closure of eroded trails would create long-term, beneficial impacts due to the reduction of activity on the eroded trails. The operation of the new trail system would also create long-term, beneficial impacts to the water quality of the streams and river. Long-term, minor, adverse impacts to water quality would continue under the No Action Alternative. No cumulative impacts to water quality would occur. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternatives A and B: Construction of the new trail at Johnson Ferry South would create negligible impacts to water quality. A new segment of the trail would be created to connect to the underpass. The clearing of vegetation may result in some erosion at the site, however, the new trail would be short (0.1 mile) and it would be constructed and designed to

control erosion and runoff. The operation of the new trail would have negligible impacts to water quality. Even though Alternative B proposes allowing bikers on the trail system, no additional impacts to water quality are anticipated from bikes since this area is relatively flat and erosion/runoff from bikers would be negligible. The park will initiate additional measures at this unit including prohibiting bikes on the trail within 24 hours of a rain event in addition to an existing parkwide speed limit of 10 miles per hour, all of which would minimize impacts soils and ultimately to water quality.

Cumulative Impacts: The construction of the new trail in the Johnson Ferry South unit in conjunction with the Johnson Ferry Road Right of Way project may create short-term, minor, adverse impacts to water quality. The removal of vegetation in these areas may increase runoff resulting in turbidity in the river.

No Action Alternative: There would be no impact to water quality under the No Action Alternative.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The proposed construction and the operation of the new trail would create negligible impacts to water quality. No impacts are expected under the No Action Alternative. Cumulative impacts would be short-term, minor, and adverse. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Approximately 4.3 miles of new trails would be constructed within the Cochran Shoals/Sope Creek park unit. During the construction phase, an increase in turbidity may occur from the removal of vegetation and movement of soils throughout the site. The park would use BMPs to minimize the amount of soil that may enter the waterways. Overall, trail construction impacts to water quality would be short-term, minor, and adverse.

Operation of the new trails would create long-term, beneficial impacts to water quality. A number of the current trails are social trails that are highly eroded with loose materials potentially entering streams and the river. These trails would be closed and the newly constructed trails would be designed to control and prevent erosion.

Additional impacts to water quality are expected from allowing bikes on the trail. Although Alternative B proposes allowing bikers on the trail system, additional impacts to water quality from bikers are anticipated to be negligible. The park will initiate additional measures at this

unit including prohibiting bikes on the trail within 24 hours of a rain event in addition to a currently mandated speed limit of 10 miles per hour, all of which would minimize impacts to soils and ultimately to water quality.

Cumulative Impacts: Cumulative impacts to water quality would be long-term and beneficial overall. Projects including the trail re-route and parking lot renovations would improve eroded areas throughout the park unit.

No Action Alternative: Long-term, minor, adverse impacts to water quality would continue under the No Action Alternative. Social trails would continue to erode and drainages would continue allowing loose material to enter the waterways.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The trail construction phase of the project would create short-term, minor, adverse impacts to water quality. There is a potential for an increase of turbidity during this period. The operation of the new trails would create long-term, beneficial impacts to water quality. The new trail system would be properly designed to support hikers and mountain bikers. Under the No Action Alternative, water quality impacts would continue to be long-term, minor, and adverse. Long-term, beneficial cumulative impacts would occur. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.4 NATURAL RESOURCES

This section discusses the impacts of the alternatives, including the No Action Alternative on natural resources including aquatic resources, vegetation, wildlife, and species of special concern.

4.4.1 Aquatic Resources

<u>Bowmans Island West</u>

Alternative A (Hiking Trails): Aquatic resources within the vicinity of the proposed project area would be temporarily impacted during bridge construction. Some vegetation may need to be cleared to install the three bridges over the streams. The removal of vegetation may cause loose substrate and materials to enter the streams, which would increase turbidity. An increase in turbidity levels may cause impacts to aquatic resources; however these impacts are expected to be negligible. Fish and other mobile aquatic species may be impacted and may move to a different area until turbidity levels return to normal. The operation of the new trail system would benefit aquatic resources in the long-term, since trails would be more stable and hikers would

cross over bridges instead of walking through the streams. The beneficial impacts to water quality would increase the quality of habitat available to aquatic species.

Cumulative Impacts: There would be no cumulative impacts to aquatic resources associated with this project since no other projects are occurring within the park unit.

No Action Alternative: Under the No Action Alternative, pedestrian and equestrian use would continue, erosion would continue to be a problem along the current trail system and the small streams throughout the site. Long-term, minor, adverse impacts to aquatic resources would continue as a result of increased turbidity from erosion.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Negligible impacts to aquatic resources may occur during bridge construction. The operation of the new trail would likely create long-term, beneficial impacts to the habitat available for the aquatic organisms. Long-term, minor, adverse impacts to aquatic resources would result under the No Action Alternative. There would be no cumulative impacts associated with this project. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternatives A and B: A new portion of trail would be built to connect to the underpass. During the trail construction phase of the project vegetation would be removed along the trail; however, the new trail would be constructed and designed to control erosion and runoff, therefore impacts to aquatic resources would be negligible. Operation of the new trail system is not expected to impact aquatic resources in this area since the new trail would be constructed and designed to prevent erosion. Even though Alternative B proposes allowing bikers on the trail system, no additional impacts to aquatic resources are anticipated from bikes since this area is relatively flat and erosion/runoff from bikers would be negligible. The park will initiate additional measures at this unit including prohibiting bikes on the trail within 24 hours of a rain event in addition to the mandated speed limit of 10 miles per hour, all of which would minimize impacts to soils and ultimately to water quality and aquatic resources.

Cumulative Impacts: Cumulative impacts to aquatic resources would be negligible when combined with the Johnson Ferry Road Right of Way project.

No Action Alternative: There would be no impact to aquatic resources under the No Action Alternative since a new trail connection would not be constructed.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Negligible impacts to aquatic resources are expected during the trail construction phase. No impacts to aquatic resources are expected during the operation of the new trail system. There would be no impact under the No Action Alternative. Cumulative impacts are expected to be negligible. None of the alternatives would cause impairment to park resources as the adverse impacts are negligible.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: The trail system within the Cochran Shoals/Sope Creek area is heavily eroded. Approximately 4.3 miles of new trails would be constructed at this unit. During the trail construction phase short-term, minor, adverse impacts to aquatic resources are expected because the movement of soils and removal of vegetation may increase turbidity within the river or streams in the area. The closure of the highly eroded trails and the operation of the new trail system would create long-term, beneficial impacts to the aquatic resources. Eroded trails would no longer be used by bikers and hikers. The loose material would no longer enter the streams throughout the site, which in the past has caused increases in turbidity. The new trails would be constructed to prevent erosion regardless of the activity on the trail.

Additional impacts to aquatic resources are expected from allowing bikes on the trail. Although Alternative B proposes allowing bikers on the trail system, additional impacts to water quality from bikers are anticipated to be negligible. The park will initiate additional measures at this unit including prohibiting bikes on the trail within 24 hours of a rain event in addition to the mandated speed limit of 10 miles per hour, all of which would minimize impacts to soils and ultimately to water quality and aquatic resources.

Cumulative Impacts: Overall, long-term, beneficial cumulative impacts to aquatic resources would occur when combined with other trail and parking area projects within the park unit.

No Action Alternative: Under the No Action Alternative, long-term, minor, adverse impacts to aquatic resources would continue. Social trails would continue to be used by park visitors and erosion would continue. These actions would continue to increase turbidity in the water which adversely affects fish and macroinvertebrates.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Short-term, minor, adverse impacts to aquatic resources are expected during the trail construction phase of the project. Long-term, beneficial impacts would result from the closure of eroded trails and operation of the new trail system. The No Action Alternative would

continue to create long-term, minor, adverse impacts to aquatic resources. Cumulative impacts would be long-term and beneficial. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.4.2 Terrestrial Resources

4.4.2.1 Vegetation

Bowmans Island West

Alternative A (Hiking Trails): The bridge construction at Bowmans Island West would create negligible impacts to vegetation in the area. The park may need to remove a small amount of vegetation in order to install the three bridges. Mature trees would be avoided. Vegetation would be removed with hand clearing tools whenever possible. Approximately ½ mile of the existing trail would be closed and revegetated resulting in long-term, beneficial impacts to vegetation. This would minimize the impacts to vegetation in the area.

Cumulative Impacts: There would be no cumulative impacts associated with this project in the Bowmans Island West unit. No other projects have been identified for this area.

No Action Alternative: There would be no impact to vegetation under the No Action Alternative, as the trail system would not be improved and no vegetation would be cleared.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The bridge construction at Bowmans Island West would create negligible impacts to the vegetation along the trail. The closure of a portion of the existing trail would create long-term, beneficial impacts to vegetation. There would be no impact to vegetation under the No Action Alternative. There would be no cumulative impacts associated with this project. None of the alternatives would cause impairment to park resources as the impacts are negligible.

Johnson Ferry South

Common to Alternatives A and B: The construction of the new trail at the Johnson Ferry South unit would create long-term, minor, adverse impacts to vegetation. Impacts would be minor since the new portion of the trail would only be 0.1 mile. Vegetation in this area would be removed; however mature trees would be avoided. The park would choose a path that would require the least amount of vegetation removal. A small portion of the current trail system would be closed and revegetated, which would minimize the overall impact to vegetation in the area.

Cumulative Impacts: When combined with other projects in the area, long-term, minor, adverse cumulative impacts are expected. Additional vegetation is expected to be removed during the Johnson Ferry Right of Way project.

No Action Alternative: There would be no impact to vegetation under the No Action Alternative. A new trail connection would not be constructed and no vegetation would be removed.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The trail construction at Johnson Ferry South would create long-term, minor, adverse impacts to vegetation. The closure of the small portions of the trail would benefit vegetation. There would be no impact to vegetation under the No Action Alternative. Cumulative impacts are expected to be long-term, minor, and adverse. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: The construction of the new trail system within the Cochran Shoals/Sope Creek unit would create long-term, minor, adverse impacts to vegetation. Approximately 4.3 miles of new trails would be constructed throughout this site. Vegetation clearing would allow for a 6 foot wide trail corridor along the 4.3 miles of newly constructed trails. The park would choose trail paths that would require the least amount of vegetation removal. Mature trees would be avoided. Long-term, beneficial impacts would result since 5.3 miles of existing trails would be closed and revegetated with native species

Cumulative Impacts: When combined with other projects in the park unit, the removal of vegetation would create long-term, minor, adverse cumulative impacts.

No Action Alternative: Under the No Action Alternative, there would be no impact to vegetation. The existing trails would remain the same and there would be no clearing of vegetation.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The construction of the new trail system would create long-term, minor, adverse impacts to vegetation within the Cochran Shoals/Sope Creek unit; however long-term, beneficial impacts would also occur. There would be no impacts associated with the No Action Alternative. Cumulative impacts would be long-term, minor, and adverse. None of the

alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.4.2.2 Wildlife

Bowmans Island West

Alternative A (Hiking Trails): Impacts to wildlife within the area would be short-term, minor, and adverse during the bridge construction phase of the project. The noise associated with the installation of the three bridges may cause a temporary disturbance to wildlife in the area. The operation of the new trail would cause negligible impacts to wildlife since the new trail would follow the same path as an existing trail. Wildlife would presumably be accustomed to visitors in the area. The trail closure would create beneficial impacts to wildlife since ½ mile of existing trails would be closed to visitors.

Cumulative Impacts: There would be no cumulative impacts to wildlife associated with this project since no other projects in the area have been identified.

No Action Alternative: Under the No Action Alternative, the trail system would remain the same and there would be no impact to wildlife in the area.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The construction phase of the project would create short-term, minor, adverse impacts to wildlife in the area. The trail closure would create beneficial impacts to wildlife since ½ mile of existing trails would be closed to visitors. There would be no impact to wildlife under the No Action Alternative. No cumulative impacts are expected. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternatives A and B: Impacts to wildlife would be similar to those of Bowmans Island West. The construction of the new trail and closure of ½ mile of existing social trails would create short-term, minor, adverse impacts to wildlife due to noise associated with trail construction and closure activities. Long-term, negligible impacts are expected to wildlife due to the permanent loss of wildlife habitat from the clearing of vegetation for the new trail. Most wildlife would be already accustomed to visitors along the trail. Long-term, beneficial impacts are also expected from the closure and re-vegetation of the social trails.

Cumulative Impacts: Cumulative impacts are expected to be short-term, minor, and adverse as wildlife may be disrupted from the noise of other construction projects in the area.

No Action Alternative: There would be no impact to wildlife under the No Action Alternative.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The trail construction and trail closure would create short-term, minor, adverse impacts to wildlife. The permanent loss of vegetation along the new trail would have negligible impacts to wildlife. Long-term, beneficial impacts would result from the closure of ½ mile of trail. No impacts are expected under the No Action Alternative. Cumulative impacts would be short-term, minor, and adverse. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Impacts to wildlife during the trail construction and trail closure period would be short-term, minor, and adverse. Noise associated with construction of an additional 4.3 miles of new trails would disturb wildlife within the area. The permanent loss of vegetated habitat would create long-term, minor, adverse impacts to wildlife. Impacts would be minimal since 5.3 miles of existing trails would be closed and re-vegetated. In addition, most wildlife in the area would be accustomed to having visitors at this unit since it is one of the most popular areas in the park.

Cumulative Impacts: When combined with other projects within this park unit, short-term, minor, adverse impacts to wildlife would occur from the noise associated with construction.

No Action Alternative: Under the No Action Alternative, the trails would not be improved. There would be no impact to wildlife.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The improvements of the trail system within this unit would create short-term, minor, adverse impacts to wildlife. The permanent removal of vegetation would cause long-term, minor, adverse impacts to wildlife. Long-term, beneficial impacts to wildlife would occur from the closure and re-vegetation of the existing trails. There would be no impact to vegetation under the No Action Alternative. Cumulative impacts to wildlife would be short-term, minor, and adverse. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.4.3 Species of Special Concern

The ESA defines the terminology used to assess impacts to listed species as follows:

> ***No effect:*** When a Preferred Alternative would not affect a listed species or designated critical habitat.
>
> ***May affect/not likely to adversely affect:*** Adverse effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial.
>
> ***May affect/likely to adversely affect:*** When an adverse effect to a listed species may occur as a direct, or indirect, result of proposed projects and the effect either is not discountable or is completely beneficial.
>
> ***Is likely to jeopardize proposed species/adversely modify proposed critical habitat (impairment):*** The appropriate conclusion when NPS or USFWS identifies situations in which the proposal could jeopardize the continued existence of a proposed species or adversely modify critical habitat to a species within or outside park boundaries.

In accordance with the federal and state requirements for special status species, consultation letters were mailed to local and federal agencies on November 24, 2009, including the USFWS, GDNR, Georgia Natural Heritage Program, and NMFS. Information about the proposed project was included in the consultation letter. More details and correspondence between NPS and agencies consulted are included in Chapter 5 and Appendix B. A copy of this EA will be submitted to these agencies for review as well.

<u>Bowmans Island West</u>

Alternative A (Hiking Trails): Alternative A would have no effect on listed animal species potentially occurring within the Bowmans Island West unit. This alternative is not likely to adversely affect state-listed plant species potentially occurring along the trail. If state-listed plant species are encountered during the installation of the three bridges, the NPS would make efforts to avoid the plants or they would be relocated.

Cumulative Impacts: There would be no cumulative impacts to species of special concern.

No Action Alternative: Under the No Action Alternative, the trail system would remain the same and there would be no effect to species of special concern.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The construction of the three bridges would have no effect on state-listed animal species that potentially occur within the unit. State-listed plant species would not likely be adversely affected by the proposed project. There would be no impacts to special status species under the No Action Alternative. No cumulative impacts are expected. None of the alternatives would cause impairment to park resources as there are no expected impacts.

Johnson Ferry South

Common to Alternatives A and B: There is a potential for special status species to occur within the Johnson Ferry South unit. The trail construction and closure of ½ mile of trail would have no effect on listed animal species in the area. There is the chance that state-listed plant species may occur within the area of the new trail construction. These plants would be avoided during trail construction or they would be relocated away from the new trail. The proposed project would not likely adversely affect state-listed plant species.

Cumulative Impacts: When combined with the Johnson Ferry Right of Way, this project is not likely to adversely affect special status species.

No Action Alternative: Under the No Action Alternative, the new trail connection would not be constructed. There would be no effect to special status species.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Special status animal species would not be affected by the new trail construction and trail closure. It is likely that the project would not adversely affect special status plant species. The park would take precautions to minimize impacts. Under the No Action Alternative, there would be no effect to special status species. Cumulative impacts would not be likely to adversely affect special status species. None of the alternatives would cause impairment to park resources as there are no expected impacts.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: There is a potential for special status species to occur within the Cochran Shoals/Sope Creek unit. The construction of 4.3 miles of trails would have no effect to special status animal species. Special status plant species including the bay starvine occur within this unit. The proposed project would not be likely to adversely affect special status plant species, since the park would avoid placing trails in the vicinity of the plant species. If the plants cannot be avoided, the NPS would relocate these species away from the new trails.

Cumulative Impacts: When combined with other projects within the Cochran Shoals/Sope Creek unit, impacts would not be likely to adversely affect special status species.

No Action Alternative: Under the No Action Alternative, the new trails would not be constructed and there would be no effect to special status species.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The construction of the new trail system at the Cochran Shoals/Sope Creek unit would have no effect to special status animal species and would not be likely to adversely affect special status plant species as the plants will be avoided during construction should they be encountered, or they will be relocated if avoidance is not feasible. There would be no effect to special status species under the No Action Alternatives. Cumulative impacts would not be likely to adversely affect special status species. None of the alternatives would cause impairment to park resources as there are no expected impacts.

4.5 CULTURAL RESOURCES

This section describes the potential impacts of the trail connections and improvements on archaeological and historical resources at the park.

4.5.1 Archaeological Resources

Bowmans Island West

Alternative A (Hiking Trails): The area containing the Bowmans Island West trail corridor has been surveyed over the years through a variety of archaeological projects. Webb and Burns surveyed trail corridors in the northern and southern areas of the unit in 1997 and Gresham conducted a survey in the central portion of the unit in 1986 (Webb and Burns 1997; Gresham 1987). Previous surveys have identified nine sites that lie in or directly adjacent to the Bowmans Island West trail corridor. Six of these sites are not eligible for the NRHP, two have no eligibility assessment, and one is recommended eligible.

The majority of the sites that occur along the trail are sparse artifact scatters that have been negatively impacted by erosion and are not eligible for the NRHP. Only one site within this unit was deemed potentially eligible. Site 9FO250 is a large artifact scatter and the bulk of the site is located outside of the park boundaries. The Bowmans Island West trail runs along its eastern edge. Phase II investigations indicated that the edges of the site are severely eroded and the center of the site is where intact archaeological deposits are located. Improvements to the

existing trail would not involve earth moving and have little potential for adverse affects on all nearby sites including 9FO250.

Bridge construction along the main trail adjacent to the river has the largest potential for adverse effects to archaeological sites. The proposed bridge locations lie in the central portion of the unit. Although Gresham surveyed portions of this area in the 1980s it is unclear whether the bridge locations were investigated or not. Previous surveys did identify two sites within 100-feet of the potential location for one of the bridges. Site 9FO250 is situated southwest of the potential bridge location and Site 9FO251 is located northeast of the same potential bridge construction area. Site 9FO251 is a small, deeply buried, prehistoric lithic scatter with an unknown NRHP eligibility status. Because bridge construction would require a certain amount of earth disturbance, it is recommended that the footprint of impact for each bride location be surveyed prior to construction to ensure that unrecorded sites do not exist in the area. Once built the bridges would have a long term, beneficial impact on the surrounding archaeological sites by reducing erosion caused by park visitors and horseback riders crossing the drainage areas.

Closure of the secondary, informal trail would have long-term, minor beneficial impacts on cultural resources in the area. The unofficial trail currently runs along the edge of a landform and directly through the middle of 9FO251. Although the site is deeply buried, it would be beneficial to divert foot traffic off of it so as to reduce erosion in the area.

Cumulative Impacts: There would be no cumulative impacts to archaeological resources at this unit.

No Action Alternative: Under the No Action Alternative, the secondary, informal trail would remain accessible and no bridges would be constructed. Continued pedestrian and equestrian use of this trail could promote erosion to the areas in and around 9CO251.

The No Impact Alternative avoids any adverse effects that might be caused during bridge construction. The No Impact Alternative allows continued erosion along the drainages that intersect the main trail by encouraging hikers and horseback riders to climb through them. The resulting erosion could have an adverse impact over time on the two sites situated near drainages.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The proposed trail improvements would have no impact on most of the known sites in the area. Bridge construction along the trail poses a small risk of causing minor adverse impacts to two sites along the trail, but installation of the bridges would have a long-term beneficial impact on the sites by slowing down erosion caused by foot traffic through the

drainages. Closure of the informal trail along the river's edge would also have a beneficial impact on 9FO251 by diverting traffic away from the site.

The No Action Alternative would have no impact on most of the known sites along the trail. The use of the secondary informal trail could have long-term minor adverse impacts on 9FO251. Additionally, continuous foot traffic through the drainages that intersect the main trail could also have long-term minor adverse impacts on 9FO251 and 9FO250. Cumulative impacts are not expected at this unit. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternatives A and B: A systematic survey of the entire South Johnson Ferry Unit has not occurred, but several large prehistoric sites have been identified and delineated along the trail corridor. Two of these sites are potentially eligible for the NRHP (9CO376, 9CO128) and one of the sites is recommended eligible for the NRHP (9CO129). The current trail system runs along the southeastern edge of all three sites. Some surface scatters are associated with the sites, but surveys indicate that most cultural deposits are more than 30 centimeters below the surface and should not be impacted by maintenance or use of the existing trails.

One new multi-use trail would be constructed. This trail would not intersect any known sites within the Johnson Ferry South Unit.

Three small trails are slated for closure within the unit. None of these trails currently intersect sites within the unit.

Cumulative Impacts: There would be no cumulative impacts to archaeological resources at this site.

No Action Alternative: Under the No Action Alternative, archaeological sites would not be impacted.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Neither the Proposed Trail Alternative nor the No Action Alternative has the potential to affect archaeological sites. Cumulative impacts are not expected at this unit. None of the alternatives would cause impairment to park resources as there are no expected impacts.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: O'Grady and Poe conducted a landform survey of the area in 1980. They identified several important sites, but because their survey was targeted to certain areas within the unit they might have overlooked some sites. A systematic survey of new trail routes was conducted in the southern half of the Cochran Shoals Unit (Lawson 2004). This survey noted several new sites not encountered by the 1980 survey. These results indicate that unrecorded sites might exist in the northern half of the Cochran Shoals Unit. In total, nine sites have been identified that occur in or adjacent to trails in the proposed trail.

Existing trails that would remain open run through and adjacent to six previously recorded sites (9CO93, 9CO75, 9CO77, 9CO369, 9CO650, and 23rd Corp Earthworks).

Proposed new trails may encounter three previously recorded sites (9CO373, 9CO649, and the 23rd Corp Earthworks). None of the sites possess NRHP eligibility recommendations. Site 9CO373 is a prehistoric lithic scatter on the western edge of Sope Creek that was located on the ground surface by O'Grady and Poe (1980). Hardy revisited the site in 2007. Natural mica and granite were visible on the surface, but no artifacts were noted and she concluded that the site either eroded away or the lithics observed in 1980 were redeposited. Based on Hardy's observations construction of a new trail would have no effect on the site (2007). Site 9CO649 is a 19th century homesite containing an artifact scatter and the remains of a stone chimney. The proposed multi-use trail runs near the site and would likely have a adverse impact on the site if not avoided. The 23rd Corp Earthworks were not located through fieldwork, instead the location is surmised through historic research. A proposed multiuse trail runs near the western edge of the possible location of the earthworks. Lawson covered much of this area during the 2004 survey of proposed trails. No earthworks in the area were identified at that time.

Several trail segments would be closed under this alternative. Four sites are located adjacent to trails to be closed (9CO93, 9CO373, 9CO650, and the 23rd Corp Earthworks). Site 9CO93 has two trails closing in its vicinity. These trails do not intersect the site and would have no impact on the site. One trail would be closed that runs along the eastern edge of 9CO373. This trail closure would also have no impact on the site. Closure of the trail south of 9CO650 (the Scribner Cemetery Site) would have a minor beneficial impact on the site by limiting the foot traffic through the area. A loop trail would still run through the site allowing visitors to view the cemetery, but it would not serve as a shortcut to other areas of the park and would therefore cut down on the number of people passing through the site casually. A trail that runs through the western side of the possible location of the 23rd Corp Earthworks would also be closed. Because this site has not been assessed in the field, the effect of the trail closure is unknown.

Because the northern part of the unit has not been systematically surveyed there could be a long-term beneficial impact from the trail closures in this area on possible unrecorded sites.

Unofficial trails could be intersecting and damaging unrecorded sites and closing these trails could prevent further damage.

Cumulative Impacts: There would be no cumulative impacts to archaeological resources at this site.

***No Action Alternative*:** Under the No Action Alternative all trails, both official and unofficial, would remain in use. The current trail configuration could have an adverse impact on 9CO650. The trail that runs south from the site would remain open and encourage pedestrians to walk through the site as a shortcut to other areas of the park.

No new trails would be constructed under the No Action Alternative and therefore there would be no adverse impacts from trail creation and use on sites 9CO649 and the potential remains of the 23rd Corp Earthworks.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

***Conclusion*:** The No Action Alternative does not have adverse effects to the known archaeological sites within the Cochran Shoals/Sope Creek Unit. Closure of trails under this alternative would prevent minor long-term adverse effects to Site 9CO650 and possible unrecorded resources in the northern half of the unit.

Construction of one new trail segment under this alternative could have an adverse impact on 9CO649; however, in keeping with Lawson's suggestions, the proposed trail corridor would be routed to avoid the chimney remains within the site and if the site is visible from the routed trail, a marker would be placed requesting that visitors do not disturb the site (Lawson 2004). This would result in no adverse impact to 9CO649.

New trails could also damage previously unrecorded resources in the northern half of the unit and the 23rd Corp Earthworks if the site is intact. Any new trail alignments would be surveyed if they fall along an unsloped area (<15% slope) that has not been previously surveyed. This would result in no adverse impact to previously unrecorded resources in the northern half of the unit and the 23rd Corp Earthworks. Cumulative impacts are not expected at this unit. None of the alternatives would cause impairment to park resources as there are no expected impacts.

4.5.2 Historic Resources

Bowmans Island West

Alternative A (Hiking Trails): This alternative has no potential to affect Bowmans Island West historic resources.

Cumulative Impacts: There would be no cumulative impacts to historic resources associated with this unit.

No Action Alternative: Under the No Action Alternative, historic resources would not be impacted.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Neither the Proposed Trail Alternative nor the No Action Alternative has the potential to affect historic resources. No cumulative impacts are expected. None of the alternatives would cause impairment to park resources as there are no expected impacts.

Johnson Ferry South

Common to Alternatives A and B: This alternative has no potential to affect Johnson Ferry South historic resources.

Cumulative Impacts: There would be no cumulative impacts to historic resources associated with this site.

***No Action Alternative*:** Under the No Action Alternative, historic resources would not be impacted.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

***Conclusion*:** Neither the Proposed Trail Alternative nor the No Action Alternative has the potential to affect historic resources. No cumulative impacts are expected. None of the alternatives would cause impairment to park resources as there are no expected impacts.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Two historic resources are located along the proposed trail: the Marietta Paper Mill and the Scribner Cemetery. Both resources are adjacent to trails that would remain open and trails that would be closed under the current alternative. The Marietta Paper Mill is a point of interest in the park. Most of the current trails around the resource would remain open. These trails run adjacent to the site and therefore the ruins of the mill are directly accessible to those visiting the area.

Trails would also run adjacent to the Scribner Cemetery. The proposed trail closures would have a minor beneficial impact on the Scribner Cemetery by reducing casual pedestrian traffic through the site. A loop trail would run next to the resource allowing it to be visited, but there would be no trail through the site that connects up with other areas of the park.

With trails running so close to the resources there is a danger of vandalism and of someone getting hurt by unstable masonry or headstones. The Scribner Cemetery is fenced off which should hinder visitors from getting too close to the monuments. The cemetery would be inspected to insure that any damaged areas are stabilized before the new trail becomes operational. Vandalism does not seem to be a problem at either resource and the chance of it is reduced for the Scribner Cemetery with the closure of the trail south of the resource.

Cumulative Impacts: There would be no cumulative impacts to historic resources associated with this site.

***No Action Alternative*:** Under the No Action Alternative all trails, both official and unofficial, would remain in use. The current trail configuration could have a minor long-term adverse impact on the Scribner Cemetery. The trail that runs south from the site would remain open and encourage pedestrians to walk through the site as a shortcut to other areas of the park.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

***Conclusion*:** The proposed trail construction has no adverse effects on historic resources. The No Action Alternative could have a minor long-term adverse impact on the Scribner Cemetery. No cumulative impacts are expected. None of the alternatives would cause impairment to park resources as the adverse impacts are localized and are not more than minor.

4.6 HUMAN ENVIRONMENT

4.6.1 Aesthetics

Bowmans Island West

Alternative A (Hiking Trails): During the bridge construction and trail closure phase of the project, short-term, negligible impacts to the aesthetics of the area are expected from the presence of equipment and project materials. Since no new trails would be constructed, equipment needed at the unit would be minimal. Once the bridge construction and trail closures are complete, all construction materials would be removed and cleared brush would be dispersed

along the trail resulting in beneficial impacts to aesthetics. High erosion areas would be closed and areas along the trail slated for closure would be stabilized, which would be more aesthetically pleasing to visitors.

Cumulative Impacts: No cumulative impacts are anticipated at this unit. No other projects have been identified.

No Action Alternative: Under the No Action Alternative, areas with high erosion would continue to degrade creating long-term, minor, adverse impacts to aesthetics.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The bridge construction and trail closure phase of the project would create short-term, negligible impacts to aesthetics in the area. The implementation of the new trail system would have beneficial impacts to aesthetics since the eroded portions of the trail would no longer be accessible to visitors. The No Action Alternative would have long-term, minor, adverse impacts to the aesthetics of the area. No cumulative impacts are expected. None of the alternatives would cause impairment to park aesthetics as the adverse impacts are localized and are not more than minor.

Johnson Ferry South

Common to Alternatives A and B: Impacts associated with the construction of the new trail and closure of existing trails would create short-term, negligible impacts to aesthetics due to the minimal amount of construction equipment needed for the new 0.1 mile of trail. There would be no impact to aesthetics once the trail connection and closure project is complete.

Cumulative Impacts: No cumulative impacts to aesthetics are anticipated at this unit.

No Action Alternative: Under the No Action Alternative, the proposed trails would not be constructed and there would be no impact to aesthetics at this unit.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The trail construction and closure at the Johnson Ferry South unit would have negligible impacts to aesthetics at the park. No long-term, impacts would be expected. No impacts are anticipated under the No Action Alternative. No cumulative impacts are expected. None of the alternatives would cause impairment to park aesthetics as the impacts are negligible.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Approximately 4.3 miles of new trails would be constructed throughout this area. During the trail construction and trail closure phase, short-term, minor, adverse impacts to aesthetics would result due to the construction equipment visible throughout the site. In addition, many trails would be closed to visitors by placing logs, tree limbs, and brush over the trail until they become revegetated. This would cause additional short-term, adverse impacts. The implementation of the new trail system would create long-term, beneficial impacts to the aesthetics of the area. Highly eroded areas would be closed off and the new trail system would be more aesthetically pleasing.

Cumulative Impacts: When combined with other projects within this park unit, long-term, beneficial impacts to aesthetics would occur from the improvements to the trails, parking lot, and restroom facilities. Cumulative impacts to aesthetics would be long-term and beneficial.

No Action Alternative: Under the No Action Alternative, the trails would continue to degrade and would not be aesthetically pleasing for park users. Long-term, minor, adverse impacts to aesthetics would continue.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The new trail construction and trail closures would create short-term, minor, adverse impacts to the aesthetics of the area due to the presence of construction equipment. Long-term, beneficial cumulative impacts to aesthetics would result after the construction and closure process is complete. The No Action Alternative would continue to adversely affect the aesthetics of the current trail system. None of the alternatives would cause impairment to park aesthetics as the adverse impacts are localized and are not more than minor.

4.6.2 Public Health and Safety

Bowmans Island West

Alternative A (Hiking Trails): During the bridge construction process, impacts to public health and safety may occur, but these impacts would be negligible. Three bridges would be installed along the trail. During the bridge installation visitors would be redirected around the construction area to maintain safe conditions for visitors.

The operation of the new trail system would create long-term, beneficial impacts to the public health and safety of park visitors. Pedestrian and equestrian use would be allowed under this alternative. Areas along the northern section of the existing trail which are eroded and unsafe for

visitors would be closed. Three bridges would be installed over the eroded stream banks so visitors could avoid the unsafe banks.

Cumulative Impacts: No cumulative impacts to health and safety are anticipated at this unit.

No Action Alternative: Under the No Action Alternative, the proposed trail improvements would not be implemented and the current system of poorly designed, eroded trails would continue to have long-term, minor adverse impacts to public health and safety. Existing pedestrian and equestrian use would continue.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Negligible impacts to public health and safety would be expected during the bridge construction period. Long-term, beneficial impacts to health and safety would result from the trail improvements. The No Action Alternative would continue to have long-term, adverse impacts to health and safety. No cumulative impacts are expected at this site.

Johnson Ferry South

Common to Alternatives A and B: Impacts to human health and safety during the trail construction and closure period would be negligible. The area where the new trail construction would occur would be closed to park visitors.

Alternative A (Hiking Trails): Operation of the new trail system would continue to benefit hikers by not allowing bikes on the trail as the chance of injury from an incident with a biker would be negligible.

Alternative B (Multi-use Trails): Even though bike use is proposed under this alternative, conflict among users (hikers and bikers) would be minimized. The park will require that hikers and bikers use the trail in different directions so that hikers would always see when a bicycle is approaching. In addition, current park policies have established a bicycle speed limit of 10 miles per hour. Impacts to health and safety would be beneficial with these safeguards in place. This alternative also allows for a hikers-only section in the southern portion of the unit which would also benefit the health and safety of visitors.

Cumulative Impacts: Cumulative impacts to public health and safety would be negligible. Impacts would result from the clearing of the project areas during the construction phase of the Johnson Ferry Right of Way project.

No Action Alternative: Under the No Action Alternative, the current trail system would continue and the trail connection would not be constructed. Long-term, minor, adverse impacts to health and safety would continue from biker/hiker incidents.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Negligible impacts to public health and safety are expected during the trail construction and trail closure phase of the project. Alternative A would create beneficial impacts to hikers since the chance of becoming injured by a bicycle incident would not occur. Alternative B would also create long-term, beneficial impacts to all park users since the trails would be designed to reduce conflicts among users. Under the No Action Alternative long-term, minor, adverse impacts to health and safety would continue from biker/hiker incidents. Cumulative impacts are expected to be negligible.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: During the trail construction period, impacts to human health and safety are expected to be negligible. Approximately 4.3 miles of new trails would be created by removing roots and vegetation within a 6-foot corridor. To ensure the safety of visitors, these areas would be closed to visitors during this period. During the implementation of the new trail system, long-term, beneficial impacts would be expected. In the past, unsafe areas of highly eroded trail have become popular for mountain biking. Eroded areas, tree roots, and other unsafe obstacles would be removed resulting in a safer environment for all park users. Highly eroded and unsafe areas would be closed.

Alternative A (Hiking Trails): Alternative A would only allow hikers along the trails at the Cochran Shoals/Sope Creek unit. The implementation of this alternative would create long-term, beneficial impacts for users in this area. The chance for an incident to occur with mountain bikers would no longer exist.

Alternative B (Multi-use Trails): Alternative B would allow for multiple users along 6.7 miles of trail. The proposed trail system of well designed and easily maintained trails would reduce conflict among users and decrease the chances for hikers and bicyclists to be in an accident. The park will implement directional traffic for bicycles on the trails so that hikers would be able to see when a bicycle is approaching. Impacts to health and safety would be long-term and beneficial.

Cumulative Impacts: Since the proposed actions are beneficial, no cumulative impacts to public health and safety would occur in this park unit.

No Action Alternative: Under the No Action Alternative, the proposed trail system would not be constructed and the current system of poorly designed, difficult to maintain trails would continue to have long-term, minor adverse impacts to public health and safety.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Negligible impacts to public health and safety are expected during the trail construction phase of the project. The trail improvements would create long-term benefits to the park visitor. Alternative A would create beneficial impacts to hikers since there would no longer be the chance of accidents with bicyclists. Alternative B would also create long-term, beneficial impacts to all park users since the trails would be designed to reduce conflicts among users. The No Action Alternative would continue to create long-term, minor, adverse impacts to human health and safety. No cumulative impacts would occur.

4.6.3 Visitor Use and Experience

Bowmans Island West

Alternative A (Hiking Trails): Short-term, minor, adverse impacts to visitor use and experience are expected during the bridge construction period. During this time, portions of the trails would be closed off to visitors. Once bridge construction is complete, long-term, beneficial impacts to visitor use and experience are expected. The new trail system would be safer and aesthetically pleasing for visitors. Pedestrian and equestrian use would be allowed under this alternative.

Cumulative Impacts: No cumulative impacts to visitor use and experience are anticipated. No other projects have been identified for this unit.

No Action Alternative: Under the No Action Alternative, the trail improvements would not be implemented. Existing pedestrian and equestrian uses would continue. Long-term, minor, adverse impacts would continue due to safety problems at the stream crossings. In addition the area is currently not aesthetically pleasing.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Impacts to visitor use and experience would be short-term, minor, and adverse during the bridge construction period. The implementation of the new trail system would create long-term beneficial impacts to visitor use and experience. Under the No Action Alternative, impacts would continue to be long-term, minor, and adverse. No cumulative impacts would occur.

Johnson Ferry South

Common to Alternatives A and B: Impacts to visitor use and experience would be negligible during the trail construction and trail closure phase of the project. Constructing the 0.1 mile segment of trail in an area where visitors do not currently access would not impact their visitor use. Closing the ½ mile of trail may inconvenience a small number of visitors. The implementation of the new trail connection would create long-term, beneficial impacts to visitor use and experience overall. The new trail would provide a connection to existing trails benefiting visitors who want to continue hiking beyond the current trail system. It is likely that visitation to this unit would increase with the new improvements.

Alternative A (Hiking Trails): Alternative A would continue to allow hikers along the trails within the Johnson Ferry South unit. Impacts to users who do not prefer bicyclists on trails would be long-term and beneficial.

Alternative B (Multi-use Trails): Alternative B would allow for multiple user groups to experience the Johnson Ferry South Trails. Impacts to visitor use and experience would be long-term and beneficial. The new trail connection and closure would provide a safe area for both bikers and hikers to experience the park together. Separate trails would also be available for hikers only if visitors do not enjoy being on the same trails as bikers. The park will implement actions that would help reduce conflict and incidents between the different user groups (hikers and bikers) including having directional flows of traffic.

Cumulative Impacts: When combined with other projects within the Johnson Ferry South area, cumulative impacts to visitor use and experience would be long-term, and beneficial. More opportunities would be available to park visitors in the area.

No Action Alternative: Under the No Action Alternative, the new trail connection would not be implemented. There would be no impact to visitor use and experience.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The proposed new trail would have negligible impacts to visitor use and experience during the trail construction and trail closure period. Implementation of the new trail connection would create long-term, beneficial impacts. Alternative A would create long-term beneficial impacts to users who do not want bikers on the trail. Alternative B would create beneficial impacts for all user groups. No impacts would occur under the No Action Alternative. Cumulative impacts would be long-term and beneficial during the operation of the new trail.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Impacts to visitor use and experience would be short-term, minor, and adverse during the trail construction and closure phase of the project. Visitors would not have access to all trails during the trail improvements; however impacts would be minimal since there are multiple trail systems throughout this unit that visitors could utilize during the trail construction and closure. Improving the trail system would create long-term, beneficial impacts to visitor use overall by making the trails safer and more aesthetically pleasing.

Alternative A (Hiking Trails): Alternative A would only allow hikers along the trails within the Cochran Shoals/Sope Creek unit. Long-term, moderate, adverse impacts to visitor use and experience of bikers would be expected since this area is popular for mountain bikers. Beneficial impacts may occur for other park users who do not enjoy having mountain bikers on the trails.

Alternative B (Multi-use Trails): Alternative B allows for multiple users on the new trail system. Long-term, beneficial impacts to visitor use and experience are expected since the trails would be safer for the multiple user types to use the trails together. The park will implement speed and direction regulations to minimize the chance of conflict and accidents between hikers and bikers. Some areas of this unit would be open to only hikers, allowing access to areas where visitors can have a bike free experience.

Cumulative Impacts: When combined with other projects within the unit, long-term, beneficial cumulative impacts are anticipated. The improvements to the trail system, restrooms, and parking lot would make this unit more enjoyable for park visitors.

No Action Alternative: Under the No Action Alternative, the new trail system would not be implemented. There would be no impact to visitor use and experience.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: During the trail construction and trail closure phase, short-term, minor, adverse impacts to visitor use and experience are expected. Trail improvements would create long-term, beneficial impacts overall. Alternative A would have long-term, moderate, adverse impacts to mountain bikers, but beneficial impacts to hikers. Alternative B would allow for multiple users and would have long-term, beneficial impacts for all user groups. There would be long-term, beneficial cumulative impacts.

4.7 PARK OPERATIONS

<u>Bowmans Island West</u>

Alternative A (Hiking Trails): Short-term minor, adverse impacts to park operations would result during the bridge construction and trail closure phase of the project. Park staff would be needed to help assist and supervise bridge construction and trail closure. Long-term, beneficial impacts to park operations would result from the implementation of the proposed action. The new trail system would be designed so that current erosion problems would no longer be an issue resulting in less trail maintenance. The closure of ½ mile of existing trails would also contribute to less maintenance.

Cumulative Impacts: There would be no cumulative impacts to park operations since no other projects have been identified in this unit.

No Action Alternative: Under the No Action Alternative, park staff would continue to maintain the existing trails. Impacts to park operation would be long-term, minor, and adverse due to continued maintenance of poorly designed existing trails.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The proposed action would result in impacts to park operations during the bridge construction and trail closure phase and these impacts are expected to be short-term, minor, and adverse. Impacts to park operations from the proposed action are expected to be long-term and beneficial. Long-term, minor, adverse impacts to park operations would continue under the No Action Alternative. No cumulative impacts are expected.

Johnson Ferry South

Common to Alternatives A and B: Short-term, minor, adverse impacts would result from the additional park staff needed to assist and supervise new trail construction and trail closure. Long-term, beneficial impacts to park operations would result due to staff having fewer trails to maintain (1/2 mile proposed for closure).

Cumulative Impacts: No cumulative impacts to park operations are expected.

No Action Alternative: Under the No Action Alternative, there would be long-term, minor adverse impacts to park operations. Park staff would continue to maintain unnecessary social trails at this unit.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: Under the proposed action, construction of the new trail and closure of the social trails would create short-term minor, adverse impacts to park operations. Implementation of the

new trail and social trail closure would have long-term, beneficial impacts to park operations in terms of maintenance of the trails. There would be no cumulative impacts associated with this project.

Cochran Shoals/Sope Creek

Common to Alternatives A and B: Short-term, minor, adverse impacts would result from the park staff needed to assist and supervise trail construction and trail closure. During this period, park staff may need to alter their daily tasks. Long-term, beneficial impacts to park operations would result in the operation and maintenance of the trails due to staff having 1.0 fewer miles of trails to maintain.

Cumulative Impacts: When combined with other park projects within this area, short-term, minor, adverse cumulative impacts to park operations is expected during the improvements to the trail system, restrooms, and parking areas due to construction activities.

No Action Alternative: Under the No Action Alternative, there would be long-term, minor adverse impacts to park operations. Park staff would continue to maintain unnecessary poorly designed social trails at this unit.

Cumulative Impacts: The No Action Alternative would result in no cumulative effects.

Conclusion: The proposed action would result in short-term minor, adverse impacts to park operations during trail construction and trail closure. Implementation of the new trail system would have long-term, beneficial impacts to park operations in terms of maintenance of the trails. Cumulative impacts are expected to be short-term, minor, and adverse.

5.0 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

5.1 PUBLIC SCOPING

Scoping is an effort to involve agencies and the general public in determining the scope of issues to be addressed in the environmental document. Scoping includes consultation with any interested agency, or any agency with jurisdiction by law or expertise to obtain early input. Among other tasks, scoping determines important issues and eliminates issues determined to be not important; allocates assignments among the interdisciplinary team members and/or participating agents; identifies related projects and associated documents, identifies other permits, surveys, consultations, etc. required by other agencies, and creates a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made.

External scoping is a process used to gather public input for the EA. A public scoping meeting was held on Thursday, October 29, 2009, from 7:00 PM to 9:00 PM at the park headquarters. The purpose of the meeting was to discuss the EA for the proposed new trail connection projects. The public was invited to submit comments and suggestions related to the proposed projects. A total of 17 people came to the public meeting. During the comment period, a total of 36 public comments were received. Overall, the comments support the three proposed trail connection projects. One issue that arose from the comments concerned the potential for bicycle/pedestrian conflicts along the multiple-use trails in the Cochran Shoals unit. As a result of the comments received, this Environmental Assessment has been revised to incorporate directional travel for bicyclists on the trails to minimize the possibly of bicycle/pedestrian conflict.

5.2 AGENCY AND STAKEHOLDER CONSULTATION

A consultation letter was mailed to 10 state and federal agencies on November 24, 2009 requesting consultation and comments regarding the proposed project at the park. In addition to the state and federal agencies, letters were sent to 15 tribal organizations. A sample copy of an agency and tribal government consultation letter can be found in Appendix A.

The following lists the agencies and tribal governments that received the consultation letter.

- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency, Region 4
- National Oceanic and Atmospheric Administration Fisheries Service
- Federal Emergency Management Agency
- Georgia Environmental Protection Division
- Georgia Historic Preservation Division

- Georgia Department of Natural Resources/ Natural Heritage Program
- Natural Resources Conservation Service
- Atlanta Regional Commission
- Alabama-Coushatta Tribe of Texas
- Alabama-Quassarte Tribal Town
- Cherokee Nation of Oklahoma
- Coushatta Tribe of Louisiana
- Eastern Band of Cherokee Indians
- Eastern Shawnee Tribe of Oklahoma
- Kialegee Tribal Town
- Miccosukee Tribe of Indians of Florida
- Muscogee Nation of Oklahoma
- Poarch Band of Creek Indians of Alabama
- Seminole Nation of Oklahoma
- Seminole Nation of Florida
- Thlopthlocco Tribal Town
- United Keetoowah Band
- Euchee Tribe of Indians

5.3 PUBLIC REVIEW OF THE EA

This EA will be distributed to agencies, tribal governments, and the public for review and comment for a period of at least 30 days. Assuming no issues are identified that may lead to significant impacts from the Proposed Actions, comments received will be addressed in an errata sheet to be attached to the Finding of No Significant Impact (FONSI). Following the completion of the EA and response to comments, the FONSI will be signed and dated by the NPS Regional Director. If significant impacts are identified an Environmental Impact Statement would be prepared, followed by a Record of Decision.

6.0 LIST OF PREPARERS

U.S. Department of the Interior, National Park Service
Joel Brumm, Natural Resource Program Manager
Rick Slade, Chief Science and Resource Management

EA Engineering, Science, and Technology, Inc.
Tracy Layfield, Project Manager
Jeff Elseroad, Senior Technical Review
Jeannette Dawson, Environmental Scientist

New South Associates
Joe Joseph, PhD, Archaeologist
Diana Valk, Cultural Resource Specialist

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APPENDIX A

AGENCY CONSULTATION

United States Department of the Interior

National Park Service
Chattahoochee River
National Recreation Area
1978 Island Ford Parkway
Sandy Springs, GA 30350

November 23, 2009

Robin Goodloe
US Fish and Wildlife Service
Georgia Ecological Services
105 West Park Drive, Suite D
Athens, GA 30606

Dear Ms. Goodloe:

The National Park Service (NPS) is preparing an *Environmental Assessment* (EA) to consider the environmental consequences related to three proposed trail connection projects within the Chattahoochee River National Recreation Area. These projects comprise the Chattahoochee River Trail Connection Plan. The park is located along a 48-mile segment of the Chattahoochee River, just north of Atlanta, Georgia (Figure 1).

The NPS is proposing to redesign badly eroded and poorly maintained trails as well as create new trails connecting existing trail segments to provide a better trail system that enhances recreational endeavors within the park. The proposed plan examines trails within 3 units of the park; Bowmans Island West, Johnson Ferry South, and the Sope Creek area within Cochran Shoals (Figure 2). The proposed actions at each of the units are as follows:

Bowmans Island West

Alternative A - Hiking Trails - At the Bowmans Island West unit, the two roughly parallel trails located along the river would be consolidated into a single improved trail (Figure 3). The trail alignment closest to the river would be closed and revegetated, and the remaining trail alignment would be improved with the construction of three new bridges over the existing streams. The portion of the trail to be closed is approximately ½ mile in length.

Johnson Ferry South

Alternative A - Hiking Trails - At the Johnson Ferry South unit, this alternative would close ½ mile of several small social trails and construct a 0.1 mile segment of new trail to connect the existing trails to a planned underpass on Johnson Ferry Road (Figure 4). The new trail construction would include a 4 ft wide trail surface with the associated clearing of vegetation to allow a 6 ft wide trail corridor to a height of 8 ft overhead. This alternative would result in a total of 3.5 miles of hiking only trails.

Alternative B – Multi-Use Trails - This alternative is similar to Alternative A except that the southern portion of the unit would be for hiking only and the northern portion of the trail would be for multi-use activities (hiking and biking) (Figure 5). The same social trails would be closed and the new trail segment to connect into the planned underpass would be constructed as described in Alternative A. Upon the completion of the trail connection there would be 1.3 miles of hiking trails and 2.2 miles of multi-use trails.

Cochran Shoals/Sope Creek

Alternative A - Hiking Trails - At the Cochran Shoals/Sope Creek unit, this alternative would include the construction of several newly created trails (Figure 6). The new trail construction would include a 4 ft wide trail surface with the associated clearing of vegetation to allow a 6 ft wide trail corridor to a height of 8 ft overhead. The newly constructed trails would total approximately 4.3 miles. The existing 5.3 miles of eroded and poorly designed trails would be closed and re-vegetated following the construction of the new trails. The unit currently has a single bike trail through it and the new trail system would have a pair of connected loop trails that would be authorized for hiking only. A total of 9.7 miles of hiking trails would result from implementation of this alternative.

Alternative B – Multi-Use Trails - This alternative is similar to Alternative A except that some of the trails at the unit would be for multi-use activities (hiking and biking) (Figure 7). The same eroded and poorly designed trails would be closed and new trail construction would be as described in Alternative A. This alternative would result in a total of 6.7 miles of planned multi-use trails and 3.0 miles of hiking only trails that would total 9.7 miles of trails available at this unit.

The purpose of this letter is to inform you of the proposed project and to request information you may have on resources potentially affected by the proposed actions. Your response within 30 days from the date of receipt of this letter will be greatly appreciated. If you have any questions regarding this request, please contact Joel Brumm at 678-538-1322 or email at joel_brumm@nps.gov. Letters have also been sent to the agencies and tribal governments listed in Enclosure 1.

Send responses to:
Superintendent
Chattahoochee River National Recreation Area
1978 Island Ford Pkwy.
Sandy Springs, GA 30350

Sincerely,

Daniel R. Brown

Superintendent
Chattahoochee River National Recreation Area

Enclosures:

Enclosure 1: List of Agencies and Tribal Governments
Enclosure 2:

Figure 1	Vicinity Map of Chattahoochee River National Recreation Area
Figure 2	Location Map for the Trail Connection Plan Park Units (Bowmans Island West, Johnson Ferry South, Cochran Shoals\Sope Creek)
Figure 3	Bowmans Island West Alternative A - Hiking Trails
Figure 4	Johnson Ferry South Alternative A – Hiking Trails
Figure 5	Johnson Ferry South Alternative B – Multi-UseTrails
Figure 6	Cochran Shoals/Sope Creek Alternative A - Hiking Trails
Figure 7	Cochran Shoals/Sope Creek Alternative B – Multi-UseTrails

Enclosure 1: List of Agencies and Tribal Governments

Contact Name and Title	Address and Contact Information
A. Todd- Mitigation Division	Federal Emergency Management Administration 3003 Chamblee- Tucker Road Suite 270 Atlanta, GE 30341
Carl Cosby- State Soil Scientist	Natural Resources Conservation Service Federal Building 355 East Hancock Ave Athens, GA 30601
Jim Santo-Environmental Planner	Atlanta Regional Commission 40 Courtland Street, NE Atlanta, GA 30303
Robin Goodloe	US Fish and Wildlife Service Georgia Ecological Services 105 West Park Drive, Suite D Athens, GA 30606
Tim Cash-Director	Georgia Environmental Protection Division 2 MLK Jr. Drive, Room 1152 Atlanta, GA 30334
David Crass-Deputy SHPO	Historic Preservation Division/DNR 254 Washington Street, SW Ground Level Atlanta, GA 30334
Katrina Morris-Environmental Review Coordinator	Department of Natural Resources- Natural Heritage Program 2065 US Hwy 278, SE Social Circle, GA 30025-4714
Ed Johnson-Chief of Northern Section	US Army Corps of Engineers The Plaza, Suite 200 1590 Adamson Parkway Morrow, GA 30260-1777
James I. Palmer, Jr.-Regional Administrator	US Environmental Protection Agency Region 4 Sam Nunn Atlanta Federal Center 61 Forsyte Street, SW Atlanta, GA 30303
David Keys-Southeast Regional Officer-NEPA Coordinator	National Oceanic and Atmospheric Administration Fisheries Services 263 13th Avenue South St. Petersburg, FL 33701
Bryant Celestine- Historical Preservation Officer	Alabama-Coushatta Tribe of Texas 571 State Park Road Livingston, TX 77351
Augustine Asbury- Cultural Preservation Officer	Alabama-Quassarte Tribal Town (Creek) P.O. Box 187, 107 North Main Wetumka, OK 74883
Shaun West-Environmental Specialist	Cherokee Nation of Oklahoma P.O. Box 948 Tahlequah, OK 74465
Gardner Rose Cultural Resource Specialist	Coushatta Tribe of Louisiana (Creek) P.O. Box 818 Elton, LA 70532
Michell Hicks Principal Chief	Eastern Band of Cherokee Indians Qualla Boundary, P.O. Box 455 Cherokee, NC 28719

Contact Name and Title	Address and Contact Information
Robin Dushane- Cultural Preservation Director	Eastern Shawnee Tribe of Oklahoma P.O. Box 350 Seneca, MO 64865
Tiger Hobia- Chief	Kialegee Tribal Town (Creek) P.O. Box 332 Wetumka, OK 74883
Billy Cypress Chairman	Miccosukee Tribe of Indians of Florida P.O. Box 440021 Miami, FL 33144
Joyce Bear- Tribal Historic Office	Muscogee Nation of Oklahoma (Creek) P.O. Box 580 Okmulgee, OK 74447
Robert Thrower-Historic Preservation Officer	Poarch Band of Creek Indians of Alabama 5811 Jack Springs Road Atmore, AL 36502
Natalie Dere- National Historic Preservation Officer	Seminole Nation of Oklahoma P.O. Box 1498 Wewoka, OK 74884
Annie McCudden-Director Ah-tah-thi-ki Museum	Seminole Tribe of Florida 34725 West Boundary Road Clewiston, FL 33440
George Scott Town King	Thlopthlocco Tribal Town (Creek) P.O. Box 188 Okemah, OK 74859
Lisa Stopp- Acting Historic Preservation Officer	United Keetoowah Band (Cherokee) P.O. Box 746 Tahlequah, OK 74464
Andrew Skeeter Chairman	Euchee (Yuchi) Tribe of Indians P.O. Box 10 Sapulpa, OK 74067

United States Department of the Interior

National Park Service
Chattahoochee River
National Recreation Area
1978 Island Ford Parkway
Sandy Springs, GA 30350

November 23, 2009

Bryant Celestine
Alabama-Coushatta Tribe of Texas
571 State Park Road
Livingston, TX 77351

Dear Mr. Celestine:

Federal regulations for the implementation of Section 106 of the National Historic Preservation Act of 1966, as amended, require consultation with federally recognized American Indian tribes (36 CFR 800.2) on a government-to-government basis, as specified in Executive Order 12175.

The administration of Chattahoochee River National Recreation Area is committed to honoring in full and good faith its obligations and responsibilities toward the sovereign, federally recognized Indians tribes under all United States laws, regulations, and policies. As part of my responsibility to "make a reasonable and good faith effort to identify Indian tribes…that shall be consulted in the 106 process," I am writing to inquire if the Alabama-Coushatta Tribe of Texas desires to consult with Chattahoochee River National Recreation Area regarding the proposed project described below. We are also making a similar inquiry to tribal governments listed in Enclosure 1.

The National Park Service (NPS) is preparing an *Environmental Assessment* (EA) to consider the environmental consequences related to three proposed trail connection projects within the Chattahoochee River National Recreation Area. These projects comprise the Chattahoochee River Trail Connection Plan. The park is located along a 48-mile segment of the Chattahoochee River, just north of Atlanta, Georgia (Figure 1).

The NPS is proposing to redesign badly eroded and poorly maintained trails as well as create new trails connecting existing trail segments to provide a better trail system that enhances recreational endeavors within the park. The proposed plan examines trails within 3 units of the park; Bowmans Island West, Johnson Ferry South, and the Sope Creek area within Cochran Shoals (Figure 2). The proposed actions at each of the units are as follows:

Bowmans Island West

Alternative A - Hiking Trails - At the Bowmans Island West unit, the two roughly parallel trails located along the river would be consolidated into a single improved trail (Figure 3). The trail alignment closest to the river would be closed and revegetated, and the remaining trail alignment would be improved with the construction of three new bridges over the existing streams. The portion of the trail to be closed is approximately ½ mile in length.

Johnson Ferry South

Alternative A - Hiking Trails - At the Johnson Ferry South unit, this alternative would close ½ mile of several small social trails and construct a 0.1 mile segment of new trail to connect the existing trails to a planned underpass on Johnson Ferry Road (Figure 4). The new trail construction would include a 4 ft wide trail surface with the associated clearing of vegetation to allow a 6 ft wide trail corridor to a height of 8 ft overhead. This alternative would result in a total of 3.5 miles of hiking only trails.

Alternative B – Multi-Use Trails - This alternative is similar to Alternative A except that the southern portion of the unit would be for hiking only and the northern portion of the trail would be for multi-use activities (hiking and biking) (Figure 5). The same social trails would be closed and the new trail segment to connect into the planned

underpass would be constructed as described in Alternative A. Upon the completion of the trail connection there would be 1.3 miles of hiking trails and 2.2 miles of multi-use trails.

Cochran Shoals/Sope Creek

Alternative A - Hiking Trails - At the Cochran Shoals/Sope Creek unit, this alternative would include the construction of several newly created trails (Figure 6). The new trail construction would include a 4 ft wide trail surface with the associated clearing of vegetation to allow a 6 ft wide trail corridor to a height of 8 ft overhead. The newly constructed trails would total approximately 4.3 miles. The existing 5.3 miles of eroded and poorly designed trails would be closed and re-vegetated following the construction of the new trails. The unit currently has a single bike trail through it and the new trail system would have a pair of connected loop trails that would be authorized for hiking only. A total of 9.7 miles of hiking trails would result from implementation of this alternative.

Alternative B – Multi-Use Trails - This alternative is similar to Alternative A except that some of the trails at the unit would be for multi-use activities (hiking and biking) (Figure 7). The same eroded and poorly designed trails would be closed and new trail construction would be as described in Alternative A. This alternative would result in a total of 6.7 miles of planned multi-use trails and 3.0 miles of hiking only trails that would total 9.7 miles of trails available at this unit.

If the Alabama-Coushatta Tribe of Texas wishes to consult with Chattahoochee River National Recreation Area regarding this project as provided under the regulations for the National Historic Preservation Act, please write to me at the address below or contact Joel Brumm at 678-538-1322 or email at joel_brumm@nps.gov.

Due to the schedule of the Environmental Assessment, we would appreciate hearing from you by December 30, 2009.

Send responses to:
Superintendent
Chattahoochee River National Recreation Area
1978 Island Ford Pkwy.
Sandy Springs, GA 30350

Sincerely,

David R. Brown

Superintendent
Chattahoochee River National Recreation Area

Enclosures:

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- Figure 5 Johnson Ferry South Alternative B – Multi-UseTrails
- Figure 6 Cochran Shoals/Sope Creek Alternative A - Hiking Trails
- Figure 7 Cochran Shoals/Sope Creek Alternative B – Multi-UseTrails