



# *Moccasin Bend National Archeological District*

GENERAL MANAGEMENT PLAN AMENDMENT / ENVIRONMENTAL ASSESSMENT

CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK  
GEORGIA AND TENNESSEE • MAY 2017





**Moccasin Bend National Archeological District  
Chickamauga and Chattanooga National Military Park  
Georgia and Tennessee**

**General Management Plan Amendment /  
Environmental Assessment**

**May 2017**

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## SUMMARY

Moccasin Bend is a peninsula formed by a prominent bend in the Tennessee River, situated to the west and just across the river from downtown Chattanooga, Tennessee. In 2003, 755 acres on Moccasin Bend were added to Chickamauga and Chattanooga National Military Park as the Moccasin Bend National Archeological District (unit) of the park. Located at an important geographic crossroad, Moccasin Bend National Archeological District is one of the best preserved, most important, and most concentrated archeological assemblages representing the sequence of southeastern American Indian cultures known to be extant in the Tennessee River Valley. Its importance was recognized in its designation as the first national archeological district. The area retains profound cultural importance for contemporary American Indian tribes with ancestral ties to the area.

The purpose of this general management plan amendment / environmental assessment is to analyze alternatives for guiding management of the Moccasin Bend unit. This plan amends the Chickamauga and Chattanooga National Military Park 1988 general management plan. This plan is needed to define the resource conditions and visitor experiences to be achieved in the Moccasin Bend unit in its entirety. It provides a basis for National Park Service managers to use when making decisions about how to best protect resources, identify appropriate areas for visitor access and facilities, and determine how to manage operations.

This plan examines three alternatives for managing the Moccasin Bend unit. It also analyzes the impacts of implementing each of the alternatives. Alternative A (no action) describes the continuation of existing management and trends and serves as the basis for evaluating the other alternatives. The two action alternatives (alternative B and alternative C) present a spectrum of resource treatments, visitor experience, and opportunities to access the unit. Alternative C is the National Park Service preferred alternative.

This general management plan amendment / environmental assessment has been distributed to other agencies, interested organizations, and individuals for their review and comment. Readers are encouraged to comment on this plan through the National Park Service planning website at <http://parkplanning.nps.gov/chch> or by sending comments to Superintendent, Chickamauga and Chattanooga National Military Park, PO Box 2128, Fort Oglethorpe, Georgia 30742. The public comment period for this document will last for 30 days after the document has been posted to the NPS website listed above and the availability of the document has been announced in the media.

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## A GUIDE TO THIS DOCUMENT

The purpose of this general management plan amendment / environmental assessment (GMPA/EA) is to articulate a vision and overall management philosophy for the Moccasin Bend unit that will inform long-term decision-making by current and future managers. Three alternatives for the management and use of Moccasin Bend National Archeological District are presented. Alternative C is the National Park Service (NPS) preferred alternative. In accordance with regulations and policies, the potential environmental impacts of all alternatives are identified and assessed in this plan.

The planning document is organized in accordance with the Council on Environmental Quality implementing regulations for the National Environmental Policy Act of 1969, as amended; the National Park Service's "Park Planning Program Standards," and Director's Order 12: *Conservation Planning, Environmental Analysis, and Decision-making* and *DO-12 Handbook*.

**Chapter 1: Introduction** sets the framework for the entire document. It describes why the plan is being prepared and what needs it must address. It gives guidance for the management alternatives that are being considered—guidance that is based on park legislation, its purpose, the significance of its resources, special mandates and administrative commitments, and servicewide laws and policies. Chapter 1 also details the planning opportunities and issues that were raised during public scoping meetings and initial planning team efforts; the alternatives in chapter 2 address these issues and concerns. In addition, the Introduction defines the scope of the environmental impact analysis—specifically what impact topics were or were not analyzed in detail. The chapter concludes with a description of next steps in the planning process and describes implementation of the plan.

**Chapter 2: Alternatives** begins by describing the development of the alternatives and identifies the management zones that would be used to manage the park in the future. It includes the continuation of current management practices and trends in the park (alternative A, no action). Two action alternatives for managing the park (alternative B and alternative C [the preferred alternative]) are presented next. Future studies or implementation plans that could be needed are described, followed by a discussion of mitigation measures proposed to minimize or eliminate the impacts of some proposed actions in the alternatives. The chapter concludes with a discussion of alternatives or actions that were considered but dismissed from detailed evaluation.

**Chapter 3: Affected Environment / Environmental Consequences** describes those areas and resources that would be affected by implementing the actions contained in the alternatives and describes the methods used for assessing impacts in terms of the intensity, type, and duration. It analyzes the effects of implementing the alternatives on the impact topics described. It is organized according to the following topics: cultural resources and visitor use and experience.

**Chapter 4: Consultation and Coordination** describes the history of public and agency coordination during the planning effort, including American Indian consultations, and any future compliance requirements. It also lists agencies and organizations that will be receiving copies of the document.

A list of **Preparers and Consultants**, **Selected References**, and **Appendixes** can be found at the end of the document.

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# Chapter

## INTRODUCTION

# 1







## CHAPTER 1: INTRODUCTION

The National Parks and Recreation Act of 1978 requires each unit of the national park system to have a general management plan (GMP); NPS *Management Policies 2006* (§2.3.1 “General Management Planning”) states “[t]he Service will maintain a management plan for each unit of the national park system.”

The general management plan is part of the National Park Service (NPS) “Planning Portfolio,” consisting of a compilation of individual plans, studies, and inventories that together guide park decision making. The planning portfolio enables the use of targeted planning products to meet a broad range of park planning needs. General management plans represent the broadest level of planning conducted for a national park unit. The purpose of a general management plan is to ensure that a national park system unit has a clearly defined direction for resource preservation and visitor use to best achieve the NPS mandate to preserve resources unimpaired for the enjoyment of future generations. General management plans also are intended to establish and articulate a management philosophy and framework for decision making and problem solving in units of the national park system.

The National Parks and Recreation Act requires that all general management plans include the following:

- measures for resource preservation
- indications of the types and general intensities of development (visitor circulation and transportation patterns, systems, and modes), including general locations, timing of implementation, and anticipated costs
- identification and implementation of commitments for visitor carrying capacities
- indications of potential boundary modifications

These documents should be reviewed every 10–15 years to ensure these statutory planning elements are up to date. The plan may also require amending, revising, or developing a new general management plan when conditions addressed in an existing general management plan change significantly or when substantial new issues arise related to the four statutorily required planning elements. Actions directed by general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements for additional data or regulatory compliance, and competing national park system priorities prevent immediate implementation of many actions. Major or especially costly actions could be implemented 10 or more years into the future.

### BACKGROUND ON PLAN DEVELOPMENT

Developing a vision for a park’s future (and identifying the management direction that would help create that future) is the primary role of a general management plan. However, before a particular vision is decided upon, several possible visions and management directions are developed and analyzed. These different possibilities are called alternatives. Each alternative includes a variety of potential strategies or management actions that fit together in a unified management direction. The development of alternatives includes a wide range of input from the public, NPS staff, and other agencies.

Evaluating alternatives provides the opportunity to compare and contrast the advantages and disadvantages of one course of action over another. Such comparison is a requirement of the

National Environmental Policy Act (NEPA) and is at the core of the NPS general management plan process.

## **PURPOSE AND NEED FOR THE PLAN**

### **Purpose of the Plan**

The Moccasin Bend National Archeological District was added to Chickamauga and Chattanooga National Military Park in 2003. The last general management plan for the park was completed in 1988. The purpose of this general management plan amendment / environmental assessment is to develop a plan to guide management of Moccasin Bend National Archeological District. When completed, this plan will amend the park's 1988 general management plan.

The plan's purposes are as follows:

- Define desired resource conditions and visitor uses and experiences for Moccasin Bend National Archeological District.
- Provide a framework to assist park managers when making decisions about how to best protect park resources, provide quality visitor uses and experiences, and manage visitor use and what types of facilities, if any, to develop in or near the Moccasin Bend unit.

The planning process also ensures that this basis for decision making is developed in consultation with interested stakeholders and adopted by NPS leadership after an analysis of the potential impacts of alternative courses of action. This GMP amendment builds on the laws and policies that established and continue to govern the National Park Service and the park to provide a long-term management vision for the Moccasin Bend unit.

### **Need for the Plan / Proposed Action**

When the 1988 general management plan was completed for Chickamauga and Chattanooga National Military Park, the Moccasin Bend National Archeological District was not part of the park. Consequently, no planning has been completed that provides overall management direction for the Moccasin Bend unit. Without this GMP amendment, there would be no site-specific guidance for management of sensitive resources, development of infrastructure, and visitor use. If these important decisions are postponed, resources, facilities, visitor experiences, and community relationships could deteriorate.

To provide management guidance for the Moccasin Bend unit, the National Park Service proposes management strategies to provide long-term protection of cultural and natural resources by increasing protection activities such as increased staff presence and patrols and by limiting access to areas with sensitive resources. These actions would protect tribal interests and the nationally significant and sensitive resources of the unit. The proposed action would also provide appropriate opportunities for low-impact visitor activities and increased opportunities for ranger and self-guided interpretive and educational activities, including self-guided access to Stringers Ridge following acquisition of the Chattanooga / Hamilton County Moccasin Bend Firing Range (firing range). A visitor center would be constructed to provide orientation, education, and interpretive opportunities to visitors.

Finally, this plan amendment is needed to fulfill the requirement of the National Parks and Recreation Act and NPS policy.

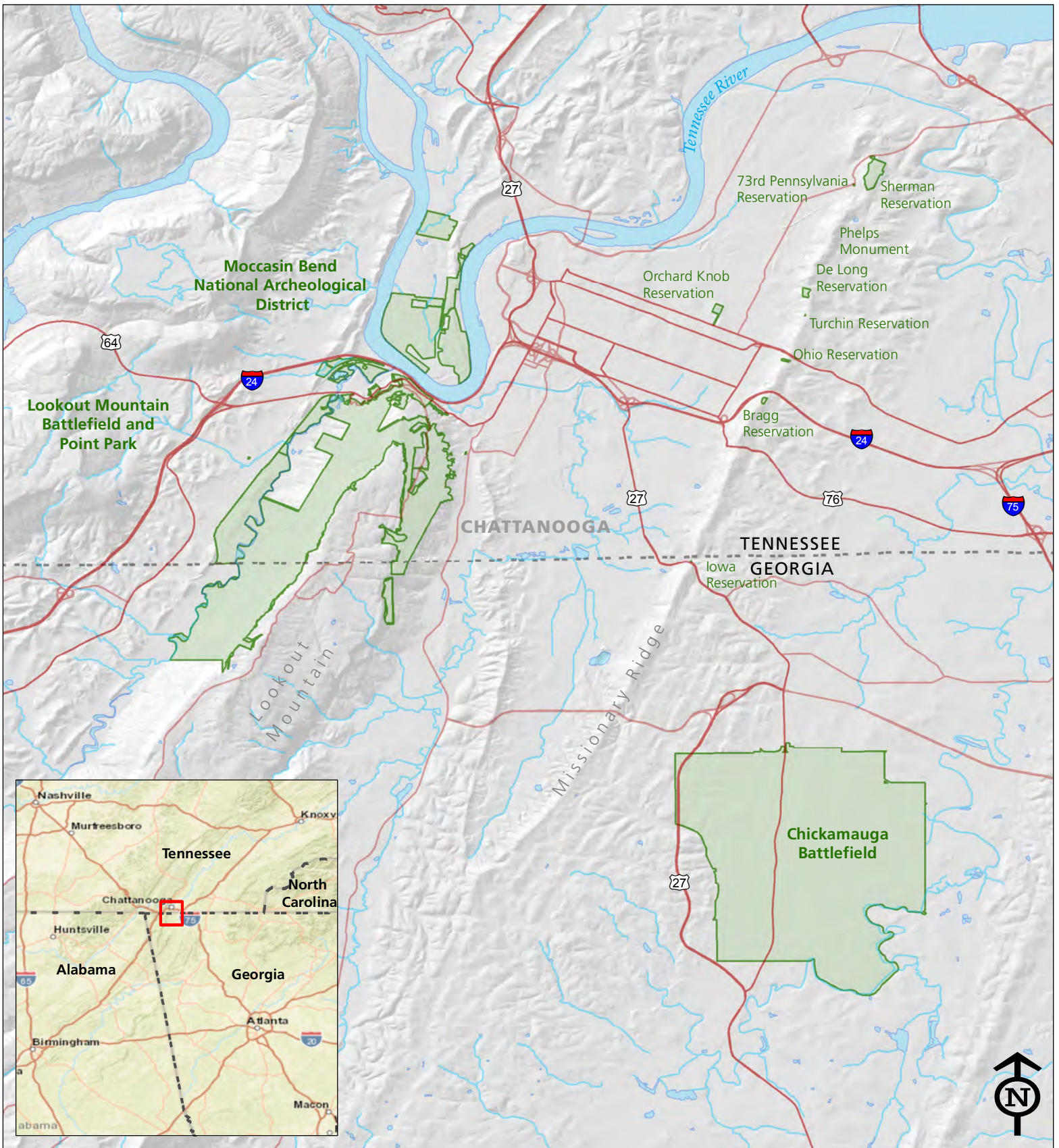
## BACKGROUND

### OVERVIEW OF THE PARK

Moccasin Bend is a peninsula formed by a prominent bend in the Tennessee River and is directly across the river (about one and one-half miles west) from downtown Chattanooga in Hamilton County, Tennessee (map 1). The area contains nationally significant archeological sites that chronicle approximately 12,000 years of continuous American Indian occupation. These sites are associated primarily with Archaic, Woodland, and Mississippian period cultures. The Trail of Tears National Historic Trail follows the route of the Old Federal Road that crossed Moccasin Bend and commemorates the forced removal in 1838 of Cherokee Indians from their ancestral homelands. Important Civil War-era earthworks and associated resources constructed by Union Army forces are located along Stringers Ridge in the southeastern part of Moccasin Bend. Because of its elevation, Stringers Ridge effectively screens most of the Moccasin Bend unit from downtown Chattanooga. The 768-acre Moccasin Bend National Archeological District, the subject of the present GMP amendment, became a new unit of Chickamauga and Chattanooga National Military Park in 2003. It is a part of the larger 956-acre Moccasin Bend Archeological District National Historic Landmark, designated in 1986, that recognizes the national significance of these cultural resources (map 2).

Lands comprising the Moccasin Bend National Archeological District are interspersed among other properties and varied land uses that reflect development that occurred primarily in the mid-20th century and continues, for the most part, to the present. Among the state, county, municipal, and private properties are a state mental health hospital, wastewater treatment facility, municipal golf course, multiple utility corridors, private residences, firearms training facility, and contemporary road system. An NPS-owned tract in the northern part of the archeological district, referred to as the Brown's Ferry Federal Road, includes an original portion of the Trail of Tears that crossed Moccasin Bend and connected with the river crossing point at Brown's Ferry. At that tract's southern boundary is the City of Chattanooga-owned Moccasin Bend Wastewater Treatment Plant facility. Near the junction of Hamm Road and Moccasin Bend Road are a small residential area, a City of Chattanooga and Hamilton County tract, and an NPS parcel on the east side abutting the river that is referred to as the Gateway site. The Gateway site was assessed in previous NPS planning as the location of proposed interpretive facilities. The City of Chattanooga and Hamilton County jointly own the Moccasin Bend Golf Course and the firing range. Privately held properties include the site of the WDEF radio towers and a private residence. The Blue Blazes Trail, a recreational loop trail extending from Moccasin Bend Road to the west side of Moccasin Bend, is on NPS property just south of the golf course. The state mental health hospital occupies 102 acres at the southern toe of Moccasin Bend. Two Colonial Pipeline 50-foot petroleum pipeline rights-of-way and a Chattanooga Electric Power Board 150-foot right-of-way for a high-tension power line cross Moccasin Bend (NPS 2009, 2014).

The banks of the Tennessee River define the southern, western, and eastern boundaries of the archeological district. The National Park Service owns shoreline easements bordering the wastewater treatment facility, golf course, mental health hospital, and firearms training range. Interstate Highway 24 runs opposite Moccasin Bend along the southern and eastern banks of the river and around the foot of Lookout Mountain. Construction of the interstate highway in the 1960s entailed dredging a strip of riverbank from the southwestern tip of Moccasin Bend, and dredged material was slurried and pumped onto the first terrace of Moccasin Bend (NPS 2009).

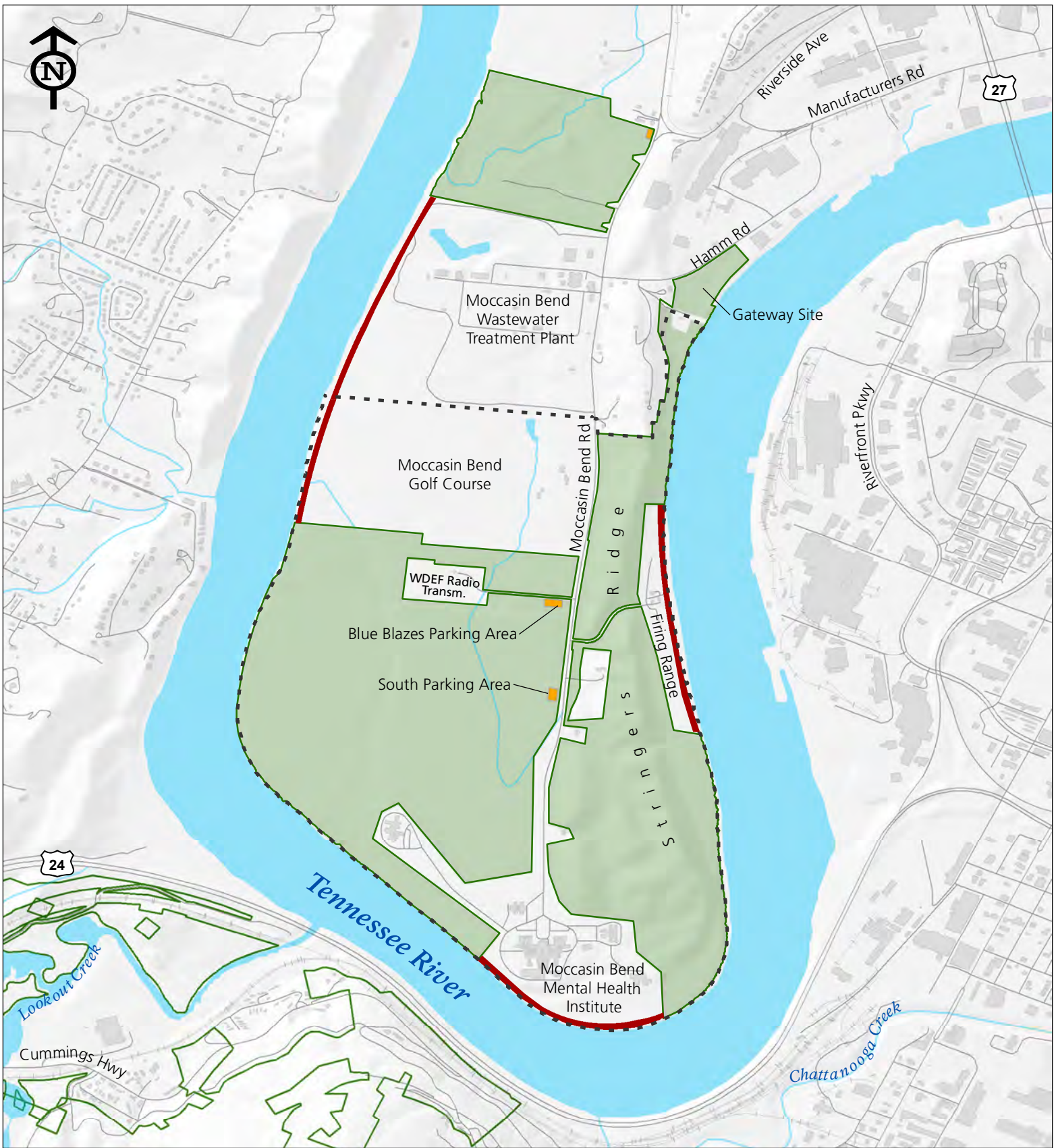


# Map 1 - Moccasin Bend National Archeological District Location

*Chickamauga and Chattanooga National Military Park  
Georgia, Tennessee*

## Legend






- Major Roads
- State Boundary
- Water Bodies
- Park Boundary



**Map 2 - Moccasin Bend National Archeological District**  
**Moccasin Bend Archeological District**  
**National Historic Landmark**  
*Chickamauga and Chattanooga*  
*National Military Park*  
*Georgia, Tennessee*

0 0.25 0.5 Miles

**Legend**

-  Easement
-  Parking
-  National Historic Landmark
-  Moccasin Bend National Archeological District
-  Park Boundary

The topography of Moccasin Bend ranges from primarily flat land, with low-lying floodplain areas at its western edge, to steeply sloping ridges on the east. Elevations range from about 660 feet above mean sea level at the western edge to approximately 820 feet above mean sea level along the eastern ridge. Native vegetation on Moccasin Bend has been degraded by previous sand and gravel dredging and agricultural and development activities. Parts of Moccasin Bend were cultivated for row crops and other areas were used for pastures. By the 1960s, several of these disturbed areas had begun to return to natural conditions. Plant communities are in early stages of succession to forests and consist of dense understory and scattered deciduous hardwoods. Vegetation in upland areas consists of a mixed forest canopy of evergreen and deciduous trees. Various stages of old field succession are in the northern part of the national archeological district; wooded lands are on Stringers Ridge on the eastern part of the district; and fields, woodlots, and lawns are on the southern extremity on land occupied by the state-owned Moccasin Bend Mental Health Institute (NPS 2009).

## **HISTORICAL SUMMARY**

American Indian use and occupation of Moccasin Bend for approximately 12,000 years provides the fundamental basis for the archeological district's national importance. Archeological and historical investigations document and record structural and material evidence of Archaic, Woodland, and Mississippian occupation on Moccasin Bend. Three prehistoric village sites have been identified—the Vulcan, Mallards Dozen, and Hampton Place sites. Woodland period peoples constructed a mound complex consisting of several mortuary mounds at the southern toe of Moccasin Bend, some of which were archeologically excavated in 1914–1915. In addition to settlements and burials, American Indians used the area for hunting, gathering, and various forms of agriculture. Mississippian period occupation of Moccasin Bend ended by the mid- to late 16th century, and no further known occupation of Moccasin Bend occurred for the next century (NPS 2009, 2014).

During the 18th century, the Cherokee Indians began using land on Moccasin Bend, although no village sites have been identified. By 1805, the Federal Road crossed Moccasin Bend and connected the United States with Indian Nation territory. The Federal Road was among the routes used by the US government for the forced removal of the Cherokee from their homelands. The segment of the road that crossed Moccasin Bend is included in the Trail of Tears National Historic Trail that commemorates the tragic relocation of the Cherokee. Additional historic resources include important Civil War earthworks and campsites concentrated along Stringers Ridge. During the fall and winter of 1863, Stringers Ridge was an important strategic position for Union Army encampments and artillery positions. Union artillery exchanged fire with Confederate positions across the Tennessee River on the flanks of Lookout Mountain. Many of the Stringers Ridge earthworks are visible on the landscape and are in good condition (NPS 2009, 2014).

Beginning in the 1920s, public debate arose concerning the future development of Moccasin Bend. Many supported initiatives to conserve the area as a scenic park and for recreational purposes, whereas others supported industrial development of the area. Growing concern for the protection of Moccasin Bend's archeological resources emerged by the 1980s in response to development pressures and widespread site looting and grave robbing. There was only limited law enforcement protection and monitoring at the time to deter illegal site disturbances. These concerns also prompted renewed professional archeological interest and led to the designation of the Moccasin Bend Archeological District National Historic Landmark in 1986. With the support of the Friends of Moccasin Bend National Park, Inc., a nonprofit organization formed in 1995, and the backing of local congressional leaders and others, legislation was eventually passed on February 20, 2003, (117 Stat. 248, Public Law 108-7) (appendix A) that transferred lands to the National Park Service for establishment of Moccasin Bend National Archeological District (NPS 2009, 2014).

## FOUNDATION FOR PLANNING AND MANAGEMENT

The foundation document for Chickamauga and Chattanooga National Military Park, including Lookout Mountain Battlefield and Moccasin Bend National Archeological District, was developed with input from park staff and stakeholders (NPS 2016a). It defines the legal and policy requirements that direct NPS basic management responsibilities and describes the resources and values that are fundamental to achieving the park's purpose. Although all units of the national park system must be managed in compliance with a large body of federal laws and policies, each park unit has its own specific purpose, established by Congress or the president, which provides the context for management.

The foundation document provides the basis upon which all future park planning efforts are built, including this GMP amendment. It identifies what is most important to the park through an examination of the enabling legislation and the development of purpose and significance statements and primary interpretive themes; it also identifies any special mandates that affect management of the park. The foundation document identifies fundamental resources and values that are essential to maintaining the park's purpose and significance.

The foundation document was instrumental in the development of this GMP amendment, and elements of this document may be found below. An increased emphasis on government accountability and restrained federal spending make it imperative that park staff and stakeholders have a shared understanding of the park's foundation for planning and management purposes to ensure that goals related to the park's fundamental resources and values are achieved.

### Purpose

The purpose statement conveys the reason(s) for which a national park unit was set aside as part of the national park system. Grounded in an analysis of park legislation and legislative history, this statement also provides primary criteria against which the appropriateness of plan recommendations, operational decisions, and actions are tested—they provide the foundation for the park's management and use.

*The purpose of Chickamauga and Chattanooga National Military Park is to preserve, protect, and interpret the nationally significant resources and values associated with the Civil War Campaign for Chattanooga and 12,000 years of American Indian presence on Moccasin Bend.*

### Significance

Significance statements capture the essence of the park's importance to our country's natural and cultural heritage. Significance statements do not inventory park resources; rather, they describe the park's distinctiveness and why the area is important within its regional, national, and international contexts. Defining the park's significance helps managers make decisions and focus their efforts on the protection of resources and enjoyment of those values that are directly related to the park's purpose.

The significance statements for Chickamauga and Chattanooga National Military Park are as follows:

1. As the first national military park, the preservation of the history, stories, and resources of the Campaign for Chattanooga served as a model for the subsequent preservation of other Civil War battlefields and historical sites.

2. The participation of both Union and Confederate Chickamauga and Chattanooga veterans in the creation of the national military park provided a heightened degree of accuracy and legitimacy to the marking of specific battle locations and the placement of monuments and other commemorative features. These features retain solemn importance to descendants of soldiers and visitors today.
3. The park was established in part for the purpose of historical and professional military study and continues to offer exceptional opportunities for the study of fighting in the Civil War. Moccasin Bend National Archeological District offers outstanding opportunities to further the understanding of American Indian habitation from transitional Paleo-Indian/Archaic to historic periods along the Tennessee River.
4. The park preserves resources associated with one of the deciding campaigns of the Civil War, where the Tennessee River, railroad system, and mountainous terrain made Chattanooga a strategic location for accessing the South. A Union victory assured access to this “Gateway to the Deep South,” ultimately hastening the end of fighting and the reunification of the United States.
5. Located at an important geographic crossroads, Moccasin Bend National Archeological District is one of the best preserved, most important, and most concentrated archeological assemblages representing the sequence of southeastern American Indian cultures known to be extant in the Tennessee River Valley. Its importance was recognized in its designation as the first national archeological district.
6. Moccasin Bend National Archeological District retains profound cultural importance for contemporary American Indian tribes with ancestral ties to the area.

## Fundamental Resources and Values

Fundamental resources and values are systems, processes, features, visitor experiences, stories, and scenes that deserve primary consideration in planning and management because they are essential to maintaining the park’s purpose and significance. The following fundamental resources and values have been identified for Chickamauga and Chattanooga National Military Park:

- **Battlefields and Related Sites.** Civil War battles for the Campaign for Chattanooga took place at Chickamauga Battlefield, Lookout Mountain Battlefield, Missionary Ridge Battlefield, Orchard Knob Reservation, and on parts of Moccasin Bend. Locations within those battlefields, as well as other areas such as Signal Point, were used for strategic lookouts, signal stations, or places for troops to camp. Some of the structures located on the battlefields that stand today existed during the Civil War or have been reconstructed to reflect their original design.
- **Commemorative Features.** Working together, Union and Confederate Civil War veterans planned the placement of the monuments, markers, and tablets found throughout the park. More than 1,500 commemorative features exist, including some on private land maintained by the National Park Service.
- **Archeological Resources of the Civil War and American Indian Habitation of Moccasin Bend.** The battlefields contain archeological evidence related to military activities associated with the Campaign for Chattanooga, including trenches dug by troops as bombardment shelters, earthworks, and rifle pits. Moccasin Bend contains artifacts and structures that indicate the area’s importance throughout prehistory and history as a strategic center of trade and communication, and its economic and political importance.
- **Strategic and Important Views.** The mountainous and hilly terrain of the battlefields, combined with the pattern of forest and field, allowed views providing strategic intelligence during the Civil War. Views from and to points on Lookout Mountain, Missionary Ridge, Orchard Knob, Signal Point, Moccasin Bend, Bald Hill, Tyndale Hill, and Chickamauga



Battlefield all were important during the Campaign for Chattanooga. These views provide outstanding opportunities for visitors to understand the troop movements and strategies employed during the battles.

- **Contemplative Experience.** The battles for Chattanooga resulted in thousands of troops killed or wounded. This hallowed ground retains a solemn and reflective atmosphere. Moccasin Bend National Archeological District contains burial grounds that retain profound significance to affiliated American Indian tribes.

## Other Important Resources and Values

Chickamauga and Chattanooga National Military Park contains other resources and values that may not be fundamental to the purpose and significance of the park but are important to consider in management and planning decisions. The following other important resources have been identified for Chickamauga and Chattanooga National Military Park:

- **Appropriate Recreational Opportunities.** The park includes one of the few large open spaces within and near the Chattanooga metropolitan area. The paved tour roads and hiking trails in the park also provide outstanding opportunities for recreational activities, which allow for alternate ways of experiencing park landscapes. The daily use of the park for fitness activities such as walking, running, and biking creates a unique opportunity to engage community members and foster park relevancy with local stakeholders. The landscapes protected within the 9,000-acre park also provide the public with opportunities to enjoy natural beauty, scenic views, and watchable wildlife. Appropriate recreation at the park provides an opportunity for users (both current and future generations) to continue to experience and appreciate the park in different ways; however, recreation must be done in a way in which commemoration and solemnity of the battlefields are respected.
- **Trail of Tears Resources.** The park includes Trail of Tears resources that mark the tragic forced removal of American Indians (primarily Cherokee) from their southeastern homelands. The historic trace of the trail exists across parts of Moccasin Bend, Lookout Mountain, and other areas of the park.

## Interpretive Themes

Interpretive themes are ideas, concepts, or stories that are central to the park's purpose, significance, identity, and visitor experience. The interpretive themes define concepts that should be available to every visitor. Themes also provide the framework for the park's interpretation and education programs; influence visitor experience; and provide direction for planners and designers of the park's exhibits, publications, and audiovisual programs. Subsequent interpretive planning may elaborate on these themes.

The following interpretive themes for Chickamauga and Chattanooga National Military Park are the most important ideas or concepts to be communicated to the public about the park and include:

- Strategic views and the area's diverse landscape of mountains, rivers, fields, and forests have influenced the movement, settlement, and communication of people over thousands of years.
- The park is a place where identity and citizenship have been denied, defined, and won through conflict and compromise, from the American Indians to the Civil War to modern civil rights.

- The diverse ideals and beliefs of the American public have influenced the preservation, education, commemoration, and access of the park through time.
- Many Union and Confederate veterans came together in an act of unity to establish the park. From the veterans to those visiting today, these battlefields allow for forgiveness, remembrance, and, in some cases, a place to forget.

### **Service-wide Laws and Policies**

This section discusses some of the most pertinent service-wide laws and policies related to planning and managing the Moccasin Bend National Archeological District with which the National Park Service must comply. It is important to note, regardless of which alternative is chosen, that the National Park Service must comply with all of these laws and policies. The plan alternatives address the desired future conditions that are not mandated by law and policy and must be determined through a planning process.

The National Park Service must comply with laws and policies to protect environmental quality and resources, preserve cultural resources, and provide public services. Applicable laws and policy related to resource management include the Clean Water Act of 1972; Endangered Species Act; National Historic Preservation Act of 1966, as amended; Native American Graves Protection and Repatriation Act of 1990; and Executive Order 11990, "Protection of Wetlands." Laws and policies related to public services and access include the Architectural Barriers Act (ABA) of 1968; ABA Accessibility Guidelines for Federal Outdoor Developed Areas (2013); Rehabilitation Act of 1973; and Fair Housing Act. A general management plan is not needed to decide that it is appropriate to protect endangered species, control nonnative species, protect archeological sites, conserve artifacts, or provide for access to all people based on the laws, policies, and guidance noted above. Laws and policies have already decided these and many other management-related actions for the National Park Service, and the National Park Service would work to meet these requirements with or without a general management plan.

Some of these laws and executive orders are applicable solely or primarily to units of the national park system. These include the 1916 Organic Act that created the National Park Service; the General Authorities Act of 1970; the act of March 27, 1978, relating to management of the national park system; and the National Parks Omnibus Management Act (1998). Other laws and executive orders have much broader application, such as the Endangered Species Act; National Historic Preservation Act; and Executive Order 11990, which addresses protection of wetlands.

The NPS Organic Act (54 USC 100101(a) et seq.) provides the central management direction for all units of the national park system:

[P]romote and regulate the use of the Federal areas known as national parks, monuments, and reservations . . . by such means and measure as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life 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 General Authorities Act (54 USC 100101(b) et seq.) for the national park system affirms that, although all national park system units remain "distinct in character," they are "united through their inter-related purposes and resources into one national park system as cumulative expressions of a

single national heritage.” The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, amendments state that NPS management of park units should not “derogate[e] . . . the purposes and values for which these various areas have been established.”

The National Park Service has established policies for all units under its stewardship. These are identified and explained in a guidance manual entitled *NPS Management Policies 2006*. The “action” alternatives (alternatives B and C) considered in this GMP amendment incorporate and comply with the provisions of these mandates and policies.

Public Law 95-625, the National Parks and Recreation Act, requires the preparation and timely revision of general management plans for each unit of the national park system. Section 604 of the act outlines several requirements for general management plans, including measures for the protection of area resources and indications of the types and general intensities of development. *NPS Management Policies 2006* reaffirms this legislative directive.

To truly understand the implications of an alternative, it is important to combine the servicewide mandates and policies with the management actions described in that alternative. The desired conditions based on the servicewide mandates and policies developed for the Lookout Mountain Battlefield general management plan amendment are incorporated by reference into this plan (NPS 2014b). The materials can be found at <https://parkplanning.nps.gov/CHCH>.

## SCOPE OF THE GENERAL MANAGEMENT PLAN AMENDMENT

The general public, NPS staff, associated tribes, and representatives from organizations identified various issues and opportunities during project scoping (early information gathering) conducted in 2009. General management planning at that time included the entire Chickamauga and Chattanooga National Military Park. Comments were solicited at public meetings, through planning newsletters, and on the NPS planning website (see Chapter 4: Consultation and Coordination). It was subsequently decided to narrow the planning focus to a GMP amendment for the Moccasin Bend unit. The comments received during early scoping in 2009 were considered in the development of this amendment.

Comments received during scoping focused primarily on protecting the unit's cultural resources, providing opportunities for interpretation and recreation, and managing the area's cultural resources. The GMP amendment alternatives provide strategies for addressing these issues within the context of the park's purpose and significance, while remaining compatible with desired resource conditions.

The GMP amendment is part of the NPS "Planning Portfolio," consisting of a compilation of individual plans, studies, and inventories that together guide park decision making. The planning portfolio enables the use of targeted planning products to meet a broad range of park planning needs. When a determination is made that a new general management plan is needed or that an existing general management plan needs to be amended or revised, the existing management plan will remain in effect until the new plan, amendment, or revisions are complete. This GMP amendment provides guidance for the Moccasin Bend unit of Chickamauga and Chattanooga National Military Park; it does not:

- describe how particular programs or projects would be implemented or prioritized; instead, these decisions are deferred to detailed implementation planning;
- provide specific details and answers for all issues facing the park; or
- provide funding commitments for implementation of the plan.

## ISSUES AND OPPORTUNITIES ADDRESSED IN THIS PLAN

Many aspects of the desired future conditions for the Moccasin Bend unit are defined in the enabling legislation, the park's purpose and significance statements, and existing laws and policies. The resolution of questions or issues that have not been addressed by the enabling legislation or laws and policies is the basis for developing the different alternatives or approaches to managing the unit. As with any decision-making process, there are key decisions that, once made, would dictate the direction of subsequent management strategies.

Based on internal and external comments received and information supported by research and management experience, the following management issues and opportunities were identified for the Moccasin Bend unit.

### Protection of Cultural Resources

The Moccasin Bend unit protects significant archeological resources and is of profound importance to associated American Indian tribes. Several threats to the area's resources have been identified, including vandalism, theft by relic hunters and looters, litter in the park, potential impacts of recreational use, and potential development within the park. There is a need for preservation of the

Civil War earthworks in the unit. Questions this GMP amendment needs to address include the following:

- What should be done to address the threats facing Moccasin Bend?
- What is the best way to protect the park's resources?
- Should recreational use be limited in parts of the unit?
- Where should visitor facilities be located to avoid or minimize impacts on cultural resources?

### **Providing a Quality Visitor Experience**

Although the Moccasin Bend unit is open to visitors, there are few facilities and opportunities for visitor interpretation to help visitors learn about and appreciate the area. Currently, access to the unit is limited, and only a few opportunities exist for hiking. The contemplative nature of the site is degraded by multiple land uses on Moccasin Bend, odors from the wastewater treatment plant, and industrial traffic along Hamm Road and Moccasin Bend Road. Questions the GMP amendment needs to address include:

- What visitor opportunities should be provided so that visitors understand the important resources of the unit?
- How should visitors be oriented to the area?
- What visitor services should be provided?
- What recreational activities are appropriate (e.g., walking, bicycling, horseback riding, jogging)?
- What types of interpretative and educational facilities should be provided, if any?
- How much self-guided interpretation opportunities should be provided versus ranger-guided tours and cultural demonstrations?
- Should interpretation of Native American resources be separate from interpretation of the Civil War?
- How should visitor use be managed?
- What is the user capacity for the unit?
- What partnerships should be sought to provide a better visitor experience?
- What can be done to address external uses that degrade the visitor experience?
- How will visitors access the unit?

### **Effectively Administering the Unit**

The Moccasin Bend unit currently does not have a full-time NPS staff presence. Ranger-led tours are occasionally provided, but the number of park staff available to ensure resources are protected, manage the area's cultural and natural resources, maintain facilities, and meet visitor needs is limited and falls below current park needs. Because the park headquarters is distant from this unit, and Moccasin Bend is one of three units managed by park staff, administration of this unit is a challenge. The question to be addressed by the GMP amendment related to administering the unit is:

- What level of staffing is needed to effectively and efficiently administer the unit, including protecting, managing and monitoring resources, maintaining facilities, and providing orientation and interpretation for visitors?

## ISSUES AND OPPORTUNITIES NOT ADDRESSED IN THIS PLAN

### Climate Change

Climate change refers to any substantial changes in average climatic conditions or climatic variability lasting for an extended period of time (decades or longer). Recent reports by the US Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change (IPCC 2014) provide clear evidence that climate change is occurring and likely to accelerate in coming decades. The effects of climate change on national parks are beginning to emerge as both climate science and the impacts of climate change become clearer; however, it is difficult to predict the full extent of the changes that are expected under an altered climate regime — although climate change is a global phenomenon, it manifests differently depending on regional and local factors.

The National Park Service recognizes that the drivers of climate change are outside the control of the agency; however, climate change is a phenomenon, and its impacts throughout the national park system cannot be discounted. Some of these impacts are already occurring or are expected to occur in the Moccasin Bend unit. Increasingly, the National Park Service is considering climate change in its management actions, including actions to mitigate effects of greenhouse gas emissions and adapt to climate change while also meeting park goals. Therefore, a discussion of climate change is included in this document to recognize its role in the changing environment of the park, provide an understanding of its impacts, incorporate climate change into park management decision making, and mitigate the park's greenhouse gas contributions.

For this plan, there are two issues to consider with respect to climate change: (1) what is the contribution of the proposed action to climate change impacts such as greenhouse gas emissions and the “carbon footprint,” and (2) what are the anticipated effects of climate change on park resources, values, and assets that are affected by the management alternatives? Because the greenhouse gas contribution to climate change of the proposed actions in all of the alternatives is so small in comparison to the contribution of the greater region, the first issue was dismissed as an impact topic (see below). In addition, several actions in the alternatives would help minimize greenhouse gas emissions (e.g., minimize emissions from NPS vehicles, using sustainable designs that reduced energy demands).

Regional climate projections for the southeastern United States include increased frequency of extreme heat events, decreased frequency of extreme cold events, and decreased severity of cold events (Walsh et al. 2014). If substantial reductions in worldwide emissions and deforestation do not occur, models for the highest emission scenario project 20–25 more days per year with a maximum temperature greater than 95°F by 2100 (Walsh et al. 2014). This would likely affect visitor use of the unit, including both the season of use and the times when visitors are present. Climate change in the southeastern United States may also increase conditions for the spread of pests and nonnative plant species and alter the ranges of wildlife and tree species (Carter et al. 2014).

Climate change could affect park resources as a result of water flow timing and volume and the frequency and intensity of storms. Increased storms could result in increased erosion of the bend, which would adversely affect archeological sites. These changes could also alter the area's vegetation and wildlife populations, facilities and utilities, and access and use of the park, although it is not yet possible to quantify when, how, or where these changes would occur and if they would impact visitor use, facilities, and access options considered in this plan. But in taking into account climate change, new developments would be limited along the shoreline in the river's floodplain in the alternatives being considered.

The full extent of the effects of climate change on resources, values (e.g., visitor experience) and assets is not known, nor do managers and policy makers agree on the most effective responses for minimizing effects and adapting to change. Thus, unlike the other issues noted above, this GMP amendment does not provide definitive solutions or direction for resolving the issue of managing the effects of climate change on the Moccasin Bend unit. The GMP amendment also recognizes that the management actions and the facilities proposed in all of the alternatives need to be adopted with future climate change in mind because past conditions are not necessarily useful guides for future planning. In addition, a climate change vulnerability assessment and climate change adaptation plan would be prepared to help guide future management of the area.

Following guidance issued by the Department of the Interior, the National Park Service, and the Council on Environmental Quality, the GMP amendment planning team has carried forward some discussion of the current state of climate change knowledge as it relates to the resources that could be affected by the management alternatives described in this GMP amendment. This discussion is included in the section on affected environment in chapter 3.

## **IMPACT TOPICS ANALYZED IN THIS ENVIRONMENTAL ASSESSMENT**

An important part of planning is seeking to understand the consequences of making one decision over another. To this end, NPS general management plans are accompanied by environmental analyses that identify the anticipated impacts of possible actions on resources and on park visitors and neighbors. Impact topics are a means of organizing the discussion of issues and analysis of impacts. They serve to focus the environmental analysis and to ensure the relevance of the impact evaluation. The alternatives in this plan have the potential to affect these resources or topics.

The following impact topics are analyzed for this general management plan amendment:

- archeological resources including cultural landscapes
- ethnographic resources
- visitor experience (including visitor safety)

These topics address the issues of protecting cultural resources and providing quality visitor experiences. They were selected on the basis of federal laws, regulations, executive orders, NPS expertise, and concerns expressed by other agencies or members of the public during project scoping. The impact topics are described and the impacts of the alternatives on them are analyzed in chapter 3.

## **IMPACT TOPICS DISMISSED FROM DETAILED ANALYSIS**

Some impact topics commonly considered during the planning process were not relevant to the development of this GMP amendment either because the management alternatives would have no or only a minimal effect on the resource or because the resource is not present within the boundaries of the Moccasin Bend unit. The following impact topics were dismissed from detailed analysis.

### **Historic Structures**

There are no identified historic structures within the Moccasin Bend unit that could be affected by proposed project actions. Subsurface structural features associated with pre-contact American Indian occupation and Civil War earthworks on Stringers Ridge are addressed in the discussion of

archeological resources. The topic of historic structures was therefore dismissed from detailed analysis in this GMP amendment and environmental assessment.

### **Museum Collections**

Among the items typically retained in NPS museum collections are prehistoric and historic objects and artifacts, archival documents, natural history specimens, and works of art. Artifacts recovered from Moccasin Bend by previous archeological investigations are held in various state and university repositories, museums, and private collections. Although general discussions have occurred among planners, tribal representatives, and other stakeholders regarding the desirability and sensitivity of exhibiting museum objects at the proposed Moccasin Bend visitor interpretive center, no detailed studies have been completed to determine the proper scope of the collections for the Moccasin Bend unit. Further, collections management studies and exhibit planning would be required to guide these efforts. Any facilities proposed for storing or exhibiting museum collections would need to meet NPS curatorial standards for acquisition, accessioning, cataloging, preservation, and protection. Prior to the storage or exhibit of American Indian objects, and in accordance with stipulations of the Native American Graves Protection and Repatriation Act, the National Park Service would consult with tribal representatives with regard to the disposition and possible repatriation of human remains, funerary objects, sacred objects, and objects of cultural patrimony.

This topic was dismissed from analysis in this GMPA/EA because separate studies and planning would be required for museum collections at Moccasin Bend and because the decision to store or display museum objects and artifacts on site has not been made.

### **Environmental Justice**

Presidential Executive Order 12898 requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. According to the Environmental Protection Agency, environmental justice is the “. . . fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.” The goal of “fair treatment” is not to shift risks among populations, but rather to identify potentially disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

Environmental justice was considered and dismissed from further analysis for the following reasons:

- The park staff and planning team encouraged public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of the alternatives would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population.
- The impacts associated with implementation of the alternatives would not disproportionately affect any minority or low-income population or community.



- Implementation of the alternatives would not result in any identified effects that would be specific to any minority or low-income community.

### **Indian Trust Resources**

As required by Department of the Interior Environmental Compliance Memorandum 97-2, *Departmental Responsibilities for Indian Trust Resources and Indian Sacred Sites on Federal Lands*, the National Park Service must specifically address (i.e., carry forward for dismissal from detailed analysis) Indian trust resources in this environmental assessment. There are no Indian trust resources on Moccasin Bend for which the National Park Service holds fiduciary responsibility. Therefore, there would be no impacts on those resources. Accordingly, Indian trust resources were dismissed from detailed analysis and are not discussed further in this plan and environmental assessment. Other (nonfiduciary) resources of cultural importance to the park's associated tribes are identified and assessed in the document.

### **Natural Resources**

**Air Quality / Carbon Footprint.** Only minimal increases in air pollution are expected because of visitors driving to the unit and the short-term use of construction equipment to build facilities. Large numbers of vehicles are not anticipated at any given time except possibly for special events and exhibits. Best management practices would be used to control dust during construction and subsequent maintenance activities. No actions are being proposed that would appreciably alter regional air quality.

The alternatives being considered in this document would result in a minimal amount of greenhouse gases that contribute to climate change. No substantial changes in motorized travel are proposed under the alternatives, and development of a few new trails and parking areas would result in increases in greenhouse gases so slight as to make a quantitative measurement of their carbon footprint not practicable.

**Floodplains.** As determined by the Federal Emergency Management Agency, a 100-year floodplain parallels the Tennessee River around Moccasin Bend. Its width varies from less than 50 feet from the shoreline near parts of the state hospital at the south end to about 1,600 feet along the golf course. A 500-year floodplain generally is parallel with the 100-year floodplain in low-lying areas and south of the golf course in the western part of Moccasin Bend (NPS 1998). Periodic storms, particularly between December and May, can result in significant flood events in the Chattanooga area and throughout the watershed. Based on examination of US Army Corps of Engineers floodplain maps, the visitor center proposed in one alternative would be situated at an elevation approximately one foot above the level of the 100-year floodplain (NPS 2009). Because of the proximity of the proposed visitor center to the 100-year floodplain level, the National Park Service would ensure that appropriate design considerations and mitigation measures were incorporated into its construction. Measures would be taken to minimize potential impacts from natural flood processes and storm events, and construction would be in accordance with state and local building codes with regard to floodplain considerations. Proposed trails, including the riverside trail, are permitted in floodplains and would not appreciably alter floodplain processes and values.

**Wetlands.** Although there are several small wetlands within the Moccasin Bend unit, none of the new trails or other developments proposed in the preferred alternative would pass through or affect delineated wetlands on park lands. Thus, wetlands were dismissed as an impact topic for this plan.

**Vegetation.** The vegetation in upland parts of Moccasin Bend consists of a mixed forest canopy of evergreen and deciduous trees. Various stages of old field succession exist in the northern part of

Moccasin Bend; wooded lands on Stringers Ridge in the eastern part; and old fields, woodlots, and lawns/hayfields on the southern toe of Moccasin Bend (NPS 1998). Past agricultural and development activities have disturbed native vegetation on Moccasin Bend. Plant communities are in early succession to forests and consist of dense understory with scattered deciduous hardwoods (NPS 1998). During development of trails, parking areas, a visitor center/plaza, and vista clearings in the alternatives, some vegetation would be removed or altered; however, only small areas of native trees, shrubs and forbs would likely be disturbed on Stringers Ridge. NPS biologists have stated that the mature forest on the sandstone ridge is of high quality but low plant diversity and that the rest of the site is “so altered and filled with nonnative species it would not really qualify as a natural area.” Any vegetation impacts that did occur as a result of the alternatives would not noticeably alter the distribution or abundance of native vegetative plant communities or species.

**Wildlife.** Despite Moccasin Bend’s current high level of development and disturbed land areas, habitat in certain locations supports a variety of wildlife. Mammals include opossum, short-tailed shrew, meadow vole, white-footed mouse, and hispid cotton rat. Small populations of deer also have been known to inhabit the area. Observed bird species include the Carolina wren, tufted titmouse, mockingbird, song sparrow, American robin, cardinal, rufous-sided towhee, turkey, red-tailed hawk, and American kestrel. Several waterfowl species that fly and feed along the Tennessee River have nesting sites on Moccasin Bend. Reptiles and amphibians include the black rat snake, fence lizard, and five-lined skinks. Turtles and frogs inhabit the area particularly along the river shore (NPS 1998).

Proposed construction activities (e.g., use of heavy equipment for excavation, grading, and utility trenching, and onsite construction assembly of the visitor center) are likely to have minimal short-term adverse impacts on wildlife populations because construction would primarily occur in previously disturbed and cleared areas. Although use levels would likely increase as a result of the actions in the alternatives being considered, these increases would likely be relatively small and occur in mostly developed areas. Most of the changes being proposed would be in areas that already are used by people and where wildlife populations and habitat have already been altered. Any adverse impacts that would occur from changes in visitation and new developments under the alternatives would be of little consequence to wildlife populations in the area.

**State Threatened and Endangered Species.** Several species listed by the state of Tennessee as endangered or threatened occur in Hamilton County and may occur on Moccasin Bend: Bachman’s sparrow (*Peucaea aestivalis*, endangered), wood lily (*Lilium philadelphicum*, endangered), yellow honeysuckle (*Lonicera flava*, threatened), southern morning-glory (*Stylisma humistrata*, threatened), and narrow-leaved trillium (*Trillium lancifolium*, endangered). The Bachman’s sparrow was reported in the unit in 1977 but subsequently has not been recorded in the area. Five listed species of mussels (dromedary pearlymussel [*Dromus dromas*, endangered], orangefoot pimpleback [*Plethobasus cooperianus*, endangered], pink mucket [*Lampsilis abrupta*, federal and state endangered], rough pigtoe [*Pleurobema plenum*, endangered], and tubercled blossom [*Epioblasma torulosa*; endangered]) may occur in the waters of the Tennessee River adjacent to the unit. Before any actions and developments proposed in the alternatives would occur (e.g., trails, vista clearings, and, following acquisition, rehabilitating the boat ramp at the firing range), NPS staff would consult with the Tennessee Department of Environment and Conservation to determine if any species are present, if a mussel survey is needed, and what actions should be taken to avoid or minimize impacts if the mussels are present. Thus, impacts on these species would be expected to be avoided.

**Federal Threatened and Endangered Species.** Based on a March 1, 2016, letter from the US Fish and Wildlife Service Tennessee Ecological Services Field Office, four federally listed species are present within or near the Moccasin Bend unit. Large-flowered skull cap (*Scutellaria montana*)

likely does not occur in the unit (Teresa Liebfreid, Cumberland Piedmont Network, pers. com., August 25, 2015).

The endangered Indiana bat (*Myotis sodalis*) and gray bat (*M. grisescens*) and threatened northern long-eared bat (*M. septentrionalis*) may seasonally use the Moccasin Bend unit. The endangered gray bat likely forages for insects along the Tennessee River, including Moccasin Bend. No actions proposed in this plan would affect the wetlands where the gray bats may forage for insects.

With regard to the Indiana bat and northern long-eared bat, both species have been documented in nearby areas and probably use forested habitat in the Moccasin Bend unit. A NPS bat biologist considers both species to be probably present although they have not been documented in the unit (Steven Thomas, Cumberland Piedmont Network, pers. com., August 25, 2015; NPS 2016b). Currently there are no known occupied northern long-eared bat or Indiana bat maternity roost trees in the unit. There are no known caves or mines in the unit that would provide roosting habitat for the bats. There is the potential for both species to roost in trees during the active season (April 1–November 15) and forage for insects in forested areas. The action alternatives call for limited clearing of trees for trails and viewing areas (particularly along Stringer Ridge), and these activities would be flexible in timing and approach. Specific details on proposed tree clearing locations and times have not been identified in the alternatives, and the activity is not likely to occur in the next year. Until more details on the proposed tree clearings have been identified, impacts cannot be analyzed for these species. Consultation with the US Fish and Wildlife Service would need to continue when more information is available both on the bats and on the proposed tree removals, and additional compliance steps may need to be undertaken before tree clearing could occur. (See chapter 4 for additional details on future consultation with the US Fish and Wildlife Service.)

**Socioeconomics.** None of the actions in the alternatives would substantially alter visitor use levels or visitor use patterns so as to have more than a minor effect on local businesses or local residents. Likewise, none of the alternatives would have more than a minor effect on local demographics, services, housing, employment, or the aesthetic quality of adjacent communities.

## **Soundscapes**

This topic has been dismissed from further analysis in this GMP amendment / environmental assessment because most of the effects on soundscapes are from non-National Park Service actions at the firing range including explosive ordinance device training, rifle ranges, and scenario training. Although soundscapes as an impact topic was dismissed from further analysis, it is included in the discussion of the visitor experience impact topic as well as the cumulative impact scenario.

The National Park Service construction activities within the alternatives would have a small effect on soundscapes, but measures would be implemented to reduce adverse effects of construction on soundscapes. The park may phase construction, use temporary closures and noise abatement, provide information to visitors on the purpose and need for construction, and use directional signage to help visitors avoid construction activities to reduce the adverse effects of construction on soundscapes as well as the visitor experience and safety.

## **RELATIONSHIP OF OTHER PLANNING EFFORTS TO THIS GENERAL MANAGEMENT PLAN AMENDMENT**

Several planning efforts have influenced or would be influenced by approval of this GMP amendment.

### **NATIONAL PARK SERVICE PLANS**

#### **Moccasin Bend National Archeological District Development Concept Plan**

Through consultation with tribes and agencies, and public involvement, a development concept plan for the Moccasin Bend unit selected a site for an interpretive center in the district or allowed for an off-park site to be pursued (NPS 2009). The plan identified the functional space needs of the facility, noting that those needs would be prioritized based on funding availability. The plan also identified the need for partner and NPS investment in such a facility.

#### **Moccasin Bend Cultural Landscape Report**

The Moccasin Bend cultural landscape report (NPS 2014a) identifies the historical development of cultural landscapes associated with identified archeological and cultural sites, inventories their existing conditions, and analyzes their historic and existing conditions to evaluate landscape significance and integrity. The report provides treatment recommendations to guide the rehabilitation and preservation of the landscape in the Moccasin Bend unit. These treatment recommendations were incorporated into this GMP amendment.

### **PARTNERSHIP PLANS / STUDIES**

#### **Proposed Riverbank Stabilization Along Miles 457.2 to 463.1 of the Tennessee River**

The US Army Corps of Engineers, Nashville District (2009), prepared an environmental assessment for the National Park Service regarding riverbank stabilization of miles 457.2 to 463.1 of the Tennessee River. The Tennessee River system, a set of 49 dams and reservoirs, is operated in an integrated fashion for the purposes of navigation, flood control, and hydroelectric power generation, as authorized in the Tennessee Valley Authority Act of 1933. Operation of this system has resulted in a relatively barren, highly erodible bank zone between elevations 632 and 636 feet, promoting accelerated erosion and bank sloughing. Because of fluctuating pool levels, natural vegetation dense enough to prevent riverbank erosion cannot be established, and significant cultural resources, including possible burial sites, are being lost because of riverbank erosion. The 2009 assessment identifies the stabilization methods needed to protect archeological resources while considering funding constraints. In the plan, construction is prioritized to address the most significant areas from a cultural resource standpoint; as funding becomes available other reaches would be stabilized.

## **NEXT STEPS IN THE PLANNING PROCESS**

### **FINALIZING THE GENERAL MANAGEMENT PLAN AMENDMENT**

Following public review and assessment of public comments, either a finding of no significant impact or a notice of intent to prepare an environmental impact statement would be prepared.

### **IMPLEMENTING THE GENERAL MANAGEMENT PLAN AMENDMENT**

Should this plan be approved, it does not guarantee that funding and staffing needed to implement the plan would be forthcoming. Implementation of the approved plan would depend on future funding and could also be affected by factors such as changes in NPS staffing, visitor use patterns, and unanticipated environmental factors. Full implementation could be many years in the future. Once the plan has been approved, more detailed planning may be needed before certain components of the selected alternative could be carried out.

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# Chapter

# 2

## THE ALTERNATIVES







## CHAPTER 2: THE ALTERNATIVES

### INTRODUCTION

In chapter 2, three alternatives for managing the Moccasin Bend National Archeological District in Chickamauga and Chattanooga National Military Park are described. These alternatives reflect the range of actions and desired conditions for the park that the public, tribes, and NPS staff would like to see accomplished regarding natural and cultural resource conditions, visitor use and experience, and park operations. Alternative A is a continuation of current management direction and is included as a baseline for comparing the consequences of implementing each of the action alternatives. Alternative B and alternative C (the NPS-preferred alternative) present different ways for the National Park Service to manage resources and visitor use and to improve facilities and infrastructure in Moccasin Bend National Archeological District.

This chapter first explains how the alternatives were developed, then describes the management zones (a key element of the alternatives) and the approaches taken to address visitor use management and boundary adjustments. After the alternatives are described, the costs of each alternative are compared. Then, future studies and plans needed to implement the GMP amendment are noted, mitigation measures to reduce or avoid impacts are listed, and actions that the planning team considered but dismissed are discussed.

### FORMULATION OF THE ALTERNATIVES

The National Environmental Policy Act and NPS *Management Policies 2006* require that park managers consider a full range of reasonable alternatives, including a “no-action” alternative. An “alternative” is a set of actions or directions that addresses management of the entire park unit, including its resources, visitors, and facilities. Each alternative typically includes an overall management concept, a management zoning scheme, a description of area-specific desired conditions and actions, potential boundary adjustments, if appropriate, and implementation and cost considerations.

The no-action alternative is a continuation of current management actions and directions into the future, and the environmental impacts of continuing current management direction are included in chapter 3. The no-action alternative, therefore, serves as a baseline for comparing the effects of the action alternatives.

The NPS planning team developed the alternatives in this document using a variety of resources. Many aspects of the desired conditions for the Moccasin Bend National Archeological District are defined in the enabling legislation, the park’s purpose and significance statements and fundamental resources and values, and the servicewide laws and policies that were previously described. Within these parameters, the NPS planning team solicited input from the public, NPS staff, governmental agencies, tribal officials, and others regarding issues and desired conditions for the park. Planning team members also gathered information about existing visitor use and the condition of the park’s resources and facilities.

The public was first invited to participate during the public scoping period in 2009. Comments received in 2009 were considered in the development of the draft alternatives, which were shared with the public in the fall of 2015. During the 2015 public comment period, two public meetings were held. The public was asked to respond to a range of preliminary alternatives. Substantive comments were used to further refine the alternatives. Please see chapter 4 for a summary of public comments.

The GMP amendment alternatives for Moccasin Bend National Archeological District were designed to highlight potential differences among competing sets of resource conditions and visitor experience. These alternatives focus on the resource conditions and visitor uses, experiences, and opportunities that should occur at the unit rather than on details of how these conditions and uses and experiences should be achieved. Thus, the alternatives do not include many details on how actions related to resource or visitor use management would be implemented in the future. The implementation of any alternative also depends on future funding and environmental compliance. This GMP amendment does not guarantee that funding would be forthcoming. Rather, it establishes a vision of the future that would guide day-to-day and year-to-year management of the unit, and full implementation could take many years.

## POTENTIAL BOUNDARY ADJUSTMENTS AND EASEMENTS

### Potential Boundary Adjustments

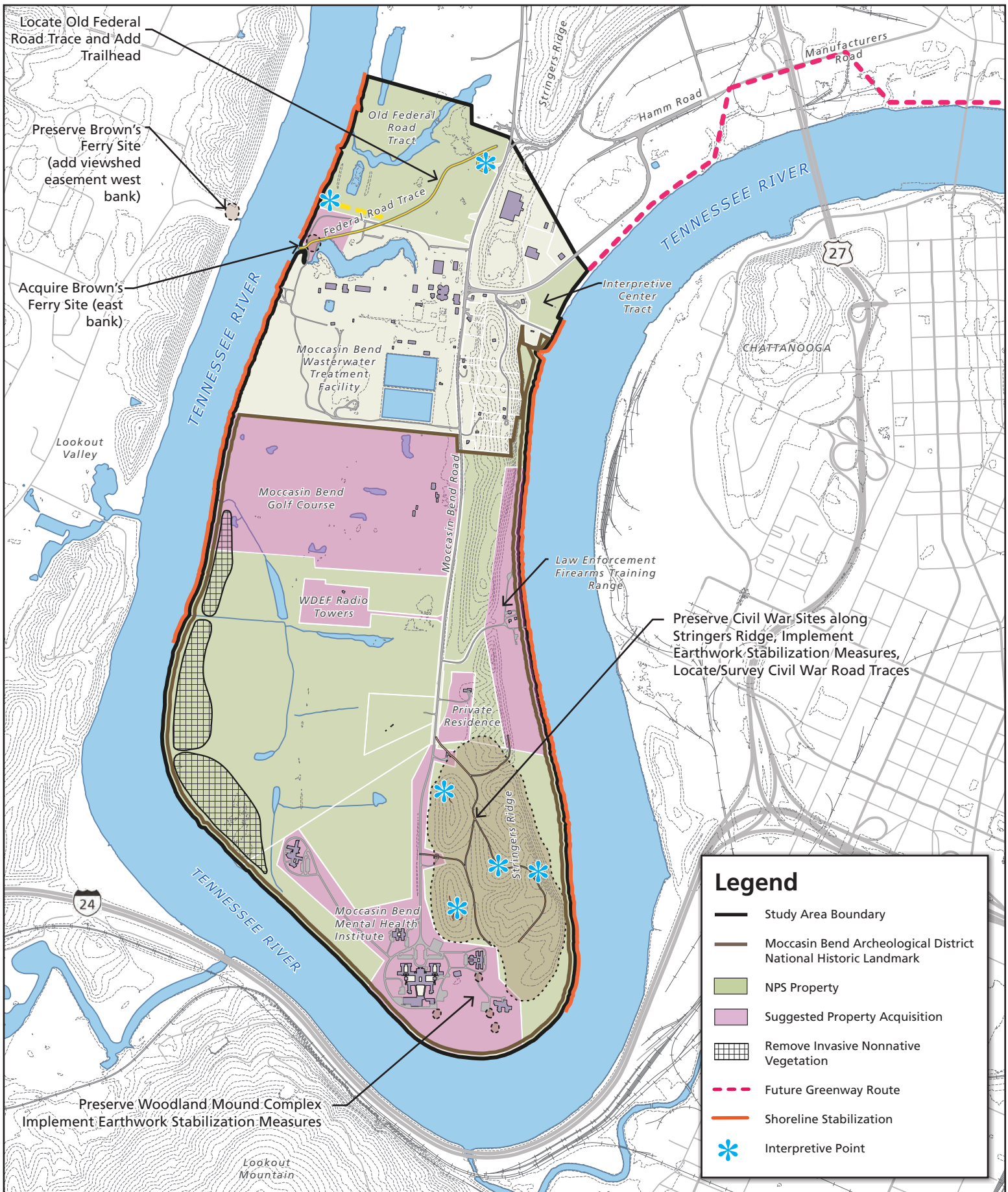
The 1978 National Parks and Recreation Act (16 USC 1a-7) requires that general management plans address potential modifications to park boundaries. Park boundaries are often initially drawn to reflect a wide range of practical considerations, and they do not necessarily reflect natural or cultural resource features, administrative consideration, or changing land uses. Current or potential changes in adjacent land uses could pose threats to park resources and limit the National Park Service's ability to strengthen the fundamental resources that support the park purpose and significance.

Additionally, the 2003 enabling legislation for Moccasin Bend National Archeological District (117 Stat. 247, PL 108-7, sec. 160 (b)(3)) provides instruction on acquisition:

*(3) ACQUISITION OF LAND AND INTERESTS IN LAND.—*

*(A) IN GENERAL.—The Secretary may acquire by donation, purchase from willing sellers using donated or appropriated funds, or exchange, lands and interests in lands within the exterior boundary of the archeological district. The Secretary may acquire the State, county and city-owned land and interests in land for inclusion in the archeological district only by donation.*

The Moccasin Bend cultural landscape report (NPS 2014a) also recommends that the federal government acquire by donation or willing seller any non-NPS owned properties on Moccasin Bend to facilitate long-term preservation and interpretation of historic resources within the area (see map 3). These properties include the Moccasin Bend Mental Health Institute, firing range, private residence inholdings within Moccasin Bend Archeological District National Historic Landmark, WDEF radio towers, and Moccasin Bend Golf Course. The report further recommends that the federal government obtain the northwest part of the Moccasin Bend Wastewater Treatment Facility site, where the Brown's Ferry crossing is located; federal ownership would facilitate management and interpretation of this cultural resource. Although the NPS is not recommending a boundary adjustment for the Moccasin Bend unit at this time, the sites referenced above would be appropriate for inclusion in the park.



# MAP 3 - TREATMENT RECOMMENDATIONS

## Moccasin Bend National Archeological District

National Park Service • U.S. Department of the Interior



## Easements

**Existing Easements.** In 2003, the National Park Service was granted easements on lands owned by the City and County of Chattanooga and the State of Tennessee. The easements, which are 100 feet wide and run along the river, were granted to allow access between areas of the archeological district. These easements are along the riverfront in the existing Chattanooga/Hamilton County Moccasin Bend Firing Range, Moccasin Bend Golf Course, Moccasin Bend Wastewater Treatment Plant, and Moccasin Bend Mental Health Institute. Although this plan does not contain a proposal to exercise the easements for the purposes of building trails, those rights are retained by the National Park Service to, for example, conduct important resource protection work such as the ongoing series of riverbank stabilization projects as funding becomes available. Please see appendix B for the full text of the easements and map 2 for their locations.

The 2003 enabling legislation for Moccasin Bend National Archeological District (117 Stat. 247, PL 108-7, sec. 160 (b)(3)(B)) provides instruction to the National Park Service on the purpose of the easements:

*(B) EASEMENT OUTSIDE BOUNDARY.—To allow access between areas of the archeological district that on the date of the enactment of this section are noncontiguous, the Secretary may acquire by donation or purchase from willing owners using donated or appropriated funds, or exchange, easements connecting the areas generally depicted on the Map.*

**Potential Future Easements.** The National Park Service would seek to acquire an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility to allow visitor access to the historical route of the Brown's Ferry Federal Road and for the National Park Service to access and interpret the historic Brown's Ferry site. This site is an essential part of the story of the Federal Road and the Trail of Tears.

The National Park Service would also explore the acquisition of conservation easements or other land protection strategies to protect views to the opposite (west) shore of Brown's Ferry, as well as other priority areas identified in the park's land protection plan that could impact the visitor experience of historic viewsheds from Moccasin Bend.

## MANAGEMENT ZONES

### INTRODUCTION

Management zoning outlines the criteria for appropriate uses and facilities necessary to support the desired conditions. Although some desired conditions may apply parkwide, the delineation of management zones illustrates where there are differences in intended resource conditions, visitor experiences, and management activities (NPS *Management Policies 2006*). Each zone defines a set of desired conditions for cultural resources, natural resources, and visitor experiences and appropriate visitor activities and identifies appropriate types of facilities.

These desired conditions are different for each management zone and reflect the overall focus of that particular zone. Three management zones have been developed for Moccasin Bend National Archeological District: a cultural protection zone, a cultural interpretation zone, and a visitor services zone. In formulating the action alternatives, the management zones were placed in different locations or configurations on a map of the park according to the overall concept for that alternative.

### CULTURAL PROTECTION ZONE

Areas in the cultural protection zone would be managed to ensure the protection of historic and archeological sites. Visitor access would be managed to protect these sites, while still providing visitors with limited opportunities to experience and learn about these cultural resources.

#### Resource Condition

Cultural resource protection and preservation would be the primary focus within the cultural protection zone. Cultural resources would be regularly monitored to ensure their protection. Visitor activities would be controlled to allow for access having the least amount of impact on the cultural resources. The tolerance for adverse impacts would be very low, with resource protection taking precedence over visitor use.

Natural resources would be managed to preserve and protect the area's historic and archeological resources.

#### Visitor Experience

Visitor access would be limited to maximize resource protection. The primary visitor experience in this zone would be learning about the natural and cultural resources through ranger-led tours. Public access to some archeology sites would be limited to ranger-led tours. Users entitled to access under federal laws (e.g., authorized tribal members under the American Indian Religious Freedom Act) would have continued access to the zone.

#### Appropriate Activities or Facilities

Only ranger-guided tours would be provided. Minimal developments, such as unpaved trails, may be provided in a manner that avoids sensitive archeological sites and features.

## **CULTURAL INTERPRETATION ZONE**

Areas within the cultural interpretation zone would be managed to protect and interpret cultural resources, including American Indian and Civil War history. Visitors would have opportunities to experience cultural resources through low-impact interpretive programming, self-discovery, and ranger-led tours.

### **Resource Condition**

This zone would be managed to provide a high level of resource protection. Emphasis would be on preserving and maintaining the resources that contribute to the district's national historic landmark designation. Resources would be periodically monitored to ensure they are protected. Some minimal impacts could be allowed for research and interpretation purposes.

Important cultural resources in this zone would be protected. For example, resources could be contained within a museum collection, curatorial archive, research library, or within exhibits that provide greater visitor understanding of the important events that occurred at Moccasin Bend, or they could be left in place. If previously unknown significant resources, such as archeological sites, were discovered within this zone, appropriate management actions would be implemented (i.e., preserving sites in situ or conducting data recovery if sites could not be adequately preserved in place).

Cultural resources would be preserved in a way that would have low levels of impacts on natural resources. Natural resources would be managed to preserve and protect archeological resources and historic sites. Selective vegetation clearing could occur to enhance historic views.

### **Visitor Experience**

The primary experience in this zone would be visiting and learning about the area's cultural resources. Visitors would be provided a wide range of interpretation and education opportunities. Visitors could expect moderate levels of encounters with other visitors; however, visitors still would have the opportunity to experience some solitude, tranquility, and quiet.

### **Appropriate Activities or Facilities**

Low-impact activities could include walking, self-guided interpretation, and guided walks. Self-discovery options would be available. Most visitors would access the area by foot. Trails, interpretive waysides, and signs could be provided, however, they would be designed to protect cultural resources. Facilities would be unobtrusive and blend with the natural and cultural environment.

## **VISITOR SERVICES ZONE**

Areas within the visitor services zone would be managed to provide visitors with opportunities to learn about and enjoy Moccasin Bend. This zone would provide orientation amenities and services that support a safe and satisfying visitor experience and would contain most of the visitor and administrative facilities of the unit. A wide variety of activities, programs, and facilities that support higher levels of visitor use could be provided including special events and educational and interpretive opportunities.

### **Resource Condition**

Some impacts on cultural resources from visitors and development would be tolerated in this zone, but impacts would be minimized through careful planning, design, and monitoring. If a previously unknown resource, such as an archeological site, was discovered within this area, appropriate management actions would be implemented (i.e., preserving sites in situ or conducting data recovery if sites could not be adequately preserved in place).

Natural resources would be managed to maintain the character of the cultural and historic setting and to provide for visitor use.

### **Visitor Experience**

The primary visitor experience would be learning about the resources of Moccasin Bend and also orientation to the unit. Visitors would receive information about Moccasin Bend and its resources through interaction with NPS staff, interpretive material, and signage. A variety of interpretive opportunities would be provided to promote visitor education about the unit's resources and their values. Visitors could expect higher levels of encounters with other visitors in the visitor services zone.

### **Appropriate Activities or Facilities**

A variety of low-impact activities would be permitted, including walking, hiking, self-guided interpretation, and ranger programs. Additional programming could include audio-visual programs and opportunities for people with impaired mobility. Visitor and administrative facilities could be included in this zone, including parking areas, paved walkways, restrooms, cultural demonstration areas, and interpretive structures.

## VISITOR USE MANAGEMENT AND VISITOR CAPACITY

General management plans for national park system units, including the Moccasin Bend National Archeological District of Chickamauga and Chattanooga National Military Park, must address visitor use management and visitor capacity. Managing visitor use in national park units is inherently complex and depends not only on the number of visitors, but also on where the visitors go, what they do, and the “footprints” they leave behind. The National Park Service defines visitor use management as the proactive and adaptive process for managing characteristics of visitor use and the natural and managerial setting, using a variety of strategies and tools to achieve and maintain desired resource conditions and visitor experiences. Visitor use characteristics may include amount, type, timing, and distribution of visitor use, including activities and behaviors. In short, visitor use management strives to maximize the benefits of visitor use while meeting resource and experiential protection goals. Visitor capacity, a component of visitor use management, is the maximum amounts and types of visitor use that an area can accommodate while achieving and maintaining desired resource conditions and visitor experiences consistent with the purposes for which the area was established. In managing visitor use, the staff of Moccasin Bend National Archeological District relies on a variety of management tools and strategies. In addition, the ever-changing nature of visitor use requires a deliberate and adaptive approach to visitor use management.

Visitor use management decisions in this general management plan are based on the purpose, significance, special mandates, and management zones associated with the park (NPS 2016a). The purpose, significance, and special mandates define why the park was established and identify the most important resources, values, and visitor opportunities that would be protected and provided. The management zones in each action alternative describe the desired resource conditions and visitor experience. These zones, as applied in the alternatives, are consistent with and help the National Park Service achieve its specific purpose, significance, and special mandates. As part of the NPS commitment to implement visitor use management, the park staff would abide by these directives for guiding the types and levels of visitor use that would be accommodated while sustaining the quality of park resources and visitor experience consistent with the purpose of Chickamauga and Chattanooga National Military Park.

In preparing a general management plan, the requirement to identify visitor capacities is initially addressed by understanding current levels of visitor use and baseline conditions for resources and visitor experiences. Then, the planning team develops qualitative statements about the types and levels of visitor use that could be accommodated while achieving and maintaining desired conditions consistent with the purposes of the area. The GMP also addresses other major elements of visitor use management, including indicators and thresholds to assess desired conditions. Given the general nature of general management plans, visitor capacity for all areas of a national park system unit is typically addressed in subsequent implementation level planning processes (Interagency Visitor Use Management Council 2016).

In addressing visitor use management, the National Park Service identifies visitor-caused issues and impacts and then develops indicators, thresholds, and potential future management strategies allocated by management zones. Indicators are specific resource or experiential attributes that can be measured to track changes in conditions so that progress toward achieving and maintaining desired conditions can be assessed. Thresholds are minimally acceptable conditions associated with each indicator. The indicators and thresholds are important feedback mechanisms that help the National Park Service make decisions about managing all aspects of visitor use to ensure that desired conditions are being attained and that park legislative and policy mandates are being fulfilled. Management strategies include the actions that would be taken to achieve desired conditions and



related legislative and policy mandates. The basis for visitor use management comprises the qualitative descriptions of desired resource conditions, visitor experience opportunities, and general levels of development that are described in the management zones. Visitor use management is an iterative, ongoing process that includes the following steps:

1. Prescribe the desired conditions of resources and visitor experience for a given area. These conditions are based on the park's purpose, significance, and fundamental resources and values.
2. After gaining an understanding of visitor-caused issues and impacts, select measurable indicators—either characteristics or conditions—that reflect the status of resource and visitor conditions.
3. Set quantifiable thresholds, or minimally acceptable conditions, against which each indicator is measured.
4. Develop a systematic and periodic monitoring system to measure established indicators.
5. Assess existing conditions, thereby establishing a baseline for future measurements.
6. Assess whether or not a management action must be taken because existing conditions are determined to be close to the thresholds and then taking the action.
7. Continue to monitor conditions to determine the effectiveness of ongoing or new management actions.
8. Adapt by revising management strategies when indicated.

These components provide a defensible process for taking informed action to manage elements of visitor use based on desired conditions in a park unit.

The GMP alternatives for the Moccasin Bend unit were developed under a broad conceptual framework intended to highlight potential differences among competing sets of resource conditions and visitor experience. These alternatives focus on what resource conditions and visitor use and experience should be included at the park rather than on details of how these conditions, uses, and experiences should be achieved. Thus, the alternatives do not include many details on how actions related to resource or visitor use management would be implemented. Although this GMP amendment has taken the first steps outlined in the visitor use management decision-making process, the identification of specific indicators, thresholds, and management actions would occur during implementation-level planning.

This GMP amendment addresses visitor use management and visitor capacity in the following ways:

- The basis for visitor use management decision making is described in the section on management zones in which desired resource conditions, visitor experience opportunities, and general levels of development and management for different areas of the unit are outlined.
- The plan identifies the existing and potential resource and visitor experience concerns in the unit that serve as the basis for considering indicators, thresholds, and management strategies.
- The plan identifies issues and impacts that could contribute to potential indicators that could be monitored as needed in the future to help identify, if desired, conditions that are not being met due to unacceptable impacts of public use. In the future, when unit staff select an indicator to monitor, a corresponding threshold would be identified.
- The plan also suggests a general range of actions under alternatives B and C that could be taken, as needed, to avoid and minimize unacceptable impacts from public use.

- The last steps of visitor use management decision making, which would continue indefinitely outside of this GMP amendment, are monitoring of the unit’s indicators and thresholds and taking management actions to minimize impacts when necessary.

The visitor use management program described here could be implemented as part of a future planning effort. If new management strategies are needed in the future that require additional planning and compliance, then those proposed visitor use policy changes would be available for public review and comment.

Figures 1 and 2 further illustrate the visitor use management decision-making process.

**Figure 1. Overview of the Visitor Use Management Framework**

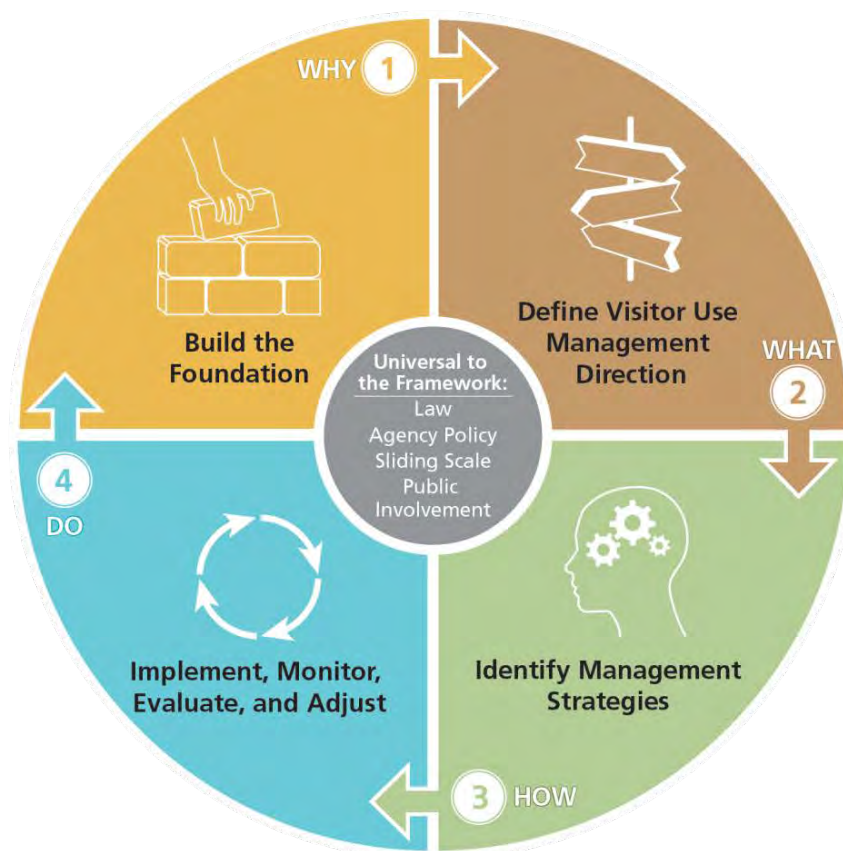
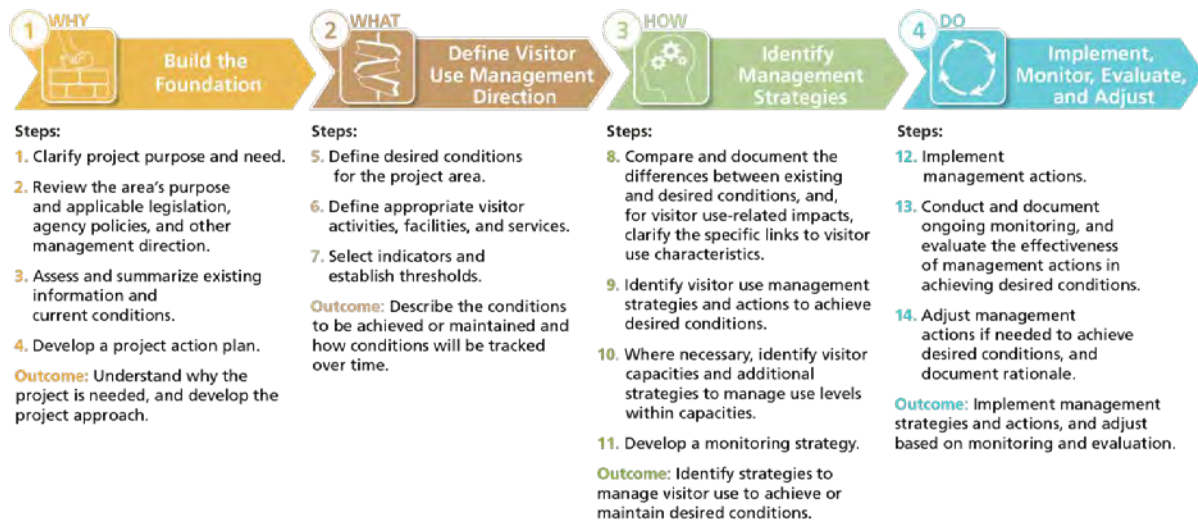


Figure 2. Elements and steps of the Visitor Use Management Framework



## OVERVIEW OF CURRENT AND POTENTIAL USE-RELATED ISSUES AND IMPACTS

The following visitor use related issues and impacts were identified during the planning process:

- Looting, littering, and other illegal activities (e.g., damage to and vandalism of park signs and sites) impact cultural and natural resources.
- Visitor use may inadvertently damage cultural and natural resources.
- Visitor use affects some native vegetation and soils at Moccasin Bend. Off-trail hiking and social trailing impact park resources.
- Off-highway vehicle use occurs in areas where it is not permitted. Bicycle use also occurs in areas where it is not permitted such as on non-multiuse trails.
- Metal detecting occurs at other park sites and could become an issue at Moccasin Bend.
- Poaching of wildlife has been an issue at Moccasin Bend.
- Visitor safety is an issue at Moccasin Bend because of the lack of signs and visitor amenities such as orientation information. In addition, after-hours visitor use of Moccasin Bend creates concern for visitor safety.

## POTENTIAL VISITOR USE MANAGEMENT INDICATORS AND RELATED MANAGEMENT ACTIONS

Based on some of the most pressing existing or potential visitor-related issues and impacts in the Moccasin Bend unit, the following section outlines possible resource and visitor experience indicators that could be monitored to assess those impacts. The applicability of each indicator to management zones could be identified as more information is gathered. Potential management actions are identified for each indicator but may not include all management actions that could be considered in the future. Also, some management actions may not be appropriate in all zones. The final selection of indicators and thresholds for monitoring purposes or the implementation of any management actions that affect use will comply with the National Environmental Policy Act, the National Historic Preservation Act, and other laws, regulations, and policies, as appropriate. Potential visitor use management indicators and possible management strategies for that indicator may include:

- **+Looting, Littering, and Other Illegal Activities**
  - Education and outreach to educate visitors about the impacts of looting, littering and other illegal activities
  - Increase presence of NPS staff including law enforcement or ranger patrols
  - Recruit volunteer Trail Ambassadors to assist with visitor safety, resource protection, maintenance, and interpretation and education efforts
  - Install cameras at sites
  - Prioritize documentation of visitation in high-priority areas
  - Train maintenance and law enforcement staff on Archaeological Resources Protection and Native American Graves and Repatriation Acts
  - Install trash and recycling receptacles at trail heads and recreation areas
  - Limit access
  - Provide signage and education on appropriate behaviors and use of the park
  - Continue immediate treatment of impacts
  - Investigate and report all incidents of illegal activities to establish an accurate incident count and take appropriate law enforcement action
  
- **Area of Disturbance to Vegetation or Number/Density of User-Created Trails**
  - Provide directional trail signs and signs encouraging visitors to stay on trails
  - Provide education and awareness on low-impact practices and the importance of staying on trails
  - Promptly close visitor-created trails and roads
  - Use other mitigation techniques as appropriate
  
- **Off-Highway Vehicle Use in Areas Where Not Permitted**
  - Increase signage about prohibited activities and enhance interpretation and education about why these management strategies are in place
  - Increase enforcement of off-road and off-trail travel
  - Promptly close visitor-created trails and roads
  - Add additional barriers in known problem areas (i.e., tank traps, gates, and large boulders)
  - Restore current areas of damage and tracks over time
  
- **Number of Complaints Regarding User Conflicts**
  - Increase signage, interpretation, and education to increase awareness and enhance understanding of trail etiquette
  - Separate trail uses
  - Redesign trails to accommodate multiple user groups
  - Limit a particular type of use
  - Increase NPS presence, including law enforcement or ranger patrols
  - Recruit volunteer Trail Ambassadors to assist with visitor safety, resource protection, maintenance, and interpretation and education efforts
  - Install visitor suggestion and feedback boxes at specific sites and provide visitors with comment cards
  
- **Metal Detecting**
  - Take appropriate law enforcement action
  - Provide visitor education

- Improve signs in the park to provide information about prohibited visitor uses and to enhance interpretation and education about why management strategies are in place
- Use community outreach
  
- **Poaching of Wildlife**
  - Take appropriate law enforcement action
  - Provide visitor education
  - Use community outreach
  - Increase NPS staff presence including law enforcement or ranger patrols
  - Investigate and report all incidents of poaching to establish an accurate incident count
  
- **Availability and Access to Information**
  - Increase NPS staff presence to provide roving ranger support and increase visitor contacts
  - Provide park and safety information to visitors that is accessible outside of park hours
  - Increase information on line
  - Improve signs in the park to provide orientation, wayfinding, and safety information
  
- **After-Hours Use of Park Facilities**
  - Increase NPS staff presence including law enforcement or ranger patrols
  - Provide park and safety information to visitors that is accessible outside of park hours
  - Increase surveillance
  - Limit after-hours access
  - Close sites
  - Take appropriate law enforcement action
  - Provide visitor education
  - Post signs

## ALTERNATIVES

### ALTERNATIVE A (NO-ACTION ALTERNATIVE)

#### Concept and General Management Strategies

Alternative A provides a baseline for evaluating the changes and impacts presented in the other alternatives. Under the no-action alternative, the National Park Service would continue its current management of the Moccasin Bend National Archeological District unit. No new access opportunities would be provided. The only actions that would occur are those that are already existing, planned, or funded. The visitor experience would continue to be mostly self-guided.

Visitors would continue to access Moccasin Bend National Archeological District unit by vehicle, bicycle, and foot. The present type and level of recreational visitor activities would continue. Please see map 4.

#### Management of Specific Areas

**Gateway Site.** The Gateway site would continue to be opened only for special events and programs. No additional visitor orientation is planned for the Gateway site under the no-action alternative. The current parking area along the road near the fence would be maintained. Signage for health and safety would be maintained.

**Brown's Ferry Federal Road Property.** Opportunities for self-guided tours and occasional ranger-led tours would continue at the Brown's Ferry Federal Road property. Existing trails, wayside exhibits, viewsheds, and parking area (0.6 miles from the river) would be maintained.

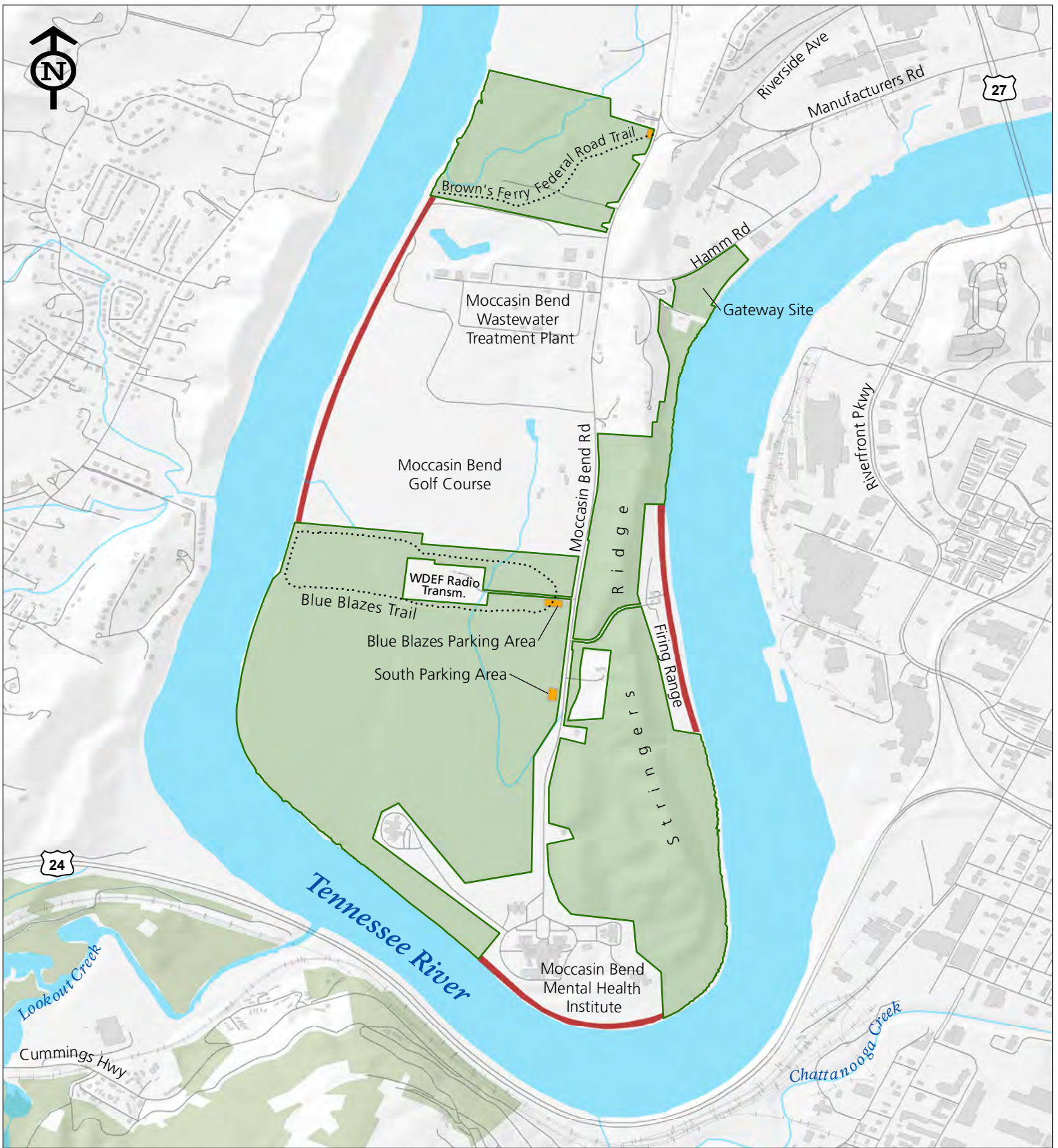
**Riverside Easements.** The National Park Service would not exercise easements for the development of trails.

**Blue Blazes Trail.** The current trail and parking area would be maintained and remain a recreational hiking trail. Ranger-led and self-guided access would continue, and there would be no wayside exhibits.

**Archeological Sites on the West Side.** Ranger-led interpretive tours to the archeological sites from the south parking area would continue.

**Stringers Ridge (Including Civil War Earthworks).** Interpretive sites along the ridgeline between the Gateway site and the Civil War earthworks would remain undeveloped. Limited access to Stringers Ridge would continue to be provided through periodic ranger-led tours, and self-guided access would be permitted on the unmarked, unimproved trail. The earthworks would continue to be preserved. The firing range would not be acquired.





**South Parking Area.** The south parking area would continue to be maintained and the gates opened for special events and programs.



# Map 4 - Moccasin Bend National Archeological District Existing Conditions

*Chickamauga and Chattanooga National Military Park  
Georgia, Tennessee*

### Legend

-  Existing Hiking Trail
-  Easement
-  Parking
-  Park Boundary

0 0.25 0.5 Miles

## **Estimated Costs and Staffing**

Identification of costs for this alternative does not guarantee future NPS funding. Project funding may not come all at once; it would likely take many years to secure and may be obtained partly through partners, donations, or other non-NPS federal sources. Although the National Park Service hopes to secure this funding, there may not be sufficient funding to achieve all desired conditions in this management plan.

Costs are broken down into two categories: annual operations costs and one-time costs. Annual costs for alternative A include those associated with ongoing maintenance, utilities, staffing, supplies, and materials. One-time costs for alternative A include those associated with projects already approved and fully funded.

The cost estimates below (in 2016 dollars) are intended only to indicate a general relative comparison of costs among the alternatives and are not to be used for budgeting purposes.

**Annual Costs.** Existing annual operating costs for the park would not change under alternative A. Employee salaries and benefits make up a large part of the park's annual operating costs. Under this alternative, the park's annual operating budget would remain at \$3,406,000.

**One-Time Costs.** Currently there are no one-time costs associated with alternative A.

**NPS Staffing.** The current number of full-time equivalent (FTE) employees would not change under alternative A. Volunteers and partnerships would continue to be key contributors to NPS operations.

## **ALTERNATIVE B**

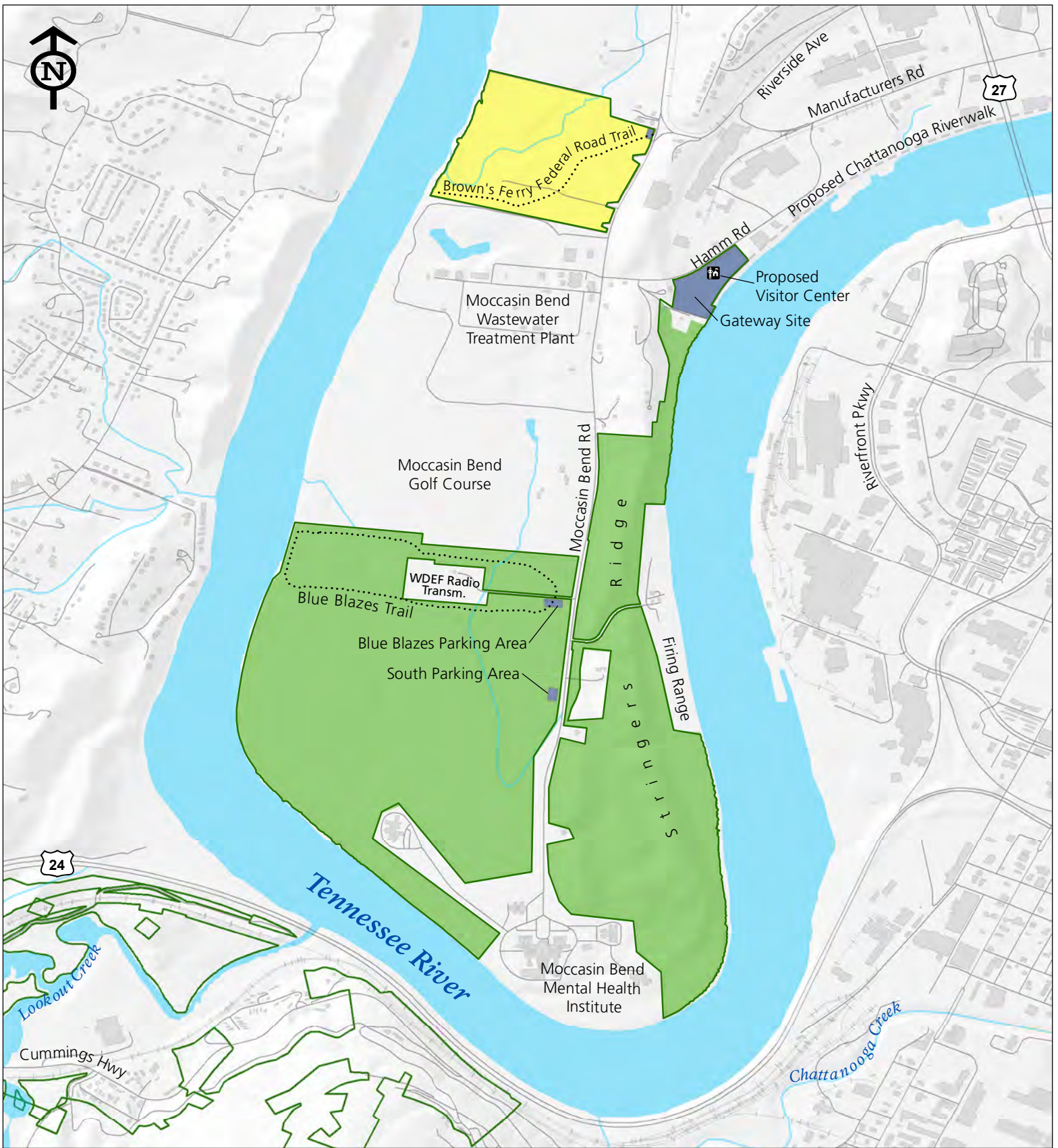
### **Concept and General Management Strategies**

Alternative B would provide visitors with opportunities to learn about the unit's resources at a visitor center and through ranger-guided tours and cultural demonstrations. Alternative B emphasizes cultural protection zones to ensure protection of historic and archeological sites. Visitor access would be strictly managed to protect these sites, but visitors would continue to be provided limited opportunities to experience and learn about these cultural resources.

The visitor experience would be directed primarily through on-site programming. Visitors would be able to experience sites in Moccasin Bend through self-guided tours and ranger-led programs in the northern part of the Moccasin Bend unit at the Gateway site and Brown's Ferry Federal Road property. Access to the southern part of the Moccasin Bend unit, such as the Civil War earthworks on Stringers Ridge, the west side archeological sites, and the Blue Blazes Trail would be restricted to ranger-led experiences to protect archeological resources.

This alternative most closely follows the treatment recommendations of the cultural landscape report (NPS 2014a). Please see map 5.





**Map 5 - Moccasin Bend  
National Archeological District  
Alternative B**

*Chickamauga and Chattanooga  
National Military Park  
Georgia, Tennessee*

**Legend**

- Proposed Visitor Center
- Existing Hiking Trail
- Park Boundary

**Alternative B Zones**

- Cultural Interpretation Zone
- Cultural Protection Zone
- Visitor Services Zone

## Management of Specific Areas

**Gateway Site.** A staffed visitor center with museum exhibits, film, and interpretive messaging would be provided at the Gateway site. A formal parking area would be developed, and ways to incorporate parking for alternative forms of transportation would be considered. The visitor center grounds would be gated when the park is closed.

**Brown's Ferry Federal Road Property.** Opportunities for self-guided and ranger-led tours would continue to be provided at the Brown's Ferry Federal Road property. Existing trails, wayside exhibits, viewsheds, and parking area (0.6 miles from the river) would be maintained. The National Park Service would seek to acquire an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility to allow visitor access to the historical route of the Brown's Ferry Federal Road and for the National Park Service to access and interpret the historic Brown's Ferry site.

**Riverside Easements.** Same as alternative A, the National Park Service would not exercise easements for the development of trails.

**Blue Blazes Trail.** The Blue Blazes Trail would be closed to self-guided access but remain open for scheduled ranger-led tours. Consistent with the recommendation in the cultural landscape report, the road to the Blue Blazes trailhead would be gated to support resource protection efforts.

**Archeological Sites on the West Side.** Public access to archeological sites on the west side of Moccasin Bend would be limited to scheduled ranger-led tours from the south parking area.

**Stringers Ridge (Including Civil War Earthworks).** Access to Stringers Ridge would be limited to ranger-led tours because of the lack of waysides providing guidance on the proper use of the area. As recommended in the cultural landscape report (NPS 2014a), Stringers Ridge would be closed to self-guided visitor access to protect resources. Viewsheds to key battle points of Downtown Chattanooga, Lookout Mountain, and Bald Hills would be improved as recommended in the cultural landscape report. The historic road trace would be maintained and the earthworks would continue to be preserved. The firing range would not be acquired.

**South Parking Area.** The gate to the south parking area would be opened only for special events and programs.

## Estimated Costs and Staffing

Identification of costs for this alternative does not guarantee future NPS funding. Project funding may not come all at once; it would likely take many years to secure and may be obtained partly through partners, donations, or other non-NPS federal sources. Although the National Park Service hopes to secure this funding, there may not be sufficient funding to achieve all desired conditions in this management plan.

Costs are broken down into two categories: annual operations costs and one-time costs. Annual costs for alternative B include those associated with ongoing maintenance, utilities, staffing, supplies, and materials. One-time costs for alternative B include new construction and nonfacility costs such as comprehensive plans.

The cost estimates below (in 2016 dollars) are intended only to indicate a general relative comparison of costs among the alternatives and are not to be used for budgeting purposes.

**Annual Costs.** Under alternative B, existing annual operating costs for the park would increase to \$4,231,000. This increase comprises employee salaries and benefits as well as recurring costs associated with facilities operations.

**One-Time Costs.** Alternative B would require estimated one-time costs of \$3,310,000. These include construction of a visitor facility and storage facility, new trails, and improved parking areas. In addition, these costs would improve viewsheds and afford development of a comprehensive interpretive plan and wayside exhibit plan for the park, development of an interpretive film for the archeological district, and development and installation of wayside exhibits throughout the archeological district.

**NPS Staffing.** The additional NPS staffing level needed to implement alternative B would be the equivalent of 13 full-time staff members: 11 permanent full-time employees and 4 half-time temporary/seasonal employees. The additional employees would include 1 archeologist, 2 administrative support staff, 2 law enforcement rangers, 2 permanent maintenance workers, 2 seasonal maintenance workers, 4 permanent interpreters, and 2 seasonal interpreters. The additional employees would staff and support the new visitor center and would provide visitor and resource protection in the archeological district. The military park has 10 major off-site locations across 250 square miles that require staff presence and maintenance. With the current limited staffing level, this geographic spread already presents a challenge to personnel coverage of the park and required maintenance activities. The additional employees would allow for efficiencies in park operations in terms of daily personnel mobilization, coordination of maintenance activities, and greater coverage overall of visitor programs as well as resources, visitors, and staff safety. Volunteers and partnerships would continue to be key contributors to NPS operations.

## **ALTERNATIVE C (NPS-PREFERRED ALTERNATIVE)**

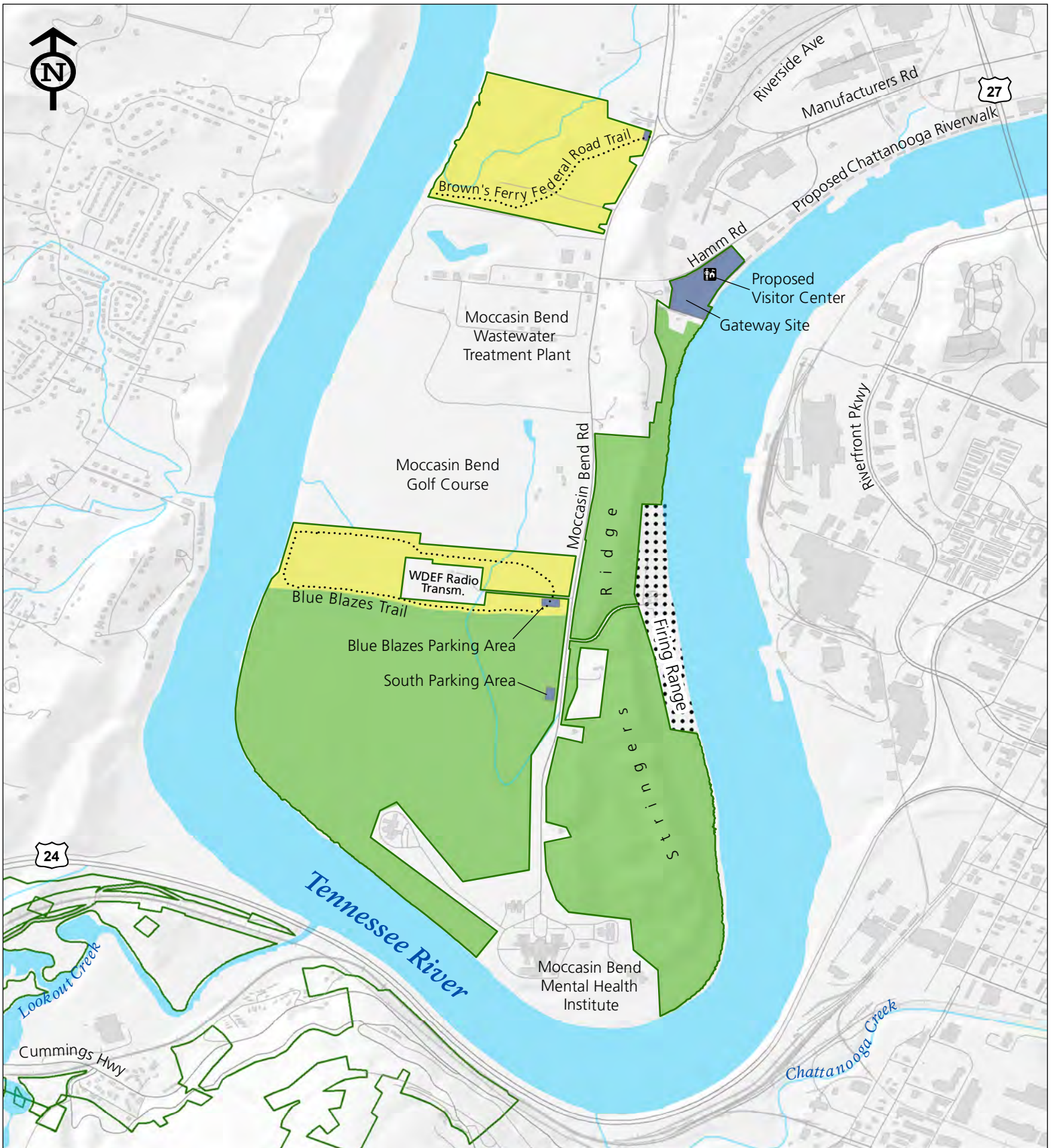
### **Concept and General Management Strategies**

Alternative C is the proposed action and the NPS preferred alternative and would provide visitors with opportunities to learn about the park resources at a visitor center and through self-guided experiences that would include outdoor interpretive exhibits and cultural programming. Interpretation and public access would be enhanced to better tell the story of Moccasin Bend National Archeological District. Alternative C includes slightly more development than alternative B and less cultural resource protection in the northern part of Stringers Ridge. Under alternative C, the National Park Service would acquire the firing range. Please see maps 6 and 7.

### **Management of Specific Areas**

**Gateway Site.** The Gateway site would include a staffed visitor center with museum exhibits, a film, and interpretive messaging. A formal parking area would be constructed and ways to incorporate parking for alternative forms of transportation would be considered. The visitor center grounds would be gated when the park is closed.

**Brown's Ferry Federal Road Property.** Opportunities for self-guided and ranger-led tours would continue to be provided at the Brown's Ferry Federal Road property. Existing trails, wayside exhibits, viewsheds, and parking area (0.6 miles from the river) would be maintained. The National Park Service would seek to acquire an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility to allow visitor access to the historical route of the Brown's Ferry Federal Road and for the National Park Service to access and interpret the historic Brown's Ferry site.



**Map 6 - Moccasin Bend  
National Archeological District  
Alternative C - Preferred Alternative  
Before Acquisition of Firing Range**

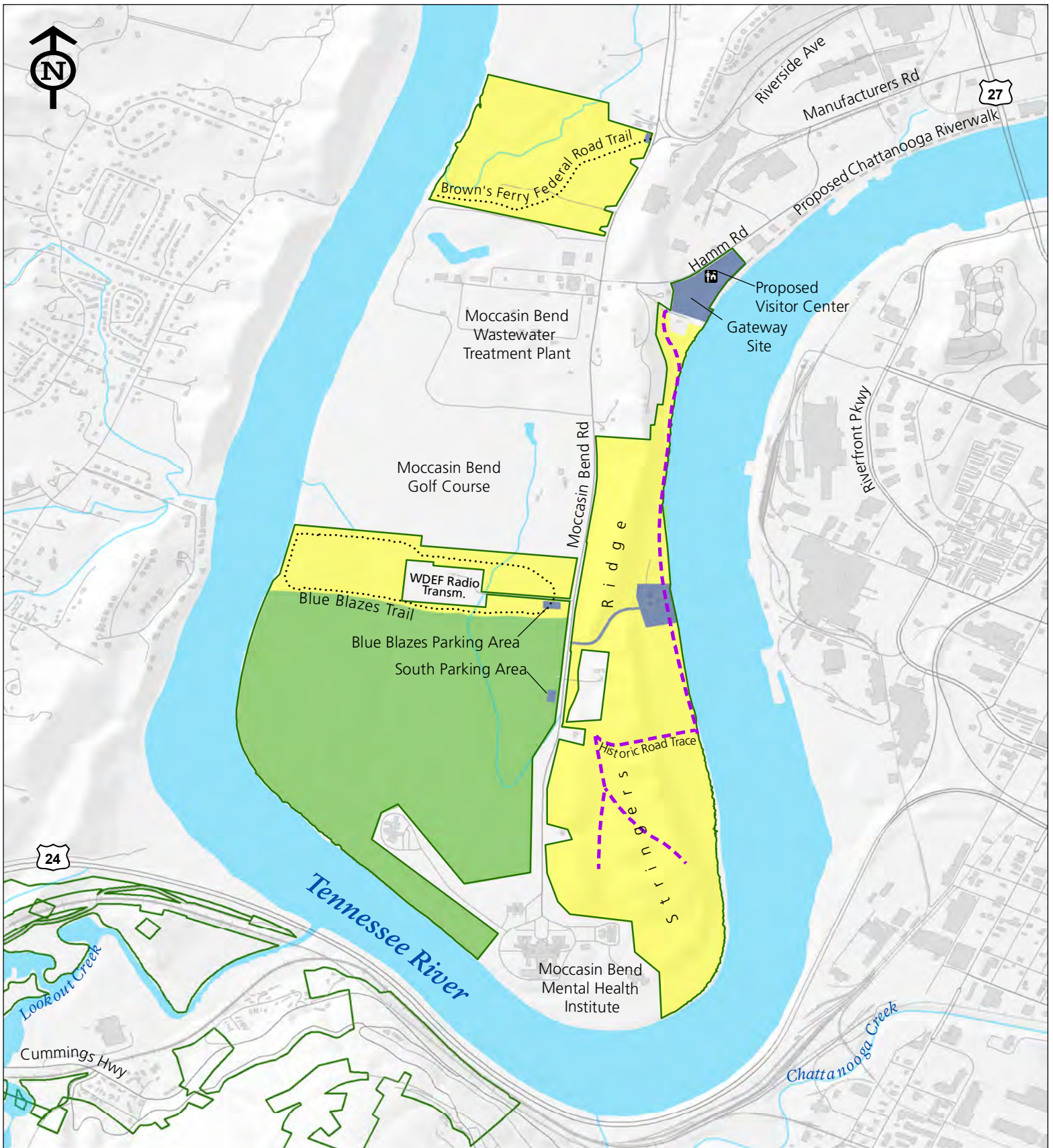
*Chickamauga and Chattanooga  
National Military Park  
Georgia, Tennessee*

**Legend**

- Proposed Visitor Center
- Existing Hiking Trail
- Recommended Acquisition
- Park Boundary

**Alternative C Zones**

- Cultural Interpretation Zone
- Cultural Protection Zone
- Visitor Services Zone



**Map 7 - Moccasin Bend  
National Archeological District  
Alternative C - Preferred Alternative  
After Acquisition of Firing Range**

*Chickamauga and Chattanooga  
National Military Park  
Georgia, Tennessee*

**Legend**

- Proposed Visitor Center
- Existing Hiking Trail
- Proposed Hiking Trail
- Park Boundary

**Alternative C Zones**

- Cultural Interpretation Zone
- Cultural Protection Zone
- Visitor Services Zone

**Riverside Easements.** Although the National Park Service would not pursue easements for trails at this time, once the National Park Service assumed ownership of the firing range a riverfront hiking trail would be developed to connect the Gateway site and the southern end of Stringers Ridge. Wayside exhibits along the trail would enhance interpretive and educational opportunities for visitors.

**Blue Blazes Trail.** Regular ranger-led tours, self-guided tours, and waysides would be provided at the Blue Blazes Trail.

**Archeological Sites on the West Side.** Scheduled ranger-led tours would continue to be offered from the south parking area.

**Stringers Ridge (Including Civil War Earthworks).** Stringers Ridge would be open to self-guided access. A self-guided trail connection from the riverfront hiking trail to the Civil War earthworks would be developed after acquisition of the firing range. Wayside exhibits to enhance interpretive and educational opportunities for visitors would be provided. The existing boat ramp would be replaced and used for administrative purposes.

**South Parking Area.** The gate at the south parking area would be opened for special events and programs, and the parking area would be maintained.

### **Estimated Costs and Staffing**

Identification of costs for this alternative does not guarantee future NPS funding. Project funding may not come all at once; it would likely take many years to secure and may be obtained partly through partners, donations, or other non-NPS federal sources. Although the National Park Service hopes to secure this funding, there may not be sufficient funding to achieve all desired conditions in this management plan.

Costs are broken down into two categories: annual operations costs and one-time costs. Annual costs for alternative C include those associated with ongoing maintenance, utilities, staffing, supplies, and materials.

The cost estimates below (in 2016 dollars) are intended only to indicate a general relative comparison of costs among the alternatives and are not to be used for budgeting purposes.

**Annual Costs.** Under alternative C, annual operating costs for the park would increase to \$4,174,000. The increase comprises employee salaries and benefits as well as recurring costs associated with facilities operations.

**One-Time Costs.** Alternative C would require estimated one-time costs of \$3,560,000. These costs include construction of a visitor center and storage facility, new trails, improved parking areas, and an improved boat ramp at the current firing range. In addition, these costs would improve viewsheds and afford development of a comprehensive interpretive plan and wayside exhibit plan for the park, development of an interpretative film for the archeological district, and development and installation of wayside exhibits throughout the archeological district.

**NPS Staffing.** Additional NPS staffing level needed to implement alternative B would be the equivalent of 12.5 full-time staff members: 10 permanent full-time employees and 5 half-time temporary/seasonal employees. These 15 additional employees include 1 archeologist, 2 administrative support staff, 1 permanent law enforcement ranger, 2 seasonal law enforcement

rangers, 2 permanent maintenance workers, 2 seasonal maintenance workers, 4 permanent interpreters, and 1 seasonal interpreter. The additional employees would staff and support the new visitor facilities (visitor center, trails) and provide visitor and resource protection in the archeological district. The military park has 10 major off-site locations across 250 square miles that require staff presence and maintenance. With the current limited staffing level, this geographic spread already presents a challenge to personnel coverage of the park and required maintenance activities. The additional employees would allow for efficiencies in park operations in terms of daily personnel mobilization, coordination of maintenance activities, and greater coverage overall of visitor programs as well as resources, visitors and staff safety. Volunteers and partnerships would continue to be key contributors to NPS operations.

## COMPARISON OF ESTIMATED COSTS AND STAFFING NEEDS FOR EACH ALTERNATIVE

NPS decision-makers and the public must consider an overall picture of the complete costs and advantages of various alternatives, including the no-action alternative, to make wise planning and management decisions for Chickamauga and Chattanooga National Military Park.

The presentation of costs within a general management plan is applied to the types and general intensities of development. The following applies to costs presented within this GMP amendment:

- Costs are presented as estimates and are not appropriate for budgeting purposes.
- Actual costs would be determined at the beginning of each project and would take into consideration the design of facilities, identification of detailed resource protection needs, and changing visitor expectations.
- Approval of the GMP amendment does not guarantee funding or staffing for proposed actions.
- Project funding would likely take many years to secure and may be provided in part by nonfederal sources including partnerships and/or cooperating with entities such as friends groups that may be able to assist in supporting implementation of construction projects outlined in this GMP amendment.
- Some proposals may not be funded within the life of this GMP amendment and full implementation may occur many years into the future.
- Costs were estimated in 2016 and intended for comparison among the alternatives (table 1).

**Table 1. Comparison of Costs and Staffing Needs for the Alternatives**

	<b>Alternative A (no-action alternative)</b>	<b>Alternative B</b>	<b>Alternative C (NPS-preferred alternative)</b>
Existing annual operational costs (ONPS)	\$3,406,000	\$3,406,000	\$3,406,000
Additional FTE costs	0	\$790,000	\$730,000
Additional FTE	None	+13	+12.5
Additional recurring facilities operational costs	\$0	\$35,000	\$38,000
<b>Total annual operational costs</b>	<b>\$3,406,000</b>	<b>\$4,231,000</b>	<b>\$4,174,000</b>
Facility costs	\$0	\$2,430,000	\$2,680,000
Nonfacility costs <sup>1</sup>	\$0	\$880,000	\$880,000
<b>Total one-time costs</b>	<b>\$0</b>	<b>\$3,310,000</b>	<b>\$3,560,000</b>

<sup>1</sup>Viewshed improvements, development of comprehensive interpretive plan and wayside exhibit plan, and interpretive film.



## FUTURE STUDIES AND IMPLEMENTATION PLANS

After completion and approval of a GMP amendment for the Moccasin Bend National Archeological District, more detailed studies and plans could be needed before specific actions were implemented. Some of these plans would contribute to management of Moccasin Bend but would not necessarily be required to implement particular actions discussed in this GMP amendment. As required, environmental compliance (adherence to the National Environmental Policy Act, National Historic Preservation Act, and other relevant laws and policies) and public involvement would be conducted. A comprehensive initial assessment of future planning and study needs was conducted during preparation of the foundation document for Chickamauga and Chattanooga National Military Park (NPS 2016a). The plans and studies that were identified as high priority and that also apply to Moccasin Bend are described here. Park staff would coordinate initiation of future planning needs based on the most pressing needs and considering critical resource protection requirements, funding availability, and other management priorities. These additional plans and studies include the information in table 2.

**Table 2. Needed Future Studies and Implementation Plans**

<b>Planning Need</b>	<b>Rationale</b>
Bicycle use management plan	This plan would address bicycle use throughout the park including in the Moccasin Bend National Archeological District.
Vegetation management plan	This plan would identify and map the important cultural landscape areas within the park and provide guidance for maintaining or improving those landscapes. It would be an operational plan for use by the facilities division to implement treatment recommendations from the cultural landscape reports for Cravens House, Moccasin Bend, Chickamauga Battlefield, and Point Park.
Viewshed management plan	This plan would identify and map all the important views both within and outside the park and provide guidance for maintaining or improving those views. Viewshed management treatments would be documented to allow for consistent approaches across the park as appropriate. The following areas inside the park would include, but not be limited to, Signal Point, Orchard Knob, DeLong Reservation, and the pathway leading to Ochs Observatory.
Comprehensive trail plan	This plan would consider trail use and management within the park and potential connections to the regional trail system.
Accessibility self-assessment and transition plan update	This plan would complete or follow up on physical accessibility assessments completed for areas throughout the park to identify projects and address programmatic accessibility needs.
Update long-range interpretive plan	An update to the long-range interpretive plan would address visitor use management challenges through communication that complements law enforcement and resource protection efforts.
Resource stewardship strategy	This strategy would focus on natural and cultural resources protection, including hemlock wooly adelgid infestation and adapting to effects of climate change.
Climate change adaptation plan	This plan would comprehensively address the effects of climate change on resources, facilities, and visitor opportunities. The plan would evaluate threats associated with climate change in the park and identify further planning and data needs to guide adaptations to climate change adaptation.
<b>Study</b>	<b>Rationale</b>
Cultural resource condition assessment	This assessment, combined with a natural resource condition assessment, would provide the data needed to effectively begin the resource stewardship strategy planning process.
Baseline archeological surveys	Required Level I archeological surveys and testing should be undertaken throughout the national historic landmark district to provide more comprehensive identification, assessment, and delineation of archeological resources.
Bicycle use study	A study of current bicycle use and use patterns, including parking and facility use and visitor expectations for bicycling within the park, is needed to guide development of the bicycle use management plan.

Administrative history	The park's administrative history should be updated to document management and administrative challenges and events (including new legislation, such as the 2003 creation of Moccasin Bend National Archeological District and subsequent Lookout Mountain Battlefield addition).
Archeological overview and assessment	Archeological surveys and testing conducted throughout the national historic landmark district would contribute to an update of the overview and assessment to meet current standards.
Ethnographic overview and assessment	Baseline ethnographic information for Moccasin Bend would be acquired through research and tribal consultations to assist identification, assessment of significance, and management of culturally important resources.
Ethnographic landscape inventory	Identification and evaluation of the character-defining features of a potential ethnographic landscape on Moccasin Bend would contribute to comprehensive understanding of culturally important landscape elements.
Oral histories	Oral histories provided by tribal elders and others with traditional knowledge of Moccasin Bend resources and history would assist park management and interpretation.
Climate change vulnerability assessment	The assessment would determine the vulnerability of natural and cultural resources and assets to climate change.

## MITIGATION MEASURES COMMON TO ALL ACTION ALTERNATIVES

In the NPS Organic Act of 1916 Congress charged the National Park Service with managing the lands under its stewardship “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” As a result, the National Park Service routinely evaluates and implements mitigation measures whenever conditions occur that could adversely affect the sustainability of national park system resources.

To ensure that implementation of the action alternatives protects unimpaired natural and cultural resources and the quality of visitor experience, a consistent set of mitigating measures would be applied to actions proposed in this GMP amendment. The National Park Service would prepare appropriate environmental review, as required by the National Environmental Policy Act, National Historic Preservation Act, and other relevant legislation, for these future actions. As part of this environmental review, the National Park Service would avoid, minimize, and mitigate adverse impacts when practicable. The implementation of a compliance-monitoring program could be considered to stay within the parameters of compliance documents required by law and other requirements. The compliance monitoring program would oversee these mitigation measures and would include reporting protocols.

The following mitigation measures and best management practices could be applied to avoid or minimize potential impacts from implementation of either action alternative.

### CULTURAL RESOURCES

The National Park Service would preserve and protect, to the greatest extent possible, resources that reflect human occupation and historical events associated with Moccasin Bend National Archeological District. Specific mitigating measures include the following:

- To better inform park management decisions in efforts to avoid impacts on significant cultural resources, park staff would continue to develop inventories for and oversee research regarding archeological, historic, and ethnographic resources to better understand and manage those resources, including cultural landscapes. Park staff would conduct any needed archeological or other resource-specific surveys and National Register of Historic Places evaluations and identify recommended treatments. The results of these efforts would be incorporated into comprehensive planning and resource assessments, as well as site-specific planning, mitigation, and environmental analysis.
- Should the decision be made to store or display museum objects and artifacts in the park, museum collections would be acquired, accessioned, and cataloged, preserved, protected, and made available for access and use according to NPS standards and guidelines. To further preservation objectives and to avoid adverse impacts, known archeological sites would be routinely monitored to assess and document the effects of natural processes and human activities on those resources. Archeological resources would be left undisturbed and preserved in a stable condition to prevent degradation and loss of research value unless intervention could be justified based on compelling research, interpretation, site protection, or park development needs. Recovered archeological materials and associated records would be treated in accordance with NPS *Management Policies 2006*, NPS *Museum Handbook*, Director’s Order 24: *NPS Museum Collections Management*, and 36 CFR Part 79.
- As appropriate, archeological surveys or monitoring would precede any ground disturbance. Significant archeological resources would be avoided to the greatest extent possible during

construction. If such resources could not be avoided, an appropriate mitigation strategy (e.g., excavation, recordation, and mapping of cultural remains prior to disturbance to ensure that important archeological data are recovered and documented) would be developed in consultation with the Tennessee Historical Commission (state historic preservation office) and associated American Indian tribes.

- If, during construction, previously unknown archeological resources were discovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented. If the resources could not be preserved in situ, an appropriate mitigation strategy would be developed. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001) would be followed. If non-Indian human remains were discovered, standard reporting procedures to notify appropriate authorities would be followed, as well as all applicable federal, state, and local laws.
- All projects with the potential for ground disturbance would undergo site-specific planning and compliance procedures. For archeological resources, construction projects and designed facilities would be in previously disturbed or existing developed areas. Adverse impacts on archeological resources would be avoided to the extent possible in accordance with *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*.
- To minimize visual and auditory intrusions on cultural resources from modern development, screening or sensitive designs compatible with historic resources and cultural landscapes would be used and would not intrude on ethnographic resources. If adverse impacts could not be avoided, impacts would be mitigated through a consultation process with all interested parties.
- The National Park Service would consult with associated American Indian tribes to develop and accomplish park programs in a way that respects the beliefs, traditions, and other cultural values of the tribes that have ancestral ties to park lands. The National Park Service recognizes the past and present connections of associated tribes with park lands and that potential resources, places, and traces of tribal use are important parts of the cultural environment to be preserved, protected, and interpreted as appropriate.
- Through the park's interpretive programs, visitors would be encouraged to respect and leave undisturbed any inadvertently encountered archeological and historical resources.
- The National Park Service would cooperate with partners, park neighbors, and other stakeholders to establish and enforce measures to prevent and reduce human impacts, such as vandalism and looting, on cultural resources.

## NATURAL RESOURCES

To avoid or reduce the potential impacts of construction activities, NPS operations, and visitor use on the Moccasin Bend unit's natural resources, the following measures would be followed.

### General

- Before any construction activity, construction zones would be clearly delineated with stakes or by other means to confine activity to the minimum area required for construction. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities beyond the construction zone.
- Best management practices would be used during construction to minimize impacts on air quality from increased dust or other particulates. These practices could include keeping disturbed soils moist to control dust dispersal.
- Best management practices would be used during construction to minimize soil disturbance and the potential for erosion in the project area. Erosion control methods could include, but not be limited to, filter cloth and silt fencing.
- To avoid introduction of nonnative plant species, no hay bales or other organic material would be used in erosion control measures. Only inorganic materials (e.g., silt fences, sand bags) would be used.
- If a trail is constructed, drainage controls would be installed along the trail to control increased surface water runoff from the trail and to reduce subsequent erosion and sedimentation.
- Signs and, where necessary, physical barriers would be used to minimize the potential for users to veer off trails and damage trailside vegetation and to minimize adverse impacts on vegetation due to maintenance needs.
- Fencing or other means would be used to protect sensitive resources adjacent to construction areas.
- Construction activities would be monitored by resource specialists as needed to reduce and mitigate impacts.
- Construction materials would be kept in work areas, especially if the construction takes place near streams, springs, or natural drainages.

### Air Quality

- Measures to control dust and erosion during construction would be implemented and could include water sprinkling to control dust or otherwise stabilize soils, minimal vegetation clearing, revegetation with native species, covered haul trucks, and speed limits on unpaved roads of the Moccasin Bend unit.
- Emissions from NPS vehicles would be minimized by using the best available technology whenever possible.

- Sustainable designs that reduce energy demands would be employed, thus reducing airborne pollutants.

### **Acoustic Environment and Soundscape**

- Noise abatement measures would be implemented for both construction and ongoing operational activities. These measures could include scheduling that minimizes impacts in noise-sensitive areas, use of the best available noise control techniques wherever feasible, use of hydraulically or electrically powered impact tools where feasible, and locating stationary noise sources as far from sensitive uses as possible.
- Facilities would be located and designed to minimize objectionable noise.
- The idling of motors (power tools, equipment, and vehicles) would be minimized.

### **Soils**

- New facilities would be built on soils suitable for development.
- Best management practices would be used during construction to minimize soil disturbance and the potential for erosion in the project area. To minimize soil erosion on new trails, best management practices could include installing water bars, check dams and retaining walls; contouring to avoid erosion; and minimizing soil disturbance.
- Soil erosion would be minimized by limiting the time that soil is left exposed and by applying other erosion control measures, such as erosion matting, filter cloth, silt fencing, and sedimentation basins in construction areas, to reduce erosion, surface scouring, and discharge to water bodies.

### **Water Resources**

- Fueling of machinery would be conducted only in approved equipment staging areas away from water bodies. Any spills of hazardous materials or fuel would be cleaned up immediately to prevent contamination or discharge into ground or surface waters.
- The National Park Service would comply with applicable state and local regulations to minimize the impacts on water quality associated with wastewater management. Best available technologies would be used.
- Caution would be exercised to protect water resources from activities with the potential to damage water resources, including damage caused by construction equipment, erosion, and siltation. Measures would be taken to keep fill material from escaping work areas, especially near streams, springs, and natural drainages.
- To prevent water pollution during construction, erosion control measures would be used to minimize discharge to water bodies, and construction equipment would be regularly inspected for leaks of fuel, lubricants, and other chemicals.
- Best management practices, such as the use of silt fencing, would be followed to ensure that construction related effects were minimal and to prevent long-term impacts on water quality, wetlands, and aquatic species.

## **Vegetation**

- Areas used by visitors (e.g., trails) would be periodically monitored for signs of native vegetation disturbance and the introduction of invasive plants. To control potential impacts on plants from trail erosion or social trailing, public education, revegetation of disturbed areas with native plants, and installation of erosion control measures and barriers would be used.
- Any plant materials used for revegetation efforts would be native to the park.
- Revegetation plans would be prepared for areas that would be disturbed by construction activities. Revegetation plans should specify such features as seed/plant source, seed and plant mixes, soil preparation, fertilizers, and mulching. Salvage vegetation, rather than new planting or seeding, would be used to any extent possible. Use of nonnative species or genetic materials would be considered only where deemed necessary to maintain a cultural landscape or to prevent severe resource damage and that use would be approved by a natural resource specialist. Restoration activities would be instituted immediately after construction was completed. Monitoring would occur to ensure that revegetation was successful, plantings maintained, and unsuccessful plant materials replaced.
- Where possible, trees removed during construction would be used in trail construction, as mulch, or as other construction material, or would remain on-site as habitat. Wood would not be removed from the area.

## **Nonnative Invasive Plant Species**

- Special attention would be devoted to preventing the spread of noxious weeds and other nonnative plants. Standard measures could include ensuring that construction-related equipment arrives on site free of mud or seed-bearing material, certifying all seeds and straw material as weed-free, using no hay bales or other organic material in erosion control measures, identifying areas of noxious weeds before construction, treating noxious weeds or noxious weed topsoil before construction (e.g., topsoil segregation, storage, herbicide treatment), and revegetating with appropriate native species.
- All construction equipment would be pressure washed to ensure that it is clean and weed-free before entering the park.
- All vehicle parking would be limited to road shoulders, parking areas, or previously disturbed areas.
- Fill, rock, or additional topsoil would be obtained from the project area. If this is not possible, weed-free sources would be required to be obtained from NPS-approved sources outside the park.
- Monitoring and follow-up treatment of nonnative vegetation on revegetated areas would occur for several years following construction. Follow-up treatment could include mechanical, biological, chemical, and additional revegetation treatments.

## **Wildlife**

- Techniques to reduce impacts on wildlife from construction would include construction scheduling; biological monitoring; erosion and sediment control; use of fencing or other

means to protect sensitive resources adjacent to construction; removal of all food-related items or rubbish; topsoil salvage; and revegetation. They also could include specific construction monitoring by resource specialists and treatment and reporting procedures.

- Measures would be taken to reduce the potential for wildlife to scavenge food from humans. Wildlife-proof garbage containers would be required in developed areas including viewpoints, trails, and interpretive waysides. Signs would educate visitors about the need to refrain from feeding wildlife.

### Threatened and Endangered Species

Mitigation actions would occur during regular park operations as well as before, during, and after construction to minimize immediate and long-term impacts on rare, threatened, and endangered species. These actions would vary by specific project and area of the Moccasin Bend unit affected. Many of the mitigation measures for vegetation and wildlife would also benefit rare, threatened, and endangered species by helping to preserve habitat. Mitigation actions specific to rare, threatened, and endangered species would include the following:

- Surveys would be completed before any proposed ground disturbance to ensure that large-flowered skullcap (*Scutellaria montana*) or other state or federally listed plant or mussel species were not present. If any such species were documented in the area, the activity or facility would be modified so it did not affect the species or its habitat.
- To reduce the potential for impacts on the northern long-eared bat, the framework laid out by the US Fish and Wildlife Service, particularly section 4(d), would be followed. For example, actions proposed in this plan would not occur within 0.25 miles of a known hibernaculum or within 150 feet of a known occupied maternity roost tree during pup season.
- Clearing, removing, or thinning trees, including snags, would occur in the winter (November 16–March 31) to minimize the potential for eliminating an occupied roost tree and injuring or killing an Indiana bat (*Myotis sodalis*) and/or a northern long-eared bat (*Myotis septentrionalis*). Potential roost trees would not be cut during the season when the bats are active (April 1–November 15).
- If a summer maternity roost were identified, the surrounding forest and foraging areas within 2.5 miles of the documented maternity roost tree would be maintained in as natural a state as possible (with the exception of some winter tree clearing or thinning as noted above). These areas would be monitored to ensure human disturbance is minimized.
- Forests would be managed to ensure a continual supply of snags and other suitable maternity roost trees.
- The use of herbicides and pesticides would be minimized in forested areas. If necessary, spot treatment would be applied instead of aerial application.
- Viewshed openings would be kept as small, and as few in number, as possible to minimize the amount of tree cutting.
- A bat biologist would accompany park staff or arborist in the field when they identify trees to be cut, trimmed, or topped for viewsheds or trails. The biologist would mark potential bat



roost trees. As many potential roost trees, especially mature hardwoods, would be left as possible or the trees would be trimmed or topped instead of removed.

- Whenever possible, instead of removing a live potential roost tree, a snag would be created. If a live tree must be removed, a snag would be created elsewhere in the forest using a live tree that provides poor bat roosting habitat (i.e., has tight bark).
- Tree cutting would be conducted in such a way as to avoid felling of adjacent trees. For example, if a tree is taller than 10 feet, it would be removed in pieces from the top down. Also, equipment would be maneuvered carefully to avoid striking adjacent trees.
- Each tree removed would be replaced with a newly planted tree of a species that provides loose, exfoliating bark as it matures (e.g., shagbark hickory, shellbark hickory, white oak, American elm).

## **VISITOR USE AND EXPERIENCE**

Past and ongoing monitoring would inform future mitigation measures to avoid impacts on the cultural and natural resources of Moccasin Bend as well as on the visitor experience. These include:

- Monitoring of visitation through various methods such as visitor surveys and transportation data.
- Periodic visitor surveys and data collection to determine visitor use patterns, visitor characteristics, visitor use conflicts, and visitor preferences and satisfaction with visitor opportunities and other programs, services and facilities.
- Documenting and monitoring of law enforcement incidents.
- Resource condition surveys at recreation sites, as needed.
- Proactive addressing of safety measures using signs, bulletin boards, and sharing of safety information during staff interactions with visitors.

Future monitoring would also inform mitigation measures to minimize impacts on the cultural and natural resources of Moccasin Bend as well as the visitor experience. These could include:

- Enhancing ongoing monitoring programs by park staff and partners.
- Implementing measures to reduce adverse effects of construction on visitor experience and safety. Measures may include, but are not limited to, phasing construction, temporary closures, noise abatement, visual screening, providing information to visitors on the purpose and need for construction, and directional signage to help visitors avoid construction activities.
- Using feedback from routine patrols and ranger interactions with visitors and results from other resource monitoring programs to analyze and manage current or future recreational activities and opportunities.

- Developing a visitor education program with consistent messaging on appropriate behaviors to Moccasin Bend. Information could be shared through additional appropriate signage, park staff and volunteer messaging, and printed / visual materials available to visitors throughout the unit.
- Ensuring that facilities, programs, and services of the National Park Service and its partners are accessible to and usable by all people, including those who are disabled. This policy is based on the commitment to provide access to the widest cross-section of the public and to ensure compliance with the Architectural Barriers Act and the Rehabilitation Act.
- Responding to visitor conflicts and incidents using law enforcement protocols. Incidents would be reviewed by safety committees and incident reports generated and dispersed to park staff.

## **ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED**

In developing alternatives for this GMP amendment, a number of actions were considered by the NPS planning team but eliminated from further detailed evaluation because they either did not meet the stated objectives of the general management plan to a large degree, could not be implemented for technical or logistical reasons, were not consistent with the purpose or significance of the park, or were outside the scope of this GMP planning effort. The actions and the reasons why they were dismissed are described below.

### **MULTIUSE TRAIL**

Development of a multiuse trail was considered in the draft alternatives. The longest trail considered would have extended from the Gateway site around the perimeter of Moccasin Bend to the Brown's Ferry Federal Road property. Although there was support for development of the trail, it was dismissed from further consideration because of concerns related to the long-term sustainability of the trail and degree of environmental impact and the associated financial resources necessary to construct and maintain the trail, and important concerns expressed by neighbors and tribes.

The trail would have been located within the 100-year floodplain, and the bank around the peninsula is highly erodible; an estimated one foot of riverbank is lost per year (US Army Corps of Engineers 2009). To protect cultural resources from loss and minimize the potential for looting from exposure, the US Army Corps of Engineers designed three approaches to stabilize 4.5 miles of riverbank on Moccasin Bend. The degree of stabilization required was based on the sensitivity of the resources and the potential for erosion; the most sensitive resources would be protected by the greatest degree of stabilization.

A multiuse trail is a class 5, fully developed trail approximately 8–10 feet wide. To protect this infrastructure, the level of stabilization required for the entire length of the trail would likely be the same as or very similar to the type proposed to protect the most sensitive resources on Moccasin Bend. The stabilization would need to extend the entire length of the trail, approximately 5.1 miles. This level of development in a floodplain is not consistent with National Park Service guidance related to floodplains and facilities siting in relation to natural hazards. For this reason, the trail would have too great an environmental impact to be considered as part of the plan. The additional cost to further stabilize the riverbank and the cost to construct and maintain the trail are not economically feasible in light of current and projected funding levels and NPS priorities.

To complete the trail, the National Park Service would have to exercise easements along the riverbank in areas within the national archeological district but outside the park boundary. The three easements are along the riverbank at the firing range, the Moccasin Bend Mental Health Institute, the Moccasin Bend Golf Course and the Moccasin Bend Wastewater Treatment Plant. Park neighbors, particularly the Moccasin Bend Mental Health Institute, expressed concern about the multiuse trail and its potential impacts on the privacy of their patients and the requisite need to increase security at the facility. During tribal consultation, three tribes also expressed security concerns related to the trail and its proximity to highly sensitive archeological resources. The environmental impacts caused by the construction of the trail and the concerns of park neighbors and tribes make the environmental concerns associated with this action too great to be considered as part of this plan.

## **TENNESSEE RIVER ACCESS AT THE GATEWAY SITE**

The National Park Service considered a public dock that would allow access from Chattanooga along the Tennessee River to the Gateway site. Although there was interest in access from the river, after additional analysis, the planning team identified a number of important concerns. To provide access to the Gateway site from the Tennessee River, the bank would require substantial stabilization and any facilities would need to be designed to withstand the sometimes significant water level fluctuations on the river. It is expected that this would substantially increase the footprint and the cost of providing water access at the Gateway site. As noted in the discussion of the multiuse trail, this level of development in a floodplain is not consistent with National Park Service guidance related to floodplains and facilities siting in relation to natural hazards. For this reason, development to provide access to the Gateway site from the Tennessee River would have too great an environmental impact to be considered as part of the plan. In addition, the increased cost to further stabilize the riverbank and construct and maintain the access facility are not economically feasible in light of current and projected funding levels and NPS priorities.

Some public comment expressed concerns about the ability of small vessels to safely access the Gateway site from the Tennessee River. North of the Gateway site, the area is zoned for industrial use, uses which predates the establishment of the park and relies on access to the Tennessee River by both large and small water vessels. The large barges and watercraft that dock and operate nearby could present a safety hazard for visitors trying to access the Gateway site from the Tennessee River. Safety concerns associated with access to the Gateway site from the Tennessee River cannot be adequately mitigated to be considered technically feasible.

In addition, as noted in chapter 1 of this plan, the purpose of this park is to protect nationally significant resources and values associated with the Civil War Campaign for Chattanooga and 12,000 years of American Indian presence on Moccasin Bend. Development of water access at the Gateway site would not contribute to maintaining the purpose of the park. In addition, because this type of development would also have too great an environmental impact and is not economically feasible, water access is not considered as an alternative element of this management plan.

## **OFF-SITE VISITOR CENTER**

A number of approaches to orient visitors to Moccasin Bend and provide interpretation were considered, including an off-site facility in or near the city of Chattanooga. After public comment and additional analysis, the planning team determined that an off-site facility would not adequately address visitor orientation and site security needs because it would still be necessary to have some form of orientation on-site. To address these challenges, the planning team considered using volunteers to help staff visitor facilities and the possibility of sharing a facility with a municipal or nonprofit entity; however, these approaches did not fully address operational issues discussed in chapter 1 including staffing. Because this action does not meet the purpose and need for the management plan, it was not analyzed in this document.

## **ALTERNATIVE D**

The draft alternative shared in the public meetings held in October 2015 included an alternative D. This alternative included a multiuse trail around the perimeter of the peninsula and an off-site visitor facility. As discussed, the multiuse trail and the off-site visitor facility were not carried forward for further analysis because of concerns expressed during both public comment and analysis by the planning team. Without these two elements, alternative D was so similar to alternative C that there was no value in carrying it forward. Even without alternative D, there is an adequate range of distinct

alternatives to guide future management of Moccasin Bend National Archeological District. Therefore, alternative D was not analyzed in this document.

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# Chapter

# 3

## AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES







## **CHAPTER 3: AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES**

### **INTRODUCTION**

The National Environmental Policy Act requires that any environmental document address the environmental impacts of a proposed federal action, feasible alternatives to that action, and any adverse environmental effects that cannot be avoided if a proposed action is implemented. In this instance, the proposed federal action is adoption of a GMP amendment for the Moccasin Bend National Archeological District. In this chapter the environmental impacts of implementing the three alternatives on cultural resources and visitor use and experience are analyzed. This analysis is the basis for comparing the beneficial and adverse effects of implementing the various alternatives.

Because of the general conceptual nature of the actions described in the alternatives, the impacts of these actions are analyzed in general qualitative terms. Thus, this environmental assessment should be considered a programmatic analysis. If and when site-specific developments or other actions are proposed for implementation subsequent to this GMP amendment, appropriate detailed environmental and cultural compliance documentation would be prepared in accordance with requirements of the National Environmental Policy Act and the National Historic Preservation Act. For the purposes of this analysis, it is assumed that all of the specific actions proposed in the alternatives would occur over the life of the plan.

This chapter begins with a description of the methods and assumptions used for each topic, followed by policies related to cumulative impacts and the projects that comprise the cumulative impact scenario. Then, for each impact topic there is a description of current conditions and expected future conditions, followed immediately by an analysis of the impacts of each alternative. All impact topics are assessed for each alternative.

The analysis of the no-action alternative (continuation of current management) identifies the future conditions in the park if no important changes to facilities or NPS management occur. The two action alternatives are then compared to the no-action alternative to identify the incremental changes in conditions that would occur because of changes in park facilities, uses, and management.

Each alternative discussion also describes cumulative impacts; these are identified when this project is considered in conjunction with other actions occurring within the Moccasin Bend unit or in the region. The discussion of cumulative impacts is followed by a conclusion statement.

### **METHODOLOGY AND ASSUMPTIONS**

#### **Cultural Resources**

In this environmental assessment, impacts on cultural resources from actions proposed by each alternative are described in terms of type (beneficial or adverse), context, and duration consistent with the regulations of the Council on Environmental Quality that implement the National Environmental Policy Act. The impacts on archeological resources and associated cultural landscape features are described in terms of the potential of project undertakings to diminish or protect the integrity, informational potential, and character-defining qualities that contribute to the national significance of the Moccasin Bend Archeological District National Historic Landmark. The archeological resources of Moccasin Bend retain profound cultural associations for many contemporary tribes, and therefore the impacts on ethnographic resources are described in terms of

the potential to diminish or protect the integrity of (and access to) resources and places having particular importance and value to traditionally associated tribes and groups. The impact analysis is primarily qualitative in nature and is based on the knowledge and best professional judgment of planners, resource specialists, tribal consultants, data from park records, and studies of similar actions and impacts as applicable.

The cultural resources impact analysis primarily includes discussion of the extent to which significant archeological and ethnographic resources would be affected by ground disturbance, changes in visitor use, or other actions proposed by the alternatives. Because archeological and associated ethnographic resources are non-renewable and their importance is closely linked to their subsurface stratigraphic context, the possibility for permanent adverse impacts is noted where the informational potential of sites could be irretrievably lost or disturbed.

### **Visitor Use and Experience**

The impact analysis considers various aspects of visitor use and experience at Moccasin Bend National Archeological District in Chickamauga and Chattanooga National Military Park, including visitor experience and visitor safety.

The analysis is primarily qualitative rather than quantitative because of the conceptual nature of the alternatives. Impacts on visitor use and experience were considered the available information. Information considered in the analysis includes the park's annual reporting of visitor use levels to the National Park Service's Public Use Statistics office. The background data were supplemented by information gathered during the planning process for this GMP amendment, including opinions of park visitors and neighbors and information from park staff. The park's recently completed foundation document also informed the impact analysis.

Beneficial impacts would improve visitor experience, whereas adverse impacts would negatively affect visitor experience. Some impacts could be beneficial for some aspects of visitor experience and adverse or neutral for others. A short-term impact would last less than one year and affect only one season's use by visitors. A long-term impact would last more than one year and be more permanent in nature.

### **CUMULATIVE IMPACT SCENARIO**

The Council on Environmental Quality regulations, which implements the National Environmental Policy Act, requires assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts result from the incremental impact of an 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 important actions taking place over a period of time.

Cumulative impacts are considered for both the no-action and action alternatives. They were determined by combining the impacts of the alternatives proposed in this document with the impacts of other past, present, and reasonably foreseeable future actions. Cumulative actions are categorized as past actions, present actions, and reasonably foreseeable future actions that could contribute to cumulative impacts. These identified actions make up the cumulative impact scenario. Plans that are conceptual, focusing on long-term goals and objectives rather than on specific projects that have been funded and approved, have not been included in the cumulative impact scenarios. Actions outside of the park that could conceptually have an impact on visitor experience in the park have also not been included in the analysis.

## **Actions and Projects Inside the Moccasin Bend Unit**

- **Bike Path on Moccasin Bend Road and Hamm Road (and Bike Racks).** The City of Chattanooga's bike implementation plan identifies Moccasin Bend Road as a proposed bike route and Hamm Road as a proposed bike lane. In addition, the city intends to install bike racks in this area. Throughout the city, more than 1,000 miles of bike lanes, bike routes, and greenways are proposed for implementation between 2014 and 2018. Bike share stations exist within easy biking distance to the park. These plans will provide additional bicycling opportunities in areas near the park and throughout the region.
- **Riverbank Stabilization.** On April 20, 2016, the National Park Service and US Army Corps of Engineers updated an interagency agreement to continue riverbank stabilization work. The next phase of this work will stabilize the eroding edge of the Brown's Ferry Federal Road. The total length of riverbank to be protected is about 4.5 miles. In the heel and toe of the peninsula, 1.5 miles of stabilization work has been completed. In this 1.5-mile area, geotextile has been placed and covered with stone between elevations of 630 to 638 feet. Water levels fluctuate within these elevations. For a part of the 1.5 mile portion already stabilized, the bank is protected with stone fill to the top of the bank; in other sections, soil fill and plantings protect the area from the high water line to the top of the bank. The remaining areas of the peninsula are planned for stabilization over the next several years. In these areas, geotextile and stone fill will be placed from the elevation of 630 to 638 feet.
- **Operation of the Chattanooga / Hamilton County Moccasin Bend Firing Range.** The firing range is currently being considered for closure and eventual acquisition by the National Park Service. In accordance with federal law, environmental cleanup of the soil to remove lead would occur before the National Park Service could acquire the property. Existing buildings and infrastructure would likely also be removed in advance of federal ownership. If, on the other hand, the land acquisition is not completed, then the range could continue to operate. The firing range is used on an as-needed basis on any day of the week by the City of Chattanooga Police Department and Hamilton County Sheriff's Department. Some activities that are ongoing at the firing range include pistol range target practice, rifle range target practice, explosive ordinance devise training, K-9 training, and scenario training. Many of the buildings on the firing range are also in use. There is no fence or physical barrier along the boundary between the firing range and NPS property.

## ARCHEOLOGICAL RESOURCES AND CULTURAL LANDSCAPE FEATURES

### AFFECTED ENVIRONMENT

The Moccasin Bend Archeological District National Historic Landmark was designated in 1986 and was previously listed on the National Register of Historic Places in 1984 as a multiple resource area. The 956-acre national historic landmark is in the southern half of Moccasin Bend and contains 18 component sites in an area that witnessed approximately 12,000 years of continuous American Indian use and occupation. It also includes strategic Union Army positions associated with the 1863 Battles for Chattanooga during the Civil War. Although Paleo-Indian cultural material was identified in the 1960s during construction of the state hospital at the southern toe of Moccasin Bend, evidence for these early inhabitants (ca. 12,000 BC–8,000 BC) is not presently reflected among the district's artifact assemblages. A three-volume report entitled *Moccasin Bend National Archeological District: Archeological Overview and Assessment* (Alexander et al. 2010) provides a comprehensive examination of the area's archeological resources.

The archeological resources on Moccasin Bend have been disturbed to varying degrees by past agricultural and industrial activities, facility development, looting, and the dredging of the toe of Moccasin Bend in the 1960s. Although activities such as plowing primarily affected upper soil horizons with limited disturbance of deeply buried resources, dredging contributed to more substantial resource disturbance and loss. Despite these past disturbances, the national historic landmark district's broad array of prehistoric archeological resources hold the potential for refining an understanding of local and regional chronologies, particularly for the Archaic period (ca. 8,000 BC–1,000 BC) and Woodland period (ca. 1,000 BC–AD 1000). Analysis of the archeological evidence associated with these sites can advance far-ranging research objectives and understanding regarding various southeastern prehistoric and protohistoric populations. The sites present several possible avenues of research such as cultural and technological change, communication, population distribution, and structural/architectural features. The archeological resources provide unparalleled evidence of Moccasin Bend's fundamental importance throughout prehistory and history as a strategic center of trade, communication, and economic and political importance. These factors have been dramatically influenced by Moccasin Bend's favorable geographic setting by the Tennessee River (McCullough et al. 1985).

The Moccasin Bend cultural landscape report (NPS 2014a) provides detailed information regarding cultural landscape features associated with the national historic landmark district's component sites: Hampton Place, Mallards Dozen site, Vulcan site, Woodland Mound Complex, Civil War sites along Stringers Ridge, and Brown's Homestead and Ferry sites. For each component landscape, the cultural landscape report identifies a high level of integrity for the aspects of location, design, workmanship, materials, and association. According to the report, the aspects of setting and feeling retain moderate integrity due to natural changes in the landscape and changes in land use; however, taken as a whole, Moccasin Bend's historic resources retain integrity for the defined periods of significance. The cultural landscape report provides treatment recommendations to preserve and protect existing features contributing to the historic character of the Moccasin Bend National Archeological District cultural landscape, as well as the archeological resources within the boundary of the larger national historic landmark district (NPS 2014a).

### American Indian Sites

**Hampton Place (40HA146).** This is a large Late Mississippian (Mouse Creeks phase) village site occupied in the 16th century. Earlier Archaic and Woodland period components are also present.

The primary components are two contiguous habitation areas, each with archeological evidence of community buildings, plaza, small dwellings, and surrounding palisade fortifications. Archeological testing has revealed a large number of grave sites and burned dwellings with intact floors. Spanish-manufactured artifacts uncovered at the site support contact or trade with 16th century Spanish explorers (McCollough et al. 1985; NPS 2014a).

The site has yielded unparalleled archeological data reflecting the initial influence of European (Spanish) cultural contact on indigenous Southeastern Indian cultures. The site likely represents a major center of aboriginal economic and political power that may have provided the impetus for Spanish interest in the location (e.g., the expeditions led by Hernando De Soto in 1540, Tristan de Luna in 1560, and Juan Pardo in 1566–1568). The extensive burning of the village and subsequent alluvial deposition had the effect of sealing the site as it existed during the 16th century, and there was little subsequent alteration by aboriginal peoples. The site is well preserved despite extensive looting and disturbance of grave sites that primarily occurred between 1974 and 1982. It retains exceptional opportunities for further research on far-ranging questions regarding the initial impact of European cultures on indigenous Southeastern Indian populations (McCollough et al. 1985; NPS 2014a).

All of the site's archeological resources are below ground, and there is little visible evidence on the landscape to suggest the significance of the site. The uneven ground surface reflects the effects of past looting and stabilization of the damaged site. Wooden posts indicate the corners of dwellings excavated during archeological investigations. Existing elements of the associated cultural landscape (e.g., vegetation, patterns of circulation, small-scale features) are considered noncontributing resources. A Chattanooga Electric Power Board power line crosses the river at Moccasin Bend near Hampton Place and bisects the site's two major habitation areas. Two underground natural gas pipelines were constructed in the 1980s through parts of the site (McCollough et al. 1985; NPS 2014a).

**Mallards Dozen (40HA147).** This is a large, deeply stratified site with Early/Middle Archaic period occupation deposits and a concentrated Middle Woodland period component. Archeological testing revealed a Middle Woodland period structure dated at AD 405. Archeological resources identified and recovered from the site include subsistence-related food refuse, architectural features, floral and faunal remains, and ceramic and lithic artifacts (McCollough et al. 1985; NPS 2014a).

The Mallards Dozen site is along the riverbank north of the Hampton Place site. The site is not well documented, and little surface evidence is visible on the landscape. The site retains a high potential for yielding further archeological information, with resources deposited as much as about eight feet below the current ground surface. Existing patterns of circulation and site vegetation do not contribute to the site's associated cultural landscape. Riverbank erosion has long threatened the site, and the riverbank that marks the site's western boundary is steeply incised. Stabilization efforts by the US Army Corps of Engineers incorporated the installation of riprap and vegetation plantings to help protect the site, although these measures appear to have failed along part of the riverbank (NPS 2014a).

**Vulcan Site (40HA140).** This Late Archaic period camp site consists of stratified midden deposits, hearth features, and a subterranean house (ca. 1,335 BC) that is considered one of the earliest formally built dwellings in the Southeastern United States. Pottery sherds indicate a later Middle/Late Woodland period village. The site's archeological information includes subsistence data associated with faunal floral and midden deposits; architectural data (e.g., structure floors, pit houses, and hearths); and chronological data such as charcoal associated with site features and ceramics that mark cultural episodes (McCollough et al. 1985; NPS 2014a).

The Vulcan site is along the riverbank north of the Mallards Dozen site. Evidence suggests that the site extends north onto the property of the Moccasin Bend Golf Course. The Blue Blazes Trail crosses through the site and runs along its western boundary. No obvious surface evidence of the site is visible. Existing patterns of circulation, vegetation, and views do not contribute to the associated cultural landscape (NPS 2014a).

**Woodland Mound Complex.** Multiple prehistoric mounds (exact number unknown although as many as eight may exist) are at the southern toe of Moccasin Bend on the grounds of the Moccasin Bend Mental Health Institute. Only one of the mounds is on NPS property. The conical mounds are associated with burial and/or ceremonial activities during the Late Woodland period (AD 600–AD 1000). Partially excavated by archeological investigations in 1914–1915, the mounds are expected to contain information regarding construction techniques, mortuary practices, and the sociopolitical organization associated with the Late Woodland period. Although their current condition is uncertain, these mounds are considered the most substantial mortuary center from the period in this part of the Tennessee River Valley. Historic coffins (possibly of Union Army casualties during the Civil War) are present in one of the mounds. Access to these mounds is extremely limited because of hospital security concerns (McCollough et al. 1985; NPS 2014a).

### **Civil War Sites**

Civil War earthwork features (e.g., cannon emplacements, rifle pits, bivouac pads) on the southern part of Stringers Ridge are considered the best preserved of all physical remains from the battles for Chattanooga. They are also regarded as the only surviving features from that engagement associated with Union Army activities. The Stringers Ridge features reflect Union positions both during the early stages of the battle (August–September 1863) when Chattanooga was occupied by Confederate forces and later engagements (September–November 1863) following the Battle of Chickamauga when Federal forces were under Confederate siege in Chattanooga. The Stringers Ridge position was vital for the Union Army's efforts to command the critical supply link across the Tennessee River at Brown's Ferry that enabled troops in Chattanooga to receive provisions and supplies after the end of the Confederate siege. Stringers Ridge also was a strategic location for Union artillery to counter Confederate fire from across the river at Lookout Mountain. It served as part of the advance Union positions for the battles of Lookout Mountain and Missionary Ridge that ultimately resulted in Confederate forces being driven south into Georgia (McCollough et al. 1985; NPS 2009, 2014a).

Eight sites associated with various Union artillery and rifle positions have been identified on Stringers Ridge. These include a possible signal tower base; earthworks of two cannon emplacements with line of fire directed at Chattanooga; a linear (20 meters long) triple cannon emplacement; a west-facing double cannon emplacement (2 meters high) with four embrasures surrounded by rifle pits and leveled bivouac pad areas; two C-shaped cannon emplacements (one with an embrasure), rifle pits, and bivouac pads; a complex on the southernmost ridge crest consisting of a right-angled rifle pit (35 meters long), two west-facing C-shaped cannon emplacements with rifle pits, a possible sally port, and an L-shaped cannon emplacement with two embrasures and flanking rifle pit (30 meters long); and a complex of bivouac pads on a level occupation area at a ridge gap and another on slopes surrounding a spring. These features are variously associated with positions of the 10th Indiana Artillery Battery, Whitaker's Brigade Camps, 18th Ohio Artillery Battery, an infantry regimental camp, and an unfinished artillery parapet (McCollough et al. 1985; NPS 2014a).

A system of earthen roads associated with the Civil War sites is present at Stringers Ridge. The roads are depicted in historic maps and photographs. With a few exceptions, the roads are in good condition with little evidence of erosion. Vegetation along Stringers Ridge consists of a mature oak-hickory forest. In Civil War-era photographs taken from Lookout Mountain, Stringers Ridge

appears much as it does today. Although Union troops would have cleared some of the forest directly in front of their firing positions, the photographic evidence shows that the woods on Stringers Ridge were not clear cut during the war. The City of Chattanooga can be viewed from the top of the southernmost and easternmost knoll, whereas views toward Lookout Mountain (an important cultural landscape element associated with the Civil War period) no longer exist because of the dense forest canopy (NPS 2014a).

### **Brown's Homestead and Ferry Sites**

In 1820, John Brown, a man of mixed Cherokee and European ancestry, claimed a 640-acre homestead reservation on lands now partially encompassed by the Moccasin Bend Wastewater Treatment Facility and the NPS-owned Brown's Ferry Federal Road property. The property line that presently separates the wastewater treatment facility from the Moccasin Bend Golf Course represents the original southern boundary of Brown's property. John Brown operated Brown's Ferry, an important river crossing point along the Old Federal Road. He built a dwelling (no longer extant) at what is believed to be the high point on the wastewater treatment facility grounds. He also built an inn called Brown's Tavern on the opposite (Lookout Valley) side of the river near the western terminus of the ferry crossing (NPS 2014a).

Few visible features from John Brown's time on Moccasin Bend remain within the cultural landscape. Structural remnants of the ferry landings are not readily evident, although the locations of the crossing points can be discerned. The route of the Federal Road through NPS-owned property has been delineated using GIS, remote sensing, field reconnaissance, and some archeological testing. In 1838, two separate detachments of Cherokee Indians passed through this site during their relocation across Moccasin Bend on the way to the Oklahoma Territory. In 1863, the Union Army captured Brown's Ferry and used the ferry and the Federal Road to transport supplies from Nashville to Chattanooga (NPS 2014a).

The anticipated consequences of climate change have the potential to diminish the integrity of archeological and ethnographic resources of Moccasin Bend, primarily as a result of the increased intensity and frequency of severe storm activity contributing to damaging erosion. Periodically heavy, prolonged, or frequent rainstorms could result in rising river levels or heavier runoff. Increased storm activity, punctuated by periods of drought, could destabilize archeological sites. Sites and resources exposed by erosion could be at increased risk of further disturbance by illegal collection or looting.

### **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE A**

**Analysis.** No substantial changes to visitor use activities or proposed construction of new park facilities or trails would occur under alternative A, the no-action alternative, for the Moccasin Bend unit. Consequently, known or potential archeological resources are unlikely to be affected by ground-disturbing construction activities. NPS archeologists would continue to monitor the condition of known archeological sites on the west side of Moccasin Bend, at Stringers Ridge, and at other NPS-managed properties. Appropriate protection measures would continue to be undertaken as necessary to reduce or avoid adverse impacts on sites that could occur from natural erosion, visitor use (e.g., the development of social trails or other inadvertent impacts), the illegal removal of artifacts, and other factors.

Investigations have not identified archeological resources at the Gateway site, and the site previously has been disturbed. Archeological investigations indicate that upper topsoil layers were removed and fill material was then imported to the site to raise the ground surface above the 100-year floodplain

(NPS 2006b, c). At the Brown's Ferry Federal Road property, no known archeological resources would be expected to be disturbed by maintaining existing trails, wayside exhibits, a parking area, and viewsheds. Visitors would continue to have opportunities to take self-guided tours and occasional ranger-led tours. Future archeological surveys and investigations could identify resources associated with the historic Federal Road trace, Browns Ferry, and the Trail of Tears. The Woodland Mound complex at the southern toe of Moccasin Bend would continue to be substantially protected by the restricted access to the area afforded by the state hospital.

NPS staff would continue to manage and protect the American Indian archeological sites on the west side of Moccasin Bend (i.e., Hampton Place, Mallards Dozen, Vulcan sites) in accordance with applicable policies and guidelines. Scheduled ranger-led tours to these sites would continue by way of the south parking area, providing a limited NPS presence in the area along with periodic ranger patrols. The south parking area would continue to be gated and opened only for special events and programs. Ranger-led tours would emphasize visitor education, and information imparted to visitors regarding resource protection would help to discourage vandalism and inadvertent damage of cultural remains. NPS staff would continue to manage the Civil War earthworks on Stringers Ridge in accordance with applicable policies and guidelines. The sites would remain undeveloped, and self-guided access would continue by way of an unmarked, unimproved trail. Periodic ranger-led tours of the sites would continue.

Ongoing actions under alternative A would result primarily in long-term beneficial impacts on archeological resources by continued NPS efforts to monitor resource conditions, protect and preserve sites, and deter looting and unauthorized disturbances. Ranger-led tours would provide visitors with information that would assist site protection efforts. Continued management of the south parking area would have a long-term beneficial impact on the protection of archeological resources on the west side of Moccasin Bend and on Stringers Ridge by controlling public access to sensitive site areas, thereby helping to prevent site looting and disturbance. Limited potential for adverse impacts would exist from continued provision of self-guided public use of the Blue Blazes Trail, which could provide a point of access for unauthorized site disturbance and looting. Historic views (e.g., from Moccasin Bend to Lookout Mountain) would continue to be obscured by dense stands of trees on Stringers Ridge, limiting the visual connection between the areas that contributes to the cultural landscape.

**Cumulative Impacts.** Despite past instances of disturbance, the archeological resources are considered to retain substantial integrity with buried artifacts and designed features of the village locations mostly within their original stratigraphic contexts. The sites continue to have outstanding potential to address far-ranging research objectives. Although subject to erosion and other disturbances (e.g., social trails), the Stringers Ridge Civil War earthworks retain a large degree of original material contributing to constructed features as well as the surrounding hardwood vegetation of the cultural landscape. The Brown's Homestead and Ferry sites are also discernable in the landscape despite a loss of structures. Current management actions would continue to protect significant archeological resources and associated cultural landscape features, resulting in long-term beneficial impacts. Ongoing actions are likely to have only a very limited potential to adversely impact resources by diminishing site information and integrity.

Despite some instances of structural failure, the riverbank stabilization project underway by the US Army Corps of Engineers is anticipated to have long-term beneficial impacts on archeological resources by abating the steady erosion of Moccasin Bend's riverbank by the Tennessee River and protecting nearshore resources from erosion damage and loss. No identified archeological resources would be affected by the development of bike lanes on Moccasin Bend Road or Hamm Road, or by actions associated with the future management of the firing range. Should routine NPS maintenance



projects (e.g., trail maintenance, thinning of encroaching vegetation) entail ground-disturbing actions that could affect subsurface archeological resources, these actions would continue to be assessed by NPS cultural resources staff to ensure that significant sites, if identified in project areas, are avoided by project redesign and/or are clearly identified for avoidance. The actions presented above would have long-term or permanent, limited adverse impacts on archeological resources.

The impacts associated with implementation of the no-action alternative would have primarily long-term or permanent, beneficial and only limited adverse impacts on archeological resources. Other past, present, and reasonably foreseeable actions would result primarily in long-term or permanent, limited adverse impacts. Consequently, the adverse impacts of the other actions described above, in combination with the impacts of the no-action alternative, would cumulatively result in long-term or permanent, limited adverse impacts on archeological resources. The impacts associated with the no-action alternative would represent a small component of the adverse cumulative impact.

**Conclusion.** Under the no-action alternative, no facility development or substantial ground-disturbance would occur that could adversely affect archeological resources. The National Park Service would continue to monitor and protect the national archeological district as feasible under existing laws and policies. Long-term or permanent, localized, beneficial, and limited adverse impacts on archeological resources would occur from ongoing resource management, visitor use, erosion, and other factors that could diminish resource integrity. Long-term or permanent, limited adverse cumulative impacts on archeological resources also would occur from implementation of the no-action alternative in conjunction with other past, present, or reasonably foreseeable actions.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE B**

**Analysis.** Under alternative B, development of a staffed visitor center at the Gateway site would provide increased opportunities to inform visitors of the sensitivity of Moccasin Bend's archeological resources, the penalties for disturbance, and the need to support protection efforts. Site development would not be expected to disturb identified archeological resources, although additional surveys would likely be required for the location of support facilities (e.g., utility connections) outside the Gateway site. At the Brown's Ferry Federal Road property, no known archeological resources would be expected to be disturbed by maintaining existing trails, wayside exhibits, a parking area, and viewsheds. Visitors would continue to have opportunities to take self-guided tours and occasional ranger-led tours. Should future archeological surveys and investigations identify resources associated with the historic Federal Road trace, Browns Ferry, and the Trail of Tears, these sites would be protected under applicable policies and guidelines. Trails would not be developed within existing easements on the east, south, and west sides of the Moccasin Bend unit, thereby helping to protect existing and potential archeological resources from ground-disturbing development and increased visitor access to and near sensitive site locations.

Ranger-led only tours along the Blue Blazes Trail and the installation of a gate on the road to the Blue Blazes trailhead would improve efforts to protect archeological resources on the west side of Moccasin Bend. NPS staff would continue to manage and protect the archeological sites in accordance with applicable policies and guidelines. Location of the archeological sites and the Blue Blazes Trail in the cultural protection zone would further objectives for resource protection through regular monitoring and other management measures. Scheduled ranger-led tours to the sites would continue by way of the south parking area, providing further NPS presence in the area along with periodic ranger patrols to assist site protection efforts. Ranger-led tours would emphasize visitor education, and information imparted to visitors regarding resource protection would help to discourage vandalism and inadvertent damage of cultural remains. The south parking area would

continue to be gated and opened only for special events and programs. These measures would increase archeological resource protection by controlling public access to sensitive site areas.

NPS staff would continue to manage the Civil War earthworks in accordance with applicable policies, guidelines, and recommendations of the 2014 cultural landscape report. Access to Stringers Ridge would be limited to ranger-led tours and closed to self-guided visitor access. The historic road trace would be maintained. These measures, along with locating the sites in the cultural protection zone, would afford the sites a greater degree of protection. Limited vegetation clearing would enhance interpretation by improving historic viewsheds to key locations important during the Civil War. Clearing would be conducted in a manner that avoids subsurface ground disturbance.

Actions under alternative B would result primarily in long-term beneficial impacts on archeological resources by enhancing NPS efforts to monitor resource conditions, protect and preserve sites, and deter looting and unauthorized disturbances. A staffed visitor center and ranger-led tours would provide visitors with information that would assist site protection efforts. Continued management of the south parking area would have a long-term beneficial impact on the protection of archeological resources on the west side of Moccasin Bend and on Stringers Ridge by controlling public access to sensitive site areas, thereby helping to prevent site looting and disturbance. Ranger-led tours along the Blue Blazes Trail would assist efforts to control visitor use and limit the potential for unauthorized site disturbances and looting. Historic views (e.g., from Moccasin Bend to Lookout Mountain) would be improved by limited vegetation clearing on Stringers Ridge that would enhance the visual connection between the areas that contributes to the cultural landscape.

**Cumulative Impacts.** Despite past instances of disturbance, the archeological resources are considered to retain substantial integrity with buried artifacts and designed features of the village locations mostly within their original stratigraphic contexts. The sites continue to have outstanding potential to address far-ranging research objectives. Although subject to erosion and other disturbances (e.g., social trails), the Stringers Ridge Civil War earthworks retain a large degree of original material contributing to constructed features as well as the surrounding hardwood vegetation of the cultural landscape. The Brown's Homestead and Ferry sites are also discernable in the landscape despite a loss of structures. Current management actions would continue to protect significant archeological resources and associated cultural landscape features, resulting in long-term beneficial impacts. Actions proposed under alternative B are likely to have only a very limited potential to adversely impact resources by diminishing site information and integrity.

Despite some instances of structural failure, the riverbank stabilization project underway by the US Army Corps of Engineers is anticipated to have long-term beneficial impacts on archeological resources by abating the steady erosion of Moccasin Bend's riverbank by the Tennessee River and protecting nearshore resources from erosion damage and loss. No identified archeological resources would be affected by the development of bike lanes on Moccasin Bend Road or Hamm Road or by actions associated with the future management of the firing range. Should routine NPS maintenance projects (e.g., trail maintenance, thinning of encroaching vegetation) entail ground-disturbing actions that could affect subsurface archeological resources, these actions would continue to be assessed by NPS cultural resources staff to ensure that significant sites, if identified in project areas, are avoided by project redesign and/or are clearly identified for avoidance. The actions presented above would have long-term or permanent, limited adverse impacts on archeological resources.

The impacts associated with implementation of alternative B would have primarily long-term or permanent, beneficial and limited adverse impacts on archeological resources. Other past, present, and reasonably foreseeable actions would result primarily in long-term or permanent, limited adverse impacts. Consequently, the adverse impacts of the actions described above in combination

with the impacts of alternative B would cumulatively result in long-term or permanent, limited adverse impacts on archeological resources. The impacts associated with alternative B would represent a small component of the adverse cumulative impact.

**Conclusion.** Under alternative B, proposed facility development at the Gateway site would not be expected to adversely affect identified archeological resources and would provide a location to substantially impart the importance of site protection to visitors. Other proposed measures to control visitor access to sensitive site locations and enhance resource protection through the application of zoning and other means would be expected to result in long-term, localized, beneficial impacts on archeological resources. Long-term or permanent, localized, limited adverse impacts on archeological resources could also be expected from visitor use, erosion, and other factors that could diminish resource integrity. Long-term or permanent, limited adverse cumulative impacts on archeological resources also would occur from implementation of alternative B in conjunction with other past, present, or reasonably foreseeable actions.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE C**

**Analysis.** In common with alternative B, alternative C also proposes the development of a staffed visitor center at the Gateway site that would increase opportunities to inform visitors of the sensitivity of Moccasin Bend's archeological resources, the penalties for disturbance, and the need to support protection efforts. Site development would not be expected to disturb identified archeological resources, although additional surveys would likely be required for the location of support facilities (e.g., utility connections) outside the Gateway site. At the Brown's Ferry Federal Road property, no known archeological resources would be expected to be disturbed by maintaining existing trails, wayside exhibits, a parking area, and viewsheds. Visitors would continue to have opportunities to take self-guided tours and occasional ranger-led tours. Should future archeological surveys and investigations identify resources associated with the historic Federal Road trace, Browns Ferry, and the Trail of Tears, these would be protected under applicable policies and guidelines. Regular ranger-led tours along the Blue Blazes Trail would assist efforts to protect archeological resources on the west side of Moccasin Bend, although self-guided tours would also be permitted. Location of the trail in the cultural interpretation zone would further objectives for resource protection through regular resource monitoring and other management measures. Wayside exhibits would inform visitors of resource protection requirements and the penalties for disturbance.

NPS staff would continue to manage and protect the archeological sites on the west side of the Moccasin Bend unit in accordance with applicable policies and guidelines. Scheduled ranger-led tours to the sites would continue by way of the south parking area, providing additional NPS presence in the area along with periodic ranger patrols to assist site protection efforts. Ranger-led tours would emphasize visitor education, and information imparted to visitors regarding resource protection would help to discourage vandalism and inadvertent damage of cultural remains. The south parking area would continue to be gated and opened only for special events and programs. These measures would increase archeological resource protection by controlling public access to sensitive site areas.

NPS staff would continue to manage the Civil War earthworks in accordance with applicable policies, guidelines, and recommendations of the cultural landscape report (NPS 2014a). Both ranger-led tours and self-guided visitor access would be provided on Stringers Ridge. These measures, along with providing wayside interpretive exhibits and locating the sites in the cultural interpretation zone, would afford the sites a greater degree of protection and better inform visitors of site sensitivities and protection requirements. Limited vegetation clearing would enhance

interpretation by improving historic viewsheds to key locations important during the Civil War. Clearing would be conducted in a manner that avoids subsurface ground disturbance.

Following National Park Service acquisition of the firearms training range, the area would be revegetated and converted to visitor-related services. The existing boat ramp would be rehabilitated for park administrative uses and ranger-led, nonmotorized watercraft tours. A riverfront hiking trail would be developed connecting to the visitor center and the Civil War earthworks. No known archeological resources would be disturbed by the proposed development, although all areas would be archeologically surveyed and areas containing significant archeological resources would be avoided or adequately mitigated prior to construction.

**Cumulative Impacts.** Despite past instances of disturbance, the archeological resources are considered to retain substantial integrity with buried artifacts and designed features of the village locations mostly within their original stratigraphic contexts. The sites continue to have outstanding potential to address far-ranging research objectives. Although subject to erosion and other disturbances (e.g., social trails), the Stringers Ridge Civil War earthworks retain a large degree of original material contributing to constructed features as well as the surrounding hardwood vegetation of the cultural landscape. The Brown's Homestead and Ferry sites are also discernable in the landscape despite a loss of structures. Current management actions would continue to protect significant archeological resources and associated cultural landscape features, resulting in long-term beneficial impacts. Actions proposed under alternative C are likely to have only a very limited potential to adversely impact resources by diminishing site information and integrity.

Despite some instances of structural failure, the riverbank stabilization project underway by the US Army Corps of Engineers is anticipated to have long-term beneficial impacts on archeological resources by abating the steady erosion of Moccasin Bend's riverbank by the Tennessee River and protecting nearshore resources from erosion damage and loss. No identified archeological resources would be affected by the development of bike lanes on Moccasin Bend Road or Hamm Road or by actions associated with the future management of the firing range. Should routine NPS maintenance projects (e.g., trail maintenance, thinning of encroaching vegetation) entail ground-disturbing actions that could affect subsurface archeological resources, these actions would continue to be assessed by NPS cultural resources staff to ensure that significant sites, if identified in project areas, are avoided by project redesign and/or are clearly identified for avoidance. The actions presented above would have long-term or permanent, limited adverse impacts on archeological resources.

The impacts associated with implementation of alternative C would have long-term or permanent, beneficial and limited adverse impacts on archeological resources. Other past, present, and reasonably foreseeable actions would result primarily in long-term or permanent, limited adverse impacts. Consequently, the adverse impacts of the other actions described above, in combination with the impacts of alternative C, would cumulatively result in long-term or permanent, limited adverse impacts on archeological resources. The impacts associated with alternative C would represent a small component of the adverse cumulative impact.

**Conclusion.** Under alternative C, proposed facility development at the Gateway site would not be expected to adversely affect identified archeological resources and would provide a location to impart the importance of site protection to visitors. Other proposed measures to control visitor access to sensitive site locations and enhance resource protection through the application of zoning and other means would be expected to result in long-term, localized, beneficial impacts on archeological resources. Long-term or permanent, localized, limited adverse impacts on archeological resources could be expected from visitor use, erosion, and other factors that could diminish resource integrity. Long-term or permanent, limited adverse cumulative impacts on

archeological resources could occur from implementation of alternative C in conjunction with other past, present, or reasonably foreseeable actions.

## ETHNOGRAPHIC RESOURCES

### AFFECTED ENVIRONMENT

Ethnographic resources are defined by the National Park Service as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (Director’s Order 28: *Cultural Resource Management*). Ethnographic resources typically hold significance for traditionally associated groups whose sense of purpose, existence as a community, and identity as an ethnically distinctive people are closely linked to particular resources and places.

No formal ethnographic investigations have been completed for Moccasin Bend. However, as noted in the national historic landmark nomination for the archeological district, “All of the aboriginal sites known within the Moccasin Bend Archeological District, and especially Hampton Place, have important ethnic significance to living groups and are considered of state and national significance, individually and collectively, by the Tennessee Indian Commission” (McCollough et al. 1985; see also NPS 2009). As expressed by tribal representatives during prior and current project consultation meetings with NPS staff, Moccasin Bend retains profound importance for many American Indian tribes. The long history of settlement and the presence of ancestral burials in proximity to the former village sites on the west side of Moccasin Bend imbue the area with a complex spiritual dimension. No ethnographic resources or traditional uses have been specifically identified for the various locations proposed for development under the current planning alternatives.

In accordance with NPS *Management Policies 2006*, the American Indian Religious Freedom Act of 1996, as amended, and other laws and policies, the National Park Service permits tribal access to park areas for traditional religious, ceremonial, and other customary activities at places historically used for such purposes. In consultation with culturally associated tribes and consistent with tribal goals, the National Park Service would protect known sacred sites and other ethnographic resources should these be identified. The location and character of sites and resources would not be disclosed to the general public if disclosure would result in significant invasion of privacy, risk harm to culturally important resources, or impede traditional religious use and access by tribal members.

Tribal concern for the protection of sensitive site locations such as Hampton Place could entail the implementation of measures to restrict or limit visitor access in efforts to properly respect the ancestral inhabitants and burial sites. Some tribal members expressed personal concern in visiting these areas because of the adverse spiritual consequences associated with disturbance of burial locations. Therefore, it may be more important for some tribal members that measures are instituted to avoid or minimize further site disturbances rather than providing direct access to these locations to conduct traditional ceremonial or religious activities.

A part of the Trail of Tears National Historic Trail crosses Moccasin Bend and the Brown’s Ferry Federal Road section of the national archeological district. The national historic trail is managed by the NPS Historic Trails System Office and encompasses about 2,200 miles of land and water routes that traverse parts of nine states (Alabama, Arkansas, Georgia, Illinois, Kentucky, Missouri, North Carolina, Oklahoma, and Tennessee). The historic route generally followed the Old Federal Road through the vicinity of Moccasin Bend. Ross’s Landing at Chattanooga and Brown’s Ferry on the western side of Moccasin Bend served as regional points of departure and transit across the Tennessee River. The ethnographic importance of the Trail of Tears and other ethnographic resources associated with the forced removal of Cherokee Indians from the area in 1838 may be

identified through further research. Tribal histories and stories related to the Trail of Tears would expand understanding of Moccasin Bend's role during the initial stages of the forced departure.

Ethnographic resources may be identified by future investigations in support of long-range cultural resource management of the Moccasin Bend unit. In consultation with associated tribal members, NPS staff would identify and evaluate potential ethnographic resources by conducting appropriate research and investigations (i.e., ethnographic overviews and assessments, traditional use studies, ethnographic landscape studies, oral histories) that inform NPS management and decision-making. In recognition of Moccasin Bend as sacred ground, all development and use proposals would be carried out in a manner that respects the former inhabitants.

Many American Indian tribes retain traditional associations with lands comprising Moccasin Bend. Traditionally associated tribes with which park staff consult on a government-to-government basis include the following:

- Absentee-Shawnee Tribe of Oklahoma (Shawnee, Oklahoma)
- Alabama-Coushatta Tribes of Texas (Livingston, Texas)
- Alabama-Quassarte Tribal Town (Wetumka, Oklahoma)
- Catawba Indian Nation (Rock Hill, South Carolina)
- Cherokee Nation (Tahlequah, Oklahoma)
- The Chickasaw Nation (Ada, Oklahoma)
- Choctaw Nation of Oklahoma (Durant, Oklahoma)
- Coushatta Tribe of Louisiana (Elton, Louisiana)
- Eastern Band of Cherokee Indians of North Carolina (Cherokee, North Carolina)
- Eastern Shawnee Tribe of Oklahoma (Seneca, Missouri)
- Jena Band of Choctaw Indians (Jena, Louisiana)
- Kialegee Tribal Town (Wetumka, Oklahoma)
- Miccosukee Tribe of Indians of Florida (Miami, Florida)
- Mississippi Band of Choctaw Indians (Philadelphia, Mississippi)
- Muscogee (Creek) Nation (Ocmulgee, Oklahoma)
- Poarch Band of Creek Indians (Atmore, Alabama)
- Quapaw Tribe of Oklahoma (Quapaw, Oklahoma)
- Seminole Nation of Oklahoma (Wewoka, Oklahoma)
- Seminole Tribe of Florida (Hollywood, Florida)
- Shawnee Tribe, Oklahoma (Miami, Oklahoma)
- Thlopthlocco Tribal Town (Okemah, Oklahoma)
- United Keetoowah Band of Cherokee Indians in Oklahoma (Tahlequah, Oklahoma)

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE A**

**Analysis.** No substantial changes to visitor use activities or proposed construction of new park facilities or trails would occur under the no-action alternative for the Moccasin Bend unit. Consequently, known or potential ethnographic resources are unlikely to be affected by ground-disturbing construction activities. The American Indian village sites and ancestral burial locations on the west side of the Moccasin Bend unit retain profound spiritual importance for the park's culturally associated tribes. NPS archeologists and other cultural resource specialists would continue to monitor site conditions and undertake appropriate protection measures as necessary to reduce or avoid adverse impacts possibly occurring from natural erosion, visitor use (e.g., the development of social trails or other inadvertent impacts), the illegal removal of artifacts, and other factors. Investigations have not identified ethnographic / archeological resources at the Gateway site, and the

site has been previously disturbed. Archeological investigations indicate that upper topsoil layers were removed and fill material then imported to the site to raise the ground surface above the 100-year floodplain level (NPS 2006b, c). It is anticipated that any archeological sites or other resources that may have existed at the Gateway site having associated ethnographic or cultural value have been lost. At the Brown's Ferry Federal Road property, no known ethnographic or archeological resources would be expected to be disturbed by maintaining existing trails, wayside exhibits, a parking area, and viewsheds. Visitors would continue to have opportunities to take self-guided tours and occasional ranger-led tours. The area is culturally important to the Cherokee and other associated tribes whose ancestors were forcibly relocated in the 1830s, and future archeological surveys, ethnographic investigations, and consultation with associated tribes may identify resources and sites specifically associated with the historic Federal Road trace, Browns Ferry, and the Trail of Tears. The Woodland Mound complex at the southern toe of Moccasin Bend would continue to be substantially protected by the restricted access to the area afforded by the state hospital.

NPS staff would continue to manage, protect, and provide customary tribal access to the American Indian archeological sites and village locations on the west side of the Moccasin Bend unit (i.e., Hampton Place, Mallards Dozen, Vulcan sites) in accordance with applicable policies and guidelines. Scheduled ranger-led tours to the sites would continue by way of the south parking area, providing a limited NPS presence in the area along with periodic ranger patrols. The south parking area would continue to be gated and opened only for special events and programs. Ranger-led tours would emphasize visitor education, and information imparted to visitors regarding resource protection would help to discourage vandalism and inadvertent damage of cultural remains. NPS staff would continue to manage the Civil War earthworks on Stringers Ridge in accordance with applicable policies and guidelines. The earthworks may be culturally important to the descendants of the Union troops who commanded positions on the ridge during the Civil War. Stringers Ridge may also have cultural importance to associated tribes because of the long American Indian presence on Moccasin Bend. The sites would remain undeveloped, and self-guided access would continue by way of an unmarked, unimproved trail. Periodic ranger-led tours of the sites would continue.

Ongoing actions under alternative A would result primarily in long-term beneficial impacts on ethnographic / archeological resources by continued NPS efforts to monitor resource conditions, protect and preserve sites, and deter looting and unauthorized disturbances. Ranger-led tours would provide visitors with information that would assist site protection efforts. Continued management of the south parking area would have a long-term beneficial impact on the protection of archeological / ethnographic resources on the west side of Moccasin Bend and on Stringers Ridge by controlling public access to sensitive site areas, thereby helping to prevent site looting and disturbance. Limited potential for adverse impacts would exist from continued provision of self-guided public use of the Blue Blazes Trail, which could provide a point of access for unauthorized site disturbance and looting. Unauthorized site disturbance and looting could entail damage and loss of artifacts, and diminish the cultural and spiritual connections of contemporary tribes to the village sites and burial locations. Historic views (e.g., from Moccasin Bend to Lookout Mountain) would continue to be obscured by dense stands of trees on Stringers Ridge, limiting the visual connection between the areas that contributes to the cultural landscape.

**Cumulative Impacts.** Despite past instances of disturbance, the prehistoric archeological resources retain substantial integrity and research potential; however, site looting and desecration of the ancestral burials have disturbed the cultural and spiritual connections that many contemporary tribal members have with the area. Although subject to erosion and other disturbance (e.g., social trails), the Stringers Ridge Civil War earthworks retain a large degree of original material contributing to constructed features as well as the surrounding hardwood vegetation of the cultural landscape. The Brown's Homestead and Ferry sites are also discernable in the landscape despite a loss of structures.



Current management actions would continue to protect significant archeological/ethnographic resources and associated cultural landscape features, resulting in long-term beneficial impacts. Ongoing actions are likely to have only a very limited potential to adversely impact resources by diminishing site information and integrity.

Despite some instances of structural failure, the riverbank stabilization project underway by the US Army Corps of Engineers is anticipated to have long-term beneficial impacts on ethnographic and archeological resources by abating the steady erosion of Moccasin Bend's riverbank by the Tennessee River and protecting nearshore resources from erosion damage and loss. No identified archeological/ethnographic resources would be affected by the development of bike lanes on Moccasin Bend Road or Hamm Road or by actions associated with the future management of the firing range. Should routine NPS maintenance projects (e.g., trail maintenance, thinning of encroaching vegetation) entail ground-disturbing actions that could affect subsurface archeological/ethnographic resources, these actions would continue to be assessed by NPS cultural resources staff to ensure that significant sites, if identified in project areas, are avoided by project redesign and/or are clearly identified for avoidance. The actions presented above would have long-term or permanent, limited adverse impacts on archeological/ethnographic resources.

The impacts associated with implementation of alternative A (no-action alternative) would have long-term or permanent, beneficial and limited adverse impacts on ethnographic and archeological resources. Other past, present, and reasonably foreseeable actions would result primarily in long-term or permanent, limited adverse impacts. Consequently, the adverse impacts of the other actions described above, in combination with the impacts of the no-action alternative, would cumulatively result in long-term or permanent, limited adverse impacts on ethnographic and archeological resources. The impacts associated with the no-action alternative would represent a small component of the adverse cumulative impact.

**Conclusion.** Under the no-action alternative, no facility development or substantial ground disturbance would occur that could adversely affect ethnographic / archeological resources. The National Park Service would continue to monitor and protect the national archeological district as feasible under existing laws and policies. Long-term or permanent, localized beneficial and limited adverse impacts on ethnographic and archeological resources would occur from ongoing resource management, visitor use, erosion, and other factors that could diminish resource integrity. Long-term or permanent, limited adverse cumulative impacts on ethnographic and archeological resources would occur from implementation of the no-action alternative in conjunction with other past, present, or reasonably foreseeable actions.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE B**

**Analysis.** Under alternative B, development of a staffed visitor center at the Gateway site would provide increased opportunities to inform visitors of the sensitivity of Moccasin Bend's ethnographic and archeological resources, the penalties for disturbance, and the need to support protection efforts. Site development would not be expected to disturb identified resources although additional surveys would likely be required for the location of support facilities (e.g., utility connections) outside the Gateway site. At the Brown's Ferry Federal Road property, no known ethnographic or archeological resources would be expected to be disturbed by maintaining existing trails, wayside exhibits, a parking area, and viewsheds. Visitors would continue to have opportunities to take self-guided tours and occasional ranger-led tours. NPS acquisition of an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility would provide opportunities for expanded public access and interpretation of Browns Ferry and the Trail of Tears. Should future ethnographic or archeological investigations and consultation with associated tribes

identify resources associated with the historic Federal Road trace, Browns Ferry and the Trail of Tears, these would be protected under applicable policies and guidelines. Trails would not be developed within existing easements on the east, south, and west sides of the Moccasin Bend unit, thereby helping to protect existing and potential ethnographic and archeological resources from ground-disturbing development and increased visitor access to and near sensitive site locations. Ranger-led only tours along the Blue Blazes Trail and the installation of a gate on the road to the Blue Blazes trailhead would increase efforts to protect ethnographic and archeological resources on the west side of Moccasin Bend. Ranger-led tours would emphasize visitor education, and information imparted to visitors regarding resource protection would help to discourage vandalism and inadvertent damage of cultural remains. NPS staff would continue to manage and protect the sites in accordance with applicable policies and guidelines. Location of the ethnographic and archeological sites and the Blue Blazes Trail in the cultural protection zone would further objectives for resource protection through regular monitoring and other management measures. Scheduled ranger-led tours to the sites would continue by way of the south parking area, providing further NPS presence in the area along with periodic ranger patrols to assist site protection efforts. The south parking area would also continue to be gated and opened only for special events and programs. These measures would increase resource protection by controlling public access to sensitive site areas.

NPS staff would continue to manage the Civil War earthworks in accordance with applicable policies, guidelines, and recommendations from the cultural landscape report (NPS 2014a). Access to Stringers Ridge would be limited to ranger-led tours only and closed to self-guided visitor access. The historic road trace would be maintained. These measures, along with locating the sites in the cultural protection zone, would afford the sites a greater degree of protection. Limited vegetation clearing would enhance interpretation by improving historic viewsheds to key locations important during the Civil War.

Actions under alternative B would result primarily in long-term beneficial impacts on archeological/ethnographic resources by enhancing NPS efforts to monitor resource conditions, protect and preserve sites, and deter looting and unauthorized disturbances. A staffed visitor center and ranger-led tours would provide visitors with information that would assist site protection efforts. Continued management of the south parking area would have a long-term beneficial impact on the protection of archeological/ethnographic resources on the west side of Moccasin Bend and on Stringers Ridge by controlling public access to sensitive site areas, thereby helping to prevent site looting and disturbance. Ranger-led tours along the Blue Blazes Trail would assist efforts to control visitor use and limit the potential for unauthorized site disturbances and looting. Historic views (e.g., from Moccasin Bend to Lookout Mountain) would be improved by limited vegetation clearing on Stringers Ridge that would enhance the visual connection between the areas that contributes to the cultural landscape.

**Cumulative Impacts.** Despite past instances of disturbance, the prehistoric archeological resources retain substantial integrity and research potential; however, site looting and desecration of the ancestral burials have disturbed the cultural and spiritual connections that many contemporary tribal members have with the area. Although subject to erosion and other disturbance (e.g., social trails), the Stringers Ridge Civil War earthworks retain a large degree of original material contributing to constructed features as well as the surrounding hardwood vegetation of the cultural landscape. The Brown's Homestead and Ferry sites are also discernable in the landscape despite a loss of structures. Current management actions would continue to protect significant archeological/ethnographic resources and associated cultural landscape features, resulting in long-term beneficial impacts. Ongoing actions are likely to have only a very limited potential to adversely impact resources by diminishing site information and integrity. Despite some instances of structural failure, the riverbank stabilization project underway by the US Army Corps of Engineers is anticipated to have long-term

beneficial impacts on ethnographic and archeological resources by abating the steady erosion of Moccasin Bend's riverbank by the Tennessee River and protecting nearshore resources from erosion damage and loss. No identified archeological/ethnographic resources would be affected by the development of bike lanes on Moccasin Bend Road or Hamm Road or by actions associated with the future management of the firing range. Should routine NPS maintenance projects (e.g., trail maintenance, thinning of encroaching vegetation) entail ground-disturbing actions that could affect subsurface archeological/ethnographic resources, these actions would continue to be assessed by NPS cultural resources staff to ensure that significant sites, if identified in project areas, are avoided by project redesign and/or are clearly identified for avoidance. The actions presented above would have long-term or permanent, limited adverse impacts on archeological/ethnographic resources. The impacts associated with implementation of alternative B would have long-term or permanent, beneficial and limited adverse impacts on ethnographic and archeological resources. Other past, present, and reasonably foreseeable actions would result primarily in long-term or permanent, limited adverse impacts. Consequently, the adverse impacts of the other actions described above, in combination with the impacts of alternative B, would cumulatively result in long-term or permanent, limited adverse impacts on ethnographic and archeological resources. The impacts associated with alternative B would represent a small component of the adverse cumulative impact.

**Conclusion.** Under alternative B, proposed facility development at the Gateway site would not be expected to adversely affect identified ethnographic and archeological resources and would provide a location to impart the importance of site protection to visitors. Other proposed measures to control visitor access to sensitive site locations and enhance resource protection through the application of zoning and other means would be expected to result in long-term, localized, beneficial impacts on ethnographic and archeological resources. Long-term or permanent, localized, limited adverse impacts on ethnographic and archeological resources could also be expected from visitor use, erosion, and other factors that could diminish resource integrity. Long-term or permanent, limited adverse cumulative impacts on ethnographic and archeological resources would occur from implementation of alternative B in conjunction with other past, present, or reasonably foreseeable actions.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE C**

**Analysis.** In common with alternative B, alternative C also proposes development of a staffed visitor center at the Gateway site, providing increased opportunities to inform visitors of the sensitivity of Moccasin Bend's ethnographic and archeological resources, the penalties for disturbance, and the need to support protection efforts. Although site development would not be expected to disturb identified resources, additional surveys would likely be required for the location of support facilities (e.g., utility connections) outside the Gateway site. At the Brown's Ferry Federal Road property, no known ethnographic or archeological resources would be expected to be disturbed by maintaining existing trails, wayside exhibits, a parking area, and viewsheds. Visitors would continue to have opportunities to take self-guided tours and occasional ranger-led tours. NPS acquisition of an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility would provide opportunities for expanded public access and interpretation of Browns Ferry and the Trail of Tears. Should future ethnographic or archeological investigations and consultation with associated tribes identify resources associated with the historic Federal Road trace, Browns Ferry, and the Trail of Tears, these would be protected under applicable policies and guidelines. Regular ranger-led tours along the Blue Blazes Trail would assist efforts to protect resources on the west side of Moccasin Bend although self-guided tours would also be permitted. Location of that trail in the cultural interpretation zone would further objectives for resource protection through regular resource monitoring and other management measures. Wayside exhibits would inform visitors of resource protection requirements and the penalties for disturbance.

NPS staff would continue to manage and protect the ethnographic and archeological sites on the west side of Moccasin Bend in accordance with applicable policies and guidelines. Scheduled ranger-led tours to the sites would continue by way of the south parking area, providing further NPS presence in the area along with periodic ranger patrols to assist site protection efforts. Ranger-led tours would emphasize visitor education, and information imparted to visitors regarding resource protection would help to discourage vandalism and inadvertent damage to cultural remains. The south parking area would also continue to be gated and opened only for special events and programs. These measures would increase resource protection by controlling public access to sensitive site areas.

NPS staff would continue to manage the Civil War earthworks in accordance with applicable policies, guidelines, and recommendations from the cultural landscape report (NPS 2014a). Both ranger-led tours and self-guided visitor access would be provided to Stringers Ridge. These measures, along with providing wayside interpretive exhibits and locating the sites in the cultural interpretation zone, would afford the sites a greater degree of protection and better inform visitors of site sensitivities and protection requirements. Limited vegetation clearing would enhance interpretation by improving historic viewsheds to key locations important during the Civil War.

Following National Park Service acquisition of the firearms training range, the area would be revegetated and converted to visitor-related services. The existing boat ramp would be rehabilitated for park administrative uses and ranger-led, nonmotorized watercraft tours. A riverfront hiking trail would also be developed connecting the boat ramp area to the visitor center and the Civil War earthworks. No known ethnographic or archeological resources would be disturbed by proposed development, although all areas would be surveyed and areas containing significant ethnographic or archeological resources would be avoided or adequately mitigated prior to construction.

**Cumulative Impacts.** Despite past instances of disturbance, the prehistoric archeological resources retain substantial integrity and research potential; however, site looting and desecration of the ancestral burials have disturbed the cultural and spiritual connections that many contemporary tribal members have with the area. Although subject to erosion and other disturbance (e.g., social trails), the Stringers Ridge Civil War earthworks retain a large degree of original material contributing to constructed features as well as the surrounding hardwood vegetation of the cultural landscape. The Brown's Homestead and Ferry sites are also discernable in the landscape despite a loss of structures. Current management actions would continue to protect significant archeological/ethnographic resources and associated cultural landscape features, resulting in long-term beneficial impacts. Ongoing actions are likely to have only a very limited potential to adversely impact resources by diminishing site information and integrity.

Despite some instances of structural failure, the riverbank stabilization project underway by the US Army Corps of Engineers is anticipated to have long-term beneficial impacts on ethnographic and archeological resources by abating the steady erosion of Moccasin Bend's riverbank by the Tennessee River and protecting nearshore resources from erosion damage and loss. No identified archeological/ethnographic resources would be affected by the development of bike lanes on Moccasin Bend Road or Hamm Road or by actions associated with the future management of the firing range. Should routine NPS maintenance projects (e.g., trail maintenance, thinning of encroaching vegetation) entail ground-disturbing actions that could affect subsurface archeological/ethnographic resources, these actions would continue to be assessed by NPS cultural resources staff to ensure that significant sites, if identified in project areas, are avoided by project redesign and/or are clearly identified for avoidance. The actions presented above would have long-term or permanent, limited adverse impacts on archeological/ethnographic resources.

The impacts associated with implementation of alternative C would have long-term or permanent, beneficial and limited adverse impacts on ethnographic and archeological resources. Other past, present, and reasonably foreseeable actions would result primarily in long-term or permanent, limited adverse impacts. Consequently, the adverse impacts of the other actions described above, in combination with the impacts of alternative C, would cumulatively result in long-term or permanent, limited adverse impacts on ethnographic and archeological resources. The impacts associated with alternative C would represent a small component of the adverse cumulative impact.

**Conclusion.** Under alternative C, proposed facility development at the Gateway site would not be expected to adversely affect identified ethnographic and archeological resources and would provide a location to substantially impart the importance of site protection to visitors. Other proposed measures to control visitor access to sensitive site locations and enhance resource protection through the application of zoning and other means would be expected to result in long-term, localized, beneficial impacts on ethnographic and archeological resources. Long-term or permanent, localized, limited adverse impacts on ethnographic and archeological resources could also be expected from visitor use, erosion, and other factors that could diminish resource integrity. There would also be long-term or permanent, limited adverse cumulative impacts on ethnographic and archeological resources from implementation of alternative C in conjunction with other past, present, or reasonably foreseeable actions.

## VISITOR USE AND EXPERIENCE

### AFFECTED ENVIRONMENT

For the purposes of this document, visitors are defined as anyone who enters the park or uses NPS facilities for any reason. Visitor use data can include information regarding how many people visit the park, where they travel from, and how long they stay.

In 2015, 1,002,373 people visited Chickamauga and Chattanooga National Military Park. Visitation to the park is fairly consistent, about 60,000 people in the shoulder months (December through February) and 90,000–100,000 between March and October. A visitor survey conducted by the Social and Economic Sciences Research Center of Washington State University (Strawn and Le 2014) indicates that the top three activities in Chickamauga and Chattanooga National Military Park are visiting the visitor center; hiking, walking, or jogging in the park; and participating in a self-guided tour. In fact, of those surveyed ( $n=323$ ) 75 percent identified visiting a visitor center as an activity; 53 percent identified hiking, walking, or jogging; and 44 percent identified a self-guided tour other than cell phone tour.

Visitor counters currently are not in place at Moccasin Bend National Archeological District; therefore, it is difficult to estimate how many people visit Moccasin Bend annually. In the 2014 visitor use survey, 10 percent of those surveyed ( $n=291$ ) identified Moccasin Bend National Archeological District as a site they visited. Nineteen percent were aware of Moccasin Bend National Archeological District prior to visiting Chickamauga and Chattanooga National Military Park. The most common responses regarding how visitors heard about Moccasin Bend National Archeological District was through local residents, maps/brochures, friends/family/word of mouth, and the internet/website. The survey demonstrated that in 2014 less than 1 percent of visitors to Chickamauga and Chattanooga National Military Park visited Moccasin Bend National Archeological District as their first destination; however, 35 percent of those surveyed who were interested in learning about the cultural and natural history of the park through indoor exhibits ( $n=87$ ) expressed interest in Moccasin Bend National Archeological District. Of the visitors surveyed who were interested in learning about the cultural and natural history of the park through living history / costumed interpretive programs ( $n=87$ ), 32 percent expressed interest in Moccasin Bend National Archeological District. Forty-seven percent of those surveyed who were interested in learning about the cultural and natural history of the park through outdoor exhibits ( $n=106$ ) were interested in learning about Moccasin Bend National Archeological District.

Seventy-five percent of those surveyed ( $n=304$ ) said they had attended a ranger-led program. Forty-one percent indicated they learned something from viewing the exhibits or movies or attending ranger-led programs that is meaningful to their lives today. Sixteen percent of those surveyed ( $n=234$ ) indicated they learned about the roles of Southeastern American Indians, whereas 84 percent indicated they learned about events of the Civil War. Ten percent of those surveyed identified learning about the impact of European contact on Southeastern American Indians. When asked which stories at the national military park needed to be emphasized or strengthened, the role of American Indians was the third most common response. When surveyed about their group's preferred method to learn about the park, visitor groups ranked, in this order, ranger-led walks and talks (highest), then films, movies, video, self-guided tours, outdoor exhibits, printed materials, indoor exhibits, and living history/costumed interpretive programming. These data indicate that visitors are interested in visiting Moccasin Bend National Archeological District and learning more about the roles of Southeastern American Indians. Visitors also identified interest in specific facilities

and accommodations that are included in the alternatives for the future of Moccasin Bend National Archeological District presented in this GMP amendment.

The City of Chattanooga has made efforts to position the region as a center for outdoor recreation, including considerable development of recreational programming, facilities, and greenway and river connections. Increased recreational use of Moccasin Bend would seem a likely result of population trends and increased emphasis on outdoor use and connectivity within the region.

The opportunity to experience natural and cultural and historic sounds is an important element of many visitor experiences in national parks. In a 1998 survey of the US public, 72 percent of respondents thought providing opportunities to experience natural quiet and the sounds of nature was an important reason for having national parks, and another 23 percent thought it was somewhat important (Haas and Wakefield 1998). In another survey specific to park visitors, 91 percent of respondents considered enjoyment of natural quiet and the sounds of nature as compelling reasons for visiting national parks (McDonald et al. 1995).

The diversity of sites within Moccasin Bend National Archeological Site provides visitors an abundance of opportunities to hear diverse natural and cultural sounds that enhance the visitor experience. The soundscape of Moccasin Bend varies across the landscape, with a variety of audible natural and nonnatural sounds, depending on location. Little quantitative data are available on the acoustical environment or soundscapes of Moccasin Bend. The NPS Natural Sounds Program has been asked to monitor magnitude, frequency, and duration of noise impacts of the firing range to inform the future soundscape management plan. The noise from this non-NPS action from the firing range has varying effects on different locations within Moccasin Bend. The existing noise impacts from the firing range are incompatible with the management goals for Moccasin Bend. In addition, visitors at current interpretive programs are impacted by noise from the firing range at the south parking area, Stringers Ridge, the Gateway site, and on the Blue Blazes Trail.

The health and safety of park visitors, staff, and neighbors are of great importance to the National Park Service. Park staff are responsible for maintaining conditions that protect the health and safety of employees and the public in the park. Statutory and regulatory provisions applicable to national park system units require the National Park Service not only to provide safe facilities, utilities, and grounds within the park, but also to promote safety in park programs and project operations (NPS *Management Policies 2006*, §8.2.5).

## **VISITOR EXPERIENCE (INCLUDING VISITOR SAFETY)**

Moccasin Bend National Archeological District may be reached by road, and parking is available at various locations. Some visitors arrive via bicycles. Currently, bicyclists can ride along the Riverwalk to the Gateway site and also along the city roads along Moccasin Bend. The Moccasin Bend area is approximately a 30-minute drive from Chickamauga Battlefield and across the Tennessee River from Lookout Mountain Battlefield. A number of visitor opportunities are available in Moccasin Bend, including the Blue Blazes Trail, access to Stringers Ridge, and interpretive waysides throughout Moccasin Bend.

Currently, visitors have few opportunities to orient themselves to Moccasin Bend and the appropriate places to visit and behaviors during their visit. In addition, there are land uses on Moccasin Bend that are separate from the National Park Service, such as the golf course, mental health facility, and, currently, the firing range. There is no fence or other physical barrier along the boundary between the firing range and NPS property. Users to the non-NPS facilities on Moccasin Bend often arrive by car, and this could result in safety concerns for users on foot and on bicycles

also using the road. There are also ongoing user conflicts between different user groups. For example, off-highway vehicle users access the area primarily on service and power line roads; this use is not permitted and is a safety concern for visitors accessing on foot. There is a lack of NPS presence in Moccasin Bend because of limited staff and facilities to maintain, and it is important to note that park visitors assume some risks in visiting and using areas of the park.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE A**

**Analysis.** Under alternative A, there would be some slight beneficial impacts on visitor experience including safety. Limited access at the Gateway site would have a slight beneficial effect on the visitor experience and understanding of the archeological resources of Moccasin Bend, which is part of the park's purpose. Access at the Brown's Ferry Federal Road property would continue to have a small positive effect on the visitor experience because the park would maintain the existing walking trail at this site and support a contemplative experience. Identified as a fundamental resource and value, the Trail of Tears resources at this site would continue to provide valuable and beneficial effects on visitor experience and understanding.

Under this alternative, the small NPS presence in Moccasin Bend has a slight adverse impact on visitor safety. There is also the potential for adverse effects on visitor safety from vehicle and bicycle collisions or negative interactions as bicycles continue to travel the roads of Moccasin Bend. To minimize impacts on cultural and natural resources, no bike use is permitted on park trails. The current access to the Blue Blazes Trail, which would be maintained in alternative A, would have a slight beneficial impact on the visitor experience, understanding of the archeological and civil war sites, and opportunities for a contemplative experience.

Archeological sites on the west site would continue to have small beneficial impacts on the visitor experience because the park would continue ranger-led tours from the south parking area and provide opportunities for contemplative experiences. The opportunities for visitors to access important archeological resources of the American Indian habitation of Moccasin Bend, a fundamental resource and value of the park, would continue to provide beneficial effects on the visitor experience.

Continued access at Stringers Ridge would have a slight beneficial effect on the visitor experience through ongoing opportunities such as limited access through periodic ranger-led tours and for visitors to have contemplative experiences.

Access at the south parking area would have a slight beneficial impact on visitor access because the park would continue to maintain and open the gate to the south parking area for special events and programs, which would not only support access to Moccasin Bend but also protect the contemplative experience.

There would be no new bicycle access to Moccasin Bend under the no-action alternative. Bicyclists could continue to ride along the road. Bicyclists also could ride along the Riverwalk to the Gateway site and on city roads along Moccasin Bend. To avoid impacts on cultural and natural resources, there would be no bicycle access on park trails.

**Cumulative Effects.** Other past, present, and reasonably foreseeable actions are likely to have an impact on the visitor experience. The contributions of the cumulative impacts scenario would be long-term and both beneficial and adverse on the visitor experience at Moccasin Bend. The increased visitor opportunities on adjacent lands such as new opportunities to access designated bicycle routes and lanes as a result of non-NPS actions would have a beneficial impact; however, the



continued operation of the law enforcement firing range would have a long-term adverse impact on the visitor experience due to noise and is a major safety concern for visitors to Moccasin Bend National Archeological District.

The proposed bike route along Moccasin Bend and the proposed bike lane along Hamm Road would likely increase visitation to Moccasin Bend and help visitors arrive at Moccasin Bend safely. According to relevant literature, bicycle-specific facilities reduce crashes, injuries, and fatalities and are safer for cyclists than roads (Pucher 2001; Reynolds et al. 2009). However, under the no-action alternative, there would be no added management actions, facilities, or accommodations for the additional bicycle use, and this could have a long-term adverse effect on the visitor experience including safety within the park because of limited opportunities. Again, the continuation of current management of Moccasin Bend under this alternative could have a long-term, slight negative impact on the visitor experience as more visitors arrive and visit Moccasin Bend but have limited access opportunities. The impacts associated with implementation of alternative A would have long-term adverse impacts on the visitor experience because of the lack of orientation information regarding the important sites and resources on Moccasin Bend, as well as the potential for increased user conflict with more visitors and no additional management. In addition, under this alternative the firing range is not acquired. Without orientation information, the firing range limits access opportunities for visitors to Moccasin Bend, resulting in long-term adverse impacts on the visitor experience and soundscapes. The continuation of current management would not resolve the soundscape concerns from the firing range. In addition, without acquisition of the firing range and appropriate orientation, the firing range poses an adverse effect on visitor safety and remains a concern because of current activities at the firing range and the lack of physical barriers between the firing range and NPS property.

Because this alternative does not assume acquisition of the firing range, the combined impacts listed above and the cumulative impact scenario would have a large adverse effect on visitor safety. Under this alternative, visitors would not receive orientation and safety information at the Gateway site and could be unaware of the firing range. The presence of the range poses a major safety concern for visitors to Moccasin Bend National Archeological District.

Impacts of the other actions described above, in combination with the impacts of alternative A, would cumulatively result in long-term adverse impacts on the visitor experience including safety at Moccasin Bend.

**Conclusion.** Overall, there may be large adverse impacts on the visitor experience including safety as a result of NPS and non-NPS actions within the park and on adjacent lands. Overall, when the effects of the no-action alternative are added to the effects of the cumulative impacts scenario, there would be slight beneficial impacts on the visitor experience because of continued opportunities for visitors to explore some of the important resources at Moccasin Bend. In addition, there would be large adverse impacts on visitor safety because of the continued use and operation of the firing range. With a continuation of current management practices, there is a continued threat for visitor conflicts between user groups on Moccasin Bend. Overall, when the effects of alternative A are added to the effects of the cumulative impacts scenario, there would be adverse impacts on visitor experience including visitor safety due to increased visitor opportunities within the park and the region and also continued use of the firing range, the lack of orientation and safety information, and the lack of a NPS presence.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE B**

**Analysis.** Under alternative B, visitors would have increased access to opportunities in Moccasin Bend. Access to a visitor center and a developed parking area would have a large beneficial impact on the visitor experience by providing regular services, orientation and access, safety information, and contact with park rangers, all of which can enhance the visitor experience and visitor safety. There would be frequent levels of interaction with visitors, NPS staff, and a variety of interpretive and educational opportunities that would have a large positive impact on the visitor experience. This visitor contact point would also provide information on appropriate experiences to support diverse visitor experiences and expectations. The visitor center would be designed in way to meet diverse visitor needs and promote universal accessibility.

Although the park would not exercise easements, the addition of a staffed visitor center within view (and earshot) of the firing range could result in unauthorized and uncontrolled access to the firing range, which would raise safety concerns. There also would be the potential for adverse effects on visitor safety from vehicle and bicycle collisions or negative interactions as bicycles continue to travel the roads of Moccasin Bend. No bike use would be permitted on park trails.

Access at the Brown's Ferry Federal Road property would continue to have a small positive effect on the visitor experience because the park would maintain existing trails, wayside exhibits, viewsheds, and parking area. The park would also seek to acquire an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility. This easement would have a small beneficial impact on the visitor experience because it would allow visitor access to an essential component of the historical route of Brown's Ferry Federal Road and provide the National Park Service additional interpretation and education opportunities at the site. The park would also continue to provide opportunities for varying visitor experiences through self-guided tours and the occasional ranger-led tour, and these would also have a small beneficial effect. As a cultural interpretation zone, the Brown's Ferry Federal Road property would provide visitors a wide range of interpretation and education opportunities as well as opportunities to experience some solitude, tranquility, and quiet that would support the contemplative experience. The diverse range of opportunities would have a small positive impact on visitor experience. Identified as a fundamental resource and value, the Trail of Tears resource at the Brown's Ferry Federal Road property would provide valuable and small beneficial effects to visitor use and understanding.

Under alternative B, access at Blue Blazes Trail would have a slight adverse effect on the visitor experience because as a cultural protection zone access would be limited to ranger-led tours. This change in access would still provide some access and opportunities to learn about the resources; however, ranger-led tours would provide a different kind of experience and, depending on group size, could also support the contemplative experience, which could have a slight beneficial effect on the visitor experience.

Archeological sites on the west side of Moccasin Bend would continue to have slight beneficial impacts on visitor use and understanding because the park would continue ranger-led tours from the south parking area, and there would be continued opportunities to learn about the resource and, depending on group size, opportunities for a contemplative experience. The opportunities to access important archeological resources of the American Indian habitation of Moccasin Bend, a fundamental resource and value of the park, would provide beneficial effects on visitor use and understanding.

Under alternative B, improvements to viewsheds to key battle points would have small beneficial impacts on visitor understanding. Strategic and important views have been identified as a fundamental resource and value of the park.

The opportunities to access important archeological resources of the Civil War of Moccasin Bend, a fundamental resource and value of the park, through ranger-led tours would have small beneficial impacts on the visitor experience and understanding. Access to Stringers Ridge would be limited to ranger-led tours and this would have small positive impacts on the visitor experience and understanding of the important resources of Moccasin Bend but also small adverse impacts because access would be limited.

Access at the south parking area would have a slight beneficial impact on the visitor experience because the park would continue to maintain and open the gate to the south parking area for special events and programs, which would support access to Moccasin Bend and protect the contemplative experience.

Under alternative B, there would be no new access to Moccasin Bend for bicyclists. Bicyclists could continue to ride along the road. Bicyclists can ride along the Riverwalk to the Gateway site and along the city roads in Moccasin Bend. There would be no bicycle access on park trails to minimize impacts on cultural and natural resources. Bike racks would be provided at the Gateway site and in the Stringers Ridge parking lot so visitors could secure their bikes and experience the park on foot.

**Cumulative Effects.** The contributions of the cumulative impacts scenario would be long-term and both beneficial and adverse. The beneficial impact on the visitor experience would be due to increased visitor opportunities within the park and on adjacent lands as a result of non-NPS actions such as new opportunities to access designated bicycle routes and lanes; however, the continued operation of the firing range would result in long-term adverse impacts on the visitor experience, including the soundscapes of Moccasin Bend.

Under alternative B, visitors would be aware of the firing range, but without a physical barrier and given the current activities at the firing range, the operation of the firing range would continue to be a safety concern for visitors to Moccasin Bend and have an adverse effect on visitor safety. The proposed bike route in Moccasin Bend and the proposed bike lane along Hamm Road would likely increase visitation to Moccasin Bend and help visitors arrive at Moccasin Bend safely. According to relevant literature, bicycle-specific facilities reduce crashes, injuries, and fatalities and are safer for cyclists than roads (Pucher 2001; Reynolds et al. 2009).

Under alternative B, there would be a visitor center at the Gateway site that could have a long-term beneficial effect on the visitor experience within the park because of increased opportunities in the cultural interpretation and visitor services zones. The management under alternative B could have a long-term slight beneficial impact on the visitor experience as more visitors arrive and visit Moccasin Bend and have increased opportunities in the cultural interpretation and visitor services zones.

**Conclusion.** Overall, there may be beneficial and adverse impacts on the visitor experience as a result of the NPS and non-NPS actions within the park and on adjacent lands. Under alternative B, there would be adverse impacts on visitor safety because of the continued use of the firing range. Conflicts between user groups would be lessened in this alternative because of a stronger NPS presence in Moccasin Bend, which would have a slight beneficial effect on visitor safety. Under alternative B, small beneficial incremental impacts on access would continue because of expanded opportunities to experience Moccasin Bend National Archeological District. Overall, when the effects of alternative B are added to the effects of the cumulative impacts scenario under this

alternative, there would be both beneficial and adverse impacts on the visitor experience because of expanded visitor opportunities within the park and region; however, the visitor experience including visitor safety and soundscapes would continue to be adversely affected by the continued operation of the firing range.

## **ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVE C**

**Analysis.** Access to a visitor center and a developed parking area would have a large beneficial impact on the visitor experience by providing regular services, orientation and access, safety information, and contact with park rangers; all of which can enhance the visitor experience. There would be frequent levels of interaction with visitors, NPS staff, and a variety of interpretive and educational opportunities that would have a large positive impact on the visitor experience. This visitor contact point would provide information on appropriate experiences to support diverse visitor experiences and expectations. The visitor center would be designed in way to meet diverse visitor needs and promote universal accessibility.

Before acquisition of the firing range under this alternative, the park would not exercise easements, and the addition of a staffed visitor center within view (and earshot) of the firing range could result in unauthorized and uncontrolled access to the firing range, which would raise safety concerns. After acquisition of the firing range, those safety concerns would be mostly eliminated.

Access at the Brown's Ferry Federal Road property would continue to have a small positive effect on the visitor experience because the park would maintain existing trails, wayside exhibits, viewsheds, and parking area. The park would also seek to acquire an easement across the northwestern part of the Moccasin Bend Wastewater Treatment Facility. This easement would have a small beneficial impact on the visitor experience because it would allow visitor access to an essential component of the historical route of Brown's Ferry Federal Road and provide the National Park Service additional interpretation and education opportunities at the site. The park would continue to provide opportunities for visitor access through self-guided tours and the occasional ranger-led tour, which would also have a small positive effect on the visitor experience. As a cultural interpretation zone, the Brown's Ferry Federal Road property would provide visitors a wide range of interpretation and education opportunities as well as opportunities to experience some solitude, tranquility, and quiet, which, depending on group size, could support contemplative experiences. This diverse range of opportunities including the opportunity to understand the Trail of Tears resource at the site, a fundamental resource and value of the park, would have a small positive impact on visitor experience.

Current access to the Blue Blazes Trail would be maintained, and there would be regular ranger-led tours, self-guided access, and waysides. The previously listed opportunities at Blue Blazes Trail would have a large beneficial impact on the visitor experience, understanding of the archeological and Civil War sites, and opportunities for a contemplative experience.

The park would continue ranger-led tours at the archeological sites on the west side of Moccasin Bend from the south parking area. These tours would continue to have a small beneficial impact on the visitor experience because of increased access and opportunities to understand important resources.

Opportunities to access important archeological resources of the American Indian habitation of Moccasin Bend, a fundamental resource and value of the park, would be offered through ranger-led tours. These opportunities would provide small beneficial effects on visitor use and understanding through increased access.

Before acquisition of the firing range, Stringers Ridge would be a cultural protection zone and use would be limited to ranger-led access. Upon acquisition of the firing range, the northernmost NPS part of Stringers Ridge would be a cultural interpretation zone with self-guided access. This area would support a foot trail along the farm road and connect to the Gateway site. The increased access under this alternative and the new access after acquisition of the firing range would have a substantial beneficial impact on the visitor experience.

Visitors could continue to use the Stringers Ridge parking area, which would have a large beneficial impact on visitor use and experience. In addition, the development of interpretive waysides would provide additional interpretive opportunities at the Stringers Ridge parking area, which would have a small beneficial impact on visitor understanding of the important resources of Moccasin Bend.

In addition, improvements to viewsheds to key battle points would have a small beneficial impact on the visitor experience because they would improve visitor understanding at strategic and important views, which are identified as a fundamental resource of the park.

The division of Moccasin Bend into a cultural protection zone and a cultural interpretation zone would have a large beneficial impact on the visitor experience because of the range of opportunities it would provide, including supporting diverse visitor opportunities, protecting fundamental resources and values of the park, and providing visitors opportunities to understand the important resources of Moccasin Bend.

The existing boat ramp at the firing range would be rehabilitated for park administrative uses and for ranger-led, nonmotorized watercraft tours. These new opportunities for ranger-led tours would provide a small beneficial impact on visitor experience. The administrative boat ramp under this alternative would have a beneficial impact on visitor safety; visitors would not have open access, and rangers would be able to patrol and to respond to emergencies on the water.

Access at the south parking area would have a slight beneficial impact on visitor access because the park would continue to maintain and open the gate to the south parking area for special events and programs, which would support access to Moccasin Bend and protect the contemplative experience.

There would be no new bicycle access in Moccasin Bend under alternative C. Bicyclists could continue to ride along the road, and this would have an adverse effect on visitors who access by bicycle. Bicyclists also could ride along the Riverwalk to the Gateway site and along the city roads in Moccasin Bend. There would be no bicycle access on park trails to minimize impacts on cultural and natural resources. Bike racks would be provided at the Gateway site and the Stringers Ridge parking lot so visitors could secure their bikes and experience the park on foot.

**Cumulative Effects.** The contributions of the cumulative impacts scenario would be mostly long term and beneficial to the visitor experience because of increased visitor opportunities within the park and on adjacent lands as a result of non-NPS actions such as new opportunities to access designated bicycle routes and lanes. The acquisition of the firing range would also result in long-term beneficial impacts on the soundscapes of Moccasin Bend.

The proposed bike route along Moccasin Bend and the proposed bike lane along Hamm Road would likely increase visitation to Moccasin Bend and help visitors safely arrive at Moccasin Bend. According to relevant literature, bicycle-specific facilities reduce crashes, injuries, and fatalities and are safer for cyclists than roads (Pucher 2001; Reynolds et al. 2009). In addition, the recreation opportunities on the north part of Stringers Ridge could also increase visitation to Moccasin Bend.

Under alternative C, there would be a visitor center at the Gateway site and additional foot trail opportunities, and these could have a long-term beneficial effect on the visitor experience within the park because of increased opportunities in the cultural interpretation and visitor services zones. The additional orientation and safety information, opportunities to interact with an NPS ranger at the visitor center, and a strong NPS presence in Moccasin Bend would have long-term beneficial impacts on visitor safety. There would still be chances for user conflicts, but with an increased NPS presence there would be slight beneficial impacts on visitor safety. More visitors would arrive at Moccasin Bend and have access to orientation and safety information and appropriate uses of the park. The management under alternative C could have a long-term large beneficial impact on the visitor experience as more visitors arrive and visit Moccasin Bend and have increased opportunities in the cultural interpretation and visitor services zones. Overall, under alternative C, with the acquisition of the firing range, there would be large beneficial impacts on the visitor experience including soundscapes through opportunities for park visitors to experience solitude and a contemplative experience and participate in interpretive talks at locations where the soundscape was previously impacted by the firing range.

**Conclusion.** Overall, there may be large beneficial impacts on the visitor experience as a result of the other NPS and non-NPS actions within the park and on adjacent lands. Before acquisition of the firing range, there would be adverse impacts on visitor safety because of the continued use of the firing range. Once the firing range was acquired, there would be a beneficial effect on visitor safety because of its removal. Under alternative C, large beneficial incremental impacts on access would continue because of expanded opportunities to experience Moccasin Bend National Archeological District. Overall, when the effects of alternative C are added to the effects of the cumulative impacts scenario, there would be beneficial impacts on the visitor experience because of expanded visitor opportunities within the park and region. In addition, after the acquisition of the firing range, there would be large beneficial impacts on the soundscapes through opportunities for park visitors to experience solitude and a contemplative experience and participate in interpretive talks at locations where the soundscape was previously impacted by the firing range.

# Chapter

# 4

## CONSULTATION AND COORDINATION







## CHAPTER 4: CONSULTATION AND COORDINATION

### PUBLIC INVOLVEMENT

As part of scoping for a general management plan for Chickamauga and Chattanooga National Military Park, in 2009 the National Park Service initiated public involvement for planning that included Moccasin Bend. Although this planning effort was not completed, the planning team considered comments related to Moccasin Bend that were shared during that process when the draft alternatives were developed for this GMP amendment. The draft alternatives for this amendment were shared with the public during two open house meetings held on October 20 and 22, 2015. Comments were accepted during the open house, on mail-back comment cards or letters returned to the National Park Service, and on the NPS Planning Environment & Public Comment (PEPC) website. Seventy-two individual pieces of correspondence were received. Official comments were received from the Tennessee Department of Mental Health and Substance Abuse Services. In addition, comments were received from the Friends of Moccasin Bend; Friends of Chickamauga and Chattanooga National Military Park; Civil War Trust; Tennessee Valley Canoe Club; Walker County Historical Society; East Bay Regional Park District; Accessible Trails Foundation; Chattanooga Bakery, Incorporated; and National Park Conservation Association.

Comments on the draft alternatives primarily focused on resource protection, visitor access, the level of development particularly at the Gateway site, and a multiuse trail. Many commenters expressed support for ensuring that sensitive resources in the park are properly protected, especially the archeological sites, and suggested that access continue to be limited to ranger-led tours. Commenters also expressed concern about the Civil War-era sites, but many also supported self-guided access to these areas. Although a few supported a visitor orientation plaza, the majority favored a visitor center at the Gateway site. A few commenters also supported expanding interpretation at the visitor center to include artifacts from the region as a whole rather than just resources in Moccasin Bend. Many comments were received, both in support and against, development of a multiuse trail around the perimeter of the peninsula. Those in favor supported the recreational opportunity and the access associated with a multiuse trail. Those against were concerned about visitor conflicts between pedestrians and bicyclists and about resource protection if the trail crossed near archeological sites.

Comments received from the Tennessee Department of Mental Health and Substance Abuse Services expressed strong concerns about self-guided access along Stringers Ridge and a multiuse trail near the mental health facility on Moccasin Bend because of concerns about patient privacy. The department also indicated that, if self-guided access were allowed nearby or if the multiuse trail was developed, it would be necessary to increase the security presence at the facility. There was unanimous agreement among those who commented that the firing range should be relocated outside of the park because it is not consistent with the purposes of the park. While some commenters expressed interest in water access to the park, others expressed safety concerns regarding barge mooring near water access sites. Comments were also received from tribal representatives and are discussed under the section on tribal consultations.

## **LIST OF AGENCIES CONSULTED**

City of Chattanooga

Chattanooga-Hamilton County Regional Planning Agency

Hamilton County, Tennessee

State of Tennessee, Tennessee Historical Commission/State Historic Preservation Office

State of Tennessee, Department of Mental Health and Substance Abuse Services / Moccasin Bend

Mental Health Institute

US Fish and Wildlife Service

US Army Corps of Engineers

## **CONSULTATION AND COORDINATION WITH AGENCIES AND TRIBES**

### **US FISH AND WILDLIFE SERVICE**

In a letter dated January 7, 2016, the National Park Service advised the US Fish and Wildlife Service of the NPS planning process for the GMP amendment and requested an official list of federally listed threatened, endangered, and candidate species within the Moccasin Bend unit. Based on the US Fish and Wildlife Service's Environmental Conservation Online System and informal consultation with the agency's Cookeville, Tennessee, office, 12 federally threatened and endangered species may be found within the Moccasin Bend unit. The US Fish and Wildlife Service will be given a copy of this document for review.

With regard to the federally threatened northern long-eared bat, NPS staff will follow the framework laid out in the US Fish and Wildlife Service's 2016 guidance (USFWS 2016). Under the section 4(d) rule for the northern long-eared bat, the actions being proposed in this plan are exempted from incidental take prohibitions because they would not occur within 0.25 miles of a known hibernaculum or within 150 feet of a known occupied maternity roost tree during the pup season. However, as part of the section 7 consultation process, park staff will provide written documentation describing tree clearing activities to the US Fish and Wildlife Service Tennessee Ecological Services Field Office 30 days prior to implementing this action. Also, park staff will promptly notify the US Fish and Wildlife Service if it does not conduct an activity as described.

Because suitable summer habitat for the Indiana bat is present in the Moccasin Bend unit and steps can be taken to minimize the effects of tree clearing activities or other activities that could adversely affect the bat, park staff will coordinate with the US Fish and Wildlife Service to assess the potential impacts of proposed activities, develop appropriate conservation measures, and determine if there is a need for an Endangered Species Act incidental take authorization.

### **US ARMY CORPS OF ENGINEERS**

On February 17, 2016, the NPS planning team advised the US Army Corps of Engineers, Nashville District, about the NPS planning process for this GMP amendment and requested a list of projects being conducted or planning to take place in the Tennessee River in the vicinity of Moccasin Bend. The Corps responded on March 2, 2016, providing the requested information. The NPS planning team subsequently determined that none of the NPS actions being proposed in the alternatives would affect the floodplain. Thus, no additional consultation is required on this GMP amendment.

### **STATE HISTORIC PRESERVATION OFFICE**

In letters dated November 9, 2015, the National Park Service notified the Tennessee Historical Commission (state historic preservation office) and the Advisory Council on Historic Preservation of the initiation of the GMPA/EA planning process for the Moccasin Bend National Archeological District. The participation of these agencies in the planning process was welcomed. The National Park Service noted that, in accordance with the Advisory Council's regulations, the planning effort would be considered "nondestructive project planning activities . . . [that] do not restrict the subsequent consideration of alternatives" (36 CFR 800.1(c)) and that the National Park Service would seek formal Section 106 consultation following completion of the plan and as specific project proposals stemming from the plan reach more detailed design development stages. The Tennessee

Historical Commission did not provide a formal response at the time, and the Advisory Council (letter dated December 3, 2015) responded that it was premature for them to determine whether its participation in the Section 106 process was warranted.

In letters dated June 24, 2016, the National Park Service notified the Tennessee Historical Commission and the Advisory Council that the process and documentation required for the preparation of the environmental assessment for the plan would also be used to comply with Section 106 of the National Historic Preservation Act. The Tennessee Historical Commission responded (letter dated July 15, 2016) with acknowledgement that the National Park Service would use the plan to address Section 106 and NEPA requirements and requested that a copy of the draft plan / environmental assessment be submitted to its office for review and comment. The National Park Service will provide the Historical Commission with a copy of the plan / environmental assessment and will continue to consult with the Historical Commission and the Advisory Council as necessary through implementation of the plan, including during project design development stages.

## **ASSOCIATED TRIBES**

On multiple occasions between 2005 and 2006, the National Park Service held government-to-government meetings with associated tribal members regarding planning for Moccasin Bend. Much useful information was provided to park staff by participating tribes regarding their perspectives on the desired future of the Moccasin Bend unit and opportunities for the tribes to participate in its development and interpretation. With the decision to proceed with the present GMP amendment, the park superintendent notified the associated tribes (letters dated June 30, 2015) of the National Park Service's desire to consult on the planning effort and to seek tribal input on the range of preliminary planning alternatives.

Park staff held a government-to-government meeting with representatives of two associated American Indian tribes regarding the GMP amendment on May 20, 2016. The meeting was attended by Sheila Bird (Tribal Historic Preservation Officer, Cherokee Nation) and Eric Oosahwee-Voss (Tribal Historic Preservation Officer, United Keetoowah Band of Cherokee Indians in Oklahoma). Park staff provided an overview of the planning process and the development of the preliminary management alternatives for the plan. The National Park Service will seek additional consultation upon selection of the preferred alternative.

The tribal representatives recommended the importance of staffing a park archeologist to expedite instances requiring compliance with the Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act. They also expressed interest in assisting the National Park Service with public programs and interpretation by coordinating cultural demonstrations. The tribal representatives visited the various areas of the archeological district and provided their recommendations and concerns for the planning alternatives. They stressed the importance of ensuring site security and resource protection, while providing for appropriate interpretation and cultural demonstrations.

## **FUTURE CONSULTATION AND COMPLIANCE**

The National Park Service will continue to consult with agencies, tribes, partners, stakeholders, and the public as actions identified in the GMP amendment advance toward more detailed design development and implementation stages. Separate implementation planning may be required to address specific requirements for site development and construction. As site designs are refined, the National Park Service will complete any additional compliance and permitting requirements,

including compliance with section 106 of the National Historic Preservation Act for project specific undertakings and section 7 of the Endangered Species Act.

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## **APPENDIX A: LEGISLATION**

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Act of February 20, 2003 (117 Stat. 248, Public Law 108-7, Section 160 of General Provisions)  
 Establishing the 780-acre Moccasin Bend National Archeological District as a unit of  
 Chickamauga and Chattanooga National Military Park

PUBLIC LAW 108-7—FEB. 20, 2003

117 STAT. 247

SEC. 160. MOCCASIN BEND NATIONAL ARCHEOLOGICAL DISTRICT ACT. (a) SHORT TITLE.—This section may be cited as the “Moccasin Bend National Archeological District Act”.

Moccasin Bend  
 National  
 Archeological  
 District Act,  
 Tennessee,  
 16 USC 424c.

(b) DEFINITIONS.—As used in this section:

(1) SECRETARY.—The term “Secretary” means the Secretary of the Interior.

(2) ARCHEOLOGICAL DISTRICT.—The term “archeological district” means the Moccasin Bend National Archeological District.

(3) STATE.—The term “State” means the State of Tennessee.

(4) MAP.—The term “Map” means the map entitled, “Boundary Map Moccasin Bend National Archeological District”, numbered 301/80098, and dated September 2002.

(c) ESTABLISHMENT.—

(1) IN GENERAL.—In order to preserve, protect, and interpret for the benefit of the public the nationally significant archeological and historic resources located on the peninsula known as Moccasin Bend, Tennessee, there is established as a unit of Chickamauga and Chattanooga National Military Park, the Moccasin Bend National Archeological District.

(2) BOUNDARIES.—The archeological district shall consist of approximately 780 acres generally depicted on the Map. The Map shall be on file and available for public inspection in the appropriate offices of the National Park Service, Department of the Interior.

(3) ACQUISITION OF LAND AND INTERESTS IN LAND.—

(A) IN GENERAL.—The Secretary may acquire by donation, purchase from willing sellers using donated or appropriated funds, or exchange, lands and interests in lands within the exterior boundary of the archeological district. The Secretary may acquire the State, county and city-owned land and interests in land for inclusion in the archeological district only by donation.

(B) EASEMENT OUTSIDE BOUNDARY.—To allow access between areas of the archeological district that on the date of the enactment of this section are noncontiguous, the Secretary may acquire by donation or purchase from willing owners using donated or appropriated funds, or exchange, easements connecting the areas generally depicted on the Map.

(d) ADMINISTRATION.—

(1) IN GENERAL.—The archeological district shall be administered by the Secretary in accordance with this section, with laws applicable to Chickamauga and Chattanooga National Military Park, and with the laws generally applicable to units of the National Park System.

(2) COOPERATIVE AGREEMENT.—The Secretary may consult and enter into cooperative agreements with culturally affiliated federally recognized Indian tribes, governmental entities, and interested persons to provide for the restoration, preservation, development, interpretation, and use of the archeological district.

(3) VISITOR INTERPRETIVE CENTER.—For purposes of interpreting the historical themes and cultural resources of the archeological district, the Secretary may establish and administer a visitor center in the archeological district.

(4) GENERAL MANAGEMENT PLAN.—Not later than 3 years after funds are made available under this section, the Secretary shall develop a general management plan for the archeological district. The general management plan shall describe the appropriate protection and preservation of natural, cultural, and scenic resources, visitor use, and facility development within the archeological district consistent with the purposes of this section, while ensuring continued access by private landowners to their property.

(e) REPEAL OF PREVIOUS ACQUISITION AUTHORITY.—The Act of August 3, 1950 (chapter 532; 16 U.S.C. 424a-4) is repealed.

Deadline.





**APPENDIX B: EASEMENTS ON MOCCASIN BEND**



05-4467 etc.  
GRANTEE: United States of America  
National Park Service, Land Resources Div.  
1849 "C" Street, N.W.  
Washington, DC 20240

MAIL, TAX, BILLS TO:  
SAME 145-00  
135-016

WARRANTY DONATION EASEMENT DEED

Project: Chickamauga and Chattanooga  
National Military Park  
Tracts: 11-104D, 11-104F and 11-110

OKS 3667 041227

THIS INDENTURE, made this 7<sup>th</sup> day of April, 2005, by and between the CITY OF CHATTANOOGA, TENNESSEE, A Municipal Corporation, AND HAMILTON COUNTY, TENNESSEE, a Political Subdivision of the State of Tennessee, organized and existing under the laws of the State of Tennessee, whose addresses for the purpose of this instrument are 100 East 11<sup>th</sup> Street, City Hall Annex, Chattanooga, Tennessee, 37402 and 4<sup>th</sup> Floor, Mayfield Annex, 123 East 7<sup>th</sup> Street, Chattanooga, Tennessee, 37402, GRANTORS, (the term "Grantor" includes masculine, feminine, singular and/or plural parties as the context indicates), its successors and assigns, and the UNITED STATES OF AMERICA, and assigns, GRANTEE, whose address is National Park Service, Land Resources Division, 1849 "C" Street, N.W., Washington, D.C. 20240.

WITNESSETH, that in consideration of the sum of ONE AND NO/100 DOLLARS (\$1.00), in hand paid, the receipt and sufficiency of which are hereby acknowledged, the said GRANTOR does hereby donate, grant and convey unto the said GRANTEE and its assigns, permanent and assignable easements for the purposes hereinafter set forth below, over the lands described as follows:

Tract Nos. 11-104D, 11-104F and 11-110, more particularly described on Exhibit "A" attached hereto and made a part hereof.

Easement rights granted are as follows:

1. To construct, operate, and maintain channel improvement works on, over and across Tract Numbers 11-104D, 11-104F and 11-110, for the purpose as authorized by National Park Service Interagency Agreement Number F5221040031, including the right to clear, cut, fell, remove and dispose of any and all timber, trees, underbrush, buildings, improvements and/or other obstructions therefrom; to excavate, dredge, cut away, and remove any or all of said land and to place thereon dredge or spoil material; and for such other purpose as may be required in connection with said work of improvement; reserving, however, to the owners, their heirs and assigns, all such rights and privileges as may be used without interfering with or abridging the rights and easement hereby acquired;
2. For the National Park Service to preserve and protect all cultural and natural resources in the Moccasin Bend District, to include the right to survey and mark Park boundaries, conduct archeological investigations, and inventory all cultural and natural resources. It will also include the right to conduct engineering studies for the purpose of stabilizing the riverbank, all construction associated with this

CHICKAMAUGA AND CHATTANOOGA  
NATIONAL MILITARY PARK  
DEED # 390

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Hamilton County Tennessee





As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR

MOCCASIN BEND NATIONAL ARCHEOLOGICAL DISTRICT  
GENERAL MANAGEMENT PLAN AMENDMENT / ENVIRONMENTAL ASSESSMENT  
CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK  
GEORGIA AND TENNESSEE • MAY 2017

