

National Park Service  
U.S. Department of the Interior

Ozark National Scenic Riverways  
Missouri



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## **FINDING OF NO SIGNIFICANT IMPACT for the BIG SPRING BRIDGE PROJECT**

**May 2016**

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### **INTRODUCTION**

The Environmental Assessment (EA) for the Big Spring Bridge Project and this Finding of No Significant Impact (FONSI) constitute the record of the environmental impact analysis and decision-making process for making improvements to the Big Spring Bridge in Carter County, Missouri. The National Park Service (NPS) and Federal Highway Administration (FHWA) have approved the selection of Alternative D, as identified in the EA. This FONSI summarizes the findings of the EA and incorporates the public input provided during the 30 day public comment period from April 6, 2016, through May 6, 2016.

### **BACKGROUND**

The Big Spring Bridge provides access to the Big Spring area. The existing glulam timber bridge was constructed in 1977 to replace a timber bridge that was constructed in the 1940s. Several projects to repair the deterioration of the bridge have been completed, most recently in 2010. The bridge has continued to deteriorate; therefore, improvements to the bridge were proposed in order to maintain the Park's ability to safely serve visitors by providing safe vehicular access to the Big Spring area.

### **SELECTED ALTERNATIVE**

Based on the analysis presented in the EA, the NPS and FHWA have selected the NPS Preferred Alternative (Alternative D) for implementation. The existing bridge will be replaced with a new bridge that meets current American Association of State Highway and Transportation Officials (AASHTO) specifications with regards to lane width, shoulder width, live load capacity, and crash worthy railing system. The existing bridge will be removed and replaced with a new concrete bridge along the same alignment. The concrete box beam bridge will have two 11-foot lanes, two 3-foot shoulders and a 6.8-foot sidewalk on the upstream side of the bridge. The bridge will have two spans with each being 70 feet in length, for a total length of 140 feet. This design will result in the placement of one pier in the channel.

The pier will have a concrete micropile footing supporting a native stone faced concrete column with a concrete cap. The pier will be faced with stone of a similar texture, color, and general character of stone in the Big Spring cultural landscape in order to maintain the feel and character of the buildings constructed by the Civilian Conservation Corps (CCC). The CCC buildings in the Big Spring area were made of local materials, especially rough-cut dolomite quarried nearby and lumber stained dark brown (Griffin & Gray). The stone used to face the exposed concrete, including the pier wall, will be rough-cut dolomite, and will include similar grout color and pointing. The bridge railing will have a 12-inch-high timber curb and a second 10-inch-high timber rail for a total height of 42 inches. On the upstream side, the railing will measure 42 inches from the top of the six-inch-high sidewalk.

The bridge will be replaced at approximately the same elevation. The top of the bridge deck will be constructed at approximately the same elevation as the existing bridge. The low chord elevation will be 438.95 feet, 0.2 feet higher than the existing bridge.

The bridge and roadway approaches will be closed during construction. The Big Spring area will continue to be accessible from Peavine Road. All of the facilities at Big Spring, including the campgrounds, lodges and trails, will continue to be accessible during construction. In order to construct the bridge, a temporary causeway will be installed in the spring branch (water flow coming from Big Spring). Access from the center of the spring branch will be necessary in order to reach the center of the existing bridge for demolition and the new bridge for construction of the center pier. While it is not anticipated that a diversion or dewatering will be needed in order to remove the existing bridge, a sheet pile diversion will be installed around the center pier while it is under construction.

The utility lines that are suspended from the underside of the existing bridge will be relocated. The utility lines will be permanently removed from the bridge and installed underground adjacent to the bridge using horizontal directional drilling (HDD) techniques. A casing pipe will also be installed. The entire pipe will be below the frost line and the stream bed. In order to run them underground two directional borings will be drilled to separate the water and sewer lines. Tying into the existing utilities will require open cut trenching to lay the pipe or conduit back to the current location of the utilities to make connections.

## **MITIGATING MEASURES**

The following are mitigation measures related to construction activities to be implemented under the Selected Alternative (Alternative D):

- No work will occur in the channel from March 15 to June 15 to avoid impacts to fish spawning.
- Debris shields will be installed to capture any debris released due to repairs completed above the surface of the water.
- Tree clearing will only be done between November 1 and April 1 to avoid impacts to Indiana bats and northern long-eared bats.
- In order to minimize noise generated during the driving of piles, hammer and pile cushions will be used. Also, the impact hammer will be ramped up (slowly increasing the force of the hammer) to allow wildlife the leave the area.

- A geotextile will be placed on the bed of the spring branch prior to the placement of riprap for the installation of the temporary causeway to make removal easier. The riprap will be washed prior to being placed.
- A revegetation plan will be developed and implemented. The species planted along the banks of the spring branch will be primarily native riparian species; however, an annual nurse crop will be used to ensure timely permanent stabilization of the disturbed areas.
- Should construction unearth previously undiscovered archeological resources, work will be stopped in the area of any discovery and the Park will consult with the SHPO/Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation (ACHP), as necessary, according to §36 CFR 800.13, Post Review Discoveries. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed as appropriate.

Best Management Practices (BMPs) will be implemented and will include the following:

- Disturbance to stream banks and riparian areas will be minimized. Channel modification, flow interruption or bank modification will only occur in compliance with conditions established in permits required under the Clean Water Act.
- Temporary BMPs will be utilized to minimize erosion and sedimentation from ground disturbing activities that expose bare soil. The BMPs may include the use of silt fence, fiber rolls, erosion matting and turbidity barriers. These BMPs will be used only during construction and will be removed once the disturbed area has been permanently stabilized.
- Any soil excavated during construction will be stockpiled and reused as fill if needed. Fill material will be clean, native soils.
- Any dewatering activities will include the filtering of the water prior to reintroducing it to the spring. Pumping water directly into the spring branch will be prohibited.
- Staging areas for equipment and materials will be established away from the spring branch.
- Stationary fuel and oil storage will remain within the staging area to avoid accidental spills into the spring branch.
- Excess concrete and wash water from trucks and other concrete mixing equipment will be disposed of in designated areas where this material cannot enter the spring branch.
- Disturbed areas will be graded and seeded as soon as possible to minimize erosion. Crown vetch and *Sericea lespedeza* will be avoided.
- For construction access, the temporary access pad will avoid water impoundment and allow for fish passage.
- No equipment will be allowed to enter the spring branch. Equipment will be washed and rinsed thoroughly with hard spray or hot water (greater than 104 degrees Fahrenheit) and allowed to dry in the hot sun before use at the site.
- Mud, soil, trash, plants and animals will be removed from equipment before leaving any work area near the water.

## **OTHER ALTERNATIVES ANALYZED IN THE EA**

Additional alternatives were considered in order to meet the purpose and need, as described in the EA in Chapter 1: Purpose and Need. These alternatives include: Alternative A – No Action Alternative, Alternative B – Rehabilitate Existing Bridge, Alternative C – Replace with Timber Bridge and Alternative E – Replace with Steel Bridge. Additional options for the utility relocation

were considered and include reinstalling the utility lines on the bridge or jacking and boring a casing pipe under the spring branch. A detailed discussion of these alternatives can be found in Chapter 2 of the EA.

Under Alternative A, no substantial improvements other than routine maintenance operations would be performed. Implementation of Alternative A would not maintain the Big Spring Bridge as safe public access, or maintain visitor access to the Big Spring area.

Under Alternative B, the existing bridge would be rehabilitated in order to address the deterioration noted in the Bridge Inspection Report (Federal Highway Administration, 2014). The timber piles would be encapsulated with a jacket, the abutments would be retrofitted, the deck would be replaced, and the railing would be updated to a crashworthy railing. Fiberglass jackets or an equivalent jacketing system would be installed on the most deteriorated timber piles. The jacket would be filled with epoxy grout to encapsulate the timber and protect it from further deterioration. The wrapping would extend from the mudline to approximately two feet above the normal high water level. Sections of severely deteriorated timber piles may be replaced, if needed. It is estimated that 200 linear feet of piles would have new fiberglass jackets installed. Dewatering may also be necessary if any sections of deteriorated timber piles need to be replaced. The glulam timber deck would also need to be replaced. The asphalt wearing surface would be removed during the deck replacement. The wearing surface would be replaced with timber running planks, which allow for better drainage and are easier and less costly to maintain.

Under Alternative C, the existing bridge would be removed and replaced with a new timber glulam bridge. The asphalt pavement wearing surface and glue laminated deck would be saw cut and lifted off of the bent caps by a crane. The bent caps would be removed, and the timber piles would be snapped off or saw cut at the mudline and removed. All of the debris from the bridge removal would be disposed of off-site. The existing bridge would be replaced in-kind with a six-span timber bridge. The bridge would have timber piles, glulam beams and a glulam deck. The spans would be 23.3 feet in length for a total length of 140-feet, resulting in the placement of five bents in the channel. Each bent would be supported by eight 12-inch-diameter timber piles. The timber bent caps would be constructed over the piles, upon which timber glulam beams would be placed, followed by a glulam deck (Federal Highway Administration, 2012). The new bridge would have a 26-foot roadway width available for travel lanes and shoulders, consistent with the existing condition. The new bridge would also have a sidewalk that would be approximately 9.5 feet in width. A steel-backed timber guardrail would be installed along the bridge. The low chord elevation would be 438.95 feet.

Under Alternative E, the existing bridge would be removed and replaced with a steel truss bridge. The new steel bridge would be constructed along the same alignment as the existing bridge. The bridge would have a 140-foot long prefabricated steel truss span and two buried abutments. A steel backed timber guard rail would be installed along the bridge and a pedestrian rail would be installed. The design of this bridge would eliminate the need for piers in the water. The steel truss and floor beams would be constructed off-site and set in place with a crane positioned on a temporary causeway. A form would be added to the frame of the bridge and a cast-in-place concrete deck would be poured. The new bridge would have two 13-foot travel lanes, a 10-foot

sidewalk, and would be approximately 38 feet wide (including the railing and truss width). The low steel elevation would be 437.95 feet.

## **ALTERNATIVES DISMISSED FROM FURTHER ANALYSIS IN THE EA**

The NPS and FHWA considered and dismissed from further analysis one alternative before development of the range of reasonable alternatives for full impact analysis. A description of this preliminary alternative and the reason for its dismissal is provided in Chapter 2 of the EA.

## **THE SELECTED ALTERNATIVE AND SIGNIFICANCE CRITERIA**

As defined in 40 CFR § 1508.27(b), significance is determined by examining the following 10 criteria. A discussion on why the Selected Alternative (Alternative D) will not have a significant effect on the human environment follows each criterion.

1. *Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.*

There will be no significant impacts as a result of implementing the Selected Alternative. Effects from the Selected Alternative to the resources analyzed in the EA are described below.

**Cultural Landscape:** The Selected Alternative will result in short-term, moderate and long-term, minor and adverse impacts to the cultural landscape from the construction of a temporary causeway and cofferdam during construction. The new concrete bridge will be constructed on the same alignment as the existing bridge, and so circulation patterns will not change. However, the bridge will be noticeably newer and built of concrete rather than the current timber construction. In order to help blend the bridge into the surrounding Big Spring Historic District, the concrete bridge will include elements such as a low profile design, native stone facing of the abutment walls and pier, and timber rail.

**Floodplains:** The Selected Alternative will result in short- and long-term minor and adverse impacts to floodplains from the placement of riprap for the temporary causeway and the construction of the center pier for the new bridge. The low chord elevation of the new bridge will be 0.2 feet higher than the existing bridge and there will be no change in the water surface elevation during the 100-year event.

**Wetlands:** The Selected Alternative will result short-term moderate and long-term minor adverse impacts to wetlands from the construction of the temporary causeway and the center pier for the new bridge. Approximately 0.07 acres of riverine, upper perennial, unconsolidated bottom, permanently flooded wetlands and the associated palustrine emergent fringe will be impacted. Of the 0.07 acres impacted, 0.062 acres would be temporarily impacted and 0.003 would be permanently impacted.

**Species and Areas of Special Concern:** The Selected Alternative will result in short- and long-term, minor and adverse impacts from the construction of the temporary causeway and sheet pile diversion and center pier. The causeway will temporarily reduce the aquatic habitat

available in the spring branch, and during construction noise will increase. Similar habitat is available upstream and downstream of the bridge. The new bridge will be wider than the existing bridge and will encroach approximately 1.75 feet into the Big Spring Natural Area.

**Water Quality and Streamflow Characteristics:** The Selected Alternative will have short-term, moderate, adverse and long-term minor and beneficial impacts to water quality and streamflow characteristics. The new bridge will direct runoff to the vegetated approach areas rather than directly to the spring branch. The larger hydraulic opening provided by having only one center pier rather than multiple bents will allow for debris to pass under the bridge more easily. The utilities will no longer be vulnerable to damage from debris during high-flow events.

**Geologic Resources:** The Selected Alternative will have long-term, moderate, and adverse impacts to geologic resources from the drilling of micropiles to construction the bridge pier and abutments.

2. *The degree to which the action affects public health or safety.*

Implementation of the Selected Alternative will improve the deteriorated conditions of the Big Spring Bridge. The new bridge will also meet current AASHTO safety design standards, which will be beneficial to public safety.

3. *Unique characteristics of the geographic area such as proximity to historic or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

**Historic or Cultural Resources:** The Big Spring Bridge is not eligible for listing on the National Register of Historic Places. The Big Spring Bridge is located within the Big Spring Historic District, but is not listed as contributing to the Historic District. Elements of the design were incorporated in order to blend the new bridge into the surrounding Historic District.

**Parklands:** No other Federal, State, or local parklands occur in the vicinity of the project area.

**Prime Farmlands:** No prime farmlands occur in the vicinity of the project area.

**Wetlands:** The spring branch is classified as a riverine, upper perennial, unconsolidated bottom, permanently flooded wetland, and adjacent to the spring branch palustrine emergent fringe is present. Wetland impacts have been minimized to the maximum extent possible.

**Wild and Scenic Rivers:** No wild or scenic rivers occur in the vicinity of the project area.

**Ecologically Critical Areas:** No ecologically critical areas occur in the vicinity of the project area.

4. *The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

There were no highly controversial effects identified during the preparation of the EA or the public review period.

5. *Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.*

Potential impacts from implementation of the Selected Alternative are not highly uncertain and do not involve unique or unknown risks.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

The Selected Alternative will not establish a precedent for future actions.

7. *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

The Selected Alternative, when considered with other reasonably foreseeable past, present and future projects, is anticipated to result in cumulative effects. None of the anticipated effects are significant.

8. *The degree to which the action may adversely affect items listed or eligible for listing in the National Register of Historic Places, or other significant scientific, cultural or historic resources.*

The bridge is not considered eligible for listing on the National Register of Historic Places and is not listed as contributing to the surrounding Big Spring Historic District. Consultation per Section 106 of the National Historic Preservation Act was completed with the State Historic Preservation Officer (SHPO). In a letter dated January 30, 2015, the FHWA and NPS requested concurrence with the finding that the preferred alternative to replace the existing bridge with a concrete bridge would not adversely affect the Big Spring Historic District. The letter indicated that design elements would be incorporated to minimize interference with the landscape around Big Spring and remain consistent with the rustic architecture of the surrounding historic district. These design elements would include a low profile design, timber railings and a natural stone facing. The SHPO responded by letter dated February 9, 2015, concurring that the Big Spring Bridge is not a contributing property to the Big Spring Historic District and that the proposed new bridge will have no adverse effect.

9. *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*

Informal consultation per Section 7 of the Endangered Species Act of 1973, as amended, was completed with the United States Fish and Wildlife Service (USFWS). A species list was requested from the USFWS for the Big Spring Bridge action area and was provided by the USFWS in their letter dated May 1, 2014. A Biological Assessment was prepared to analyze the impacts of the proposed action on the Federally-listed species and provided to the USFWS by letter dated December 7, 2015. In this letter, concurrence was requested that the project may affect, but is not likely to affect, any Federally-listed species or their critical habitats. On December 23, 2015, the USFWS provided concurrence with the determination via email.

*10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

Applicable Federal, State, and local laws and requirements were considered in the development of the improvements to the Big Spring Bridge. The Selected Alternative does not violate any Federal, State, or local environmental protection laws.

## **PUBLIC INVOLVEMENT**

The EA was made available for public review from April 6, 2016, through May 6, 2016. Letters and flyers providing information about the availability of the EA were sent to the mailing list. During this 30-day period, hardcopies of the EA were available for review at the Ozark National Scenic Riverways Headquarters and Visitor Information Center, and the Carter County Public Library. An electronic version of the EA was made available on the NPS's PEPC website at <http://parkplanning.nps.gov/ozar>. A legal notice was run in the St. Louis Post-Dispatch on April 6, 2016, announcing the public comment period. Comments received on the EA are addressed in an Errata Sheet attached to this FONSI.

## **SECTION 4(f)**

Section 4(f) of the U.S. Department of Transportation Act of 1966, 49 U.S.C. 303(c), states that the use of land from a significant publicly-owned public park, recreation area, or wildlife and waterfowl refuge, or any significant historic site (as determined by the officials having jurisdiction over the resource) as part of a Federally-funded or approved transportation project, is permissible only if there are no feasible and prudent alternatives to the use and that the proposed action includes all possible planning to minimize harm to the protected property resulting from such use. The project is for a Federal lands transportation facility identified in the NPS' inventory. Per 23 U.S.C. 138(a), the project is exempt from Section 4(f) review and approval.

## CONCLUSION

As described above, the Selected Alternative does not constitute an action meeting the criteria that normally requires the preparation of an Environmental Impact Statement (EIS). The Selected Alternative will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that are localized, short-to long-term, and range from negligible to moderate. There are no unmitigated adverse effects on public health and safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any Federal, State, or local environmental protection law.

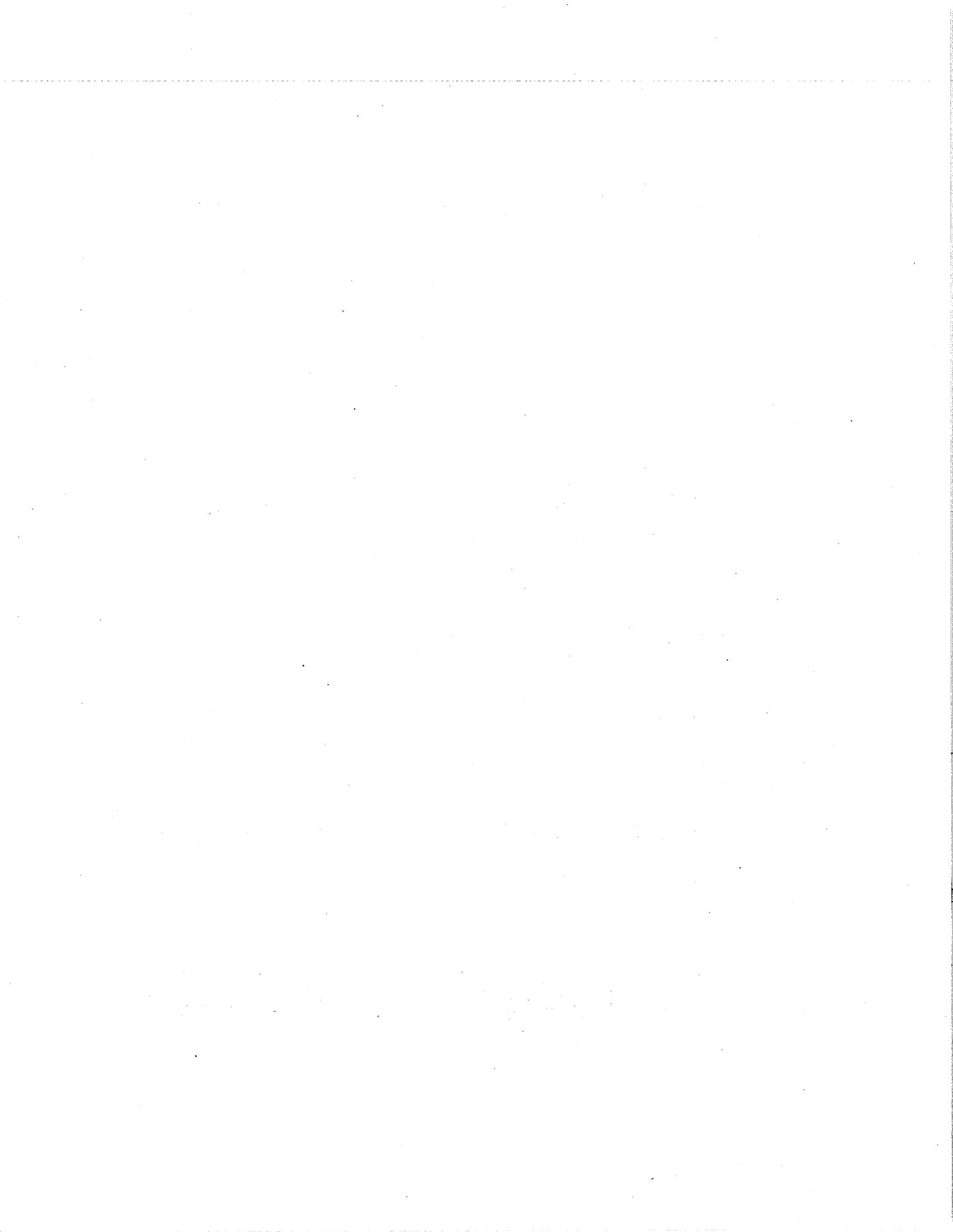
Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended: Lawrence E. Johnson 5/19/16  
Lawrence E. Johnson  
Superintendent  
Ozark National Scenic Riverways  
National Park Service  
Date

Recommended: Holly E. Bell 5/13/2016  
Holly E. Bell  
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Approved: Karen A. Schmidt 17 MAY 2016  
Karen A. Schmidt  
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Federal Highway Administration  
Date

Approved: Cameron H. Sholly 6/20/2016  
Cameron H. Sholly  
Regional Director  
Midwest Region  
National Park Service  
Date



## APPENDIX A NON-IMPAIRMENT DETERMINATION

### The Prohibition on Impairment of Park Resources and Values

NPS *Management Policies 2006*, Section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

### What is Impairment?

NPS *Management Policies 2006*, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment.

Impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Section 1.4.5 of *Management Policies 2006* states:

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

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

Per Section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the NPS was in some way responsible for the action.

#### **How is an Impairment Determination Made?**

Section 1.4.7 of *Management Policies 2006* states, "[i]n making a determination of whether there would be an impairment, an NPS decision maker must use his or her professional judgment. This means that the decision-maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969 (NEPA); consultations required under Section 106 of the National Historic Preservation Act (NHPA); relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision.

*Management Policies 2006* further define "professional judgment" as "a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities relation to the decision.

#### **Non-Impairment Determination for the Selected Alternative**

This determination on impairment has been prepared for the Preferred Alternative as described on page 18 of the Environmental Assessment (EA). An impairment determination is made for all

resource impact topics analyzed for the Selected Alternative. An impairment determination is not made for visitor use and experience, park operations or health and safety because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

#### Cultural Landscape

The Selected Alternative will result in short-term, moderate, and long-term minor and adverse impacts to the cultural landscape. The new bridge would be construction on the same alignment which would not change circulation patterns. The new bridge would be concrete, replacing what had previously been timber bridges in this location. The superstructure would be of a similar depth and design elements would be incorporated to minimize the bridge's intrusion on the cultural landscape. Therefore, the Selected Alternative will not result in impairment of the cultural landscape.

#### Floodplains

The Selected Alternative will result in short- and long-term minor and adverse impacts to floodplains from the construction of the temporary causeway and the center pier for the new bridge. The decrease in floodwater storage capacity of the floodplain will be negligible; therefore, the Selected Alternative will not result in impairment to floodplains.

#### Species of Special Concern

The Selected Alternative will result in short- and long-term minor and adverse impacts from the construction of the temporary causeway and sheet pile diversion and center pier. Endangered Species Act consultation was completed with the United States Fish and Wildlife Service (USFWS). USFWS concurred that the Selected Alternative "may affect, but is not likely to adversely affect" any Federally-listed species. Impacts to State-listed species and the Big Spring Natural Area would be minor. Therefore, the Selected Alternative will not result in impairment to species of special concern.

#### Wetlands

The Selected Alternative will result short-term moderate and long-term minor adverse impacts to wetlands from the construction of the temporary causeway and the center pier for the new bridge. Approximately 0.07 acres of riverine, upper perennial, unconsolidated bottom, permanently flooded wetlands and the associated palustrine emergent fringe would be temporarily and permanently impacted. A justification for an exemption from compensatory mitigation per Procedural Manual #77-1: Wetland Protection is provided in the Statement of Findings. Therefore, the Selected Alternative will not result in impairment to wetlands.

#### Water Quality and Streamflow Characteristics

The Selected Alternative will have short-term, moderate, adverse and long-term minor and beneficial impacts to water quality and streamflow characteristics. The new bridge would direct runoff to the vegetated approach areas rather than directly to the spring branch and would be set 10 feet back from the bank on each side of the spring branch. The larger hydraulic openings would allow for debris to pass under the bridge more easily. The utilities would no longer be vulnerable to damage from debris during high-flow events. Therefore, the Selected Alternative will not result in impairment to water quality and streamflow characteristics.

### Geologic Resources

The Selected Alternative will have long-term, moderate, and adverse impacts to geologic resources from the drilling of micropiles to construction the bridge pier and abutments. The number of piles used was minimized to the extent possible. The Selected Alternative will not result in an impairment to geologic resources.

The NPS has determined that implementation of the Preferred Alternative, as described as Alternative D on page 18 of the EA and identified as the Selected Alternative in the Finding of No Significant Impact, will not result in impairment of park resources and values at the Ozark National Scenic Riverways. This determination is based on a thorough analysis of the environmental impacts described in the EA, the agency comments received, and the application of the provisions of the *NPS Management Policies 2006*. The rehabilitation of the Big Spring Bridge will maintain the Park's ability to safely serve visitors by providing safe vehicular access to the Big Spring area while minimizing impacts to Park resources.

ERRATA  
RESPONSES TO COMMENTS  
**Environmental Assessment for the Big Spring Bridge Project**

The majority of the comments received during the public comment period were in support of the project. Fifteen individuals commented, and comments were also received from the Delaware Tribe and the Missouri Department of Natural Resources. Several comments were received that warrant the preparation and distribution of an errata sheet on the above referenced Environmental Assessment. This sheet will become part of the project file. The comments and responses are as follows:

1. Comment: Please include bike and pedestrian lane in the new bridge design. An overlook from the bike and pedestrian lane will allow park visitors to pause to reflect, watch the water go by, see aquatic life, and take photos.

Response: The addition of a separate bike lane would add considerable width to the bridge and would not be consistent with the roadway leading up to the bridge. The new bridge will have two 11-foot lanes and 3-foot shoulders, which can be used by bicyclists. The sections of Peavine Road that approach the bridge from the north and south will continue to have two 11-foot lanes in which bicyclists can travel with vehicular traffic. A five-foot shoulder will continue to be provided along the western (upstream) side of the road for approximately 200 feet north and south of the bridge for pedestrians using the trail and sidewalk on the bridge.

2. Comment: I believe option D, two span concrete would be the longest lasting option. I am concerned that the single pier would be a potential for failure if the karst conditions beneath it failed to support the load. Your report indicated a depth of 28-30 foot thickness of dolomite. Has this been confirmed for the pier location?

Response: The service life of a concrete or steel bridge is estimated at 75 years, while the service life of a timber bridge can range from 35-50 years depending on whether the timber is treated or untreated. Borings were not taken in the center of the spring branch in order to determine the depth to bedrock (dolomite). Borings were taken on each side of the spring branch.

3. Comment: Thank you for submitting the EA with a variety of alternatives for the Big Spring bridge. I enjoy visiting and camping at Big Spring campground. I enjoy taking pictures of the spring branch toward the present bridge and enjoy taking pictures from the bridge toward the spring. But I also know that the project area is prone to flooding so I support Alternative D which is your preferred choice. I believe once built it may be easier to maintain and to put back into operation after flooding for use by park visitors and personnel. I assume the life of the bridge will last longer than if it were rebuilt with timbers. I believe the most adverse impacts will be to plants and wildlife living within the spring, spring branch and close by so if Alternative D decreases repairs and rebuilding that might be needed that makes it a good choice to me. It do not use any species that might be invasive in the project area for vegetation or any purpose. I support your preferred method option for installing utility lines underground with the hope that will be easier, safer, and cost effective to repair or maintain.

Response: Please see the response provided for comment #2 regarding the expected service life of the alternatives. The revegetation of the disturbed areas would not include the use of any invasive species. Native species will be used to the extent possible to revegetate the disturbed bank areas. A seed mix using "turf-type" tall fescues and perennial rye will be used in the lawn areas along Peavine Road.

4. Comment: The visual provided of the preferred new Big Spring bridge alternative appears to be appropriate and aesthetically pleasing for the park environment. It is unclear from the visual if the proposed bridge design includes bike and pedestrian access separated from vehicle traffic. Considering the make up of the park users we highly recommend that such facilities be provided for both convenience and safety. It is likely the case, but during the construction period we recommend that all precautions be taken to ensure the protection of the spring/stream ecosystem to keep construction contaminants and debris from entering the waters. Any fish or wildlife habitat to be impacted by construction should be protected and restored if damaged. We also recommend that all of the proper Best Management Construction Practices be applied during the construction period for the project.

Response: Please see the response provided for comment #1 regarding bicycle and pedestrian access. Best Management Practices (BMPs), as described in the Environmental Assessment, will be implemented during the construction of the project to minimize impacts to fish and wildlife habitat. BMPs will also be implemented to minimize the amount of debris entering the spring branch.

5. Comment: We encourage the agency to consider the life cycle impact of all materials used in construction. In particular, we recommend the use of sustainable concrete standards as outlined within USGBC LEED standards. Also for the wood railing we encourage the use of FSC certified wood as recommended for credit in LEED standards.

Response: The FHWA and NPS strive to improve the sustainability of our projects and the materials used to construct them. The use of materials that meet the requirements for LEED points is explored for use in certain cases where the American Association of State Highway and Transportation Officials material specifications can still be met.

6. Comment: The preferred alternative should be to rehabilitate the existing bridge if it can be done such that it preserves the current look and can be done without material environmental impact to the environment. If the bridge is replaced, the new bridge should be as close in look and size as the existing bridge which appears to be Alternative C replace with a timber bridge. The modern design of a concrete or steel bridge would look out of place and would present a MAJOR negative impact on the rustic qualities of the historic ccc constructed district. Visitors and local people come to enjoy the natural historic setting. They do not want a larger bridge in the middle of it that looks like it belongs in Kansas City, St Louis or some other city across the United States. When the National Park Service is trying to preserve our natural settings, it is hard to see why their preferred alternative is a modern concrete structure with some complements to try make it look somewhat rustic. It will be seen as just that a concrete bridge with a few things to make it look a little bit rustic.

Response: The impacts of each alternative were analyzed in order to determine which alternative best balanced providing long-term safe access to the Big Spring area while minimizing impacts to natural, cultural and aesthetic resources; which include the cultural landscape, water quality and streamflow characteristics. Alternative D, the concrete bridge, will provide a narrow profile, similar to that of the timber bridge. The natural native stone facing and timber rail design elements were chosen to help the bridge blend into the surrounding Big Spring Historic District. The reduction in the number of bents in the spring branch, which is not possible with a timber bridge, will reduce the amount of debris that collects during flood events.

7. Comment: Use Wood! This shows more respect. It's more polite to mother nature. Concrete and steel are a pathetic attempt to show that we are in charge. We are not.

Response: Please see the responses provided for comment #2 and #6.

8. Comment: The bridge proposed seems entirely appropriate for the Big Spring outflow. The proposed bridge is not sufficiently divulged so as to ascertain that it will have a pedestrian walk, or that such a walk will be protective of bicycles and pedestrians by having a protective structure such as a high curb.

Response: Please see the response provided for comment #1 regarding bicycle and pedestrian access. The sidewalk will have a six-inch high curb to provide a vehicle deterrent for pedestrians in accordance with the *FHWA Guide for Maintaining Pedestrian Facilities for Enhanced Safety*.

