

National Park Service
U.S. Department of the Interior



Stones River National Battlefield
Tennessee

Development Concept Plan for Improvements to the Self- guiding Tour Routes

Environmental Assessment

September 2005



Tennessee coneflower (*Echinacea tennesseensis*)

Civil War interpretive program



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EXECUTIVE SUMMARY

SUMMARY

The National Park Service (NPS) proposes measures to improve the effectiveness of the self-guiding interpretive program at Stones River National Battlefield in middle Tennessee, including new tour routes, road segments, trails, and wayside exhibits. Stones River National Battlefield is the site of the Battle of Stones River, a key Civil War battle that took place over a three day period from December 31, 1862, to January 2, 1863. The present-day battlefield consists of several non-contiguous sites where historic elements of the battle are located.

An auto tour route and pedestrian trails lead visitors to sites for interpretation. The existing interpretive routes are poorly designed and do not fully communicate the story in a logical sequence. The tour route and trails do not offer consistent visitor experiences. In addition, the waysides along the tour route were developed in the early 1960s. The current route does not incorporate many of the areas that have recently been acquired for their historical importance.

This environmental assessment analyzes the impacts of continuing current management (the No Action Alternative), and three action alternatives, all of which would involve rerouting the current tour route to improve wayfinding, make the auto tour route and accompanying trail system more accessible, and more accurately interpret the Battle of Stones River. The preferred alternative would improve the auto tour route and interpretation, with few adverse effects to natural and cultural resources. The alternatives analyzed in this environmental assessment would not result in major environmental impacts or impairment to park resources or values.

The preferred alternative would involve a six stop auto tour route, with updated waysides in chronological order. The waysides would accurately and clearly portray the story of the Battle of Stones River. Once the visitor has arrived at the visitor center and begun the auto tour route, there would be minimal backtracking. Circulation within the main unit would run clockwise along Old Nashville Highway, McFadden Lane, and part of the existing tour route. The west leg of the existing tour route would become a paved pedestrian trail. The trail system would incorporate existing trails and add new links to important sites and waysides.

Under the preferred alternative, two signalized entry drives from Thompson Lane into the main park and McFadden Farm units would be developed. By creating new signalized entries, visitors would enter the battlefield via aesthetically pleasing, more traditional NPS entry roads, and public health and safety would be also improved.

The cedar glades would be interpreted along the auto tour route. The preferred alternative would also improve the hydrology of the cedar glades, as it would reduce impervious surfaces in the glades (the western portion of the auto tour road would be downgraded to an ADA-compliant paved trail).

This analysis has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (40 *CFR* 1508.9), the National Park Service *Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision-making*, and Section 106 of the National Historic Preservation Act of 1966, as amended.

Public Comment

If you wish to comment on the environmental assessment, you may mail comments to the name and address below. This environmental assessment will be on public review for 30 days. Please note that names and addresses of people who comment become part of the public record. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations, from businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

This document will be available for review and comment for 30 days. Please address written comments to:

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PURPOSE AND NEED

INTRODUCTION

The National Park Service (NPS) is considering measures to improve the effectiveness of the self-guiding interpretive program at Stones River National Battlefield in Tennessee, including new tour routes, road segments, trails, and wayside exhibits.

Stones River National Battlefield is the site of the Battle of Stones River, a key Civil War battle that took place over a three day period from December 31, 1862, to January 2, 1863. The present-day battlefield consists of several non-contiguous sites where historic elements of the battle are located. An auto tour route and pedestrian trails lead visitors to these areas for interpretation. The existing interpretive routes are poorly designed and do not fully communicate the story in a logical sequence. The tour route and trails do not offer consistent visitor experiences. In addition, the waysides along the tour route were developed in the early 1960s. The current route does not incorporate many of the areas that have recently been acquired for their historical importance.

PURPOSE OF AND NEED FOR THE PLAN

NEED FOR THE PLAN

The tour route and flow through Stones River National Battlefield does not properly convey the history and significance of the site to the visiting public. Visitor experience on the current tour route is not the quality envisioned in the battlefield's management objectives. In addition, suburban development is encroaching on the park, requiring improvements in traffic flow to better protect public health and safety. The specific shortcomings of existing conditions are captured by the following need statements:

- The park's auto tour provides the only structured opportunity for visitors to experience the actual Stones River Battlefield. However, the present tour route was developed in the early 1960s, and the park has nearly doubled in size since then. Some key areas of the park are not accessible via the present route. Thus, for visitors, the tour road experience offers an incomplete understanding of the battle.
- Due to the non-contiguous nature of the park and tour routes, navigating is extremely difficult and often results in visitors becoming disoriented or missing essential parts of the tour. Some people miss the park altogether.
- Rapidly growing suburban developments, new and existing transportation routes, and ownership patterns make visitor access difficult and contribute to vehicle-pedestrian conflicts. Modern development is encroaching on the park and interferes with allowing visitors to experience a distinct, park-like environment.
- The configuration of the auto tour route poses safety risks to visitors. Parking at Hazen Brigade Monument, in particular, allows only for one-way entry so vehicles must back out from the parking area in order to return to the highway. This area also does not have bus parking.
- Access is limited for individuals with impaired mobility, as only a small number of tour stops meet Americans with Disabilities Act (ADA) standards.

- Pedestrian access to the national cemetery is limited. Visitors who park at the visitor center and walk to the cemetery must traverse the Old Nashville Highway, a 35 mph road lacking a stoplight.
- The natural zone within the battlefield includes approximately 60 acres of cedar glades. This area is bisected by the existing auto tour loop. The tour road inhibits lateral surface flow in the cedar glades, affecting some of the natural characteristics of the area.

PURPOSE OF THE PLAN

The shortcomings described above must be addressed for the development concept plan/environmental assessment to be considered a success. The NPS proposed action would address the needs outlined above by changing the interpretive tour route to:

- Improve interpretation and the ability of visitors to experience a “sense of place” within the battlefield;
- Allow visitors to experience important historic elements of the greater battlefield area in a chronological sequence, including all recently acquired areas, and offer visitors educational consistency between the auto and pedestrian tours;
- Enhance visitor accessibility;
- Enhance visitor and employee safety, both within the main park unit and in outlying park units;
- Help to restore the cultural landscape; and
- Provide for additional interpretation, recognition, and protection of natural resources such as the cedar glades.

This environmental assessment analyzes the No Action Alternative and three action alternatives for improving the park’s interpretive tours to determine their impacts on the environment. It was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969; Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 *CFR* Parts 1500- 1508); National Park Service’s Director’s Order (DO) 12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making (NPS 2001a); and National Historic Preservation Act of 1966 and its implementing regulations at 36 *CFR* 800, and Director’s Order 28, Cultural Resource Management (NPS 1998a).

PURPOSE AND SIGNIFICANCE OF THE BATTLEFIELD

In 1862, Congress passed legislation creating national cemeteries, one of which was established on the battlefield at Stones River. On March 3, 1927, the battlefield itself was established as a national military park under the control of the Secretary of War (44 Stat. 1399) to commemorate soldiers who died in this battle. This legislation recognized the significance of sites throughout the original battlefield, providing for the marking of troop movements and important battle events. The park was transferred to the National Park Service in 1933. In 1960, the park was expanded and re- designated as Stones River National Battlefield (74 Stat. 82). The battlefield’s authorized boundary was later expanded in 1987 (Public Law 100- 205) and 1991 (Public Law 102- 225).

As stated in the 1999 general management plan, the purpose of Stones River National Battlefield is to “preserve and interpret the battlefield of Stones River, to mark the significant sites, and to promote understanding and appreciation of the battle and related events” (NPS 1998b).

The Battle of Stones River is nationally significant for the following reasons:

- Stones River was a major battle of the Union Army’s western campaign, resulting in the occupation of Murfreesboro and control of the productive agricultural land and supply network of central Tennessee.
- The battle marked the commencement of the Union Army’s campaign that resulted in the “March to the Sea,” and at the same time marked the end of the Confederate Army’s attempt to move into Kentucky and the North.
- The battle was psychologically and politically important for the Union and had a profound influence on the North not losing other states, such as Kentucky, to the Confederacy. The battle also influenced President Abraham Lincoln’s future and the role of England and France in the war.
- The site is considered sacred ground, where nearly 83,000 men fought and more than 23,000 became casualties. For the Union Army, the rate of casualties was the highest of any battle in the war. For the Confederate Army, due to the massing of Union artillery, the casualty rate was second only to the Battle of Gettysburg.
- The two armies were evenly matched and used similar strategies and tactics. Although both armies needed a victory, there was no clear tactical victor. However, the Confederate forces left Union troops in command of the field, so the Union could claim victory.

Also stated in the general management plan are the following significance statements for individual sites.

- Hazen Brigade Monument is the nation’s oldest intact Civil War monument.
- Stones River National Cemetery is the site of more than 6,000 Union interments and represents a 19th century design that formally memorialized the country’s war dead.
- Fortress Rosecrans fulfilled a strategic supply function for the Union’s drive to Chattanooga and Atlanta. It was one of the largest enclosed earthwork fortifications built during the Civil War. Remnants of the fortress exist within the current boundary.

PROJECT BACKGROUND

DESCRIPTION OF THE PROJECT AREA

The battlefield is located on the northwest side of Murfreesboro, Rutherford County, Tennessee, approximately 30 miles southeast of Nashville. The park’s currently authorized boundary encompasses 712 acres, of which 641 are under federal control (Johnson 2005b) (see Figure 1).

Today, suburban growth is rapidly engulfing the park’s six non- contiguous units. Numerous city streets and state routes with heavy traffic run throughout the area, making access to the outlying units confusing for visitors.

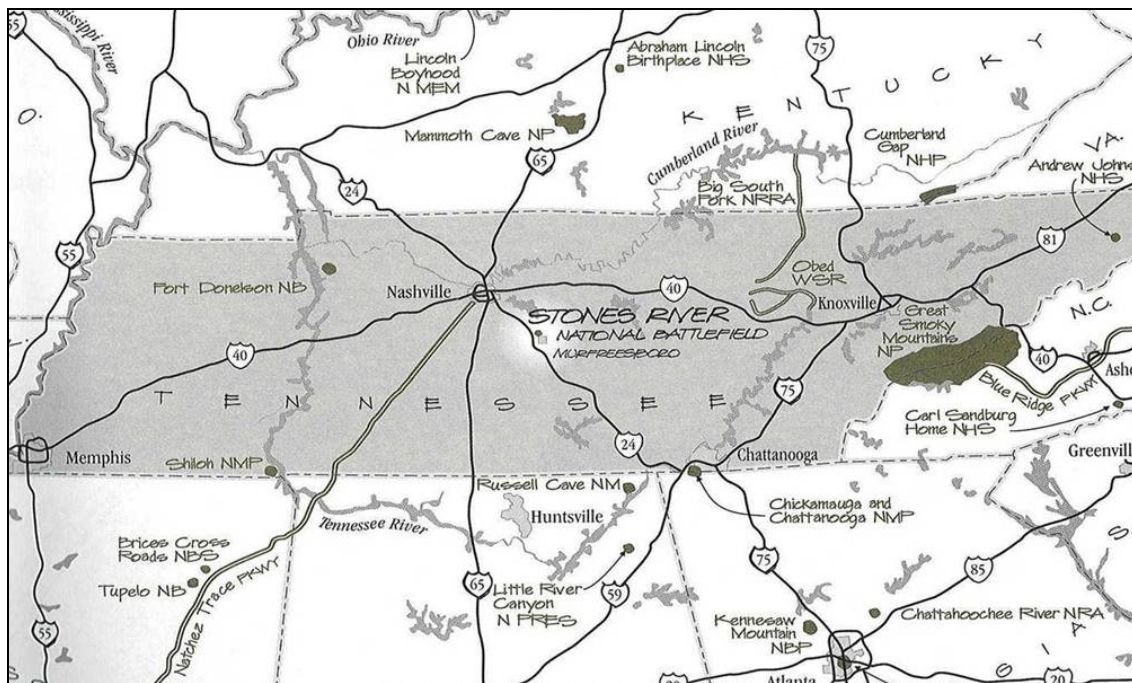


FIGURE 1: REGIONAL MAP

The park is comprised of six non- contiguous units within a rectangular area approximately 3 miles by 2 miles (see Figure 2). The main park unit is the largest and includes part of the core battlefield and Stones River National Cemetery. The other five units, from north to south, are Rosecrans' Headquarters, McFadden's Farm, Bragg's Headquarters, Redoubt Brannan, and Lunettes Palmer and Thomas and Curtain Wall No. 2 of Fortress Rosecrans, which occupies the southwest section of the Fortress Rosecrans site. McFadden's Farm also contains portions of the battlefield, where fighting occurred on the final day of the battle. The majority of the original Fortress Rosecrans, a historic part of the Stones River Battle story, is not owned or managed by the National Park Service. However, of the 3,000 linear feet that remain, the National Park Service owns and manages approximately 2,500 linear feet.

Two of the park's six sites are included in the planning area for the proposed action – the main park unit and McFadden's Farm. The other four locations are excluded from consideration in this analysis.

Main Park Unit

The main park unit includes the park entrance, visitor center, picnic area, national cemetery, Hazen Brigade Monument, park housing, offices, maintenance facilities, and the first five stops on the present auto tour route. This park unit is bisected northwest to southeast by the Old Nashville Highway which separates the visitor center area from the cemetery, the Hazen Brigade Monument, and park support facilities. The CSX Transportation Railroad, which parallels the Old Nashville Highway, runs along the northeastern boundary of the main park. Beyond the railroad to the east, businesses and light industry line the New Nashville Highway (U.S. 41/70S), which also runs parallel to the railroad and the Old Nashville Highway.



FIGURE 2. STONES RIVER NATIONAL BATTLEFIELD

The main park entrance is off of the Old Nashville Highway. Stone pillars flank the entrance where the loop drive enters and exits the park. Increasingly, heavy traffic makes use of this highway entrance hazardous. The entrance appears narrow, when used by today's large recreational vehicles. The loop drive circles around a grassy oval to provide access to parking areas that serve the visitor center and the picnic area.

Just west of the visitor center, the primarily one-lane, one-way asphalt tour road circles south and west through the battlefield before returning to the visitor center area (see the description of the No Action Alternative for a listing of existing tour stops). The road is paralleled by a pedestrian pathway, and walking trails connect the major interpretive sites

with their waysides and small parking areas. Figure 3 shows a typical auto tour section in the main park unit.



FIGURE 3: AUTO TOUR ROAD IN MAIN PARK UNIT

The north end of the main park unit contains a few modern structures, along with stands of deciduous trees. To the west is Asbury Lane, once a critical escape route for Union forces. Asbury Lane links the suburban housing area west of the park with the Old Nashville Highway.

The southern portion of the main unit is open grassland with scattered limestone outcrops and cedar glades and forested lands, including oak- hickory, mixed, and eastern red cedar stands. The historic trace of McFadden's Lane, now known as Van Cleve Lane, runs north-south through the eastern section of the park. The underlying limestone contains numerous sinkholes, one of which has undermined integrity of the road. Additional park lands were acquired in the 1990s along Van Cleve Lane between Old Nashville Highway and Manson Pike and the adjacent, newly- opened Thompson Lane was designed to handle the north/south traffic, Van Cleve Lane was closed to prevent cut- through traffic.

Situated across the Old Nashville Highway from the visitor center area is the national cemetery, a small area of park housing, maintenance, and administration. The cemetery was established in 1865 and contains more than 6,000 Union graves neatly arranged among large trees set in a mowed lawn.

Cedar glades are open areas of rock, gravel, and/or shallow soil that remain bare or are occupied by low- growing herbaceous plant communities (Walck *et al.* 2002). They are scattered throughout the battlefield, forming an important part of the cultural landscape and contributing to visitor understanding of the battle. However, artificially- created barriers to drainage, such as the tour road, may be damaging to the cedar glades. This area lies primarily in the 500- year floodplain and with large portions in the 100- year floodplain, and has hydrologic characteristics that are being negatively impacted by the rapidly increasing development around the battlefield and the existing tour road. A surface drainage swale was

constructed in the 1970s to drain water away from the Old Nashville Highway toward the western portions of the park (NPS 1998b).

McFadden's Farm

McFadden's Farm and the Artillery Monument are situated northeast of the main part of the park. This was a focal point of the Confederate assault during the third day of the battle and the site of a 57- gun Union artillery defense, which left 1,800 men killed or wounded in one hour. A parking area managed by the Murfreesboro Park and Recreation Department near the river serves as a trailhead to the Murfreesboro Greenway trail. This trail links the ford to the artillery monument tour stop on the bluffs above, where there is another parking lot, a historic farm site, and the McFadden gravesites. Figure 4 shows a wayside exhibit from the tour stop at McFadden's Farm.

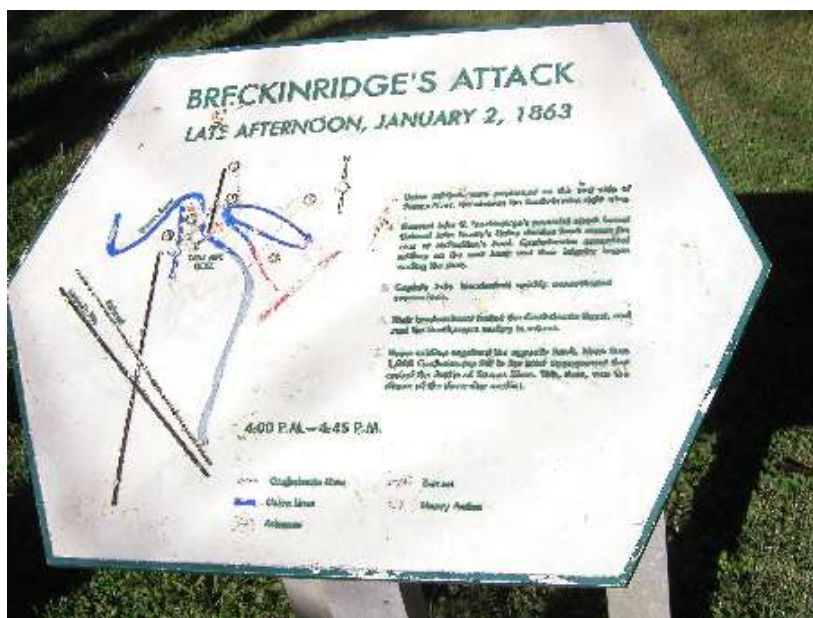


FIGURE 4: WAYSIDE EXHIBIT AT TOUR STOP #6: MCFADDEN FARM

Units outside the planning area

The units outside the planning area are described below to give the reader a general understanding of the distance to other units and general layout of the park.

General Rosecrans' Headquarters. This site encompasses 0.4 acres and is located about $\frac{3}{4}$ of a mile northwest of the visitor center. From this location, the union commander guided his troops through the Battle of Stones River.

General Bragg's Headquarters. This site is located southeast of the visitor center, along the Old Nashville Highway. General Bragg's second headquarters of the Battle of Stones River was located here, where he planned the strategy for the battle's continuation on January 2, 1863.

Redoubt Brannan. This 5.29- acre parcel is located more than one mile southeast of the visitor center. The redoubt is an interior earthwork of the larger Fortress Rosecrans and was constructed after the Battle of Stones River.

Lunettes Parker and Thomas, and Curtain Wall No. 2 of Fortress Rosecrans. Fortress Rosecrans, a 26- acre site inside Old Fort Park, lies about 3 miles south of the visitor center. This location features earthworks constructed after the battle, including Lunette Palmer, Curtain Wall No. 2, and Lunette Thomas. Fortress Rosecrans fulfilled a strategic supply function for the Union's drive to Chattanooga and Atlanta. It was one of the largest enclosed earthwork fortifications built during the Civil War. Remnants of the fortress exist within the current park boundary and are located to the southeast of the main park unit.

RELATED PROJECTS AND PLANS

Planning Context. The *Stones River National Battlefield Final General Management Plan/Development Concept Plan/Environmental Impact Statement* was developed as the primary planning guide for the park in 1999. The general management plan addressed several of the deficiencies that are included in this development concept plan. The general management plan identified a preferred alternative which would have improved the interpretive experience, acquired relevant parcels of the battlefield that retain historic landscape integrity, created new exhibits and waysides, and established a new automobile tour route to include newly acquired lands. Some of these elements have been, or are in the process, of being implemented. Other aspects of the general management plan's preferred alternative are no longer able to be implemented because adjacent lands identified for possible acquisition have been or are being privately developed, or cannot feasibly be purchased.

This development concept plan and environmental assessment is being produced to be consistent with and tier from the general management plan and to evaluate development concepts and potential interpretive routes to address the present- day situation. Additionally, this development concept plan focuses on the tour route rather than the interpretive message, because planning for the visitor center and interpretive media is being conducted under separate projects.

Several projects and plans that the National Park Service has in place, in progress, or planned for the near future may affect decisions regarding this project to improve the auto tour route, incorporate pedestrian routes, and enhance interpretation of the battlefield for visitors. As part of the analysis and consideration of potential direct, indirect, and cumulative impacts, the project team identified the following potential projects that may occur in or near the project area.

Visitor Center Rehabilitation. The visitor center has recently been rehabilitated to provide additional space and facilities for interpretive programs and visitor information and services. New waysides and exhibits for the visitor center and upgraded interpretive media for Fortress Rosecrans and Redoubt Brannan are being developed by the National Park Service Harpers Ferry Center. Interpretive exhibits were upgraded to provide access for the mobility impaired.

New Interstate 24 Interchange. The Tennessee Department of Transportation and the U.S. Department of Transportation Federal Highway Administration are jointly constructing a new interchange northwest of the current intersection of Interstate 24 and Manson Pike to improve the balance of the transportation systems network for the city of Murfreesboro. The interchange should be completed by June 2005 and would allow a more efficient way of accessing Interstate 24 from Manson Pike. Congestion on existing State Route 96 would be reduced and access to Interstate 24 would be enhanced (TDOT 2003).

Construction of Medical Center Parkway. The city of Murfreesboro has almost completed construction of the new Medical Center Parkway (four- lanes with landscape median and turning lanes) running southeast from the interstate. From Interstate 24, this new parkway would follow the existing Manson Pike alignment for 0.5 mile before angling to the southeast, parallel to the pike, to relieve traffic congestion on the smaller road. Manson Pike would be widened to three lanes west of the interstate; east of the interstate, Manson Pike would be renamed Wilkinson Pike and would continue as a two- lane road along the south boundary of the Stones River National Battlefield site, but would be widened to three lanes east of Thompson Lane. The Finding of No Significant Impact statement (FONSI) for the proposed Interstate 24 interchange indicates that the new Medical Center Parkway would help minimize impacts to the battlefield and protect its integrity, while improving access to the battlefield, allowing out- of- town visitors to find the battlefield with less difficulty (TDOT 2003). Considerable commercial and residential development would occur along Medical Center Parkway.

Creation of Interpretive Exhibits along Trail of Tears National Historic Trail. The Old Nashville Pike is the location of the Trail of Tears National Historic Trail, where Cherokees traveled the “Trail of Tears” from 1838 to 1839. The National Park Service National Trails System Office in Santa Fe, New Mexico, is currently working with Stones River National Battlefield on interpretive exhibits for the Trail of Tears National Historic Trail at Stones River National Battlefield. Although the events of the Trail of Tears occurred many years before the Civil War, the interpretive exhibits would enhance understanding of another important event that occurred at this location. While this project is separate from the actions considered in this environmental assessment, selecting one of the action alternatives and redesigning the auto tour route at Stones River National Battlefield would improve the funding possibilities for interpretive exhibits along the Trail of Tears National Historic Trail through the battlefield.

Reconstruction of the Rostrum. Planning is underway to reconstruct a historically accurate rostrum on its original site in the cemetery, to be used for special programs.

Widening of Thompson Lane Bridge. Future road improvements planned by the state of Tennessee may necessitate replacement or widening of the Thompson Lane Bridge on State Road 268, potentially affecting access to one of the park trails in the McFadden Farm area that passes beneath this historic bridge.

Stones River National Battlefield Potential Expansion. The park’s general management plan (NPS 1999b) describes potential expansion of currently unacquired areas within Stones River National Battlefield’s authorized boundaries. If these areas were to be acquired, some parts of the tour route might need to be readjusted to include new tour stops, or to revise the sequencing or number of stops along the route. Expansion of the tour route into new areas would require future analysis of potential impacts upon natural, cultural, and human resources as required by the National Environmental Policy Act and the National Historic Preservation Act. The National Park Service has no current plans to expand beyond the present- day authorized boundary of the Stones River National Battlefield.

Stones River Cedar Glades and Barrens State Natural Area. This 185- acre state natural area encompasses the cedar glades within Stones River National Battlefield. It protects the natural resources in the area by providing recognition of the cedar glades’ uniqueness and strengthening the protection already provided by the National Park Service.

SCOPING

Scoping is the effort to involve agencies and the general public in determining the issues to be addressed in an environmental assessment. Among other tasks, scoping determines important issues and eliminates unimportant issues; allocates assignments among the interdisciplinary team members and other participating agencies; identifies related projects and associated documents; identifies other permits, surveys, or consultations required by other agencies; and creates a schedule which allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping includes early input from any interested agency or any agency with jurisdiction by law or expertise.

Several internal scoping meetings and design workshops took place between November 2003 and July 2004. These internal scoping meetings identified the main issues and impact topics that should be evaluated in the environmental assessment. Various design meetings and a value analysis workshop identified a range of alternatives to address the shortcomings with the existing interpretive route.

An initial newsletter describing park resources, the purpose and need of the proposed tour route improvement project, planning process, project goals, and schedule was sent to all interested individuals, organizations, agencies, and Indian tribes in March 2004, and was posted on the park's website. During the spring and summer of 2004, the National Park Service held meetings with a variety of stakeholders including city, county, and state officials and special interest entities, such as natural resource professionals, historical and cultural associations, and community leaders, to seek their input on planning for the park. The park also held a public scoping workshop in Murfreesboro on March 16, 2004.

A second newsletter describing several draft alternative concepts for improvements to the tour route was sent to interested parties and stakeholders in October 2004, and the park hosted an open house public meeting on October 14, 2004. The park worked closely with the Tennessee State Historic Preservation Officer to help ensure that all interested groups and individuals were kept fully informed of the project as planning progressed.

A summary of the consultation and coordination efforts for this project may be found in the "Consultation and Coordination" section of this environmental assessment. Copies of consultation correspondence can be found in Appendix A.

ISSUES

Issues and concerns affecting this proposal were identified from past National Park Service planning efforts and input from state and federal agencies. The major issues include the following.

- Traffic, noise, and modern structures increasingly intrude upon the cultural landscape and viewsheds and disrupt the sense of place visitors come here to experience.
- Rapid growth of suburban developments and new and existing transportation routes with heavy traffic make it difficult and unsafe for visitors to locate or access parking places in non-contiguous units of the park, resulting in major discontinuities in land use and visitor experience.
- The number of tour stops with ADA-accessibility farther than the parking lots is limited.

- The cedar glades area is bisected by the existing auto tour route, and the road restricts lateral surface flow, affecting the natural characteristics of the area.
- Some existing tour stops have parking and interpretation limitations due to an increasing use of the battlefield for recreational activities such as jogging, picnicking, and group bike touring.

IMPACT TOPICS

Derivation of Impact Topics

Impact topics were used to focus the evaluation of the potential environmental consequences of the alternatives. Candidate impact topics were identified based on legislative requirements, executive orders, topics specified in *Director's Order 12 and Handbook* (NPS 2001a), *Management Policies 2001* (NPS 2000b), guidance from the National Park Service, input from other agencies, public concerns, and resource information specific to Stones River National Battlefield. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Retained

Each of the retained topics had several issues that merited discussion. These impact topics were retained because they either have specific issues related to them that were identified during project scoping or the alternatives analyzed are anticipated to have noticeable effects on the resource.

The impact topics and relevant regulations or policies considered for the project to improve the self-guiding tour route are presented in Table 1. The impact topics discussed in detail in the "Affected Environment and Environmental Consequences" section include the following.

Cultural resources was retained because it is one of the resources the park was established to protect, as well as having the potential to be impacted by changes to the tour route. Relevant policies include: Sections 106, 107 and 110 of the National Historic Preservation Act; 36 *CFR* 800; Executive Order 11593; American Antiquities Act; Archaeological and Historic Preservation Act; Archaeological Resources Protection Act; Native American Graves Protection and Repatriation Act; National Environmental Policy Act; Executive Order 13007; Presidential Memorandum (1994) on Government-to-Government Relations; *Director's Order 28*; *NPS Management Policies 2001*; and Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (NPS 1995b).

Cedar glades was retained as an impact topic because of concerns about existing cedar glades hydrology and potential effects from the alternatives considered. Relevant policies include *NPS Management Policies 2001*.

Ecologically critical areas was retained as an impact topic because of concerns about the existing conditions of the cedar glades ecological community in the battlefield. This area is also designated a state natural area. However, this topic will be analyzed under the impact topic "Cedar Glades" in this environmental assessment. Relevant policies include: Wild and Scenic Rivers Act, 36 *CFR* (62 criteria for national landmarks), and *NPS Management Policies 2001*.

Endangered, threatened, or protected species and critical habitats was retained because activities related to the alternatives had the potential to affect ESA- listed plant species. Relevant policies include: Endangered Species Act, *NPS Management Policies 2001*, and NPS Organic Act.

Floodplains was retained as an impact topic because some sections of project sites were located in the 100- year floodplain of the West Fork of Stones River. Relevant policies include: Executive Order 11988, *Director's Order 77- 2*, and *NPS Management Policies 2001*.

Park operations was retained because changing the auto tour route has the potential to affect the management of the park. Relevant policies include: *NPS Management Policies 2001*.

Public health and safety, including accessibility, was retained because safety and accessibility of tour exhibits have the potential to be affected by the alternatives considered in this environmental assessment. Relevant policies include: *Director's Order 42* and *NPS Management Policies 2001*.

Soils was retained as an impact topic because soils have the potential to be disturbed by alternatives considered in this document. Relevant policies include: *NPS Management Policies 2001*.

Vegetation was retained as an impact topic because vegetation could potentially be affected by changes in the auto tour route at the battlefield. Relevant policies include: *NPS Management Policies 2001*.

Visitor use and experience was retained because altering the tour route and related interpretive exhibits has the potential to affect visitor experience in the park. Relevant policies include: Organic Act and *NPS Management Policies 2001*.

Wildlife and wildlife habitats was retained because wildlife had the potential to be affected by the alternatives considered in this document. Relevant policies include: *NPS Management Policies 2001*.

Impact Topics Dismissed from Further Analysis with Rationale for Dismissal

The resource topics described in this section will not be included or evaluated in this environmental assessment. These impact topics were not identified during scoping as being of concern. Additional reasons for their dismissal are provided below.

Air quality: During construction of new routes, there would be highly localized, short- term, negligible impacts on air quality due to the small scale of the project. Effects would be negligible because best management practices would be used to minimize fugitive dust and emissions from construction equipment.

Collections: Section 106 of National Historic Preservation Act; 36 *CFR* 800; Director's Order 24- NPS Museum Collections Management; Museum Handbook; Antiquities Act; Historic Sites Act; Archaeological Resources Protection Act; Native American Graves Protection and Repatriation Act; Departmental Manual 41DM; *Director's Order 28*; and *NPS Management Policies 2001*. Proposed changes in the park tour route may involve moving some of the cannons to a different location to create a more accurate historic setting for visitor interpretation. Careful planning and use of protective measures before, during, and after the move would help ensure that no damage is done to the cannons. Implementation of any of

the action alternatives would have a negligible effect upon the cannons, so this topic has been dismissed.

Economics: None of the alternatives described in this environmental assessment would have notable effects on local or regional economic activities. Tourism and visitor contributions to the local economy would not be appreciably affected by continuation of current management or by activities related to improving the tour routes. Construction activities associated with the action alternatives would not contribute measurably to the local or regional economy.

Energy requirements and conservation potential: The National Park Service reduces energy costs, eliminates waste, and conserves energy resources by using energy- efficient and cost- effective technology. Energy efficiency is incorporated into the decision- making process during the design and acquisition of buildings, facilities, and transportation systems that emphasize the use of renewable energy sources. The action alternatives would not appreciably change the park's short- or long- term energy use or conservation practices. The energy (primary gasoline and diesel fuel) required to implement any of the action alternatives would not be detectable on a daily or annual basis compared to energy use in the Murfreesboro area.

Environmental justice: Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low- Income Populations," requires that all Federal agencies address the effects of policies on minorities and low- income populations and communities. None of the alternatives analyzed in this assessment would have disproportionate effects on populations as defined by the U.S. Environmental Protection Agency's 1996 guidance on environmental justice (EPA 1996).

Ethnographic resources: In the Murfreesboro area, the Trail of Tears followed the Old Nashville Highway. Modern traffic and development have so changed the character of this historic roadway that it is difficult for visitors to visualize the original narrow, muddy, rutted road followed by tribes on their way to Oklahoma. Implementation of any of the proposed actions would not change development, traffic, or appearance of the road. When compared to actions of the past 200 years of Native and Euro- American contact, effects of any of the proposed actions would be miniscule, and would result in no to negligible impacts, either adverse or beneficial, to ethnographic resources. Therefore, this topic is dismissed from further analysis.

Indian trust resources: Indian trust assets are owned by American Indians but are held in trust by the United States. Requirements are included in the Secretary of the Interior's Secretarial Order No. 3206, "American Indian Tribal Rites, Federal – Tribal Trust Responsibilities, and the Endangered Species Act," and Secretarial Order No. 3175, "Departmental Responsibilities for Indian Trust Resources." According to Stones River National Battlefield staff, Indian trust assets do not occur within the cemetery. Therefore, there would be no effects on Indian trust resources from the proposed alternative.

Land use plans, policies, or controls: Whenever actions taken by the National Park Service have the potential to affect the planning, land use, or development patterns on adjacent or nearby lands, the effects of these actions must be considered. No zoning changes would need to occur for the construction of additional road segments, trails, or parking lots within the battlefield. Also, significant traffic increases are expected from other road activities (e.g., interchange near Fortress Rosecrans, construction of Manson Pike, interchange with I- 24) that would outweigh any effects updating the auto tour route at Stones River National

Battlefield would have on traffic in the area (Martin 2004). Therefore, none of the alternatives addressed in this assessment would have the potential to affect other land use plans, policies, or controls.

Natural or depletable resource requirements and conservation potential: The use of fuel was addressed under the category “Energy requirements and conservation potential.” To the maximum extent possible, improvements would seek to recycle or reuse original materials. The use of new construction materials would not be detectable compared to the volumes of these materials used for other construction in the Murfreesboro area.

Natural soundscapes: Because of its proximity to the Murfreesboro metropolitan area, there is little expectation by visitors of experiencing a natural soundscape in areas around the national battlefield. Short- term noise generated by small- scale construction equipment associated with construction of a new tour route would not noticeably change the ambient levels of human- caused noise that are typical in the park’s urban environment. The project would not have any long- term effects on noise levels in the area.

Night sky: Floodlights from nearby automobile dealerships and lights from buildings and vehicles have introduced light pollution to the park. The actions proposed under this plan would not introduce new nighttime lighting within the park and would not contribute appreciably to the existing conditions. Therefore, this topic is dismissed from further analysis.

Paleontological resources: Although paleontological resources have not been systematically identified, they are not anticipated to occur in the park. Therefore, this topic is dismissed from further analysis.

Prime and unique agricultural lands: The Council on Environmental Quality 1980 memorandum on prime and unique farmlands states that prime farmlands have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Unique agricultural land is land other than prime farmland that is used for production of specific high- value food and fiber crops.

The Natural Resources Conservation Service has identified 27 prime farmland soils in Rutherford County (NRCS 2005). Of those 27 soils, 14 have been identified within Stones River National Battlefield. None of these soils are currently in agricultural production. However, under the proposed actions, a small portion of the 328 acres of prime farmland in the battlefield would be permanently converted to roads or trails. Prime agricultural soils in the battlefield represent 0.22 percent of all prime agricultural land in Rutherford County, Tennessee. Because the proposed actions in this plan/environmental assessment would affect only 14.44 acres in total and even less of prime and unique farmland soils would be disturbed, effects on prime agricultural land would be negligible and, as such, the impact topic is dismissed from further analysis.

Sustainability and long- term management: NPS *Management Policies 2001* require the National Park Service to consider the sustainability and long- term management of its activities. Sustainability is the result achieved by conducting activities in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long- term environmental impacts of development and other activities through resource conservation, recycling, waste minimization, and the use of energy- efficient and ecologically responsible materials and

techniques. Because any project actions would use best management practices and sustainable principles for construction activities, sustainability and long- term management is dismissed from further analysis.

Water quality: *NPS Management Policies 2001* direct the National Park Service to avoid, whenever possible, the pollution of park waters by human activities occurring within and outside of parks. In this project, water quality issues in the area of potential effect are present only in the McFadden Farm unit. Under the proposed action, only surface water resources would potentially be affected by any of the activities. The McFadden Farm unit abuts the West Fork of Stones River, which is on the 303(d) list for impaired waters because of organic enrichment and high levels of nutrients. The Environmental Protection Agency attributes the poor water quality of this surface water to a major municipal point source and land development (Tennessee Department of Environment and Conservation 2004).

A new paved trail would be constructed in the northern section of the McFadden Farm unit, in places 50 feet from the river; another paved trail would be constructed around a pond in the southern part of the McFadden Farm unit, at a distance of at least 100 feet from the pond. Construction activities would involve best management practices, including vegetation buffers, to minimize sediment entering nearby surface waters. The combination of minimal disturbance activities (constructing trails), best management practices, and the activities' occurrence some distance from the river could potentially create short- term, highly- localized measurable water quality impacts due to increased sediment, but these impacts would be well within all water quality standards. Any contribution of nutrients from soil erosion would be overshadowed by existing water quality problems. Because the paved trails would create very little new impervious surface, surface runoff in the McFadden Farm unit would not change under the proposed action. Therefore, effects to water resources under the proposed action would be short- term and negligible to minor. Such a small impact needs no further analysis; thus, this impact topic is dismissed.

Wetlands: Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (hydrophytes), including swamps, marshes, bogs, and similar areas (33 *CFR* section 328.3[b]; 40 *CFR* section 230.3[t]).

Pooling of water is a problem in some locations within the park, with impervious subsoils and low topography contributing to the problem. Low- lying areas with no natural or developed drainage are best left as open space (NPS 1998b).

The entire Stones River National Battlefield was surveyed for wetlands in June 2004 (Hogan 2004). The survey determined that 14 wetlands exist within the current authorized park boundary. Two of these wetlands are riverine, five are along a slope, and seven are found in depressions. All of these wetlands are each less than one acre. Only three of these are near the proposed project area. Because none of these wetlands are within 100 feet of the project area, there would be no adverse effects to any wetlands under any of the alternatives being considered. Therefore, wetlands are dismissed.

Wilderness: There are no designated or potential wilderness areas within Stones River National Battlefield.

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ALTERNATIVES CONSIDERED

The alternatives include three action alternatives and the alternative of no action/continue current management. The major issues related to the existing auto tour route that the action alternatives were designed to address were described in the “Purpose and Need” section. Although the option of continuing current management/no action does not solve the tour route issues at the park, current conditions are used as the baseline against which the action alternatives are analyzed. This is the context for determining the relative magnitude and intensity of impacts (NPS 2001a).

As part of the design analysis and project planning, including a Value Analysis/Choosing by Advantages Workshop, a range of alternatives was considered. Those actions or alternatives that were not realistically feasible or did not adequately meet the project purpose and need were dismissed. None of the alternatives retained would remove the historic entrances or the original tour route, which would remain accessible by either pedestrians or vehicles. A discussion of the actions or alternatives that were eliminated from further consideration follows the description of the No Action Alternative and the three action alternatives in Table I.

TABLE 1: COMPARISON OF THE ELEMENTS OF EACH ALTERNATIVE

Element/Action	No Action/ Continuing Action Management	Alternative A: Maintain Current Entrances, Reduce Road Surfaces, Interpret Cedar Glades	Alternative B: Construct New Entrances, Add Natural Resources Tour Route to Interpret Cedar Glades	Alternative C, the Preferred Alternative: Construct New Entrances, Reduce Road Surfaces, Create Efficient Tour Loop, Interpret Cedar Glades
General concept	The No Action Alternative would maintain the existing auto tour route with six tour stops. Visitors would enter at the main entrance off the Old Nashville Highway, stop at the visitor center, and then take the main tour road loop before leaving the park property to travel to the McFadden Farm unit for the last tour stop. To reach this last tour stop, visitors must drive on four roads, with some backtracking, to reach McFadden Farm.	<p>Alternative A would:</p> <ul style="list-style-type: none"> maintain one of the current park access points, add a connector road from McFadden Lane to the tour road, provide an additional access point at the intersection of McFadden Lane and the Old Nashville Highway, replace the west loop of the existing tour route with a paved pedestrian trail, and use McFadden Lane and the eastern loop of the existing tour road as the main tour route. <p>Access to the Slaughter Pen area would be from McFadden Lane, and off- street parking would be provided at the Hazen Brigade Monument. New parking would be developed at the McFadden Farm site.</p>	<p>Alternative B would:</p> <ul style="list-style-type: none"> create two new park entrances from Thompson Lane at the main battlefield and McFadden Farm site, utilize McFadden Lane as the main tour route, designate the existing west tour loop as a natural resource tour route, and replace the east tour route with an unpaved trail. <p>This alternative would allow traffic to begin the tour route without leaving park property. This alternative would create direct access between park sites via Thompson Lane.</p> <p>Access to the Slaughter Pen area would be from McFadden Lane, and off- street parking would be provided at the Hazen Brigade Monument. New parking would be developed at McFadden Farm.</p>	<p>Alternative C would:</p> <ul style="list-style-type: none"> create two new park entrances from Thompson Lane at the main battlefield and McFadden Farm site, utilize McFadden Lane and the existing east loop of the tour road as the main tour route, replace the west tour route with a paved trail. <p>This alternative would create direct access between park sites via Thompson Lane.</p> <p>Access to the Slaughter Pen area would be from McFadden Lane, and off- street parking would be provided at the Hazen Brigade Monument. New parking would be developed at the McFadden Farm site.</p>

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Access and entry	Current access to the park would be via Thompson Lane and Old Nashville Highway. Access to McFadden Farm would be via McFadden Lane.	Alternative A would maintain the current access to the park via Thompson Lane and Old Nashville Highway. Access to McFadden Farm would maintain the current entry via McFadden Lane.	Alternative B would provide access to the main battlefield and the McFadden Farm site directly from Thompson Lane.	Alternative C would provide access to the main battlefield and the McFadden Farm site directly from Thompson Lane. Visitors arriving to the main park would utilize the new Thompson Lane entry, which would connect to the visitor center via the existing eastern/northern loop of the tour road.
Visitor center access	Existing access to the visitor center would allow for two buses to park, but not pull through.	The visitor center parking lot would be reconfigured to allow pull- through bus parking and direct visitors to the front of the visitor center.	Existing access to the visitor center via Old Nashville Highway would remain. However, the new entrance would be promoted as the primary entrance to the park for out of town visitors. Local visitors who preferred to access the park from the old entrance could still do so. En route to the visitor center, visitors would pass tour stops 2, 3 and 4.	Existing access to the visitor center via Old Nashville Highway would remain. However, the new entrance would be promoted as the primary entrance to the park for out of town visitors. Local visitors who preferred to access the park from the old entrance could still do so. En- route to the visitor center from the Thompson Lane entry, visitors would pass tour stops 3, 4 and 5.

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Auto tour route		To begin the auto tour from the visitor center, tour route traffic would exit the park onto Old Nashville Hwy. and head southeast. There would be six tour stops with minimal backtracking. The cedar glades would be interpreted on the auto tour route.	To begin the auto tour route from the visitor center, tour route traffic would retrace a portion of the entry sequence from Thompson Lane. There would be six tour stops with some backtracking in the main park unit. The cedar glades would not be interpreted on the main auto tour, but instead on a natural resources route.	To begin the auto tour route from the visitor center, tour route traffic would exit the Park onto Old Nashville Highway and head southeast. There are six tour stops with some backtracking in the main park unit. The cedar glades would be interpreted on the auto tour.
Trails		Additional trails and directional signing would be developed to improve the interpretive experience. These trails would link all of the auto tour stops. An unpaved trail would be created along the current western boundary of the main park unit, and the current boundary trail would be reverted. The western part of the current auto tour road would be converted to a paved trail. Additional paved trails would be constructed from McFadden's Lane to Hazen Brigade Monument, and at the Union earthworks site.	Additional trails and directional signing would be developed to improve the interpretive experience. These trails would link all of the auto tour stops. Three additional paved trails would be added to the McFadden Farm unit, and two to the main park unit, near the Union earthworks and connecting McFadden Lane to Hazen Brigade Monument. An unpaved trail would be developed where the east leg of the tour route is currently. The existing boundary trail would be incorporated into this trail system.	Additional trails and directional signing would be developed to improve the interpretive experience. These trails would link all of the auto tour stops. The western part of the current auto tour road would be converted to a paved trail. Three additional paved trails would be added to the McFadden Farm unit, and two to the main park unit, near the Union earthworks and connecting McFadden Lane to Hazen Brigade Monument. The existing boundary trail would be incorporated into this trail system.

THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

The No Action Alternative is defined as continuation of current management and use of facilities of the auto tour route and trails. Currently, visitors enter the main part of the park at the historic entrance across from the cemetery, and most stop at the visitor center before beginning the auto tour route. The existing tour route moves clockwise through the main battlefield area with six interpretive stops (see Table 2 and Figure 5).

The interpretive media and placement of the waysides would not be updated. At tour stop number 1, “The Eve of the Battle,” there is little to view and no interpretive link between the wayside exhibit, the Hazen Brigade Monument, Van Cleve Lane, the Toll House and the visitor center. The true location of Parson’s battery was likely closer to the center of the large field than currently indicated (Johnson 2005b).

At the “Slaughter Pen” (stop number 2), views to the south are affected by the presence of modern homes and traffic along Manson Pike. The parking area at this tour stop is often full because of the time required to access the woods along the trail. This tour stop is not correctly interpreted, as there are cannons displayed in an inaccessible area, which would not have occurred during the battle.

The next tour stop (number 3, “The Cotton Field”) has a dramatic setting. Some of the original cotton field from the time of the battle is still planted as cotton.

Tour stop number 4, “Defense of the Nashville Pike” includes two cannons and two limbers but the interpretation lacks information on the typical equipment contained in a battery. This information is needed to help interpret the magnitude of the battlefield scene here. Also, during the battle there were four more guns located close to the earthworks (Johnson 2005b). From tour stop number 4, the tour road loops back to the visitor center area.

To reach “Round Forest” (tour stop number 5) from the visitor center, visitors must exit the park’s main entrance onto a busy road (the Old Nashville Highway) and continue southeast before making a left turn into a small parking area. This extremely tight parking area forces cars to back into traffic on Old Nashville Highway to exit and makes it impractical for tour buses to visit this site.

To continue to McFadden’s Farm from stop number 5, visitors travel southeast along the Old Nashville Highway, pass beneath Thompson Lane and make a sharp right turn to merge onto Thompson Lane. Continuing over the Old Nashville Highway and the railroad, the route turns left onto U.S. 41/70S (the New Nashville Highway) before turning northeast on Van Cleve Lane to reach stop number 6, the McFadden’s Farm area (monument, cannons, gravesites and McFadden’s Ford overlook). Visitors must retrace this circuitous route to return tour guides or equipment to the park’s visitor center. Traffic is heavy on U.S. 41, making egress from Van Cleve Lane (the historic trace of McFadden Lane) difficult. A few visitors take Thompson Lane to the McFadden’s Farm vicinity, park near the river on city property, and walk up the historic road trace to reach the overlook.

The existing parking lot at McFadden’s Farm visually divides the ridge west of the river, deemphasizing the importance this topography played in the battle. The location of the parking area also makes it more difficult to visualize the artillery that once was clustered here, focused across the river at the Confederate Army.

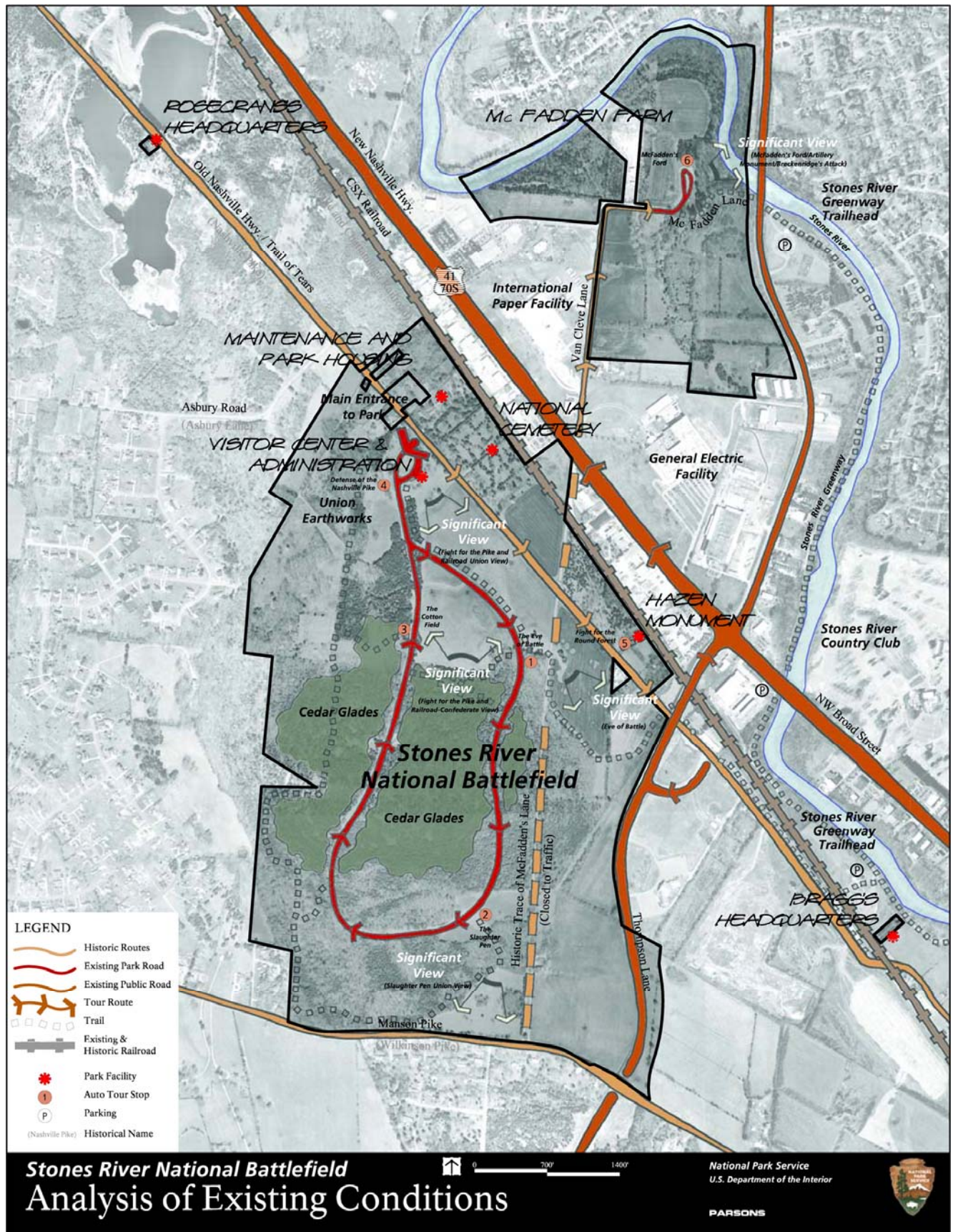


FIGURE 5: EXISTING CONDITIONS

Other non- contiguous parts of the park are not part of the current auto tour route. Many visitors park at the visitor center and walk across the Old Nashville Highway to reach the cemetery, which is not part of the tour route due to the lack of parking opportunities. Some park sites (General Rosecrans' Headquarters, General Bragg's Headquarters, Redoubt Brannon) are accessed from the Old Nashville Highway.

The No Action Alternative provides a basis for comparing the management direction and environmental consequences of the action alternatives. Should the No Action Alternative be selected, the National Park Service would respond to future needs and conditions associated with the tour route without major actions or changes from the present course. Key components of this alternative and the existing tour stops are illustrated in Figure 5 and described in Table 2.

TABLE 2: EXISTING TOUR STOPS

Stop No.	Description
1. The Eve of Battle	This tour stop is at the edge of a cedar glade, near Van Cleve Lane and the historic trace of McFadden's Lane. This wayside exhibit interprets the day and evening of December 30, 1862, as Union Troops commanded by Major General George H. Thomas moved into position. During the latter part of the day the Union troops skirmished with Confederate troops to the east before spending the night prior to the battle camped in freezing temperatures and a steady drizzle.
2. The Slaughter Pen	This tour stop is near the south end of the auto tour route, not far from McFadden's Lane (Van Cleve Lane). Near here, the Union soldiers of Sheridan's and Negley's divisions warded off several determined Confederate assaults. The Confederate artillery was only about 200 yards away, resulting in costly losses to both sides, thus the name "the Slaughter Pen." Although eventually forced to abandon his position, Sheridan's delaying actions allowed Union troops time to reform lines along the Nashville Pike.
3. The Cotton Field	This tour stop, on the western segment of the tour road, commemorates the last line of Union defense along the Nashville and Chattanooga Railroad and turnpike on December 31st. As pursuing Confederates emerged from the woods and entered the cotton field, they were greeted by three Union lines of battle with cannons between the regiments.
4. Defense of the Nashville Pike	This tour stop is at the north end of the loop tour road, near the visitor center and the beginning of the auto tour road. Here, the six- gun Chicago Board of Trade Battery, named after the Board of Trade provided the funds to establish and equip it, fired upon Confederates who were pursuing thousands of Union troops retreating out of the cedars in front of the cannon. The fire from these cannons and a second battery on the left broke up the Confederate attack.
5. Round Forest	This tour stop is on the east side of the Old Nashville Highway, just southeast of tour stop number 1. This wayside exhibit marks the only Union position to hold throughout the first day of the battle. Immediately adjacent is the Hazen Brigade Monument, erected in 1863 by the survivors of Col. William B. Hazen's brigade. It is the nation's oldest intact Civil War monument. In addition to the monument itself, the site includes the graves of forty- five of the brigade's fallen.
6. McFadden's Farm	This tour stop is along the historic Stones River crossing known as McFadden's Ford. Union soldiers crouched here behind breastworks of stone and rail while a battered advance division fled back across the river pursued by Breckinridge's Confederate brigades. Union cannons fired from the rise above McFadden's Ford, killing or wounding some 1,800 Confederate soldiers in less than one hour in the battle's final action.

ELEMENTS COMMON TO ALL ACTION ALTERNATIVES

In all three action alternatives, initial orientation would be provided at the visitor center, which has a drop- off area and parking for visitors and buses. Currently, six interpretive auto

tour stops have been suggested by park staff. A more formal planning process with the Harper's Ferry Center, which would determine the final number and appearance of the tour stops and interpretive exhibits, began in May 2005 and will continue through the design phase of this plan. These interpretive exhibits and tour stops would be identical among the various action alternatives, although their order would vary. This process would update the current waysides, installed in the 1960s. These waysides would improve the adequacy of the story told about the Battle of Stones River and provide visitors with more information than given at present.

Access to the Slaughter Pen area would be from McFadden Lane. At the Hazen Brigade Monument, one of the auto tour stops, a new parking lot, including two parallel bus parking stalls and eight automobile parking stalls would be added, which would allow buses to park at the monument. The entrance to the monument would be from a new road to the south, not the Old Nashville Highway. A loop trail would connect the parking lot with the existing trail and the monument.

New parking would be developed in the McFadden Farm unit, southwest of the existing parking lot, and additional trails and directional signing would be developed to improve the interpretive experience. Under Alternative A, the parking lot would include twelve automobile parking stalls and two parallel bus/RV parking stalls. The same amount of parking would be available under Alternatives B and C, although the actual location of the parking lot would be different, as no new road would be added under Alternative A.

In all action alternatives, where road sections are reverted to paved or unpaved trails in the cedar glades section, small culverts would be added to better distribute runoff.

A trailhead would be added near the visitor center to orient visitors to the trails of the battlefield. In all action alternatives, trails would be developed that are between 5 feet (unpaved) and 8 feet (ADA- accessible, paved). Sections of the trails to be paved or unpaved would depend, in part, upon the topography and would vary among the alternatives. Where practical, the unpaved trails would be designed to meet proposed ADA- requirements for trails (slip resistant surface, greater than 36 inches in width, no more than 14 percent running slope for 5 feet at a time [American Trails 2005]). Adjacent to sensitive resources or where a more primitive hiking experience than pavement or gravel would be desired, these requirements may not be met. In all action alternatives, five- foot- wide sidewalks would link parking spaces to the visitor center. New parking lots would also be constructed at some of the designated auto tour stops, to accommodate both cars and buses.

The park's cultural landscape is a physical record of time, place and past uses, and it is this historic character that the proposed developments would strive to retain and preserve while providing for enhanced visitor access and appreciation. Where possible, landscape elements would be stabilized and conserved. Additions or modifications of landscape elements such as park entrances, parking areas, trails, signage, and roadways would follow the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (NPS 1996). That is, designs would be carefully selected to be compatible with the existing cultural landscapes, especially in or near the Core Battlefield, Hazen Monument, and the Artillery Monument. Special attention would be paid to design, massing, distinctive features and materials used to retain the historic relationship between historic features such as the monuments and their setting.

ALTERNATIVE A - MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Under Alternative A, visitors would continue to use the traditional park entry, stopping first at the visitor center for orientation and an introduction to the battlefield. They would then be directed to the beginning of the tour at the Old Nashville Highway, which they would follow southeast to McFadden Lane. Here, the tour route would reenter the park and move south along the road to the Slaughter Pen area, then circle back to the visitor center along the east leg of the current loop road. A loop would be added near the Slaughter Pen to allow for an easy return north for vehicles.

The west loop of the existing tour road would be narrowed to a trail. The tour would continue to follow the existing route to reach the Hazen Brigade Monument and then McFadden Farm. Figure 6 shows the locations of these changes to the auto route, while Table 3 provides a description of the suggested wayside exhibits.

This alternative would remove vehicle traffic from the western part of the park and would improve natural resource conditions by reducing impervious surfaces, but would minimally improve surface flow in the cedar glades.

Drainage problems currently exist along the auto route near the cedar glades. The karst topography in the cedar glade areas is a complex system that requires a comprehensive analysis prior to making future changes to roadway elevations, to ensure that environmentally sensitive areas are not adversely impacted. Much of the existing asphalt roadway would be used for the future auto tour route. Road maintenance techniques such as surface milling and micro- surfacing would be used to maintain current roadway elevations while allowing for surface improvements. Where existing roadways would be narrowed for the creation of paved trails, the asphalt area reduction would be sawcut and removed to ensure a clean edge in order to minimize disturbance of the surrounding areas. Asphalt road-to- trail conversions would remain paved in asphalt.

The historic route of McFadden Lane is currently a two- way road (Van Cleve Lane), but under this alternative it would be reduced to a one- way, southbound, 12- foot- wide road until tour stop 2. Between tour stops 2 and 3, there would be two- way traffic on McFadden Lane. At tour stop 3, a 12- foot- wide, one- way road would loop back north to another new 12- foot- wide road segment that would link McFadden Lane to the tour route.

Incorporating the historic route of McFadden Lane as part of the tour route would continue its historic use, with minimal effects on the park's cultural landscape. The tour route would continue to use the traditional park entry (through stone pillars) from the Old Nashville Highway and would require only a limited expansion of park operations and maintenance.

The park's trail system would be enlarged and improved under this alternative.

- A trailhead would be developed west of the visitor center. This trailhead would orient park visitors to trail opportunities and guide users to their desired destination. Visitors interested in walking the auto tour route sequence may visit tour stops 1 through 5 via a 5- foot- wide paved trail. All paved tour route trails would minimize disturbance by closely following the auto tour route.
- An eight- foot- wide paved trail would link the visitor center and tour stop 6 with the Union earthworks site. Other five- foot- wide paved trail systems connect the visitor

center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, a five- foot- wide paved loop trail would be constructed along the cannon alignment used during the battle.

- The unpaved boundary trail would be relocated further west, near the perimeter of recently acquired land. The old boundary trail would be abandoned and restored to a natural condition.
- A five- foot- wide paved trail would parallel McFadden Lane, separated from the road by a snake- rail fence.

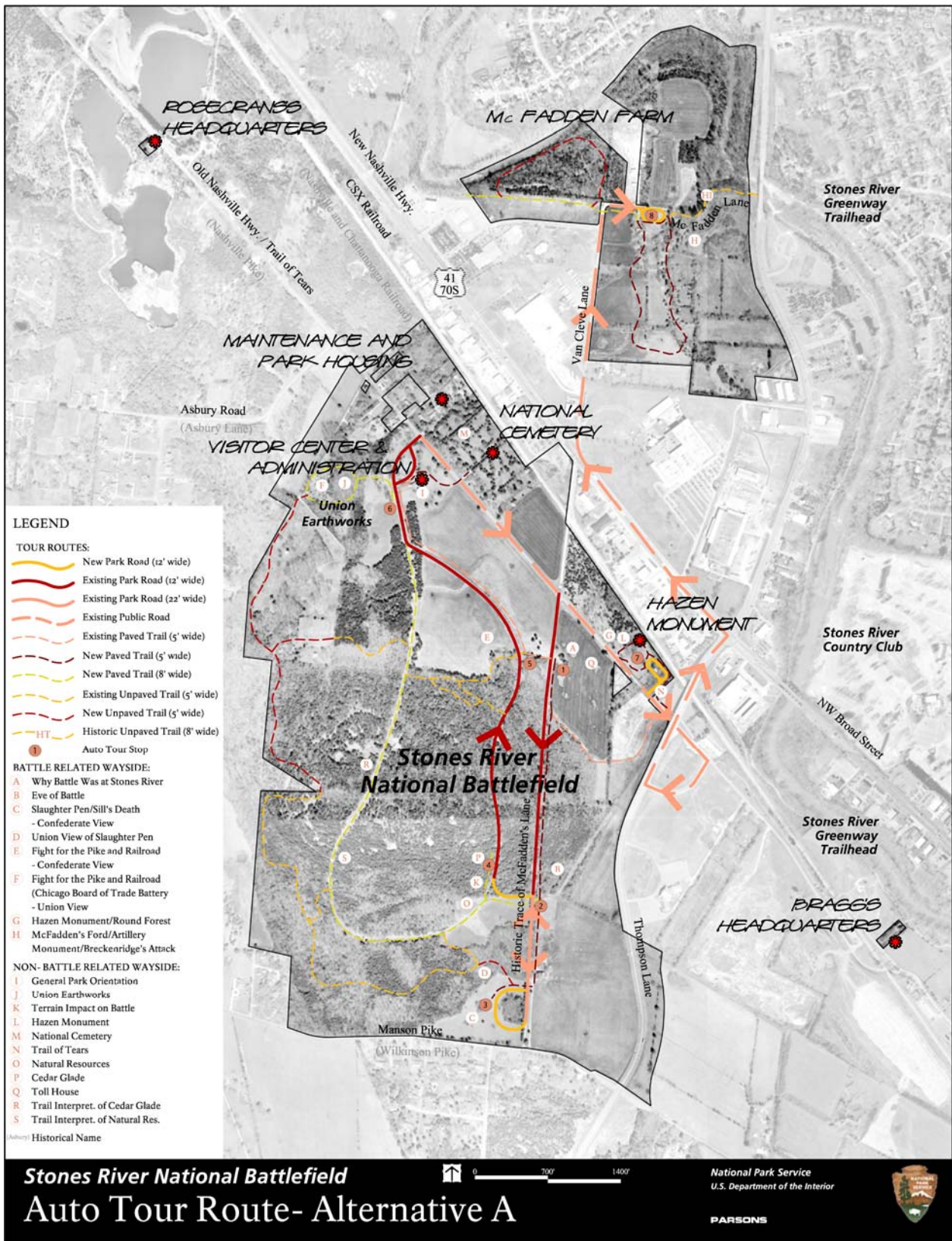
Under Alternative A, problems of difficult, confusing, and unattractive access onto Thompson Lane and the New Nashville Highway would continue. The park would lack control of the “entry” experience, compromising the sense of historic place the battlefield should have for the visitor. To visit the McFadden Farm unit, visitors would still have to travel through the middle of incompatible land uses (industrial development), which reduces the continuity of the auto tour route and diminishes the visitor’s experience.

TABLE 3: ALTERNATIVE A INTERPRETIVE THEMES

Suggested Stop and Wayside Number	Description
1 – A. Why Battle Was at Stones River	This tour stop would describe Confederate and Union actions and reasons for meeting at this area for a battle in the dead of winter.
1. Toll House	This wayside exhibit would interpret where Union forces were able to stabilize a defensive line against the onslaught of Confederate troops.
2 – B. Eve of Battle	This wayside exhibit would illustrate the Union approach and the tactical layout of the armies, and interpret the day and evening of December 30, 1862, as Union Troops commanded by Major General George H. Thomas moved into position. During the latter part of the day the Union forces skirmished with Confederate troops to the east before spending the night before the battle camped in freezing temperatures and a steady drizzle, without heat or lights.
3 – C. Slaughter Pen/Sill’s Death – Confederate View	A wayside exhibit facing north/northwest would give the Confederate perspective of the breakthrough in this area at noon on December 31, 1862. Near here, the Union soldiers of Sheridan’s and Negley’s divisions warded off several determined Confederate assaults. The Confederate artillery was only about 200 yards away, resulting in costly losses to both sides, hence the name “the Slaughter Pen.” Although eventually forced to abandon his position, Sheridan’s delaying actions allowed Union troops time to reform lines along the Nashville Pike.
4 – K. Terrain Impact on the Battle	This wayside exhibit would describe how the limestone outcroppings in the cedar forests hindered the movements of both armies.
4 – O. Natural Resources	This wayside exhibit would describe how the limestone- dominated terrain was formed.
4 – P. Cedar Glades	This tour stop would include a short trail to a cedar glade with a wayside exhibit focusing on the cedar glades.
5 – E. Fight for the Pike and Railroad– Confederate View	This wayside exhibit would present the Confederate perspective of the fighting along the Nashville Pike on the afternoon of December 31, 1862.

TABLE 3: ALTERNATIVE A INTERPRETIVE THEMES

Suggested Stop and Wayside Number	Description
6 – F. Fight for the Pike and Railroad (Chicago Board of Trade Battery) – Union View	The Union defense of the Nashville Pike (with an emphasis on artillery) would be interpreted at this tour stop. This tour stop would commemorate the last line of Union defense along the Nashville and Chattanooga Railroad and turnpike on December 31. As pursuing Confederates emerged from the woods and entered the cotton field, they were greeted by three Union lines of battle with cannons between the regiments.
6 – J. Union Earthworks	This wayside exhibit would specifically interpret the Union- built earthworks, with a paved loop trail around the site.
7 – L. The Hazen Brigade Monument (Commemoration)	The Hazen Brigade Monument was erected in 1863 by the survivors of Col. William B. Hazen's brigade. It is the nation's oldest intact Civil War monument.
7 – G. Hazen Brigade Monument/Round Forest	This tour stop is on the east side of the Old Nashville Highway, just southeast of tour stop number 1. This wayside exhibit would detail the Hazen's defense of the Round Forest against four Confederate attacks. It marks the only Union position to hold throughout the first day of the battle.
7 – N. Trail of Tears National Historic Trail	This wayside exhibit would point out that the Trail of Tears passed through this area on the Nashville Pike.
8 – H. McFadden's Farm/Artillery Monument/ Breckenridge's Attack	Wayside exhibit would highlight the impact of the battle and the Union occupation on civilians. Provides the Union perspective with a focus on the massed artillery and the Confederate perspective on the fighting during January 2, 1863.
Other Waysides not on the Auto Tour Route	
I. General Park Orientation Map	Map placed near visitor center parking area to show visitors that they must travel a little further to reach the visitor center.
M. National Cemetery	Wayside exhibits would describe the Stones River National Cemetery, including its inception, history, structures, and details about the troops buried there.
R. Trail Interpretation of Cedar Glades	This trail wayside exhibit would interpret the cedar glades.
S. Trail Interpretation of Natural Resources	This trail wayside exhibit would interpret the natural resources of the battlefield.



ALTERNATIVE B - CONSTRUCT NEW ENTRANCES, ADD NATURAL RESOURCES TOUR ROUTE TO INTERPRET CEDAR GLADES

Visitors would enter the south end of the main part of the park from Thompson Lane via a new signalized entry. A short segment of new road would curve westward through fields and woods to create a sense of entering a different time and place. This new road segment would intersect and follow the historic McFadden Lane (Van Cleve Lane) northward before turning onto a new one- way road connecting to the tour road, to lead to the visitor center.

After stopping at the visitor center, visitors would begin their tour by retracing their way along the east leg of the existing tour road, joining McFadden Lane to continue to tour stop number 1 at the far south end of the park. Under Alternative B, the turnaround near Slaughter Pen would be smaller than the one for Alternative A and would be on the east, not west, side of the road. Returning the short distance north to the new road segment that extends from Thompson Lane, visitors could return to the visitor center via McFadden Lane and a portion of the east loop of the existing tour road, expanded for two- way traffic, or take the natural resource tour road (the west leg of the existing tour road). They also could exit onto Thompson Lane from the two- way road at the entrance at the south end of the park. From the exit near the visitor center, visitors would follow the Old Nashville Pike to the Hazen Brigade Monument and go under and over the overpass onto Thompson Lane to cross the river and the railroad.

Once visitors have reached Thompson Lane, they would turn northeast at a signalized intersection, drive along fields and woods to access the McFadden Farm unit via a new park road that would partially follow Thompson Lane up to a new parking area, near the current parking area. The current parking area would be removed.

The trail connecting the visitor center to the cemetery would be paved and enters the cemetery near its center. This trail also would continue along the Old Nashville Highway to where it connects with McFadden Lane.

Under Alternative B, the trail system would incorporate existing trails and add new links to important sites and waysides.

- A trailhead would be developed west of the visitor center. This trailhead would orient park visitors to trail opportunities and guide users to their desired destination. Visitors interested in walking the auto tour route sequence may visit tour stops 1 through 5 via a 5- foot- wide paved trail. All paved tour route trails would minimize disturbance by closely following the auto tour route.
- An eight- foot- wide paved trail would link the visitor center and tour stop 4 with the Union earthworks site. Other five- foot- wide paved trail systems connect the visitor center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, a five- foot- wide paved loop trail would be constructed along the cannon alignment used during the battle.
- A five- foot- wide paved trail would parallel McFadden Lane, separated from the road by a snake- rail fence.

- Other five- foot- wide paved trail systems would connect visitors from the visitor center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, two paved loop trails would be constructed along the cannon alignment used during the battle.

Once on the trail system, visitors would experience the cedar glades and the numerous limestone outcroppings. They would gain a greater understanding of the physical and psychological difficulties faced by troops on both sides of the battle. They would appreciate the limestone outcroppings in the forests as both an impediment to troop and equipment movement and as an asset providing shelter from the wind and enemy fire.

One of the disadvantages of this route is that the visitor would retrace large portions of the route to reach all the battle- related waysides. There would be no interpretation of the cedar glades along the tour route. There would be an alternate natural resources auto tour route. Two- way traffic from the visitor center to the Slaughter Pen would necessitate wider roadways, potentially cause more resource damage, and might be confusing to some visitors. This route would have some potential for local traffic taking a short- cut through the park. The visitor center would also no longer be the natural first stop, because of the southern entry to the main unit of the park. Figure 7 shows the locations of these changes to the auto route, while Table 4 provides a description of each suggested wayside exhibit.

This alternative would reduce impervious surfaces in the cedar glades area, by reducing the eastern leg of the current auto route to an unpaved trail.

TABLE 4: ALTERNATIVE B INTERPRETIVE THEMES

Suggested Stop and Wayside Exhibit Number	Description
1 – C. Slaughter Pen/Sill's Death – Confederate View	A wayside exhibit facing north/northwest would give the Confederate perspective of the breakthrough in this area at noon on December 31, 1862. Near here, the Union soldiers of Sheridan's and Negley's divisions warded off several determined Confederate assaults. The Confederate artillery was only about 200 yards away, resulting in costly losses to both sides, thus the name "the Slaughter Pen." Although eventually forced to abandon his position, Sheridan's delaying actions allowed Union troops time to reform lines along the Nashville Pike.
1 – D. Union View of Slaughter Pen	This wayside exhibit would provide the Union perspective on the Slaughter Pen area.
2 – B. Eve of Battle	This wayside exhibit would illustrate the Union approach and the tactical layout of the armies, and interpret the day and evening of December 30, 1862 as Union troops commanded by Major General George H. Thomas moved into position. During the latter part of the day the Union forces skirmished with Confederate troops to the east. Then they spent the night before the battle camped in freezing temperatures and a steady drizzle.
2. Toll House	This wayside exhibit would interpret where Union forces were able to stabilize a defensive line against the onslaught of Confederate troops.

TABLE 4: ALTERNATIVE B INTERPRETIVE THEMES

Suggested Stop and Wayside Exhibit Number	Description
3 – E. Fight for the Pike and Railroad – Confederate View	This wayside exhibit would present the Confederate perspective of the fighting along the Nashville Pike on the afternoon of December 31, 1862.
4 – F. Fight for the Pike and Railroad (Chicago Board of Trade Battery) – Union View	The Union defense of the Nashville Pike (with an emphasis on artillery) would be interpreted at this tour stop. This tour stop would commemorate the last line of Union defense along the Nashville and Chattanooga Railroad and turnpike on December 31. As pursuing Confederates emerged from the woods and entered the cotton field, they were greeted by three Union lines of battle with cannons between the regiments.
4 – J. Union Earthworks	This wayside exhibit would specifically interpret the Union- built earthworks, with a paved loop trail around the site.
5 – L. The Hazen Brigade Monument (Commemoration)	The Hazen Brigade Monument was erected in 1863 by the survivors of Col. William B. Hazen's brigade. It is the nation's oldest intact Civil War monument.
5 – G. Hazen Brigade Monument/Round Forest	This tour stop is on the east side of the Old Nashville Highway, just southeast of tour stop number 1. This wayside exhibit would detail the Hazen's defense of the Round Forest against four Confederate attacks, and marks the only Union position to hold throughout the first day of the battle.
5 – N. Trail of Tears National Historic Trail	This wayside exhibit would point out that the Trail of Tears passed through this area on the Nashville Pike.
6 – H. McFadden's Farm/Artillery Monument/ Breckenridge's Attack	Wayside exhibit would highlight the impact of the battle and the Union occupation on civilians. Provides the Union perspective with a focus on the massed artillery and the Confederate perspective on the fighting during January 2, 1863.
Other Waysides not on the Main Auto Tour Route	
I. General Park Orientation Map	Map placed near parking area to help visitors realize that they have to travel a little further to reach the visitor center.
K. Terrain Impact on the Battle	This wayside exhibit would describe how the limestone outcroppings and cedar forests hindered the movements of both armies.
M. National Cemetery	Wayside exhibits would describe the Stones River National Cemetery, including its inception, history, structures, and details about the troops buried there.
O. Natural Resources	This wayside exhibit would describe how the limestone- dominated terrain was formed.
P. Cedar Glades	This tour stop would include a short trail to a cedar glade with a wayside exhibit focusing on the cedar glades.
R. Trail Interpretation of Cedar Glades	This trail wayside exhibit would interpret the cedar glades.

TABLE 4: ALTERNATIVE B INTERPRETIVE THEMES

Suggested Stop and Wayside Exhibit Number	Description
S. Trail Interpretation of Natural Resources	This trail wayside exhibit would interpret the natural resources of the battlefield.

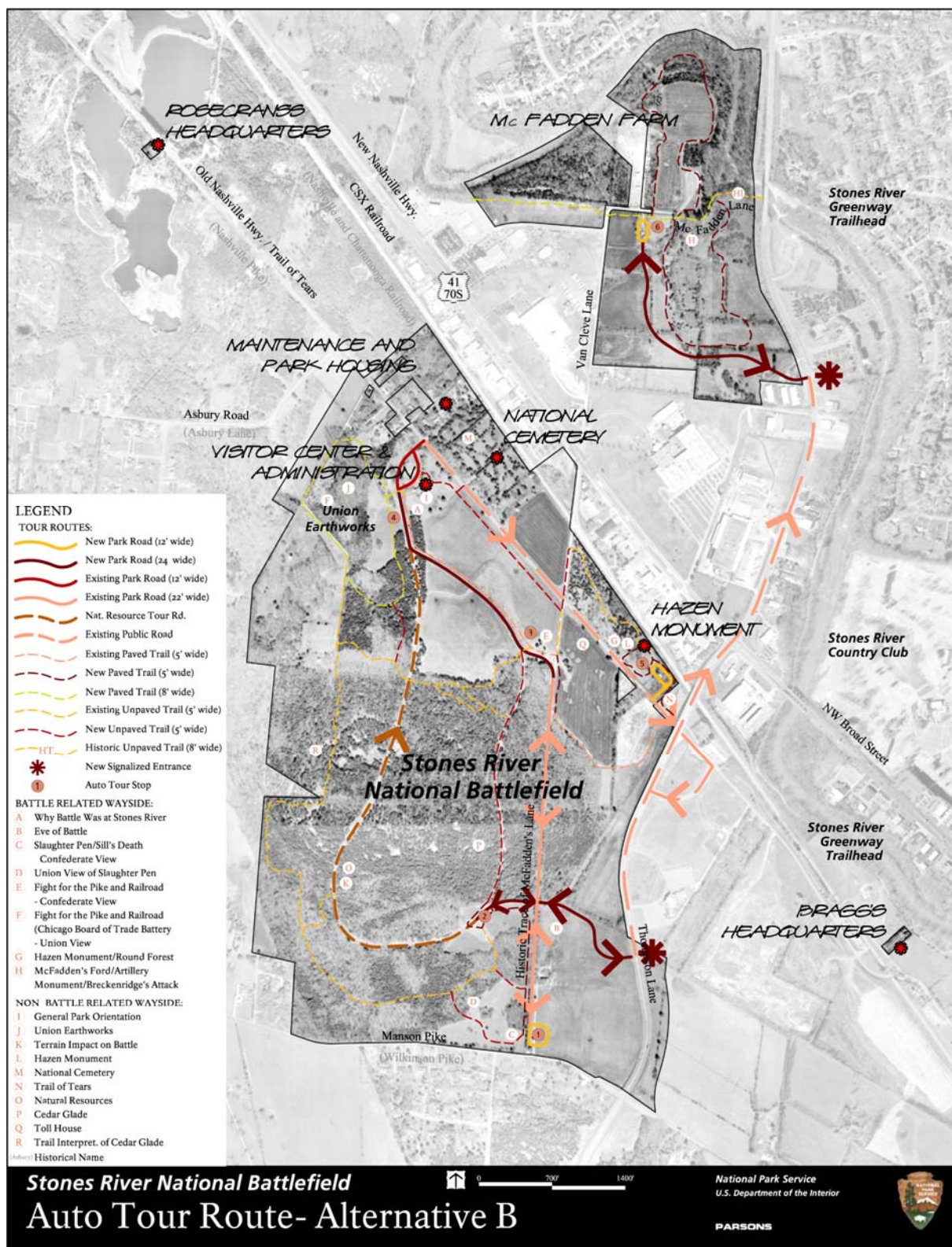


FIGURE 7: ALTERNATIVE B

ALTERNATIVE C - CONSTRUCT NEW ENTRANCES, REDUCE ROAD SURFACES, CREATE EFFICIENT TOUR LOOP, INTERPRET CEDAR GLADES, THE PREFERRED ALTERNATIVE

Like Alternative B, this alternative would develop two signalized entry drives from Thompson Lane into the main park and McFadden Farm units. Circulation within the main unit would run clockwise along Old Nashville Highway, McFadden Lane, and part of the existing tour route. The west leg of the existing tour route would become a paved pedestrian trail. Figure 8 shows the locations of these changes to the auto route, while Table 5 provides a description of each suggested wayside exhibit.

Advantages of this alternative are similar to Alternative B. By creating a new signalized entry, visitors would enter the battlefield via more traditional NPS entry roads. Safety would be improved. Visitors would be able to drive from the entry on Thompson Lane along the east branch of the current one- way tour road to the visitor center, where they would be oriented about the auto tour route. They would turn right onto the Old Nashville Highway and then right again onto a two- way McFadden Lane, before proceeding to the south end of road for tour stop number 2. Here, a turn- around would eliminate the need to back up. This loop is identical to the one described in Alternative B. Visitors would the proceed along what is currently the east branch of the existing tour road, up to the visitor center, and turn right onto the Old Nashville Highway, stopping at Hazen Brigade Monument, then go under and over the overpass onto Thompson Lane to cross the Old Nashville Highway and the railroad.

After crossing US 41 on Thompson Lane, visitors would turn left at a signalized intersection to access McFadden Ford via a new park road that would curve through fields and woods to reach the Artillery Monument and McFadden gravesite.

The trail connecting the visitor center to the cemetery is paved and enters the cemetery near its center. This trail also continues along the Old Nashville Highway to where it connects with McFadden Lane.

Unlike Alternative B, once the visitor has arrived at the visitor center and begun the auto tour route, there would be minimal backtracking. Two- way traffic from the visitor center to the Slaughter Pen would necessitate wider roadways, could potentially cause more resource damage, and might be confusing to some visitors. This route would have some potential for local traffic taking a short- cut through the park. The visitor center is also not the natural first stop, because of the southern entry. However, the cedar glades would be interpreted along the auto tour route, unlike in Alternative B.

Much of the existing asphalt roadway would be used for the future auto tour route. Construction techniques for surface improvement such as surface milling and micro-surfacing would be employed to maintain current roadway elevations while allowing for surface improvements. Where existing roadways would be narrowed for the creation of paved trails, the asphalt area reduction would be sawcut and removed to ensure a clean edge in order to minimize disturbance of the surrounding environmentally sensitive areas. Asphalt road- to- trail conversions would remain paved in asphalt.

TABLE 5: ALTERNATIVE C INTERPRETIVE THEMES

Suggested Stop and Wayside Number	Description
1 – A. Why Battle Was at Stones River	This tour stop would describe Confederate and Union actions and reasons for meeting at this area for a battle in the dead of winter.
1. Toll House	This wayside exhibit would interpret where Union forces were able to stabilize a defensive line against the onslaught of Confederate troops.
2 – C. Slaughter Pen/Sill's Death – Confederate View	A wayside exhibit facing north/northwest would give the Confederate perspective of the breakthrough in this area at noon on December 31, 1862. Near here the Union soldiers of Sheridan's and Negley's divisions warded off several determined Confederate assaults. The Confederate artillery was only about 200 yards away, resulting in costly losses to both sides, thus the name "the Slaughter Pen." Although eventually forced to abandon his position, Sheridan's delaying actions allowed Union troops time to reform lines along the Nashville Pike.
2 – D. Union View of Slaughter Pen	This wayside exhibit would interpret the Slaughter Pen area from the Union point of view.
2 – B. Eve of Battle	This wayside exhibit would illustrate the Union approach and the tactical layout of the armies, and interpret the day and evening of December 30, 1862 as Union Troops commanded by Major General George H. Thomas moved into position. During the latter part of the day the Union forces skirmished with Confederate troops to the east before spending the night before the battle camped in freezing temperatures and a steady drizzle, without heat or lights.
3 – K. Terrain Impact on the Battle	This wayside exhibit would describe how the limestone outcroppings and cedar forests hindered the movements of both armies.
3 – O. Natural Resources	This wayside exhibit would describe how the limestone- dominated terrain was formed.
3 – P. Cedar Glades	This tour stop would include a short trail to a cedar glade with a wayside exhibit focusing on the cedar glades.
4 – E. Fight for the Pike and Railroad– Confederate View	This wayside exhibit would present the Confederate perspective of the fighting along the Nashville Pike on the afternoon of December 31, 1862.
5 – F. Fight for the Pike and Railroad (Chicago Board of Trade Battery) – Union View	The Union defense of the Nashville Pike (with an emphasis on artillery) would be interpreted at this tour stop. This tour stop would commemorate the last line of Union defense along the Nashville and Chattanooga Railroad and turnpike on December 31. As pursuing Confederates emerged from the woods and entered the cotton field, they were greeted by three Union lines of battle with cannons between the regiments.
5 – J. Union Earthworks	This wayside exhibit would specifically interpret the Union- built earthworks, with a paved loop trail around the site.

TABLE 5: ALTERNATIVE C INTERPRETIVE THEMES

Suggested Stop and Wayside Number	Description
6 – L. The Hazen Brigade Monument (Commemoration)	The Hazen Brigade Monument was erected in 1863 by the survivors of Col. William B. Hazen's brigade. It is the nation's oldest intact Civil War monument.
6 – G. Hazen Brigade Monument/Round Forest	This tour stop is on the east side of the Old Nashville Highway, just southeast of tour stop number 1. This wayside exhibit would detail the Hazen's defense of the Round Forest against four Confederate attacks and marks the only Union position to hold throughout the first day of the battle.
6 – N. Trail of Tears National Historic Trail	This wayside exhibit would point out that the Trail of Tears passed through this area on the Nashville Pike.
7 – H. McFadden's Farm/Artillery Monument/ Breckenridge's Attack	Wayside exhibit would highlight the impact of the battle and the Union occupation on civilians. Provides the Union perspective with a focus on the massed artillery and the Confederate perspective on the fighting during January 2, 1863.
Other Waysides not on the Auto Tour Route	
I. General Park Orientation Map	Map placed near visitor center parking area to help visitors realize that they have to travel a little further to reach the visitor center.
M. National Cemetery	Wayside exhibits would describe the Stones River National Cemetery, including its inception, history, structures, and details about the troops buried there.
R. Trail Interpretation of Cedar Glades	This trail wayside exhibit would interpret the cedar glades.
S. Trail Interpretation of Natural Resources	This trail wayside exhibit would interpret the natural resources of the battlefield.

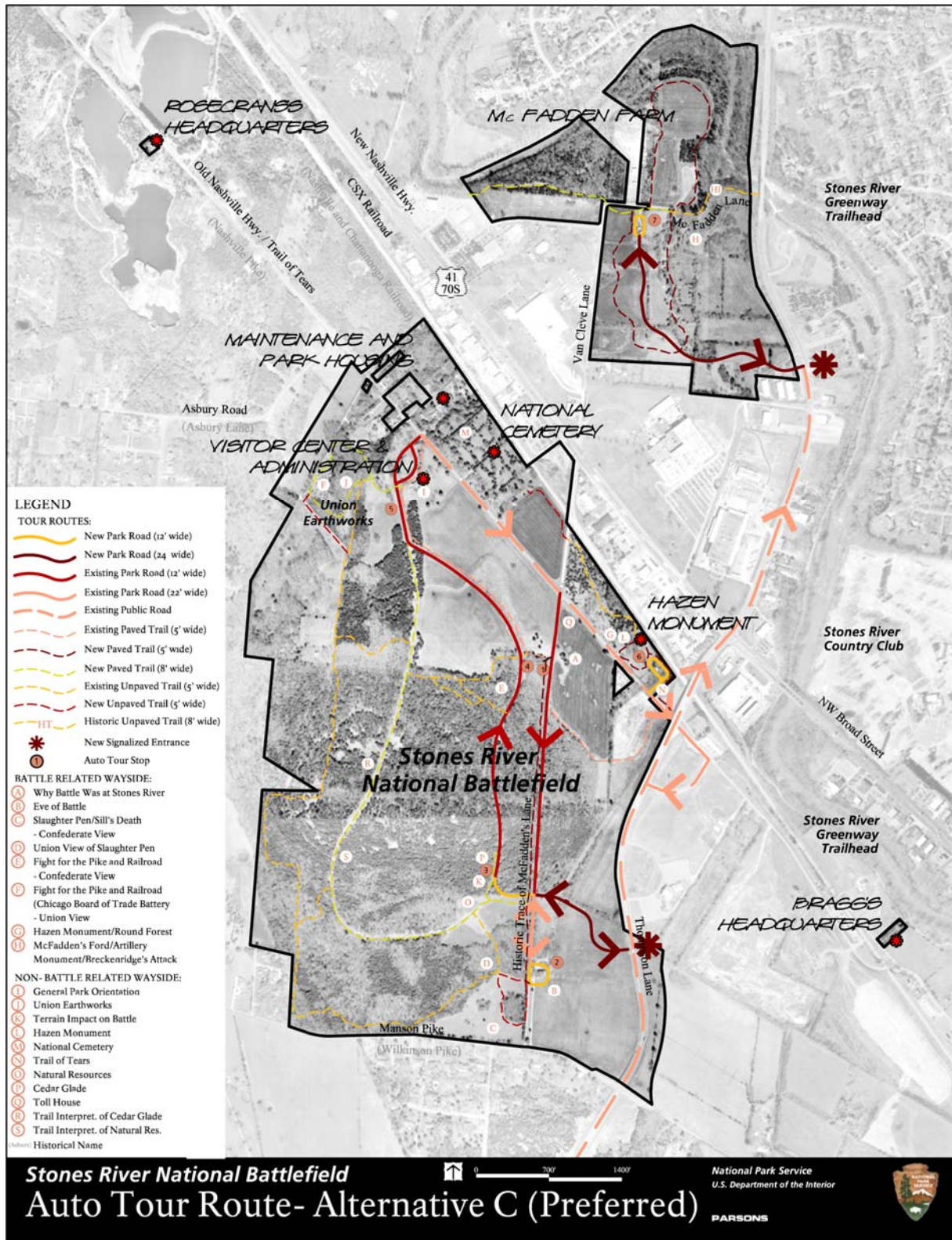


FIGURE 8: ALTERNATIVE C

Under Alternative C, the trail system would incorporate existing trails and add new links to important sites and waysides.

- A trailhead would be developed west of the visitor center. This trailhead would orient park visitors to trail opportunities and guide users to their desired destination. Visitors interested in walking the auto tour route sequence may visit tour stops 1 through 5 via a 5-foot- wide paved trail. All paved tour route trails would minimize disturbance by closely following the auto tour route.
- An eight- foot- wide paved trail would link the visitor center and tour stop 6 with the Union earthworks site. Other five- foot- wide paved trail systems connect the visitor center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, a five- foot- wide paved loop trail would be constructed along the cannon alignment used during the battle.
- The unpaved boundary trail would be relocated further west, near the perimeter of recently acquired land. The old boundary trail would be abandoned and restored to a natural condition.
- A five- foot- wide paved trail would parallel McFadden Lane, separated from the road by a snake- rail fence.

Once on the trail system, visitors would experience the cedar glades and the numerous limestone outcroppings. They would gain a greater understanding of the physical and psychological difficulties faced by troops on both sides of the battle. They would appreciate the limestone outcroppings in the forests as both an impediment to troop and equipment movement and as an asset providing shelter from the wind and enemy fire.

BEST MANAGEMENT PRACTICES FOR THE ACTION ALTERNATIVES

For all action alternatives, best management practices would be used to prevent or minimize potential adverse effects associated with the tour road project. These practices and measures would be incorporated into the project construction documents and plans to reduce the magnitude of effects and ensure that major adverse effects would not occur.

Measures undertaken during project implementation would include, but would not be limited to, those listed below. The impact analysis in the “Affected Environment, Evaluation Methodology, and Environmental Consequences” section was performed assuming that these best management practices and resource protection measures would be implemented as a part of the No Action Alternative and Alternatives A, B, and C, the Preferred Alternative.

TABLE 6. RESOURCE PROTECTION MEASURES

Resource Category/Action
Cultural Resources
<p>Ground- disturbing actions would be designed to avoid known archeological sites and historic features.</p>
<p>Investigations would include the Union earthworks area. Discovered resources would be evaluated for their significance, and if needed, preservation and protective measures would be developed in consultation with the Tennessee State Historic Preservation Office. Best management practices would emphasize changes in project design to avoid and protect sites and features, and/or could include archeological monitoring of the project and data recovery.</p>
<p>Resource protection measures would be included in construction documents to ensure that the contractor did not disturb sensitive areas such as the Union earthworks. Areas for contractor activities would be clearly delineated (staked) on the ground to ensure that activities occurred only in designated areas. Construction documents would include stop- work provisions, should archeological or paleontological resources be uncovered, and the contractor would be apprised of these protective measures during the pre- construction conference.</p>
<p>All project documentation, including but not limited to plans, photographs, and notes, would be permanently retained in the park's museum collection.</p>
<p>Areas containing sensitive cultural resources would be identified in the construction operations plan. Work limits would be established and clearly marked to protect resources, and all protection measures would be clearly stated in the construction specifications. Workers would be instructed to avoid conducting activities beyond the construction zone and their compliance would be monitored by the project contracting officer's technical representative.</p>
<p>Museum collections on exhibit at Stones River National Battlefield would be protected at all times. Any work near cannons and other objects such as monuments or markers would be coordinated with the park's museum curator prior to beginning activities. Information would be provided to ensure necessary precautions when working around museum objects within the project area.</p>
<p>To reduce unauthorized collecting, construction personnel would be educated about cultural resources in general and the need to protect and report any cultural resources encountered. Work crews would be instructed regarding the illegality of collecting artifacts on federal lands to avoid any potential Archeological Resources Protection Act violations.</p>
<p>Contractors would be advised to protect any trees and other vegetation that are important to maintaining the integrity of the cultural landscape. They would be advised to stop work and consult with park staff if ground-disturbing activities revealed anything that could be a remnant landscape feature, such as buried road surfaces, cannonballs, or other Civil War materials.</p>
<p>New landscape features would be compatible with the original design and character of the cemetery or other historic designed landscape, and these features would be sited so that they would not intrude upon the historic battlefield landscape, nor destroy its character- defining elements. Work would follow the <i>Secretary of the Interior's Standard for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i> (NPS 1996).</p>
Discovery of Unknown Archeological Resources or Human Remains
<p>If previously unknown archeological resources or human remains were discovered, work would be stopped in the area of the discovery and the park would consult with traditionally associated peoples, the National Park Service Southeast Archeological Center, the State Historic Preservation Officer and the Advisory Council on Historic Preservation, as appropriate. Procedures outlined in 36 <i>CFR</i> 800 and the Native American Grave Protection and Repatriation Act (NAGPRA) would be followed.</p>

TABLE 6. RESOURCE PROTECTION MEASURES

Resource Category/Action
Visitor Experience
<p>To limit adverse effects on the visitor experience, the park would prioritize construction activities to ensure, to the greatest degree possible, that visitors would continue to have access to a wide range of the battlefield's resources. Work would be scheduled to avoid visitor high- use periods and to minimize adverse effects on the visitor experience.</p> <p>All construction areas would be closed to visitor access and appropriately marked and flagged for avoidance.</p> <p>Contractor staff would be trained to lessen the adverse effects of construction activities on visitor use and experience, and activities would be monitored to ensure the success of this training.</p> <p>Strategies and information would be developed to incorporate the construction activities into the park's interpretive program and would be posted at selected locations to enhance interpretation and visitor understanding of the project.</p>
Public Health and Safety
<p>Contractor and visitor contact would be minimized by keeping materials and vehicle storage outside the park. Work areas would be delineated, and access by visitors and non- essential park staff would be prohibited.</p> <p>The park would continue to monitor and close off sections of the tour road to visitor and park staff access where construction activities would represent a potential hazard to public health and safety.</p> <p>For the action alternatives, best management practices would be used to prevent or minimize potential adverse effects associated with the project. These practices and measures would be incorporated into the project construction documents and plans.</p>
Soils and Vegetation
<p>To minimize disturbance to the surrounding soil and vegetation, the construction limits would be marked prior to beginning any work under the proposed contract. Construction limits would remain marked until completion of the contract to ensure no disturbance to native vegetation beyond the narrowly defined area.</p> <p>Standard erosion control best management practices, including silt fencing, would be used at sand stockpiles to control sediment generation and transport. Construction and contractor billeting activities would be contained within designated boundaries to reduce effects on vegetation. At completion of the project, highly disturbed areas would be restored, which could include soil preparation and reseeding with native vegetation.</p>
Water Resources
<p>The contractor would be required to use construction best management practices to limit effects on water quality. This would include sediment fencing and other appropriate measures to control runoff. Disturbance of ground cover would be kept to a minimum.</p>
Park Operations
<p>By providing adequate training and orientation for construction personnel, the park would be better able to reduce the burden of managing and monitoring work associated with the current project.</p> <p>The contractor would be required to schedule activities in consultation with park staff to minimize conflicts with daily park operations and other park projects.</p> <p>If asphalt recycling was available in the area, contractors would be required to recycle asphalt removed from roads and trails.</p>

TABLE 6. RESOURCE PROTECTION MEASURES

Resource Category/Action
Wildlife
Workers would maintain a defined work area perimeter and would keep all construction- related effects within the effected area.
A qualified biologist would identify state- listed plant species that could be affected by the project and investigate the potential for relocating individual plants. Other state- listed plants that were present and adjacent to areas affected by the project would be marked and protected with fencing or other means.
Construction and stabilization activities would not be allowed at night. This would allow birds to roost and forage in areas near the project without disturbance.

DEVELOPMENT SCHEDULE

All work could be completed in one construction season. Phased construction could also occur, depending on the availability of project funding.

ALTERNATIVES CONSIDERED BUT DISMISSED

The preferred alternative in the *Stones River National Battlefield Final General Management Plan/Development Concept Plan* includes development of the auto tour road south of the present park boundary, including Manson Pike (NPS 1999b). This is no longer a viable option because the city is constructing a four- lane divided road, Medical Center Parkway, through this area (Johnson 2005c). Because of this, new city development has occurred in the area and some of the lands proposed for acquisition are now unattainable.

Another alternative that considered creating a new entrance from Manson Road was dismissed, as it would have encouraged cut- through traffic in the battlefield.

An alternative that included the wholesale removal of trees in the battlefield to recreate historic scenes was dismissed, as it was considered too damaging to the natural resources of the park.

A trail crossing from the visitor center to the McFadden Farm unit, via a bridge or tunnel across the New Nashville Highway and railroad tracks was considered, but dismissed as it was redundant with the greenway trail, would have safety concerns, and obtaining access permission from General Electric and CSX Transportation would be difficult.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will best promote national environmental policy expressed in the National Environmental Policy Act. The environmentally preferred alternative would cause the least damage to the biological and physical environment, and would best protect, preserve, and enhance historical, cultural, and natural resources.

Section 101(b) of the National Environmental Policy Act identifies six criteria to help determine the environmentally preferred alternative. The Act directs that federal plans should:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
4. Preserve important historical, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Continuing the current conditions under the No Action Alternative would be the least effective alternative in meeting these criteria. Without improving the auto tour route, the Battle of Stones River would continue to be inadequately interpreted, the tour route would remain difficult to navigate, and the cedar glades, a rare natural resource in the United States, would not be interpreted and would continue to have a road separate the middle of the glades from the edges. The present configuration of the auto tour route would somewhat compromise the safety of visitors in traveling across major roads traveling to the tour stops. The No Action Alternative fails to meet the criteria of environmentally preferred alternative by not:

- Assuring a safe, healthful, productive, and esthetically and culturally pleasing surround for everyone,
- Attaining the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences, or
- Fully preserving important historical, cultural, and natural aspects of our national heritage.

Alternative(s) B and C would both be preferred over the No Action Alternative. With implementation of either alternative, the National Park Service would be better able to accurately and clearly portray the Battle of Stones River, protect and interpret the cedar glades, and provide a safe environment for visitors to travel along the auto tour route, with signalized entrances and a more direct tour route.

However, Alternative C would more fully meet the criteria for environmentally preferred alternative than Alternative B. Specifically, Alternative C would better meet the criteria for environmentally preferred alternative because it would:

- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences. (Alternative C would create 1.3 acres less of impervious surface than would Alternative B.)
- Preserve important historical, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of

individual choice. (Alternative C would best convey the chronological sequence of the battle and with less backtracking than Alternative B.)

Therefore, Alternative C, the Preferred Alternative is the environmentally preferred alternative.

COMPARISON OF ALTERNATIVES

Table 7 provides a comparative summary of alternatives and whether each alternative would meet the project objectives. This provides a way to quickly compare and contrast the degree to which each alternative accomplishes the purpose or fulfills the need identified in the “Purpose and Need” section above. As shown on the table, all action alternatives would successfully meet all of the objectives of this project. The alternative of no action/continue current management would not meet any of the project objectives.

TABLE 7: OBJECTIVES AND THE ABILITY OF THE ALTERNATIVES TO MEET THEM

Objective	No Action Alternative	Alternative A	Alternative B	Alternative C
Enhance the park’s interpretive program by improvements to the tour route and trails	The No Action Alternative would not meet this objective, as it would continue to operate the existing tour route and trails, without updates to waysides.	Alternative A would meet this objective, as it would improve the tour route’s path and chronology and improve the waysides and trail system.	Alternative B would meet this objective, as it would improve the tour route’s path and chronology and improve the waysides and trail system.	Alternative C would meet this objective, as it would improve the tour route’s path and chronology and improve the waysides and trail system.
Protect cultural and natural resources	The No Action Alternative would not meet this objective, as it would only partially protect cultural and natural resources.	Alternative A would meet this objective, as it would reduce the amount of impervious surface area in the cedar glades, and accurately portray the cultural history of the Battle of Stones River.	Alternative B would meet this objective, as it would increase public understanding of the resources, reduce the amount of impervious surface area in the cedar glades, and accurately portray the cultural history of the Battle of Stones River.	Alternative C would meet this objective, as it would increase public understanding of the resources, reduce the amount of impervious surface area in the cedar glades, and accurately portray the cultural history of the Battle of Stones River.
Protect public and staff health, safety, and welfare.	The No Action Alternative would partially meet this objective, as it would have sites along the tour route that are partially accessible to the mobility- impaired and it would maintain the existing tour route with its confusing path and difficult road crossings.	Alternative A would partially meet this objective, as it would increase accessibility to the mobility- impaired and somewhat improve the confusing path of the auto tour route.	Alternative B would meet this objective, as it would improve the tour route path, provide a signalized entrance to the main park, and increase accessibility to the mobility- impaired.	Alternative C would meet this objective, as it would improve the tour route path, provide a signalized entrance to the main park, and increase accessibility to the mobility- impaired.
Improve the efficiency of park operations.	The No Action Alternative would not	Alternative A would partially meet this	Alternative B would meet this objective, as it	Alternative C would meet this objective, as it

TABLE 7: OBJECTIVES AND THE ABILITY OF THE ALTERNATIVES TO MEET THEM

Objective	No Action Alternative	Alternative A	Alternative B	Alternative C
	meet this objective, as the efficiency of park operations would not change.	objective, as it would include a new connector loop between the tour road and McFadden Lane and resurface McFadden Lane, which would somewhat improve the efficiency of park operations.	would provide park staff with additional, more direct access roads to McFadden Farm and the southern portion of the main unit. Resurfacing McFadden Lane would also improve access and, therefore, efficiency.	would provide park staff with additional, more direct access roads to McFadden Farm and the southern portion of the main unit. Resurfacing McFadden Lane would also improve access and, therefore, efficiency.

SUMMARY OF IMPACTS

Table 8 briefly summarizes the effects of each of the alternatives on the impact topics that were retained for analysis. More detailed information on the effects of the alternatives is provided in the “Affected Environment and Environmental Consequences” section.

TABLE 8: SUMMARY OF IMPACTS

Impact Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
<p>Cultural resources</p> <ul style="list-style-type: none"> • Archeological resources • Cultural landscapes • Historic Resources 	<p>Continuation of existing conditions would have a long- term, negligible to minor, adverse effect on archeological resources and a minor, long- term, adverse effect on the cultural landscape and associated historic resources.</p>	<p>With implementation of best management practices, Alternative A would have long- term, minor, adverse effects on historic archeological resources and negligible adverse effects on prehistoric resources.</p> <p>Adverse effects of new trails and newly defined parking at the Hazen Brigade Monument and McFadden’s Farm would be negligible. New trails in the vicinity of the Union earthworks would have both beneficial and adverse minor effects on the landscape. By reusing historic road traces and existing entrances and by removal of intrusive parking at the McFadden Farm, effects of Alternative A on cultural landscapes and historic resources would be beneficial, long- term, and moderate. Additional vehicular traffic and new road segments would have minor, long- term, adverse effects on the landscape in the main unit.</p>	<p>Effects of Alternative B on historical archeological resources would be long- term, adverse, and minor. Negligible adverse effects would be expected for prehistoric resources. Effects on the cultural landscape and historic resources would be both beneficial and adverse. Reuse of the historic road trace and park entrance and relocation of the parking and entrance road at McFadden Farm would produce long- term, moderately beneficial effects. Addition of more vehicular traffic and new road segments to the landscape in the main unit would incur minor adverse effects. Adverse impacts of new trails in the main unit and at McFadden Farm, and newly defined parking at the Hazen Brigade Monument would be negligible.</p>	<p>Effects of Alternative C would be nearly identical to those described for Alternative A, and, though the additional entrance roads would create disturbance, it would provide more modern entrances.</p>

TABLE 8: SUMMARY OF IMPACTS

Impact Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Visitor use and experience	Not addressing the effects of encroaching development outside the park and failing to replace the inadequate and incomplete information at wayside exhibits would result in long- term, negligible to minor, adverse effects. These effects would be somewhat offset by the long- term, negligible to minor benefits of developing new circulation routes and orientation signage, resulting in overall effects to visitor use and experience that are long- term, negligible, and adverse.	Maintaining the traditional entrances to the park units, which do not provide clear route orientation, would continue to cause a long- term, negligible adverse effect. Improving the auto tour route order, waysides, and adding additional interpretive exhibits (Union earthworks, cedar glades) would result in a long- term, minor, beneficial effect. The construction activities would result in short- term, moderate, adverse effects. The overall effects of Alternative A on visitor use and experience would be long- term, minor, and beneficial, because the adverse effects would be only occur during the project period, with no lasting effects.	Improvements to trails, waysides, the order of the tour stops, and the new entrances to the park would represent a long- term, minor to moderate, beneficial effect to visitor use and experience. Backtracking on the auto tour route and the visitor center no longer being the natural first stop would represent a long- term, negligible to minor, adverse effect. Overall, effects on visitor use and experience under Alternative B would be long- term, minor, and beneficial. Short- term effects due to construction activities would be moderate and adverse.	Improvements to waysides, trails, the order and logic of the auto tour route, and additional interpretive sites would result in a long- term, minor to moderate, beneficial effect. Relocating the entrance to the main park unit so the visitor center is not the obvious first stop would represent a long- term, negligible, adverse effect. Short- term effects due to construction activities would be moderate and adverse.
Park operations	Under the No Action Alternative, continuing current management would have a negligible, beneficial effect on park operations.	Long- term effects to park operations would be negligible and beneficial, due to the minimal change in demand for grounds care. Construction and improvement activities related to trails and the parking lot would create short- term, minor, adverse effects to park operations.	Improvements in access would result in long- term effects that would be minor and beneficial; however, this would also increase the likelihood of cut- through traffic and create long- term, negligible, adverse effects. Short- term effects to park operations, due to construction activities, would be minor and adverse.	Impacts would be the same as described for Alternative B.

TABLE 8: SUMMARY OF IMPACTS

Impact Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Cedar glades	Effects to the hydrology of cedar glades would be long-term, adverse, and minor under the No Action Alternative. Changes to plant communities in the cedar glades would be minor, localized, long-term, and adverse.	Reducing road surfaces through the cedar glade area and constructing a paved trail that would somewhat improve lateral surface flow in the glades would result in negligible to minor, long-term, beneficial effects.	Reducing road surfaces through the eastern portion of the cedar glades would slightly improve lateral surface flow and result in a minor, long-term, beneficial effect.	Impacts would be the same as described for Alternative A.
Public health and safety	Under the No Action Alternative, effects to public health and safety and accessibility would be negligible and beneficial.	The unsafe segments of the tour route and the risk of flooding would result in long-term, negligible, adverse effects to public health and safety. Improved accessibility would result in long-term, moderate, beneficial effects.	Improvements to the auto tour route that minimize crossing several lanes of fast-moving traffic would have a long-term, minor, beneficial effect on public health and safety. The risk of flooding would create long-term, negligible, adverse effects to public health and safety. Accessibility improvements to parking lots and trails linking the auto tour stops would result in a long-term, moderate, beneficial effect on accessibility.	Impacts would be the same as described for Alternative B.
Vegetation	Continuing current management activities under the No Action Alternative would have a long-term, minor, adverse effect.	Under Alternative A, effects to vegetation would be long-term, minor, and adverse. Short-term effects from construction activities would be localized and negligible to minor.	Impacts would be the same as described for Alternative A.	Impacts would be the same as described for Alternative A.

TABLE 8: SUMMARY OF IMPACTS

Impact Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Soils	Soils underlying paved, impervious surfaces would continue to experience long- term, negligible to minor, adverse effects.	Alternative A would have long- term, minor, beneficial effects due to the reclamation of some soils by reducing road area. There would be long- term, minor, adverse effects on soils due to the addition of impervious surfaces. Short- term adverse effects due to construction disturbance would be localized, and negligible to minor.	Impacts would be the same as described for Alternative A.	Impacts would be the same as described for Alternative A.
Wildlife	The No Action Alternative would have short- term, negligible, adverse effects on wildlife, resulting from exposure to traffic on a slowly traveled tour route and the slight potential for roadkill.	Under Alternative A, effects to wildlife would be long- term, negligible, and adverse because limited areas of habitat would be converted to impervious surfaces. Short- term disturbance effects from construction would be minor and localized.	Impacts would be the same as described for Alternative A.	Impacts would be the same as described for Alternative A.
Endangered, threatened, or protected species and critical habitats	Continuing current management activities under the No Action Alternative would have <i>no effect</i> on threatened and endangered species.	The implementation of Alternative A would have short- term, negligible to minor, localized, adverse effect (<i>may affect but not likely to adversely affect</i>) on threatened and endangered species and their habitats. This would result from construction activities and would not persist beyond project implementation.	Impacts would be the same as described for Alternative A.	Impacts would be the same as described for Alternative A.

TABLE 8: SUMMARY OF IMPACTS

Impact Topic	No Action Alternative	Alternative A	Alternative B	Alternative C
Floodplains	The No Action Alternative would have no effect on floodplains in Stones River National Battlefield.	Alternative A would have a long-term, negligible, adverse effect on floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces (1.63 acres).	Alternative B would have a long-term, negligible adverse effect on floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces (6.17 acres).	Alternative C would have a long-term, negligible, adverse effect on floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces (4.9 acres).

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AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the environmental consequences associated with the alternatives. It is organized by impact topics, which distill the issues and concerns into distinct topics for discussion analysis. These topics focus on presenting environmental consequences and allowing a standardized comparison between alternatives based on the most relevant topics. The National Environmental Policy Act requires consideration of context, intensity, and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate for impacts. National Park Service policy also requires that “impairment” of resources be evaluated in all environmental documents.

METHODOLOGY

GENERAL EVALUATION METHODOLOGY

For each impact topic, the analysis includes a brief description of the affected environment and an evaluation of the effects of implementing each alternative. The impact analyses were based on information provided by park staff, relevant references and technical literature citations, and subject matter experts. The impact analyses involved the following steps.

- Define issues of concern, based on internal and external scoping.
- Identify the geographic area that could be affected.
- Define the resources within that area that could be affected.
- Impose the action on the resources within the area of potential effect.
- Identify the effects caused by the alternative, in comparison to the baseline represented by the No Action Alternative, to determine the relative change in resource conditions.
- Characterize the effects based on the following factors:
 - Whether the effect would be beneficial or adverse.
 - Intensity of the effect: negligible, minor, moderate, or major. Impact- topic- specific thresholds for each of these classifications are provided in Table 9. Threshold values were developed based on federal and state standards, consultation with regulators, and discussions with subject matter experts.
 - Duration of the effect: short- term or long- term, with specificity for each impact topic.
 - Context or area affected by the alternative: site- specific, local, park- wide, regional.

- Whether the effect would be a direct result of the action or would occur indirectly because of a change to another resource or impact topic. An example of an indirect impact would be increased mortality of an aquatic species that would occur because an alternative would increase soil erosion, which would reduce water quality.

CUMULATIVE EFFECTS

The Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act requires an assessment of cumulative effects in the decision-making process for federal projects. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non- federal) or person undertakes such other actions" (40 *CFR* 1508.7). Cumulative effects are considered for the no action and action alternatives. The cumulative impacts analysis is presented at the end of each impact topic analysis.

Cumulative effects were determined by combining the effects of the alternative with other past, present, and reasonably foreseeable future actions in the vicinity. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions within the battlefield and the region. The following projects and plans are presented under "Related Projects and Plans" in the "Purpose and Need" section:

- General management plan and environmental impact statement,
- Visitor center rehabilitation,
- New Interstate 24 interchange,
- Construction of Medical Center Parkway,
- Creation of interpretive exhibits along Trail of Tears National Historic Trail,
- Widening of Thompson Lane Bridge,
- Stones River National Battlefield potential expansion, and
- Stones River Cedar Glades and Barrens State Natural Area.

IMPAIRMENT OF PARK RESOURCES OR VALUES

National Park Service *Management Policies 2001* provides guidance on addressing impairment of park resources. Impairment is an impact that, "in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including those that would otherwise be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources that would be affected, the severity, duration, and timing of the impact, the direct and indirect effects of the impact, and the cumulative effects of the impact in question with other impacts (NPS 2000b)."

Any park resource can be impaired, but an impact would be more likely to result in impairment if it affects a resource or value whose conservation is:

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

- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

An impact would be less likely to result in impairment if it is an unavoidable result, which cannot reasonably be mitigated, of an action necessary to preserve or restore the integrity of vital park resources.

Visitor use and experience, public health and safety, and park operations are not considered park resources for which Stones River National Battlefield was established to protect. Therefore, impairment findings are not included as part of the impact analysis for these topics.

None of the alternatives analyzed in this environmental assessment would produce major adverse impacts or impairment of park resources or values.

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Archeological resources	<p><i>Negligible impact — Impacts of the action are at the lowest levels of detection – barely measurable, with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of §106, the determination of effect would be <i>no effect on historic properties</i>.</i></p>	<p><i>Minor adverse impact — The action would impact an archeological site(s) with modest data potential and no significant ties to a living community’s cultural identity. The site disturbance is confined to a small area with little, if any, loss of important information potential. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</i></p> <p><i>Minor beneficial impact — The action would result in preservation of a site in its natural state. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</i></p>	<p><i>Moderate adverse impact — The action would impact an archeological site(s) with high data potential but with no significant ties to a living community’s cultural identity. Disturbance to the site would be modest, but would cause some a loss of integrity. The determination of effect for §106 would be <i>adverse effect</i>.</i></p> <p><i>Moderate beneficial impact — The action would enable stabilization of the site. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</i></p>	<p><i>Major adverse impact — The action would impact an archeological site(s) with exceptional data potential and that has significant ties to a living community’s cultural identity. Disturbance of the site may be substantial, resulting in the loss of most or all of the site and its potential to yield import information. The determination of effect for §106 would be <i>adverse effect</i>.</i></p> <p><i>Major beneficial impact — Active intervention occurs to stabilize the site and develop future preservation measures that would foster conditions under which archeological resources and modern society can exist in productive harmony. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</i></p>	<p>Long- term — Because archeological resources are non- renewable, any effects would be long-term.</p>

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Cultural landscape and historic resources	<p><i>Negligible impact</i> — Effects of the action would be barely perceptible and would not affect cultural landscape resource conditions either beneficially or adversely. For purposes of §106, the determination would be <i>no historic properties affected</i>.</p>	<p><i>Minor adverse impact</i> — The action would alter a pattern, feature, or vegetation in the cultural landscape but would not diminish the overall integrity of the landscape. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</p> <p><i>Minor beneficial impact:</i> Impacts of the action would help maintain existing landscape patterns and features in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</p>	<p><i>Moderate adverse impact</i> — The action would alter a character- defining feature of the cultural landscape but would not diminish the integrity of the landscape to the extent that its National Register eligibility is jeopardized. For purposes of §106, the determination of effect would be <i>adverse effect</i>.</p> <p><i>Moderate beneficial impact:</i> The action would improve the cultural landscape in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</p>	<p><i>Major adverse impact</i> — The action would alter patterns or features of the cultural landscape, seriously diminishing the overall integrity of the resource to the point where its National Register eligibility may be in question. For purposes of §106, the determination of effect would be <i>adverse effect</i>.</p> <p><i>Major beneficial impact:</i> The action would actively enhance and improve the landscape in accordance with the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>. For purposes of §106, the determination of effect would be <i>no adverse effect</i>.</p>	<p>Short- term — Effects on the natural elements of a cultural landscape may be comparatively short-term (less than a year) until new vegetation grows or historic plantings are restored.</p> <p>Long- term — Because most cultural resources are non- renewable, any effects on archeological, historic, or ethnographic resources would be long- term. Effects on the cultural landscape would persist for more than a year.</p>

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Visitor use and experience	Visitors would not be affected, or changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.	Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.	Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.	Changes in visitor use and/or experience would be readily apparent and have important consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.	Short- term – Effects occur only during project implementation activities. Long- term – Effects extend beyond project implementation activities.
Park operations	Park operations would not be affected or the effect would be at or below levels of detection, and would not have an appreciable effect on park operations.	The effect would be detectable but would not be of a magnitude that it would appreciably change park operations. If resource protection measures were needed to offset adverse effects, it would be relatively simple and likely successful.	The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public. Resource protection measures would probably be necessary to offset adverse effects and would likely be successful.	The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public and be markedly different from existing operations. Resource protection measures to offset adverse effects would be needed, and their success would not be assured.	Short- term – Occurs only during the duration of the project. Long- term – Persists beyond the duration of the project.

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Cedar glades	Impacts would not be detectable. Quality and quantity of flows would be within historical conditions. Individual native plants may be affected, but measurable or perceptible changes in plant community size, integrity, or continuity would not occur.	Impacts would be measurable. Quality and quantity of flows would be within the range of historical conditions, but measurable changes from normal flows could occur. Effects on native plants would be measurable or perceptible, but would be localized within a small area. The viability of the plant community would not be affected and the community, if left alone, would recover.	Changes in hydrology would be readily apparent. Flows would be outside historic baselines on a limited time and space basis. Resource protection measures would be necessary to offset adverse effects and would likely be successful. A change would occur to the native plant community over a relatively large area that would be readily measurable in terms of abundance, distribution, quantity, or quality. Resource protection measures to offset or minimize adverse effects would be necessary and would likely be successful.	Changes in hydrology would be readily measurable, and flows would be outside the range of historic conditions and could include flow cessation or flooding. Extensive resource protection measures would be necessary, and their success would not be assured. Effects on native plant communities would be readily apparent, and would substantially change vegetative community types over a large area. Extensive resource protection measures would be necessary to offset adverse effects and their success would not be assured.	Short- term – Following implementation activities, recovery would take less than one year. Long- term – Following implementation activities, recovery would take longer than one year.

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Public health and safety	Public health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on the public health or safety. Accessibility for individuals with disabilities would not be affected, or effects would not be noticeable or measurable.	The effect would be detectable, but would not have an appreciable effect on public health and safety. If resource protection measures were needed, it would be relatively simple and likely successful. Changes in accessibility would be noticeable, but would affect only a small portion of the individuals with mobility- related disabilities who use the park.	The effect would be readily apparent, and would result in substantial, noticeable effects on public health and safety on a local scale. Changes in frequency or severity of injury could be measured. Resource protection measures would probably be necessary and would likely be successful. Changes in accessibility would be readily apparent to many of the individuals with mobility- related disabilities who use the park.	The effects would be readily apparent, and would result in substantial, noticeable effects on public health and safety on a regional scale. Changes could lead to changes in mortality. Extensive resource protection measures would be needed, and their success would not be assured. The effects on accessibility would be readily apparent to most of the individuals with mobility- related disabilities who use the park and would substantially change their ability to access park features.	Short- term – Occurs only during the duration of the project. Long- term – Persists beyond the duration of the project.
Vegetation	Individual native plants may be affected, but measurable or perceptible changes in plant community size, integrity, or continuity would not occur.	Effects on native plants would be measurable or perceptible, but would be localized within a small area. The viability of the plant community would not be affected and the community, if left alone, would recover.	A change would occur to the native plant community over a relatively large area that would be readily measurable in terms of abundance, distribution, quantity, or quality. Resource protection measures to offset or minimize adverse effects would be necessary and would likely be successful.	Effects on native plant communities would be readily apparent, and would substantially change vegetative community types over a large area. Extensive resource protection measures would be necessary to offset adverse effects and their success would not be assured.	Short- term — Following completion of the project, recovery would take less than a year. Long- term — Following completion of the project, recovery would take more than a year.

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
Soils	Soils would not be affected or the effects on soils would be below or at levels of detection. Any effects on soil productivity or fertility would be slight and would return to normal shortly after completion of project activities.	The effects on soils would be detectable, but effects on soil productivity or fertility would be small. If resource protection measures were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.	The effect on soil productivity or fertility would be readily apparent and would result in a change to the soil character over a relatively wide area.	The effect on soil productivity or fertility would be readily apparent and would substantially change the character of the soils over a large area in and out of the park. Resource protection measures to offset adverse effects would be needed, and their success would not be assured.	Short- term — Following completion of the project, recovery would take less than a year. Long- term — Following completion of the project, recovery would take more than a year.
Wildlife	Wildlife and their habitats would not be affected or the effects would be at or below the level of detection and would not be measurable or of perceptible consequence to wildlife populations.	Effects on wildlife or habitats would be measurable or perceptible, but localized within a small area. While the mortality of individual animals might occur, the viability of wildlife populations would not be affected and the community, if left alone, would recover.	A change in wildlife populations or habitats would occur over a relatively large area. The change would be readily measurable in terms of abundance, distribution, quantity, or quality of population. Resource protection measures would be necessary to offset adverse effects, and would likely be successful.	Effects on wildlife populations or habitats would be readily apparent, and would substantially change wildlife populations over a large area in and out of the national cemetery and park. Extensive resource protection measures would be needed to offset adverse effects, and the success of resource protection measures could not be assured.	Habitats and populations: Short- term — Recovers in less than a year after project completion. Long- term — Takes more than a year to recover after project is complete.

TABLE 9: IMPACT TOPIC THRESHOLD DEFINITIONS

Impact Topic	Negligible	Minor	Moderate	Major	Duration
<p>Endangered, threatened, or protected species and critical habitats</p> <p>(Note: Section 7 of the Endangered Species Act requires use of the indicated specific wording [in italics] when quantifying potential effects on listed species.)</p>	<p><i>No effect</i> — Actions would not affect listed or protected species or designated critical habitat.</p>	<p><i>May affect / Not likely to adversely affect</i> — Effects on special status species or designated critical habitat would be discountable (i.e., adverse effects are unlikely to occur or could not be meaningfully measured, detected, or evaluated) or would be entirely beneficial.</p>	<p><i>May affect / Likely to adversely affect</i> — Adverse effects on a listed species or designated critical habitat might occur as a direct or indirect result of the proposed action, and the effect would be neither discountable nor completely beneficial. Moderate impacts on species would result in a changed distribution or local population decline due to reduced survivorship or recruitment; no direct casualty or mortality would occur.</p>	<p><i>Likely to jeopardize the continued existence of a species / Adversely modify critical habitat</i> — Effects could jeopardize the continued existence of a listed or proposed species or adversely modify designated critical habitat within and/or outside the park boundaries. Major impacts would involve a disruption of habitat and breeding grounds of a protected species such that direct casualty or mortality would result in individual mortalities and risk of extirpation/extinction.</p>	<p>Plants</p> <p>Short- term — Recovers in less than one year.</p> <p>Long- term — Takes more than one year to recover.</p> <p>Animals</p> <p>Short- term — Recovers in less than one year.</p> <p>Long- term — Takes more than one year to recover.</p>
Floodplains	<p>Wetlands or floodplains would not be affected, or effects to the resource would be below or at the lower levels of detection. No U.S. Army Corps of Engineers 404 permit would be necessary.</p>	<p>The effects to wetlands or floodplains would be detectable and relatively small in terms of area and the nature of the change. A U.S. Army Corps of Engineers 404 permit would not be required.</p>	<p>The alternative would result in effect to wetlands or floodplains that would be readily apparent, such that a U.S. Army Corps of Engineer 404 permit could be required.</p>	<p>Effects to wetlands or floodplains would be observable over a relatively large area, and would require a U.S. Army Corps of Engineers 404 permit. The character of the wetland or floodplain would be substantially changed.</p>	<p>Short- term — Following implementation, recovery would take less than one year</p> <p>Long- term — Following implementation, recovery would take longer than one year</p>

CULTURAL RESOURCE ANALYSIS METHOD

Cultural resources typically are understood to include archeological sites, buildings, structures, districts, landscapes, and objects, along with ethnographic sites and landscapes, as defined in the National Historic Preservation Act. The National Historic Preservation Act and its implementing regulations provide guidance for deciding whether cultural resources are of sufficient importance to be determined eligible for listing on the National Register of Historic Places. Historic properties (i.e., archeological, landscape, collections, and ethnographic resources) determined to be eligible for listing in the National Register of Historic Places must be associated with an important historic context, i.e. possess significance – the meaning or value ascribed to the item, and have integrity of those features necessary to convey its significance (i.e., location, design, setting, workmanship, materials, feeling and association).

Impacts to cultural resources are described in terms of type, context, duration, and intensity, as described above, which is consistent with the regulations of the Council on Environmental Quality (1978) that implement the National Environmental Policy Act. The impact analyses also are used to comply with the requirements of Section 106 of the National Historic Preservation Act.

In accordance with the Advisory Council on Historic Preservation’s regulations implementing Section 106 of the National Historic Preservation Act (36 *CFR* Part 800, Protection of Historic Properties), effects to cultural resources also were identified and evaluated by

- Determining the area of potential effects;
- Identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places;
- Applying the criteria of adverse effect to affected cultural resources either listed in or eligible for inclusion in the National Register; and
- Considering ways to avoid, minimize, or mitigate adverse effects.

The Advisory Council’s regulations for Section 106 compliance require a determination of either *adverse effect* or *no adverse effect* for cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register. For example, this could include diminishing the integrity of the resource’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternative that would occur later in time, be farther removed in distance, or be cumulative (36 *CFR* Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register. Beyond the requirements of Section 106 of the National Historic Preservation Act, the park will consider all sites to be eligible for the National Register of Historic Places until an evaluation is done to determine a property’s true eligibility.

The Council on Environmental Quality (1978) regulations and *Director’s Order 12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001a) call for a discussion of the appropriateness of resource protection measures, as well as

an analysis of how effective the resource protection measures would be in reducing the intensity of a potential impact, such as reducing the intensity of an impact from major to moderate or minor. Any resulting reduction in intensity of impact because of resource protection measures, however, is an estimate of the effectiveness of resource protection measures under the National Environmental Policy Act only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis for cultural resources. The summary is intended to meet the requirements of Section 106 and is an assessment of the effect of implementing the alternative on cultural resources, based on the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

CULTURAL RESOURCES

AFFECTED ENVIRONMENT

Historical Overview

Prehistoric occupation began in Archaic times, perhaps as much as 8,000 years before present, and continued into the later Woodland and Mississippian periods. In the early historic period, the Confederacy of Six Nations established a claim to this region, and eventually the Shawnees inhabited middle Tennessee until forced out by the Cherokees and Chickasaws in the mid 18th century (NPS 1998b).

Until 1794 this area was the seasonal hunting and fishing ground for the Choctaw, Chickasaw, Cherokee, Creek, and Seminole American Indian tribes, who resided on tribal lands in the Southeast assigned to them "forever" by treaty. These tribes became known as the "Five Civilized Tribes" because of their rapid assimilation of white culture, including operation of large farms, slave ownership, and conversion to Christianity. The Cherokee Nation had even adopted a constitution with provision for a popularly elected legislature and developed a written language.

Rutherford County, created in 1803 from sections of surrounding counties, was named for Irish immigrant Griffith Rutherford. Centrally- located Murfreesboro became the county seat in 1811, and from 1818 to 1826 was the capital of Tennessee. Stones River, a major tributary of the Cumberland River, provided a transportation route and water source for settlers and power for mills built throughout the county.

The expansion of white settlement and the discovery of gold on Cherokee lands culminated in passage of the Removal Act of 1830. In 1831, the Supreme Court refused to recognize the Cherokee tribe's sovereignty over its own territory. A treaty forced upon the Cherokee in 1835 provided for monetary reimbursement for the land that was to be vacated by the tribes by 1837. The Cherokee fought in court and won the right to retain their land, but the government refused to obey a Supreme Court ruling in their favor. In May 1838, some 7,000 troops under General Winfield Scott began the forceful removal of the Cherokee Indians in the Southeast, leaving behind burned and plundered homes and croplands. During the fall and winter of 1838 to 1839, the Cherokee were dispatched in groups of about 1,000 at a time to Indian Territory in Oklahoma. The 1,000- mile- long trip, averaging about 116 days, was horrific. Of perhaps 16,000 Indians who were forcibly removed, an estimated 4,000 died

along the way from illness, hardship, and exhaustion, and were buried along this “Trail of Tears.”

Several different routes were used during the removal. The “northern route” journeyed through the Nashville Basin, which included cities such as Murfreesboro and Nashville (NPS 2003b). From their homes in southern Tennessee, the Cherokee were collected at the Cherokee Agency, near Fort Cass and Camp Ross. Then, moving northwest along what is now Tennessee State Route 1 (U.S. 70S) the detachments passed through Woodbury, and then Murfreesboro, continuing along the approximate route of today’s Old Nashville Highway (NPS 2003b). The Trail of Tears crossed Stones River near the present location of Redoubt Brannan and Fortress Rosecrans.

The Cherokee Trail of Tears is significant in American politics and government as well as ethnic heritage as it was the culmination of the Indian removal policy adopted by the United States government in the early 19th century, a policy that increasingly pressured the southeastern tribes to move westward. The Trail of Tears also is significant as a seminal event in the history of the Cherokee Nation, as the tribe was forced to endure the loss of their ancestral homes and begin anew in the totally different environment and landscape of the Indian Territory in Oklahoma (NPS 1993).

At the time of the Cherokee removal, Tennessee roadways were generally wagon roads and turnpikes that connected settlements and towns. These dirt roads were only wide enough for wagons to pass, and many were literally impassible after heavy rain or snowfall. Bridges were few, so most of the rivers were crossed either by foot or by ferry. However, by 1838 the Old Nashville Highway (Nashville Pike) was more easily traveled than many other routes because it was macadamized, a method of road building involving multi- layers of crushed stone bound by gravel, placed in a convex form, which allowed rainfall to drain away. The Old Nashville Highway roadbed was graded at least 30- feet wide with ditches on either side, and the graveled portion was 20- feet wide and six- inches thick (Styles 2004). Toll gates were erected every 5 miles along the road except within 1 mile of city limits. One of these toll gates was situated in the fields southeast of the present day Stones River National Battlefield Visitor Center.

By the Civil War, Rutherford County had become a “rich agrarian base of considerable diversity and wealth” as one of the largest corn, hog, mule, and horse- producing regions in the Confederacy (THS 2004, Styles 2004). The county was strategically located between the cities of Nashville and Chattanooga and linked to these and other communities by the Nashville Turnpike and the Nashville & Chattanooga Railroad, completed in 1857.

The county’s location and resources made it a highly contested area during the Civil War, and the Nashville and Chattanooga Railroad was essential to Union plans to capture Chattanooga. The line formed a “vital link in the trade from the ports of Charleston and Savannah” and connected with other lines all the way to Louisville, Kentucky on the Ohio River (Styles 2004). The Western Union Telegraph Company lines ran along the railroad; control over these lines also was a key factor in the war.

After their defeat at Perryville, Kentucky in October 1862, the Confederate Army under General Braxton Bragg regrouped as the Army of Tennessee and retreated to Murfreesboro, Tennessee, for winter quarters. Major General William S. Rosecrans’ Union Army of the Cumberland followed Bragg from Kentucky to Nashville, where late in 1862 Rosecrans received orders to move aggressively against Chattanooga, the key Confederate rail center

situated 125 miles to the southeast (NPS 1998b). Capture of Chattanooga would leave the lower South open to invasion and isolate Confederate troops in the east from their supply sources.

On December 26, 1862, the Union Army began to move southward towards Murfreesboro. Learning of the Union offensive, General Braxton Bragg and the Confederate Army of Tennessee took up positions astride the Nashville and Chattanooga Railway in Murfreesboro, 27 miles south of Nashville. Bragg positioned his troops in an arc to cover the approach roads into town, effectively splitting his army into two parts, one on either side of Stones River (Styles 2004). Confederate troops along the limestone bluffs east of the river watched for Union troops advancing along the Lebanon Road, while those on the west side of the river were spread in a large arc from the river to the Wilkinson Pike.

On the evening of December 30, 1862, the two armies faced each other at Stones River, the Confederate forces numbering 37,700 and the Union forces, 43,400. Both generals decided to attack the next morning, using their left wings. Decoyed by “phony campfires” built by the Union Army, General Bragg moved most of his troops across the river to the west, thus extending the Confederate line further southwest. At daybreak on December 31st, the Confederates struck first, hitting the Union right flank and by noon had pushed them back northward three miles through a thick forest to an entrenched position along the Nashville Turnpike, leaving their lines in a deeply acute “V” (NPS 1998b).

General Sill, one of General Sheridan’s three brigade commanders, had warned Sheridan about Confederate movements during the night, giving Sheridan’s troops the opportunity to take cover among the boulders and cedars before the battle began. At about 8:00 a.m., the Confederate troops (Wither’s division of Polk’s Corps) “slammed into Sheridan’s division”, meeting stiff resistance from the Federal troops hidden in the cedars (Styles 2004). Despite a strong counterattack, by the end of the day all three of Sheridan’s commanders had been killed and the Federal troops placed on the defensive. Sheridan found himself threatened by Confederate troops who had circled around to the rear, forcing his withdrawal to the intersection of McFadden Lane and the Wilkinson Pike. However, Sheridan’s costly stand had allowed General Rosecrans to regroup and “restore the shattered Federal line” (Styles 2004).

While Sheridan’s men were fighting through the cedars, General Negley also was under attack by Wither’s Rebels. Negley’s division was situated in a cedar glade, facing east across McFadden Lane, with his right flank terminating on the Wilkinson Pike. A first attack was repulsed, but a second charge “dislodged Negley from the cedars and captured twelve of his cannons (Styles 2004).”

By noon, the Confederates had “bent the Union line back upon itself at the boulder- strewn, cedar- choked hill known locally as the Round Forest” (Styles 2004). If the rebels captured this hill, they could break the Federal forces in half. No less than four attempts were made to break the center of the Union line at Round Forest. Rebels charging out of the cedar thickets into the open cotton fields were “repulsed with terrible casualties” by the heavy artillery of the Chicago Board of Trade Battery (Styles 2004). Bitter fighting also occurred along Asbury Lane, but “no reinforcements were available to follow up the success on the Confederate left” because all available troops had been pulled into the battle for Round Forest (Styles 2004). East of the turnpike, troops advancing along the railroad towards Round Forest were

hit by “withering fire, prompting attackers to nickname these fields ‘Hell’s Half- Acre’ (Styles 2004).”

General Bragg believed the federal troops had been defeated and awaited Rosecrans’ withdrawal, so on New Year’s Day, 1863, both armies remained in place and sought out fallen comrades. The Confederate Army rested and collected “discarded arms, colors, and other trophies of war” while the Union troops regrouped, part of them crossing to the east bank of Stones River for the third time in two days (Styles 2004). Seizing the high ground on the bluff near McFadden’s Farm, the Federals took up new positions. Their hold on the area was short- lived for Confederate General John C. Breckinridge, with a division of 4,500 men, drove the Union troops back across the river.

The Confederates had, however, overreached their own support. The retreating Union troops quickly assembled 45 guns from ten [eight] batteries and placed them hub- to- hub on high ground west of Stones River near the railroad. By firing more than 100 rounds per minute at close range from an elevation at least 10 feet higher than the east bank of the river, the massed battery killed or wounded 1,800 Confederate soldiers in less than an hour and allowed the Union troops to regain their position on the high ground east of the river. January 3rd brought no further conflict, so, believing that Union forces had been reinforced, General Bragg began that evening to withdraw his army 25 miles south to the Duck River in a heavy, cold driving rain. As Bragg moved his troops southward, Rosecrans’ soldiers did not pursue, but instead became “victors of the battle by virtue of possession of the field” (Styles 2004).

The above description may suggest that the battle proceeded in a somewhat orderly fashion. It did not. Instead, the uneven terrain, obstacles, and the “deafening fire of muskets and cannon, the screams of the wounded, and the stench of gunpowder” contributed to a ragged and “stark atmosphere of barely organized chaos (Styles 2004).” Regiments advanced and retreated, some of their members having been cut down while others forged ahead. The walking wounded moved to the rear while riflemen sought shelter amongst the battlefield’s cedar glades, scattered sinkholes and rough limestone outcrops. To add to the misery and confusion, by December 29th Christmastime’s pleasant weather had turned wet and cold. Wind, sleet, and rain pounded the soldiers and turned plowed fields and roads into a soupy quagmire of half frozen mud.

At the end of the two- day battle, more than 23,000 casualties had been suffered by the two armies. The battle had raged back and forth across some 4,000 acres of scattered farms and woodland along Stones River. The rectilinear cultivated farm fields were surrounded by wood rail fences that became makeshift breastworks for the soldiers, and impeded the progress of men and cannons. The woodlands consisted of dense thickets of eastern red cedar surrounding glades, openings where the shallow, acidic soils discouraged trees but supported ground cover of grasses and herbaceous plants. The cedars with their “thickly entwined branches that reached to the ground” provided a strong natural position for some of the soldiers, but also hindered the movement of troops and equipment.

The cost in lives and property was not limited to the two armies. Civilians such as the McFadden family were forced out of their homes by the battle and many suffered injury or death. Houses and barns were destroyed. Croplands were rutted by vehicle tracks, and strewn with downed trees, artillery, and remnants of fences and buildings. Livestock were commandeered, lost, or killed.

After the Confederate departure, the Union troops quickly began to establish fortifications at Murfreesboro. They moved into the city on January 5th, dug earthworks parallel to the Nashville Pike for the Chicago Board of Trade Battery, rebuilt the railroad trestle destroyed during the battle, and began construction of the large, enclosed earthen fortification now known as Fortress Rosecrans. This fortress was strategically located to protect both the Nashville Pike Bridge and Nashville & Chattanooga Railroad trestle over Stones River.

Fortress Rosecrans, the largest enclosed earthen fortification built during the Civil War, covered about 200 acres. Bisected by Stones River, the fortress had a line of curtain walls, lunettes and rifle pits almost 15,000 feet in length encircling the outside perimeter. Gabions (large earth-filled wicker baskets) were placed outside the V-shaped openings (embrasures) placed in the earthworks to allow cannons to fire at an approaching enemy. Openings in the walls allowed passage of the railroad and the Nashville Pike, and artillery emplacements helped to protect these transportation arteries. Four redoubts (rectangular earthworks containing artillery, a wooden cruciform blockhouse, and a powder magazine) were built on hills adjacent to the fortress, within 350 feet of the railroad. By working 24 hours a day, the Union forces were able to build this enormous fortress between January and April of 1863, and by mid-February 1863, the first supplies had started to arrive via rail from Nashville.

To provide unobstructed lines of fire, trees and brush within a thousand yards of the fortress were cleared. Some fallen trees were used as abatis (trees laid with their branches pointed outward); others were used to build housing and military structures. Nothing was left “but the stumps and brush (Styles 2004).” Sawmills, warehouses, and commissary depots were quickly erected along the railroad and the river.

Eventually, the presence of Fortress Rosecrans in this location allowed the Union Army to successfully attack the Confederate rail center in Chattanooga and “complete the wedge through the Confederacy along the transportation routes running southeastward through Tennessee (NPS n.d.).” A year after the war ended Fortress Rosecrans was abandoned, and it appears likely that the buildings were “auctioned off to the highest bidder, and the earthworks left to continue to erode (Styles 2004).”

Despite threats of attack by Confederate cavalry, the Hazen Brigade Monument was erected in the summer and fall of 1863 at the Round Forest area that originally contained the graves of forty-five of the brigade’s fallen. The monument was built by members of the 115th Ohio Regiment who also constructed the dry-laid stone wall surrounding the monument and the graves.

During Reconstruction, state operation of the Nashville and Chattanooga Railroad ceased, and the line was leased to the Western and Atlantic Railroad. In 1890 the lease was obtained by the Nashville, Chattanooga, and St. Louis Railway. In 1957, when the Louisville and Nashville Railroad merged the North Carolina and St. Louis line into its holdings, the Louisville and Nashville secured the lease. As part of the railroad from Atlanta to Chattanooga, the railroad through the Stones River battlefield is presently operated by CSX Transportation (Southeastern Railway Museum 2004).

Following the war, many veterans returned to their homes and farms in the Murfreesboro area where they again planted cotton and corn as they had done before the war. Local memorial associations, most associated with women’s groups, sprang up in the southern states to address problems of Confederate burials because the South had no organized system

of burying their war dead, and no funds to do so. Once burials were accomplished, efforts turned to memorial statuary (Styles 2004).

In 1867, Congress authorized a system of national cemeteries and established guidelines for their upkeep, including the requirement for fencing. The Stones River National Cemetery was established in 1865 on a small rise where the Union artillery had repulsed Confederate attacks on the afternoon of December 31, 1862. Over the next three-quarters of a century, Union veterans such as those belonging to the GAR (Grand Army of the Republic) played a major role in creating commemorative statuary, monuments, and memorials. At first the focus of their efforts was to mourn the dead, but as wartime memories faded, the emphasis shifted to recalling the glories of the past and establishing their place in history (Styles 2004).

Most of the battlefield remained in private hands from 1863 until 1928, when the War Department began to acquire land to establish the park. Prior to park establishment, the Artillery Monument and Redoubt Brannan had been acquired by the Nashville, Chattanooga, and St. Louis Railroad. These parcels were then added to the park. Unlike many battlefield parks, Stones River had only a few monuments, probably because its establishment postdated much of the commemorative movement in the United States.

After acquisition by the War Department, all existing domestic and agricultural structures on park property, including a cluster of African-American dwellings along Van Cleve Lane (the historic trace of McFadden Lane), were determined to postdate the battle and were removed. Nashville Pike and Van Cleve Lane were widened and improved as part of the park circulation network. Four formal entrances into the park were left in place until the Mission 66 era when all but one entrance was removed. Two of the original entrances had stone pillars and provided automobile access to the main park area from the Old Nashville Highway, while the other two accessed Van Cleve Lane (the historic trace of McFadden Lane).

The land was greatly modified in the first two years following establishment of the park. North of Manson Pike, the rocky landscape was described as “under the cover of cedar (Styles 2004).” Open areas were plowed and seeded with fall oats. Dense underbrush was cleared and many of the huge rocks hauled away. Lanes of the park roads were “boulevarded” by inserting a median strip, and several thousand landscaping trees, plants and shrubs were planted (Styles 2004). During the Public Works Administration, workers made “improvements” to the main battlefield by erecting a wire fence around the park to keep out livestock; regrading the tour road and Nashville Pike; planting vegetative buffers; and by harrowing, fertilizing, and grading the open fields. Severe storms in 1935 uprooted and felled or damaged numerous trees, including more than 100 mature specimens.

In 1960, legislation changed the name of the park to Stones River National Battlefield. By 1962 most of the exotic landscaping plants had been replaced by native plants, but unfortunately “no vestiges remained of the dense cedar brakes of 1863 (Styles 2004).” During the National Park Service’s Mission 66 program, a number of new structures were built in the park, including a visitor center and parking lot, and the tour road was made into a closed-loop road with a single entrance from Nashville Pike. Gradually, mowing practices were changed to allow more regeneration of trees in the park’s core area, resulting in changes in configuration of open areas and woodland. Since 1978, when the park’s vegetative management practices were changed, the landscape has begun to change, evoking more of the historic 1860s scene along Nashville Pike.

Affected Resources

Archeological Resources. Prehistoric resources currently identified within the park are limited to one multi- component site that has been excavated. Known historic archeological sites at the battlefield include post Civil War home sites, the toll station, old roadbeds, and features and artifacts related to the battle and subsequent periods of occupation.

Historic Resources. For purposes of this environmental assessment, the discussion of historic resources has been merged with cultural landscapes (below) because the park's historic structures and other historic resources form an integral part of the overall cultural landscape that should be discussed within this broader context.

Cultural Landscapes and Historic Resources. Historic cultural landscapes represent a complex subset of cultural resources resulting from the interaction between people and the land. Cultural landscapes are shaped through time by historical land- use and management practices, politics, war, property laws, levels of technology, and economic conditions. Cultural landscapes are a living record of an area's past, providing a visual chronicle of its history. The dynamic nature of human life contributes to the continual reshaping of cultural landscapes. This makes them a good source of information about specific times and places, but renders their long- term preservation a challenge.

A cultural landscape by definition occupies a geographic area that incorporates natural and cultural elements that are associated with a historic activity, event, or person. The National Park Service recognizes four categories:

- Historic designed landscapes (i.e., incorporates a deliberate human element to the modification and use of a particular piece of land),
- Historic vernacular landscapes (reflects on values and attitudes about land over time),
- Historic sites (sites significant for their association with important events, activities, and people; at these areas, existing features and conditions are defined and interpreted primarily in terms of what happened there at particular times in the past), and
- Ethnographic landscapes (landscapes associated with contemporary groups that use the land in a traditional manner).

These four landscape categories are not mutually exclusive (NPS 1998a). For example, Stones River National Battlefield is primarily associated with the scene of the 1862- 1863 Civil War battle. However, the park also includes a number of designed components added later to commemorate the event, including the national cemetery, monuments and markers. While these have changed the original historic landscape, the commemorative elements added later have acquired historical significance in their own right.

The character- defining features of a cultural landscape include spatial organization and land patterns; topography; vegetation; circulation patterns; water features; and structures or buildings, site furnishings, and objects (NPS 1996).

Eight landscapes have been identified as component landscapes in the National Park Service Cultural Landscapes Inventory for Stones River National Battlefield. These include Stones River National Cemetery, Stones River Core Battlefield, Hazen Brigade Monument, Artillery Monument, General Bragg's Headquarters, General Rosecrans' Headquarters, Lunettes

Palmer and Thomas and Curtain Wall Number Two at Fortress Rosecrans, and Redoubt Brannan at Fortress Rosecrans.

These sites are considered nationally significant under National Register criteria and were listed on the Register in 1966 (Stones River National Battlefield Historic District) and 1974 (Fortress Rosecrans). However, Fortress Rosecrans and its two component sites (Redoubt Brandon, Lunettes Palmer and Thomas, and Curtain Wall Number Two) may lack sufficient integrity to maintain their listing. Further evaluation of these landscapes is needed to fully document their significance and integrity. The elements that remain within Fortress Rosecrans are substantial enough to convey the fort's massiveness as well as its significance and purpose, and the sites retain their original location, design, materials, workmanship, and association to the occupation of Murfreesboro (Styles 2004).

Of the eight identified component landscapes, only the Core Battlefield, Hazen Brigade Monument, and Artillery Monument would be impacted by the proposed alterations of the tour route described in this environmental assessment.

The Historic Resource Study defined a number of landscape features in the park's landscapes that help to define areas that had intense fighting during the battle, were important transportation corridors that funneled troops of both armies into and out of the area, or were built to commemorate events that occurred here (Styles 2004).

After the war, Union dead buried throughout middle Tennessee were exhumed and re-interred at the Stones River National Cemetery. This cemetery symbolizes the human need for grieving and remembrance that are necessary for healing the psychological wounds inflicted upon the nation by the Civil War. In addition, the cemetery design reflects a marked shift in cemetery style, a change that influenced the design of subsequent national cemeteries. That is, the Stones River National Cemetery designers abandoned the "rural" design using winding driveways and naturalistic plantings typical of period cemeteries. Instead, the army engineers adopted a formal, structured design that mirrored the stark, somber mood of the battlefield.

The cemetery's formal, geometric plan was designed with a graveled central main carriage path entering to the east from the Nashville Turnpike to intersect a square in the center of the trapezoidal cemetery. Monuments and markers and the flagstaff also form part of this formal landscape as do the grave markers placed symmetrically in the mowed grassy lawn, beneath tall trees, parallel to the central carriage path.¹ National cemeteries such as Stones River became central to memorial services for the Union dead when the holiday now known as Memorial Day became a national day of homage to the fallen (Styles 2004).

The Hazen Brigade Monument is also a designed historic landscape. Its austere design, materials, and location readily convey to visitors the sense of commemoration and remembrance intended by its builders. The approach to the monument through the Round Forest helps to shut out modern day distractions and focus visitors' attention upon this simple quadrangular pyramidal stone shaft engraved with the names of the soldiers who fought and died in this area. The adjacent stone wall and grave markers also help to convey a

¹ A Cultural Landscape Report is underway for the national cemetery.

sense of the loss and devastation during the battle for Round Forest.

The main portion of the Stones River National Battlefield is an historic landscape that is significant for its associations with the Civil War and with the people who fought and died there. Some of the character- defining features of the park include the battlefield location and its general organization, layout, and topography.

Although over the past 140 years, changes have occurred in the battlefield's vegetation patterns and plant materials, the vegetation patterns approximate the historic location of wood lots and agricultural fields, and give integrity of feeling and association to the landscape (Styles 2004). The recreated wood fences help to evoke a special sense of place and history to visitors. The stone entrance gates and adjacent walls help to visually link the cemetery and the main part of the park, and are also contributing to this cultural landscape. Other monuments and markers within the park are considered eligible for the National Register both for their association with commemorative efforts at the park and for their design characteristics.

Rather than being an intrusion on the historic scene, the railroad, still in active use, adds another dimension of understanding of the battlefield cultural landscape. The railroad was perhaps the most important prize to be gained by whichever side won at Stones River, so it became a focal point of the intense fighting. The railroad was used by the Confederates to bring in troops and ammunition and, after the battle, served as a critical supply line in the Union attempts to capture Chattanooga. The railroad retains its historic location and alignment, as well as its relationship to the Old Nashville Highway and Redoubt Brannon.

Other transportation routes in and near the park also form an important part of the park's cultural landscape. Although paved and modernized, the Nashville, Murfreesboro and Shelbyville Turnpike (the Old Nashville Highway or Nashville Pike) remains in its strategic location on the battlefield as a vital transportation corridor that funneled troops of both armies into combat.² Manson Pike (Wilkinson Pike) was used by Union forces to reach Murfreesboro, and has a long history in Rutherford County. Extensive fighting took place in the vicinity of the road during the Battle of Stones River. Van Cleve Lane (McFadden Lane or Old Bowen Lane) also was engulfed in the midst of the battle.

Some of the external views from the park have been compromised by incompatible adjacent modern development. However, several viewsheds retain the historic feeling of the battlefield; these include the view from the visitor center toward the loop road, the view down Old Nashville Highway, the view from Thompson Lane toward Van Cleve Lane, and the view of McFadden's Farm.

The Artillery Monument is a historic designed landscape consisting of a 34- foot tall concrete obelisk set on a grassy knoll overlooking McFadden's Ford, an area that saw fierce fighting during the war. This monument, erected in 1906, reflects late 19th and early 20th century currents in American architecture and was part of the movement to commemorate the sacrifices made by Civil War soldiers, a movement that gradually moved from commemoration towards reconciliation.

² The Old Nashville Pike also was the location of the Trail of Tears that occurred in 1838.

Bragg's Headquarters and Rosecrans' Headquarters are designed historic landscapes that reflect commemoration of Civil War military leaders. These two small sites memorialize the two major opposing generals in the Battle of Stones River, General Braxton Bragg, the Confederate leader of the Army of Tennessee, and Major General William S. Rosecrans, Union commander of the Army of the Cumberland. Both of these locations are outside the area of effect for the proposed actions.

Previous Investigations

In response to data needs for the 1976 general management plan/ environmental assessment, the National Park Service's Southeast Archeological Center surveyed and selectively tested areas of the park that would be disturbed by proposed park developments (NPS 1990a, b, and c; NPS 1991), including:

- Park entrance alternatives – widening of Van Cleve Lane (the historic trace of McFadden Lane) and an alternative entrance road along the southeast side of the National Cemetery;
- Areas which would be affected by two luncheon area development alternatives – an alternative site located on a proposed land acquisition west of the main park and the drive from the loop road junction to it, and the in- park portion of the drive from the Union Artillery Site to an alternative site on a proposed acquisition in the bend of the river;
- Eight proposed parking area enlargements – the visitor center parking area, the National Cemetery parking area, the Hazen Brigade Monument parking area, the Rosecrans' Headquarters parking area, and Tour Stops 3, 4, 5, and 6; and
- Three documented historic sites located on lands proposed for acquisition – Blanton House, Blanton Cemetery, and Norris Family Cemetery.

This survey located two archeological sites, a multi- component prehistoric site with use dating from perhaps 8000 B.C. to circa 500 A.D., and an artifact concentration reflecting a post- Civil War outbuilding. A preliminary report by NPS Archeologist Catherine Blee indicated that extensive land use since the 1860s had severely damaged the remains of historic structures, artifacts, and burials in the vicinity of this site (NPS 1976). In addition, huts and shacks built subsequent to the battle have further confused the understanding of the area archeology. She also suggested that sites of cabins in the southern portions of the park may lie beneath the 1960s tour road. The tollgate house remains were impacted by the plowing of a cotton field for use in a living history program.

Investigations of the Hazen Brigade Monument and its immediate vicinity were made by the National Park Service in 1989, revealing examples of ammunition and weaponry, along with materials left from construction of the monument (NPS 1989).

In 1992, the Southeast Archeological Center conducted archeological investigations to assess the potential impact of construction of a boardwalk and trail at Lunette Palmer (NPS 1992). Testing also was conducted at Redoubt Brannan; both areas are part of Fortress Rosecrans. An earthen cross- shaped elevation within Redoubt Brannan may have covered the original site of the blockhouse associated with the redoubt.

The site of the Blanton House, a historic structure used as a hospital during the Battle of Stones River but torn down by the owners in the 1960s, was surveyed, as was the McFadden Ford area, an important river crossing during the Civil War. Structures located at the McFadden Ford area in 1992 include a burned house on a concrete and block foundation.

Photographs on file at the park suggest that the house had been relocated by the Department of Defense because of its proximity to the Artillery Monument and had been placed on a modern foundation (NPS 1992).

Newly acquired land in the vicinity of the Artillery Monument was surveyed by the Southeast Archeological Center in 1994, re- documenting the prehistoric site first discovered in 1976, and finding evidence of artifacts apparently associated with the McFadden home site complex (NPS 1994 a, b). This survey also reexamined the area near the Blanton House.

Battlefield features were surveyed by the National Park Service in 1993. This survey utilized GPS (Global Positioning System) technology to capture the location of battlefield features and the descriptive attributes of these features. The remains of Fortress Rosecrans were mapped, as were the transportation network of the greater battlefield area, historic structures, points of interest, cemeteries, paths and trails, and field fortifications.

Two tracts of land (the Harlan and Bigsby tracts) were surveyed by the Southeast Archeological Center in 2001 (NPS 2001c). Civil War artifacts located during this survey were most likely from the fighting that occurred on December 31, 1862 when the Confederate advances at the Union center caused the Union line to form a distinct “V” shape before being pushed back (NPS 2001c). Other artifacts and features found during this survey help document historic use and settlement patterns in the Murfreesboro area.

National Register of Historic Places

The analysis of project effects on cultural resources focuses on historic properties, which include the subset of cultural resources that are listed in, or eligible for listing in, the National Register of Historic Places. The battlefield is significant and listed on the register because it preserves the locations of many of the major events associated with the battle and with Federal occupation of Murfreesboro. Within the area evaluated in this document, historic properties include Stones River National Battlefield Historic District (and within it the Artillery Monument, Hazen Brigade Monument, and Redoubt Brannan), listed on the register in 1966, and Fortress Rosecrans, listed on the register in 1974. Eligible cultural landscapes are included within these historic districts, and are enumerated under “Cultural Landscapes” above.

According to survey data for the proposed highway interchange at Interstate 24 and Manson Pike, the Hiram Jenkins property is listed on the National Register of Historic Places for its local architectural significance (TDOT 2003). This property includes land historically associated with the house lot. The property was re- evaluated in 2002 and, although the house was in the area of the Battle of Stones River, no changes were made in the eligibility or boundary. This register property is located diagonally across Manson Pike from the core area of the park, southwest of the park’s southwest corner (TDOT 2003). This property is near enough to the park to have visual effects.

Two parcels of land (parcels 95 and 96 on Rutherford County Tax Map 79) known as the Battle of Stones River – Jenkins and Gresham properties (Lane Farm) also were determined eligible for the National Register. These parcels were part of the land owned by the Hiram Jenkins and Asa Gresham families during the battle and saw extensive fighting on the morning of December 31, 1862 (TDOT 2003). These parcels are located in the southeast quadrant of the intersection of Manson Pike and Interstate 24 and are outside the area that would be affected by the proposed actions.

The recently rehabilitated visitor center, utility building, pump house, parking lot at the Artillery Monument, three park residences, the Michigan State Historical Commission Marker, and the present tour road were constructed during the Mission 66 program and are not contributing to the park's National Register significance (Styles 2004). However, the National Park Service, Southeast Regional Office has determined that the Michigan State Marker should be listed on the park's list of classified structures.

A naturalistic stone wall built adjacent to Stones River (in the McFadden Ford vicinity) in 1978, to help control river erosion, is ineligible because of its age.

IMPACTS OF NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

Archeological resources. Continuation of current management practices would have negligible effects on prehistoric archeological remains because the occurrence of artifacts and features predating historic times is rare within the park. With the exception of the recently acquired area containing the Union earthworks, known historic archeological sites have been documented and visible artifacts collected. Isolated instances of vandalism and unauthorized collection of battlefield artifacts would continue to have long-term, negligible to minor adverse effects on historic archeological resources within the park.

Cultural landscapes, including historic resources. The existing cultural landscapes, including the main park, the cemetery, the Hazen Brigade Monument, and the Artillery Monument, reflect elements of the battle for which the park was established, as well as later commemorative efforts and site changes intended to better accommodate visitors and interpretive programs. Of these landscapes, only the Core Battlefield, the Hazen Brigade Monument, and the Artillery Monument would be impacted by the alterations proposed in this environmental assessment. A continuation of existing conditions would have both beneficial and detrimental effects on the cultural landscape and associated historic resources. The Hazen Brigade Monument and its wooded setting and the historic entryways into the main site and the cemetery would continue to help visitors establish a solemn mood of reflection and commemoration upon entering the park. Viewsheds of the cedar glades, historic roads, and open battlefield areas in the Core Battlefield, and the monument, the river, and bluffs at the Artillery Monument area would continue to reinforce the sense of history and its tragic events.

The existing tour road was designed to blend into the landscape while allowing visitors to appreciate and understand the battle scene. While the road and the interpretive stops would continue to intrude on the historic scene, the effects would be modest because of the effective roadway design and the orientation of the interpretive stops. On the other hand, some of the interpretive stops do not fully or accurately depict the battle scene, and modern highways, traffic, housing developments, and industrial uses have gradually encroached upon the historic scene. These intrusions would continue and likely increase in the future.

The parking area at the McFadden Farm would continue to intrude upon and bisect the battleground, diminishing the sense of the vicious battle that raged here as well as a fuller understanding of the difficulties faced by both armies. Development visible from the bluffs also would continue to intrude upon the historic scene at the Artillery Monument. As the trees along the river continue to grow, the visual impact of the strategic importance of the river and the bluffs in the battle would be reduced.

Continuation of existing conditions would have a minor, long- term, adverse effect on the cultural landscape and associated historic resources.

Cumulative effects. Past artifact collecting, development, and natural forces have taken their toll on the numbers and quality of archeological resources related to the Battle of Stones River. Battlefield areas within the current authorized park boundary not currently acquired could suffer loss of resources from looting or natural forces such as erosion.

These adverse effects would be to continue in the future, and perhaps even accelerate, as development in and around the city of Murfreesboro expands further. However, most resources within the park would continue to be protected, helping to reduce these cumulative effects. Unfortunately, the size of the park would tend to limit the number and types of archeological resources preserved, and a continuation of existing conditions would have very little effect on regional cumulative, moderate adverse effects on archeological resources. The same is true for historic landscapes and structures, which would continue to be lost to development or other adverse effects, both locally and regionally (a long- term, moderate, adverse, cumulative effect). The planned interpretive enhancements of the Trail of Tears would result in minor, long- term, beneficial effects to ethnographic resources. However, these would not notably reduce the long- term moderate adverse effects to regional cultural resources.

Conclusion. Continuation of existing conditions would have a long- term, negligible to minor adverse effect on archeological resources, and a minor, long- term, adverse effect on the cultural landscape and associated historic resources.

Impairment. The No Action Alternative would not have major adverse effects on cultural, archeological, ethnographic resources and ethnographic landscapes, or historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Stones River National Battlefield; 2) key to the natural or cultural integrity of the cemetery and the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the cemetery or the park's cultural resources or values.

IMPACTS OF ALTERNATIVE A – MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Archeological resources. Under Alternative A, there would be potential for effects to archeological resources during development of new trails within the main unit and the McFadden Farm. However, given the flexibility of trail design and modest depth of disturbance, most archeological resources could probably be avoided. Trails and other development in the vicinity of the Union earthworks would be preceded by archeological investigations to ensure that buried resources are not inadvertently damaged, and that features and artifacts are properly documented and curated.

By stabilizing and interpreting the Union earthworks, the park would help preserve this important and visible remnant of the Civil War battle. Creation of formal trails around the earthworks would help protect the site; e.g. the presence of visitors walking along paved trails to the earthworks from the visitor center would provide a strong deterrent to unacceptable behavior such as walking on the ruins or unauthorized collecting.

Addition of a new roadway loop at the south end of the main unit also would be preceded by an appropriate level of investigation, reducing the potential for effects. Artifacts tend to cluster along historic roadways, so adding a walking path along the historic trace of McFadden's Lane could affect archeological resources present along the road.

Modifications to the Hazen Brigade Monument and McFadden Farm parking lots probably would have little impact on archeological resources because these areas have been previously disturbed. With appropriate archeological investigations prior to development, new parking/access at McFadden Farm would have only minor effects on archeological resources.

With implementation of measures such as archeological surveys prior to development, evaluation of findings, changes in design to avoid resources, and monitoring of construction, effects on historic archeological resources would be long- term and adverse but effects would be minor. Negligible effects would be expected for prehistoric resources.

Cultural landscapes, including historic resources. Reuse of the historic road trace and traditional entrances to the park's main unit would benefit these landscape elements by helping to reinforce and interpret their historic placement and importance. The presence of more vehicle and pedestrian traffic in open areas of the main unit would, on the other hand, increase the existing adverse effects upon the landscape viewed by visitors.

The loop road at the south end of the main unit would be modest in size and by design would skirt the cedar glades without impacting them. The glades would help to shield the road and parking from the open viewshed to the east and north. Changes in circulation patterns would have only negligible effects on the landscape, and the basic patterning of transportation corridors within the main park unit would be retained. As with the existing roadways, new road segments would be designed to blend unobtrusively into the landscape.

The new trails in the main unit and the McFadden Farm area would not be visually intrusive, and their impact on the landscape negligible.

Changes in the Hazen Brigade Monument parking area would adversely impact the landscape by introducing hard surfacing, but would have a beneficial effect on this area by helping to protect area vegetation from ad hoc parking and reduce the haphazard appearance created by the present informal parking situation. The parking area would be separated from the monument by a tree-lined trail, so adverse visual and auditory effects of formalized parking upon this landscape would be minor.

Modifications to the McFadden Farm parking area would be beneficial to the cultural landscape by moving the hard surface and modern appearance of the existing lot some distance from a central focus of the battle in this area. On the other hand, the present entrance road to the McFadden Farm would continue to be used, leading visitors through an industrial area immediately before entering this park unit, an adverse impact. The Artillery Monument area has been defined as a cultural landscape. Moving the existing parking lot out of the area immediately adjacent to the monument would benefit the landscape by reducing traffic noise and visual intrusions.

Overall, effects of implementing Alternative A would be both beneficial and adverse. Reuse of the historic road trace and existing entrances to the main unit of the park, and relocation of the parking at McFadden Farm would be long- term and moderately beneficial to these historic resources and to the cultural landscape. Addition of more vehicular traffic and new road segments to the viewshed in the main unit and continued use of the present McFadden

Farm entrance road would incur minor adverse effects. Adverse effects of new trails and newly defined parking at the Hazen Brigade Monument and McFadden Farm would be negligible.

Cumulative effects. Past destruction of archeological and historic resources from natural forces, looting, and development have cumulatively impacted many of the region's premier cultural sites. Establishment of Stones River National Battlefield helped to protect and preserve some of the area's cultural resources, a cumulative benefit. Continuing and future actions would generally combine to have beneficial cumulative effects on Stones River National Battlefield historic landscapes and structures. Unfortunately, when compared with the proliferation of ongoing and future projects in the region, the area occupied by the park is small, and only a relatively few cultural resources related to the Battle of Stones River can be protected and preserved, resulting in an adverse, long- term, moderate effect. The interpretive enhancements on the Trail of Tears would result in minor, long- term, beneficial effects to ethnographic resources. However, these would not reduce the long- term moderate adverse effects to regional cultural resources.

Conclusion. With implementation of best management practices, implementation of Alternative A would have long- term, minor, adverse effects on historic archeological resources and negligible effects on prehistoric resources.

Adverse effects of new trails and newly defined parking at the Hazen Brigade Monument and McFadden's Farm would be negligible. New trails in the vicinity of the Union earthworks would have both beneficial and adverse minor effects on the landscape. By reusing historic road traces and existing entrances and by removal of intrusive parking at the McFadden Farm, effects of Alternative A on cultural landscapes and historic resources would be beneficial, long- term, and moderate. Additional vehicular traffic and new road segments would have minor, long- term adverse effects on the landscape in the main unit.

Impairment. Alternative A would not have major adverse effects on cultural, archeological, ethnographic resources and ethnographic landscapes, or historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Stones River National Battlefield; 2) key to the natural or cultural integrity of the cemetery and the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the cemetery or the park's cultural resources or values.

IMPACTS OF ALTERNATIVE B – CONSTRUCT NEW ENTRANCES, ADD NATURAL RESOURCES TOUR ROUTE TO INTERPRET CEDAR GLADES

Archeological resources. The formalized trail in the vicinity of the Union earthworks would be built further away from the earthworks, which could result in slightly reduced effects to archeological features during trail development and use. However, using best management practices, the potential for effects to archeological resources under Alternative B would be the same as described for Alternative A.

New construction within the main unit (a new entrance road, linkage of the lane to the existing tour road, and a loop at the south end of the main unit) would create some new disturbance. However, the new entrance road would cross fields that have been under cultivation in the recent past. Near - surface artifacts and features in these fields would have

already been disturbed by razing of structures and farming activities, although a few more deeply buried resources could be extant in this area.

Effects of new parking at Hazen Brigade Monument and McFadden Farm would be the same as described for Alternative A. The new road into McFadden Farm would run along the hedgerows of what had historically been farm fields. Although it is possible that artifacts related to the Civil War period are present in this area, few artifacts or features related to the farm itself would be expected in areas that are situated outside of the original farmstead, and even there, archeological remains would have been disturbed during removal of the farm structures.

Archeological investigations would be conducted prior to implementation of this alternative to ensure that archeological remains have been properly documented and analyzed. Completion of archeology prior to construction, combined with development of protective measures such as changes in design, to avoid resources and monitoring of construction (as appropriate) would reduce effects on archeological resources. Effects of Alternative B on historical archeological resources would be long-term, adverse, and minor. Negligible effects would be expected for prehistoric resources.

Cultural landscapes, including historic resources. As described for Alternative A, reuse of McFadden's Lane and the traditional entrances to the park would be beneficial to these landscape elements. The eastern half of the original tour road would be retained as a walking trail, retaining its curvilinear path and access to different resource areas, while the western portion would serve as a natural resource tour road, also retaining this circulation pattern. Construction of a new southeastern entrance and linking roadways would have an adverse effect on the cultural landscape by changing circulation patterns and adding new landscape elements within the main park unit. However, the new roadway(s) linking with the existing tour road are quite short and would be only a modest intrusion into the historic scene. The proposed changes in circulation patterns in this alternative would create both adverse and beneficial effects on the cultural landscape. These effects would be minor because of the relatively small amount of new disturbance and because historic roadways would be maintained and reused.

Under Alternative B, more vehicles and hikers would be visible along new hard surfaced roads, impacting the landscape in previously open, undisturbed areas. However, the new roadway leading from Thompson Lane into the park is relatively short and for part of its length would follow an earlier farm road. Most of the traffic would not be visible from the northern part of the park (e.g. the viewshed, especially from the visitor center, would be screened by trees). Overall, the amount of new disturbance to the cultural landscape within the main park unit would be relatively small.

The new trails in the main unit, Hazen Brigade Monument, and McFadden Farm areas would not be visually intrusive, and their impact on the landscape would be negligible.

Modifications to the Hazen Brigade Monument parking area, McFadden Farm parking area and the Artillery Monument would have the same effects as described for Alternative A. Construction of the new roadway into the McFadden Farm area would have a moderate beneficial effect on the Artillery Monument landscape because the road would follow historic fence lines and access routes, would provide a sense of entry removed from nearby industrial views, and would route vehicle traffic further from the monument.

Overall, effects of implementing Alternative B would be both beneficial and adverse for the landscape and its historic resources. Reuse of the historic road trace and one of the existing entrances to the main unit of the park, and relocation of the parking and entrance road at McFadden Farm would be long- term and moderately beneficial to these historic resources. Addition of more vehicular traffic and new road segments to the landscape in the main unit would incur minor adverse effects. Effects of new trails in the main unit and at McFadden Farm and newly defined parking at the Hazen Brigade Monument would be negligible.

Cumulative effects. Cumulative effects would be the same as described for Alternative A.

Conclusion. Effects of Alternative B on historical archeological resources would be long-term, adverse, and minor. Negligible adverse effects would be expected for prehistoric resources. Effects on the cultural landscape and historic resources would be both beneficial and adverse. Reuse of the historic road trace and park entrance and relocation of the parking and entrance road at McFadden Farm would produce long- term, moderately beneficial effects. Addition of more vehicular traffic and new road segments to the landscape in the main unit would incur minor adverse effects. Adverse impacts of new trails in the main unit and at McFadden Farm, and newly defined parking at the Hazen Brigade Monument would be negligible.

Impairment. Alternative B would not have major adverse effects on cultural, archeological, ethnographic resources and ethnographic landscapes, or historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Stones River National Battlefield; 2) key to the natural or cultural integrity of the cemetery and the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the cemetery or the park's cultural resources or values.

IMPACTS OF ALTERNATIVE C, THE PREFERRED ALTERNATIVE – CONSTRUCT NEW ENTRANCES, REDUCE ROAD SURFACES, CREATE EFFICIENT TOUR LOOP, INTERPRET CEDAR GLADES

Archeological resources. Effects of Alternative C on archeological resources would be nearly identical to those described for Alternative A. As with other construction proposed in Alternative C, building two new entrance roads, one at the main unit and one at McFadden Farm, would be preceded by archeological survey, documentation, and evaluation of discovered resources and by avoidance or other protective measures would be developed and included in the project construction documents. Effects on historic archeological resources would be long- term and adverse but effects would be minor. Negligible effects would be expected for prehistoric resources.

Cultural landscape, including historic resources. With two minor differences, effects of Alternative C on the cultural landscape and its historic resources would be very similar to those described for Alternative A. Construction of a new southeast entry road would add a modern element to the landscape of the main park unit. However, the basic configuration of the existing transportation corridors in the park would be retained and continued in use as part of the tour loop and nature trail. Both the new entrance road and the small loop road at the south end of the park are relatively short, and they would not be visible from the visitor center area or from most of the other stops along the tour road.

As described in Alternative A, landscape changes such as new parking at the McFadden Farm would generally be beneficial to the primary landscape defined for this area (the Artillery Monument and its immediate environment). Construction of a new entrance road to the McFadden Farm would be moderately beneficial to the Artillery Monument landscape and would greatly improve the viewshed seen by visitors entering this park unit.

Cumulative effects. Cumulative effects would be the same as described for Alternative A.

Conclusion. Effects of Alternative C would be nearly identical to those described for Alternative A, and, though the additional entrance roads would create disturbance, it would provide more modern entrances. Overall, effects to cultural resources would be the same as described for Alternative A.

Impairment. Alternative C would not have major adverse effects on cultural, archeological, ethnographic resources and ethnographic landscapes, or historic resources or values whose conservation is 1) necessary to fulfill purposes identified in the established legislation or proclamation of Stones River National Battlefield; 2) key to the natural or cultural integrity of the cemetery and the park; or 3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents. Therefore, there would be no impairment of the cemetery or the park's cultural resources or values.

SECTION 106 SUMMARY

Stones River National Battlefield is listed on the National Register of Historic Places. The battlefield preserves the locations of many of the major events associated with the battle and with Federal occupation of Murfreesboro. Historic properties include Stones River National Battlefield Historic District (and within it the Artillery Monument, Hazen Brigade Monument, and Redoubt Brannan), which was listed on the register in 1966, and Fortress Rosecrans, listed on the register in 1974.

This environmental assessment provides detailed descriptions of four alternatives (including a No Action Alternative), analyzes the potential effects associated with possible implementation of each alternative, and describes the rationale for choosing the preferred alternative. Also contained in the environmental assessment are best management practices that would help avoid adverse effects on cultural resources.

These alternatives have been described in the section entitled "Alternatives Considered" and will not be repeated here. The action alternatives were drafted to help improve the organization of the tour route, make visitor wayfinding easier, improve visitor and staff safety, minimize the effects of encroaching park development, provide better access for those with impaired mobility, and acknowledge the role that natural resources play in the park story.

Archeological resources. New construction within the main unit (a new entrance road, expansion of McFadden's Lane, linkage of the lane to the existing tour road, and a tour loop at the south end) would create new ground disturbance. However, this disturbance should have little impact on archeological resources because extensive archeological investigations have been conducted within the park (see the "Previous Investigations" section), and surface artifacts have been removed and made part of the park's collections. The new entrance road would cross fields that have been under cultivation in the recent past. Near- surface artifacts and features in this field already would have been disturbed by razing of structures and farming activities, although a few more deeply buried resources could be extant. In this and

other areas proposed for construction, such as new trails or roadway segments, work would be preceded by an appropriate level of archeological investigation and analysis, reducing the potential for effects.

Modifications to the Hazen Brigade Monument and McFadden Farm parking lots probably would have little if any impact on significant archeological resources because these areas have been previously disturbed.

New or improved trails are an important part of the preferred alternative. At the newly acquired Union earthworks, vegetation would be removed, the site stabilized, and paved trails built around the site to allow visitors to access the area from the nearby visitor center. Rehabilitation of the Union earthworks and creation of formal trails around its periphery would help protect the site because the presence of visitors would provide a strong deterrent to unacceptable behavior such as walking on the ruins or unauthorized collecting. Because trail design is flexible, sites could easily be avoided, and the depth of disturbance for trail construction would be relatively shallow.

The new road into McFadden Farm would run along the hedgerows of what had historically been farm fields. Although it is possible that artifacts related to the Civil War period are present in this area, few artifacts or features related to the farm itself would be expected in areas that are situated outside of the original farmstead, and even there, archeological remains would have been disturbed during removal of the farm structures.

With implementation of archeological surveys prior to development where appropriate, evaluation of findings using National Register criteria, changes in design to avoid resources, and monitoring of construction, there could be effects on a few archeological resources, but these would *not be adverse*.

Cultural landscapes, including historic resources. Three component landscapes would be affected by this project, including the Core Battlefield, the Brigade Monument, and the Artillery Monument. Within the Core Battlefield, the preferred alternative proposes use of the historic McFadden Trace (McFadden Lane or Van Cleve Lane) as part of the tour route. (This roadway has been closed to visitor/vehicle use for some time.) This historic route contributes to the cultural landscape, and its continued use would help to maintain it visually and physically.

Changes proposed for the existing tour route would affect the way that visitors encounter the various tour stops and would change existing circulation patterns. However, these changes would have only negligible effects on the landscape, and the basic patterning of transportation corridors within the main park unit would be retained. The present tour road is not contributing to the National Register significance of the main unit. As with the existing roadways, new road segments would be designed to blend unobtrusively into the landscape.

A proposed turn-around loop near the Slaughter Pen area would allow visitors to access the area and to view the setting of the battle and better visualize the magnitude of the slaughter. This loop road would be modest in size and by design would skirt the cedar glades without impacting them. The glades would help to shield the road and parking from the open viewshed to the east and north. By incorporating McFadden Lane as part of the tour route, and by using one of the park's traditional entrances, these important character-defining landscape elements would be rehabilitated and preserved.

The current parking area at the Hazen Brigade Monument is narrow, unpaved, and often crowded. Proposed modifications would formalize the parking, provide access and parking for buses, and add new hard surfacing. However, effects on the monument itself would be minimal because it is accessed from the parking lot by a walking trail through trees that visually and spatially separate the parking and monument areas. Thus, rehabilitation and paving of the parking lot would not visually or physically intrude on the solemn mood of the monument and its adjacent graves. The cemetery landscape would not be affected by the proposed actions in the preferred alternative.

The preferred alternative proposes changes at McFadden Farm. Here, the existing parking lot intrudes visually on the battlefield scene, so it would be moved to the south, and the area restored. Removal of the parking lot adjacent to the Artillery Monument would enhance the historic landscape in this area by removing visual intrusions and by reducing traffic noise and vehicles in the immediate vicinity.

Actions under the preferred alternative would affect the park's cultural landscapes and historic resources, but these effects would *not be adverse*.

This environmental assessment includes resource protection measures that would help reduce potential adverse effects on cultural resources, and all work would be performed in compliance with the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (NPS 1995a) and the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (NPS 1996). For example, construction activities would be carefully planned to avoid damage to sensitive areas of the site. Work would be monitored, where appropriate, by an archeologist meeting the Secretary of the Interior's standards.

To avoid any unauthorized collecting from areas where construction is proposed, work crews would be educated about cultural resources in general and the need to protect any cultural resources encountered. Work crews would be instructed regarding the illegality of collecting artifacts on Federal lands to avoid any potential violations.

In the unlikely event that previously unknown cultural resources or burials were discovered during construction, work would be halted in the vicinity of the resource, and procedures outlined in 36 *CFR* 800 would be followed.

The Tennessee State Historic Preservation Office (SHPO) has been involved in this project from the beginning, including participation in the scoping process. This environmental assessment will be forwarded to the State Historic Preservation Office for review and comment, and the forthcoming comments will be addressed in the final compliance documents.

Pursuant to 36 *CFR* 800.5, applying the implementing regulations of National Historic Preservation Act (revised regulations effective August 5, 2004) that address the criteria of effect and adverse effect, the National Park Service finds that the preferred alternative would have an effect on historic properties that are listed on the National Register, or that meet its associated criteria, but that this effect *would not be adverse*.

VISITOR USE AND EXPERIENCE

AFFECTED ENVIRONMENT

VISITATION

Located on the western edge of Murfreesboro, Tennessee, 30 miles from Nashville, Stones River National Battlefield is visited by an average of 190,000 visitors annually (NPS 2004b). Visitors come to the battlefield to learn about the Battle of Stones River and to experience the memorial site, which commemorates the soldiers who fought and died there. Only 20 percent of visitors to the park are considered local to the area, and 38 percent hail from Tennessee (NPS 2001b).

Based on data from 2003, 49 percent of visitation occurs between April and August, with the highest visitation rates in October (see Figure 9) (NPS 2003c). The park is closed at night, so all visitation is day use. Twenty-five percent of the park's visitors stay in area hotels or camp locally (NPS 2001b). Park visitation has exceeded projections; the 2003 visitation rate of 201,576 surpassed the NPS expected total of 200,580 visitors for the year 2005 (see Figure 10) (NPS 2003d, 2003e).

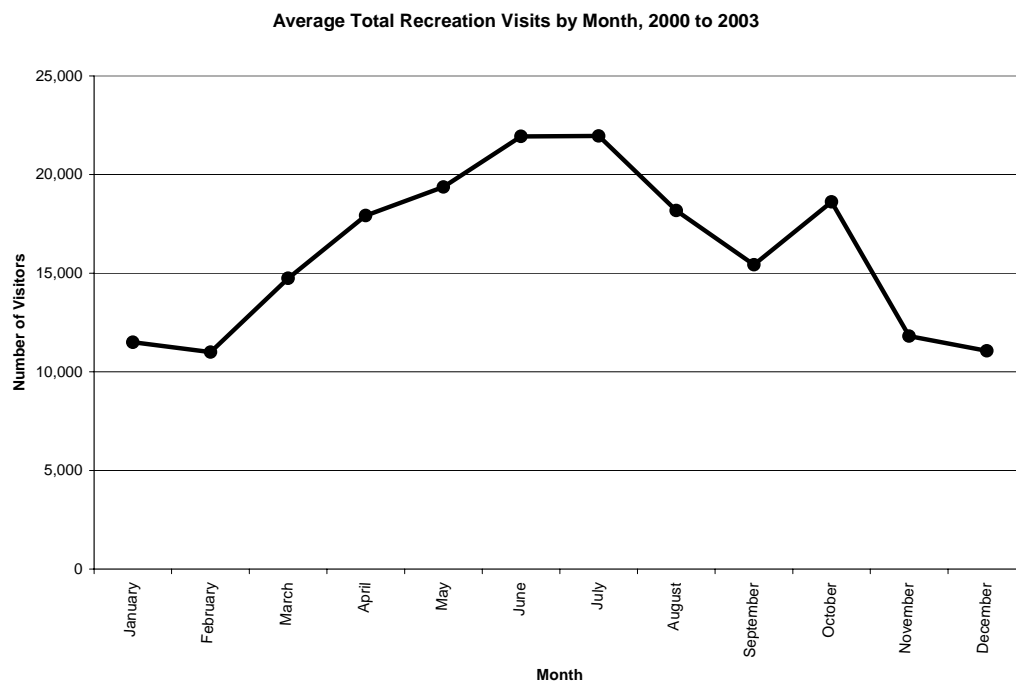


FIGURE 9: AVERAGE TOTAL RECREATION VISITS FOR 2000 TO 2003, BY MONTH

A fall 2002 visitor study found the most common visitor activities in the battlefield to be walking (71 percent), taking self-guiding tours (69 percent), and photography (45 percent). The most commonly visited places were the visitor center (89 percent), the Slaughter Pen (74 percent), and the Cotton Field (70 percent) (NPS 2002b).

Park staff have noted an uneven use of auto tour stops in the current route; for example, tour stop number 2's parking area is often full because of the additional time required to visit this stop (Rhodes 2004).

The fall 2002 visitor study found that the majority of park visitors are on their first visit of the year (81 percent), or their first visit ever (71 percent). The majority of park visitors (90 percent) remained in the park for one to three hours, with Stones River being one of several destinations planned as part of a single trip. The park was the primary reason visitors had for coming to Murfreesboro (65 percent), and the primary visitor interest was learning about Civil War history (47 percent) (NPS 2002).

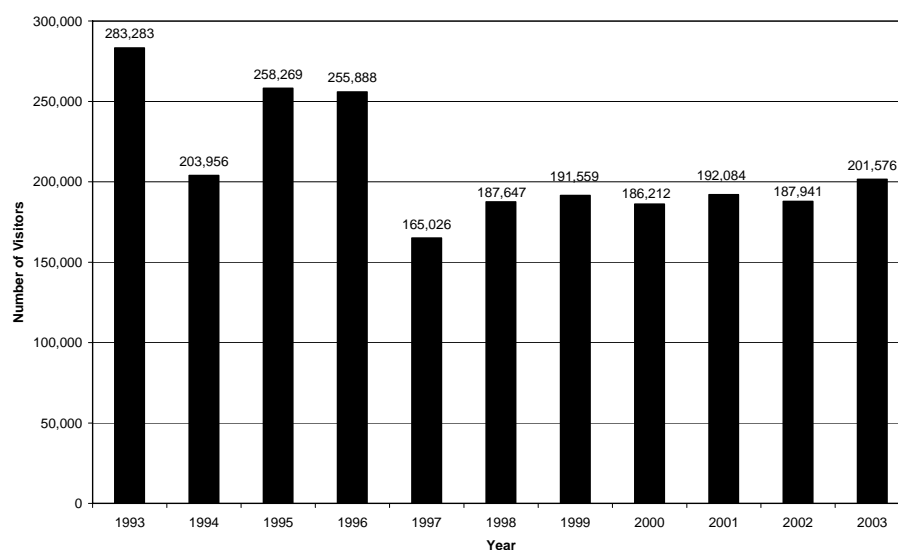


FIGURE 10: PARK VISITATION BY YEAR, 1993- 2003

VISITOR EXPERIENCE

The park has a full range of interpretive facilities and services to provide visitors with information on the Battle of Stones River and other park resources. These include the visitor center and exhibits, audiovisual programming, and ranger- led interpretive walks. Because the focus of the proposed action is limited to the 3.4- mile- long auto tour route and the interpretive walking trails, visitor information and experience offered at other sites are considered outside the project area and will not be analyzed here. The auto tour route takes approximately 45 minutes to complete when following the text in the park folder. Approximately 25 interpretive wayside exhibits augment this text. The 3.5- mile boundary trail is available for visitors who want a longer walking experience on the battlefield.

The battlefield consists of several non- contiguous sites where historic elements of the battle are located. The park brochure and map are the primary guide for wayfinding through these units, and in the fall 2002 visitor study, most respondents reported that their quality was

“good” or “very good” (86 percent) (NPS 2002). When asked whether signs were adequate on the interstate, state highways, and in the communities to direct visitors to the park, roughly two-thirds of those surveyed thought signs were adequate. Visitors surveyed who thought signs were inadequate offered comments such as “not enough signs”, “signs too small”, “not enough turning signs”, and “no signs on Thompson Lane” (NPS 2002).

AUTO TOUR ROUTE

The auto tour route and 3.5-mile pedestrian trail lead visitors to the various park units for interpretation activities. The existing interpretive routes do not fully communicate the story of the three-day battle in a logical sequence. In comparison to each other, the auto tour route and pedestrian trails do not offer consistent visitor experiences. With regard to the interpretive materials at the park, 91 percent of respondents in the visitor study rated the ranger-led walks/talks as “good” or “very good”, and 84 percent rated the living history program as “good” or “very good”, while only 67 percent rated the quality of the roadside exhibits as “good” or “very good” (NPS 2002). In addition, the waysides along the tour route were developed in the early 1960s when the park was much smaller, and the route does not incorporate many of the areas that the park has recently acquired for their historical importance, including the Union earthworks.

Currently, visitors enter the main part of the park at the historic entrance across from the cemetery, and most stop at the visitor center before beginning the auto tour route. The existing tour route moves clockwise through the main battlefield area with four major interpretive stops (see Table 2 and Figure 5).

At tour stop number 1, “The Eve of the Battle,” there is little for visitors to view, and there is no real interpretive link among the waysides for Hazen Brigade Monument, Van Cleve Lane, the Toll House, and the visitor center. Parson’s Battery and the demonstration cotton field are accessible from this site. At the “Slaughter Pen” (stop number 2), there are views across the cedar glades. This view to the south is impeded by the presence of modern homes and traffic along Manson Pike. Cannons shown at the site are in a location where it is unlikely they would have been during the battle. The parking area at this tour stop is often full because of the time required to get into the woods along the trail. The next tour stop (number 3, “The Cotton Field”) has a dramatic setting. The adjacent glade area lacks full accessibility for the disabled. Tour stop number 4, “Defense of the Nashville Pike” includes two cannons, however, the interpretation lacks four of the original six cannons and information on the typical equipment contained in a battery that is needed to help interpret the magnitude of the battlefield scene in this area.

From tour stop number 4, the tour road loops back to the visitor center area. To reach “Round Forest” (tour stop number 5) from the visitor center, visitors must exit the park’s main entrance onto a busy road (the Old Nashville Highway) and continue south before making a left turn into a small parking area. This tight parking area forces cars to back into traffic on Old Nashville Pike to exit the area and restricts tour buses from visiting this site.

To continue to McFadden’s Farm from stop number 5, visitors continue southeast along the Old Nashville Pike, go under Thompson Lane, make a sharp right turn up the ramp, and merge into heavy traffic on Thompson Lane. Continuing over the river and the railroad, the route turns left onto U.S.41/70S (the New Nashville Highway) before jogging northeast on Van Cleve Lane to reach stop number 6, the McFadden Farm unit (Artillery Monument, cannons, gravesites, and McFadden’s Ford overlook). Visitors must retrace this circuitous

route to return tour guides or equipment to the park's visitor center. Traffic is heavy on U.S. 41, making egress from Van Cleve Lane difficult. A few visitors take Thompson Lane to the McFadden's Farm area, park near the river at a parking lot owned by the city of Murfreesboro located at the trailhead to the Murfreesboro Greenway, and walk up the historic road trace to reach the overlook.

Visitors to the McFadden Farm unit do not perceive the full impact of the area, because the parking lot is located in- between this historic location of the Union and Confederate lines. A massive Union artillery line was located on the western side of the West Fork of the Stones River and is currently not emphasized in the park's interpretation.

The cedar glades are currently not interpreted in the auto tour route. Neither is the recently acquired land containing the Union earthworks, one of the few physical reminders of the Battle of Stones River.

Other non- contiguous parts of the park are also not part of the current auto tour route. Many visitors park at the visitor center and walk across the Old Nashville Highway to reach the cemetery, but it is not part of the tour route due to the lack of parking opportunities. Some park sites (General Rosecrans' Headquarters, General Bragg's Headquarters, Redoubt Brannon) can be accessed from the Old Nashville Highway.

When asked what visitors liked least about the park in a 2002 survey, responses related to the auto tour route and outdoor interpretation included: "confusing information about battle", "lack of site information/signs", "separation of sites in battlefield", "worn markers and signs at outdoor sites", "directions to battlefield", "directions/map within the battlefield", and "area surrounding park (encroaching development)" (NPS 2002).

Suggestions visitors have made towards improving the park in the future include "more detailed and improved interpretive signs", "more trailside exhibits", "keep historically correct", "more parking at each stop along driving route", "more trails", and "better directions to park" (NPS 2002). One of the comments visitors have repeatedly made in regard to their experience at the battlefield is they find the layout of the auto tour route and wayside exhibits difficult to follow (Rhodes 2004).

Visitor use and experience is not a park resource, and, therefore, impairment findings are not included as part of the analysis.

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

Under the No Action Alternative, current management and use of facilities, the auto tour route, and trails would continue. There would be no significant change to the interpretation conducted at the park. The content and placement of the wayside exhibits on trails and the auto route would not be updated in this alternative. On- site interpretation of four of the six battle zones would continue, and the six existing auto tour route stops would be maintained (see Table 2 in the section describing the No Action Alternative). Cedar glades would not be interpreted, as well as the Union earthworks in the northwest corner of the main park unit.

Under the current plans for park management, parkwide orientation panels would be placed at entrances throughout the battlefield. A single design with a park map as a central element would be developed, with a site- specific "you are here" designator as the only variation. A 1-mile trail has been created to connect the visitor center and the Stones River Greenway, via

the city's Battlefield Way. Access to McFadden Farm, the last stop on the auto tour route, would be available via Thompson Lane, instead of U.S. 41/70s and Van Cleve Lane. Pedestrian visitor access to McFadden Farm from the northern terminus of the Stones River Greenway is provided. A footpath along historic McFadden Lane was constructed to provide access from the north terminus of Stones River Greenway to McFadden Farm. These additional circulation routes and orientation signage would represent a long- term, negligible to minor benefit to visitor use and experience.

Not interpreting the cedar glades and Union earthworks, maintaining the McFadden Farm in the middle of the battle site, not addressing the effects of encroaching development outside the park, and failing to replace the inadequate and incomplete information at wayside exhibits would result in long- term, negligible to minor, adverse effects. These effects would be somewhat offset by the benefits of developing new circulation routes and orientation signage, resulting in overall effects to visitor use and experience that are long- term, negligible, and adverse.

Cumulative effects. Past, continuing, and future projects that have or will occur in the park which would affect the No Action Alternative include the rehabilitation of the visitor center, the creation of interpretive signs along the Trail of Tears, upgrading the interpretive media for Fortress Rosecrans and Redoubt Brannan, past removal of additional tour stops on the auto tour route, and encroaching urban development adjacent to the park. The overall cumulative effects of other projects and actions in and around the park represent a long- term, negligible, beneficial effect. When these projects are considered in concert with the implementation of other plans and projects at the park, the long- term, negligible, adverse effects from the No Action Alternative, the overall cumulative effect would be long- term, negligible, and adverse, because the benefits of the other plans do not directly offset the adverse effects directly felt as a result of continuing current management.

Conclusion. Not addressing the effects of encroaching development outside the park and failing to replace the inadequate and incomplete information at wayside exhibits results in long- term, negligible to minor, adverse effects. These effects would be somewhat offset by the long- term, negligible to minor benefits of developing new circulation routes and orientation signage, which would result in overall effects to visitor use and experience that are long- term, negligible, and adverse. The overall cumulative effect of other projects and plans with the No Action Alternative on visitor use and experience would be long- term, negligible, and adverse.

IMPACTS OF ALTERNATIVE A – MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Implementation of Alternative A would maintain the current confusing conditions of the traditional entrances to the main park unit and the round- about access to the McFadden Farm unit. This would maintain a long- term, negligible adverse effect on visitor use and experience.

However, tour stops would be arranged in a more chronological manner, thereby improving visitor understanding of the Battle of Stones River. Ease in navigating to and from some of the tour stops would be improved, such as with the loop added by tour stop 3, which would remove the need to turn around.

The cedar glades, while not interpreted on the auto route, would be interpreted on an unpaved trail under this alternative. Expansion of the trail system would encourage visitors to leave their cars. Once on the trail system, visitors would experience the cedar glades and the numerous limestone outcroppings. They would gain a greater understanding of the physical and psychological difficulties faced by troops on both sides of the battle. They would appreciate the limestone outcroppings in the forests as both an impediment to troop and equipment movement and an asset that provided shelter from the wind and enemy fire.

The National Park Service office at Harper's Ferry Center would redesign the tour route waysides, updating them from the 1960s format to include additional areas of the park and improve their accuracy.

The parking lot at the McFadden Farm unit would be moved below the river's bluff, thereby improving visitors' interpretation as they view the cannons and the area where Union and Confederate troops faced each other on each side of the river. The Union earthworks would be interpreted with a wayside exhibit along a small, paved trail. These improvements to visitor use and experience along the auto tour route would have a long- term, minor, beneficial effect.

The cotton field would be interpreted on the auto tour route at auto stop 5. A portion of the field would continue to be planted in cotton, as it was during the time of the battle. Short-term effects related to construction would include the temporary closure of portions of the auto tour route where construction activities were occurring. This would result in a short-term, moderate, adverse effect to visitor use and experience.

Cumulative effects. Projects that have, or will, occur in the park that would affect Alternative A include the rehabilitation of the visitor center, the creation of interpretive signs along the Trail of Tears, upgrading the interpretive media for Fortress Rosecrans and Redoubt Brannan, past removal of additional tour stops along the auto tour route, and encroaching urban development adjacent to the park. The overall effects of other projects and actions in and around the park represent a long- term, minor, beneficial effect. When these projects are considered in concert with the long- term, minor, beneficial effects from the Alternative A, the overall cumulative effect would be long- term, moderate, and beneficial.

Conclusion. Maintaining the traditional entrances to the park units, which do not provide clear route orientation, would continue to cause a long- term, negligible adverse effect. Improving the auto tour route order, waysides, and adding additional interpretive exhibits (e.g., Union earthworks, cedar glades) would result in a long- term, minor, beneficial effect. The construction activities would result in short- term, moderate, adverse effects. Thus, the overall effects of Alternative A on visitor use and experience would be long- term, minor, and beneficial. The cumulative effect of other actions in and around the park, and the effects of Alternative A, would be long- term, moderate, and beneficial.

IMPACTS OF ALTERNATIVE B – CONSTRUCT NEW ENTRANCES, ADD NATURAL RESOURCES TOUR ROUTE TO INTERPRET CEDAR GLADES

Implementation of Alternative B would encourage the use of a signalized, more visitor-friendly entrance off of Thompson Lane to the main park unit over the traditional entrance and provide a more direct entrance to the McFadden Farm unit via Thompson Lane. By

adding these new entrances and promoting their use over the traditional entrance, wayfinding by visitors would be markedly improved. The entrance to the main park unit, via Thompson Lane, would also provide visitors with an area of greenery and winding roads that signals one is entering a national park. The new entrance to the McFadden Farm unit would no longer lead the visitor through the middle of industrial development to reach the last tour stop. Instead, the access via Thompson Lane would be on the edge of the industrial development, with the river on the other side of the road.

Relocation of the parking lot would cause an enhanced experience of the site, as visitors would walk up to view the Union and Confederate sides of the battle site from one angle, rather than standing in the middle of the site, as currently occurs.

Tour stops would be arranged more chronologically, thereby improving visitor understanding of the Battle of Stones River. Ease in navigating to and from some of the tour stops would be improved, such as with the loop added by tour stop 1, which removes the need to turn around. The cedar glades would be interpreted on an additional natural resources auto tour route. The Union earthworks would be interpreted via a paved trail, longer than the trail proposed in Alternative A. Also, the boundary trail would be replaced by a more interior trail, which would lead to the same interpretive waysides, but place the visitor farther in the park and away from the neighboring development.

As in Alternative A, the National Park Service office at Harper's Ferry Center would redesign the tour route waysides, updating them from the 1960s format to include additional areas of the park and improve their accuracy. These improvements would represent a long- term, minor to moderate, beneficial effect to visitor use and experience.

Organization of the auto tour route would involve some backtracking over roads in the main park unit to visit all of the auto tour stops. Also, because the entrance into the main park unit is from the south, the visitor center is not the natural first stop. Instead, a number of monuments and waysides are passed before arriving at the visitor center. The cotton field would be interpreted on the auto tour route at tour stop 3. A portion of the field would continue to be planted in cotton, as it was during the time of the battle. These aspects of Alternative B would represent a long- term, negligible to minor, adverse effect to visitor use and experience.

Short- term effects related to construction would include the temporary closure of portions of the auto tour route where construction activities were occurring. This would result in a short- term, moderate, adverse effect to visitor use and experience.

Cumulative effects. Effects would be similar to those described for Alternative A.

Conclusion. Improvements to trails, waysides, the order of the tour stops, and the new entrances to the park would represent a long- term, minor to moderate, beneficial effect to visitor use and experience. Backtracking on the auto tour route and the visitor center no longer being the natural first stop would represent a long- term, negligible to minor, adverse effect. Overall, effects on visitor use and experience under Alternative B would be long- term, minor, and beneficial. Short- term effects due to construction activities would be moderate and adverse. The overall cumulative effects of projects and actions in and around the park represent a long- term, moderate, beneficial effect.

IMPACTS OF ALTERNATIVE C, THE PREFERRED ALTERNATIVE – CONSTRUCT NEW ENTRANCES, REDUCE ROAD SURFACES, CREATE EFFICIENT TOUR LOOP, INTERPRET CEDAR GLADES

Tour stops would be arranged more chronologically, thereby improving visitor understanding of the Battle of Stones River. Ease in navigating to and from some of the tour stops would be improved, such as with the loop added by tour stop 2 and the parking lot at Hazen Brigade Monument, both of which eliminate the need to turn around. The cedar glades would be interpreted on the auto tour route, while the western portion of the cedar glades would be accessible by paved trail. Backtracking is minor; once the auto tour route has begun, there is minimal backtracking while on the route.

Activities related to the new parking lot and road at the McFadden Farm unit, added interpretation of the Union earthworks, movement of the boundary trail, and new entrances to the park and the resulting decompression zone would be identical to those described for Alternative B. These improvements to the auto tour route would represent a long- term, minor to moderate, beneficial effect.

As in Alternative B, the entrance into the main park unit is from the south, so the visitor center is not the obvious first stop. This would represent a long- term, negligible, adverse effect. Also, the cotton field would be accessible from tour stop 4. A portion of the field would continue to be planted in cotton, as it was during the time of the battle.

Short- term effects related to construction would include the temporary closure of portions of the auto tour route where construction activities were occurring. This would result in a short- term, moderate, adverse effect to visitor use and experience.

Cumulative effects. Effects would be similar to those described for Alternative A.

Conclusion. Improvements to waysides, trails, the order and logic of the auto tour route, and additional interpretive sites would result in a long- term, minor to moderate, beneficial effect. Relocating the entrance to the main park unit so the visitor center is not the obvious first stop would represent a long- term, negligible, adverse effect. Short- term effects due to construction activities would be moderate and adverse. The overall cumulative effects of projects and actions in and around the park represent a long- term, moderate, beneficial effect.

PARK OPERATIONS

AFFECTED ENVIRONMENT

Stones River National Battlefield is authorized to have a staff of 14 full- time equivalent employees, including 10 permanent, full- time employees. (One full- time equivalent employee is equal to one person working one full year.) However, due to budget constraints, the park is currently staffed at less than its authorized level. Therefore, park management depends on other sources of help, such as volunteers, to provide visitor services and assist with maintenance and resource management.

Park size has doubled since 1987, adding responsibility for historic Union earthworks, three new roads, more than 30 rights of way, disposition of 8 structures, and maintenance of parking lots, trails, boardwalks and cultural landscapes.

Maintenance staff at the park includes three permanent, full- time employees. At any time, the park may also have one or two part- time, temporary maintenance employees that work 10 to 20 hours per week. During the summer, the park has four additional full- time maintenance workers (Johnson 2005a). The battlefield is planning on adding an additional full- time temporary maintenance worker to the staff.

The tour loop, tour stops, and visitor center parking lot were most recently maintained in spring 2003, with resealing and restriping (Johnson 2005a).

Park operations is not a park resource and, therefore, impairment findings are not included as part of the analysis.

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

Managing the auto tour route and related roads, trails, and waysides does not require a large amount of the maintenance staff's time, as the roadway does not require frequent maintenance. The ongoing maintenance of the existing auto route would be unlikely to generate detectable effects on park operations in the park. Therefore, continuing current management activities would have negligible, beneficial effects on park operations.

Cumulative effects. Plans and projects with the potential to affect park operations include the visitor center rehabilitation, relocation of the rostrum, the Cedar Glades and Barrens State Natural Area, and the potential expansion of the battlefield. Cumulatively, these projects would have a long- term, minor, beneficial effect on park operations. The No Action Alternative would make no contributions to this effect.

Conclusion. Under the No Action Alternative, continuing current management would have a negligible, beneficial effect on park operations. This alternative would not make a cumulative contribution to long- term, minor beneficial effects of other actions.

IMPACTS OF ALTERNATIVE A – MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Constructing a new access road to the southeast corner of the main park unit would increase access for park staff. Long- term effects to park operations would be negligible and beneficial because the new route would require similar care as the existing route.

Under Alternative A, there would be a short- term, minor adverse effect to park operations. The construction of additional trails and parking lot improvements would temporarily increase the demand on maintenance staff to oversee the construction. Also, continuing day- to- day park maintenance operations while the construction is occurring would place additional stresses on maintenance staff.

Cumulative effects. Plans and projects with the potential to affect park operations include the visitor center rehabilitation, relocation of the rostrum, the Cedar Glades and Barrens State Natural Area (which limits activities in the natural area), and the potential expansion of

the battlefield, which represent a minor, beneficial, long- term effect. Alternative A would contribute negligible, beneficial effects. Cumulatively, these projects would have a long- term, minor, beneficial effect on park operations.

Conclusion. Long- term effects to park operations would be negligible and beneficial, due to the minimal change in demand for grounds care. Construction and improvement activities related to trails and the parking lot would create short- term, minor, adverse effects to park operations. Cumulative effects of relocation and rehabilitation projects, combined with the anticipated effects of Alternative A, would be long- term, minor, and beneficial.

IMPACTS OF ALTERNATIVE B AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Long- term effects to park operations would be in part negligible and adverse, as these alternatives would increase the likelihood of cut- through traffic in the park, by adding the southeast entrance to the main park unit. Driving through the park to US41/70S could potentially be more appealing than taking the jughandle on- ramp from Thompson Lane.

Constructing a new access road into the McFadden Farm unit would improve access for park staff to this park unit; the new southeast entrance would also increase ease of access to the southern section of the main park unit for staff. Long- term effects to park operations would be partially minor and beneficial.

Under Alternative B and C, there would be a short- term, minor, adverse effect to park operations. The construction of additional trails, roads, and parking lots would temporarily increase the demand on maintenance staff to oversee the construction, more so than Alternative A, due to the additional signalized entries and roads. Also, continuing day- to- day park maintenance operations while the construction is occurring would place additional stresses on maintenance staff.

Cumulative effects. Plans and projects with the potential to affect park operations are the same as those discussed for Alternative A. These projects would have a long- term, minor, beneficial effect on park operations. Alternative B and C would each contribute long- term, negligible, beneficial effects. The other projects, in combination with the effects of Alternatives B or C, would result in long- term, minor, beneficial effects to park operations.

Conclusion. Improvements in access would result in long- term effects that would be minor and beneficial; however, this would also increase the likelihood of cut- through traffic and create long- term, negligible, adverse effects. Short- term effects to park operations, due to construction activities, would be minor and adverse. The other park projects, in combination with the effects of Alternatives B or C, would result in long- term, minor, beneficial effects to park operations.

CEDAR GLADES

AFFECTED ENVIRONMENT

Flat limestone outcroppings associated with the park's underlying karst topography support one of the rarest and endangered habitats found in the southeastern United States, cedar glades (Allison and Stevens 2003, NPS 1998b). This limestone cedar glade community (cedar glade/xeric limestone prairie complex), which occurs only in the Inner Basin of Tennessee, is described by Baskin and Baskin as "the most numerous, extensive and floristically rich" in the

southeastern United States (Hogan *et al.* 1996). Approximately 60 acres of cedar glades are located in the main park unit. They are closed to the public by regulation.

Glades are the open areas of rock, gravel, and/or shallow soil that remain bare or are occupied by low- growing herbaceous plant communities (Walck *et al.* 2002). They may, or may not, be surrounded by forest. Cedar glades generally support low densities of woody plants, which become established in deep soil- filled cracks in the bedrock. Small flowering plants, grasses, lichens, and the occasional deciduous tree, occupy the understory and open prairie- like areas of the glades where shallow soils have accumulated. Other woody species including eastern red cedar and shrubs such as native privet and aromatic sumac also occupy glades and prairies.

The presence and persistence of cedar glades are dependent on the hydrology of the underlying karst topography. Conditions in the glades can be quite harsh, with soil moisture content varying dramatically in the shallow soils. Soils are often saturated from late autumn to early spring each year. By mid- summer, soil water content is low, and may go beyond the permanent wilt point for many species. As soils dry, surface temperatures may be considerably higher than those recorded in other environmental conditions (Walck *et al.* 2002). The unique and specialized species found within the glades have adapted to site- specific microclimate and hydrologic regimens.

While Tennessee is home to the highest concentration of cedar glades in the world, it also had lost 50 percent of its cedar glade acreage in recent years (Noss *et al.* 1995). Some plant associations within the cedar glade natural communities in Tennessee are globally vulnerable or globally imperiled (Nature Serve 2005a). These cedar glades are the only habitat for two plant species, including the Tennessee coneflower (*Echinacea tennesseensis*) and Pyne's ground plum (*Astragalus bibullatus*) (Hogan *et al.* 1996).

The primary threat to cedar glade habitats is continuing development. Across the southeastern United States, these sites have been converted from their native state to support agriculture or residential and urban uses.

A Tennessee State Natural Area, the Stones River Cedar Glades and Barrens, is 185 acres in size and encompasses the cedar glades in Stones River National Battlefield. State Natural Area designation requires road development to be limited to the "minimum necessary to provide access for the maintenance and/or public use of the area." Before a road can be built in a natural area, it has to be evaluated for how it will affect wildlife habitat and mobility, natural vegetation, etc. Trails must also be kept to a minimum (Tennessee Department of Environment and Conservation 1999).

Stones River National Battlefield developed a fire management plan in 2003 that includes prescribed fires in the cedar glade complex, which will help maintain the open character by reducing encroachment of woody species (NPS 2003f, NPS 2005). A report of cedar glades inventory in the battlefield by Hogan *et al.* (1996) concluded that since fires have been suppressed in the park, and precipitation levels were high, cedars were likely encroaching into the cedar glades.

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

The existing tour route road in Stones River Battlefield is disrupting surface water flow and has increased the amount and length of time standing water is found along the road. Water has been channelized into ditches alongside the road. The tour route road bisects the cedar glades twice, disconnecting the hydrology of the area (see “Existing Conditions Map”).

Cedar glades expert at Middle Tennessee State University, Dr. Jeffrey Walck, offered the following information regarding the road’s current effects on the cedar glades in Stones River National Battlefield:

“Runoff areas (drainage ditches) are evident along the roadside. During times of heavy rainfall, water washes off of the road and then stands in the glade-like areas and forested areas along the roadside creating temporary pools. These areas beside the road probably temporarily experienced standing water before the road was built, but the amount (height) of standing water, rate of water flow and length of time for standing water to evaporate/drain was altered when the road was built.

The main portion of the park is slightly sloping from the highest point, which contains the grassland (“barrens”) community, downslope to a belt of glades and forested communities around this hill. The slope from the hill (about 590 feet elevation) to the glades (about 570 feet) is slight, but the auto tour bisects and divides the glades, grassland and forest; these habitats were continuous before the road was installed. Currently, the road blocks the natural surface flow of water, particularly during heavy rain events, between portions of habitat that were once connected (Walck 2005).”

Based on this assessment of current conditions, the tour road would continue to cause long-term, adverse, minor effects on the hydrology of the cedar glades, which in turn affects the plant community. Areas that have more standing water would be changing towards more water-tolerant plant species, while areas receiving less water would shift towards plant species that prefer drier soils. Changes to vegetation in cedar glades as a result would be long-term, localized, minor, and adverse.

Cumulative effects. Designating the cedar glades in the battlefield as a state natural area has added protection to these cedar glades. However, increasing development in the region is putting remaining cedar glades at risk of destruction and/or loss of hydrological functioning. Past development activities have already destroyed 50 percent of the cedar glades in middle Tennessee. Given that cedar glades are rare, localized ecosystems, cumulative effects would be moderate, long-term, and adverse for the region. The No Action Alternative would contribute minor, long-term, adverse effects, resulting in overall cumulative effects to cedar glades that are long-term, moderate, and adverse.

Conclusion. Under the No Action Alternative, local changes in hydrology would result in long-term, minor adverse effects to the cedar glades community. Cumulative effects to cedar glade hydrology in the region would be long-term, moderate, and adverse.

Impairment. The No Action Alternative would not produce major adverse effects on cedar glade resources or values whose conservation is (1) necessary to fulfill specific purposes

identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of cedar glades resources or values as a result of the implementation of the No Action Alternative.

IMPACTS OF ALTERNATIVE A AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Overall, 2.32 acres under Alternative A or 1.23 acres under Alternative C would be returned to natural conditions. No disturbance would occur to the cedar glades themselves. Reducing the western road to a paved trail would slightly improve the hydrology of the cedar glades, as small culverts would be added underneath. Still, because of the ditches alongside the road and other alterations of the ground to lay down road base, the reduced road area would not be enough to restore surface flow in the localized area. Hydrology and plant communities would remain affected, albeit less, by the road. Overall, actions from Alternatives A and C would result in long- term, localized, negligible to minor, beneficial effects to the cedar glades in the battlefield.

Cumulative effects. The effects of encroaching development, and road construction resulting in a new interchange, would cause long- term, moderate, adverse effects on cedar glades regionally. Effects from Alternatives A and C would make long- term, negligible to minor, localized, beneficial contributions to these effects. Cumulatively, the anticipated effects of Alternatives A and C would slightly offset the effects of development and road construction, to create long- term, minor to moderate, adverse effects to cedar glades.

Conclusion. Reducing road surfaces through the cedar glade area and constructing a paved trail that would somewhat improve lateral surface flow in the glades would result in long-term, negligible to minor, beneficial effects under Alternatives A and C. Cumulatively, the anticipated effects of Alternatives A and C would offset the effects of development and road construction, to create long- term, minor to moderate, adverse effects to cedar glades.

Impairment. Alternatives A and C would not produce major adverse effects on cedar glade resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of cedar glades resources or values as a result of the implementation of the Alternatives A and C.

IMPACTS OF ALTERNATIVE B – CONSTRUCT NEW ENTRANCES, ADD NATURAL RESOURCES TOUR ROUTE TO INTERPRET CEDAR GLADES

Under Alternative B, 1.04 acres would be returned to a natural condition, which primarily includes the eastern section of the tour road. No disturbance would occur to the cedar glades themselves.

Reducing the eastern road to an unpaved trail would slightly improve the hydrology of the cedar glades. Still, because of the prior ditches alongside the road and other alterations of the ground to lay down road base, this would not be enough to restore surface flow in the

localized area around the unpaved trail. Hydrology and plant communities would remain impacted, albeit less, by the road. Overall, actions from Alternative B would result in a long-term, localized, minor, beneficial effect to the cedar glades in the battlefield.

Cumulative effects. The cumulative effects of Alternative B are similar to those described for Alternatives A and C.

Conclusion. Reducing road surfaces through the eastern portion of the cedar glades would slightly improve lateral surface flow and result in a minor, long-term, beneficial effect under Alternative B. Effects from Alternative B would somewhat offset the adverse effects of other projects to create overall effects that are long-term, minor to moderate, and adverse.

Impairment. Alternative B would not produce major adverse effects on cedar glade resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of cedar glades resources or values as a result of the implementation of the Alternative B.

PUBLIC HEALTH AND SAFETY, INCLUDING ACCESSIBILITY AFFECTED ENVIRONMENT

Stones River National Battlefield is responsible for maintaining safe conditions for the protection of the health and safety of both its employees and the public. This not only applies to providing safe facilities, utilities, and grounds within the park and within the cemetery, but also includes NPS program and project operations. To protect visitors and staff during construction activities, National Park Service *Management Policies 2001* directs the use of best management practices for all phases of construction, including traffic control, signage, and restrictions on access. For this analysis, public health and safety addressed the condition of the park and the effects of the proposed implementation plan on visitors and staff.

On average, 190,000 people visit Stones River National Battlefield annually (NPS 2004b). Recent public health and safety incidents in the park have been very minor. In 2004, one person twisted her ankle near the temporary visitor center; in 2003, another visitor was stung by a nest of yellowjackets near the visitor center parking lot. Roads and trails have almost no role in health and safety incidents in the battlefield (Johnson 2005a).

Sinkholes are common throughout the battlefield. One sinkhole has repeatedly caused damage to Van Cleve Lane (see Figure 11 in the "Soils" section), but has not been identified as a safety issue (Johnson 2005a).

The visitor center, including restrooms, is accessible for those with mobility impairments. Captioned and audio-described versions of the audiovisual programs are available. Sixty percent of the historic features can be viewed from a motor vehicle. All of the auto tour stops have accessible parking lots (Johnson 2005a). The Hazen Brigade Monument parking lot is small and buses cannot stop there. Any car that parks in this lot must back out onto the Old Nashville Highway. Some of the paved trails in the battlefield (those at existing tour stops 1, 2, and 5; the cotton field trail that links the visitor center with the Stones River Greenway) are accessible, although not designed for accessibility (Johnson 2005a).

Public health and safety and accessibility is not a park resource and, therefore, impairment findings are not included as part of the analysis.

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

Under the No Action Alternative, access to the main park unit from the south involves exiting Thompson Lane; turning east, away from the park, and turning left onto the Old Nashville Highway to arrive at the park. To continue the current auto tour route, visitors leave the main park unit and connect to the McFadden Farm site via a “jug handle” access ramp onto Thompson Lane. Once park visitors leave the McFadden Farm unit, they have to make a difficult left turn onto Highway 41 to return to Murfreesboro. These inconvenient sections of the auto tour route force park visitors to cross high- speed roads without signals, causing potential safety concerns.

Additionally, there is no parking at the cemetery, so visitors must cross the Old Nashville Highway (speed limit 35 mph) from the visitor center parking lot. At Hazen Brigade Monument, the parking lot is too small for vehicles to exit without backing up on the Old Nashville Highway. This prohibits buses from stopping there.

Currently, the auto tour route has negligible effects with regards to public health and safety. No safety incidents have been reported recently involving roads or trails (Johnson 2005a). No change is expected to occur in the future as the tour route relates to public health and safety under this alternative.

Continuing current management with respect to accessibility, any additional actions related to the auto tour route would likely include plans for accessibility. Sixty percent of historic features can already be viewed from a vehicle, many of these along the auto tour route. There would be long- term, negligible, beneficial effects to public health and safety and accessibility by continuing current management.

Cumulative effects. A number of road projects in the area, including widening the Thompson Lane Bridge and the new Interstate 24 interchange, would have a long- term, minor, beneficial effect on public health and safety in the vicinity of the battlefield. The No Action Alternative would make a negligible, beneficial contribution to cumulative effects on public health and safety or accessibility. Cumulatively, the effects of other projects and the effects of the No Action Alternative would produce long- term, minor, beneficial effects.

Conclusion. Under the No Action Alternative, effects to public health and safety would be negligible and adverse. Effects to accessibility would continue to be negligible and beneficial. Cumulatively, the effects of other projects and the effects of the No Action Alternative would produce long- term, minor, beneficial effects.

IMPACTS OF ALTERNATIVE A – MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Public health and safety under Alternative A would be slightly improved from current conditions, with the new bus- accessible parking lot at Hazen Brigade Monument. However, the inconvenient and potentially unsafe segments of the tour route, primarily accessing the

McFadden Farm unit, would remain unchanged. This would result in an overall negligible, adverse effect on public health and safety.

Some road and trail segments proposed under this alternative would be constructed within the 100- year floodplain. The 100- year floodplain covers large sections of the park (see “Floodplains” for a description), and some existing roads and trails are locating within its boundaries. If flooding were to occur in these areas, the park would close them, so as not to affect public health and safety (Johnson 2005a). Therefore, flooding possibilities would have negligible effects on public health and safety in the park.

Accessibility would be improved, because ADA- accessible paved trails would be developed to link all auto tour stops. A pedestrian trail would also be added from the visitor center to the cemetery, with a designated crosswalk on the Old Nashville Highway. These improvements would result in a long- term, moderate, localized, beneficial effect on accessibility, as the increased trail access to those with disabilities would be obvious to most visitors.

Cumulative effects. A number of road projects in the area, including widening the Thompson Lane Bridge and the new Interstate 24 interchange, would have a long- term, minor, beneficial effect on public health and safety in the vicinity of the battlefield. The No Action Alternative would make a minor, beneficial contribution to cumulative effects on public health and safety. Cumulative effects to public health and safety, and accessibility, would be long- term, moderate and beneficial.

Conclusion. The unsafe segments of the tour route and the risk of flooding would result in long- term, localized, negligible, adverse effects to public health and safety. Improved accessibility would result in long- term, moderate, beneficial effects. Cumulative effects to public health and safety, and accessibility, would be long- term, moderate and beneficial.

IMPACTS OF ALTERNATIVE B AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Alternatives B and C call for the construction of new entrances to the main park unit via McFadden Road and the McFadden Farm unit from a new road to the east of the unit. By constructing the new signalized entrance off Thompson Lane, visitors arriving from the south will be able to enter the park more easily and safely, at a traffic light. The route will also be more direct. The new road to the McFadden Farm unit will prevent visitors from having to access the unit via Highway 41. Instead, the route will be more direct and somewhat safer for park visitors, as Thompson Lane only crosses the Old Nashville Highway and has a light at Highway 41. When visitors leave the McFadden Farm unit to return to Murfreesboro, they can now continue directly down Thompson Lane or turn left onto the Old Nashville Highway, a 35 mph road. These improvements to the auto tour route would have a long-term, minor, beneficial effect on public health and safety in the battlefield.

The effects on public health and safety posed by locating some road and trail segments within the 100- year floodplain are the same as those described for Alternative A and would be negligible.

The effects on accessibility for those with reduced mobility would be similar to those described for Alternative A, and would be localized, long- term, moderate, and beneficial.

Cumulative effects. A number of road projects in the area, including widening the Thompson Lane Bridge and the new Interstate 24 interchange, would have a long- term, minor, beneficial effect on public health and safety in the vicinity of the battlefield. Alternative B or C would contribute long- term, minor, beneficial effects to public health and safety. Cumulative effects to accessibility, including the visitor center rehabilitation and the actions under this alternative, would be long- term, moderate, and beneficial.

Conclusion. Improvements to the auto tour route that minimize the crossing several lanes of fast- moving traffic would have a long- term, minor, beneficial effect on public health and safety. The risk of flooding would create long- term, negligible, adverse effects to public health and safety. Accessibility improvements to parking lots and trails linking the auto tour stops would result in a long- term, moderate, beneficial effect on accessibility. Cumulative effects of Alternative B or C, with the effects of various road projects, would be minor to moderate, beneficial, and long- term.

VEGETATION

AFFECTED ENVIRONMENT

Main Park Unit

The vegetation of the main 508- acre battlefield remains much as it was in 1862 and 1863. The site is a variety of scattered forests of mixed hardwoods, which dominate the landscape, open farmlands, now maintained as mowed fields, and cedar glades. (The unique vegetation of the cedar glades is described in detail in the “Cedar Glades” section of this document.) The majority of this unit’s vegetation is either upland hardwood forest or mowed field.

The hardwood stands within the battlefield are composed mostly of oaks (*Quercus* spp.), hickories (*Carya* spp.), winged elm (*Ulmus alata*), hackberry (*Celtis occidentalis*), and white ash (*Fraxinus americana*). In the northern portions of the main park unit, dense secondary cedar communities, lacking the glade understory flora, have become established. These communities will dominate if the hardwoods are harvested or damaged (Hogan and Webber 1999).

McFadden Farm

The McFadden Farm was in active agricultural production during the days of the Stones River battle. As such, most of this park unit is maintained as an open grassy field today and mowed regularly.

The banks of the West Fork of Stones River are lined with floodplain forests. Canopy species include hackberry, green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*) and box elder (*Acer negundo*). Upland hardwood forests are also found in this unit of the battlefield.

Hogan and Webber conducted a vascular flora survey of the battlefield (1999). They observed 507 vascular plant species in the battlefield, 14 of which were endemics, or near endemics, to cedar glades. A number of rare species were observed. Only one, the limestone bluestar, was not associated with cedar glades. For discussion and analysis of threatened and endangered plant species, see the “Endangered, Threatened, or Protected Species and Critical Habitats” section.

Experimental plant species of Tennessee coneflower and Pyne’s ground plum are being

grown at the battlefield. The experimental sites do not occur within the proposed project areas. However, some non- rare, native plant species restoration sites are located alongside potential new road segments in the main park unit in the southeast corner and in the McFadden Farm unit in the southern portion.

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

Under the No Action Alternative, no changes would be made to vegetative communities. The continued presence of the road and associated impervious surfaces would have a long- term, minor, adverse effect to vegetation communities in Stones River National Battlefield.

Cumulative effects. The addition of waysides and interpretive signs along trails and roads and road construction resulting in a new interchange would cause long- term, negligible, adverse effects on vegetation in Stones River National Battlefield and neighboring areas, due to the permanent loss of a small amount of vegetation. Effects from the No Action Alternative would not contribute to these cumulative effects.

Conclusion. Continuing current management activities under the No Action Alternative would have a long- term, negligible, adverse effect. The No Action Alternative would not contribute to cumulative effects on vegetation.

Impairment. The No Action Alternative would not produce major adverse effects on vegetation resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of vegetation resources or values as a result of the implementation of the No Action Alternative.

IMPACTS OF ALTERNATIVE A, ALTERNATIVE B, AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Implementation of Alternative A would result in the construction of additional trails, paved and unpaved, the reduction of some road segments to ADA- compliant paved trails, the addition of a road segment in the southern section of the main park unit, the addition of parking lots near Hazen Brigade Monument and the McFadden Farm site, and improvements to the visitor center parking lot. Activities in the main park unit would occur in upland hardwood forests, mowed fields, cedar glades, and cedar stands. Activities in the McFadden Farm site would occur in mowed fields and upland hardwood forest.

In total, 11.6 acres of woods, natural areas, maintained areas, and previously- disturbed areas would comprise the area of disturbance under Alternative A. Roads and paved trails totaling 2.3 acres would be reverted to natural conditions.

In total, 17.4 acres of woods, natural areas, maintained areas, and previously- disturbed areas would comprise the area of disturbance under Alternative B. Roads and paved trails totaling 1.04 acres would be reverted to natural conditions.

In total, 14.4 acres of woods, natural areas, maintained areas, and previously- disturbed areas would comprise the area of disturbance under Alternative C. 1.23 acres would be reverted from paved road or trail to natural conditions.

Implementation of any of the action alternatives would result in long- term, localized, minor, adverse effects to the vegetative communities in Stones River National Battlefield, because limited areas would be changed to impervious surfaces. This construction would not affect the viability of plant communities in the park. Some of the native plant restoration sites in the park would be impacted by new road segments. The continued presence of the road would have a long- term, negligible, adverse effect to vegetation communities in Stones River National Battlefield. Short- term effects to vegetation would be localized and negligible to minor. Revegetation would occur with native species, which would minimize the length of effects.

Cumulative effects. Encroaching development, additions of waysides and interpretive signs along trails and roads and road construction resulting in a new interchange, in combination with actions implemented under Alternative A, B, or C would cause long- term, minor, adverse effects on vegetation in Stones River National Battlefield and neighboring areas

Conclusion. Under Alternative A, B, or C, effects to vegetation would be long- term, localized minor, and adverse. Short- term effects from construction activities would be localized and negligible to minor. Cumulative effects would be long- term, minor, and adverse.

Impairment. Alternative A, B, or C would not produce major adverse effects on vegetation resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of vegetation resources or values as a result of the implementation of the Alternative A, B, or C.

SOILS

AFFECTED ENVIRONMENT

Terrain in the park is gently rolling with numerous limestone outcroppings, sinkholes, and caves. Elevations range from 520 to 600 feet above sea level. Topography within the project area is largely unchanged from the days of the battle.

The battlefield area is located in an area of karst topography – a common type of land surface that is formed as limestone, dolomite, gypsum, and other rocks dissolve and form depressions, sinkholes, caves, and underground drainage.

Ridley limestone is unique to the Tennessee Central Basin, and forms the foundation of the main park unit. This sedimentary formation has weathered significantly, and sinkholes and depressions are present in several locations in the park. Most notably, Van Cleve Lane (the historic trace of McFadden Lane) has collapsed in the past, significantly in 1994 (see Figure 11).

Soils are related to the underlying geology, landforms, relief, climate and natural vegetation of an area. The limestone bedrock in the project area has weathered to form local soils that range from a few inches to over 20 feet deep in natural depressions. Generally, surface soils are shallow and cover clay subsoils that have low permeability. This results in rapid runoff and makes local streams subject to flash flooding (NPS 1998b). However, this combination of karst topography, low relief, low permeability of shallow soils over limestone bedrock with

variable permeability, and high groundwater tables can also result in poor drainage and ponding. Standing water frequently occurs along roadways and in low-lying areas. A surface drainage swale was constructed in the 1970s to drain water away from the Old Nashville Highway toward the western portions of the park (NPS 1998b).

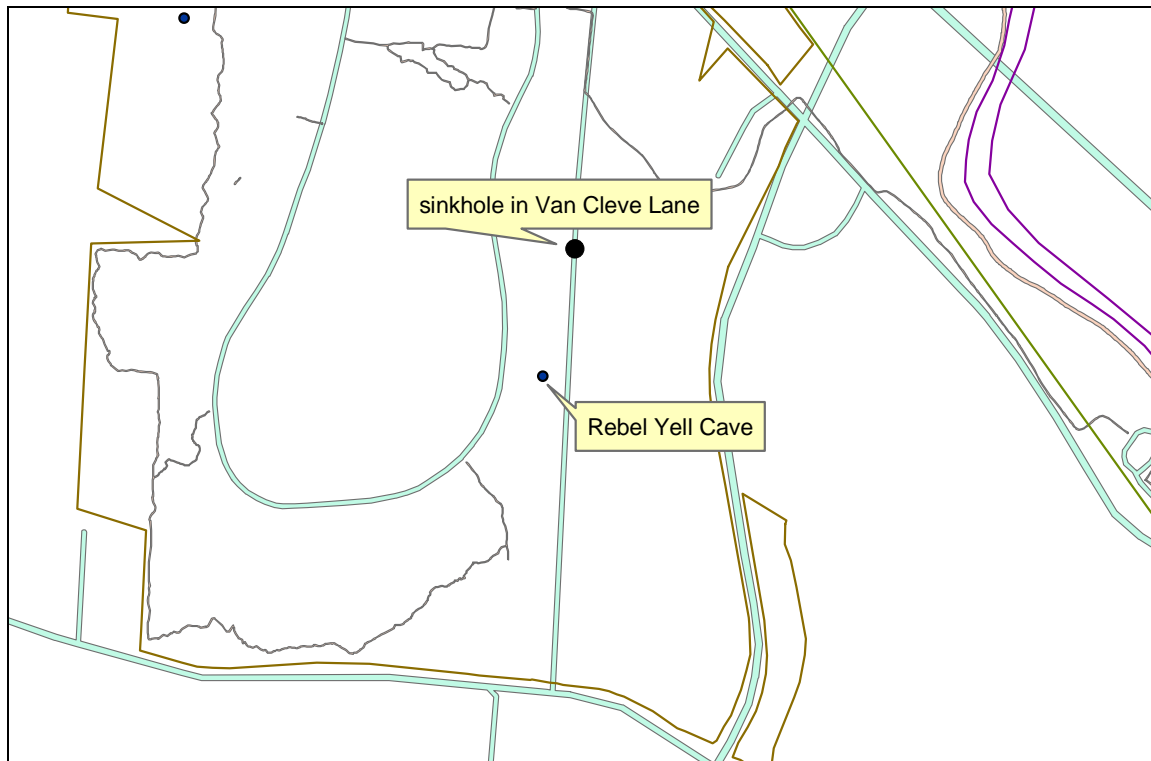


FIGURE 11. LOCATION OF SINKHOLE IN VAN CLEVE LANE

There are 21 different soil map units in the main park and McFadden Farm units. The proposed roads and trails traverse the majority of these soil map units. In the main park unit, there are a number of rock outcrop complexes, underneath the cedar glades and areas that support other vegetative communities. More than half the current auto tour roads are built atop these complexes. Two of the largest are the Talbott- Barfield- Rock Outcrop Association and the Gladeville- Rock Outcrop- Talbott Association, which are shallow soils over bedrock found in the cedar glades. The remaining soil types that the road and trail networks traverse are mostly fine silty loams that are moderately well- drained to well- drained (NRCS 2005). There is a small area of Egam silt loam near the visitor center that has the tendency to occasionally flood.

In the McFadden Farm unit, most of the soils are silt loams or silty clay loams that are moderately well- drained to well- drained. There are also a few small rock outcrop complexes and a unit that has been used as a quarry or dump just south of the pond. Along the river, Arrington silt loam and Eagleville silty clay loam are both subject to occasional flooding. In the eastern part of the park unit, a larger association of Egam silt loam is subject to occasional flooding, as is the Lynnville silt loam found in the southwest corner of the park unit.

Some of the soil types found in both park units have strength limitations for local roads. Harpeth silt loams have a moderate to low strength limitation for local roads. Bradyville silt loams have a severe- low strength limitation for local roads and can be highly erodible (TDOT 2003).

Prime agricultural land is defined as soils particularly suited for growing general crops, such as forage, fiber, and oil seed. According to an August 11, 1980, memorandum from the Council on Environmental Quality, federal agencies must assess the effects of their actions on soils that are classified as prime by the Natural Resources Conservation Service. There are approximately 328 acres of prime agricultural land within the boundary of the battlefield, representing 46 percent of the park. Prime agricultural land exists along both sides of the Old Nashville Highway and in about 75 percent of McFadden Farm (NPS 1998b). The prime agricultural soils in the battlefield represent 0.22 percent of all prime agricultural land in Rutherford County, Tennessee. Because the proposed actions in this environmental assessment would affect a fraction of that 0.22 percent, effects on prime agricultural land would be negligible and, as such, prime agricultural land was dismissed from further analysis (see “Impact Topics Dismissed from Further Consideration”).

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

Soils along the existing auto tour route have undergone long- term disturbance caused by the supporting infrastructure including roads, parking lots, outside exhibits, walkways, and trails. These structures, except for the unpaved trails, have been covered with an impervious surface, compacted, and kept the sun and air from the underlying soils for many years. The condition of the soil microbes and soil nutrient levels at this site are unknown. However, it is unlikely that the characteristics of productive local soils have been retained under these conditions. Under the No Action Alternative, the underlying soils would continue to experience negligible to minor, adverse effects that would be long- term in duration.

Cumulative effects. Encroaching development, additions of waysides and interpretive signs along trails and roads, and road construction resulting in a new interchange, would cause regional long- term, moderate, adverse effects on soils. Impervious surfaces would greatly increase, particularly from the increased development. Effects from the No Action Alternative would not contribute to these cumulative effects.

Conclusion. Continued presence of the road and associated impervious surfaces would result in site- specific, long- term, minor, adverse effects on soils. Effects from the No Action Alternative would not contribute to cumulative effects on soils.

Impairment. The No Action Alternative would not produce major adverse effects on soil resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park’s general management plan or other National Park Service planning documents. Consequently, there would be no impairment of soil resources or values as a result of the implementation of the No Action Alternative.

IMPACTS OF ALTERNATIVE A, ALTERNATIVE B, AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Implementation of Alternative A, B, or C would result in the construction of additional trails, paved and unpaved, the reduction of some road segments to trails, the addition of a road segment in the southern section of the main park unit, the addition of parking lots near Hazen Brigade Monument and the McFadden Farm site, and improvements to the visitor center parking lot. The total area of disturbance for each alternative is between 11 and 17 acres.

This reduction of road segments would result in long- term, minor, beneficial effects, while additional impervious surfaces from roads, paved trails, and parking lots and the limited soil erosion from removal of vegetation to create unpaved trails would result in long- term, minor, adverse effects.

Under Alternative A, B, or C, the soils beneath existing impervious surfaces would continue to experience long- term, minor, localized, adverse effects.

Short- term adverse effects due to construction disturbance would be localized and negligible to minor, but minimized by top soil banking, regrading to a natural grade, and revegetation efforts.

Cumulative effects. Encroaching development, additions of waysides and interpretive signs along trails and roads, and road construction resulting in a new interchange would cause long- term, moderate, adverse effects regionally on soils. Impervious surfaces would increase, particularly from development. Cumulatively, when these effects are combined with the long- term, minor, adverse effects from actions implemented under Alternatives A, B, or C, the result would be long- term, moderate, adverse effects.

Conclusion. Overall, Alternative A, B, or C would have long- term, minor, localized, beneficial effects due to the reclamation of some soils by reducing roads and long- term, minor, site- specific, adverse effects on soils due to continued presence of the road and the addition of impervious surfaces. Short- term adverse effects due to construction disturbance would be localized, and negligible to minor. Cumulative effects would be long- term, adverse, and moderate.

Impairment. Alternative A, B, or C would not produce major adverse effects on soil resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of soil resources or values as a result of the implementation of the Alternative A, B, or C.

WILDLIFE

AFFECTED ENVIRONMENT

With its open fields, hardwood forests, and cedar glades amidst a rapidly developing landscape, Stones River National Battlefield is home to a variety of wildlife species. Twenty-four species of amphibians and reptiles were observed in a 2003 inventory (Miller 2003). One hundred and thirty- nine species of birds have been observed in the battlefield. Forty- five are

permanent residents; the other 94 species are migratory (Stedman and Stedman 2003). Fifteen species of mammals have been identified in a Vital Signs study as occurring in the park.

Some of the most commonly observed animals in the park include raccoon (*Procyon lotor*), gray squirrel (*Sciurus carolinensis*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), white-tailed deer (*Odocoileus virginiana*), and eastern cottontail rabbit (*Sylvilagus floridanus*).

The eastern woodrat (state deemed in need of management) and the Tennessee cave salamander (state threatened) may inhabit the park (NPS 2003f). However, as the eastern woodrat's preferred habitat is rocky ledges and caves and the Tennessee cave salamander is limited to caves, neither of these species would be found within the potential project area (NatureServe 2005b, Tennessee Wildlife Resources Agency 2002). For further discussion and analysis of threatened and endangered wildlife species, see the "Threatened and Endangered Species" section.

The park receives approximately 190,000 visitors each year, and some wildlife species have adapted to human presence. The roadways and interpretive loop are traveled at relatively slow speeds, and the park's wildlife residents are largely undisturbed by visitors and staff.

Within the proposed project areas, it is likely that small mammals, toads, salamanders, and snakes could be present.

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

The ongoing management associated with maintaining the existing auto route would be unlikely to generate detectable effects on wildlife or their habitats in the park. Therefore, continuing current management activities would have short-term, negligible adverse effects on wildlife. These would result from noise from traffic on a slowly traveled tour route and the slight potential for roadkill.

Cumulative effects. Encroaching development and resulting habitat fragmentation, additions of waysides and interpretive signs along trails and roads and road construction resulting in a new interchange would cause long-term, minor to moderate, adverse effects on wildlife in Stones River National Battlefield and neighboring areas in the region. Effects from the No Action Alternative would make no contributions to cumulative effects on wildlife.

Conclusion. The No Action Alternative would have short-term, negligible, adverse effects on wildlife, resulting from exposure to traffic on a slowly traveled tour route and the slight potential for roadkill. Effects from the No Action Alternative would make no contributions to cumulative effects on wildlife.

Impairment. The No Action Alternative would not produce major adverse effects on wildlife resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of wildlife resources or values as a result of the implementation of the No Action Alternative.

IMPACTS OF ALTERNATIVE A, ALTERNATIVE B, AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Implementation of Alternative A, B, or C would result in the construction of additional trails, paved and unpaved, the reduction of some road segments to ADA- compliant paved trails, the addition of a road segment in the southern section of the main park unit, the addition of parking lots near Hazen Brigade Monument and the McFadden Farm site, and improvements to the visitor center parking lot. Activities in the main park unit would occur in upland hardwood forests, mowed fields, cedar glades, and cedar stands. Activities in the McFadden Farm site would occur in mowed fields and upland hardwood forest.

Altogether, this construction would result in long- term, negligible, adverse effects to the wildlife communities in Stones River National Battlefield, because limited amounts of wildlife habitat would be removed from small sections of the park permanently and some wildlife habitats, such as wetlands, could be altered slightly by the additional road and trail construction. This construction would not affect the viability of wildlife populations in the park.

Short- term adverse effects during the construction would include noise. However, since best management practices would require activities to occur during the day when noise levels are already higher, impacts would be minimized. Short- term adverse effects would therefore be minor and localized.

Cumulative effects. Encroaching development and resulting habitat fragmentation, additions of waysides and interpretive signs along trails and roads, and road construction resulting in a new interchange would cause long- term, minor to moderate, adverse effects on wildlife in Stones River National Battlefield and neighboring areas. In combination with the long- term, minor, adverse effects anticipated from Alternative A, B, or C, the effects to wildlife would be long- term, minor to moderate, and adverse.

Conclusion. Under Alternative A, B, or C, long- term effects to wildlife would be negligible and adverse from loss of small quantities of habitat. Short- term effects due to construction would be localized, minor, and adverse. Cumulative effects would be long- term, minor to moderate, and adverse.

Impairment. Alternative A, B, or C would not produce major adverse effects on wildlife resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of wildlife resources or values as a result of the implementation of the Alternatives A, B, or C.

ENDANGERED, THREATENED, OR PROTECTED SPECIES AND CRITICAL HABITATS

AFFECTED ENVIRONMENT

Stones River National Battlefield is home to a number of rare and endangered plant species. Consultation with the U.S. Fish and Wildlife Service identified three species that could be affected by the alternatives described in this document. (See Appendix A of this

environmental assessment for consultation correspondence.) No critical habitat for these species exists within the park. The three species are highlighted in bold in Table 10.

Other federally or state- listed species that the Battlefield has identified as present or possibly present in the park are also listed below in Table 10 (NPS 2003f).

TABLE 10. STATE AND FEDERALLY- LISTED PLANT SPECIES THAT ARE LIKELY TO OCCUR IN STONES RIVER NATIONAL BATTLEFIELD

Species	Common Name	Federal Status	State Status	Documented by park
<i>Myotis grisescens</i>	gray bat	LE*	E*	
<i>Astragalus bibullatus</i>	Pyne's ground plum	LE	E	Yes (planted)
<i>Echinacea tennesseensis</i>	Tennessee coneflower	LE	E	Yes (planted)
<i>Dalea foliosa</i>	leafy prairie clover	LE	E	
<i>Arenaria fontinalis</i>	water stitchwort	LE	E	
<i>Lesquerella stonensis</i>	Stones River bladderpod		E	
<i>Schoenolirion croceum</i>	yellow sunnybell		T*	
<i>Carex davisii</i>	Davis' sedge		T	Yes
<i>Fimbristylus puberula</i>	hairy fimbristylus		T	
<i>Amsonia tabernaemontana</i> var. gattingeri	Eastern blue- star		S*	Yes
<i>Astragalus tennesseensis</i>	Tennessee milk- vetch		S	Yes
<i>Evolvulus nuttalianus</i>	evolvulus		S	Yes
<i>Leavenworthia exiqua</i> var. exiqua	Tennessee glade cress		S	Yes
<i>Phlox bifida</i> var. stellaria	cleft phlox		S	
<i>Talinum calcaricum</i>	Limestone fame- flower		S	Yes
<i>Lobelia appendiculata</i> var. gattingeri	Gattinger's lobelia	No longer listed by state and federal agencies		

*LE = Listed Federally endangered, E=State endangered, T=State threatened, S=State species of special concern

The gray bat, *Myotis grisescens*, is distributed primarily in Arkansas, Tennessee, Alabama, and Kentucky. Colonies of this species roost only in caves or cave- like habitats (USFWS 2005). Because the only known cave in the battlefield (see the "Soils" section) is not located near any of the potential construction sites, there would be no impact to gray bat under any of the alternatives, and further analysis is not included.

The Tennessee coneflower, Gattinger's lobelia, Tennessee glade cress, and limestone fameflower are all endemic to the cedar glades habitat. Tennessee milk- vetch is a near endemic. There are only a few known populations of Tennessee coneflower, all in cedar glade communities and within 14 miles of one another in Davidson, Rutherford, and Wilson counties in middle Tennessee. Pyne's ground plum was recently introduced into the cedar glades in the park. The ground plum is extremely rare with only seven extant colonies, which are located only in Rutherford County (NPS 2003f).

Vascular flora surveys from 1999 highlight populations of Tennessee coneflower, limestone fame- flower, and Tennessee milk- vetch that may be located close to the project area (Hogan and Webber 1999).

IMPACTS OF THE NO ACTION ALTERNATIVE – CONTINUE CURRENT MANAGEMENT

The ongoing management associated with maintaining the existing auto route would be unlikely to generate detectable effects on threatened and endangered species or their habitats in the park. Therefore, continuing current management activities would have no effect on threatened and endangered species.

Cumulative effects. Increasing development, additions of waysides and interpretive signs along trails and roads, and road construction resulting in a new interchange would have long- term, negligible to minor, adverse effects on threatened and endangered species and their habitats in Stones River National Battlefield and neighboring areas. Effects from the No Action Alternative would not contribute to these cumulative effects.

Conclusion. Continuing current management activities under the No Action Alternative would have no effect on threatened and endangered species. Effects from the No Action Alternative would not contribute to these cumulative effects.

Impairment. The No Action Alternative would not produce major adverse effects on threatened and endangered species resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park’s general management plan or other National Park Service planning documents. Consequently, there would be no impairment of threatened and endangered species resources or values as a result of the implementation of the No Action Alternative.

IMPACTS OF ALTERNATIVE A, ALTERNATIVE B, AND ALTERNATIVE C, THE PREFERRED ALTERNATIVE

Implementation of Alternatives A, B, and C would result in the construction of additional trails, paved and unpaved, the reduction of some road segments to ADA- compliant paved trails, the addition of a road segment in the southern section of the main park unit, the addition of parking lots near Hazen Brigade Monument and the McFadden Farm site, and improvements to the visitor center parking lot. None of the federal or state- listed species are known to occur within the proposed project area for these activities.

Except for the gray bat, which is not likely to be in the project area, all of the threatened or endangered species listed in Table 10 are plant species. Prior to project implementation, park resource specialists would survey the potential area of disturbance to identify the presence or absence of these plant species. If individuals or groups were located, they would be marked for avoidance, or relocated to sites outside the potential area of effect. If endangered or threatened plant species were discovered and relocated, the result would be a short- term, localized, minor, adverse effect (*may affect but not likely to adversely affect*). If no species were found in the area of potential effect prior to project implementation, there would be no effect.

Cumulative effects. Several other plans and projects to be undertaken in the park and adjacent neighboring areas would likely result in adverse effects on threatened and endangered species and their habitats. Increasing development, additions of waysides and interpretive signs along trails and roads, and road construction resulting in a new interchange would result in long- term, negligible to minor, adverse effects. In concert with the short-term, localized, minor, adverse effects of implementing Alternatives A, B, and C, long- term, minor, adverse effects would result.

Conclusion. The implementation of Alternatives A, B, or C would have a negligible to minor, localized, adverse effect (*may affect but not likely to adversely affect*) on threatened and endangered species and their habitats. These alternatives may affect but would not be likely to adversely affect threatened and endangered species and their habitats. Alternatives A, B, or C, in concert with various other projects, would produce long- term, minor, adverse effects.

Impairment. Alternatives A, B, or C would not produce major adverse effects on threatened and endangered species resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of threatened and endangered species resources or values as a result of the implementation of Alternatives A, B, or C.

FLOODPLAINS

AFFECTED ENVIRONMENT

Federal Emergency Management Agency floodplain maps for the area including Stones River National Battlefield were revised in December 2002. The majority of the McFadden Farm park unit is within the 100- year floodplain; over one- third of the main park unit is within the 100- year floodplain. A "100- year floodplain" or "100- year flood" describes an area or event subject to a 1 percent probability of a certain- size flood occurring in any given year.

Executive Order 11988 requires federal agencies to avoid, to the extent possible, adverse effects associated with the occupancy and modification of floodplains and to avoid development in floodplains whenever there is a practical alternative. If a proposed action is found to be in the applicable regulatory floodplain, the responsible agency shall prepare a floodplain assessment, known as a Statement of Findings. The Statement of Findings for the proposed action are included as Appendix B.

Director's Order 77- 2: Floodplain Management directs how the National Park Service addresses floodplains. Facilities that require minimal physical development and do not involve overnight occupation, such as picnic facilities, daytime parking facilities, and trails, are exempted from floodplain management procedures (NPS 2003a).

IMPACTS OF THE NO ACTION ALTERNATIVE — CONTINUE CURRENT MANAGEMENT

None of the actions included in the No Action Alternative would have beneficial or adverse effects on floodplains.

Cumulative effects. The No Action Alternative would make no contribution to cumulative effects on floodplains.

Conclusion. The No Action Alternative would have no effect on floodplains in Stones River National Battlefield. The No Action Alternative would make no contribution to cumulative effects on floodplains.

Impairment. The No Action Alternative would not produce major adverse effects on floodplain resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of floodplain resources or values as a result of the implementation of the No Action Alternative.

IMPACTS OF ALTERNATIVE A — MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Implementation of Alternative A would result in the construction of additional paved and unpaved trails, the reduction of some road segments to ADA- compliant paved trails, the addition of a road segment in the southern section of the main park unit, the addition of parking lots near Hazen Brigade Monument and the McFadden Farm site, and improvements to the visitor center parking lot.

Sections of new road that would be constructed under Alternative A are within the 100- year floodplain. These include the new southeast connector from McFadden Lane to the tour route and the loop at the southern end of McFadden Lane (2887 feet in total length). In the main park unit, new paved and unpaved trails near the Union earthworks would be in the 100- year floodplain (2066 feet and 787 feet, respectively), as would be unpaved trails in the southeast corner (722 feet). New paved and unpaved trails in the McFadden Farm unit would also be in the 100- year floodplain (1280 feet and 1712 feet, respectively).

A total of 443 feet of road in the 100- year floodplain would be reverted to paved trail.

Under Alternative A, 3.62 acres of impervious surface would be added and 1.99 removed, resulting in a 1.63 acre net increase in impervious surfaces in the park.

Floodplain infiltration and conveyance would be minimally affected by the actions under Alternative A because the majority of the floodplain in the proposed project area would not have any appreciable floodplain- altering development. The proposed paved parking lots and roads would not notably increase total impervious surface within the floodplain. Altogether, the activities for Alternative A would result in long- term, negligible, adverse effects to the floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces.

Cumulative effects. Encroaching development and road construction resulting in a new interchange would cause long- term, minor, adverse effects on floodplains regionally, due to the overall increase in impervious surfaces in the region. By increasing impervious surfaces in the watershed, runoff will be increased towards the West Fork of Stones River, which would also result in a minor adverse effect to the park grounds, as they border the river. Cumulatively, long- term, minor, adverse, effects would result from development and construction, and the anticipated effects of Alternative A.

Conclusion. Alternative A would have a long- term, negligible adverse effect on floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces (1.63 acres). Cumulatively, long- term, minor, adverse effects would result from development and construction and the anticipated effects of Alternative A.

Impairment. Alternative A would not produce major adverse effects on floodplain resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of floodplain resources or values as a result of the implementation of Alternative A.

IMPACTS OF ALTERNATIVE B – CONSTRUCT NEW ENTRANCES, ADD NATURAL RESOURCES TOUR ROUTE TO INTERPRET CEDAR GLADES

Sections of new road that would be constructed under Alternative B are within the 100- year floodplain. These include the new southeast entrance and the loop at the southern end of McFadden Lane (3576 feet). In the main park unit, a new paved trail near the Union earthworks would be in the 100- year floodplain (2559 feet), as would be unpaved trails in the southeast corner (1017 feet). The new road to the McFadden Farm unit would be partially in the 100- year floodplain (1017 feet). New paved trails in the McFadden Farm unit would also be in the 100- year floodplain (6037 feet).

A total of 407 feet of road in the 100- year floodplain would be reverted to an unpaved trail under this alternative.

Impervious surfaces totaling 7.28 acres would be added, while 1.11 acres would be reverted, resulting in a net increase of 6.17 acres of impervious surfaces.

Floodplain infiltration and conveyance would be minimally affected by the actions under Alternative B because the majority of the floodplain in the proposed project area would not have any notable floodplain- altering development. The proposed paved parking lots , roads, and paved trails would minimally increase total impervious surface within the floodplain, representing a long- term, negligible, adverse effect.

Cumulative effects. Cumulative effects would be the same as for Alternative A.

Conclusion. Alternative B would have a long- term, negligible adverse effect on floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces (6.17 acres). Cumulatively, long- term, minor, adverse effects would result from development and construction and the anticipated effects of Alternative B.

Impairment. Alternative B would not produce major adverse effects on floodplain resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of floodplain resources or values as a result of the implementation of Alternative B.

IMPACTS OF ALTERNATIVE C, THE PREFERRED ALTERNATIVE – CONSTRUCT NEW ENTRANCES, REDUCE ROAD SURFACES, CREATE EFFICIENT TOUR LOOP, INTERPRET CEDAR GLADES

Sections of new road that would be constructed under Alternative C are within the 100- year floodplain. These include the new connector road between McFadden Lane and the existing tour road and the new road to the McFadden Farm unit. The southern and northern paved trails in the McFadden Farm unit and the Hazen Brigade Monument parking lot are also within the 100- year floodplain.

Sections of new road that would be constructed under Alternative C are within the 100- year floodplain. These include the new southeast entrance and the loop at the southern end of McFadden Lane (1,430 feet in total length). In the main park unit, a new paved trail near the Union earthworks would be in the 100- year floodplain (1099 feet), as would be unpaved trails in the southeast corner (389 feet). New paved trails in the McFadden Farm unit would also be in the 100- year floodplain (1,960 feet).

A total of 443 feet of road in the 100- year floodplain would be reverted to paved trail.

Impervious surfaces totaling 6.61 acres would be added under Alternative C, while 1.71 acres would be removed, resulting in a net increase of 4.9 acres of impervious surfaces.

Floodplain infiltration and conveyance would be minimally affected by the actions under Alternative C because the majority of the floodplain in the proposed project area would not have any noticeable floodplain- altering development. The proposed paved parking lots and additional roads and paved trails would minimally increase total impervious surface within the floodplain, representing a long- term, negligible, adverse effect.

Cumulative effects. Cumulative effects would be the same as for Alternative A.

Conclusion. Alternative C would have a long- term, negligible, adverse effect on floodplains in Stones River National Battlefield, because of the slight increase in impervious surfaces (4.9 acres). Cumulatively, long- term, minor, adverse effects would result from development and construction and the anticipated effects of Alternative C.

Impairment: Alternative C would not produce major adverse effects on floodplain resources or values whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation of the park, (2) key to the natural or cultural integrity of the park or opportunities for enjoyment of the park, or (3) identified as a goal in the park's general management plan or other National Park Service planning documents. Consequently, there would be no impairment of floodplain resources or values as a result of the implementation of Alternative C.

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CONSULTATION AND COORDINATION

The Tennessee State Historic Preservation Office (SHPO) has been involved in this project from its inception. Members of the park staff and the planning team met with Dr. Joseph Garrison from the SHPO's office in November 2003 to discuss the project and to elicit suggestions and ideas from Mr. Garrison. A Section 106 consultation letter describing the project and inviting continuing agency participation also was sent to the State Historic Preservation Officer on December 19, 2003.

As required by 36 *CFR* 800.8 (2)(c), the Advisory Council on Historic Preservation (ACHP) was notified on December 19, 2003 that the National Park Service plans to use the environmental assessment process to accomplish compliance for both Section 106, in accordance with the National Historic Preservation Act as amended, and the National Environmental Policy Act (NEPA), as described in 36 *CFR* 800.8(a- c)) to analyze potential project effects. The consultation and coordination efforts required by Section 106 will be accomplished as part of the NEPA process. The National Park Service plans to use this environmental assessment process and documentation to comply with Section 106 requirements.

The U.S. Fish and Wildlife Service was contacted on February 13, 2004, regarding endangered and threatened species compliance for this project; the Service responded on March 16, 2004, stating that the federally endangered species Tennessee purple coneflower (*Echinacea tennesseensis*), Leafy prairie clover (*Dalea foliosa*), and Pyne's ground plum (*Astragalus bibullatus*) may occur in the impact area of the proposed action.

Copies of the NPS letters sent to the Tennessee SHPO, the ACHP, and the U.S. Fish and Wildlife Service and their responses, are provided in Appendix A. For this project, scoping helped define the range of alternatives and identify the impact topics that should be considered for the project. The environmental assessment will be sent to the above agencies for their formal review and comment.

A segment of the original route of the Trail of Tears National Historic Trail runs through the park. During scoping for this project, the park contacted the Seminole Nation of Oklahoma, the Muscogee (Creek) Nation, the Cherokee Nation of Oklahoma, the Choctaw Nation of Oklahoma, the United Keetoowah Band of Cherokee, Eastern Band of Cherokee Indians, Eastern Shawnee Tribe of Oklahoma, Chickasaw Nation, and Quapaw Tribe of Oklahoma, as to whether these tribes would like to undertake government- to- government consultation concerning this development concept plan/environmental assessment, and whether they had thoughts or recommendations regarding the project. Copies of these letters, and their responses, can be found in Appendix A. Copies of this environmental assessment will be sent to the above tribes who have expressed an interest in the project.

In March 2004, the park published a newsletter (also available on the park's website) that described park resources, purpose and need of the proposed tour route improvement project, the planning process, project goals, and schedule of the environmental assessment. In the spring and summer of 2004, the park also held public meetings. The park held a public scoping workshop in Murfreesboro on March 16, 2004.

A second newsletter, describing draft alternative concepts for improving the tour route, was sent to interested parties and stakeholders in October 2004. The park hosted an open house public meeting on October 14, 2004.

PLANNING TEAM PARTICIPANTS

Stuart Johnson	Superintendent	Stones River National Battlefield
Gil Backlund	Chief of Operations	Stones River National Battlefield
Theresa Hogan	Ecologist	Stones River National Battlefield
Donnie Knott	Maintenance Worker Supervision	Stones River National Battlefield
Jim Lewis	Park Protection Ranger	Stones River National Battlefield
Tim Bemisderfer	Landscape Architect	Southeast Regional Office

PREPARERS

Noel Fehr	Project Manager	Parsons
Jon Koral	Landscape Architect	Parsons
Jacklyn Bryant	Environmental Scientist	Parsons
Diane Rhodes	Cultural Resource Specialist	Parsons
Michelle Johnson	Environmental Scientist	Parsons

LIST OF RECIPIENTS

Federal Agencies

Advisory Council on Historic Preservation, Office of Federal Agency Programs – Director,
Don Klima

U.S. Congress

Tennessee 6th District, the Honorable Bart Gordon

U.S. Department of the Interior

U.S. Fish and Wildlife Service, Dr. Lee A. Barclay, Field Supervisor, Cookeville, Tennessee

National Park Service

Southeast Regional Office

Washington Office

National Trails System Office, Santa Fe, New Mexico

U. S. Department of Veterans Affairs

Stones River National Cemetery, Stuart K. Johnson, Director

State of Tennessee

Tennessee Wars Commission, Fred Prouty, Director

Tennessee State Historic Preservation Office, Mr. Herbert L. Harper, Executive Director

Tennessee Natural Heritage Program

County and Local Government

Rutherford County

Honorable Nancy R. Allen, County Executive

City of Murfreesboro

Honorable Tommy Bragg, Mayor

Organizations

American Legion, Kenneth Cobble, Post Commander

Veterans of Foreign Wars, Louis Ummel, Post Commander

Other

National Trust for Historic Preservation, John Hildreth, Director of Southern Field Office

Civil War Preservation Trust

American Indian Tribes

Honorable Bill Anoatubby, Governor Chickasaw Nation

Honorable John Berrey, Chairman, Quapaw Tribe of Oklahoma

Honorable R. Perry Beaver, Principal Chief, Muscogee (Creek) Nation

Honorable Kenneth Chambers, Principal Chief, Seminole Nation of Oklahoma

Honorable Charles D. Enyart, Chief, Eastern Shawnee Tribe of Oklahoma

Honorable Michell Hicks, Principal Chief, Eastern Band of Cherokee Indians

Honorable Dallas Proctor, Chief, United Keetoowah Band of Cherokee

Honorable Gregory E. Pyle, Principal Chief, Choctaw Nation of Oklahoma

Honorable Chadwick Smith, Principal Chief, Cherokee Nation of Oklahoma

Mr. Emman Spain, Historic Preservation Specialist

Mr. Tim Thompson, Cultural Resource Specialist, Muscogee (Creek) Nation

Mr. James Bird, Tribal Historic Preservation Officer, Eastern Band of Cherokee Indians

Dr. Richard Allen, Research and Policy Analyst, Cherokee Nation of Oklahoma

Ms. Rena Duncan, Cultural Resources Director, Chickasaw Nation

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APPENDIX A: CONSULTATION AND COORDINATION DOCUMENTATION

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IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Stones River National Battlefield
3501 Old Nashville Hwy.
Murfreesboro, Tennessee 37129

D18

December 19, 2003

Honorable Bill Anoatubby, Governor
Chickasaw Nation
P.O. Box 1548
Ada, OK 74821

Subject: Section 106 Government-to-Government Consultation, Stones River National Battlefield Development Concept Plan/Environmental Assessment for Improving the Existing Self-Guided Auto Tour Route and Pedestrian Routes

Dear Governor Anoatubby:

This is to inquire whether your tribe desires to undertake government-to-government consultation in conjunction with a Development Concept Plan (DCP)/Environmental Assessment (EA) for the project referenced above.

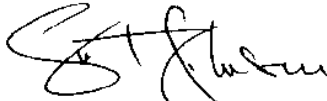
A DCP makes a detailed analysis of park resources to prepare a range of management and design alternatives based on enabling legislation, information and suggestions gathered during consultations, and consideration of potential environmental impacts. The EA will document and evaluate potentially significant environmental impacts associated with each alternative. The final plan will contain enough information to enable the future preparation of detailed construction documents and specifications.

While the focus of this DCP is to enable visitors to better understand the Battle of Stones River and the Civil War, there may also be opportunities to improve visitor understanding of the Trail of Tears since a segment of the original route passes through the park. We will be working with the staff of the Trail of Tears National Historic Trail, another National Park unit, on options for marking the route and installing interpretive markers.

Please contact us at your earliest convenience if you wish to undertake government-to-government consultation concerning this DCP/EA. Even if you do not wish to engage in formal consultation, we would welcome any thoughts and recommendations you might

have about the project. If you have questions or need more information, please contact Stuart Johnson, Superintendent, Stones River National Battlefield at 615.893.9501.

Sincerely,

A handwritten signature in black ink, appearing to read 'Stuart Johnson', written over a horizontal line.

Stuart Johnson
Superintendent

Enclosure

cc: Joseph Garrison—Tennessee Historical Commission
T. Bemisderfer, B Blythe—NPS-SERO
✓ J. Bryant, D. Rhodes—Parsons-Denver

Section 106 Government- to- Government Consultation letters, identical to the one above, were also sent to the recipients listed below on December 19, 2003.

Honorable John Berrey, Chairman
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw OK 74363

Honorable Gregory E. Pyle, Principal Chief
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant OK 74702

Honorable Charles D. Enyart, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca MO 64865

Honorable Chadwick Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah OK 74465

Honorable R. Perry Beaver, Principal Chief
Muscogee (Creek) Nation
P.O. Box 580
Okumlguee OK 74447

Honorable Dallas Proctor, Chief
United Keetoowah Bank of Cherokee
P.O. Box 746
Park Hill OK 74465

Honorable Kenneth Chambers, Principal Chief
Seminole Nation of Oklahoma
P.O. Box 1498
Wewoka OK 74884

Honorable Michell Hicks, Principal Chief
Eastern Band of Cherokee Indians
Qualla Boundary
P.O. Box 455
Cherokee NC 28719



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Stones River National Battlefield
3501 Old Nashville Hwy.
Murfreesboro, Tennessee 37129

D18

December 19, 2003

Mr. Don L. Klima, Director
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue NW, Suite 809
Washington, DC 20004

Subject: Section 106 Consultation, Stones River National Battlefield Development
Concept Plan/Environmental Assessment for Improving the Existing Self-
Guided Auto Tour Route and Pedestrian Routes

Dear Mr. Klima:

The purpose of this letter is to provide you advance notice that Stone's River National Battlefield is beginning a Development Concept Plan (DCP)/Environmental Assessment (EA) for improvements in the park's existing self-guided auto tour route, with integration of additional vehicle and pedestrian routes. This document will be guided by the park's enabling legislation and the 1999 General Management Plan (GMP)/Development Concept Plan (DCP).

Although the GMP/DCP contained planning concepts for the auto tour route, the past four years have seen substantive changes in both the park and the surrounding local community. These changes include the acquisition of new land areas within the park boundary, and construction of a new/refurbished visitor center. External factors such as new and proposed transportation corridors and rapid growth and development in the Murfreesboro area also suggest the need for additional planning and revision of the potential interpretive opportunities outlined in the GMP/DCP. Thus a new DCP is needed to allow visitors to experience significant areas of the greater battlefield in chronological sequence, and to provide them a better understanding of the historic significance of the Civil War battle that occurred here. The final product of this planning effort should contain enough information to enable the future preparation of detailed construction documents and specifications.

Although we are just beginning to plan and gather information for the project, we believe that its eventual implementation may have the potential to affect properties included in or

that may be eligible for inclusion in the National Register. Therefore, we are initiating consultation with your office in accordance with 36 CFR 800 and with the 1995 Servicewide Programmatic Agreement among your office, the National Council of State Historic Preservation Officers, and the National Park Service. (A similar letter has been sent to the Tennessee State Historic Preservation Officer.)

The National Park Service is aware that American Indians and other traditional groups may have concerns related to cultural sites, so Government-to-Government consultation is being initiated with tribes that may have an interest in the park. This consultation is intended to ensure that mutually held goals for management of important natural and cultural resources are met.

This letter also serves to notify your office that we plan to use the EA for the project to accomplish compliance for both Section 106 and the National Environmental Policy Act (as described in 36 CFR 800.8 (a-c)). The EA will provide detailed descriptions of alternative programs intended to improve visitor opportunities and facilities and, as required by law, a no-action alternative. The EA also will analyze the potential impacts associated with possible implementation of each alternative and will describe the rationale for choosing the preferred alternative. These details will be reiterated in a Section 106 Summary in the EA. Also contained in the EA will be measures that would help avoid adverse effects on cultural resources.

As soon as the EA is completed, we will send it to you for your information. We look forward to your input on the planning process, and believe that it will continue to result in better planning for cultural resources management as well as helping to ensure that cultural resources are adequately considered during preparation of the plan and the accompanying EA. Consultation and coordination with other governmental agencies and with interested publics is underway.

Should you have any questions or desire additional information, please contact Stuart K. Johnson, Superintendent, Stones River National Battlefield at 615.893.9501.

Sincerely,

A handwritten signature in black ink, appearing to read "Stuart Johnson", written in a cursive style.

Stuart Johnson
Superintendent

cc: T. Bemisderfer, NPS-SERO
B. Blythe, NPS-SERO
Herbert Harper, TN Historical Commission
~~J. Bryant~~, D. Rhodes, Parsons-Denver



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Stones River National Battlefield
3501 Old Nashville Hwy.
Murfreesboro, Tennessee 37129

D18

December 19, 2003

Honorable Nancy R. Allen
County Executive
Rutherford County, Tennessee
County Courthouse, Suite 104
Murfreesboro, TN 37130

Subject: Local Government Consultation, Stones River National Battlefield
Development Concept Plan/Environmental Assessment for Improving the
Existing Self-Guided Auto Tour Route and Pedestrian Routes

Dear Ms. Allen:

The purpose of this letter is to provide you advance notice that Stone's River National Battlefield is beginning a Development Concept Plan (DCP)/Environmental Assessment (EA) for improvements to the park's existing self-guided auto tour route, with integration of additional vehicle and pedestrian routes. This document will be guided by the park's enabling legislation and the 1999 General Management Plan (GMP)/Development Concept Plan (DCP). This letter also serves to notify you that we plan to use the EA for the project to accomplish compliance for both Section 106 of the National Historic Preservation Act and the National Environmental Policy Act (as described in 36 CFR 800.8 (a-c)).

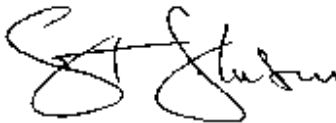
Although the GMP/DCP contained planning concepts for the auto tour route, the past four years have seen substantive changes in both the park and the surrounding local community. These changes include the acquisition of new land areas within the park boundary, and construction of a new/refurbished visitor center. External factors such as new and proposed transportation corridors and rapid growth and development in Rutherford County also suggest the need for additional planning. Thus a new DCP is needed to allow visitors to experience significant areas of the greater battlefield in chronological sequence, and to provide them a better understanding of the historic significance of the Civil War battle that occurred here. The final product of this planning effort should contain enough information to enable the future preparation of detailed construction documents and specifications.

The 2001 Advisory Council on Historic Preservation regulations stipulate that federal agencies invite local government representatives to participate in the historic review process as a consulting party. The National Park Service would like to invite you, as the local government official, to participate as a consulting party for the proposed project. This consultation is intended to ensure that mutually held goals for management of important resources are met.

If you would like to participate as a consulting party, please respond in writing within 30 days of the receipt of this letter. Even if you do not wish to engage in formal consultation, we would welcome any thoughts and recommendations you might have about this project.

Should you have any questions or desire additional information, please contact Stuart K. Johnson, Superintendent, Stones River National Battlefield at 615.893.9501.

Sincerely,

A handwritten signature in black ink, appearing to read "Stuart Johnson", written in a cursive style.

Stuart Johnson
Superintendent

cc: John Davis—Rutherford County Planning Director
Joseph Garrison—Tennessee Historical Commission
T. Bemisderfer, B. Blythe—NPS-SERO
W. Bryant, D. Rhodes—Parsons-Denver



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Stones River National Battlefield
3501 Old Nashville Hwy.
Murfreesboro, Tennessee 37129

D18

December 19, 2003

Honorable Tommy Bragg, Mayor
City of Murfreesboro
P.O. Box 1139
Murfreesboro, TN 37133

Subject: Local Government Consultation, Stones River National Battlefield
Development Concept Plan/Environmental Assessment for Improving the
Existing Self-Guided Auto Tour Route and Pedestrian Routes

Dear Mayor Bragg:

The purpose of this letter is to provide you advance notice that Stone's River National Battlefield is beginning a Development Concept Plan (DCP)/Environmental Assessment (EA) for improvements to the park's existing self-guided auto tour route, with integration of additional vehicle and pedestrian routes. This document will be guided by the park's enabling legislation and the 1999 General Management Plan (GMP)/Development Concept Plan (DCP). This letter also serves to notify you that we plan to use the EA for the project to accomplish compliance for both Section 106 of the National Historic Preservation Act and the National Environmental Policy Act (as described in 36 CFR 800.8 (a-c)).

Although the GMP/DCP contained planning concepts for the auto tour route, the past four years have seen substantive changes in both the park and the surrounding local community. These changes include the acquisition of new land areas within the park boundary, and construction of a new/refurbished visitor center. External factors such as new and proposed transportation corridors and rapid growth and development in Rutherford County also suggest the need for additional planning. Thus a new DCP is needed to allow visitors to experience significant areas of the greater battlefield in chronological sequence, and to provide them a better understanding of the historic significance of the Civil War battle that occurred here. The final product of this planning effort should contain enough information to enable the future preparation of detailed construction documents and specifications.

The 2001 Advisory Council on Historic Preservation regulations stipulate that federal agencies invite local government representatives to participate in the historic review process as a consulting party. The National Park Service would like to invite you, as the local government official, to participate as a consulting party for the proposed project. This consultation is intended to ensure that mutually held goals for management of important resources are met.

If you would like to participate as a consulting party, please respond in writing within 30 days of the receipt of this letter. Even if you do not wish to engage in formal consultation, we would welcome any thoughts and recommendations you might have about this project.

Should you have any questions or desire additional information, please contact Stuart K. Johnson, Superintendent, Stones River National Battlefield at 615.893.9501.

Sincerely,

A handwritten signature in black ink, appearing to read "Stuart Johnson", written in a cursive style.

Stuart Johnson
Superintendent

cc: Roger Haley, City Manager, City of Murfreesboro
Joseph Aydelott, Planning Director, City of Murfreesboro
Joseph Garrison—Tennessee Historical Commission
T. Bemisderfer, B. Blythe—NPS-SERO
J. Bryant, D. Rhodes—Parsons-Denver



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Stones River National Battlefield
3501 Old Nashville Hwy.
Murfreesboro, Tennessee 37129

D18

December 19, 2003

Mr. Herbert L. Harper
Executive Director and Deputy
State Historic Preservation Officer
Tennessee Historical Commission
Department of Environment and Conservation
2941 Lebanon Road
Nashville, TN 37243-0442

Attn: Mr. Joseph Garrison

Subject: Section 106 Consultation, Stones River National Battlefield Development
Concept Plan/Environmental Assessment for Improvements to Existing
Self-Guided Auto Route and Pedestrian Routes

Dear Mr. Harper:

On November 13, 2003, we met with Mr. Joseph Garrison of your office to discuss and seek input on upcoming planning for Stone River National Battlefield. The purpose of this letter is to provide your office formal notice that the park is beginning a Development Concept Plan /Environmental Assessment (DCP/EA) for improvements to the park's existing self-guided auto tour route, with integration of additional vehicle and pedestrian routes. This document will be guided by the park's enabling legislation and the 1999 General Management Plan/Development Concept Plan (GMP/DCP).

Although the GMP/DCP contained planning concepts for the auto tour route, the past four years have seen substantive changes in both the park and the surrounding local community. These changes include the acquisition of new land areas within the park boundary, and construction of a new/refurbished visitor center. External factors such as new and proposed transportation corridors and rapid growth and development in the

Murfreesboro area also suggest the need for additional planning and revision of the potential interpretive opportunities outlined in the GMP/DCP. Thus a new DCP is needed to allow visitors to experience significant areas of the greater battlefield in chronological sequence, and to provide them a better understanding of the historic significance of the Civil War battle that occurred here. The final product of this planning effort should contain enough information to enable the future preparation of detailed construction documents and specifications.

Although we are just beginning to plan and gather information for the project, we believe that its eventual implementation may have the potential to affect properties included in or that may be eligible for inclusion in the National Register. Therefore, we are initiating consultation with your office in accordance with 36 CFR 800 and with the 1995 Servicewide Programmatic Agreement among your office, the Advisory Council on Historic Preservation, and the National Park Service. (A similar letter has been sent to the Advisory Council on Historic Preservation). In the near future your office will be receiving a separate invitation to participate in partner workshops and public open houses relating to the development of the DCP/EA.

The National Park Service is aware that American Indians and other traditional groups may have concerns related to cultural sites, so Government-to-Government consultation is being initiated with tribes that may have an interest in the park. This consultation is intended to ensure that mutually held goals for management of important natural and cultural resources are met.

This letter also serves to notify your office that we plan to use the EA for the project to accomplish compliance for both Section 106 and the National Environmental Policy Act (as described in 36 CFR 800.8 (a-c)). The EA will provide detailed descriptions of alternative programs intended to improve visitor opportunities and facilities and, as required by law, a no-action alternative. The EA also will analyze the potential impacts associated with possible implementation of each alternative and will describe the rationale for choosing the preferred alternative. These details will be reiterated in a Section 106 Summary in the EA. Also contained in the EA will be measures that would help avoid adverse effects on cultural resources.

As soon as the EA is completed, we will send it to you for your review, comment, and concurrence that the Section 106 process has been completed. We look forward to your participation and input on the planning process. We believe that your ongoing participation will continue to result in better planning for cultural resources management, and will help ensure that cultural resources are adequately considered during preparation of the plan and the accompanying EA. Consultation and coordination with other governmental agencies and with interested publics also is underway.

Should you have any questions or desire additional information, please contact Stuart K. Johnson, Superintendent, Stones River National Battlefield at 615.893.9501. As required

by 36 CFR 800, and as indicated above, the Advisory Council on Historic Preservation has been notified regarding inclusion of Section 106 compliance within the EA process.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Stuart K. Johnson". The signature is fluid and cursive, with the first name "Stuart" being more prominent.

Stuart K. Johnson
Superintendent

cc: T. Bemisderfer, NPS-SERO
B. Blythe, NPS-SERO
J. Bryant, D. Rhodes, Parsons-Denver
Mr. Don L. Klima, Advisory Council on Historic Preservation

D18

February 13, 2004

Dr. Lee A. Barclay
Field Supervisor
U.S. Fish and Wildlife Service
Cookeville Field Office
446 Neal Street
Cookeville, Tennessee 38501

Re: Stones River National Battlefield, Murfreesboro, Tennessee, Development
Concept Plan / Environmental Assessment for Improvements to the Auto Tour
Route

Dear Mr. Barclay:

Stones River National Battlefield in Murfreesboro, Tennessee, is preparing a Development Concept Plan (DCP) and an Environmental Assessment (EA) for proposed improvement to the park's existing self-guided tour route, and implementation of additional vehicle and pedestrian routes in a manner that allows visitors to experience significant areas of the greater battlefield in a chronological sequence. Design alternatives may consider expansions within the existing authorized boundary of the park as well as on segments of public roads connecting the park's six non-contiguous units.

This document will be guided by the park's enabling legislation and the 1999 General Management Plan (GMP) / DCP. Although the GMP/DCP contained planning concepts for the auto tour route, the past four years have seen substantive changes in both the park and the surrounding local community. These changes include the addition of new land areas within the park boundary, and construction of a new/refurbished visitor center. External factors such as new and proposed transportation corridors and rapid growth and development in the Murfreesboro area also make additional planning for and revision of the potential interpretive opportunities outlined in the GMP/DCP. Thus a new DCP is needed. The final product of this planning effort should contain enough information to enable the future preparation of detailed construction documents and specifications.

A number of management goals have been identified for the upcoming plan. Some of these relate to safety, cultural resources, visitor use, and the protection of private property. However, a key goal for the National Park Service is to meet the mandate in the Organic Act, which established the National Park Service in 1916. The Organic Act states that the National Park Service must "conserve the scenery and the natural and historic objects and the wild life [in national parks] 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." Consistent with this mandate, an important purpose of

the plan will be to identify species of concern within the area of potential effect, and to develop measures to ensure their protection. Alternatives to achieve the purpose and objectives of the proposed action will be developed during the scoping process. Additionally, adverse effects of the alternatives on resources in the park would be minimized through the development and implementation of mitigation measures.

In order to meet our Endangered Species Act (ESA) Section 7 consultation requirements for the EA, we respectfully request that you provide us with the current listing and locations of endangered, threatened, proposed, and candidate species and their associated critical habitats specific to Stones River National Battlefield, Tennessee, and the region potentially affected by the proposed action.

This letter is the first step of consultation for this project to ensure that the planning effort adequately addresses ESA Section 7 requirements related to the Stones River National Battlefield DCP/EA. When the draft EA is completed, a copy will be sent to you with an official transmittal letter for your review and comment.

We look forward to working cooperatively with you on the planning and implementation of this project.

Sincerely,

A handwritten signature in black ink that reads "Stuart K. Johnson". The signature is written in a cursive, flowing style.

Stuart Johnson
Superintendent

cc: T. Bemisderfer, NPS-SERO
Noel Fehr, Parsons, St. Louis
J. Bryant, D. Rhodes, Parsons, Denver
Terri Hogan, STRI



United States Department of the Interior

FISH AND WILDLIFE SERVICE

446 Neal Street
Cookeville, TN 38501

March 16, 2004

Mr. Stuart Johnson
Superintendent
Stones River National Battlefield
3501 Old Nashville Highway
Murfreesboro, Tennessee 37129



3.18.04
3/18
Supt. ☒
Ops Chief ☒
LE Ranger ☐
Int Ranger ☐
EN ☐
Adm Off ☐
Admin Asst ☐
Ecologist ☒ 3/19/04
Maint Leader ☐
Maint Wkr ☐
Laborer ☐
File ☐
Library ☐
Remarks ☐

Re: FWS #04-0757

Dear Mr. Johnson:

Thank you for your letter and enclosure of February 13, 2004, concerning the proposal to develop a concept plan/environmental assessment for improvements to the auto tour route at the Stones River National Battlefield in Rutherford County, Tennessee. Fish and Wildlife Service biologists have reviewed the information submitted and we offer the following comments.

Our endangered species database indicates that the following federally listed species may occur in the impact area of the proposed action:

Tennessee purple coneflower – *Echinacea tennesseensis* (E)
Leafy prairie clover – *Dalea foliosa* (E)
Pyne's ground plum – *Astragalus bibullatus* (E)

The environmental assessment should contain an evaluation of the potential effects to these species from construction of the proposed improvements and any measures that will be implemented to avoid those effects. The environmental assessment should be submitted to this office along with a finding of whether or not the proposed action is likely to adversely affect them. Biologists from my staff will review the assessment and findings and provide a concurrence or a recommendation for further consultation. A finding of "likely to adversely affect" may require initiation of formal consultation.

Thank you for the opportunity to comment. If you have any questions, please contact Jim Widlak of my staff at 931/528-6481, ext. 202.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

APPENDIX B: STATEMENT OF FINDINGS FOR FLOODPLAINS

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**STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988
(FLOODPLAIN MANAGEMENT)**

Stones River National Battlefield

Improvements to the Self- guiding Tour Routes

Recommended

Superintendent, Stones River National Battlefield

Date

Certified for Technical Adequacy and Servicewide Consistency

Chief of Water Resources Department

Date

Approved

Regional Director, Southeast Region, National Park Service

Date

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STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988 (FLOODPLAIN MANAGEMENT)

Stones River National Battlefield Improvements to the Self- guiding Tour Routes

INTRODUCTION

In accordance with Executive Order 11988 (Floodplain Management), Director's Order #77-2, Floodplain Management, and Procedural Manual #77-2, the National Park Service (NPS) has reviewed alternatives for the development of the Improvements to the Self- Guiding Tour Routes Plan at Stones River National Battlefield with respect to the impact of the project on floodplain values. This Statement of Findings describes the reasons why encroachment into the floodplain is required to implement the project, the site- specific flood risks involved, and the measures that will be taken to mitigate floodplain impacts.

The National Park Service is proposing measures to improve the effectiveness of the self-guiding interpretive program at Stones River National Battlefield in middle Tennessee, including new auto tour routes, road segments, trails, and wayside exhibits. An auto tour route and pedestrian trails currently lead visitors to sites for interpretation. The existing interpretive routes are poorly designed and do not fully communicate the story in a logical sequence. The tour route and trails do not offer consistent visitor experiences. In addition, the waysides along the tour route were developed in the early 1960s. The current route does not incorporate many of the areas that have recently been acquired for their historical importance. The purposes of this plan are:

- Improve interpretation and the ability of visitors to experience a “sense of place” within the battlefield;
- Allow visitors to experience important historic elements of the greater battlefield area in a chronological sequence and offer visitors educational consistency between the auto and pedestrian tours;
- Enhance visitor accessibility;
- Enhance visitor and employee safety, both within the park and in outlying park units;
- Help to restore the cultural landscape; and

- Provide for additional interpretation, recognition, and protection of natural resources such as the cedar glades.

Stones River National Battlefield is the site of the Battle of Stones River, a key Civil War battle that took place over a three day period from December 31, 1862, to January 2, 1863. The present-day battlefield consists of several non-contiguous sites where historic elements of the battle are located. Two of the park's six sites are included in the planning area for the proposed action – the main park unit and McFadden's Farm (see Figure 1). These two units total 7,164 acres. The other four locations are excluded from consideration in this analysis.

Main Park Unit: The main park unit includes the park entrance, visitor center, picnic area, national cemetery, Hazen Brigade Monument, park housing, offices, maintenance facilities, and the first five stops on the present auto tour route. This park unit is bisected northwest to southeast by the Old Nashville Highway which separates the visitor center area from the cemetery, the Hazen Brigade Monument, and park support facilities. The CSX Transportation Railroad, which parallels the Old Nashville Highway, runs along the northeastern boundary of the main park. Beyond the railroad to the east, businesses and light industry line the New Nashville Highway (U.S. 41/70S), which also runs parallel to the railroad and the Old Nashville Highway.

Being primarily in the 500-year floodplain and with large portions in the 100-year floodplain, the main park unit has hydrologic characteristics that are being negatively impacted by the rapidly increasing development around the battlefield and the existing tour road. A surface drainage swale was constructed in the 1970s to drain water away from the Old Nashville Highway toward the western portions of the park.

McFadden's Farm Unit: McFadden's Farm and the Artillery Monument are situated northeast of the main unit of the park. A parking area managed by the Murfreesboro Park and Recreation Department near the river serves as a trailhead to the Murfreesboro Greenway trail. This trail links the ford to the artillery monument tour stop on the bluffs above where there is another parking lot, a historic farm site, and the McFadden gravesites.



Figure 1. Stones River National Battlefield

ALTERNATIVES CONSIDERED

THE NO ACTION ALTERNATIVE

The No Action Alternative is defined as continuation of current management and use of facilities of the auto tour route and trails. Currently, visitors enter the main part of the park at the historic entrance across from the cemetery, and most stop at the visitor center before beginning the auto tour route. The existing tour route moves clockwise through the main battlefield area with six interpretive stops. The interpretive media and placement of the waysides would not be updated.

At the “Slaughter Pen” (stop number 2), views to the south are affected by the presence of modern homes and traffic along Manson Pike. This tour stop is not correctly interpreted, as there are cannons displayed in an inaccessible area, which would not have occurred during the battle.

Tour stop number 4, “Defense of the Nashville Pike” includes two cannons and two limbers but the interpretation lacks information on the typical equipment contained in a battery. This information is needed to help interpret the magnitude of the battlefield scene here.

To reach “Round Forest” (tour stop number 5) from the visitor center, visitors must exit the park’s main entrance onto a busy road (the Old Nashville Highway) and continue southeast before making a left turn into a small parking area. This extremely tight parking area forces cars to back into traffic on Old Nashville Highway to exit, and makes it impractical for tour buses to visit this site.

To continue to McFadden’s Farm from stop number 5, visitors travel southeast along the Old Nashville Highway, pass beneath Thompson Lane and make a sharp right turn to merge onto Thompson Lane. Continuing over the Old Nashville Highway and the railroad, the route turns left onto U.S. 41/70S (the New Nashville Highway) before turning northeast on Van Cleve Lane to reach stop number 6, the McFadden’s Farm area (monument, cannons, gravesites and McFadden’s Ford overlook). Visitors must retrace this circuitous route to return tour guides or equipment to the park’s visitor center. Traffic is heavy on U.S. 41, making egress from Van Cleve Lane (the historic trace of McFadden Lane) difficult. A few visitors take Thompson Lane to the McFadden’s Farm vicinity, park near the river on city property, and walk up the historic road trace to reach the overlook.

The existing parking lot at McFadden’s Farm visually divides the ridge west of the river, deemphasizing the importance this topography played in the battle. The location of the parking area also makes it more difficult to visualize the artillery that once was clustered here, focused across the river at the Confederate Army.

Other non- contiguous parts of the park are not part of the current auto tour route.

ELEMENTS COMMON TO ALL ACTION ALTERNATIVES

In all three action alternatives, initial orientation would be provided at the visitor center, which has a drop-off area and parking for visitors and buses. Currently, six interpretive auto tour stops have been suggested by park staff. These interpretive exhibits and tour stops would be identical among the various action alternatives, although their order would vary. This process would update the current waysides, installed in the 1960s. These waysides would improve the adequacy of the story told about the Battle of Stones River and provide visitors with more information than given at present.

Access to the Slaughter Pen area would be from McFadden Lane. At the Hazen Brigade Monument, one of the auto tour stops, a new parking lot, including two parallel bus parking stalls and eight automobile parking stalls would be added, which would allow buses to park at the monument. The entrance to the monument would be from a new road to the south, not the Old Nashville Highway. A loop trail would connect the parking lot with the existing trail and the monument.

New parking would be developed in the McFadden Farm unit, southwest of the existing parking lot, and additional trails and directional signing would be developed to improve the interpretive experience. Under Alternative A, the parking lot would include twelve automobile parking stalls and two parallel bus/RV parking stalls. The same amount of parking would be available under Alternatives B and C, although the actual location of the parking lot would be different, as no new road would be added under Alternative A.

In all action alternatives, where road sections are reverted to paved or unpaved trails in the cedar glades section, small culverts would be added to better distribute runoff.

A trailhead would be added near the visitor center to orient visitors to the trails of the battlefield. In all action alternatives, trails would be developed that are between 5 feet (unpaved) and 8 feet (ADA-accessible, paved). Sections of the trails to be paved or unpaved would depend, in part, upon the topography and would vary among the alternatives. Where possible, the unpaved trails would be designed to meet proposed ADA-requirements for trails (slip resistant surface, greater than 36" in width, no more than 14 percent running slope for 5 feet at a time, American Trails 2005). Where trail locations would be constrained by nearby sensitive resources or where a more primitive hiking experience than pavement or gravel would be desired, these requirements may not be met. In all action alternatives, five-foot-wide sidewalks would link parking spaces to the visitor center. New parking lots would also be constructed at some of the designated auto tour stops, to accommodate both cars and buses.

In all action alternatives, five- foot- wide sidewalks would link parking spaces to the visitor center. New parking lots would also be constructed at some of the designated auto tour stops, to accommodate both cars and buses.

ALTERNATIVE A - MAINTAIN CURRENT ENTRANCES, REDUCE ROAD SURFACES, INTERPRET CEDAR GLADES

Under Alternative A, visitors would continue to use the traditional park entry, stopping first at the visitor center for orientation and an introduction to the battlefield. They would then be directed to the beginning of the tour at the Old Nashville Highway, which they would follow southeast to McFadden Lane. Here, the tour route would reenter the park and move south along the road to the Slaughter Pen area, then circle back to the visitor center along the east leg of the current loop road. A loop would be added near the Slaughter Pen to allow for an easy return north for vehicles.

The west loop of the existing tour road would be narrowed to a trail. The tour would continue to follow the existing route to reach the Hazen Brigade Monument and then McFadden Farm.

This alternative would remove vehicle traffic from the western part of the park and would improve natural resource conditions by reducing impervious surfaces, but would minimally improve surface flow in the cedar glades.

The historic route of McFadden Lane is currently a two- way road (Van Cleve Lane), but under this alternative it would be reduced to a one- way, southbound, 12- foot- wide road until tour stop 2. Between tour stops 2 and 3, there would be two- way traffic on McFadden Lane. At tour stop 3, a 12- foot- wide, one- way road would loop back north to another new 12- foot- wide road segment that would link McFadden Lane to the tour route.

Incorporating the historic route of McFadden Lane as part of the tour route would continue its historic use, with minimal effects on the park's cultural landscape. The tour route would continue to use the traditional park entry (through stone pillars) from the Old Nashville Highway and would require only a limited expansion of park operations and maintenance.

The park's trail system would be enlarged and improved under this alternative. A trailhead would be developed west of the visitor center. This trailhead would orient park visitors to trail opportunities and guide users to their desired destination. Visitors interested in walking the auto tour route sequence may visit tour stops 1 through 5 via a 5- foot- wide paved trail. All paved tour route trails would minimize disturbance by closely following the auto tour route.

An eight- foot- wide paved trail would link the visitor center and tour stop 6 with the Union earthworks site. Other five- foot- wide paved trail systems connect the visitor center to the

national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, a five- foot- wide paved loop trail would be constructed along the cannon alignment used during the battle. The unpaved boundary trail would be relocated further west, near the perimeter of recently acquired land. The old boundary trail would be abandoned and restored to a natural condition. A five- foot- wide paved trail would parallel McFadden Lane, separated from the road by a snake- rail fence.

ALTERNATIVE B - CONSTRUCT NEW ENTRANCES, ADD NATURAL RESOURCES TOUR ROUTE TO INTERPRET CEDAR GLADES

Visitors would enter the south end of the main part of the park from Thompson Lane via a new signalized entry. A short segment of new road would curve westward through fields and woods to create a sense of entry into a different time and place. This new road segment would intersect and follow the historic McFadden Lane (Van Cleve Lane) northward before turning onto a new one- way road connecting to the tour road, that would lead to the visitor center.

After stopping at the visitor center, visitors would begin their tour by retracing their way along the east leg of the existing tour road, joining McFadden Lane to continue to tour stop number 1 at the far south end of the park. Under Alternative B, the turnaround near Slaughter Pen would be smaller than the one for Alternative A and would be on the east, not west, side of the road. Returning the short distance north to the new road segment that extends from Thompson Lane, visitors could return to the visitor center via McFadden Lane and a portion of the east loop of the existing tour road, expanded for two- way traffic, or take the natural resource tour road (the west leg of the existing tour road). They also could exit onto Thompson Lane from the two- way road at the entrance at the south end of the park. From the exit near the visitor center, visitors would follow the Old Nashville Pike to the Hazen Brigade Monument and go under and over the overpass onto Thompson Lane to cross the river and the railroad.

Once visitors have reached Thompson Lane, they would turn northeast at a signalized intersection, drive along fields and woods to access the McFadden Farm unit via a new park road that would partially follow Thompson Lane up to a new parking area, near the current parking area. The current parking area would be removed.

The trail connecting the visitor center to the cemetery is paved and enters the cemetery near its center. This trail also continues along the Old Nashville Highway to where it connects with McFadden Lane.

Under Alternative B, the trail system would incorporate existing trails and add new links to important sites and waysides.

A trailhead would be developed west of the visitor center. This trailhead would orient park visitors to trail opportunities and guide users to their desired destination. Visitors interested in waling the auto tour route sequence may visit tour stops 1 through 5 via a 5- foot- wide paved trail. All paved tour route trails would minimize disturbance by closely following the auto tour route.

An eight- foot- wide paved trail would link the visitor center and tour stop 4 with the Union earthworks site. Other five- foot- wide paved trail systems connect the visitor center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, a five- foot- wide paved loop trail would be constructed along the cannon alignment used during the battle. A five- foot- wide paved trail would parallel McFadden Lane, separated from the road by a snake- rail fence. Other five- foot- wide paved trail systems would connect visitors from the visitor center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, two paved loop trails would be constructed along the cannon alignment used during the battle.

ALTERNATIVE C, THE PREFERRED ALTERNATIVE

The proposed action would develop two signalized entry drives from Thompson Lane into the main park and McFadden Farm units (see Figure 2). Circulation within the main unit would run clockwise along Old Nashville Highway, McFadden Lane, and part of the existing tour route. The west leg of the existing tour route would become a paved pedestrian trail.

Visitors would be able to drive from the entry on Thompson Lane along the east branch of the current one- way tour road to the visitor center, where they would be oriented about the auto tour route. They would turn right onto the Old Nashville Highway and then right again onto a two- way McFadden Lane, before proceeding to the south end of road for tour stop number 2. Here, a turn- around would eliminate the need to back up. Visitors would the proceed along what is currently the east branch of the existing tour road, up to the visitor center, and turn right onto the Old Nashville Highway, stopping at Hazen Brigade Monument. From the exit near the visitor center, visitors would follow the Old Nashville Pike to the Hazen Brigade Monument and go under and over the overpass onto Thompson Lane to cross the Old Nashville Highway and the railroad.

Once visitors have reached Thompson Lane, they would turn left at a signalized intersection to access McFadden Ford via a new park road that would curve through fields and woods to reach the Artillery Monument and McFadden gravesite.

Once the visitor has arrived at the visitor center and begun the auto tour route, there would be no need to backtrack. Two- way traffic from the visitor center to the Slaughter Pen would necessitate wider roadways, could potentially cause more resource damage, and might be

confusing to some visitors. This route would have some potential for local traffic taking a short-cut through the park. The visitor center is also not the natural first stop, because of the southern entry. However, the cedar glades would be interpreted along the auto tour route.

Much of the existing asphalt roadway would be used for the future auto tour route. Construction techniques for surface improvement such as surface milling and micro-surfacing would be employed to maintain current roadway elevations while allowing for surface improvements. Where existing roadways would be narrowed for the creation of paved trails, the asphalt area reduction would be sawcut and removed to ensure a clean edge in order to minimize disturbance of the surrounding environmentally sensitive areas. Asphalt road-to-trail conversions would remain paved in asphalt.

The trail system would incorporate existing trails and add new links to important sites and waysides.

- A trailhead would be developed west of the visitor center. Visitors interested in waling the auto tour route sequence may visit tour stops 1 through 5 via a 5-foot-wide paved trail. All paved tour route trails would minimize disturbance by closely following the auto tour route.
- An eight-foot-wide paved trail would link the visitor center and tour stop 6 with the Union earthworks site. Other five-foot-wide paved trail systems connect the visitor center to the national cemetery and from the Hazen Brigade Monument to the Murfreesboro Greenway trailhead. At the McFadden Farm site, a five-foot-wide paved loop trail would be constructed along the cannon alignment used during the battle.
- A five-foot-wide paved trail would parallel McFadden Lane, separated from the road by a snake-rail fence.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will best promote national environmental policy expressed in the National Environmental Policy Act. The environmentally preferred alternative would cause the least damage to the biological and physical environment, and would best protect, preserve, and enhance historical, cultural, and natural resources.

Section 101(b) of the National Environmental Policy Act identifies six criteria to help determine the environmentally preferred alternative. The Act directs that federal plans should:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
4. Preserve important historical, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Continuing the current conditions under the No Action Alternative would be the least effective alternative in meeting these criteria. Without improving the auto tour route, the Battle of Stones River would continue to be inadequately interpreted; the tour route would remain difficult to navigate; and the cedar glades, a rare natural resource in the United States, would not be interpreted and would continue to have a road separate the middle of the glades from the edges. The present configuration of the auto tour route would somewhat compromise the safety of visitors in traveling across major roads traveling to the tour stops. The No Action Alternative fails to meet the criteria of environmentally preferred alternative by not:

- Assuring a safe, healthful, productive, and esthetically and culturally pleasing surround for everyone,
- Attaining the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences, or
- Fully preserving important historical, cultural, and natural aspects of our national heritage.

Alternative(s) B and C would both be preferred over the No Action Alternative. With implementation of either alternative, the National Park Service would be better able to accurately and clearly portray the Battle of Stones River, protect and interpret the cedar glades, and provide a safe environment for visitors to travel along the auto tour route, with signalized entrances and a more direct tour route.

However, Alternative C would more fully meet the criteria for environmentally preferred alternative than Alternative B. Specifically, Alternative C would better meet the criteria for environmentally preferred alternative because it would:

- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences. (Alternative C would create 1.3 acres less of impervious surface than would Alternative B.)
- Preserve important historical, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice. (Alternative C would best convey the chronological sequence of the battle and with less backtracking than Alternative B.)

Therefore, Alternative C, the Preferred Alternative is the environmentally preferred alternative.

Proposed Structures in the Floodplain

The NPS Procedural Manual 77- 2: Floodplain Management divides actions into the following three groups:

- Class I Actions – include administrative, residential, warehouse and maintenance buildings, and non- exempted (overnight) parking lots.
- Class II Actions – those that would create “an added disastrous dimension to the flood event.” Class II actions include schools clinics, emergency services, fuel storage facilities, large sewage treatment plants, and structures such as museums that store irreplaceable records and artifacts.
- Class III Actions – Class I or Class II Actions that are located in high hazard areas such as those subject to flash flooding.

Two road segments would occur in the 100- year floodplain as proposed under the Stones River National Battlefield Improvements to Self- Guiding Auto Tour Route Environmental Assessment are considered Class I actions. One segment is 1,430 feet long (0.8 acres) in the main park unit; the other is 1,017 feet long (0.5 acres) in the McFadden Farm unit. At the same time, a total of 443 feet of road in the 100- year floodplain would be reverted to paved trail, an area 0.1 acres in size. All of these actions would be considered Class I actions.

Paved and unpaved trails also would occur in the floodplain. However, unpaved trails would be considered exempt under DO 77- 2. Paved trails that would occur in the floodplain amount to 1,960 linear feet (0.2 acres), while unpaved trails would total 508 feet.

Why the Proposed Action is Preferable

As with the proposed action, undertakings proposed under the other alternatives would also be located within the 100- year floodplain. However, this alternative offers the best

combination of protecting natural and cultural resources, offering quality visitor experience and interpretation opportunities, and ensuring public safety. It was also selected as the Environmentally Preferred Alternative.

FLOODPLAIN EXTENT AND NATURE OF FLOODING IN THE AREA

The majority of the six units of Stones River National Battlefield are located upon karst topology. The surrounding area lacks surface waters, except for the West Fork of Stones River, because of this fractured karst topography that causes water to flow through cracks and sinks into underground aquifers. Periodic flooding of Rutherford County, Tennessee, primarily occurs during the winter months, from December through March. Flooding occurs not only in the floodplain of the West Fork of Stones River, but also in lowlands and sinkholes.

Flooding that occurs with a return interval of 100 years is the flood frequency used by the Federal Emergency Management Agency (FEMA) for purposes of its National Flood Insurance Program. The Flood Insurance Rate Map (FIRM) for Rutherford County, Tennessee and Incorporated Areas was used along with data obtained from FEMA's detailed study for the West Fork of Stones River to determine the extent of existing floodplain boundaries within the project study area for the self-guiding auto tour route. The FIRM maps establish a base flood elevation for purposes of identifying floodways, floodplains, and other flood hazard areas (see Figure 3).

FEMA conducted a detailed floodplain study for the West Fork of Stones River. Of the Main Park and McFadden Farm Units of Stones River National Battlefield, 3,017 acres (42 percent) is in the 100- year floodplain.

In the vicinity of the proposed additional road segments in the Main Park Unit, the 100- year floodplain elevation is approximately 32 feet above the river bed. The elevation of the 100- year floodplain at the project site is approximately 564 feet NGVD. The distance along the centerline of the proposed road segments where this flooding occurs is approximately 4,068 feet, an addition of 1.9 acres of impervious surface (Figure 4). In the vicinity of the proposed road segment in the McFadden Farm Unit, the 100- year floodplain elevation is approximately 22 feet above the river bed. The distance of the road segment through the 100- year floodplain would be 1,017 feet, an addition of 0.5 acres of impervious surface. The elevation of the 100- year floodplain at the project site is approximately 556 feet NGVD (Figure 5).

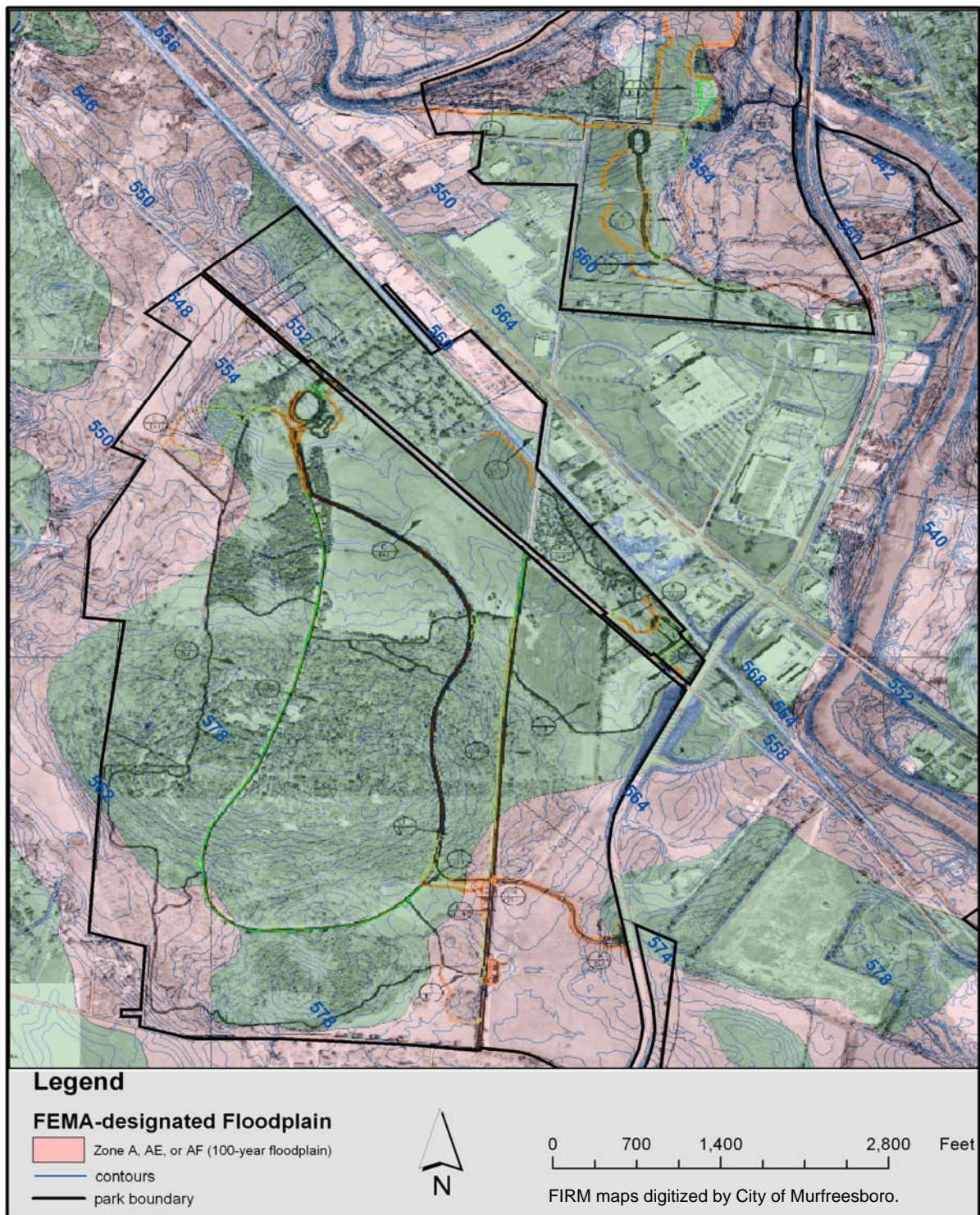


Figure 3. Proposed Road Segments Occurring in the Floodplain

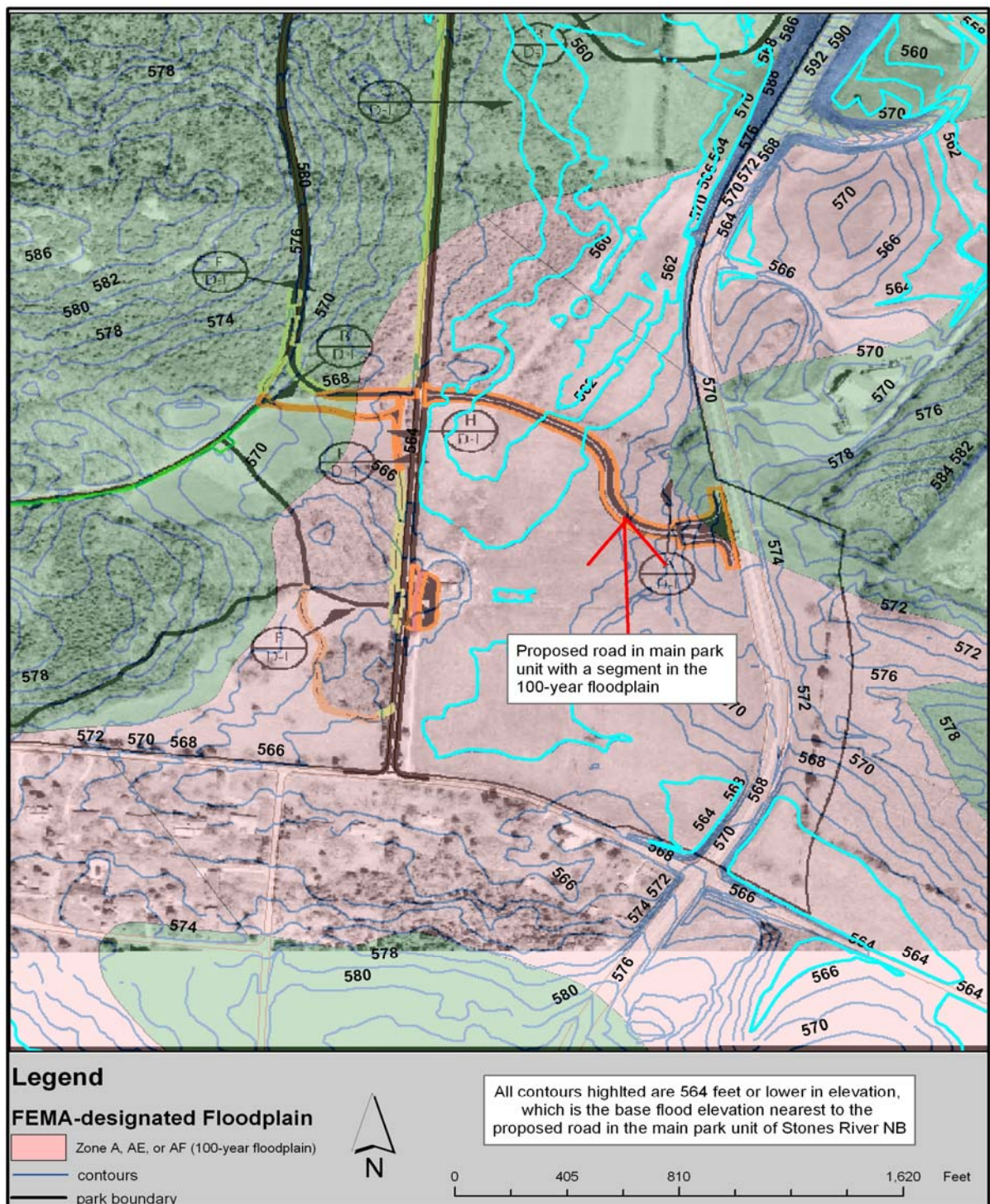


Figure 4. Proposed Road Segments in Main Park Unit

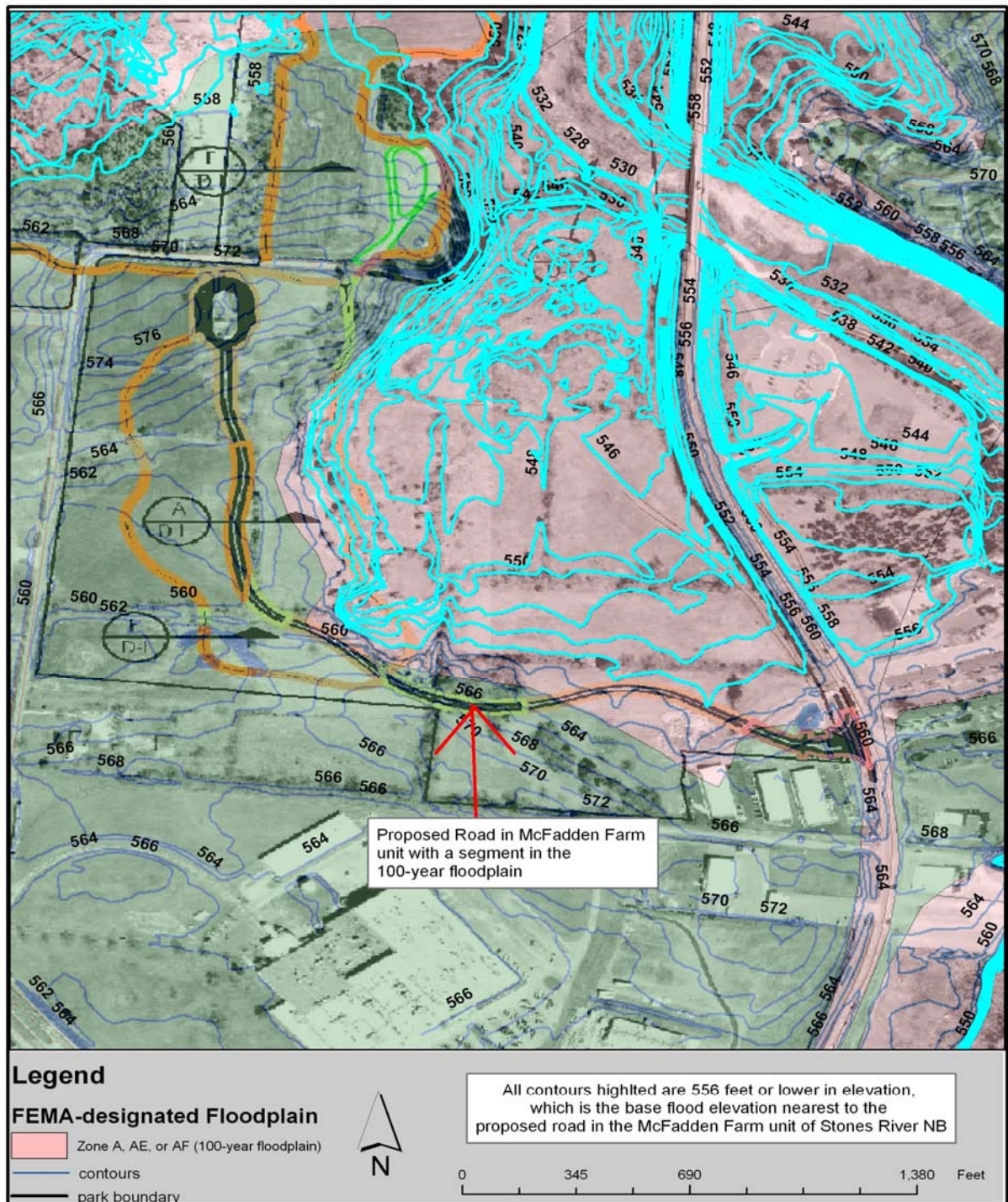


Figure 5. Proposed Road Segments in McFadden Farm Unit

JUSTIFICATION FOR USE OF THE FLOODPLAIN

Adding these two road segments to Stones River National Battlefield would increase safety and access for visitors to the battlefield. Current entrances are difficult to navigate to and from and force visitors to drive through an unsafe intersection. Because of the fractured nature of the park (containing six units), safe and easy access to individual units is of concern to park staff and visitors. The two units in question in this Statement of Findings, the main park unit and the McFadden Farm unit, are constrained by highways, railroads, and the West Fork of Stones River as to where additional entrances may be added (see Figure 1). For this reason, complete avoidance of the 100- year floodplain is difficult. No acceptable alternative locations exist that would not involve constructing road segments in the floodplain and still meet the objectives of the plan/environmental assessment for Improving the Self- Guiding Auto Tour Route. (See the “Floodplains” section in the Stones River National Battlefield Development Concept Plan for Improvements to the Self- guiding Tour Routes Draft Environmental Assessment for a more detailed description of impacts to floodplains of all alternatives considered.)

Alternative A did not involve the construction of new entrances into the main park and McFadden Farm units. While it did not involve road development in the 100- year floodplain, it also did not meet the objectives of the plan, as the difficulty in wayfinding for visitors would still remain.

DESCRIPTION OF THE SITE- SPECIFIC FLOOD RISK

The proposed road and paved trail segments are located entirely within National Park Service property, and the immediate areas are undeveloped, having no park buildings or structures near the 100- year floodplain. As such, there is no risk of damage to property as a result of flooding, except to the road segments themselves.

The existing floodplain would continue to function as a floodplain after the road and paved trail segments are constructed, as only 0.08 percent of the 100- year floodplain in the park would be impacted and a much smaller fraction of the total floodplain of the West Fork of Stones River would be impacted. Floodplain infiltration and conveyance would not be significantly affected by the proposed action due to the fact that the majority of the floodplain in the proposed project area would not have any significant floodplain- altering development. The proposed road segments in the 100- year floodplain would not significantly increase total impervious surface within the floodplain of West Fork of Stones River.

Stones River National Battlefield in recent years has become surrounded by residential and industrial development, as the city of Murfreesboro has expanded in population and land

area. This has caused impervious surfaces in the watershed and the floodplain of the West Fork of Stones River to increase dramatically. The addition of small road segments to the 100- year floodplain inside the park would have a much smaller effect on floodplain values than the addition of these buildings, parking lots, and roads. Cumulative effects, which include effects of this proposed action and others in the park and region that could affect floodplains, were long term, minor, and adverse, with the proposed action making a negligible, adverse contribution (See “Cumulative Effects” in the “Floodplains” section in Stones River National Battlefield Development Concept Plan for Improvements to the Self-guiding Tour Routes Draft Environmental Assessment for a more detailed description).

MITIGATION DESIGN OR MODIFICATIONS TO MINIMIZE HARM TO FLOODPLAIN VALUES OR RISKS TO LIFE AND PROPERTY

Actions occurring within the floodplain would be subject to the provisions of DO 77- 2, Floodplain Management and Executive Order 11988 (Protection of Floodplains). The following mitigation measures would be applied:

- Incorporation of methods for minimizing flood damage into the design of new road segments, as contained in the National Flood Insurance Program Floodplain Management Criteria for Flood- Prone Areas (Code of Federal Regulations 44 : 60 . 3) and in accordance with any local, county, or state requirements for flood- prone areas.
- Scenic and floodplain qualities would be slightly enhanced by the narrowing of a segment of road of 443 feet to a paved trail, resulting in a decrease of 0.1 acres of impervious surfaces in the 100- year floodplain.
- Should flooding occur on the roads in the battlefield, the park staff would close the roads to the public to ensure their safety.
- The contractor would be required to use construction best management practices to limit effects on water quality. This would include sediment fencing and other appropriate measures to control runoff. Disturbance of ground cover would be kept to a minimum.

CONCLUSION

Mitigation and compliance with regulations and policies to prevent impacts to water quality, floodplain values, and loss of property or human life would be strictly adhered to during and after the road construction in the battlefield. No long- term, adverse impacts would occur from the proposed actions. Flood elevations are not expected to change as a result of the proposed action, and floodplain characteristics would not be altered by the addition of these road and paved trail segments, as they are only 0.08 percent of the 100- year floodplain located within the park. Therefore, the National Park Service finds the proposed action to be acceptable under Executive Order 11988 for the protection of floodplains.



As the nation's principal conservation agency, the Department of the Interior has the 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 historical 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.

NPS September 2005