



Pigeon Roost Creek Bridge Replacement Environmental Assessment

ABSTRACT

At the Natchez Trace Parkway, the National Park Service, in cooperation with the Federal Highway Administration, proposes to replace the Parkway bridge over the Pigeon Roost Creek. This action is needed because the existing bridge is rapidly deteriorating.

This Environmental Assessment (EA) examines in detail the No Action Alternative and the Action Alternative (the NPS Preferred Alternative). The Action Alternative includes the demolition of the existing bridge, the construction of a detour, and the construction of the new bridge. These activities would have a long-term minor adverse impact to vegetation and a short-term minor adverse impact to wetlands. There would be a short-term minor adverse impact and a long-term negligible adverse impact to the cultural landscape and floodplains. Visitor use and experience and health and safety would both experience a short-term minor adverse impact and a long-term moderate beneficial impact.

Public Comment

If you wish to comment on the EA, you may mail comments to the name and address below. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. This EA will be on public review for 30 days. Please note that the names and addresses of people who comment become part of 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, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

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1 INTRODUCTION/PURPOSE AND NEED

1.1 ABOUT THIS DOCUMENT

In 1969, the United States Congress passed the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) to establish a national policy,

“...which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; ...”

NEPA also established the Council on Environmental Quality (CEQ) as an agency of the Executive Office of the President. In enacting NEPA, Congress recognized that nearly all federal activities affect the environment in some way. Section 102 of NEPA mandates that before federal agencies make decisions, they must consider the effects of their actions on the quality of the human and natural environment. NEPA assigns CEQ the task of ensuring that federal agencies meet their obligations under the Act.

The CEQ developed regulations (40 CFR 1500-1508) that describe the means for federal agencies to develop the Environmental Impact Statements (EIS's) mandated by NEPA in Section 102. The CEQ regulations developed the Environmental Assessment (EA) to be used when there is not enough information to decide whether a proposed action may have significant impacts. If an EA concludes that a federal action will result in significant impacts, it becomes necessary to prepare an EIS or alter the action proposed. Otherwise, it results in a Finding of No Significant Impact (FONSI).

Section 1508.09 of the CEQ regulations states that the purposes of an EA are to:

1. Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI.
2. Aid an agency's compliance with the Act when no environmental impact statement is necessary.
3. Facilitate preparation of a statement when one is necessary.

Preparation of an EA is also used to aid in an agency's compliance with Section 102(2) E of NEPA, which requires an agency to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”

The Department of the Interior produced its NEPA regulations as Part 516 of its departmental manual (DM), and the National Park Service (NPS) produced further guidance in several NEPA handbooks. In January 2001, the NPS released the Director's Order: Conservation Planning, Environmental Impact Analysis, and Decision Making, and the Handbook. The Federal Highway Administration (FHWA)'s NEPA regulations appear at 23 CFR 771. The FHWA Tech Advisory T6640.8A was written in 1987 to provide guidance on environmental documents.

1.2 PURPOSE AND SIGNIFICANCE OF THE PARK

Begun in the 1930's, the present 444-mile long Parkway follows the historic Natchez Trace through Tennessee, Alabama and Mississippi from Nashville, Tennessee to Natchez, Mississippi. The Parkway encompasses more than 51,000 acres and is visited by approximately 5,600,000 people annually.

Folsom's stand and trading post, operated by Nathaniel and David Folsom, once stood near the location of the present day Parkway bridge over Pigeon Roost Creek. The area is also known for the millions of passenger pigeons, now extinct, that once roosted here. It is estimated that there were three to five billion passenger pigeons at the time that Europeans discovered America. In the winter the birds established "roosting" sites in the forests of the southern states. The nesting colonies at the roosting sites made for easy targets for overhunting, which led to their eventual extinction in the wild by 1900.

The existing bridge over Pigeon Roost Creek is a three-span 85-foot long two-lane bridge built in 1956. It has a continuous monolithic concrete slab superstructure supported by concrete abutments at each end and two piers built on pile foundations.

1.3 PROJECT LOCATION



Figure 1. The bridge over Pigeon Roost Creek is located at approximately mile 203.3 of the Natchez Trace Parkway, in Choctaw County, Mississippi.

1.4 PURPOSE AND NEED FOR THE PROPOSED ACTION

Purpose

The purpose of this project is to maintain safe access to the historic Natchez Trace along the Natchez Trace Parkway. The Park's goal is to accomplish this without diminishing the visitor experience, Park resources, or the interpretive value and historic importance of the Natchez Trace Parkway.

Need

The Federal Highway Administration last inspected the bridge over Pigeon Roost Creek in January of 2006. The bridge was determined to be in poor condition due to the extensive deterioration of the superstructure concrete. Additional problems include severe deterioration of the curb and railing expansion joint material, minor cracking of the substructure units, and minor erosion at the piers and along the channel banks. Widespread moderate cracks were found in the concrete slab underside and deck. Heavy efflorescence was found on both the deck and the abutments of the bridge. This deterioration was determined to be the result of alkali-silica reactivity between the cement and aggregate in the concrete. If not replaced, the bridge would continue to deteriorate rapidly, resulting in further loss of load-bearing capacity and eventual failure.



Figure 2. Cracking and efflorescence is present throughout the bridge.

Figure 3. Cracking and efflorescence forms stalactites along the underside of the center span.



Efflorescence is a white crystalline or powdery, often fluffy/fuzzy deposit on the surface of masonry materials like concrete, brick, clay tile, etc. It's caused by water seeping through the wall/floor/object. The water dissolves salts inside the object while moving through it, and then evaporates leaving the salt on the surface.

1.5 RELATED PROJECTS AND PLANS

The Natchez Trace Parkway currently operates under the direction of the approved 1987 General Management Plan/Environmental Assessment for Natchez Trace Parkway (GMP/EA). Management Objectives identified within the GMP direct the maintenance and upgrading of roadways and associated bridges in order to provide for a positive visitor experience and to ensure effective Parkway operations. The purpose and need for this project are consistent with these objectives.

1.6 SCOPING

Scoping is an early and open process to determine the extent of environmental issues and alternatives to be addressed. Issues and concerns related to reconstructing the bridge were identified by the Park, State and other Federal Agencies. This bridge was originally planned to be replaced in conjunction with four other bridges with similar deterioration, but due to the location and funding, this bridge was separated from that project. The project included the bridges over Threet and Lindsey Creeks and County Road 85 in Lauderdale County, AL and the bridge over Highway 13 in Wayne County, TN. These bridges are approximately 100 miles north of the bridge over Pigeon Roost Creek. Scoping for this project began in conjunction with the four additional bridges in February 2003. A site visit was held in August/September 2006.

Issue Identification

Issues as discussed in NEPA describe the relationships between the action being proposed and the environmental (natural, cultural, and socioeconomic) resources. Issues describe an association or a link between the action and the resource. Issues are not the same as impacts, which include the intensity or results of those relationships. Internal and external scoping (defining the range of potential issues) was conducted for this EA to identify what relationships exist between the proposed action and environmental resources. Issues identified during scoping include:

- Detouring of traffic off of the Parkway would impact visitors traveling along the Parkway.
- Clearing vegetation for the detour may change the look of the area surrounding the bridge over Pigeon Roost Creek.
- The detour must be located so that the bridge is still accessible for construction.
- The demolition and construction of the bridge may cause additional impacts.

1.7 IMPACT TOPICS

As a result of scoping, specific impact topics were developed to address potential natural, cultural, and social impacts that might result from the proposed bridge replacement. These include impact topics which correspond to the issues identified above and address federal laws, regulations and orders, Natchez Trace Parkway management documents, and NPS knowledge of limited or potential impacts to resources. A brief rationale for the selection of each impact topic follows:

Impact Topics Carried Forward for Further Analysis

Vegetation

The NEPA requires an examination of impacts on the components of affected ecosystems. The NPS *Management Policies 2001* require protection of Park resources, including vegetation, to protect Parks' scenery, natural and historic objects, and the processes and conditions that sustain them. Clearing and grubbing as a result of the implementation of the Action Alternative and associated traffic detour would impact vegetation; therefore this impact topic has been carried forward for further analysis in this EA.

Wetlands

Executive Order 11990: Protection of Wetlands requires an examination of impacts to wetlands. For purposes of compliance with this executive order, the NPS uses "Classification of Wetlands and Deepwater Habitats of the United States" (FWS/OBS-79/31; Cowardin et al. 1979) as the standard for defining, classifying, and inventorying wetlands. The U.S. Army Corps of Engineers (Corps) is responsible for the administration of Section 404 of the Clean Water Act and the issuance of permits for the discharge of dredged or fill material into jurisdictional wetlands. A wetland delineation performed in November of 2003 determined that there were wetlands present in the study area, therefore this impact topic has been carried forward for further analysis in this EA.

Floodplains

Development within floodplains and floodways is regulated by federal and state laws to reduce the risk of property damage and loss of life due to flooding, as well as to preserve the natural benefits floodplain areas have on the environment. Executive Order 11988: Floodplain Management requires all federal agencies to avoid construction within 100-year floodplains unless no other practical alternative exists. The bridge over Pigeon Roost Creek is located in an unmapped area of the Federal Emergency Management maps. Through site visits to the project, land surveying, and discussions with Park resource specialists, it was determined that there are floodplains within the study area. Therefore this impact topic has been carried forward for further analysis in this EA.

Cultural Landscapes

The National Historic Preservation Act of 1966, NEPA, the 1916 NPS Organic Act, NPS *Management Policies 2001*, and NPS-28 require Federal agencies to consider the effects of their proposed actions on cultural resources. Cultural landscapes are the result of the long interaction between people and the land, the influence of human beliefs and actions over time upon the natural landscape. Shaped through time by historical land-use and management practices, as well as politics and property laws, levels of technology, and economic conditions, cultural landscapes provide a living record of an area's past, and a visual chronicle of its history. The dynamic nature of modern human life, however, contributes to the continual reshaping of cultural landscapes; making them a good source of information about specific times and places, but at the same time rendering their long-term preservation a challenge. As one of the four nationally recognized rural parkways, the Natchez Trace Parkway, in its entirety, is eligible for the

National Register of Historic Places as a designed cultural landscape and as a tribute to Landscape Architectural design and road way engineering partnerships at their best. The construction of a detour route may impact the cultural landscape; therefore this impact topic has been carried forward for further analysis in this EA.

Visitor Use and Experience

NPS *Management Policies 2001* state that the enjoyment of Park resources and values by the people of the United States is part of the fundamental purpose of all parks, and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. Disruptions to traffic patterns during the construction activities could occur. The duration of these impacts is anticipated to be less than two construction seasons. Since the proposed action has the potential to impact visitor use and operations during construction, this impact topic has been carried forward for further analysis in this EA.

Health and Safety

The NPS *Management Policies 2001* state that the NPS will seek to provide a safe and healthful environment for visitors and employees. The deterioration of the existing bridge is a safety concern for Parkway visitors and employees. Traffic management during construction activities has the potential to create safety concerns; therefore this impact topic has been carried forward for further analysis in this EA.

Impact Topics Dismissed from Further Analysis

Wildlife and Wildlife Habitat

The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the agency to mean that native animal life should be protected and perpetuated as part of the Park's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible; otherwise they are protected from harvest, harassment, or harm by human activities. The proposed project would be conducted to comply with Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, by minimizing adverse impacts on migratory bird resources. Minimization of adverse impacts would include cutting only the trees necessary to construct the detour route.

Parkway lands provide habitat for a wide variety of wildlife mammal species, including deer, rabbits, squirrels, foxes, opossums, and raccoons, and a variety of birds, reptiles, amphibians, and fish. The Action Alternative would have negligible short-term adverse impacts to wildlife and wildlife habitat during construction. The increased noise and presence of humans would disrupt wildlife, but most species could relocate to similar habitat widely available near the study area. After construction is completed and the detour is removed, wildlife is expected to return to the area. There is often no flowing water in Pigeon Roost Creek, only isolated pools, and the substrate is primarily silt. The piers of the bridge over Pigeon Roost Creek are not located in water; therefore any work to replace the piers would not impact aquatic species. The detour route would include culverts placed in the Creek to ensure that water continues to flow, minimizing the impact to aquatic species. Impacts to wildlife would not be detectable after the project is completed; therefore, this topic has been dismissed from further analysis in this EA.

Water Quality/Hydrology

NPS *Management Policies 2001* require protection of water quality consistent with the Clean Water Act. The replacement of the bridge piers and abutments would disturb the surrounding area, which would expose the bare soil. Rainfall on the bare soil may increase erosion and sedimentation to Pigeon Roost Creek. Best Management Practices (BMPs), erosion control measures, and activities as necessary to prevent degradation of water quality would be implemented. These may include the installation of silt fence, check dams, erosion blankets, etc. Therefore, this topic has been dismissed from further analysis in this EA.

Ethnographic Resources

The National Historic Preservation Act of 1966, NEPA, the 1916 NPS Organic Act, NPS *Management Policies 2001*, and NPS-28 require Federal agencies to consider the effects of their proposed actions on cultural resources. Certain important questions about human culture and history can only be answered by gathering information about the cultural content and context of cultural resources. Questions about contemporary peoples or groups, their identity, and heritage have the potential to be addressed through ethnographic resources. As defined in the NPS, an ethnographic resource is a site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. Some such specific places of traditional cultural use may be eligible for inclusion in the National Register of Historic Places if they meet national register criteria for traditional cultural properties (TCPs). Demolition and construction to replace the bridge would occur in a previously disturbed area, and the detour route would be constructed by the placement of fill material adjacent to the Parkway. A letter dated April 26, 2001 from the Mississippi Department of Archives and History in response to a cultural resources assessment request for the project states, "It is our determination that no properties listed in or eligible for listing in the National Register of Historic Places will be affected... In addition, we are not aware of any potential of this undertaking to affect Indian cultural or religious sites." This topic has been dismissed from further analysis in this EA.

Historic and Prehistoric Structures/Buildings

The National Historic Preservation Act of 1966, NEPA, the 1916 NPS Organic Act, NPS *Management Policies 2001*, and NPS-28 require Federal agencies to consider the effects of their proposed actions on cultural resources. In order for a structure or building to be listed in the National Register of Historic Places, it must be associated with an important historic context, i.e. possess significance – the meaning or value ascribed to the structure or building, *and* have integrity of those features necessary to convey its significance, i.e. location, design, setting, workmanship, materials, feeling, and association (see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*). The existing bridge over Pigeon Roost Creek is not eligible for the National Register, and a bridge of similar appearance would be constructed in its place. A letter dated April 26, 2001 from the Mississippi Department of Archives and History in response to a cultural resources assessment request for the project states, "It is our determination that no properties listed in or eligible for listing in the National Register of Historic Places will be affected..." This topic has been dismissed from further analysis in this EA.

Museum Collections

The National Historic Preservation Act of 1966, NEPA, the 1916 NPS Organic Act, NPS *Management Policies 2001*, and NPS-28 require Federal agencies to consider the effects of their proposed actions on cultural resources. Museum collections (historic artifacts, natural specimens, and archival and manuscript material) may be threatened by fire, theft, vandalism, natural disasters, and careless acts. The preservation of museum collections is an ongoing process of preventative conservation, supplemented by conservation treatment when necessary. The primary goal is preservation of artifacts in as stable condition as possible to prevent damage and minimize deterioration. No museum collections are present in the study area; therefore, this topic has been dismissed from further analysis in this EA.

Archeological Resources

The National Historic Preservation Act of 1966, NEPA, the 1916 NPS Organic Act, NPS *Management Policies 2001*, and NPS-28 require Federal agencies to consider the effects of their proposed actions on cultural resources. Certain important research questions about human history can only be answered by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. An archeological site(s) can be eligible to be listed in the National Register of Historic Places if the site(s) has yielded, or may be likely to yield, information important in prehistory or history. An archeological site(s) can be nominated to the National Register in one of three historic contexts or levels of significance: local, state, or national (see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*). For purposes of analyzing impacts to archeological resources, thresholds of change for the intensity of an impact are based upon the potential of the site(s) to yield information important in prehistory or history, as well as the probable historic context of the affected site(s). Demolition and construction to replace the bridge would occur in a previously disturbed area, and the detour route would be constructed by the placement of fill material adjacent to the Parkway, therefore, this topic has been dismissed from further analysis in this EA.

Environmental Justice

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority and Low Income Populations forbids Federal agencies from disproportionately affecting minority and/or low-income communities. The study area and all related work would be within the boundaries of the Park. Any impacts from the project would affect all park visitors equally and would not disproportionately affect low-income or minority individuals or populations. Therefore, this topic has been dismissed from further analysis in this EA.

Special Status Species

Section 7 of the Endangered Species Act directs all Federal agencies to use their authority in furtherance of the purposes of the Act by carrying out programs for the conservation of threatened and endangered species. Federal agencies are required to consult with the U. S. Fish and Wildlife Service (FWS) to ensure that any actions authorized, funded, and/or carried out by the agency do not jeopardize the continued existence of any listed species or critical habitat. A letter dated September 23, 2003 was sent to the Mississippi Field Office of the U.S. Fish and Wildlife Service (FWS)

requesting information regarding federally listed species in the study area. The FWS replied on October 3, 2003 stating, "There are no known federal listed threatened or endangered species, or their habitats, within the study area. Therefore, the Service anticipates no impacts to any listed species to occur as a result of the proposed project. The Service has no objections or special concerns regarding the current proposal." Personal communication with the Mississippi Field Office of the FWS on August 9, 2006 confirmed that there are no concerns regarding federally listed species. Copies of agency correspondence regarding special status species can be found in Appendix A. The Mississippi Natural Heritage Database's Choctaw County list included two birds, two amphibians, two invertebrates, and nine species of special concern vascular plants. The birds and amphibians are unlikely to occur in the study area due to the lack of suitable habitat. Best Management Practices would be utilized to minimize any possible impacts to the invertebrates. None of the plant species were observed during a floristic survey of the study area in November 2003. A search of the database in September 2006 verified that no additional special concern species had been added. Therefore, this topic has been dismissed from further analysis in this EA.

Socioeconomic Environment

Socioeconomic issues are defined as actions that have the potential to create a negative change to the demographics, housing, employment, and economy of an area. The estimated population of Choctaw County in 2004 was 9,601. In 2002, the per capita personal income in Choctaw County was \$16,064. This was an increase of 27.1% from 1997. The 2002 figure was 52% of the national per capita income, which was \$30,906. The construction of the Action Alternative would add more employment opportunities to the area, however the impacts would be short-term, and negligible; therefore, this topic has been dismissed from further analysis in this EA.

Air Quality

The 1963 Clean Air Act, as amended (42 U.S.C. 7401 et seq.) requires federal land managers to protect Park air quality. Section 118 of the CAA requires the NPS to meet all federal, state, and local air pollution standards. The U.S. Environmental Protection Agency (EPA) is directed to set levels for pollutants in order to protect the public health. The National Ambient Air Quality Standards are adopted for six pollutants: carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. A system of monitoring stations is established across the country to measure progress in meeting these goals. If an area is found to exceed the allowable concentrations, local officials are required to develop a plan for achieving air quality that meets the standards. Choctaw County has been determined by the EPA to be in an attainment area for purposes of the Clean Air Act, i.e., pollution levels are below the minimum levels established by the EPA. There would be temporary increases in localized air pollution as a result of fugitive dust plumes and construction equipment emissions. Water sprinkling, idling limitations, and additional measures may be employed during construction as necessary to reduce impacts. There would be negligible short-term adverse impacts to local air quality, however they would end after construction is completed; therefore, this topic has been dismissed from further analysis in this EA.

Sound Environment/Soundscape

The NPS *Management Policies 2001* state that the NPS will strive to protect the natural quiet and natural sounds associated with the physical and biological resources of the Park. The soundscape of the Park is comprised of the natural sound conditions and exists in the absence of any human-produced noises. This is the basis for determining the "affected environment" and impacts on the Park soundscape. The project is located on the Parkway, which is heavily traveled by vehicles. The construction noise would be audible above typical background noise and therefore adverse, however it would be localized, short-term and negligible. Therefore, this topic has been dismissed from further analysis in this EA.

Geology and Soils

The NPS *Management Policies 2001* requires the protection of Park resources, including soils, to protect Parks' scenery, natural and historic objects, and the processes and conditions that sustain them. The soils in the study area are made up of Chenneby-Arkabutla association and Chenneby silt loam. Both of these soils are listed as hydric soils by the National Resource Conservation Service (NRCS). Any excavation required would be done in previously disturbed fill material that makes up the roadway prism. Fill may be placed to construct the adjacent detour; however that material would be removed after construction is completed. Cofferdams would be constructed in order to re-construct the bridge piers; however they would be removed after construction is completed. The Action Alternative would have a short-term negligible adverse impact to geology and soils; therefore, this topic has been dismissed from further analysis in this EA.

Park Operations

The Action Alternative would require the replacement of an existing bridge structure, and would not add new permanent structures or features to the Parkway. A new structure would decrease the need for maintenance; therefore Park Operations would not be impacted in the long-term by this project. The temporary detour would have short-term negligible adverse impacts to Park operations; therefore, this topic has been dismissed from further analysis in this EA.

Prime and Unique Farmlands

Prime and unique farmlands are protected under the Farmland Protection Policy Act (7 U.S.C. 4201 et seq.) which states that Federal agency programs must assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) as prime or unique. Prime farmland is defined in the Act as "land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion," while unique farmlands are lands "other than prime farmland that is used for the production of specific high-value food and fiber crops." None of the mapped soil types in the study area are classified as prime or unique farmlands; therefore, this topic has been dismissed from further analysis in this EA.

Streamflow Characteristics

Stream flow characteristics include the magnitude, frequency, duration, timing, and rate of change in flows. The placement of cofferdams in the stream channel is expected to have a short-term minor adverse impact to streamflow characteristics during high water events. These cofferdams would be removed after construction is completed; therefore this topic has been dismissed from further analysis in this EA.

2 DESCRIPTION OF ALTERNATIVES

The CEQ has provided guidance on the development and analysis of alternatives under NEPA. A full range of alternatives, framed by the purpose and need, must be developed for analysis for any federal action. They should meet the project/proposal purpose and need, at least to a large degree. They should also be developed to minimize impacts to environmental resources. Alternatives should also be “reasonable,” which CEQ has defined as those that are economically and technically feasible, and show evidence of common sense. Alternatives that could not be implemented if they were chosen (for economic or technical reasons), or do not resolve the need for action and fulfill the stated purpose in taking action to a large degree, are therefore not considered reasonable.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no improvements to the existing bridge on the Natchez Trace Parkway over Pigeon Roost Creek would occur. The existing bridge structure would remain in place and only routine maintenance operations would be performed. The bridge would continue to deteriorate and weight restrictions would be placed on the bridge until the bridge eventually fails. This would limit visitors with recreational vehicles and/or trailers from using this portion of the Parkway.

2.2 ACTION ALTERNATIVE

The Action Alternative would remove the existing bridge over Pigeon Roost Creek. A new bridge would then be built in the same location. All of the bridge structure would be replaced, including the deck, abutments and piers (see Appendix B: Typical Bridge). The proposed bridge would be similar in appearance and the same length as the existing bridge with an approximate width (curb to curb) of 34 feet. No grade raise would be necessary because a negligible change in the vertical clearance is anticipated.

Demolition of the existing bridge and the construction of its replacement would require temporarily closing a portion of the Natchez Trace Parkway. Culverts would be placed in Pigeon Roost Creek approximately 60 feet west of the existing Natchez Trace Parkway Bridge, and a temporary paved road would tie into the Parkway. The route would be approximately 1,000 feet long, with an approximate total width of 26 feet. The posted speed limit would be 20 miles per hour. The Natchez Trace Parkway would be closed in the vicinity of the bridge over Pigeon Roost Creek for a maximum of two years during which traffic would be diverted to the temporary detour. After completion of the permanent bridge, the temporary detour would be removed and the affected area restored to natural conditions prior to construction. Construction staging would occur in the Pigeon Roost Parking Area. After the new bridge is completed, the Parking Area would be milled and repaved.

Table 1. Mitigation Measures of the Preferred Alternative	
Resource Area	Mitigation Measure
Vegetation	All disturbed areas would be restored to previous ground elevations and re-vegetated with native species. Noxious weed seeds would be restricted from use in seed mixes, and exotic invasive species would be managed when feasible.
Wetlands	All fill material would be removed. The temporary impact of approximately 0.23 acres of wetlands would be mitigated through the restoration of another wetland area.
Water Quality	An erosion and sediment control plan would be prepared to meet Mississippi and NPS standards and guidelines. All Best Management Practices to limit erosion and sedimentation would be incorporated to the extent possible.
Cultural Resources	If any archeological resources are discovered during the construction of the project, all work would stop, and the appropriate agency personnel would be notified. In the unlikely event that human remains or cultural items subject to the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered, all work would stop, and the appropriate provisions of NAGPRA would be followed.

2.3 ALTERNATIVES CONSIDERED BUT DISMISSED

As mentioned previously, alternatives should be “reasonable.” Unreasonable alternatives should be eliminated before impact analysis begins. Unreasonable alternatives may be those that are unreasonably expensive; that cannot be implemented for technical or logistic reasons; that do not meet Park mandates; that are inconsistent with carefully considered, up-to-date Park statements of purpose and significance or management objectives; or that have severe environmental impacts (DO-12 Handbook).

Existing Road Detour

The use of existing roadways to detour traffic around the bridge site was considered but dismissed. Traffic heading north would need to detour at U.S. Route 9 north, and take Interstate 82 east. The detour around the bridge would take visitors off of the Parkway for 9 miles for a 13 mile detour. The detour may confuse visitors, as they would have to access two roads to return to the Parkway. Visitors would no longer have through access to an access point to the Old Trace or Ballard Creek, as they would have to travel the same portion of the Parkway entering and leaving those sites. The primary purpose of the Natchez Trace Parkway is to memorialize the historic importance of the Old Trace with a useful and attractive parkway, and detouring visitors off of the Parkway for a considerable distance is inconsistent with the intended use and management objectives of the Parkway.

2.4 PREFERRED ALTERNATIVE

The preferred alternative determined by the NPS for this project is the Action Alternative, which addresses the need to replace the bridge over Pigeon Roost Creek. If these concerns are not addressed, further bridge deterioration would occur. This deterioration would result in a further decrease in the load carrying capacity of the bridge, heightened

risk to visitor safety, and potential for bridge failure. Even though the possibility exists that construction activities might cause adverse impacts, these would be minimized by the use of best management practices and resource protection measures. The preferred alternative is the environmentally preferred alternative.

2.5 ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is simply put, “this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (Q6a)(516 DM 6 4.10(A)(5).

Replacing the bridge over Pigeon Roost Creek (Action Alternative) allows visitors to continue to access the historic Natchez Trace, an important aspect of our national heritage. Protection of the Natchez Trace Parkway through the replacement of a deteriorating structure allows visitors to continue to enjoy the scenic, recreational, and historic features. The No Action Alternative would limit visitors’ use of the Parkway, create potential risk to health and safety, and would not protect the Parkway. Continued deterioration, including spalling and the emission of efflorescence, would add concrete and minerals to the surrounding wetlands and vegetation, which may adversely impact those resources. Therefore, the Action Alternative is the Environmentally Preferred Alternative because it best protects, preserves, and enhances historic, cultural, and natural resources.

Table 2. SUMMARY OF IMPACTS		
Alternative Factor	No Action Alternative	Action Alternative
Vegetation	The No Action Alternative would have a long-term negligible adverse impact to vegetation. There would be a long-term negligible beneficial cumulative impact to vegetation. The adverse impact to vegetation would not be an impairment of Park resources or values.	The Action Alternative would have a long-term minor adverse impact to vegetation. There would be a negligible adverse cumulative impact to vegetation. Therefore, while the adverse impacts to vegetation in the vicinity of the bridge location would be minor, there would be no impairment of Park resources or values as a result of the implementation of the Action Alternative.
Wetlands	The No Action Alternative would have a long-term negligible adverse impact to wetlands. There would be a long-term moderate adverse cumulative impact. The adverse impact to wetlands would not be an impairment of Park resources or values.	The Action Alternative would have a short-term minor adverse impact to wetlands. There would be a long-term moderate adverse cumulative impact to wetlands. Therefore, while the adverse impacts to wetlands in the vicinity of the bridge location would be minor, there would be no impairment of Park resources or values as a result of the implementation of the Action Alternative.
Floodplains	The No Action Alternative would have no impact to floodplains. Therefore, there would be no impairment of Park resources or values as a result of the implementation of the No Action Alternative.	The Action Alternative would have a short-term minor adverse impact and a long-term negligible adverse impact to floodplains. There would be a long-term moderate adverse cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.
Cultural Landscape	The No Action Alternative would have no impacts to the cultural landscape. Therefore, there would be no impairment of Park resources or values as a result of the implementation of the No Action Alternative.	The Action Alternative would have short-term minor adverse impacts during construction and long-term minor adverse impacts while the vegetation recovers. This translates to a Section 106 of the National Historic Preservation Act determination of effect of "no adverse effect" to the cultural landscape. A letter dated April 26, 2001 from the Mississippi Department of Archives and History in response to a cultural resources assessment request for the project states, "It is our determination that no properties listed in or eligible for listing in the National Register of Historic Places will be affected..." The adverse impacts to the cultural landscape would not be an impairment of Park resources or values.
Visitor Use and Experience	The No Action Alternative would have a long-term moderate adverse impact to visitor use and experience. The cumulative impact to visitor use and experience would be short-term, minor and adverse.	The Action Alternative would have a long-term moderate beneficial impact to visitor use and experience. The cumulative impact to visitor use and experience would be long-term, moderate, and beneficial.
Health and Safety	The No Action Alternative would have a long-term moderate adverse impact to health and safety. The cumulative impact to health and safety would be long-term, minor, and adverse.	The Action Alternative would have a long-term moderate beneficial and short-term minor adverse impact to health and safety. There would be a long-term minor beneficial cumulative impact, and a short-term minor adverse cumulative impact to health and safety.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following addresses the affected environment and the environmental consequences for the No Action Alternative and the Action Alternative (Preferred Alternative). Information for each impact topic was collected during site visits to the Park, preliminary design plan reviews, resource surveys, and interviews with Park staff.

Methodology

To determine impacts, methodologies were identified to measure the change in Park resources that would occur with the implementation of each alternative. Thresholds were established for each impact topic to help understand the severity and magnitude of changes in resource conditions, both adverse and beneficial, of the various alternatives.

Potential impacts are described in terms of type (Are the effects beneficial or adverse?), context (Are the effects site-specific, local, or even regional?), duration (Are the effects short-term, lasting during construction?), or long-term, (lasting permanently?), and intensity (Are the effects negligible, minor, moderate, or major?). Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this document.

Each alternative is compared to a baseline to determine the context, duration, and intensity of resource impacts. For purposes of impact analysis, the baseline is the continuation of current management (the No Action Alternatives) projected over the next 10 years. In the absence of quantitative data, best professional judgment was used to determine impacts. In general, the thresholds used come from existing literature, Federal and State standards, and consultation with subject matter experts and appropriate agencies.

Cumulative Impacts

Cumulative impacts are defined by CEQ 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). Each resource impacted by the proposed project was analyzed to determine the spatial boundary. Within each resource’s spatial boundary, actions were identified that would or could impact that resource. The area within the boundary included the Parkway land and land owned or managed by other public or private entities. Cumulative actions were identified through research of management documents, discussion with NPS and FHWA staff, and discussion with county and local representatives.

Past Actions

The Natchez Trace Parkway in the study area, including the bridge over Pigeon Roost Creek, was constructed in 1956.

Pigeon Roost Creek was channelized and diverted from its original location, at that time.

Present Actions

Maintenance activities, such as mowing, occur continuously throughout the growing season.

Future actions

A roadway project is proposed for construction in 2009. This project would rehabilitate and resurface approximately 74 miles of the Natchez Trace Parkway, pull-offs, and parking areas from Milepost 130 to Milepost 204 in Attala, Choctaw, Leake and Madison Counties in Mississippi. This project includes eleven pull-off areas, and an Information Center Parking Area along the Parkway. In addition, the rest area and approximately 1.9 miles of park access roads at the Jeff Busby Site would be included in this project. This work would include drainage repairs on shoulders and ditches, repairs to the roadway base, milling, resurfacing and the installation of pavement markings and signage. Base repairs are needed because an expansive clay subbase underlays the road; distortion to and deterioration of the roadway base has occurred as a result of the expansion of these clays.

Impairment

NPS Director's Order 12 requires an impairment finding for actions that impact NPS resources. The 'fundamental purpose' of the NPS, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve Park resources and values. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on Park and Monument resources and values. However, the laws do give NPS management discretion to allow impacts to Park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given NPS management discretion to allow certain impacts within parks, that discretion is limited by statutory requirement that the NPS must leave Park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of Park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any Park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent 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 Master Plan or General Management Plan or other relevant NPS planning documents.

A determination on impairment is made in the Conclusion sections under the appropriate impact topics.

3.1 VEGETATION

Affected Environment

The vegetative community in the study area is comprised of a bottomland hardwood forest. This community occurs on floodplains associated with Pigeon Roost Creek. The canopy is dominated by various bottomland trees that include sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), American elm (*Ulmus Americana*), green ash (*Fraxinus pennsylvanica*), water oak (*Quercus nigra*), willow oak (*Q. phellos*), swamp chestnut oak (*Q. michauxii*), and cherrybark oak (*Q. pagoda*). Understory species include ironwood (*Carpinus caroliniana*), common paw paw (*Asimina triloba*), and American holly (*Ilex opaca*). Shrubs include Chinese privet (*Ligustrum sinense*), storax (*Styrax americana*), swamp dogwood (*Cornus stricta*), black highbush blueberry (*Vaccinium fuscatum*), and cane (*Arundinaria gigantea*). The herbaceous stratum is dominated by blunt broom sedge (*Carex tribuloides*), bladder sedge (*C. intumescens*), white-edged sedge (*C. debilis*), slender spikegrass (*Chasmanthium laxum*), water-horehound (*Lycopus virginicus*), poison ivy (*Toxicodendron radicans*), cross-vine (*Bignonia capreolata*), and common greenbrier (*Smilax rotundifolia*).

Included within this community type are areas of slightly higher elevation that contain a few species more characteristic of drier sites in addition to the typical bottomland hardwood species. The canopy of these areas includes additional species such as mockernut hickory (*Carya alba*), southern red oak (*Quercus falcata*), and loblolly pine (*Pinus taeda*). The herbaceous stratum typically lacks the hydrophytic herbaceous species that are characteristic of the wetter areas, and exotic species such as Chinese privet and Japanese honeysuckle (*Lonicera japonica*) are prevalent within these drier areas.

The Mississippi Natural Heritage Database's Choctaw County list included nine species of special concern vascular plants. The study area does not contain suitable habitat for the American ginseng (*Panax quinquefolius*) or yellow lady's slipper (*Cypripedium pubescens*), or crested coralroot (*Hexalectris spicata*). Although suitable habitat exists for the, white turtlehead (*Chelone glabra*), Turk's cap lily (*Lilium superbum*), square-stem monkey flower (*Mimulus ringens*), purple fringeless orchid (*Platanthera peramoena*), American bladdernut (*Staphyllea trifolia*), and heart-leaved foam flower (*Tiarella cordifolia*), none of these species were observed during a floristic survey of the study area in November 2003. A search of the database in September 2006 verified that no additional special concern species had been added.

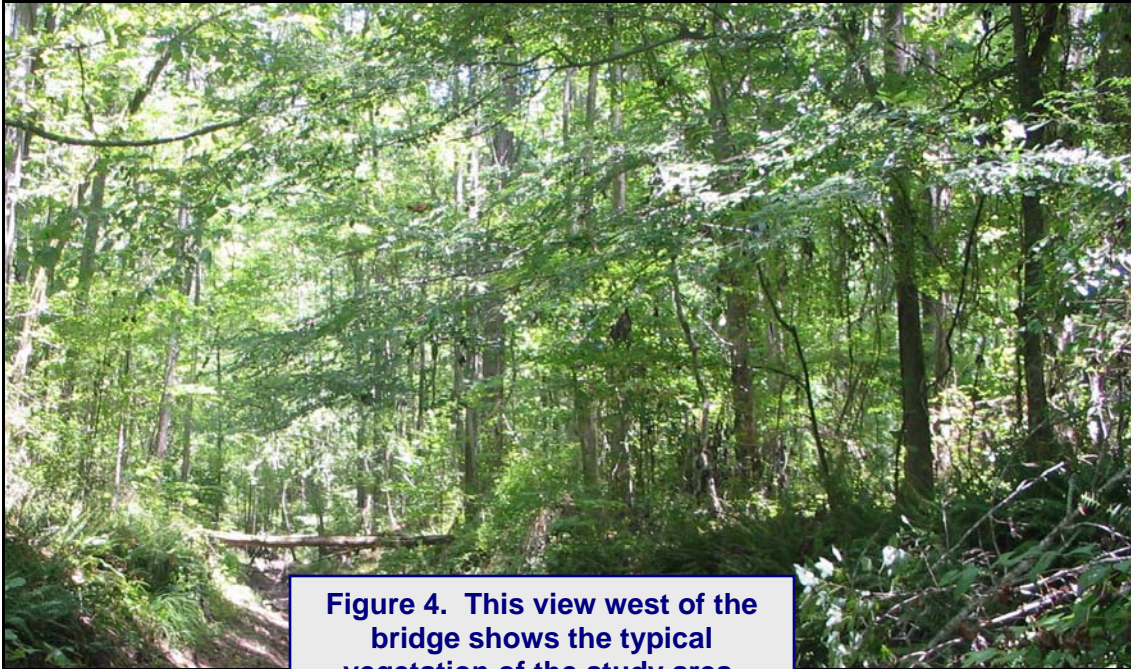


Figure 4. This view west of the bridge shows the typical vegetation of the study area.

Methodology

Available information on vegetation and vegetative communities potentially impacted by the proposed alternatives was compiled. To the extent possible, locations of sensitive vegetative species, populations, and communities were identified through the Mississippi Natural Heritage Program Database. Predictions about short-term and long-term impacts to vegetation were based on previous experience with projects of similar scope and vegetative characteristics. Analyses of the potential intensity of impacts on vegetation were derived from the available information on the Parkway and the professional judgment of the Park resource specialists. The duration for short-term impacts to vegetation was determined to be 3 years because the construction is expected to be completed in 2 years, and vegetation would re-establish in one year.

Definition of Intensity Levels:

Negligible	Minor	Moderate	Major
<p>Some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be on a small scale and no sensitive vegetation communities would be affected.</p>	<p>The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting sensitive vegetation communities, could be required and would be effective.</p>	<p>The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some sensitive vegetation communities could also be affected.</p>	<p>The alternative would have a considerable effect on native plant populations, including sensitive vegetation communities, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.</p>

Definition of Duration:

Short-term: Effects lasting less than 3 years

Long-term: Effects lasting longer than 3 years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the contiguous bottomland hardwood forest adjacent to the Parkway bridge over Pigeon Roost Creek, which extends approximately 300 feet west and 400 feet east from the bridge over Pigeon Roost Creek, however it extends approximately 1400 feet southeast of the Parkway. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Parkway through 10 years in the future. Past, present, and future actions that contribute to the cumulative impact on vegetation include the designation of the Parkway, construction of the Parkway, maintenance activities, and the rehabilitation and resurfacing project. The past, present and future actions combined would have a long-term negligible beneficial impact to vegetation because although vegetation was cleared to construct the Parkway, the designation of the Parkway allowed for the protection of vegetation within its boundaries for an enjoyable viewshed. The repaving project would have negligible impacts to vegetation, as all of the work would be done within the roadway prism.

Environmental Effects

No Action Alternative

The No Action Alternative would have long-term negligible adverse impacts to vegetation because the spalling and efflorescence would introduce concrete and minerals to the surrounding vegetation.

Cumulative Impacts. The other past, present and future actions would have a long-term negligible beneficial impact to vegetation. These actions combined with the No Action Alternative would have a long-term negligible beneficial cumulative impact to vegetation because there are no plans to clear or alter vegetation in this area, and a portion of the vegetation in the study area would continue to be protected through its enclosure within Parkway boundaries.

Conclusions. The No Action Alternative would have a long-term negligible adverse impact to vegetation. There would be a long-term negligible beneficial cumulative impact to vegetation. The adverse impact to vegetation would not be an impairment of Park resources or values.

Action Alternative (Preferred Alternative)

Demolition of the existing bridge, construction of the new bridge, and construction of the adjacent temporary crossing would have long-term minor adverse impacts on vegetation. Approximately 3.2 acres of vegetation comprised of mowed grass and mature trees would be cleared in order to construct the adjacent detour. While areas disturbed for grading and temporary detour road construction would be allowed to re-vegetate naturally, it likely would be many years before the size of trees and density of vegetation matched the existing conditions. Similar vegetation to that removed exists

throughout the Park and would be protected under the current management plans.

Resource Protection Measures. After construction is completed, and the detour route is removed the area would be restored to previous ground elevation through the use of geotextile under the fill material. The area would be re-vegetated with native species, which includes the possible use of switchcane to simulate the habitat of the passenger pigeon. Noxious weed seeds would be restricted from use in seed mixes, and exotic invasive species would be managed when feasible.

Cumulative Impacts. The past, present and future actions combined would have a long-term negligible beneficial impact to vegetation. When combined with the long-term minor adverse impacts from the Action Alternative, there would be a long-term minor adverse cumulative impact to vegetation because the effects would be on a small scale, and would not effect entire populations. There are no plans to alter or remove the remainder of the vegetation within the study area, and a portion of the vegetation would continue to be protected through its presence within the Parkway boundaries.

Conclusions. The Action Alternative would have a long-term minor adverse impact to vegetation. There would be a negligible adverse cumulative impact to vegetation. Therefore, while the adverse impacts to vegetation in the vicinity of the bridge location would be minor, there would be no impairment of Park resources or values as a result of the implementation of the Action Alternative.

3.2 WETLANDS

Affected Environment

A wetland delineation was conducted in November 2003. Field efforts included plant identification throughout the site to determine the presence of hydrophytic vegetation. Various taxonomic keys of regional flora were consulted for species identification. Soil core samples were taken from selected locations and analyzed to determine the presence of hydric soils. The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Soil Survey of Choctaw County, Mississippi was used to supplement all field soil studies.

Jurisdictional waters include the main Pigeon Roost Creek Channel and an unnamed tributary of Pigeon Roost Creek that enters the study area from the northeast and conjoins with Pigeon Roost Creek southeast of the bridge. Both of these streams have been heavily disturbed in the past by channelization, erosion, and sedimentation. Corps Jurisdictional Wetlands include 3.68 acres of palustrine forested broad-leaved deciduous wetlands. Hydrophytic vegetation was predominant throughout the study area. These areas may represent wetlands that have been artificially drained by the channelization of Pigeon Roost Creek. Study area wetlands were classified according to Cowardin et al. (1979). All wetlands within the study area were classified as Palustrine Forested Broad-leaved Deciduous, and all stream channels were classified as Riverine Intermittent Unconsolidated Bottom Mud.



Figure 5. View of channel looking upstream.



Figure 6. View of channel looking downstream.

Methodology

Pursuant to Executive Order 11990: Protection of Wetlands, the impact of a project on wetland areas must be assessed. For the purposes of implementing E.O. 11990, any area that is classified as wetland habitat according to the U.S. Fish and Wildlife Service's (FWS) "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al. 1979) is subject to Director's Order #77-1 and its implementing procedures. The Cowardin classification system forms the basis for the FWS's National Wetlands Inventory (NWI) mapping program. Under the Cowardin classification system, a wetland must have one or more of the following attributes:

- At least periodically, the land supports predominantly hydrophytes (wetland vegetation)

- The substrate is predominantly undrained hydric soil; or
- The substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of the year.

Hydrophytic plants are plant life growing in water or on a base, such as other plant life, rocks or soils, which is at least periodically deficient in oxygen as a result of excessive water content.

Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop an oxygen deficiency that favors the growth and regeneration of hydrophytic plants.

Wetland hydrology exists if areas are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 % of the growing season.

* 1987 ACOE Delineation Manual Definitions

The Cowardin definition includes more habitat types than the wetland definition (33 CFR 328.3) and delineation manual used by the Corps of Engineers (Corps) for identifying wetland subject to Section 404 of the Clean Water Act. The 1987 “Corps of Engineers Wetlands Delineation Manual” requires that all three of the parameters listed above (hydrophytic vegetation, hydric soil, wetland hydrology) be present in order for a habitat to be considered a wetland. According to NPS Guidance, for vegetated wetlands, the 1987 Corps Manual should be used for delineation/mapping. For un-vegetated wetlands, such as stream channels, tidal mudflats, shorelines, etc., the “limits” of these systems as described in Cowardin should be used.

Available information on wetlands potentially impacted by the proposed alternatives was compiled from a wetland delineation done in 2003 and by talking to Park natural resource staff. Predictions about short-term and long-term impacts to wetlands were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts on wetlands were derived from the available information on the Park and best professional judgment. The construction of the Action Alternative would most likely be two years or less and the wetland would take approximately one year to recover; therefore the length of the short term duration is three years.

Definition of Intensity Levels:

Negligible	Minor	Moderate	Major
The effects would be below or at the lower levels of detection.	The effects to wetlands would be detectable and relatively small in terms of area and the nature of the change. The action would affect a limited number of individuals of plant or wildlife species within the wetland.	The effects to wetlands would be readily apparent over a relatively small area but the impact could be mitigated by restoring previously degraded wetlands. The action would have a measurable effect on plant or wildlife species within the wetland, but all species would remain indefinitely viable.	The effects to wetlands would be readily apparent over a relatively large area. The action would have measurable consequences for the wetland area that could not be mitigated. Wetland species dynamics would be upset, and plant and/or animal species would be at risk of extirpation from the area.

Definition of Duration:

Short-term: Effects lasting less than 3 years

Long-term: Effects lasting longer than 3 years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the palustrine forested broad-leaved deciduous wetlands located within the contiguous bottomland hardwood forested area surrounding the bridge over Pigeon Roost Creek. This area is similar in characteristic due to the vegetation found here. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Parkway through 10 years in the future. Past, present, and future actions that contribute to cumulative impacts on wetlands include the construction of the Parkway and the channelization of Pigeon Roost Creek. These actions combined would have a long-term moderate adverse impact to wetlands because the construction of the Parkway and channelization of Pigeon Roost Creek permanently filled and segregated wetland complexes.

Environmental Effects

No Action Alternative

Over time, spalling and efflorescence would continue to introduce concrete and minerals to the wetlands, causing a long-term negligible adverse impact to wetlands.

Cumulative Impacts. The other past, present, and future actions combined would have a long-term moderate adverse impact to wetlands. When combined with the long-term negligible adverse impact from the No Action Alternative, there would be a long-term moderate adverse cumulative impact to wetlands. The No Action Alternative would contribute only slightly to this impact.

Conclusions. The No Action Alternative would have a long-term negligible adverse impact to wetlands. There would be a long-term moderate adverse cumulative impact. The adverse impact to wetlands would not be an impairment of Park resources or values.

Action Alternative (Preferred Alternative)

The construction of a temporary crossing adjacent to the existing bridge would cause a short-term minor adverse impact to wetlands because approximately 0.13 acres of wetlands would be filled to construct the temporary detour. An additional 0.10 acres of the stream channel would also be impacted because culverts would be placed in the channel. After the existing bridge is replaced and open to traffic, the temporary crossing would be removed, the fill removed, and the area. In accordance with Executive Order 11990: Protection of Wetlands and NPS guidelines, a statement of findings (SOF) has been prepared and is located in Appendix C.

Resource Protection Measures. Geotextile would be placed underneath the fill material in the wetlands so that after construction is completed, and the fill material removed the exact elevation of the ground prior to construction can be obtained when restoring the

area. The temporary impact of approximately 0.23 acres of wetlands would be mitigated through the restoration of another wetland area.

Cumulative Impacts. The other past, present, and future actions combined would have a long-term moderate adverse impact to wetlands. When combined with the Action Alternative, there would be a long-term moderate adverse cumulative impact to wetlands because the effects to wetlands would be readily apparent over a relatively small area but the impact could be mitigated by restoring previously degraded wetlands.

Conclusions. The Action Alternative would have a short-term minor adverse impact to wetlands. There would be a long-term moderate adverse cumulative impact to wetlands. Therefore, while the adverse impacts to wetlands in the vicinity of the bridge location would be minor, there would be no impairment of Park resources or values as a result of the implementation of the Action Alternative.

3.3 FLOODPLAINS

Affected Environment

Federal Emergency Management Agency (FEMA) Flood Insurance Rate maps are not available for the area surrounding Pigeon Roost Creek. The Natchez Trace Parkway was built upon an embankment; as a result the floodplains are abruptly constricted to 85' at the current bridge across Pigeon Roost Creek. The Pigeon Roost floodplain includes three bridges, which convey the Pigeon Roost Creek, Pigeon Roost Canal, and Pigeon Roost Slough. Flooding along the Natchez Trace Parkway generally occurs during high rainfall events in the winter months of the year, and occasionally in the spring. Floodwaters seldom overtop the banks of the roadway, and have not historically caused any closures of the Parkway. Through preliminary bridge hydraulic analysis it was determined that downstream of the Parkway, the 100-year event water elevation is 380.0 feet. Upstream of the Parkway, the 100-year event water elevation is 382.2 feet. The floodplain analysis extends accurately approximately 400 ft upstream and downstream of the Parkway.

Methodology

River channels have a limited capacity for water and when this is exceeded, flooding of the adjoining land (or floodplain) occurs, which then act to convey and store this water. Floodplains are a vital part of our environment and their flooding a natural occurrence, which often occurs without risk to people. However, the effectiveness of a river and floodplain to convey and store flood-water can be adversely affected by human activity. As well as their importance in providing natural storage for floodwater, floodplains can also provide fertile agricultural land, valuable habitat for wildlife and plants, and a recreational resource. Impact analysis was based on the on-site inspection of the study area, review of existing literature and studies, and professional judgment. The duration for short-term impacts to floodplains was determined to be 2 years, the maximum duration of construction.

Definition of Intensity Levels:

Negligible	Minor	Moderate	Major
There would be very little change in the ability of a floodplain to convey floodwaters, or its values and functions. Project would not contribute to flooding.	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local, although the changes would be only just measurable. Project would not contribute to flooding. No mitigation would be needed.	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Project could contribute to flooding. The impact could be mitigated by modification of proposed facilities in floodplains.	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and, widespread. Project would contribute to flooding. The impact could not be mitigated by modification of proposed facilities in floodplains.

Definition of Duration:

Short-term: Effects lasting less than 2 years
 Long-term: Effects lasting longer than 2 years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the floodplain surrounding the Pigeon Roost Creek and its tributaries within 400 feet of the Parkway because the study area is located in an area unmapped by FEMA. It is not feasible for the NPS to complete the floodplain mapping, and the floodplain analysis only extends accurately for approximately 400 feet upstream and downstream of the Parkway. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Pigeon Roost Creek Bridge through 10 years in the future. The other past, present, and future actions that contribute to the cumulative impact include the construction of the Parkway and the channelization of the Pigeon Roost Creek. The construction of the Parkway included the placement of fill material into the floodplain, which would have altered its boundaries as well as its ability to retain water. The channelization of Pigeon Roost Creek also altered the boundaries of the floodplain; therefore both actions have had a long-term moderate adverse impact to floodplains.

Environmental Effects

No Action Alternative

The No Action Alternative would have no impact to floodplains at the bridge over Pigeon Roost Creek.

Cumulative Impacts. The No Action Alternative would have no impact to floodplains; therefore there can be no cumulative impacts.

Conclusions. The No Action Alternative would have no impact to floodplains. Therefore, there would be no impairment of Park resources or values as a result of the implementation of the No Action Alternative.

Action Alternative (Preferred Alternative)

At the existing Pigeon Roost Creek Bridge there is approximately 2.91 feet of freeboard (see typical bridge figure, Appendix B) during the 50-year event. The bridge would be replaced with a similar sized structure; however changes to the bridge design may be necessary to meet current design standards. These slight changes may include the use of a larger girder (beam), and larger pier structures, but would not increase the

Backwater is the rise in water surface elevation caused by an obstruction.

Freeboard is the distance between the surface of the water and the bridge.

100-year event backwater by more than one foot, or reduce the 50-year freeboard to below two feet. Changes to the grade of the bridge and/or approaches are not likely to be necessary. Approximately 3,500 cubic yards of fill material would be placed to construct the detour route for Parkway visitor use while the bridge is closed for demolition and construction. The fill material would be in place for no longer than two years. After construction is completed, the fill material would be removed and the area would be restored to its previous contours. The Action Alternative would have a short-term minor adverse impact during construction while the detour is in place, and a long-term negligible adverse impact to floodplains due to slight changes in the new bridge. The impacts would not rise above negligible because of the elevated nature of the Parkway. According to the hydraulic analysis of the new structure, the 100-year water surface elevation would increase by only 0.01 feet (from 380.0 downstream and 382.2 upstream). This would still not be high enough to overtop the roadway, which has an elevation of approximately 385 feet. In accordance with Executive Order 11988: Floodplain Management and NPS guidelines, a statement of findings (SOF) has been prepared and is located in Appendix C.

One of the bridge design criteria is to provide 2 feet of freeboard for the 50-year event. This operational criterion is aimed at providing adequate waterway opening capacity at a certain level of risk for the public. The second design criterion is to limit the increase in water surface elevations to 1 foot for the 100-year event. This is an FHWA policy developed to consider flood risks to property owners and developmental impacts to natural and beneficial floodplain values.

Cumulative Impacts. The other past, present and future actions would have a long-term moderate adverse impact to floodplains. The other actions combined with the Action Alternative would have a long-term moderate adverse cumulative impact to floodplains. The Action Alternative would contribute only slightly to this impact.

Conclusions. The Action Alternative would have a short-term minor adverse impact and a long-term negligible adverse impact to floodplains. There would be a long-term moderate adverse cumulative impact to floodplains. The adverse impact to floodplains would not be an impairment of Park resources or values.

3.4 CULTURAL LANDSCAPE

Affected Environment

The 444-mile Natchez Trace Parkway was conceived and established in the 1930s as a designed landscape that integrates natural and cultural resources into a traditional southern landscape experience for Parkway visitors traveling along the roadway. It commemorates the Old Natchez Trace, a series of American Indian trails between Natchez, Mississippi, and Nashville, Tennessee, that were later used by “Kaintucks” as they walked or rode home after delivering goods down the Mississippi River to Natchez and New Orleans. Settlers of America’s Old Southwest and post riders also traveled along the Old Trace.

As one of the four nationally recognized rural parkways, the Natchez Trace Parkway, in its entirety, is eligible for the National Register of Historic Places as a designed cultural landscape and as a tribute to Landscape Architectural design and road way engineering partnerships at their best. Although a Cultural Landscape Report has not been completed for the Parkway, the cultural landscape of the Natchez Trace Parkway is known to include character defining features related to spatial organization and land patterns. Landscape characteristics in the study area that are important to the cultural landscape include the natural features and systems, land use and circulation. The Parkway is designed to provide visitors a leisurely and scenic motoring experience. To accomplish this, the Service maintains a wide right-of-way to sustain natural vegetation and landforms. The roadway is designed to rest lightly on the land and to be respectful of natural topography by minimizing cuts and fills, and is consistently 11-feet wide with 6-foot wide shoulders. It has a low speed limit, low traffic volumes, and low development density. The motor road route was selected to skirt cities, towns, and high-density developed areas, accessing them by widely separated, unobtrusive interchanges and access roads. There are no stop signs on the Parkway, though there are stop signs along its route to control access from adjacent roads. The Parkway motor road is not intended to serve commuter traffic, and commercial traffic is prohibited. It also links federal, state, local, and private cultural and historic sites along its length. Along with maintaining the road in good condition, it is paramount that the Parkway properly manages and protects its scenic quality. Contributing landscape features include the Parkway road, the perched location of the road on fill material as it follows the topography, mowed grass along the shoulders, mature bottomland hardwood forest, and the Pigeon Roost interpretive sign.

Methodology

Available information on the cultural landscape potentially impacted by the proposed alternatives was compiled. Predictions about short-term and long-term impacts to the cultural landscape were based on previous experience with projects of similar scope and vegetative characteristics. Analyses of the potential intensity of impacts on the cultural landscape were derived from the available information on the Parkway and the professional judgment of the Park resource specialists. The duration for short-term impacts to the cultural landscape was determined to be 2 years, the maximum duration of construction.

Definition of Intensity Levels:

Negligible	Minor	Moderate	Major
Impact(s) is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for §106 would be <i>no adverse effect</i>	Alteration of a pattern(s) or feature(s) of the landscape would not diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>no adverse effect</i> .	Alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>adverse effect</i> . A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.	Alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be <i>adverse effect</i> . Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Definition of Duration:

Short-term: Effects lasting less than 2 years
 Long-term: Effects lasting longer than 2 years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the Parkway from the Parkway intersection with U.S. Highway 82 to the Parkway intersection with U.S. Route 9 because it contains a contiguous landscaped/vegetated area. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Parkway through 10 years in the future. The other past, present, and future actions that contribute to the cumulative impact to the cultural landscape include the designation of the Parkway and the construction of the Parkway. These actions would have a long-term moderate beneficial impact to the cultural landscape. The designation and construction of the Parkway provided access to the historic Natchez Trace and created a unique roadway that blended with the surrounding topography so that visitors could experience the Old Trace, and the vegetation and feel of that area of the country.

Environmental Effects

No Action Alternative

The No Action Alternative would have no impact to the cultural landscape as the bridge continues to deteriorate because none of the character defining features of the landscape would be altered.

Cumulative Impacts. The No Action Alternative would have no impacts to cultural landscapes; therefore there would be no cumulative impacts.

Conclusions. The No Action Alternative would have no impacts to cultural landscapes. Therefore, there would be no impairment of Park resources or values as a result of the implementation of the No Action Alternative.

Action Alternative (Preferred Alternative)

The Action Alternative would have short-term minor adverse impacts during construction because of the presence of the detour route. The detour route would involve clearing of trees and the placement of fill material which changes the appearance of the area adjacent to the bridge over Pigeon Roost Creek and alters the vegetation, a character defining feature. After the detour route is removed and the area is re-vegetated, it would likely take approximately 2 years for the area to blend in with its surroundings. This would include the maturation of the grass, and the growth of understory brush at the edge of the trees. The Action Alternative would have a long-term minor adverse impact because although it is expected that the disturbed area would blend completely into its surrounding area, it may take several years after construction. The alteration of the vegetated pattern of the landscape would not diminish the overall integrity of the landscape. The new bridge structure would be designed to closely resemble the existing bridge.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact to the cultural landscape. The other actions combined with the Action Alternative would have a long-term moderate beneficial cumulative impact to the cultural landscape.

Conclusions. The Action Alternative would have short-term minor adverse impacts during construction and long-term minor adverse impacts while the vegetation recovers. This translates to a Section 106 of the National Historic Preservation Act determination of effect of “no adverse effect” to the cultural landscape. A letter dated April 26, 2001 from the Mississippi Department of Archives and History in response to a cultural resources assessment request for the project states, “It is our determination that no properties listed in or eligible for listing in the National Register of Historic Places will be affected...” The adverse impacts to the cultural landscape would not be an impairment of Park resources or values.

3.5 VISITOR USE AND EXPERIENCE

Affected Environment

The Natchez Trace Parkway, which extends from Nashville, TN to Natchez, MS, is visited by approximately 5,600,000 people annually. The primary use of the Parkway is of motorists enjoying the scenic vistas along the Old Trace. There are also many hiking trails and other recreational opportunities along the Parkway. North of the Pigeon Roost Bridge is the Tupelo Visitor Center which provides information about the Parkway. South of the Pigeon Roost Bridge is the Jeff Busby visitor facilities.

Methodology

NPS Management Policies 2001 state that the enjoyment of Park resources and values by the people of the United States is part of the fundamental purpose of all parks and

that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. Part of the purpose of the Park is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the Park's management goals is to ensure that visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of Park facilities, services, and appropriate recreational opportunities. Available information regarding traffic counts was compiled by talking to Park staff. Information was accumulated from various town meetings and a public scoping mailer. Predictions about short-term and long-term impacts to visitor use and experience were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts to visitor use and experience were derived from the available information on the Park and best professional judgment. The construction of an action alternative would most likely be two years or less, therefore the short-term duration is two years.

Definition of Intensity Levels:

Negligible	Minor	Moderate	Major
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 severely adverse or exceptionally beneficial. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.

Definition of Duration:

Short-term: Effects lasting less than 2 years
 Long-term: Effects lasting longer than 2 years

Cumulative Impact Scenario

The spatial boundary for the cumulative impacts assessment has been defined as the Parkway from the Parkway intersection with U.S. Highway 82 to the Parkway intersection with U.S. Route 9. The Parkway extends approximately 444 miles through 3 states; therefore it was necessary to determine the area which a visitor may experience in one visit. Intersections present access points where the visitor may enter and exit the Parkway; therefore these locations were chosen as boundaries for the cumulative impact analysis. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the Parkway through 10 years in the future. The other past, present, and future actions that contribute to cumulative impacts include the designation of the Parkway, construction of the Parkway, maintenance activities, and the rehabilitation and resurfacing project. These actions would have a long-term moderate beneficial impact to visitor use and experience. The designation and construction of the Parkway provided access to the historic Natchez Trace so that visitors could experience the resource as well as the surrounding natural resources. The maintenance activities and resurfacing project serve to enhance the visitor experience through enjoyable viewsheds and a safe driving experience.

Environmental Effects

No Action Alternative

The No Action Alternative would have a long-term moderate adverse impact to visitor use and experience. As the existing bridge over Pigeon Roost Creek continues to deteriorate, weight restrictions would be necessary. There would be a need for more frequent repairs and temporary closures as deterioration continues.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact. The other actions combined with the No Action Alternative would have a short-term minor adverse cumulative impact because although the natural area would be protected for the enjoyment of the visitors, access would be limited during repeated closures for repairs.

Conclusions. The No Action Alternative would have a long-term moderate adverse impact to visitor use and experience. The cumulative impact to visitor use and experience would be short-term, minor and adverse.

Action Alternative (Preferred Alternative)

The Action Alternative would have long-term moderate beneficial impacts to visitor use and experience because the cracking and efflorescence stricken bridge would be replaced by a new bridge and visitors would continue to enjoy the Parkway. Visitors would experience short-term minor adverse impacts due to the use of a detour from the Parkway, which may slightly inconvenience drivers although the detour would be adjacent to the existing bridge.

Cumulative Impacts. The other past, present, and future actions would have a long-term moderate beneficial impact. The other actions combined with the Action Alternative would have a long-term moderate beneficial impact to visitor use and experience. The visitors would be able to enjoy the Parkway without frequent closures to repair the bridge structure.

Conclusions. The Action Alternative would have a long-term moderate beneficial impact to visitor use and experience. The cumulative impact to visitor use and experience would be long-term, moderate, and beneficial.

3.6 HEALTH AND SAFETY

Affected Environment

Bridge inspections are done by the Federal Lands Highway Bridge Office every two years on the bridge over Pigeon Roost Creek. Through routine inspections, it has been documented that the bridge is experiencing deterioration as a result of reactive aggregate material. The bridge is currently experiencing reduced load capacity due to the deterioration.

Methodology

In addition to the guiding regulations and policies discussed in the “Visitor Experience” section, the *NPS Management Policies 2001* state that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. The policies also state, “While recognizing that there are limitations on its capability to totally eliminate all hazards, the Service and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees.” Furthermore, the NPS will strive to protect human life and provide for injury-free visits.

Predictions about short-term and long-term impacts were based on previous experience of projects of similar scope and characteristics. Analyses of the potential intensity of impacts to safety were derived from the available information on the Park and best professional judgment. The construction of an action alternative would most likely be two years or less, therefore the short-term duration is two years.

Definition of Intensity Levels:

Negligible	Minor	Moderate	Major
The impact to safety would not be measurable or perceptible.	The impact would be measurable or perceptible, and it would be limited to a relatively small number of persons at localized areas. Impacts to safety could be realized through a minor increase or decrease in the potential for accident in current accident areas.	The impact to safety would be sufficient to cause a permanent change in accident rates at existing low accident locations or to create the potential for additional accidents in areas that currently do not exhibit noticeable accident trends.	The impact to safety would be substantial either through the elimination of potential hazards or the creation of new areas with a high potential for serious accidents or hazards.

Definition of Duration:

Short-term: Effects lasting less than 2 years
 Long-term: Effects lasting longer than 2 years

Cumulative Impacts

The spatial boundary for the cumulative impacts assessment has been defined as Parkway from the Parkway intersection with U.S. Highway 82 to the Parkway intersection with U.S. Route 9. The Parkway extends approximately 444 miles through 3 states, therefore it was necessary to determine the area which a visitor or employee may experience in one trip. Intersections present access points where the visitor may enter and exit the Parkway; therefore these locations were chosen as boundaries for the cumulative impact analysis. The temporal boundary for the cumulative impacts assessment has been defined as from the construction of the bridge in 1956 through 10 years in the future. The other past, present, and future actions that contribute to the cumulative impact to health and safety include the construction of the Parkway, maintenance activities, and the rehabilitation and resurfacing project. These actions would have a long-term negligible adverse impact to health and safety. The construction of the Parkway created an area used by diverse user groups including drivers of motor

vehicles, bicyclists, and pedestrians, which sometimes conflict. The maintenance activities and repaving of the Parkway are beneficial to safety in the long-term; however the presence of maintenance and construction equipment could create potential conflicts.

Environmental Effects

No Action Alternative

The No Action Alternative would have long-term moderate adverse impacts to health and safety. The existing bridge would continue to deteriorate, and the load capacity would be reduced. Weight restrictions would be placed on the bridge and there would be a need for more frequent repairs and temporary closures as deterioration continues.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. The other actions combined with the No Action Alternative would have a long-term minor adverse cumulative impact to health and safety, as there would be an increased and continuous presence of equipment to repair the deterioration, which would increase potential impacts.

Conclusions. The No Action Alternative would have a long-term moderate adverse impact to health and safety. The cumulative impact to health and safety would be long-term, minor, and adverse.

Action Alternative (Preferred Alternative)

The Action Alternative would have a long-term moderate beneficial impact to health and safety. The replacement of the deteriorating bridge would ensure the safety of visitors traveling the Parkway. Short-term minor adverse impacts would occur during construction because of the possible conflicts between construction equipment and motorists.

Cumulative Impacts. The other past, present, and future actions would have a long-term negligible adverse impact to health and safety. The other actions combined with the Action Alternative would have a long-term minor beneficial cumulative impact to health and safety because a new structure would be in place requiring no repairs; and short-term minor adverse cumulative impacts from the presence of a detour and construction equipment.

Conclusions. The Action Alternative would have a long-term moderate beneficial and short-term minor adverse impact to health and safety. There would be a long-term minor beneficial cumulative impact, and a short-term minor adverse cumulative impact to health and safety.

4 PUBLIC INVOLVEMENT AND COORDINATION

As required by NPS policies and planning documents, it is the Park's objective to work with federal, state, and local governmental and private organizations to ensure that the Park and its programs are coordinated with theirs, are supportive of their objectives as far as proper management of the Park permits, and that their programs are similarly supportive of Park programs.

Consultation and coordination have occurred with numerous agencies for the development of the alternatives and preparation of the EA. The following people, organizations, and agencies were contacted for information, which assisted in identifying important issues, developing alternatives, and analyzing impacts.

Choctaw County Economic Development Foundation
Federal Highway Administration – Eastern Federal Lands Highway Division
Mississippi Department of Archives & History
Mississippi Department of Environmental Quality
Mississippi Department of Wildlife, Fisheries, and Parks
United States Army Corps of Engineers
United States Department of the Interior – Fish and Wildlife Service
United States Department of the Interior – National Park Service
Webster County Development Council

4.1 PERMITS/COORDINATION

A letter dated September 23, 2003 was sent to the Mississippi Field Office of the U.S. Fish and Wildlife Service (FWS) requesting information regarding federally listed species in the study area. The FWS replied on October 3, 2003 stating, "There are no known federal listed threatened or endangered species, or their habitats, within the project area. Therefore, the Service anticipates no impacts to any listed species to occur as a result of the proposed project. The Service has no objections or special concerns regarding the current proposal." Personal communication with the Mississippi Field Office of the FWS on August 9, 2006 confirmed that there are no concerns regarding federally listed species.

On April 20, 2001 the project description and a copy of the latest bridge inspection report for the bridge over Pigeon Roost Creek was submitted to the Mississippi Department of Archives and History. A letter dated April 26, 2001 from the Mississippi Department of Archives and History in response to a cultural resources assessment request for the project states, "It is our determination that no properties listed in or eligible for listing in the National Register of Historic Places will be affected..." The project is located near the county line between Webster and Choctaw counties, and was stated as occurring in Webster County throughout this correspondence.

The Clean Water Act (CWA) of 1972 was created to restore and maintain water of the United States. Several sections of the CWA are applicable to activities in or near waters of the United States, including both navigable waters and adjacent wetlands. Section 404 of the CWA, which is administered by the U.S. Army Corps of Engineers, regulates the discharge of dredged or fill material. The construction of the temporary detour bridges would impact waters of the United States; therefore a permit would be

necessary. Section 401 of the CWA, administered by the Mississippi Department of Environmental Quality, must certify that proposed activities that would result in discharges to surface water are consistent with the CWA. The Mississippi Department of Environmental Quality, as authorized by the Environmental Protection Agency, administers section 402 National Pollutant Discharge Elimination System (NPDES). Should disturbance total less than one acre, a stormwater general NPDES permit would not be necessary.

4.2 PUBLIC NOTICE/PUBLIC SCOPING

In order to give the public and all interested parties a chance to review the EA, it will be noticed for public comment for a minimum of 30 days through local newspapers and on the world-wide-web. During this 30-day comment period, a hardcopy version of the EA will be available for review at the Tupelo Visitor Center, and at the Choctaw County Public Library. An electronic version of this document can be found on the National Park Service's Planning Environment and Public Comment (PEPC) website at <http://parkplanning.nps.gov>. This site provides access to current plans, environmental impact analyses, and related documents on public review. Users of the site can submit comments for documents available for public review. Copies of the EA will also be sent to applicable federal, state and local agencies.

4.3 LIST OF PREPARERS AND REVIEWERS

The following individuals contributed to the development of this document:

Federal Highway Administration

Lisa Landers, Environmental Protection Specialist
Robert Morris, Project Manager
Abigail Ginsberg, Hydraulics Engineer

National Park Service, Natchez Trace Parkway

Craig Stubblefield, Chief of Resource Management
Kurt Foote, Natural Resource Management Specialist
Christina Miller, Cultural Resource Specialist

National Park Service, Denver Service Center

Jan Burton, Project Manager
Bob Felker, Landscape Architect
Steven Hoffman, Natural Resource Specialist
Patrick Walsh, Cultural Resource Specialist

5 REFERENCES

Bridge Inspection and Management Program. Bridge Inspection Report: Natchez Trace Parkway, Pigeon Roost Creek Bridge. Federal Highway Administration, 2006.

Dial Cordy and Associates, Inc. Final Wetland Delineation for the Natchez Trace Parkway, Pigeon Roost Creek Bridge, Project 1J15, 2A15, Choctaw County, Mississippi. Dial Cordy and Associates, 2004.

Dial Cordy and Associates, Inc. Final Biological Assessment for the Natchez Trace Parkway, Pigeon Roost Creek Bridge, Project 1J15, 2A15, Choctaw County, Mississippi. Dial Cordy and Associates, 2004.

National Park Service. Director's Order #12
<http://www.nps.gov/refdesk/DOrders/DOrder12.html>

National Park Service. 2001 Management Policies. <http://www.nps.gov/refdesk/mp/>.

National Park Service. Natchez Trace Parkway General Management Plan. U.S. Department of the Interior, 1987.

National Park Service. Procedural Manual #77-1: Wetland Protection, 1998

National Park Service. Procedural Manual #77-2: Floodplain Management, 2002

Natural Resources Conservation Service. Soil Survey of Choctaw County, Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov>, February 2, 2006.

www.wbv.com/chipperwoods/photos/passpigeon.htm June 12, 2006

APPENDIX A: AGENCY COORDINATION

031008-PC-6



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Mississippi Field Office
6578 Dogwood View Parkway, Suite A
Jackson, Mississippi 39213

October 3, 2003

Mr. Alan T. Teikari
Federal Highway Administration
U.S. Department of Transportation
21400 Ridgetop Circle
Sterling, Virginia 20166-6511

RE: HFPP-15

Dear Mr. Teikari:

The U.S. Fish and Wildlife Service (Service) has reviewed the information in your letter dated September 23, 2003, regarding the proposed Natchez Trace Parkway bridge replacement project on Pigeon Roost Creek in Choctaw County, Mississippi. Our comments are submitted in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e) and the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

There are no known federal listed threatened or endangered species, or their habitats, within the project area. Therefore, the Service anticipates no impacts to any listed species to occur as a result of the proposed project. The Service has no objections or special concerns regarding the current proposal.

If you have any questions, please contact David Felder in our office, telephone: (601) 321-1139.

Sincerely,

Curtis B. James
Assistant Field Supervisor

COPY

AUG 01 2003

A2623

Ms. Brigitte A. Azran
Environmental Compliance Engineer
Federal Highway Administration
Eastern Federal Lands Highway Division
21400 Ridgetop Circle
Sterling, Virginia 20166

Dear Ms. Azran:

In April 2001 the Natchez Trace Parkway consulted with the Mississippi State Historic Preservation Office (SHPO) on plans to replace the Pigeon Roost Creek Bridge in Webster County, Mississippi. Enclosed is a copy of the letter we received from the Mississippi SHPO for your files.

Should you require additional information You may contact Cultural Resource Specialist Christina E. Miller at (662) 680-4004.

Sincerely,

WAS

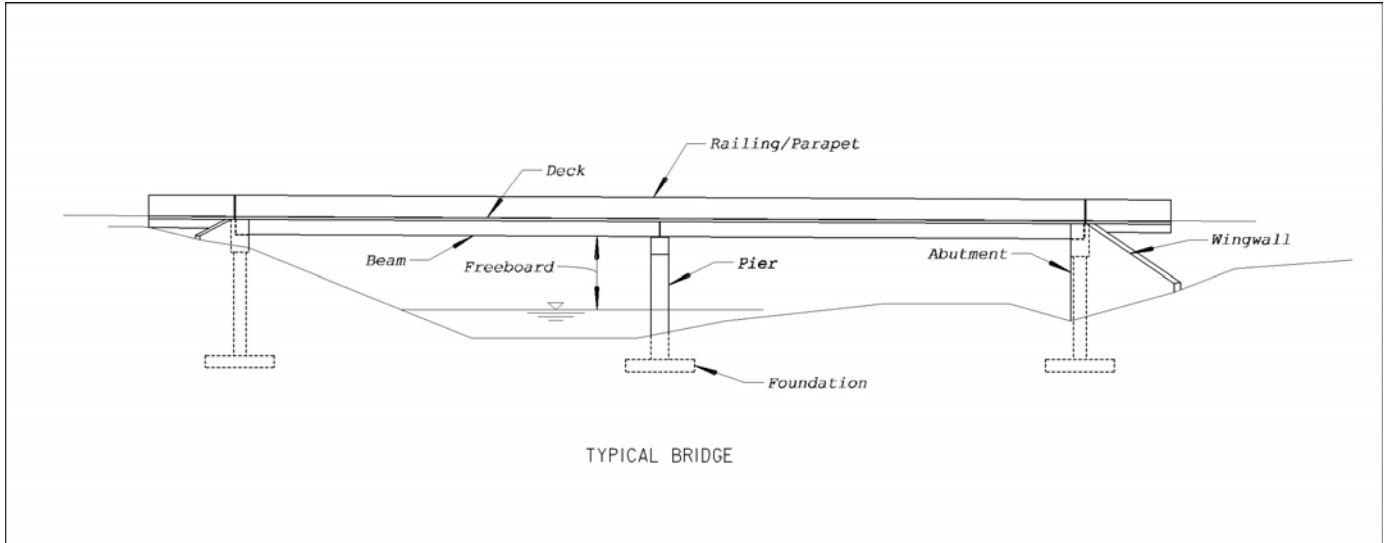
Wendell A. Simpson
Superintendent

RM/Drafts/Corres-2003/Pigeon Roost Creek Bridge Copy to
Azran
CEMiller: ml :07/30/03

bcc: Central
Read
RM

CA
JML
SA

APPENDIX B: TYPICAL BRIDGE



Note: The figure above is an example of a typical bridge structure, and serves only to illustrate the components of a bridge.

**APPENDIX C:
STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988:
FLOODPLAIN MANAGEMENT
AND EXECUTIVE ORDER 11990: WETLANDS PROTECTION**

Pigeon Roost Creek Bridge Replacement

**Natchez Trace Parkway
Choctaw County, MS**

INTRODUCTION

Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) require the NPS and other federal agencies to evaluate the likely impacts of actions in floodplains and wetlands. The objective of E.O. 11988 is to avoid, to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. E.O. 11990 was issued to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetland and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. NPS Director's Order #77-1 Wetland Protection and Procedural Manual #77-1 provide NPS policies and procedures for complying with E.O. 11990, and NPS Director's Order #77-2 Floodplain Management and Procedural Manual #77-2 provide NPS policies and procedures for complying with E.O. 11988. This Statement of Findings (SOF) documents compliance with these NPS wetland protection and floodplain management procedures.

PROPOSED ACTION

The Action Alternative (Preferred Alternative) would remove the existing bridge over Pigeon Roost Creek, which is a three-span 85-foot long two-lane bridge built in 1956. It has a continuous monolithic concrete slab superstructure supported by concrete abutments at each end and two piers built on pile foundations. The Federal Highway Administration Bridge Office last inspected the bridge over Pigeon Roost Creek in January of 2006. The bridge was determined to be in poor condition due to the extensive deterioration of the superstructure concrete. Additional problems include severe deterioration of the curb and railing expansion joint material, minor cracking of the substructure units, and minor erosion at the piers and along the channel banks. Widespread moderate cracks were found in the concrete slab underside and deck. Heavy efflorescence was found on both the deck and the abutments of the bridge. This deterioration was determined to be the result of alkali-silica reactivity between the cement and aggregate in the concrete. If not replaced, the bridge would continue to deteriorate rapidly, resulting in further loss of load-bearing capacity and eventual failure.

A new bridge would then be built in this location. The proposed bridge would be similar in appearance to the existing bridge, and would have an approximate total width of 34 feet. The vertical profile of the bridge over Pigeon Roost Creek may be raised and the vertical clearance may be reduced due to the increase in bridge depth, however it would remain 85' long.

Demolition of the existing bridge and construction of a new one would require closing a portion of the Natchez Trace Parkway. Culverts would be placed in Pigeon Roost Creek approximately 60 feet west of the existing Natchez Trace Parkway Bridge, and a temporary paved road would tie into the Parkway. The route would be approximately 1,000 feet long, with an approximate total width of 26 feet. The posted speed limit would be 20 miles per hour (MPH). The Natchez Trace Parkway would be closed in the vicinity of the bridge over Pigeon Roost Creek for approximately two years during which traffic would be diverted to the temporary detour. After completion of the permanent bridge, the temporary bypass route would be removed and the affected area restored to natural conditions prior to construction.

SITE DESCRIPTION

Floodplains

Federal Emergency Management Agency (FEMA) Flood Insurance Rate maps are not available for the area surrounding Pigeon Roost Creek. The Natchez Trace Parkway was built upon an embankment; as a result the floodplains are abruptly constricted to 85' at the current bridge across Pigeon Roost Creek. The Pigeon Roost floodplain includes three bridges, which convey the Pigeon Roost Creek, Pigeon Roost Canal, and Pigeon Roost Slough. Flooding along the Natchez Trace Parkway generally occurs during high rainfall events in the winter months of the year, and occasionally in the spring. Floodwaters seldom overtop the banks of the roadway, and have not historically caused any closures of the Parkway. The floodplain contains the Pigeon Roost Creek, Pigeon Roost Canal, and Pigeon Roost Slough. Through analysis it was determined that downstream of the Parkway, the 100-year event water elevation is 380.0 feet. Upstream of the Parkway, the 100-year event water elevation is 382.2 feet.

Wetlands

The majority of wetlands within the study area are palustrine forested broad-leaved deciduous wetlands. The canopy is dominated by various bottomland trees that include sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), American elm (*Ulmus Americana*), green ash (*Fraxinus pennsylvanica*), water oak (*Quercus nigra*), willow oak (*Q. phellos*), swamp chestnut oak (*Q. michauxii*), and cherrybark oak (*Q. pagoda*). Understory species include ironwood (*Carpinus caroliniana*), common paw paw (*Asimina triloba*), and American holly (*Ilex opaca*). Shrubs include Chinese privet (*Ligustrum sinense*), storax (*Styrax americana*), swamp dogwood (*Cornus stricta*), black highbush blueberry (*Vaccinium fuscatum*), and cane (*Arundinaria gigantea*). The herbaceous stratum is dominated by blunt broom sedge (*Carex tribuloides*), bladder sedge (*C. intumescens*), white-edged sedge (*C. debilis*), slender spikegrass (*Chasmanthium laxum*), water-horehound (*Lycopus virginicus*), poison ivy (*Toxicodendron radicans*), cross-vine (*Bignonia capreolata*), and common greenbrier (*Smilax rotundifolia*).

The main Pigeon Roost Creek Channel and an unnamed tributary of Pigeon Roost Creek enter the project area from the northeast and conjoin with Pigeon Roost Creek southeast of the bridge. Both of these streams have been heavily disturbed by channelization, erosion, and sedimentation.

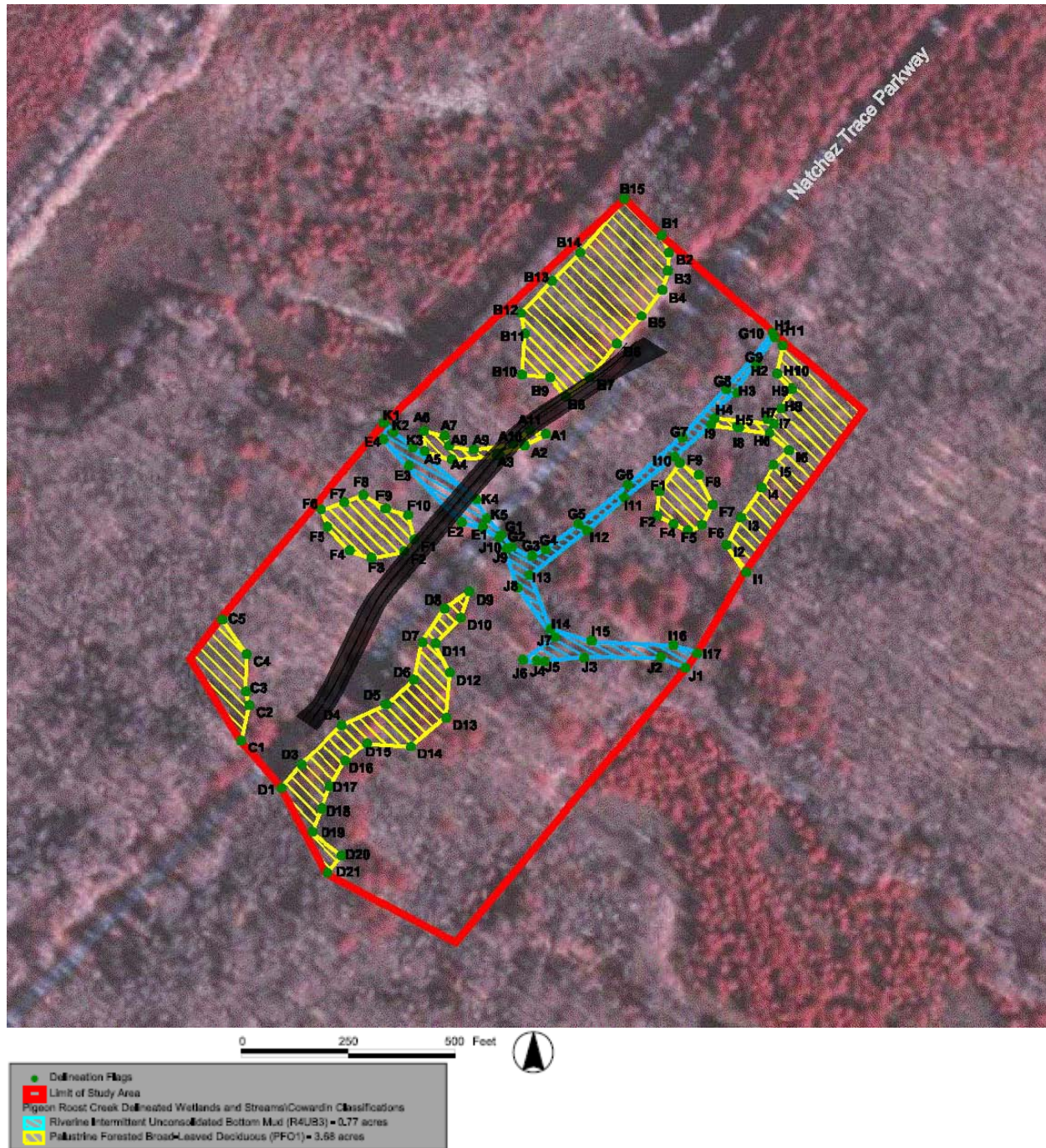


Figure 1: The detour route is shown superimposed on the delineated wetland polygons.

Wetlands Functional Values Assessment

These wetlands function as flood attenuation and wildlife habitat, and provide an aesthetically pleasing view for Parkway visitors. These palustrine forested broad-leaved deciduous wetlands do not provide habitat for any federally-listed threatened or endangered species or Mississippi special concern species. However, they do provide habitat for a wide variety of mammals, birds, reptiles and amphibians. These wetlands also maintain plant communities (the

bottomland hardwood forest) and provide for nutrient cycling between the plant community, animal community and detritus/decomposers.

No surface water was present within any of the wetland areas and none of the project area soils were saturated within 12 inches of the surface at the time of delineation. During high precipitation events, these wetlands reduce the velocity of the water currents and reduce erosion, providing floodwater detention. Some portion of any floodwater volume detained is likely to be evaporated or transpired, which would reduce the overall volume of floodwater. The detention of water also allows for the retention of particulates such as nutrients, minerals, and heavy metals, and sediment deposition; which all influence downstream water quality. These wetlands also detain precipitation which prevents or slows runoff from rainfall from entering the Pigeon Roost Creek and the Big Black River further downstream through the infiltration and absorption of water into the organic material and soil. Soils in the wetlands are comprised of silt loam; Arkabulta silt loam and Chenneby silt loam according to the Soil Survey for Choctaw County, Mississippi. Downstream of the Natchez Trace Parkway, the Big Black River controls the tailwater conditions on Pigeon Roost Creek. These wetlands are abundant throughout the Parkway.

FLOODPLAIN DISTURBANCE

At the existing Pigeon Roost Creek Bridge there is approximately 2.91 feet of freeboard during the 50-year event. The bridge would be replaced with a similar sized structure. The structure size assumed for the analysis was 88-feet long 3 span bridge with a 20-foot deck and a 2-inch overlay with the same vertical profile as the existing bridge. The existing bridge has a low steel elevation of 383.94 feet, but the new bridge would have a low steel elevation of 383.91 feet, which would result in a new freeboard of 2.87 feet. The freeboard would be reduced by 0.04 feet through the replacement of the existing bridge. The 100-year water surface elevation would increase by 0.01 foot. During final design other slight changes to the bridge design may be necessary to meet current design standards. These slight changes may include the use of a larger girder, and larger pier structures, but would not increase the 100-year event backwater by more than one foot, or reduce the 50-year freeboard to below two feet. Approximately 3,500 cubic yards of fill material would be placed to construct the detour route for Parkway visitor use while the bridge is closed for demolition and construction. The fill material would be in place for no longer than two years. After construction is completed, the fill material would be removed and the area would be restored to its previous contours.

WETLAND DISTURBANCE

Under the Action Alternative, approximately 0.23 acres of wetlands, of which 0.13 acres are palustrine forested broad-leaved deciduous wetlands, and 0.10 acres are riverine intermittent unconsolidated mud bottom wetlands would be filled to construct the detour adjacent to the bridge over Pigeon Roost Creek. The fill would be in place for a maximum of two years while the existing bridge is demolished and the new bridge is constructed. The fill would then be removed to the previous ground elevation, and the area re-vegetated. There would be no permanent filling of the wetlands as a result of the Action Alternative.

JUSTIFICATION FOR USE OF THE FLOODPLAIN AND WETLANDS

An average of 960 vehicles per day use the 444-mile Natchez Trace Parkway; which commemorates an ancient trail that connected southern portions of the Mississippi River to salt licks in today's central Tennessee. This project is proposed to eliminate a health and safety risk associated with the deteriorating bridge. A detour using the existing roadways adjacent to

the parkway was not considered because it would detour visitors off of the Parkway for approximately 13 miles, and reduce access to the Old Trace and Ballard Creek. The adjacent roads may not be able to handle recreation vehicles, and may confuse drivers. The project proposed to replace the existing bridge and a detour is necessary for Park visitors traversing the Parkway, therefore there are no additional feasible alternative sites.

INVESTIGATION OF ALTERNATIVE SITES

The proposed action is to replace an existing structure over a water crossing along the existing Natchez Trace Parkway; therefore it is not feasible to replace the bridge in another location. No alternative sites were investigated.

MITIGATIVE ACTIONS

Design considerations were sensitive to the historic importance of the Natchez Trace Parkway. Altering the bridge drastically from its existing state might cause an adverse affect on the Parkway.

Floodplain Mitigation

Although the bridge over Pigeon Roost Creek is not located in a mapped area, the increase in the water surface elevations is limited to one foot. Any changes in bridge design to meet current standards would not cause the 100-year flood event backwater to increase by greater than one foot. A freeboard of at least 2 feet would also be maintained for the 50-year event. Changes to the grade of the bridge and/or the bridge approaches are not likely to be necessary.

Wetland Mitigation

In order to minimize the temporary disturbance of the existing wetlands, the project detours were not placed on the side with the side channel. In order to minimize the environmental impacts, geotextile would be used to ensure that the ground is returned to its previous elevation, an erosion and sediment control plan would be prepared and included in the final construction plans, and disturbance of woody and turf vegetation would be minimized. The area disturbed by construction activities would be re-vegetated with native species.

Wetland mitigation is proposed to compensate for the approximate 0.23 acres of impacts during the two year construction period, and would be funded in conjunction with the construction project. Although this 0.23 acres would be returned to its previous wetland condition after construction is completed, there would be a temporary loss of wetland function that needs to be compensated. Therefore mitigation is proposed within the Natchez Trace Parkway. The Parkway has located a site approximately 65 miles north along the Parkway, which is approximately 1/3 acre in size. The site has been actively managed through mowing, and is proposed for restoration to a palustrine forested broad-leaved deciduous wetland. The area would be allowed to re-vegetate naturally, with plantings if necessary. The area is adjacent to a network of sloughs due to beaver activity, and is seasonally-flooded. Restoration of this area would begin prior to the start of the proposed action. The restoration would be completed and fully functioning within one year. The mitigated wetland would provide precipitation detention, nutrient cycling, element/sediment removal, plant and wildlife habitat, flood attenuation, and an aesthetically pleasing area; fully replacing the functions lost temporally through the construction of the detour route associated with the Action Alternative.

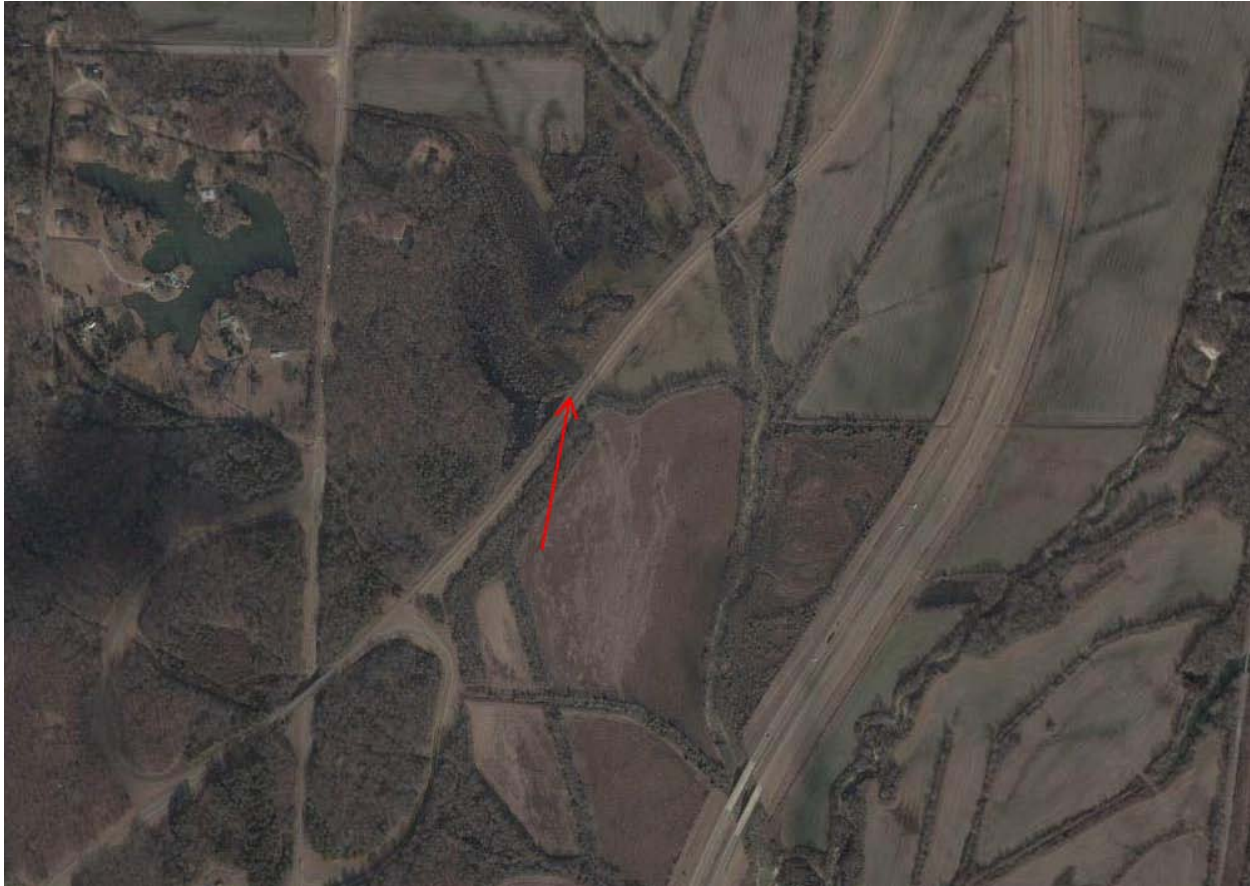


Figure 2: The location of the proposed wetland mitigation site is shown.

CONCLUSION

The National Park Service concludes that there is no practical alternative for replacement of the bridge over Pigeon Roost Creek. The preferred alternative would substantially reduce potentially hazardous conditions caused by continued bridge deterioration. Mitigation and compliance with regulations and policies to prevent impacts to wetlands, water quality, floodplain values, and loss of property or human life would be strictly adhered to during and after the construction. Individual permits with other federal and cooperating state and local agencies would be obtained prior to construction activities. No long-term adverse impacts would occur from the Preferred Alternative. Therefore, the National Park Service finds the Preferred Alternative to be acceptable under Executive Order 11988 for the protection of floodplains and under Executive Order 11990 for the protection of wetlands.

REFERENCES

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