ENVIRONMENTAL ASSESSMENT

BUFFALO RIVER BRIDGE REPLACEMENT
MILL CREEK CROSSING REPLACEMENT

AHTD Job 009784
AHTD Job BR5102





U.S. Army Corps of Engineers

Department of the Interior

Arkansas State Highway & Transportation Department

U.S. Department of Transportation
Federal Highway Administration

FEBRUARY 2016

ENVIRONMENTAL ASSESSMENT

BUFFALO RIVER BRIDGE & APPRS.
and
MILL CREEK STR. & APPRS.
Newton County

AHTD Job Numbers 009784 and BR5102
FAP Numbers BRN-0051(13) and BRO-0051(15)

Submitted Pursuant to 42 U.S.C. 4332(2) (c)

by the

U. S. Department of Transportation
Federal Highway Administration

and the

Arkansas State Highway and Transportation Department

Cooperating Agencies

United States Department of the Interior - National Park Service

United States Army Corps of Engineers

February 2016

2/4/2016

Date of Approval

Randal Looney
Environmental Specialist
Federal Highway Administration

This page intentionally left blank.

TABLE OF CONTENTS

Chapter 1 Introduction 1-1
1.1 Project History 1-3
1.1.2 Pruitt Bridge Disposition 1-4
Chapter 2 Purpose and Need 2-1
2.1 Buffalo River Bridge Project 2-1
2.2 Mill Creek Crossing Project 2-2
Chapter 3 Alternatives 3-1
3.1 Alternatives Considered And Dismissed 3-1
3.1.1 Buffalo River Bridge Project 3-1
3.1.2 Mill Creek Crossing Project 3-2
3.2 No Build Alternatives 3-2
3.2.1 Buffalo River Bridge Project 3-2
3.2.2 Mill Creek Crossing Project 3-3
3.3 Build Alternatives 3-3
3.3.1 Buffalo River Bridge Project 3-3
3.3.2 Mill Creek Crossing Project 3-13
3.4 Section 4(f) Evaluation 3-18
Chapter 4 Impact Topic Selection and Regulatory Environment 4-1
4.1 Impact Topics Not Carried Forward 4-1
4.2 Impact Topics Carried Forward For Detailed Analysis 4-5
4.3 Laws, Regulations, And Policies 4-7
Chapter 5 Environmental Resources 5-1
5.1 Geology, Topography, And Soils 5-1
5.2 Cave And Karst Resources 5-2
5.3 Vegetation 5-5
5.4 Wildlife And Wildlife Habitat, Including Special Status Species 5-7
5.4.1 Special Status Species 5-10
5.4.1.1 Endangered Species 5-11
5.4.1.2 Threatened Species 5-12
5.4.1.3 Species of Special Concern 5-12

5.5 Water Quality 5-14
5.6 Floodplains And Stream Processes 5-18
5.7 Wild And Scenic Rivers 5-18
5.8 Cultural Resources 5-20
5.8.1 Buffalo River Bridge Project 5-22
5.8.1.1 Historic Resources 5-24
5.8.1.2 Archeological Sites 5-28
5.8.2 Mill Creek Crossing Project 5-30
5.8.2.1 Historic Resources 5-31
5.8.2.2 Archeological Sites 5-33
5.9 Visual Resources 5-33
5.9.1 Buffalo River Bridge Project 5-34
5.9.2 Mill Creek Crossing Project 5-37
5.10 Noise 5-38
Chapter 6 Environmental Impacts And Mitigation 6-1
6.1 Geology, Topography, And Soils 6-2
6.1.1 Buffalo River Bridge Project Effects 6-3
6.1.2 Mill Creek Crossing Project Effects 6-3
6.1.3 Elements Shared By Both Projects 6-4
6.2 Cave And Karst Resources 6-4
6.2.1 Buffalo River Bridge Project Effects 6-6
6.2.2 Mill Creek Crossing Project Effects 6-7
6.2.3 Elements Shared By Both Projects 6-7
6.3 Vegetation 6-8
6.3.1 Buffalo River Bridge Project Effects 6-9
6.3.2 Mill Creek Crossing Project Effects 6-9
6.3.3 Elements Shared By Both Projects 6-10
6.4 Wildlife And Wildlife Habitat, Including Special Status Species 6-10
6.4.1 Buffalo River Bridge Project Effects 6-14
6.4.2 Mill Creek Crossing Project Effects 6-16
6.4.3 Elements Shared By Both Projects 6-18
6.5 Water Quality 6-18

6.5.1 Buffalo River Bridge Project Effects 6-20
6.5.2 Mill Creek Crossing Project Effects 6-20
6.5.3 Elements Shared By Both Projects 6-21
6.6 Floodplains and Stream Processes 6-22
6.5.2 Mill Creek Crossing Project Effects 6-24
6.7 Wild And Scenic Rivers 6-29
6.8 Cultural Resources 6-30
6.8.1 Buffalo River Bridge Project Effects 6-32
6.8.2 Mill Creek Crossing Project Effects 6-33
6.8.3 Elements Shared By Both Projects 6-33
6.9 Visual Resources 6-35
6.9.1 Buffalo River Bridge Project Effects 6-37
6.9.2 Mill Creek Crossing Project Effects 6-48
6.9.3 Elements Shared By Both Projects 6-51
6.10 Noise 6-52
Chapter 7 Cumulative Impacts 7-1
7.1 Geology, Topography, And Soils 7-5
7.2 Vegetation 7-6
7.3 Wildlife And Wildlife Habitat, Including Special Status Species 7-7
7.4 Water Quality 7-7
7.5 Visual Resources 7-8
Chapter 8 Environmental Commitments 8-1
8.1 Geology, Topography, And Soils 8-1
8.2 Cave And Karst Resources 8-1
8.3 Vegetation 8-1
8.4 Wildlife And Wildlife Habitat, Including Special Status Species 8-1
8.5 Water Quality 8-2
8.6 Wild And Scenic Rivers 8-2
8.7 Cultural Resources 8-2
8.8 Visual Resources 8-3
Chapter 9 Public And Agency Involvement 9-1
Chapter 10 Summary And Recommendations 10-1

Chapter 11 List Of Preparers 11-1
Chapter 12 References 12-1

LIST OF FIGURES

Figure 1-1 Project Locations 1-2
Figure 3-1 East Alternative and West Alternatives I & II Locations 3-4
Figure 3-2 East Alternative Layout 3-6
Figure 3-3 West Alternative I – Option A Layout 3-8
Figure 3-4 West Alternative I – Option B Layout 3-9
Figure 3-5 West Alternative II – Option A Layout 3-11
Figure 3-6 West Alternative II – Option B Layout 3-12
Figure 3-7 Bridge Alternative and Box Culvert Alternative Locations 3-14
Figure 3-8 Bridge Alternative Layout 3-16
Figure 3-9 Box Culvert Alternative Layout 3-17
Figure 5-1 Soils Occuring in the Project Study Area 5-3
Figure 5-2 General Vegetation 5-6
Figure 5-3 Cultural Resources 5-23
Figure 5-4 Visual Resources 5-36
Figure 5-5 Ambient Sound Level Measurements 5-40
Figure 6-1 Wildlife and Wildlife Habitat Study Area 6-12
Figure 6-2 Special Status Species Habitat Locations 6-17
Figure 6-3 Visualization of East Alternative 6-41
Figure 6-4 Visualization of East Alternative – River Perspective 6-42
Figure 6-5 East Alternative Bridge Bent Locations 6-43
Figure 6-6 Visualization of West Alternatives I & II 6-45
Figure 6-7 Visualization of West Alternatives I & II – River Perspective 6-46
Figure 6-8 West Alternatives I and II Bridge Bent Locations 6-47
Figure 6-9 Visualization of Bridge Alternative – Mill Creek Trail Perspective 6-50
Figure 7-1 AHTD Hwy. 7 Projects Between Jasper and Harrison 7-9

LIST OF PHOTOS

Photo 5-1 Former Pruitt Store – Current Contact Center 5-25
Photo 5-2 Former Pruitt Garage – Current Storage Building 5-26
Photo 5-3 Pruitt Bridge 5-27
Photo 5-4 1913 Highway 7 Bridge Concrete Approach 5-28
Photo 5-5 Shaddox Cabin 5-31
Photo 5-6 Canton Mine 5-32

LIST OF TABLES

Table 1-1 Chronology Of Pruitt Bridge Actions and Determinations 1-4
Table 3-1 Buffalo River Bridge Project Alternatives 3-13
Table 3-2 Mill Creek Crossing Project Alternatives 3-18
Table 5-1 Species Of Special Concern 5-15
Table 5-2 Ambient Sound Level Measurements 5-39
Table 6-1 Water Surface Elevations 6-26
Table 6-2 Channel Velocities 6-27
Table 6-3 Cultural Resources Impacted 6-34
Table 6-4 Bridge Construction Details 6-38
Table 6-5 Buffalo River Bridge Project Visual Resource Impact Summary 6-48
Table 6-6 Mill Creek Crossing Project Visual Resource Impact Summary 6-51
Table 6-7 Noise Level Increase Severity 6-53
Table 6-8 Ambient Sound Level Measurement Comparisons 6-56
Table 9-1 Public And Agency Meetings 9-1
Table 9-2 State Agency And Native American Coordination 9-2
Table 10-1 Summary Of Alternative Impacts – Buffalo River Project 10-3
Table 10-2 Summary Of Alternative Impacts – Mill Creek Crossing Project 10-5

APPENDICES

APPENDIX A PROJECT MILESTONES

APPENDIX B CULTURAL RESOURCES CORRESPONDENCE

APPENDIX C AGENCY CORRESPONDENCE

APPENDIX D TRIBAL CONSULTATION

APPENDIX E PLANT SPECIES

APPENDIX F WILDLIFE AND SPECIAL STATUS SPECIES

APPENDIX G SPECIAL STATUS SPECIES CORRESPONDENCE

APPENDIX H TRAFFIC NOISE STUDY AND NOISE EFFECTS ON WILDLIFE

APPENDIX I VIEWSHED ANALYSIS AND VISUAL SENSITIVITY

LIST OF ACRONYMS

AAS	Arkansas Archeological Survey
AASHTO	American Association of State Highway and Transportation Officials
ADEQ	Arkansas Department of Environmental Quality
ADH	Arkansas Department of Health
AGFC	Arkansas Game and Fish Commission
AHPP	Arkansas Historic Preservation Program
AHTD	Arkansas State Highway and Transportation Department
ANHC	Arkansas Natural Heritage Commission
BMP	Best Management Practice
BNR	Buffalo National River
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
cy	cubic yard
dB	decibel
dB(A)	A-weighted sound level
DOI	Department of the Interior
DOT	Department of Transportation
EA	Environmental Assessment
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
ft/s	feet per second
HEC-RAS	Hydrologic Engineering Center River Analysis System
L_{eq}	equivalent steady-state sound level
LWCF	Land and Water Conservation Fund
MOA	Memorandum of Agreement
msl	mean sea level
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places

LIST OF ACRONYMS (Cont.)

NRI	National Rivers Inventory
ORV	Outstandingly Remarkable Values
RCRA	Resource Conservation and Recovery Act
RS	River Station
SHPO	State Historic Preservation Officer
SWPPP	Stormwater Pollution Prevention Plan
TNM	Traffic Noise Model
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VAC	Visual Absorption Capability

EXECUTIVE SUMMARY

Improvements to State Highway 7 and Newton County Road 213 are proposed by the Arkansas State Highway and Transportation Department, in cooperation with the U.S. Department of Transportation, Federal Highway Administration.

The proposed improvements to Highway 7 include replacing the existing substandard bridge over the Buffalo River and realigning the roadway approaches. The proposed improvements to County Road 213 include replacing the existing low water crossing over Mill Creek and realigning the roadway approaches.

The Buffalo National River is a park unit within the U.S. Department of the Interior, National Park Service's National Park System. A federal land transfer would be necessary to convey National Park Service land for transportation use because the proposed projects are located entirely within the boundary of the Buffalo National River.

The alternatives for the proposed Buffalo River Bridge project considered in this Environmental Assessment include:

- No action
- Construct the new bridge east of the existing bridge
- Construct the new bridge west of the existing bridge

The alternatives for the proposed Mill Creek Crossing project considered include:

- No action
- Construct a new bridge downstream from the existing crossing
- Construct a new box culvert upstream from the existing crossing

This Environmental Assessment provides information to allow the public the opportunity to make informed comments, and decision-makers to make an informed recommendation on which alternatives to identify as Selected Alternatives. To this end, the document meets the following objectives:

1. Analyzing a reasonable range of alternatives to meet the purpose and need of the proposed projects.
2. Evaluating potential effects on the Buffalo National River's resources and values.
3. Identifying mitigation measures to lessen the degree or extent of potential effects.

This page intentionally left blank.

CHAPTER 1 INTRODUCTION

The Arkansas State Highway and Transportation Department (AHTD), in cooperation with the U.S. Department of Transportation, Federal Highway Administration (FHWA), is proposing the following two projects:

The Buffalo River Bridge project (AHTD Job 009784) would replace the existing State Highway 7 bridge over the Buffalo River. Replacing the bridge, which is commonly known as the Pruitt Bridge, would require realigning the existing roadway on both sides of the Buffalo River to accommodate the new bridge location and to improve safety. Starting 0.3 mile south of the Buffalo River and ending 0.3 mile north of the Buffalo River, the total length of the project would be 0.6 mile.

The Mill Creek Crossing project (AHTD Job BR5102) would replace the existing Newton County Road 213 low water crossing over Mill Creek with either a bridge or a box culvert crossing. Starting 0.2 mile east of Mill Creek and ending at the intersection of Newton County Road 213 and Highway 7, the total length of the project would be 0.3 mile.

Figure 1-1 provides a general vicinity and project location map.

The Buffalo River Bridge and the Mill Creek Crossing replacement structure would be located within 0.25 mile of each other. The confluence of Mill Creek and the Buffalo River occurs 0.56 mile downstream from the Pruitt Bridge. This proximity creates the potential for interrelated impacts; therefore, the two projects were jointly evaluated. The areas of potential impacts for the combined projects are referred to as the project study area.

The purpose of this Environmental Assessment (EA) is to anticipate environmental impacts, and determine if significant impacts would occur as a result of implementing the proposed projects. It was prepared using FHWA regulations governing environmental documentation in support of the National Environmental Policy Act (NEPA) process. The information in the EA will also be used to identify a Preferred Alternative.

The U.S. Department of the Interior (DOI), National Park Service (NPS) is a cooperating agency during the preparation of the EA and the decision-making process because the proposed projects are located within the Buffalo National River (BNR) – a park unit of the National Park System. Up to 11.6 acres of BNR property would be converted to transportation use for the Buffalo River Bridge project, while up to 3.3 acres would be converted to transportation use for the Mill Creek Crossing project. For this reason, the EA was prepared to be compatible with the NEPA requirements of the NPS.

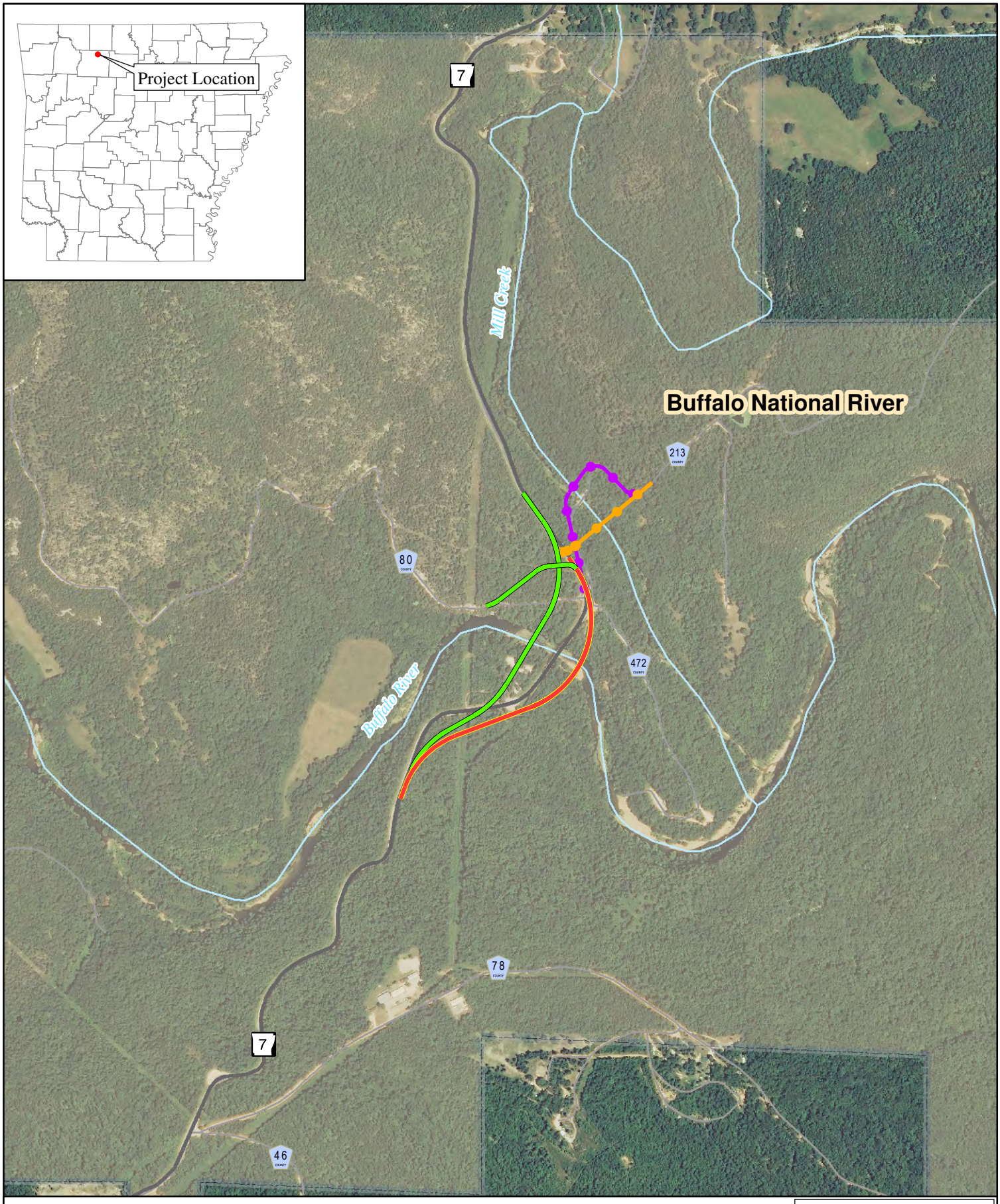


Figure 1-1
Project Locations
Buffalo River Bridge and Mill Creek Crossing

For EA discussion purposes, the designation "NPS–BNR" indicates management, policies, and other broader issues applicable to both the NPS as a whole and the BNR specifically, while the designation "BNR" is used for the Park itself and/or Park staff.

1.1 PROJECT HISTORY

The NPS–BNR has been a cooperating agency for the Buffalo River Bridge project since October 2002. The Buffalo River Bridge project was initially addressed in conjunction with the Highway 7 Passing Lanes project (AHTD Job 090169), and the development of alternatives began in 2002.

The NPS–BNR expressed concerns in November 2002 about the safety of a segment of Highway 7 between the end point of the Passing Lanes project and the start point of the proposed Buffalo River Bridge project. The AHTD's response to addressing these concerns resulted in the programming of the Safety Improvements project (AHTD Job 090213) by March 2006.

The NPS–BNR initially requested in July 2004 that the Buffalo River Bridge project be included in an EA in conjunction with the Passing Lanes project. Following the programming of the Safety Improvements project in 2006, the NPS–BNR requested that the Buffalo River Bridge project be included in an EA in conjunction with the Passing Lanes and the Safety Improvements projects.

The Mill Creek Crossing project was initiated in 2006 by Newton County officials as a state aid project. This means that Newton County is the project sponsor, with the AHTD and FHWA providing a portion of the funding utilizing AHTD staff to develop and implement the project. The AHTD communicated to the NPS–BNR in August 2007 that the Mill Creek Crossing project was considered a separate county project unconnected with the other ongoing projects located on Highway 7. The NPS-BNR replied in September 2007 that since the Highway 7 realignment may impact the existing Mill Creek low water crossing and Mill Creek as a stream, environmental analysis should include potential impacts to the low water crossing and Mill Creek water quality.

The AHTD completed the Passing Lanes, Safety Improvements, Buffalo River Bridge, and Mill Creek Crossing Draft EA in April 2009. Subsequently, the AHTD proposed to expedite the Passing Lanes and Safety Improvements projects as separate projects with independent feasibility and utility. In March 2011, the NPS–BNR concurred with the proposal to first address the Passing Lanes and Safety Improvements projects in one EA, with the Buffalo River Bridge and Mill Creek Crossing projects to be addressed in a later EA. This proposal was confirmed by September 2011 and the EA for the Passing Lanes and Safety Improvements projects was prepared. The Finding of No Significant Impact (FONSI) for the Passing Lanes and Safety Improvement projects was approved in June 2013.

The process to prepare the Buffalo River Bridge and Mill Creek Crossing Draft EA resumed in March 2013. A Preliminary Draft EA was submitted to the NPS–BNR for review in June 2014. The Preliminary Draft EA incorporated revised information from the April 2009 Draft EA and included new information and formatting in consideration of EA requirements of the NPS. A Draft EA incorporating the NPS–BNR's initial Preliminary Draft EA review comments and the results of subsequent consultation between the AHTD, FHWA, and NPS–BNR was issued in August 2015. This EA incorporates the NPS-BNR's Draft EA review comments.

1.1.2 PRUITT BRIDGE DISPOSITION

The Pruitt Bridge's disposition has been a source of delays for the Buffalo River Bridge project. The Pruitt Bridge is listed on the National Register of Historic Places (NRHP) and various alternatives for its use have been considered. These alternatives included preservation on its current location or relocation to a new site. The bridge could be rehabilitated for a variety of purposes, including vehicular traffic, pedestrian, or bicycle use. However, since the AHTD's policy is to not retain bridges that are closed to vehicular traffic due to maintenance costs and liability (or legal responsibility), the only viable alternatives for the Pruitt Bridge were either the assumption of responsibility by another entity or demolition. The bridge was therefore offered for use by any government agency or other party willing to accept title for it and with the financial ability to continue maintenance. **Table 1-1** summarizes the history of actions and determinations regarding the Pruitt Bridge. A chronology of project milestones is included as **Appendix A**, and copies of relevant correspondence related to the Pruitt Bridge disposition are included in **Appendix B**.

TABLE 1-1 CHRONOLOGY OF PRUITT BRIDGE ACTIONS AND DETERMINATIONS

DATE	ACTION / DETERMINATION
November 2003	Newton County officials initially expressed interest in taking ownership of the bridge.
March 2004	The NPS–BNR suggested that the bridge be moved to a new location, with Mill Creek being a possible destination.
May 2005	The NPS–BNR indicated that leaving the Pruitt Bridge in place and building an additional bridge would be contrary to its mandate to maintain the free flowing nature of the Buffalo River, expressed concerns about future maintenance requirements, and again requested that the bridge be moved.

TABLE 1-1 CHRONOLOGY OF PRUITT BRIDGE ACTIONS AND DETERMINATIONS (CONT.)

DATE	ACTION / DETERMINATION
2006 and 2007	The AHTD's effort to clarify the intent of the NPS-BNR and Newton County regarding the Pruitt Bridge continued, an effort that was prolonged due to BNR administration changes.
April 2007 – October 2007	The NPS–BNR indicated interest in incorporating the Pruitt Bridge into a proposed new Visitor Center project and expressed willingness to allow the bridge to remain in place. The NPS–BNR also indicated that they did not want bridge ownership and maintenance in place.
October 2008	The NPS–BNR reversed the 2007 ownership rejection and instead expressed the intent to obtain ownership and keep the Pruitt Bridge in place. However, in comments on the *Passing Lanes, Safety Improves, and Buffalo River Bridge Draft EA*, the NPS–BNR requested the inclusion of alternatives involving the removal of the bridge.
July 2010	The NPS–BNR stated that NPS–BNR ownership was not feasible and expressed concerns about allowing the bridge to remain in place while under the ownership and control of another entity. For these reasons, the NPS–BNR again requested that demolition or removal of the bridge be considered as an EA alternative.
December 2010	It was confirmed that Newton County did not wish to accept title for the Pruitt Bridge for reuse or relocation.
March 2013	The NPS–BNR reiterated their preference that the Pruitt Bridge be demolished or removed.
June 2013	Boone County officials expressed an interest in obtaining information regarding the potentialities of accepting or declining bridge ownership. Boone County did not, however, expressly state an intention to acquire the Pruitt Bridge.
December 2013	AHTD provided Boone County with a letter that outlined the AHTD's legal opinion on the matter; i.e., that Boone County's only option was to assume ownership and responsibility for the preservation of the Pruitt Bridge at a relocation site within Boone County, and that the exercise of this option would require written approval from the Boone County Quorum Court, the FHWA, the Arkansas State Historic Preservation Commission, and the Arkansas Highway Commission in an agreement to relocate the bridge.

TABLE 1-1 CHRONOLOGY OF PRUITT BRIDGE ACTIONS AND DETERMINATIONS (CONT.)

DATE	ACTION / DETERMINATION
December 2014	The costs associated with relocating the Pruitt Bridge in lieu of a new structure for the Mill Creek Crossing project were determined to exceed bridge construction costs by approximately $300,000. Long-term maintenance costs associated with reusing Pruitt Bridge were also determined to exceed maintenance costs for new bridge construction.

CHAPTER 2 PURPOSE AND NEED

This chapter describes the existing conditions of the structures and roadway approaches in the Buffalo River Bridge and Mill Creek Crossing project areas, and explains the purpose and need for the proposed projects.

2.1 BUFFALO RIVER BRIDGE PROJECT

EXISTING CONDITIONS

The Pruitt Bridge is located on Highway 7, about 5.5 miles north of the city of Jasper and 19 miles south of the city of Harrison. Spanning the Buffalo River, the Pruitt Bridge is 375 feet in length with a deck width of 20 feet. Although the roadway approaches have two 11-foot wide travel lanes with 3-foot wide shoulders, the travel lanes narrow to 10 feet in width on the bridge deck and do not have shoulders. The Pruitt Bridge was constructed in 1931 and has never been upgraded or undergone major rehabilitation, although routine maintenance and repairs have been performed. The most recent repairs involved work on the bottom chords of the truss and ends of the floor beams in 2008, and the installation of support angles in 2013. Because the bridge has been programmed for replacement for several years, extensive repairs have not been made.

Highway 7 is classified as a rural minor arterial, meaning it links cities and large towns and provides service to other corridors with trip lengths and travel densities greater than its own. The need for Highway 7 to remain open to traffic during future bridge replacement or rehabilitation activities was established in 2002 during the initial EA coordination process. Serving as the primary route between Jasper and Harrison, the year 2015 average annual daily traffic for Highway 7 through the study area is 2,500 vehicles per day, with trucks accounting for approximately 8 percent of the total traffic. The average annual daily traffic for 2035 is projected to be 3,100 vehicles per day. The roadway approaching the Pruitt Bridge has not been realigned since 1931 and reflects design and safety standards from that time.

In addition to its rural minor arterial functions, most of Highway 7 was designated as the state's first Scenic Byway in 1994. Highway 7 runs almost the entire length of Arkansas from the Louisiana state line to Bull Shoals Lake, just south of the Missouri state line.

PURPOSE AND NEED

The purpose of the proposed project is to replace the substandard Pruitt Bridge and roadway approaches.

The AHTD inspects all bridges on a regular basis and gives classifications and sufficiency ratings. The Pruitt Bridge has been classified as structurally deficient for several years. It was last inspected in September 2015 and was again classified as structurally deficient.

A structurally deficient bridge exhibits deterioration and possibly lacks the structural capacity to carry legal load limits. Sufficiency ratings, which indicate degrees of structural deficiency, can range from 0.0 (worst) to 100.0 (best). The Pruitt Bridge has a sufficiency rating of 7.3 based on its structural condition, but does not currently have posted weight limits.

The weight and speed of vehicles have changed substantially since the bridge was constructed in 1931. These factors have adversely affected the physical condition of the Pruitt Bridge and increased the cost of its maintenance. As the bridge continues to age and deteriorate, weight limits may need to be imposed or additional work required to rehabilitate major components to carry legal load limits and/or to extend service life. The Section 4(f) Evaluation prepared in conjunction with this EA provides additional maintenance and rehabilitation information and cost estimates.

The Pruitt Bridge is functionally obsolete. Geometric features of the existing roadway approaches to the bridge do not meet current American Association of State Highway and Transportation Officials (AASHTO) and AHTD minimum design criteria. The sight distances are also inadequate.

2.2 MILL CREEK CROSSING PROJECT

EXISTING CONDITIONS

The Mill Creek low water crossing is located on County Road 213. County Road 213 is a gravel road connecting to Highway 7 just north of the Buffalo River and running east. The low water crossing is located 0.17 mile from the County Road 213/Highway 7 intersection and is comprised of a concrete slab measuring 109 feet in length and 11.5 feet in width. Mill Creek normally flows under the concrete slab via an opening that is 11 feet in width and 2 feet in depth. Three overflow relief pipes, each 2 feet in diameter, are incorporated into the western portion of the concrete slab. Floods occur over the low water crossing an average of three to four times per year. Travelers who rely on County Road 213 to reach Highway 7 must make detours when flooding occurs. Via a detour route, the distance from the east side of the low water crossing to Highway 7 is approximately 6.5 miles.

The roadway approaches to the low water crossing are 16 feet in width and do not have designated travel lanes or shoulders. The roadway approach gradients are up to 15 percent and the curves do not meet current AASHTO and AHTD safety standards. Newton County is responsible for the maintenance of County Road 213 and the Mill Creek low water crossing.

PURPOSE AND NEED

The purpose of the proposed project is to replace the Mill Creek low water crossing with either a bridge or a box culvert crossing while straightening the curves and reducing the gradients of the roadway approaches. The project is needed to provide a reliable passage over Mill Creek.

This page intentionally left blank.

CHAPTER 3 ALTERNATIVES

Federal agencies are required to evaluate a range of reasonable project alternatives under NEPA. Project alternatives may originate from the proponent agency (e.g., the FHWA/AHTD), cooperating agencies (e.g., the NPS–BNR, U.S. Fish and Wildlife Service [USFWS]), local government officials (e.g., Newton County), or members of the public. Additionally, the alternatives must include a "No Action" or "No Build" alternative as prescribed by 40 CFR 1502.14.

Public scoping and agency coordination identified reasonable alternatives meeting the purpose and need for the Buffalo River Bridge and the Mill Creek Crossing projects. These alternatives were carried forward for detailed study in this EA and are referred to as the "build" alternatives. Other alternatives were considered during the early stages of project development and ultimately dismissed during the coordination process with the NPS–BNR. These dismissed alternatives were not studied in detail because they were not feasible for economic or technical reasons.

Section 3.1 describes the alternatives that were considered and dismissed. Section 3.2 describes the "No Build" alternatives, which provide a basis of comparison for other reasonable alternatives. Section 3.3 describes the build alternatives proposed for detailed study.

3.1 ALTERNATIVES CONSIDERED AND DISMISSED

Multiple alternatives were considered, including the possibility of rehabilitating the Pruitt Bridge or replacing the Pruitt Bridge and/or Mill Creek Crossing on existing location. These alternatives were eventually determined to be unfeasible or not prudent and are summarized below. Agency correspondence provided in **Appendix C** includes documentation supporting the alternative dismissals.

3.1.1 BUFFALO RIVER BRIDGE PROJECT

PRUITT BRIDGE REHABILITATION

Rehabilitating the Pruitt Bridge was not considered a viable alternative due to the poor condition of both the superstructure and the substructure. Bridge rehabilitation to meet current AASHTO and AHTD criteria would result in costs that approach those for bridge replacement or long-term maintenance.

REPLACEMENT ON EXISTING LOCATION

This alternative would allow the project to be constructed more quickly and would have less impact to BNR resources; however, it would require the closure of Highway 7 because topographic and engineering constraints would prevent the construction of a temporary bridge.

Highway 7 is an important arterial for maintaining the continued mobility of the public and efficient flow of services through the region. Highway 7 is also valuable for tourism as a scenic byway. This alternative was therefore removed from consideration.

BNR AVOIDANCE ALTERNATIVE

Section 4(f) of the Department of Transportation Act of 1966 permits the Secretary of Transportation to approve a project that requires the use of any publicly-owned land from a park only if the determination has been made that there is no feasible and prudent alternative to the use of such land. As detailed in the Section 4(f) Evaluation, no feasible and prudent new location alternative that entirely avoids the use of BNR land can be developed. The BNR Avoidance Alternative was therefore removed from consideration.

EAST ALTERNATE I – HISTORIC AND ARCHEOLOGICAL SITE AVOIDANCE ALTERNATIVE

Avoidance of all known historic and archaeological sites in the project was considered very early in the project development process by identifying a route outside the immediate Highway 7 corridor. This approximately 1.6-mile route, designated as East Alternate I, would involve constructing a new road within the BNR and a new 1,600-foot bridge, much further away from the existing bridge than any of the alternatives carried forward. Following a review of the information related to BNR resources in the East Alternate I project area compared with other alternatives within the Highway 7 corridor, the NPS–BNR agreed that East Alternate I was not prudent. This decision was based on the increased potential for impacts directly to BNR resources because it would route traffic away from established recreational facilities.

3.1.2 MILL CREEK CROSSING PROJECT

REPLACEMENT ON EXISTING LOCATION

The construction footprint required to make the necessary roadway approach improvements for replacing the low water crossing on its existing location would be larger than for either one of the alternatives carried forward. Replacement on the existing location was therefore not prudent, and the alternative was removed from consideration.

3.2 NO BUILD ALTERNATIVES

3.2.1 BUFFALO RIVER BRIDGE PROJECT

Under the Buffalo River Bridge No Build Alternative, the Pruitt Bridge and roadway approaches would be left as they exist; a new bridge would not be constructed and roadway approach improvements would not be undertaken. Only routine maintenance would be performed. The No Build Alternative would not address the bridge's deterioration and sufficiency rating of 7.3

out of 100. The substandard design features, including inadequate lane widths and roadway approaches, would remain. This No Build Alternative serves as a basis for comparison for the build alternatives rather than as a viable stand-alone alternative because it does not address the project's purpose and need.

3.2.2 MILL CREEK CROSSING PROJECT

Under the Mill Creek Crossing No Build Alternative, the Mill Creek low water crossing and County Road 213 would be left as they exist; a new structure would not be built and the roadway approaches would not be improved. Only minor repair or routine maintenance would be performed. The No Build Alternative would not alleviate flooding of the low water crossing nor improve the substandard roadway approaches. Although the No Build Alternative would not meet the project's purpose and need, it is evaluated to allow for comparison with the build alternatives described below.

3.3 BUILD ALTERNATIVES

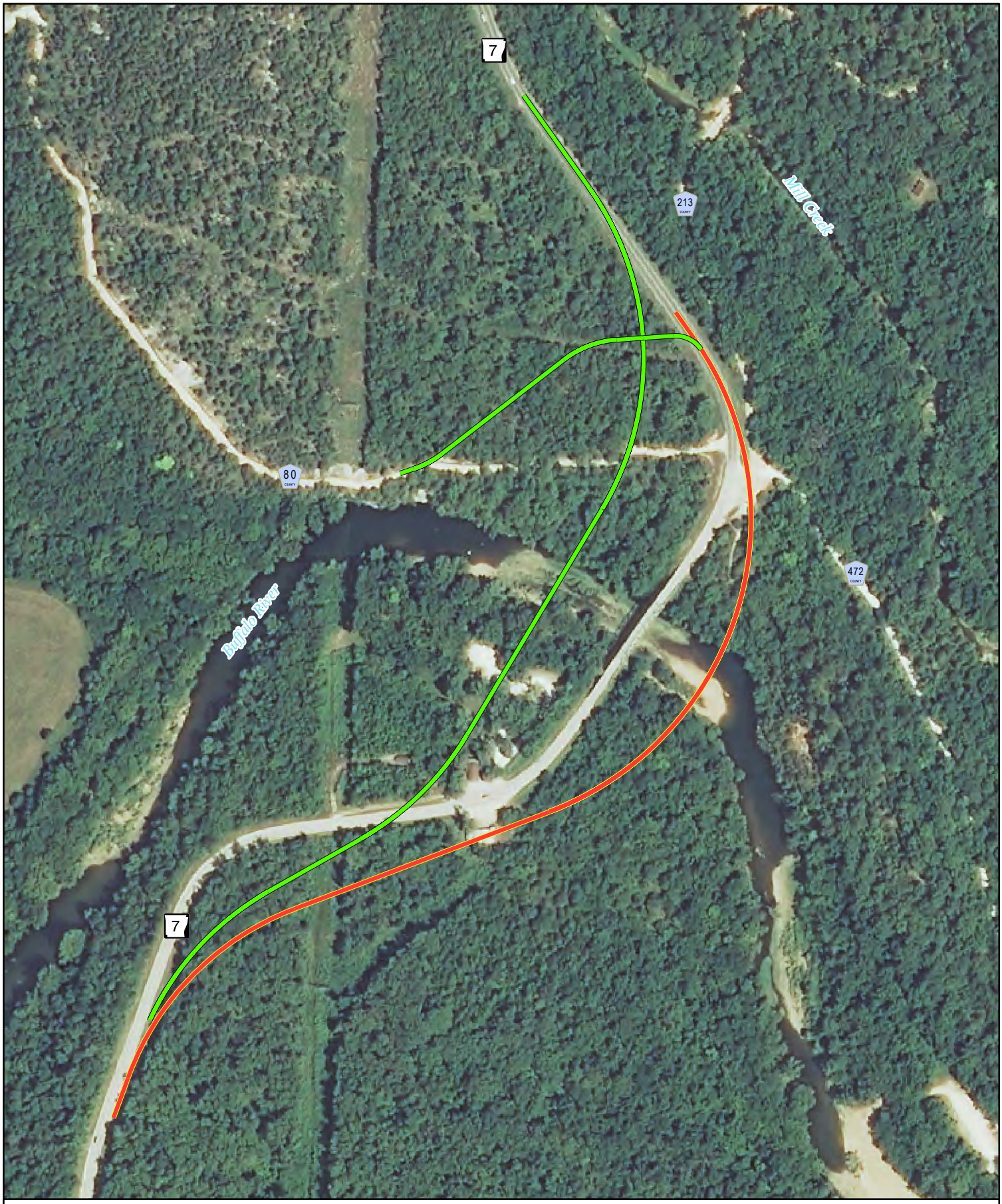
Alternatives other than those that were dismissed or No Build were carried forward for detailed study. These "build" alternatives are described below.

3.3.1 BUFFALO RIVER BRIDGE PROJECT

All of the alternatives would involve replacing the Pruitt Bridge on new alignment. The possibility of replacing the bridge on the existing alignment was considered, but is not feasible because of the need to maintain traffic flow on Highway 7 during construction. The topography of the project area is too confined for a temporary bridge to be installed to keep traffic flowing during new bridge construction.

Two locations for the new bridge are under consideration. Each location would require different roadway approach alignments. As shown on **Figure 3-1**, one location is to the east of the Pruitt Bridge and one location is to the west.

Two designs were originally developed for the east bridge location; however, as detailed in Section 3.1.1, one of the designs (East Alternative I) was dismissed from further consideration early in the planning process.



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

March 31, 2014

Photography: Summer 2013

Figure 3-1
East Alternative
West Alternatives I & II
Locations

East Alternative

West Alternatives I & II

Four separate designs were developed for the west bridge location. These designs were specifically developed to avoid historic buildings and resulted in different ways for vehicles to access the Pruitt Day Use Area. The historic buildings are:

- Contact Center – a former store currently used as a BNR visitor contact center.
- Storage Building – a former garage and community center currently used for BNR storage.

Highway 7 through the project area has two 11-foot wide travel lanes with 3-foot wide shoulders. All of the build alternatives propose increasing the width of the travel lanes to 12 feet and the width of the shoulders to 8 feet, and adding pedestrian facilities. All of the alternatives also propose the addition of 12-foot wide turn lanes into the Pruitt Day Use Area and the Pruitt Access Area.

All of the alternatives propose transferring ownership of some portions of existing highway easement and associated roadway segments to the BNR. Prior to transfer, these roadway segments would be obliterated by removing the asphalt, recontouring the land to its natural grade, and replanting native vegetation. All of the alternatives also propose a federal land transfer of portions of existing BNR land for use as new highway easement.

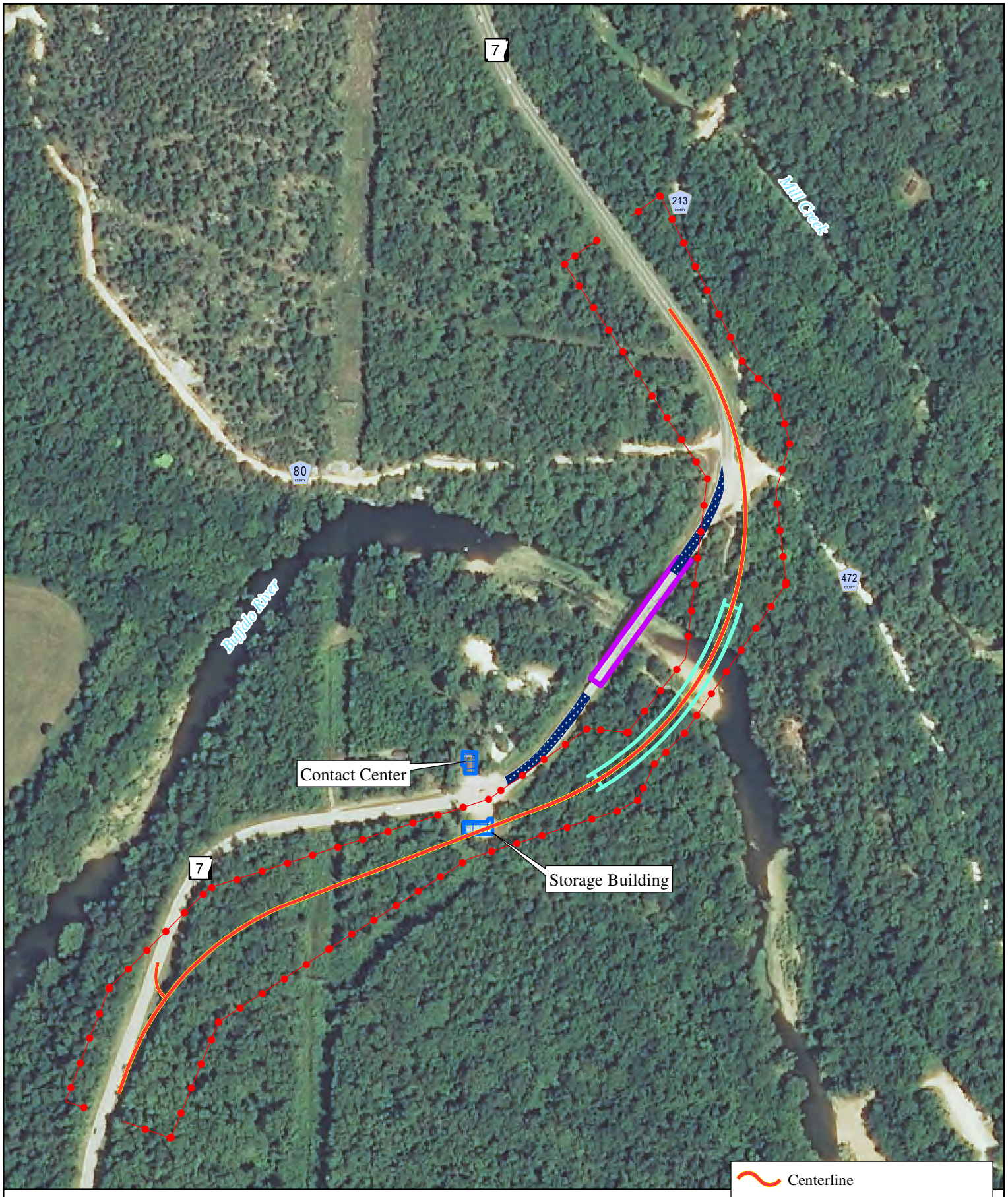
The alternatives were developed with the assumption that the Pruitt Bridge will remain in place until the new bridge and roadway approaches are complete. The Pruitt Bridge and its embankment will be removed once the new bridge is operable.

The five build alternatives for the Buffalo River Bridge project are described below.

EAST ALTERNATIVE

The East Alternative would involve constructing a new bridge 670 feet in length and 49.3 feet in width, 160 feet east (downstream) of the Pruitt Bridge. The width would include a 5-foot wide pedestrian walkway, pedestrian safety barrier and railing, and bridge railing. New easement is estimated to be 11.6 acres. A portion of the existing roadway would remain in place as a connector road providing vehicle access to the Pruitt Day Use Area. About 0.26 acre of the existing roadway would be obliterated. This alternative would require the removal of the Storage Building. **Figure 3-2** shows the East Alternative layout. Additional information regarding the locations of new easement, temporary construction easements, and obliterated roadway segments are provided in the Section 4(f) Evaluation.

The cost of this alternative was estimated as $7.9 million (in 2015 dollars).



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

January 8, 2016

Photography: Summer 2013

Figure 3-2

East Alternative Layout

WEST ALTERNATIVE I – OPTION A (CONTACT CENTER AND STORAGE BUILDING REMOVED)

West Alternative I would involve constructing a new bridge 772 feet in length and 49.3 feet in width, 200 feet west (upstream) of the Pruitt Bridge. The width would include a 5-foot wide pedestrian walkway, pedestrian safety barrier and railing, and bridge railing. New easement is estimated to be 10.3 acres. A new roadway segment would be constructed as a connector providing vehicle access to the Pruitt Day Use Area. This alternative would require the removal of the Contact Center and the Storage Building.

New connections for County Road 80 (west of Highway 7) and County Road 213 (east of Highway 7) would also be required because the necessary roadway approach realignment would render the existing connections obsolete. An estimated 1.88 acres of the 10.3 total acres of new easement would be required for the County Road 80 connection.

Figure 3-3 shows the West Alternative I – Option A layout. Additional information regarding the locations of new easement, temporary construction easements, and obliterated roadway segments are provided in the Section 4(f) Evaluation.

The cost of this alternative was estimated as $9.4 million (in 2015 dollars).

WEST ALTERNATIVE I – OPTION B (CONTACT CENTER RETAINED – STORAGE BUILDING REMOVED)

A West Alternative I layout that included a retaining wall to prevent the removal of the Contact Center was also developed. Other than the addition of the retaining wall and its associated costs, West Alternative I – Option B is substantially the same as West Alternative I – Option A, including the requirement for the Storage Building to be removed.

Figure 3-4 shows the West Alternative I – Option B layout. Additional information regarding the locations of new easement, temporary construction easements, and obliterated roadway segments are provided in the Section 4(f) Evaluation.

The cost of this alternative was estimated as $9.3 million (in 2015 dollars).

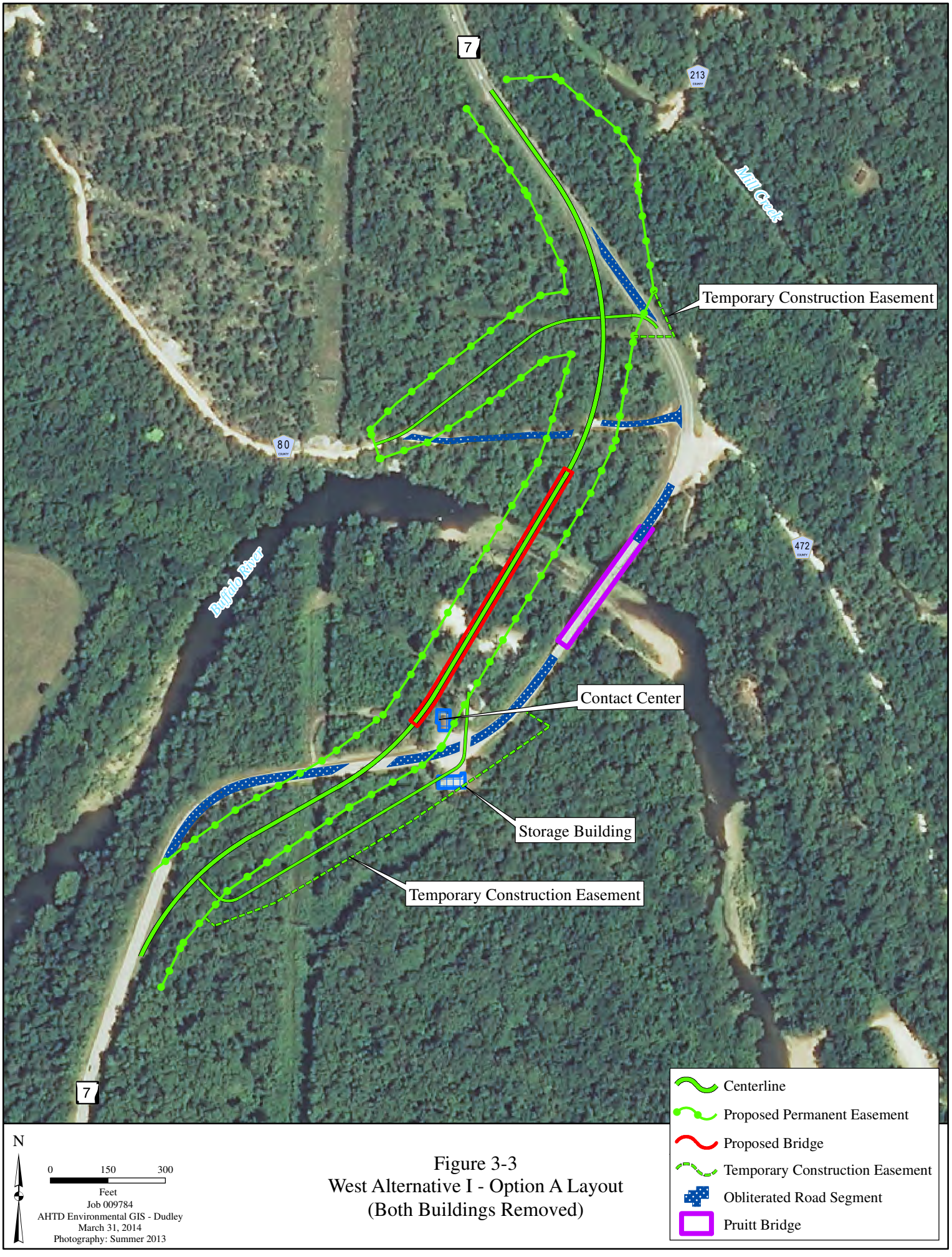
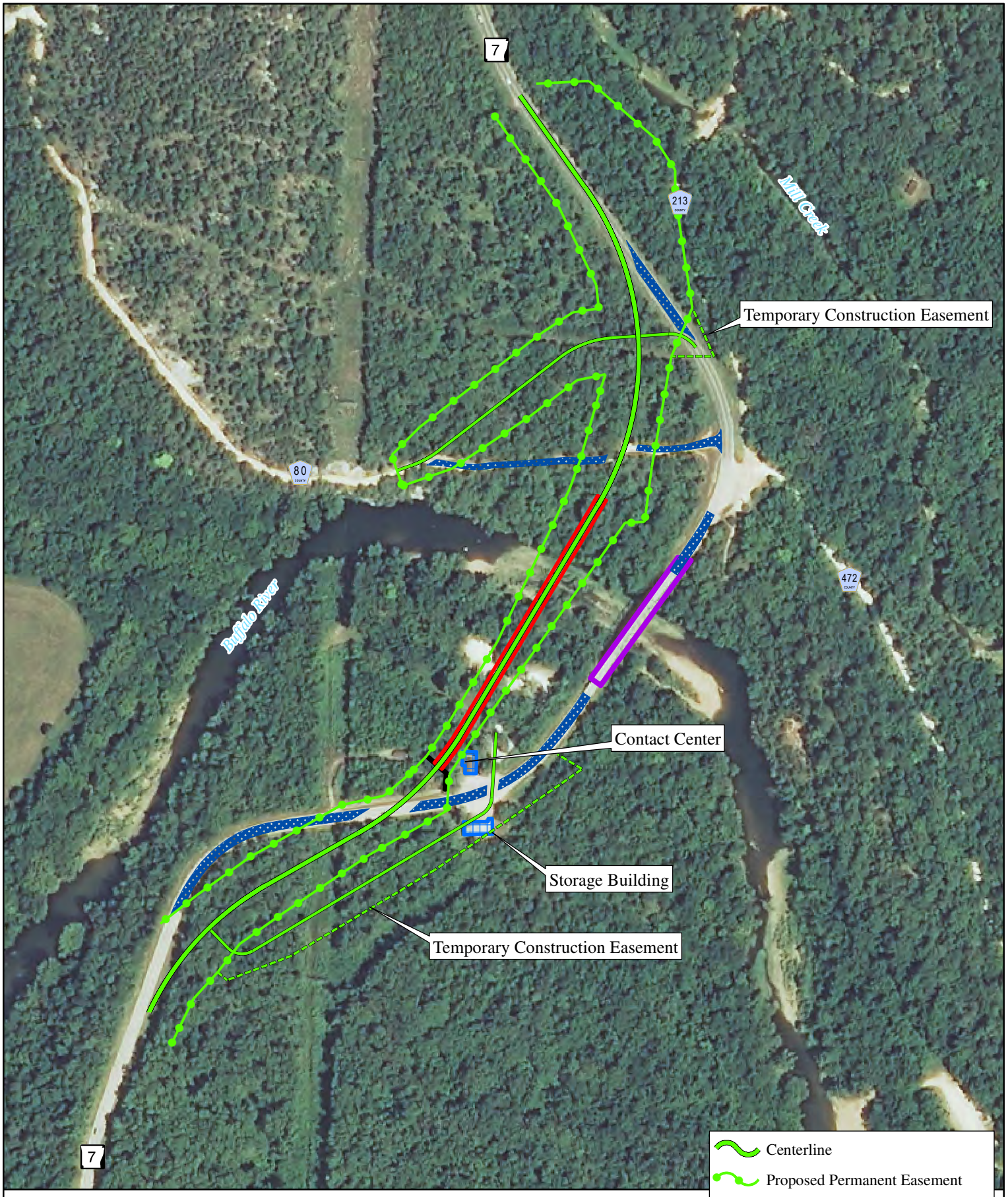


Figure 3-3
West Alternative I - Option A Layout
(Both Buildings Removed)



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

March 31, 2014

Photography: Summer 2013

Figure 3-4
West Alternative I - Option B Layout
(Storage Building Removed)

WEST ALTERNATIVE II – OPTION A (CONTACT CENTER AND STORAGE BUILDING RETAINED)

West Alternative II – Option A is similar to the West Alternative I – Options A and B with the following differences: both the Contact Center and the Storage Building would be retained. A retaining wall would be required to avoid the Contact Center, and the south roadway approach would incorporate an additional bridge (hereinafter "overpass") 165 feet in length. The overpass would be required to allow the connector to the Pruitt Day Use Area to pass under Highway 7. A segment of existing Highway 7 would be left in place to function as the connector to the Pruitt Day Use Area.

Figure 3-5 shows the West Alternative II – Option A layout. Additional information regarding the locations of new easement, temporary construction easements, and obliterated roadway segments are provided in the Section 4(f) Evaluation.

The cost of this alternative was estimated as $9.8 million (in 2015 dollars).

WEST ALTERNATIVE II – OPTION B (CONTACT CENTER REMOVED – STORAGE BUILDING RETAINED)

West Alternative II – Option B is identical to West Alternative II – Option A with the following differences: only the Storage Building would be retained and a retaining wall would not be required. Although the new easement requirements are also identical, eliminating the need to build a new connector to provide vehicle access to the Pruitt Day Use Area would reduce the overall impact footprint of both of the West Alternative II alternatives in comparison to the West Alternative I alternatives.

Figure 3-6 shows the West Alternative II – Option B layout. Additional information regarding the locations of new easement, temporary construction easements, and obliterated roadway segments are provided in the Section 4(f) Evaluation. The cost of this alternative was estimated as $9.4 million (in 2015 dollars).

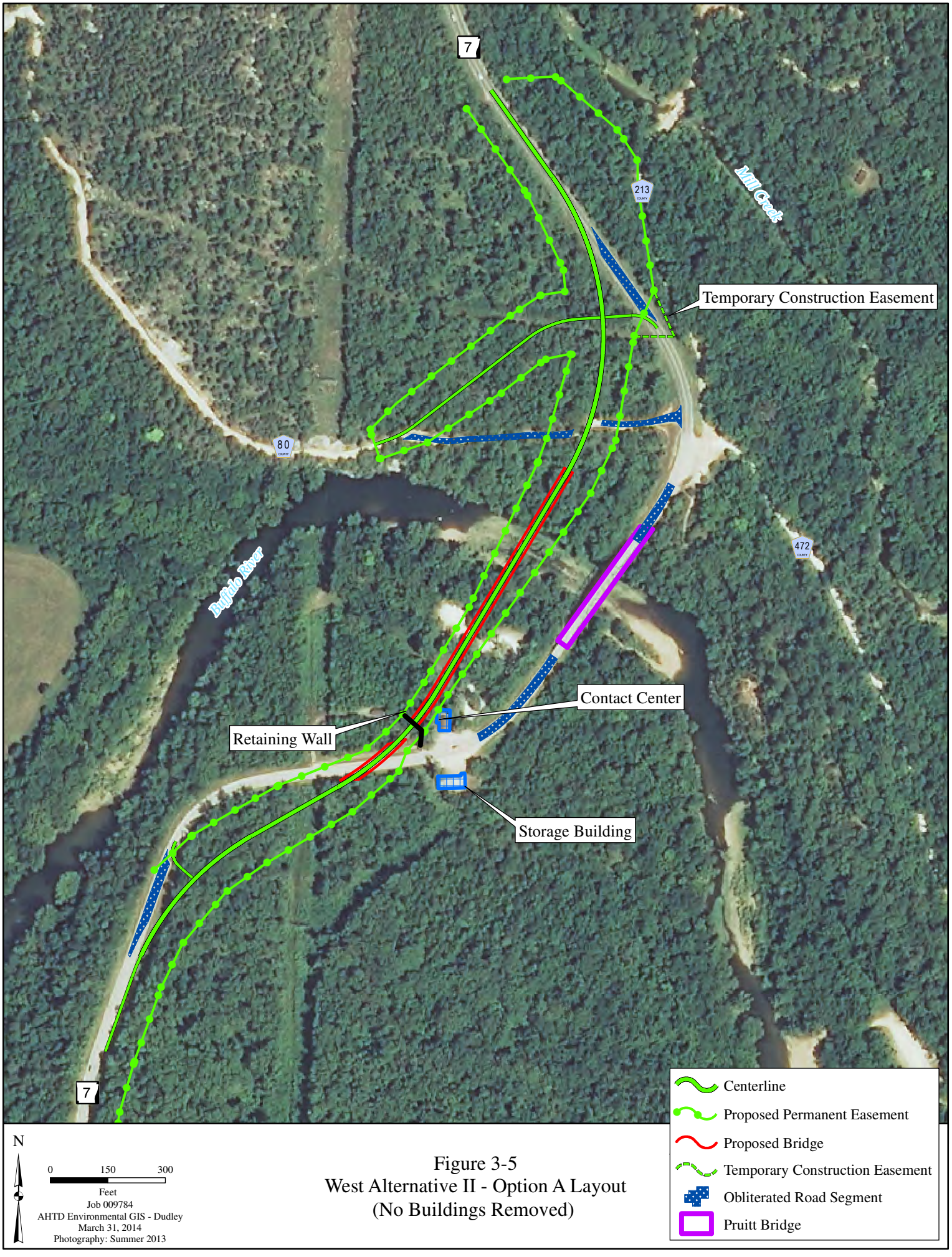


Figure 3-5
West Alternative II - Option A Layout
(No Buildings Removed)

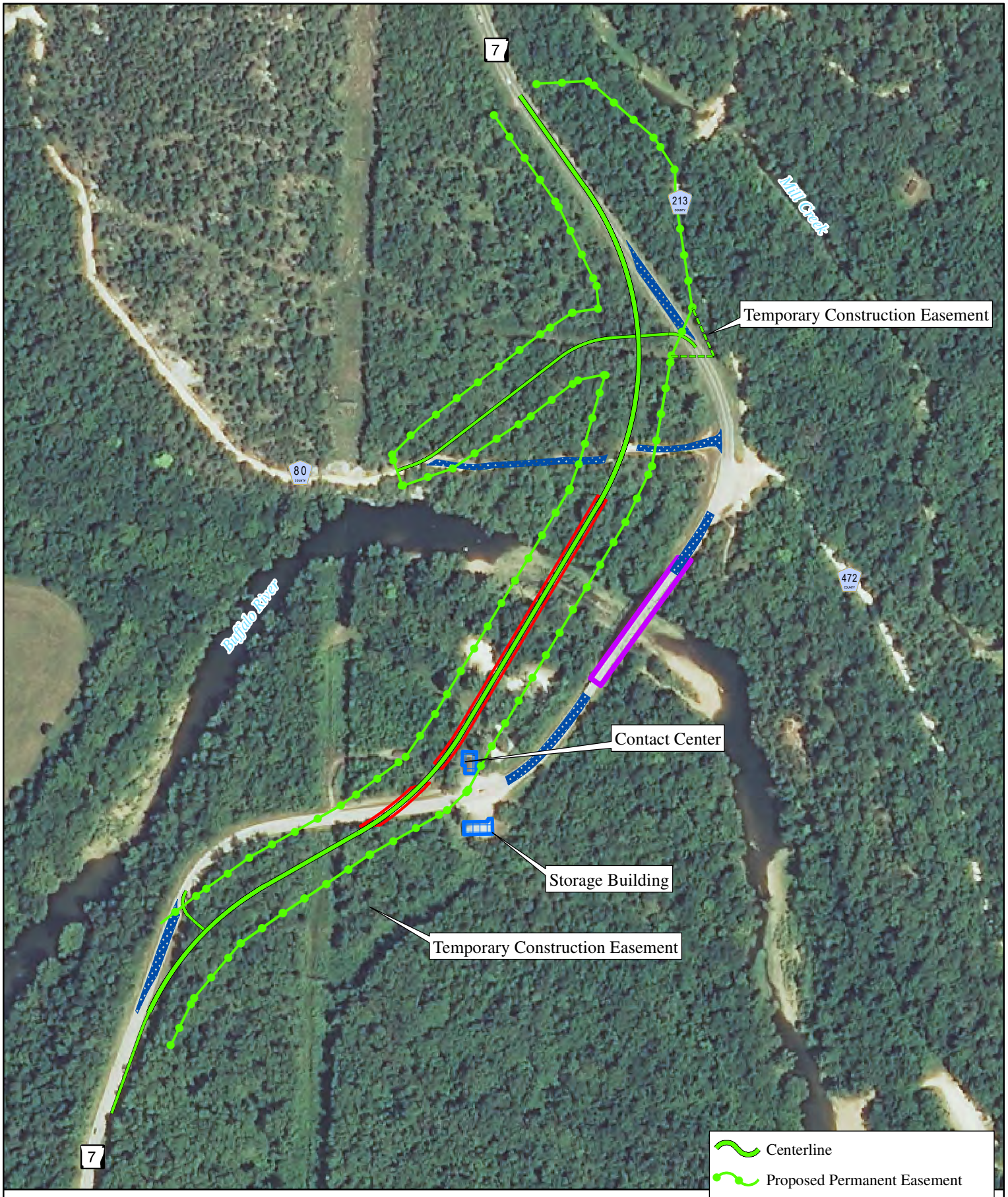


Figure 3-6
West Alternative II - Option B Layout
(Contact Center Removed)

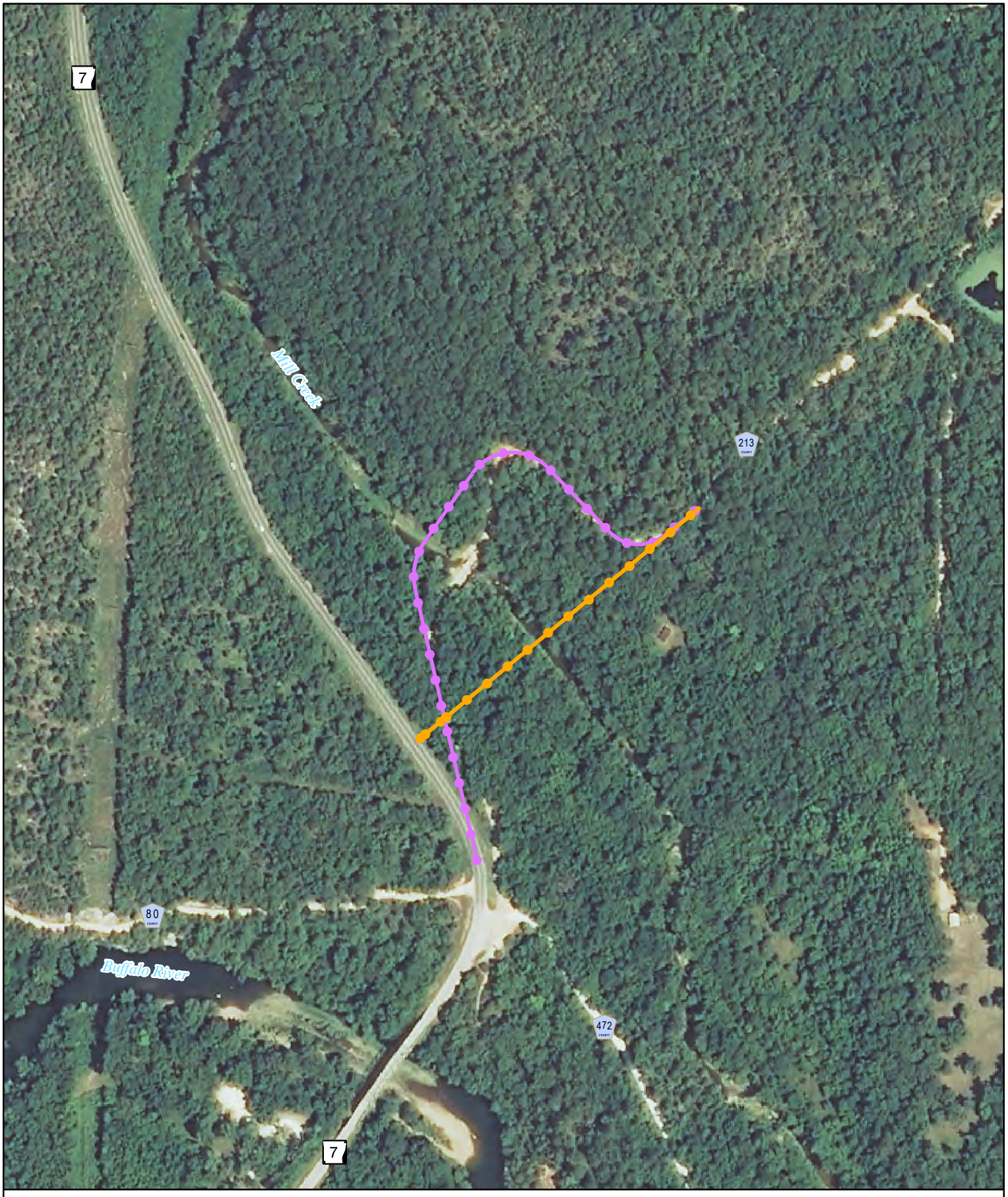
The Buffalo River Project alternatives are summarized in **Table 3-1**.

TABLE 3-1 BUFFALO RIVER BRIDGE PROJECT ALTERNATIVES

BRIDGE LENGTH (Feet)	NEW EASEMENT (Acres)	ESTIMATED COST (Million in 2015 $)	BUILDINGS REMOVED
EAST ALTERNATIVE			
670	11.6	7.9	Storage Building
WEST ALTERNATIVE I – OPTION A			
772	10.3	9.4	Contact Center & Storage Building
WEST ALTERNATIVE I – OPTION B			
772	10.3	9.3	Storage Building
WEST ALTERNATIVE II – OPTION A			
772	10.3	9.8	None
WEST ALTERNATIVE II – OPTION B			
772	10.3	9.4	Contact Center

3.3.2 MILL CREEK CROSSING PROJECT

Two types of low water crossing replacement structures are under consideration for the Mill Creek Crossing project. Because of design considerations, each replacement structure requires different roadway approach alignments. As shown on **Figure 3-7**, one location is to the southeast (downstream) of the low water crossing and one location is to the northwest (upstream).



N

0 150 300

Feet

Job BR5102

AHTD Environmental GIS - Dudley

April 1, 2014

Photography: Summer 2013

Figure 3-7
Bridge Alternative and
Box Culvert Alternative
Locations

Bridge Alternative

Box Culvert Alternative

Both of the proposed alternatives would include widening the roadway approaches to accommodate two 10-foot travel lanes with 4-foot shoulders. Additionally, the curvature and grade of the roadway would be improved to meet current safety standards. The gravel road surface within the project limits would be replaced with an asphalt surface treatment known as chip seal. A chip seal surface is comprised of an asphalt binder covered with a layer of aggregate chips. The treatment is then rolled to embed the aggregate into the binder.

The alternatives were developed with the assumption that the low water crossing will remain in place until the new crossing and roadway approaches are complete. The low water crossing will be removed once the new crossing can be used.

BRIDGE ALTERNATIVE

The Bridge Alternative would involve constructing a new bridge 250 feet in length and 250 feet downstream of the low water crossing. The total length of the project would be approximately 900 feet, and new easement is estimated at 2.5 acres.

Figure 3-8 shows the Bridge Alternative layout. Details regarding the locations of new easement and temporary construction easements are provided in the Section 4(f) Evaluation.

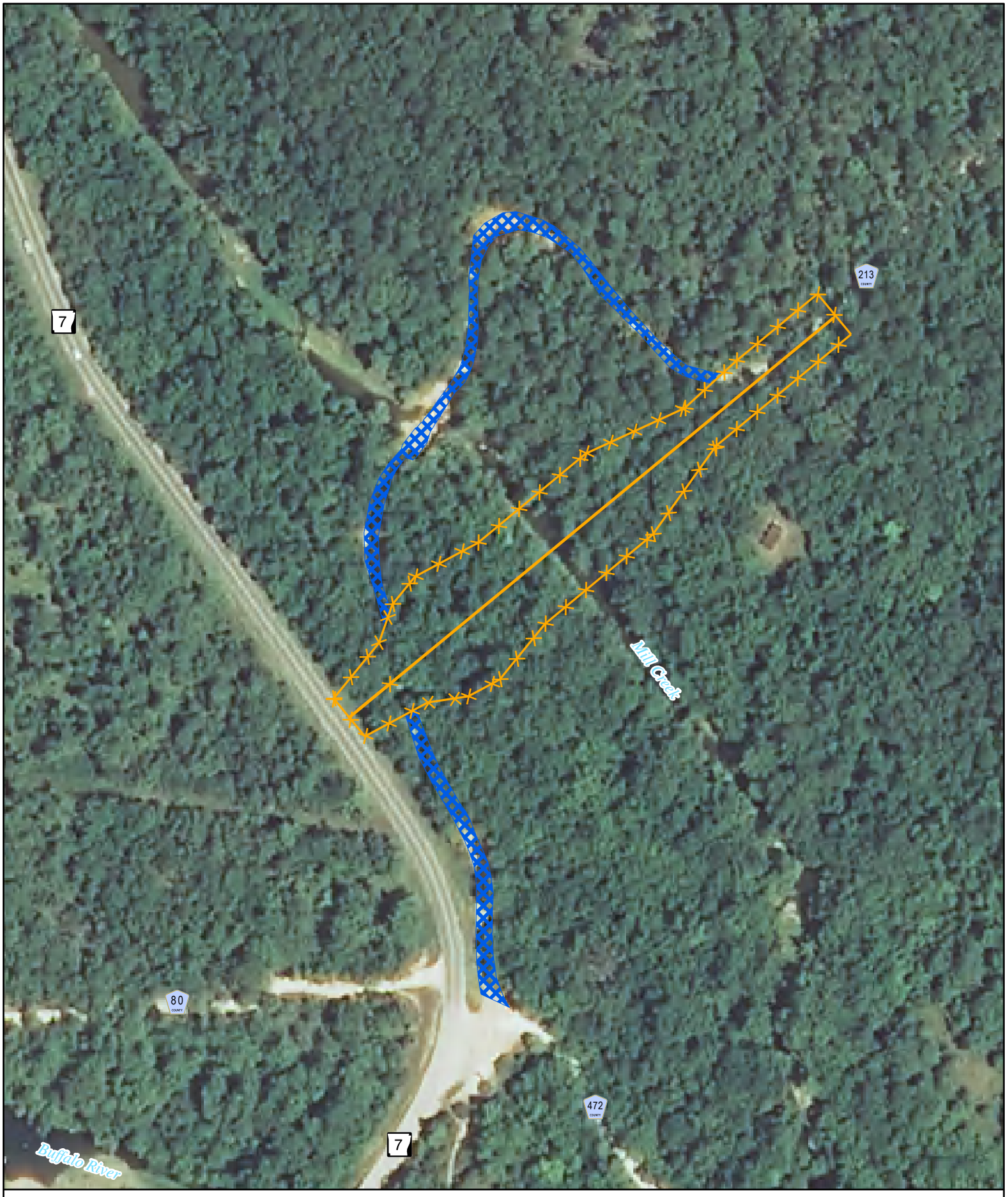
The cost of this alternative was estimated as $1.9 million (in 2015 dollars).

BOX CULVERT ALTERNATIVE

The Box Culvert Alternative would involve constructing a box culvert approximately 60 feet in length and 120 feet upstream of the low water structure. The box culvert would be comprised of five bottomless openings, each 12 feet high and 10 feet wide, with a headwall and wingwalls on both ends. The total length of the project would be approximately 1,700 feet and new easement is estimated at 3.3 acres.

Figure 3-9 shows the Box Culvert Alternative layout. Details regarding the locations of new easements and temporary construction easements are provided in the Section 4(f) Evaluation.

The cost of this alternative was estimated as $1.8 million (in 2015 dollars).



N

0 100 200

Feet

Job BR5102

AHTD Environmental GIS - Dudley

April 1, 2014

Photography: Summer 2013

Figure 3-8
Bridge Alternative Layout

Centerline

Proposed Permanent Easement

Obliterated Road Segment



N

0 100 200

Feet

Job BR5102

AHTD Environmental GIS - Dudley

April 1, 2014

Photography: Summer 2013

Figure 3-9
Box Culvert Alternative Layout

Centerline

Proposed Permanent Easement

Obliterated Road Segment

The Mill Creek Crossing project alternatives are summarized in **Table 3-2**.

TABLE 3-2 MILL CREEK CROSSING PROJECT ALTERNATIVES

PROJECT LENGTH (Feet)	NEW EASEMENT (Acres)	ESTIMATED COST (Million 2015 $)
BRIDGE ALTERNATIVE		
900	2.5	1.9
BOX CULVERT ALTERNATIVE		
1,700	3.3	1.8

3.4 SECTION 4(F) EVALUATION

The Section 4(f) Evaluation for the Buffalo River Bridge and Mill Creek Crossing projects provides information supporting the following conditions: 1) there is no feasible and prudent alternative to the use of BNR land; and 2) the proposed projects include all possible planning to minimize harm resulting from such use. The Section 4(f) Evaluation also identifies the "least overall harm" alternative.

CHAPTER 4 IMPACT TOPIC SELECTION AND REGULATORY ENVIRONMENT

This chapter describes the process of identifying environmental impact topics and the rationale for retaining specific impact topics for further analysis. An overview of the legal, regulatory, and resource management framework in which impact topics are identified and analyzed is also provided.

The issues and concerns that emerged during project scoping and agency consultation resulted in the dismissal of some resource impact topics from further consideration and others being identified as requiring analysis. The impact topics that were not carried forward are discussed in Section 4.1 and those that were carried forward for detailed analysis are discussed in Section 4.2

4.1 IMPACT TOPICS NOT CARRIED FORWARD

The FHWA's guidance for NEPA documents suggests that EAs only address resources or features likely to be appreciably impacted. Similarly, NPS guidance allows dismissal of impacts from further evaluation in EAs if potential impacts to a resource would be either none or negligible, localized, and most likely immeasurable. These impact topics and the reasons they were not carried forward are described in this section.

AIR QUALITY

The Clean Air Act of 1963 (42 U.S.C. 7401 *et seq*.) was established to promote public health and welfare by protecting and enhancing the nation's air quality. The Act establishes specific programs providing special protection for air quality within NPS units. Section 118 of the Clean Air Act requires park units to meet all federal, state, and local air pollution standards. The majority of the BNR, including the project study area, is designated as a Class II air quality area under the Clean Air Act as amended (DOI, NPS, BNR 2003). The Class II designation sets the maximum allowable increase in concentrations of pollutants over baseline concentrations of sulfur dioxide and particulate matter. State air quality laws and regulations are available on-line at the Arkansas Department of Environmental Quality (ADEQ) website (ADEQ 2014).

Air quality analyses have been conducted for carbon monoxide on previous transportation projects similar to the proposed projects. These analyses used the Mobile Source Emission Factor Model and the California Line Dispersion Model 3 to estimate carbon monoxide levels and incorporated information relating to traffic volumes, weather conditions, vehicle mix, and vehicle operating speeds. Based on these analyses, it is anticipated that vehicle-generated carbon monoxide levels would remain well below national and State standards.

Construction activities such as hauling materials and operating heavy equipment could result in temporary increases of vehicle exhaust, emissions, and fugitive dust in and near the project study area. Any exhaust, emissions, and fugitive dust generated during construction would be temporary and localized and would likely dissipate rapidly due to the rarity of air stagnation at the BNR. Overall, the project could result in a negligible degradation of air quality in the project study area; however, such effects would be very short-term and last only during construction activities involving heavy equipment. The Class II air quality designation for the BNR would not be affected by the proposed projects.

ENVIRONMENTAL JUSTICE AND SOCIOECONOMIC CONDITIONS

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires all federal agencies to incorporate environmental justice considerations into their missions. This is done by identifying and addressing any disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Guidelines for implementing this Executive Order under NEPA are provided by the Council on Environmental Quality (CEQ) (CEQ 1997).

Public participation during the proposed project planning was actively solicited. The AHTD public involvement process does not exclude any individuals due to race, income, national origin, gender, age, or disability. Based on the results of the public involvement process, the 2010 U.S. Census Data, and field observations, it was determined that the proposed projects would not have any adverse or disproportionate impacts on minority, low-income, elderly, or disabled populations. This impact topic was therefore dismissed from further analysis.

The proposed projects would not have any substantial impact on the density or growth rate of the study area's population. The proposed projects would not change local or regional land use or adversely affect local businesses. Implementation of the Mill Creek Crossing project would provide a benefit to travelers relying on County Road 213. Because the effects to the socioeconomic conditions would be negligible, this topic was dismissed from further analysis.

FLOODPLAINS (BUFFALO RIVER PROJECT)

Executive Order 11988, Floodplain Management, requires an examination of impacts to floodplains and the potential risk involved in placing facilities within floodplains. Federal agencies are to avoid direct and indirect support of development within 100-year floodplains whenever a reasonable alternative is available. Projects that encroach upon 100-year floodplains must be supported with additional specific information. The Flood Disaster Protection Act (42 USC 4001-4128; DOT Order 5650.2, 23 CFR 650 Subpart A and 23 CFR 771) identifies flood-prone areas and provides insurance. The Act requires purchase of insurance for buildings in Special Flood Hazard Areas, and is applicable to any federally assisted acquisition or construction project in an area identified as having special flood hazards. Projects should also

avoid construction in or develop a design to be consistent with Federal Emergency Management Agency (FEMA) identified flood hazard areas.

The NPS *Management Policies 2006*, Section 4.6.4, Floodplains and NPS Director's Order 77-2 Floodplain Management Guidelines provide guidelines on development proposed in floodplains.

Although land areas adjacent to the Buffalo River and Mill Creek function as floodplains, FEMA floodplains have not been mapped in Newton County and no portions of the project study area have been identified as a Special Flood Hazard Area. The Buffalo River Bridge project would therefore not be located within a regulatory floodplain or a Special Flood Hazard Area. The bridge alternatives were designed to span the floodplain and prevent encroachment by embankments. The bridge alternative elevations would be higher than the existing bridge and the bridge end embankments would encroach less than the existing embankment. These designs would avoid impacts on natural and beneficial floodplain functions by eliminating potential effects from backwater or velocity increases, minimizing channel alterations, and controlling erosion and sedimentation. No measurable differences between the design alternatives were identified in this regard.

Because of its high elevation, the Pruitt Bridge itself does not restrict floodwaters. The Pruitt Bridge and its approach embankment would be removed regardless of which build alternative is identified as the Selected Alternative and there are no appreciable differences between the alternatives in this regard. The Pruitt Bridge removal was dismissed from further impact analysis in this EA because the effect would be the same regardless of the alternative.

For the reasons described above, the floodplain impact topic for the Buffalo River Bridge project was dismissed from further analysis in this EA.

The floodplain impact topic was not dismissed for the Mill Creek Crossing project because differences exist between the potential impacts of the alternatives. This resource impact topic is therefore addressed in Chapters 5 and 6.

HAZARDOUS WASTE AND HAZARDOUS MATERIALS

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act (RCRA), the AHTD completed an investigation to identify any hazardous waste or substance sites within the project study area. The investigation found no indications of the presence of hazardous waste. Construction activities would not likely encounter any hazardous waste; however, the ADEQ would be consulted should this occur.

Asbestos-containing transite siding has been identified on a structure in the Buffalo River Bridge project area. Lead-based paint is potentially present on the Pruitt Bridge. Should the transite siding be disturbed or removed, proper precautions to prevent asbestos fiber releases would be

implemented. Any Pruitt Bridge dismantling and removal actions would potentially generate hazardous waste in the form of paint dust; requiring proper precautions to prevent the escape of paint dust.

The AHTD and its contractors would be required to contain, recover, and properly dispose of all waste, including hazardous waste, generated during dismantling and/or construction activities. The waste material would be placed in a mutually agreed-upon designated storage area outside of the floodplain prior to off-site disposal at a permitted facility.

The AHTD and its contractors would be responsible for compliance with all pertinent U.S. Environmental Protection Agency (EPA) and ADEQ regulations. This would include compliance with all RCRA regulations found in 40 Code of Federal Regulations (CFR) Parts 240-280.

INDIAN TRUST RESOURCES AND SACRED SITES

The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights. The FHWA initiated consultation regarding the project with federally recognized tribes in December 2008 by sending a letter describing the project and requesting any information that the tribes may have regarding sites in or near the project area that may be of cultural or religious significance. In addition, copies of the AHTD's Phase I cultural resources report were sent to the tribes in April 2010. The Keetoowah Band of Cherokee Indians have stated "no objection" to the project. The Osage Nation replied they had "no properties" and requested that any additional reports be submitted to them. Tribal consultation correspondence is included in **Appendix D**. No other tribes have responded to date.

Consultation will remain open for the duration of the project and other tribes could be added as additional research is conducted. Since no Indian trust resources or sacred sites have been identified at the BNR, this impact topic was not carried forward.

LAND AND WATER CONSERVATION FUND ACT

Federal Land and Water Conservation Fund (LWCF) Act funding was used for the initial purchase of BNR property at the time the BNR was created. Since this funding was appropriated under LWCF Act Section 7, LWCF Act Section 6(f) provisions are not applicable and no replacement property is required.

PRIME AND UNIQUE FARMLANDS

Prime farmlands have the best combination of physical and chemical characteristics for producing crops. Unique agricultural land is land other than prime farmland that is used for production of specific, high-value crops. All categories require that the land be available for farming uses (CEQ 1980). Although soils characteristic of prime farmland and farmland of

statewide importance are present in the project study area, this land is not available for farming and therefore does not meet the CEQ definitions as available for farming uses.

PUBLIC WATER SUPPLIES

Arkansas Department of Health (ADH) regulations require public well supply owners to effectively control a restricted buffer zone of at least 100 feet around the well. The regulations also state that no contamination source should be within the restricted buffer zone (ASBH 2014). A well supplying water to the Pruitt Day Use Area is located approximately 100 feet west of Highway 7. The well was drilled in 1995 and is 825 feet deep, with casing to 450 feet. Placement of the proposed Buffalo River Bridge to the west of the Pruitt Bridge would potentially bring the realigned roadway within 55 feet of the wellhead location; placement to the east of the Pruitt Bridge would be approximately 60 feet outside of the buffer zone. If the west bridge location was identified as the Selected Alternative, encroachment of the mandatory buffer zone would be addressed with the ADH in conjunction with protective measures such as conveying stormwater away from the buffer zone. The ADH would also review blasting specifications prior to construction. According to the ADH, the well's casing and depth, as well as the depth of the aquifer tapped, should be adequate to protect the well from adverse impacts that may occur during the construction phase.

UTILITY RELOCATIONS

All of the build alternatives would require the relocation of a telephone line adjacent to Highway 7. The telephone company has expressed its intention of placing telephone lines underground within existing AHTD right of way. In order to cross the river, the line would be attached to the new bridge.

WETLANDS

Executive Order 11990, Protection of Wetlands, requires federal agencies to avoid adversely impacting wetlands, where possible. For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Wetlands do not occur in or near the project study area; therefore, this impact topic was dismissed from further analysis.

4.2 IMPACT TOPICS CARRIED FORWARD FOR DETAILED ANALYSIS

The issues and concerns that emerged during project scoping and agency consultation resulted in identifying nine resource impact topics. In addition to the regulatory reasons listed in Section 4.3, these topics were carried forward due to the importance of the resources and concerns

presented by the proposed projects. The resource topics are described in Chapter 5 and briefly listed below.

Geology, Topography and Soils

Land would be disturbed during project implementation, altering topography and causing concerns regarding soil erosion, vegetation re-establishment, water quality, and visual intrusion.

Cave and Karst Resources

Blasting and construction vibration would occur during project implementation. Previously unidentified cave and karst resources could be encountered, presenting concerns about cave-dwelling species and water quality impacts.

Vegetation

Vegetation would be disturbed during project implementation; measures to protect native species and prevent invasive species from becoming established would be necessary.

Wildlife and Wildlife Habitat, Including Special Status Species

Several species and their habitats could be disturbed during project implementation. Provisions to prevent or minimize disruptions, including construction schedule accommodations, would be necessary.

Water Quality

Water quality and aquatic species would be vulnerable to any increases in sedimentation and other disturbances. Several provisions to prevent or minimize impacts would be necessary.

Wild and Scenic Rivers

The BNR is required to prepare a Determination of Effect related to the proposed projects.

Cultural Resources

Adverse impacts to one or more resources would occur under all but one of the proposed alternatives. Close coordination with the State Historic Preservation Office (SHPO) would be required to prepare Memorandums of Agreement (MOAs) and additional archeological work would be performed.

Visual Resources

Project implementation would cause intrusions on visual resources. Context sensitive design considerations should be made.

Noise

Soundscape preservation is important to the BNR and potential noise increases in recreational areas were of concern.

4.3 LAWS, REGULATIONS, AND POLICIES

The AHTD, FHWA, and NPS are governed by laws, regulations, policies, and management plans before, during, and following actions related to the proposed projects. This EA analyzes the context, intensity, and duration of impacts related to the proposed Buffalo River Bridge and Mill Creek Crossing projects within the BNR and the potential for resource impairment using both FHWA and NPS NEPA guidelines. Familiarity with this legal framework is useful for understanding why and how impacts to specific resources are analyzed. The environmental resource descriptions in Chapter 5 and the impact analysis in Chapter 6 reference many of these laws, regulations, policies, and plans.

An overview of the general legal framework providing the context in which the EA was prepared is presented below.

NPS ORGANIC ACT AND MANAGEMENT POLICIES

By enacting the National Park Service Organic Act of 1916 (Organic Act), Congress directed the U.S. Department of Interior and the NPS to manage units "to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for future generations" (16 U.S.C. §§ 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress" (16 U.S.C. §§ 1a-1).

Despite these mandates, the Organic Act and its amendments afford the NPS latitude when making resource decisions that balance visitor recreation and resource preservation. By these acts Congress "empowered [the National Park Service] with the authority to determine what uses of park resources are proper and what proportion of the parks resources are available for each use" (*Bicycle Trails Council of Marin v. Babbitt*, 82 F.3d 1445, 1453 (9th Cir. 1996)).

Because conservation remains predominant, the NPS seeks to avoid or to minimize adverse impacts on park resources and values. The NPS has discretion to allow negative impacts when necessary (NPS Management Policies 2006, sec. 1.4.3); however, while some actions and activities cause impacts, the NPS cannot allow an adverse impact that constitutes resource impairment (NPS Management Policies 2006, sec. 1.4.4). The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts (16 U.S.C. 1a-1). An action constitutes an impairment when its impacts "harm the integrity of park

resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values" (NPS Management Policies 2006, sec. 1.4.5).

To determine impairment, the NPS must evaluate "the particular resources and values that would be affected; the severity duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts" (NPS Management Policies 2006, sec. 1.4.5).

NATIONAL ENVIRONMENTAL POLICY ACT, 1969, AS AMENDED

Section 102(2)(c) of this Act requires than an EA be prepared for proposed federal actions that may affect the quality of the human environment or are major or controversial federal actions.

ENVIRONMENTAL IMPACT AND RELATED PROCEDURES, FHWA, 1987

This regulation prescribes the policies and procedures of the FHWA and the Federal Transit Administration for implementing NEPA, and supplements the NEPA regulation of the CEQ, 40 CFR Parts 1500 through 1508 (CEQ regulation). Together these regulations set forth all FHWA, Federal Transit Administration, and U.S. Department of Transportation (DOT) requirements under NEPA for the processing of highway and public transportation projects

NATIONAL PARKS OMNIBUS MANAGEMENT ACT OF 1998

The National Parks Omnibus Management Act (16 U.S.C. 5901 et seq.) underscores NEPA in that both are fundamental to NPS unit management decisions. Both Acts provide direction for articulating and connecting the ultimate resource management decision to the analysis of impacts, using appropriate technical and scientific information.

The NPS handbook for Director's Order 12 states that if "such information cannot be obtained due to excessive cost or technical impossibility, the proposed alternative for decision will be modified to eliminate the action causing the unknown or uncertain impact or other alternatives will be selected" (section 4.4).

REDWOOD NATIONAL PARK EXPANSION ACT OF 1978, AS AMENDED

All National Park System units are managed and protected as parks, whether established as a recreation area, historic site, or any other designation. The Act states that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

CODE OF FEDERAL REGULATIONS, 1992

Title 36, Chapter 1 provides the regulations "for the proper use, management, government, and protection of persons, property, and natural and cultural resources within areas under the jurisdiction of the National Park Service." It states that "the National Park Service has the

authority to manage the wildlife in the parks in fulfillment of the Organic Act without the consent of the state and by methods contrary to state law" (16 U.S.C. 3).

PUBLIC LAW 92-237, TO PROVIDE ESTABLISHMENT OF THE BUFFALO NATIONAL RIVER, 1972

This Act establishes the boundaries of the Buffalo National River under the jurisdiction of the National Park Service. It sets forth conservation provisions, prohibits the construction of projects that would have direct and adverse effects on the Buffalo River, and outlines permissible public uses.

CLEAN WATER ACT, 1972

The Clean Water Act (CWA) (U.S.C. §1251 et seq.) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.

The CWA made it unlawful to discharge any pollutant from a point source into navigable waters without obtaining a permit, and the EPA's National Pollutant Discharge Elimination System (NPDES) oversees the permitting process.

Stormwater discharges from construction activities that disturb 1 acre or more are regulated under the NPDES program. The EPA has granted the State authority over the program, so construction operators in Arkansas must obtain coverage under an NPDES permit issued by the ADEQ. These permits contain requirements such as the development of site-specific Stormwater Pollution Prevention Plans (SWPPPs) to control discharges.

ENDANGERED SPECIES ACT OF 1973, AS AMENDED

The Endangered Species Act provides a program for the conservation of threatened and endangered plants and animals and the habitat in which they are found. The lead federal agencies for implementing the Endangered Species Act are the USFWS and the National Oceanic and Atmospheric Administration Fisheries Service.

The law requires federal agencies, in consultation with the USFWS and/or the National Oceanic and Atmospheric Administration Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes an unauthorized "taking" of any listed species of endangered fish or wildlife.

NATIONAL HISTORIC PRESERVATION ACT OF 1996, AS AMENDED

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their undertakings on properties listed or potentially eligible to be listed on the NRHP. All actions affecting a parks' cultural resources must comply with this legislation.

HISTORIC SITES ACT OF 1935

This Act declares as national policy the preservation for public use of historic sites, buildings, objects, and properties of national significance. It authorizes the Secretary of the Interior and the NPS to restore, reconstruct, rehabilitate, preserve, and maintain historic or prehistoric sites, buildings, objects, and properties of national historical or archaeological significance.

FEDERAL CAVE RESOURCES PROTECTION ACT, 1988

This Act was established to protect, to the extent practicable, significant caves and cave resources on federal lands (16 U.S.C., Chapter 63). All caves on NPS land are considered "significant" under the Federal Cave Resources Protection Act.

FEDERAL NOXIOUS WEED ACT, 1974

The Federal Noxious Weed Act (7 U.S.C. §§ 2801-2814, January 3, 1975, as amended 1988 and 1994) provides for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health.

MANAGEMENT POLICIES, NATIONAL PARK SERVICE, 2006

This document is a Service-wide policy on NPS management. Adherence to this policy document is mandatory unless specifically waived or modified by the Secretary, the Assistant Secretary, or the Director. NPS mission statements and methodologies for evaluating proposed project impacts are established in this document.

CULTURAL RESOURCES MANAGEMENT GUIDELINE, NPS-28, 1998

This document provides guidance to park managers to identify, evaluate, document, register, and establish basic information about cultural resources; to ensure that this information is well integrated into the management process for making decisions and setting priorities; and to make sure resources are preserved, protected, and interpreted to the public.

NATURAL RESOURCES MANAGEMENT GUIDELINE, NPS-77, 1991

The purpose of this document is to provide guidance to park managers for all planned and ongoing natural resource management activities. Managers must follow all federal laws, regulations, and policies. This document provides the guidance for park management to design, implement, and evaluate a comprehensive natural resource management program.

CHAPTER 5 ENVIRONMENTAL RESOURCES

This chapter describes environmental resources in the project study area potentially affected by the proposed alternatives.

Each discussion highlights the importance of these resources and identifies specific concerns, many of which are interrelated. This information is provided as context for understanding potential impacts, which are discussed in Chapter 6 in the same order as presented here.

5.1 GEOLOGY, TOPOGRAPHY, AND SOILS

The project study area is within a junction of the Springfield-Salem Plateau subdivisions of the Ozark Highlands Physiographic Region. The Salem Plateau is characterized by rolling uplands and steep slopes with sandstone and dolomite outcrops. The Springfield Plateau is more intersected with streams and characterized by steep valleys separated by gently sloping to rolling, long and narrow ridges.

The BNR's rocks are sedimentary, laid down in an ancient marine basin that has been variously uplifted and eroded. Typical of the Ozarks regions, the majority of the basin is underlain by limestone and dolomite formations. Unlike most Ozark streams, the Buffalo River's watershed contains a substantial amount of sandstone and shale. The prevalence of sandstone and shale, as well as the relatively small amount of chert in the upper strata, substantially affects the size and availability of transportable sediment and has a positive effect on overall water clarity.

Geologic formations in and around the project study area include: the Everton Formation, a mixture of dolomite, sandstone, and limestone; the Boone Formation, which consists of limestone and cherty limestone; and the St. Joe Member of the Boone Formation, a fine-grained limestone.

The large-scale geologic processes occurring in the BNR include sedimentation as slopes adjacent to the river and its tributaries erode, and karst formation via chemical and physical erosion of soluble rocks (described further in Section 5.2). The results of geologic processes can be observed along the river in the form of tall, vertical bluffs where the river has cut deeply into the bedrock, and the shifting of gravel and sandbars as high water flows occur and reoccur.

The combination of climate, geography, and geologic processes influence the biological composition and ecology of a region. In return, the living components of an ecosystem effect soils and topography by influencing erosion and deposition. The results of this complex process can be seen in and around the project study area today. Elevations rise sharply from about 780 feet above mean sea level (msl) along the riverbed to more than 1,200 feet above msl on nearby

ridges. Ravines entrenched by streams, steep limestone and sandstone bluffs, limestone outcrops, gravel and sandbars, and a variety of soils are all present.

Since soil types indicate both erosion hazards and the vegetation varieties that can be supported, a brief listing of the soil types found in the project area is provided below. This listing includes corresponding surface water runoff, erosion, and fertility characteristics. The soils occurring within the project study area are illustrated in **Figure 5-1**.

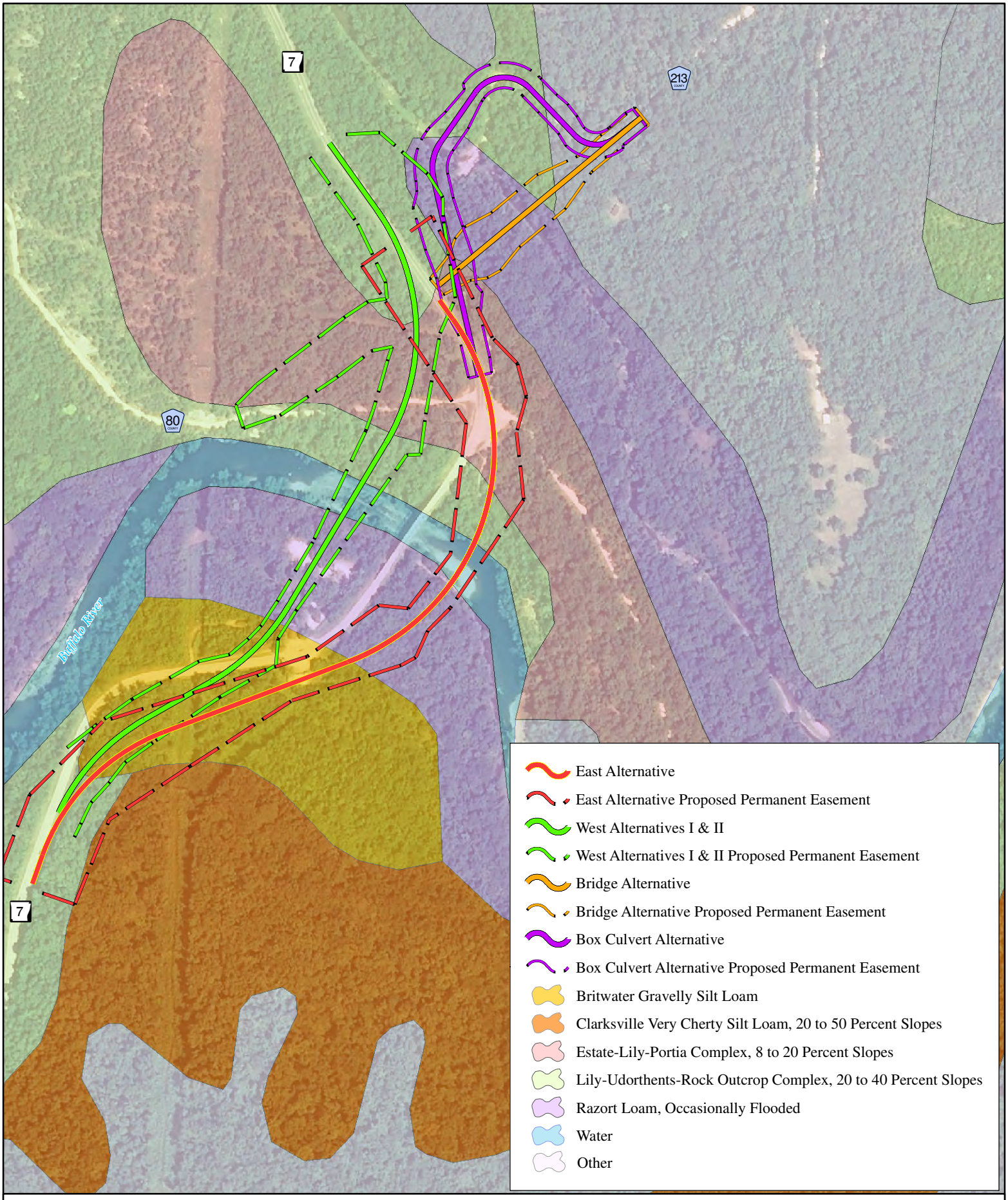
The following soils occur within the project study area:

- **Britwater gravelly silt loam**: medium surface water runoff; severe erosion hazard; moderate natural fertility with a deep root zone easily penetrated by plant roots.
- **Clarksville very cherty silt loam**: rapid surface water runoff; very severe erosion hazard if cleared; low natural fertility.
- **Estate-Lily-Portia complex**: rapid surface water runoff; severe erosion hazard if overgrazed; low natural fertility with root zone ranging from deep to moderately deep and easily penetrated by plant roots.
- **Lily-Udorthents-Rock outcrop complex**: rapid surface water runoff; erosion hazard ranges from moderate to very severe and should not be cleared of native vegetation; low natural fertility with root zone ranging from moderately deep to shallow.
- **Razort loam, occasionally flooded**: slow to medium surface water runoff; slight erosion hazard; moderate natural fertility with deep root zone easily penetrated by plant roots.

5.2 CAVE AND KARST RESOURCES

The BNR is located in one of the nation's largest karst regions. Its karst features are the result of two basic mechanisms: 1) mildly acidic rainfall acting on soluble carbonate bedrock such as limestone and dolomite, and 2) dissolution by groundwater flow through the carbonate bedrock. The water carries the resultant carbonic acid and begins to partially dissolve surfaces along fractures or planes in the bedrock. Over time, these fractures enlarge as the bedrock continues to dissolve and a network of subsurface openings and irregular rock surfaces develops. The formation of subsurface karst features accelerates as water flow through the system increases, forming interconnected underground water systems.

The presence of soluble limestone and dolomite in the Everton and Boone Formations that occur in the project study area has resulted in karst features such as sinkholes, losing streams (streams that flow into shallow holes and sinkholes), springs, enlarged fissures, and caves.



N

0 300

Feet

Jobs 009784 & BR5102
January 8, 2016
AHTD Environmental GIS - Dudley

Figure 5-1
Soils Occuring in the Project Study Area

Soil Designations from
USGS SSURGO
Photography: Summer 2013

The heavily fissured Carlton Fault also lies in close proximity to the project study area and has probably contributed greatly to the formation of karst features. Highway 7 parallels the fault throughout the project study area and crosses the fault near its northern terminus. Additionally, the BNR stated that previous experience with underground mining operations similar to the Canton Mine, located within the Box Culvert Alternative footprint, indicates that ore is found in close proximity to karst or paleokarst features.

Sinkholes are generally formed by water flowing down fractures such as those associated with the Carlton Fault. Once formed, sinkholes have the potential to continue transporting rainfall and surface water runoff to karst aquifers. Due to the complex nature of karst features, water entering this "underground plumbing" system can rapidly travel far from its point of origin and re-surface in a spring or seep. For this reason, sinkholes in and near construction sites and roadways are of concern because any spills or uncontrolled surface runoff entering this system could have far-reaching effects. Additionally, sinkholes and other karst features create surface instability that can lead to collapse. To date, no sinkholes have been identified within the Buffalo River Bridge project study area; however, the BNR has identified closed impressions indicative of sinkholes within the Mill Creek Crossing Box Culvert Alternative footprint.

Many of the springs in and around the BNR are attributed to the less permeable Everton Formation sandstones and dolomites underlying the more permeable limestone of the Boone Formation. Studies of springs within the BNR's watershed have shown that transfer between karst aquifers can be substantial both in size and overall water quality influence. For example, springs associated with Mill Creek upstream from the project study area are linked to the Crooked Creek basin several miles away via a subsurface drainage system (Mott, Hudson and Aley 2000). The only spring within the project study area is the small Boiling Spring in the proposed right of way for the Mill Creek box culvert alternative. The BNR has associated this spring with the Canton Mine workings. Additional information regarding karst formations and the relationship between surface water, karst aquifers, and other groundwater sources is provided in Section 5.5.

Approximately 52 percent of all known caves in Arkansas are located in the Boone Formation, when the St. Joe limestone is included (Taylor 2009). Although the BNR has over 360 known caves (NPS 2014b), Pruitt Cave (also called Flea Cave) is the only known cave in the vicinity of the project study area. Pruitt Cave is known to support the endangered gray bat (*Myotis grisescens*) and threatened northern long-eared bat (*Myotis septentrionalis*).

5.3 VEGETATION

Many northern and southern ecosystems converge in the BNR, as do some western and eastern species. Accordingly, the BNR provides a refuge for a unique blend of plant communities. The location, condition, and extent of these plant communities determine their viability and the wildlife populations they can support. For these reasons, vegetation management and preservation is one of the BNR's priorities. Plant occurrences along the proposed project routes were surveyed by AHTD staff in May and June of 2005. A total of 162 species were identified and are listed in **Appendix E**.

Natural vegetation communities in the project study area are listed below.

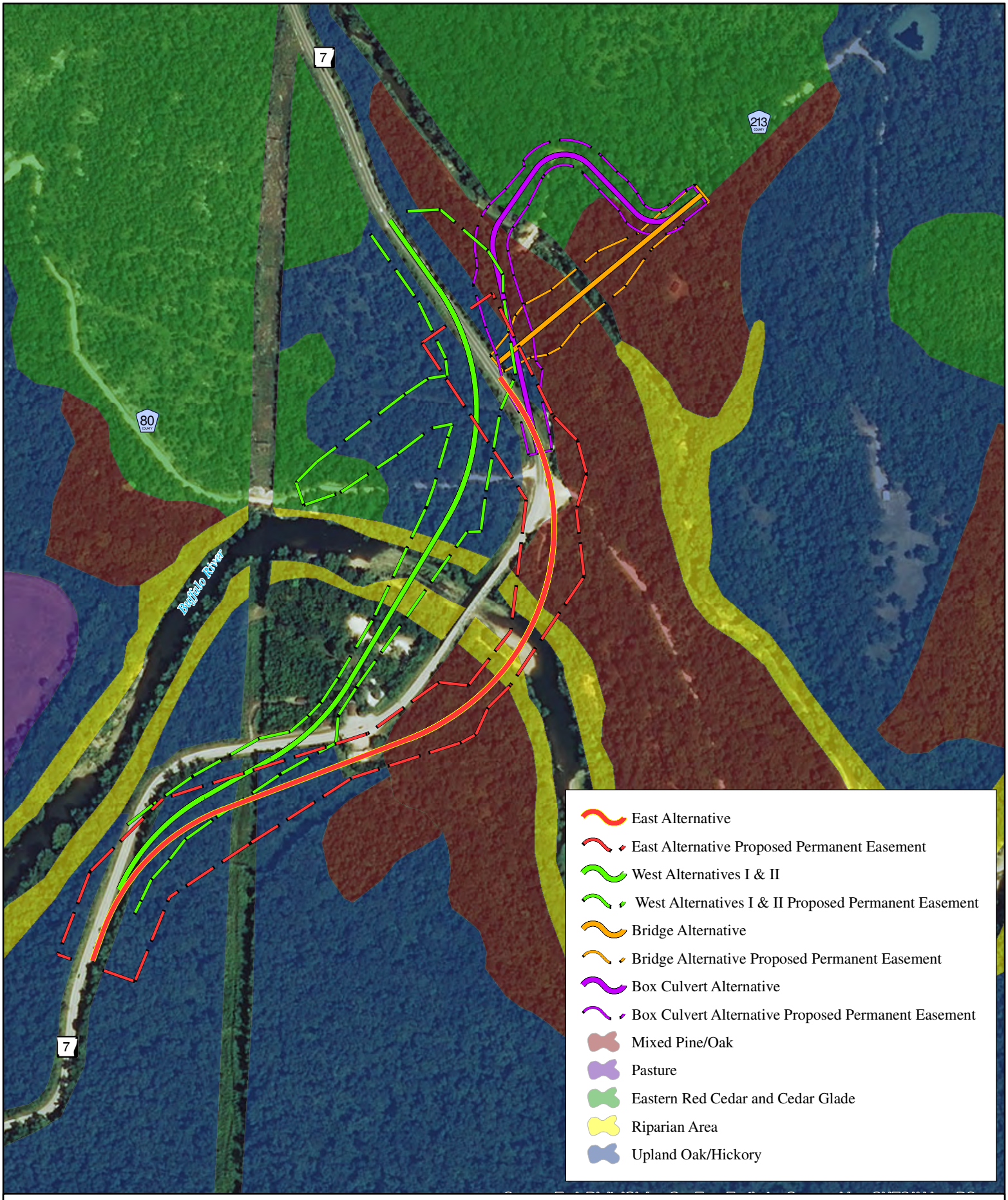
- Upland oak-hickory: Common upland oak-hickory species include white oak (*Quercus alba*), black oak (*Q. velutina*), chestnut oak (*Q. muehlenbergii*), and mockernut hickory (*Carya tomentosa*). This vegetation type is well known for attractive fall colors.
- Mixed pine-oak: Shortleaf pine (*Pinus echinata*) is a dominant species in the mixed oak-pine communities.
- Riparian Area: Trees in the riparian area include river valley hardwoods such as cottonwood (*Populus deltoids*), black willow (*Salix nigra*), sycamore (*Platanus occidentalis*), box elder (*Acer negundo*), and river birch (*Betula nigra*). River cane (*Arundinaria gigantea*) forms cane breaks on natural levees of the river.
- Cedar glade: The Pruitt Glade and adjacent areas contain eastern red cedar (*Juniperus virginiana*), which occupies dry south-facing slopes where soils are thin or absent. Some plant species of concern are also present in the Pruitt Glade, as described below.

Figure 5-2 shows the general locations of vegetation types in the project study area. Vegetation types overlap and transition zones exist, so the demarcations shown are not precise.

PLANT SPECIES OF CONCERN

Bush's yellow coneflower (*Echinacea paradoxa*) has been identified within the Pruitt Glade. (BNR 2007). This species is Arkansas Natural Heritage Commission (ANHC)-ranked as G2, S2, meaning it is imperiled globally and very rare in Arkansas. Although not ANHC-ranked, the BNR has noted Ashe's juniper (*Juniperus ashei*) occurring within the Pruitt Glade. It is an uncommon species on the edge of its range in Arkansas (BNR 2007; Mott and Laurans 2004).

Vegetation surveys have identified the Alabama snow wreath (*Neviusia alabamensis*) in the Pruitt Day Use Area. This species is ANHC-ranked as G2, S1S2, meaning it is imperiled globally and extremely rare within Arkansas. Its presence in the Pruitt Day Use Area and not elsewhere in the forest is an indication that it was transplanted initially.



N

0 150 300

Feet

Jobs 009784 & BR5102
AHTD Environmental GIS - Dudley
January 8, 2016

Figure 5-2
General Vegetation

Photography: Winter 2011

NON-NATIVE SPECIES

Prior to the BNR's establishment, the land along the river had been used for various purposes such as grazing, farming, logging, and settlement. This history of disturbance has altered many natural systems along the river and provided opportunities for non-native plant invasion. Such invasions ecologically degrade the native plant communities.

Non-native species located on or adjacent to the existing right of way in the project study area are listed below. All of these species are potentially invasive and can displace native vegetation on disturbed ground.

- tree of heaven (*Ailanthus altissima*)
- Johnson grass (*Sorghum halipense*)
- downy brome (*Bromus tectorium*)
- common vetch (*Vicia sativa*)
- alligator weed (*Alternanthera phyloxeroides*)
- sericea lespedeza (*Lespedeza curreata*)
- cocklebur (*Xanthium strumarium*)
- ground ivy (*Glecoma hederacea*)
- common ragweed (*Ambrosia artemisiifolia*)
- chickweed (*Stellaria media*)
- mimosa tree (*Albizia julibrissin*)
- giant ragweed (*Ambrosia trifida*)
- Kentucky bluegrass (*Poa pratensis*)
- red clover (*Trifolium pratense*)

5.4 WILDLIFE AND WILDLIFE HABITAT, INCLUDING SPECIAL STATUS SPECIES

Managing and protecting wildlife resources on the Buffalo River and its tributaries is important to maintain the "unique scenic and scientific features" mandated by the BNR's enabling legislation. Many BNR visitors are interested in wildlife viewing, fishing, and hunting. Managing wildlife resources, including aquatic life, is therefore necessary to protect an important recreation activity that draws tourists and helps support the local economy.

The BNR provides several habitats for a variety of species, including mammals, reptiles, amphibians, fish, invertebrates, and birds. The fauna is typical of the eastern Ozark region and includes species common to both the western prairie and eastern deciduous forests.

This chapter focuses on native terrestrial and aquatic species in the BNR that could be affected by the proposed projects and those species whose occurrence within the project study area cannot be precluded.

Appendix F contains a complete list of animals the NPS–BNR has identified in the BNR. Entries are based on BNR research and confirmed findings by BNR staff and visitors.

MAMMALS

The project study area and vicinity provides habitat for several mammals that depend on the woodland, riparian, forest, and mixed grassland habitats present along the Buffalo River and Mill Creek. To date, 53 species of mammals have been documented as occurring in the BNR.

The types of mammals either known or expected to occur in the project study area include those in the following list.

- Carnivorous species: Coyote (*Canis latrans*), red (*Vulpes vulpes*) and gray fox (*Urocyon cinereoargenteus*), and bobcat (*Lynx rufus*).
- Ungulate species: White-tailed deer (*Odocoileus virginianus*) are abundant in the BNR and are the most popular game animal. Rocky Mountain Elk (*Cervus elaphus nelsoni*), reintroduced to the BNR in 1981, are also present.
- River species: Mink (*Mustela vison*), beaver (*Castor canadensis*), and river otter (*Lontra canadensis*) are found almost exclusively within the river and associated riparian corridor.
- Other common small species: Raccoon (*Procyon lotor*), gray (*Sciurus carolinensis*) and fox (*S. niger*) squirrels, eastern chipmunk (*Tamias striatus*), cottontail rabbit (*Sylvilagus spp.*), opossum (*Didelphia virginiana*), nine-banded armadillo (*Dasypus novemcinctus*), and several varieties of rats, mice, and voles.

The BNR's many caves provide hibernation places for several bat species. Personnel from the BNR and the AHTD conducted a bat survey in the project vicinity between July 23 and 25, 2012. Acoustic monitoring devices were used to identify species utilizing: a) the area surrounding the Pruitt Cave entrance; b) the Buffalo River upstream of the existing bridge; and c) Mill Creek downstream of the low water crossing.

Bats identified during this survey included the following:

- gray bat (*Myotis grisescens*)
- eastern small-footed bat (*Myotis leibii*)
- eastern red bat (*Lasiurus borealis*)
- evening bat (*Nycticeius humeralis*)
- Indiana bat (*Myotis sodalis*)
- big brown bat (*Eptesicus fuscus*)
- hoary bat (*Lasiurus cinereus*)
- tricolored bat (*Perimyotis subflavus*)
- northern long-eared bat (*Myotis septentrionalis*)
- little brown bat (*Myotis lucifugus*)
- silver-haired bat (*Lasionycteris noctivagans*)

Four of these bat species are of special status and are discussed in Section 5.4.1.

BIRDS

The wide diversity of habitat types in the BNR and its location along the Mississippi Flyway results in a large variety of birds being found there. Over 120 species of birds have been identified as nesting or migrating through the area. The BNR's bird population varies by season and includes native and non-native species.

REPTILES AND AMPHIBIANS

Approximately 38 species of reptiles and 22 species of amphibians are known to occur in the BNR. Wiggs and Angelo (2003) conducted a faunal inventory of the BNR data that included populations and habitat preferences of these species. Habitat types present in the project study area and the species listed in the inventory that are associated with those habitats are listed below.

- Spring and Seep: Blanchard's cricket frog (*Acris crepitans blanchari*), bronze frog (*Rana clamitans clamitans*), and cave salamander *(Eurycea lucifuga*) are commonly found in this habitat.
- Glade: Glades are home to many rare species of plants and animals. One such species, the eastern collared lizard (*Crotaphytus collaris*), is known to occur within Pruitt Glade. Common species include fence lizards and several species of snake.
- River Aquatic: Numerous species of turtles and snakes are commonly found in this habitat, including the map turtle (*Graptemys geographica*) and Midland water snake (*Nerodia sipedon pleuralis*).
- Upland Forest: Snakes are the most common group of reptiles and amphibians in this habitat; however, three-toed box turtles (*Terrapene carolina triunguis*), western slimy salamanders (*Plethodon albagula*), and zigzag salamanders (*Plethodon angusticlavius*) are also common.

FISH

Fish density and diversity data in the Buffalo River is incomplete, although studies are ongoing (Mott and Laurans 2004). According to the BNR's Fisheries Management Plan, there are 14 families and 66 species present in the Buffalo River and associated tributaries. Common angling fish include the following:

- smallmouth bass (*Micropterus salmoides*)
- flathead catfish (*Pylodictis olivaris*)
- Ozark bass (*Ambloplites constellatus*)
- channel catfish (*Ictalurus punctutus*)
- longear sunfish (*Lepomis megalotis*)

5.4.1 SPECIAL STATUS SPECIES

As detailed in Section 4.3, the Endangered Species Act requires examination of potential effects on all federally listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires federal agencies to consult with the USFWS to ensure that actions carried out by the agency do not jeopardize the continued existence of listed species or critical habitats. In addition, FHWA/AHTD and NPS management policies require the determination of impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species.

In compliance with the above directives, the AHTD consulted the BNR, the USFWS, the Arkansas Game and Fish Commission (AGFC), and the ANHC and reviewed available data to identify special status species that have already been identified and/or could potentially occur on or near the project study area. A copy of related correspondence regarding special status species is included in **Appendix G**.

The consultation, data review, and field study results are summarized below. These summaries explain why some species were included for impact analysis in Section 6.4 while others were excluded.

The USFWS data lists eight protected species as occurring in Newton County. Five of the eight protected species are listed as endangered:

- gray bat (*Myotis grisescens*)
- Ozark big-eared bat (*Corynorhinus townsendii ingens*)
- Indiana bat (*Myotis sodalis*)
- snuffbox mussel (*Epioblasma triquetra*)
- spectaclecase mussel (*Cumberlandia monodonta*)

Three of the eight protected species are listed as threatened:

- rabbitsfoot mussel (*Quadrula cylindrica cylindrica*)
- Ozark cavefish (*Amblyopsis rosae*)
- northern long-eared bat (*Myotis septentrionalis*)

The proposed project study area comprises the Area of Potential Effect for special status species. A discussion of each category of special status species is provided below.

5.4.1.1 ENDANGERED SPECIES

As described above, the USFWS lists three species of endangered bats as potentially occurring in Newton County:

- gray bat
- Ozark big-eared bat
- Indiana bat

No known caves used by the Ozark big-eared bat or Indiana bat are within or adjacent to the proposed project right of way (USFWS correspondence, Appendix G). No known bat hibernacula have been identified with the study area; however, a transient colony of gray bats was identified within Pruitt Cave (Harvey and Redman 2002). Northern long-eared bats have also been observed roosting in Pruitt Cave.

Personnel from the USFWS and the BNR conducted a 1.5 hour observational survey of Pruitt Cave on February 17, 2012. As previously noted, Pruitt Cave is located in the vicinity of the project area. During the survey, one gray bat was observed hibernating in the cave, in addition to 79 tricolored bats (*Perimyotis subflavus*).

Additional information regarding the primary range, population, habitat requirements, and reproduction cycles of the gray bat, the Indiana Bat, northern long-eared bat, and the Ozark big-eared bat is provided in Appendix F. Understanding the requirements and behaviors of these endangered bats is important because it influences decisions such as when certain construction-related activities could be scheduled (e.g., the time of year clearing or blasting can occur).

The two endangered species that were removed from detailed study in this EA are described below.

- The snuffbox is a small freshwater mussel occurring in the Buffalo River, among other streams and rivers. Freshwater mussel surveys (upstream and downstream) conducted by AGFC, USFWS, and AHTD personnel on September 22, 2011 did not identify the snuffbox within the project study area. Based on the survey results and the distance to the nearest known location of snuffbox within the Buffalo River (approximately 90 river miles), the proposed projects were determined to have no potential effect on snuffbox and the species was removed from further consideration. Additional information regarding the snuffbox is provided in Appendix F.

- The spectaclecase is also a small freshwater mussel listed as potentially occurring in Newton County. The endangered spectaclecase has not been identified within the BNR. The proposed projects were therefore determined to have no potential effect on spectaclecase and the species was removed from further consideration.

5.4.1.2 THREATENED SPECIES

The northern long-eared bat, listed as threatened, has been identified in Newton County and occurs within the project study area. Critical habitat has not been identified for this newly-listed species. This bat utilizes caves, abandoned mines, and occasionally manmade structures as hibernacula during winter months (Raesly and Gates 1987). During the summer months live trees with shaggy bark, dead trees with exfoliating bark, and tree top snags are utilized for day time and breeding roosts (Sasse and Pekins 1996). Additional information regarding the northern long-eared bat range, population, habitat requirements, and reproductive cycle is included in Appendix F.

The rabbitsfoot mussel primarily inhabits small- to medium-sized streams and some larger rivers. It usually occurs in shallow water areas along the bank and adjacent runs and shoals with reduced water velocity. Bottom substrates generally include gravel and sand, but the rabbitsfoot mussel has also been found in riprap. The Buffalo River has also been designated as Critical Habitat for the rabbitsfoot mussel and previous freshwater mussel surveys found it near the Pruitt Access Area (Harris 1996; Matthews 2007).

A more recent freshwater mussel survey conducted in the vicinity by members of the AGFC, USFWS, and AHTD on September 22, 2011 did not identify rabbitsfoot within the project study area. Nonetheless, the Buffalo River's Critical Habitat designation, the project study area's characteristic habitat, and early confirmations of its presence provided the rationale for analyzing potential impacts to the rabbitsfoot mussel.

The Ozark cavefish is a groundwater obligate fish species known from 41 active locations in Northwest Arkansas, among other areas. The Ozark cavefish occur in groundwater habitats (the Springfield Plateau Aquifer) within Boone and Burlington Formation limestones, especially in cave streams with chert rubble substrate, and occasionally in wells and sinkholes. Although the project study area presents conditions that would be favorable for the Ozark cavefish, there are no known locations within the BNR and its presence in Newton County is undetermined. The proposed projects were therefore determined to have no effect on the species and it was removed from further consideration.

5.4.1.3 SPECIES OF SPECIAL CONCERN

For purposes of this EA, the term "species of special concern" refers to those species not specifically afforded protection, but could potentially be protected in the near future. Species of special concern either known or potentially occurring on or near the project study area are discussed below.

Mammals

The eastern small-footed bat (*Myotis leibii)* was detected during the acoustical monitoring survey conducted along the Buffalo River and near Pruitt Cave in July 2012. This species is listed as

extremely rare in Arkansas. In January 2010, The Center for Biological Diversity petitioned the USFWS to list the eastern small-footed bat and the northern long-eared bat as endangered under the Endangered Species Act. In June 2011, the USFWS issued a 90 day finding that "listing may be warranted" based on information provided in the petition and initiated a 12-month status review. On October 1, 2013 the USFWS determined that listing was not warranted at this time for the eastern small-footed bat. Although the eastern small-footed bat is not currently listed, it remains a species of special concern due to its rarity in Arkansas and occurrence in the project study area.

The NPS has found the southeastern shrew (*Sorex longirostris*) in the BNR. According to Sealander and Heidt (1990), it should be considered a mammal of special concern. The species is approaching its geographical range limit, and there are relatively few records of its occurrence within the state. However, its habitat is widespread and no special management plans are necessary (Sealander and Heidt 1990). The southeastern shrew was therefore removed from detailed study in this EA.

Fish

The Center for Biological Diversity petitioned the USFWS in April 2010 to list 404 species in the southeastern United States as endangered or threatened with critical habitat under the Endangered Species Act. On September 27, 2011, the USFWS issued a 90 day finding that "listing may be warranted" for 374 species based on information provided in the petition and initiated a 12-month status review. Two of these species, the Ozark shiner (*Notropis ozarcanus*) and Ozark chub (*Erimystax harryi*), have been collected from the Buffalo River near the Pruitt Bridge. A 12-month status review is currently under way for a third species known to occur within the Buffalo River, the American eel (*Anguilla rostrata*). It should be noted that the time period for these status reviews has exceeded 12 months and status review completion dates have not yet been established.

Invertebrates

As previously noted, a freshwater mussel survey of the Buffalo River in the vicinity of Highway 7 was conducted in September 2011. The following ANHC-tracked mussel species were identified during the survey: western fanshell *(Cyprogenia aberti);* flutedshell (*Lasmigona costata*); Ouachita kidneyshell (*Ptychobranchus occidentalis*); purple liliput (*Toxolasma lividum*); bleedingtooth (*Venustaconcha pleasii*); rainbow shell (*Villosa iris*); and little spectaclecase (*Villosa lienosa*).

Although an extremely rare beetle (*Rimulincola divalis*) has been identified within the BNR, it is not known to occur within the project study area; therefore, the species has been removed from further consideration.

Reptiles/Ambiphians

The eastern collared lizard (*Crotaphytus collaris*) is currently ANHC-ranked as G5, S3, meaning its occurrence is rare to uncommon. Eastern collared lizard populations are in decline due to the loss of glade habitat and overzealous collection. Survey efforts have found eastern collared lizard populations at only five glade habitats within the BNR, including the Pruitt Glade (Wiggs and Angelo 2003).

Table 5-1 lists species of special concern in the project study area.

5.5 WATER QUALITY

The NPS administers the BNR *". . . for purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations*." The protection of the Buffalo River's free-flowing nature and the water quality of the river and its tributaries are inherent to the BNR's purpose.

All of the waters in the State of Arkansas are classified for specific uses. The ADEQ has designated the Buffalo River's use as an Extraordinary Resource Water. The Extraordinary Resource Water designation is determined by a combination of the chemical, physical, and biological characteristics of a waterbody and its watershed characterized by scenic beauty and aesthetics, scientific values, broad recreation potential, and intangible social values.

From the Boston Mountains in the west to the White River in the east, the Buffalo River follows a 153-mile winding course. The BNR contains approximately 95,730 acres of 857,607 acres in the Buffalo River watershed – or approximately 11 percent. With the remaining 89 percent of the watershed outside of the BNR boundaries, maintaining the highest water quality standards is challenging. A combination of factors such as steep topography, shallow soils, and the karst region's complex surface and groundwater relationships adds to the difficulties.

The water quality of the Buffalo River has remained high due to the large amount of forested land, few point source pollution sources, and a relatively sparse population within the watershed. Nonetheless, water quality degradation has and continues to occur. Water quality degradation is related to land use and includes the following concerns: sediment loading and nutrient enrichment from livestock, sewage treatment operations, inadequate rural septic systems, unpaved roads, and runoff from bare ground. The NPS initiated a regular water monitoring program in 1985. Multiple studies to track water quality trends and identify concerns of the Buffalo River, its tributaries, and springs have been ongoing.

TABLE 5-1 SPECIES OF SPECIAL CONCERN

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	SPECIAL STATUS
MAMMALS			
gray bat	*Myotis grisescens*	Endangered	
Ozark big-eared bat	*Corynorhinus townsendii ingens*	Endangered	
Indiana bat	*Myotis sodalis*	Endangered	
northern long-eared bat	*Myotis septentrionalis*	Threatened	
eastern small-footed bat	*Myotis leibii*		Extremely rare in Arkansas; critically imperiled globally
FISH			
Ozark shiner	*Notropis ozarcanus*	Listing may be warranted*	
Ozark chub	*Erimystax harryi*	Listing may be warranted*	
American eel	*Anguilla rostrata*	Listing may be warranted*	
INVERTEBRATES			
rabbitsfoot	*Quadrula cylindrical cylindrica*	Threatened	
western fanshell	*Cyprogenia aberti*		Very rare in Arkansas; imperiled globally and either very rare and local throughout its range or found locally within a restricted range
flutedshell	*Lasmigona costata*		Rare to uncommon in Arkansas; secure globally although rare in parts of its range

TABLE 5-1 SPECIES OF SPECIAL CONCERN (CONT.)

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	SPECIAL STATUS
INVERTEBRATES (cont.)			
Ouachita kidneyshell	*Ptychobranchus occidentalis*		Rare to uncommon in Arkansas; globally either very rare and local throughout its range or found locally in a restricted range/apparently secure locally though may be quite rare in parts of its range
purple liliput	*Toxolasma lividum*		Very rare in Arkansas; globally either very rare and local throughout its range or found locally in a restricted range
bleedingtooth	*Venustaconcha pleasii*		Rare to uncommon in Arkansas; globally either very rare and local throughout its range or found locally in a restricted range/apparently secure locally though may be quite rare in parts of its range
rainbow shell	*Villosa iris*		Very rare/rare to uncommon in Arkansas; secure globally, though may be quite rare in parts of its range
little spectaclecase	*Villosa lienosa*		Rare to uncommon in Arkansas; secure globally, though may be quite rare in parts of its range

TABLE 5-1 SPECIES OF SPECIAL CONCERN (CONT.)

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	SPECIAL STATUS
REPTILES			
eastern collared lizard	*Crotaphytus collaris*		Rare to uncommon in Arkansas; secure globally although rare in parts of its range

* USFW currently reviewing status of recommendation to list as Endangered or Threatened.

The natural shift and meander of stream channels over time creates a certain amount of natural turbidity. Within the steep terrain of the Ozarks, stormwater runoff carries both fine and coarse sediments to tributaries of the Buffalo River, thus adding to the river's turbidity. The erosion of unpaved road surfaces and ditches, cattle pastures and other cleared land, and unprotected rapidly eroding cut-banks are the dominant turbidity sources (Mott and Laurans 2004). This turbidity results from an unnatural decrease in stream channel stability, increased stream bank erosion, and degrades aquatic habitat. One of the objectives of the NPS–BNR is to identify the specific locations of these human-caused sources of turbidity and take action, where possible, to reduce or eliminate them.

The project study area is within the Buffalo River sub-watershed of Hoskin Creek-Buffalo River. This sub-watershed encompasses a total area of nearly 24 square miles. Over 91 percent of the Hoskin Creek-Buffalo River sub-watershed is in forest and nearly 5 percent is in pasture. Of the nearly 38 total miles of the sub-watershed's roadways, about 18 miles (over 48 percent) are gravel county roads, while another 18 miles are unimproved or graded county roads. Highway 7 comprises a little over 1 mile (about 3 percent) of the roadway totals in the Hoskin Creek-Buffalo River sub-watershed (AWIS website 2014). This data suggests that runoff from unpaved roads may be a threat to water quality in and near the project study area.

Analytical results presented in a 2005 study indicated that water quality in the project study area was within acceptable ranges for the BNR's priority concerns (including water clarity; nutrient loads; stream pathogens; algae; macroinvertebrates; mussels; and amphibians) (Huggins *et al* 2005).

Mill Creek is a perennial spring-fed stream that flows southerly across Newton County to confluence with the Buffalo River just east of the Pruitt Access Area. Since it contributes over one third of the stream flow below the confluence, Mill Creek's water quality impacts the water quality of the Buffalo River. Approximately 3 percent of Mill Creek's watershed is within the BNR boundaries (Maner and Mott 1991).

Boiling Spring and its spring run are located in the vicinity of the Box Culvert Alternative. The spring run is approximately 140 feet in length.

Groundwater in the project study area is part of the Ozark Plateaus aquifer system. As described in Section 5.2, this system contains many karst features. Surface water recharging karst aquifers either enters as direct runoff through sinkholes and losing streams or by downward infiltration through shallow soils. The groundwater has formed a system of well-connected conduits, some of which form parts of large cave systems (USGS 1998). Groundwater recharge areas situated outside the topographic watershed can be significant, both in size and the amount of pollutants potentially transmitted. Other than water contributed by its tributaries and what is received during periods of rainfall runoff, water flowing to the Buffalo River is supplied by groundwater recharge (Mott and Laurans 2004).

5.6 FLOODPLAINS AND STREAM PROCESSES

Floodplains are a vital part of streams and their flooding is a natural occurrence. During high rainfall events, areas of land alongside the Buffalo River and Mill Creek become inundated with water. These areas are floodplains, and they both store and convey flood waters. The floodplains also retain and redistribute sediment, recharge groundwater, and help maintain channel stability, water quality, and habitat. Flooding can also impact stream beds and channels by forming and reshaping sand and gravel bars, depositing woody debris, and scouring stream banks.

The Buffalo River's channel near and through the project study area ranges from roughly 100 to 150 feet across. The water pools and riffles along a bedrock and/or chert rubble and gravel substrate. The Buffalo River's steep slopes and relatively narrow widths make it susceptible to flash flooding. It can also carry large amounts of debris during flood events. The high elevation of the Pruitt Bridge prevents the structure from being threatened by flooding and debris.

Considered typical of an Ozark Highland stream, Mill Creek has an average depth of 1 foot and an average channel width of 10 to 30 feet. Like the Buffalo River, Mill Creek's substrate is bedrock and/or chert gravel. Mill Creek and some portions of the Mill Creek Trail are also susceptible to flooding during high rainfall events. Flood water and debris do not threaten the structural integrity of the existing low water crossing because its low elevation allows water and debris to pass over it. The Mill Creek floodplain area is interrelated with the Buffalo River floodplain, and back flooding can occur along Mill Creek as Buffalo River water elevations rise.

5.7 WILD AND SCENIC RIVERS

From its headwaters to its confluence with the White River, 150 miles of the Buffalo River was included on the NPS Nationwide Rivers Inventory (NRI) in 1982. The NRI is a list of rivers potentially eligible for inclusion in the National Wild and Scenic Rivers System. In order to be

eligible for the NRI, a river must be free-flowing and possess one or more Outstandingly Remarkable Values (ORVs). According to the NPS NRI website, the Buffalo River ORVs include the following: Scenery, Recreation, Geology, Fish (including populations and habitat), Wildlife (including populations and habitat), and History. The Buffalo River is described thusly:

> Several potential National Natural Landmarks are in the vicinity, and it is within the range of Gray, Indiana, and Ozark Bats, and the migration route of the Eskimo Curlew, a federally listed endangered species. It flows through several districts of the Ozark National Forest, the Buffalo National River, and Lone Pine and Buffalo River Wildlife Management Areas. It is a potential component of the state rivers system and originates high in the Ozark Plateau. It flows beneath magnificent multicolored cliffs which in the upper reaches extend nearly 700 feet above the river's clear, quiet pools and rushing rapids. It flows through a land of mountains, past unique caves and waterfalls, old pioneer cabins, long abandoned homes of cliff dwellers and spectacular rock formations. Protecting its watershed are 700 species of trees, and flowering and other plants, furnishing habitat for 250 species of birds and a variety of animals and game. It is particularly famous for the smallmouth bass fishery. The river is nationally known as an exceptional recreation resource. Most road crossings are state designated and nationally-renown.

From its headwaters to the boundary of the Ozark-St. Francis National Forest, 15.8 miles of the Buffalo River was designated in 1992 as a Wild and Scenic River. Of the 15.8 miles, 9.4 miles is classified as Wild and 6.4 miles is classified as Scenic.

The U.S. Forest Service, Ozark-St. Francis National Forest is the managing agency for the Buffalo River's designated segment within the Wild and Scenic Rivers System. The endpoint of this segment is located approximately 30 miles upstream of the project study area.

The remainder of the Buffalo River – included on the NRI and completely within the BNR – is not a component of the Wild and Scenic River System in that it was not designated under the Wild and Scenic Rivers Act. The preamble of the BNR's enabling legislation states the park be established " . . . for the purposes of conserving and interpreting a park containing unique scenic and scientific features, and preserving as a free flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations." This important legislation mirrors Section 1(b) of the Wild and Scenic Rivers Act (Public Law 90-542), which states " . . . shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." The BNR is in practice a Wild and Scenic River with respect to Section 7(s)/Section 4 requirements.

Section 4 of the BNR's enabling legislation states: ". . . no department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing contained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments

below or above the Buffalo National River or on any stream tributary thereto which will not invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area on the date of approval of this Act." Section 4 is nearly identical to Section 7(a) of the Wild and Scenic Rivers Act.

The NPS, on behalf of the Secretary of the Interior, is responsible for preparing Section 4 determinations of effect. A determination of "No Direct and Adverse Effect" is required before the issuance of any Federal permits or Federal assistance for a water resources project. Water resources projects that are determined to have a direct and adverse effect on the values for which the BNR was designated are prohibited. Water resources project include, but are not limited to, dams, water diversion projects, fisheries habitat and watershed restoration/enhancement projects, bridge construction or demolition, bank-stabilization projects, boat ramps, and other activities within the bed and bank of a river or its tributaries that typically require a Section 404 or Section 10 Permit from the U.S. Army Corps of Engineers.

5.8 CULTURAL RESOURCES

Cultural resources are defined as prehistoric/historic archeological sites and historic structures/districts/objects. These groups may include, but are not limited to, prehistoric mound groups/villages/hunting camps, historic farmsteads, historic houses/bridges/districts, battlefields, and sculptures.

Only those archeological and historic resources determined to be significant are subject to protection consideration by a federal agency. This significance is determined by the evaluation of the properties' characteristics in relation to criteria which define a property as eligible for inclusion on the NRHP. These characteristics include integrity of location, design, setting, materials, workmanship, and feeling which may be associated with events, patterns or significant persons in history, distinctive architectural characteristics of a type, period or method of construction and have or may yield scientific information important to the study of prehistory/history (36 CFR 60.4).

The assessment of impacts to cultural resources under NEPA integrates analyses required by the NHPA, as amended (16 USC 470 et. seq.). Section 106 of the NHPA requires the FHWA to take into account the effects of federal undertakings on significant cultural resources and to provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on an undertaking's adverse effects. An adverse effect is found if a federal undertaking alters, either directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion on the NRHP.

CULTURAL RESOURCES SURVEY METHODOLOGY

A variety of records were reviewed to identify previously documented cultural resources located within or near the study area. These records included the state's archeological site files maintained by the Arkansas Archeological Survey (AAS) and the historic structures files maintained by the Arkansas Historic Preservation Program (AHPP). The AHTD Historic Bridge Inventory was also reviewed for information regarding historic bridges and culverts within the project area.

Several early maps were reviewed to gather information regarding early historic settlement in the study area. These maps included copies of the 1844 and 1845 General Land Office maps for Township 16 North of Ranges 20 and 21 West, and the 1936 Newton County Highway Map. The most recent Jasper, Arkansas topographic quadrangle map was also used to preview existing landforms for areas with a high probability for Native American and historic settlements.

Because the proposed projects are within the BNR, an Archeological Resources Protection Act permit was obtained from the NPS Midwest Archaeological Center to conduct Phase I archeological investigations on properties under the jurisdiction of the NPS. The AHTD's Phase I archeological pedestrian survey consisted of walking the project area and excavating shovel tests in high probability areas in an attempt to identify previously undocumented Native American or historic archeological sites.

All standing structures in the project area thought to be 50 years old or older were photographed during the AHTD's cultural resources visual survey and eligibility determinations were made by the SHPO.

A cultural resources survey to identify archeological sites or historic properties in the study area was completed in early 2010. The AHTD submitted a Phase I cultural resources report to the BNR for review. Upon addressing the BNR's review comments, the AHTD submitted the Phase I cultural resources report to the SHPO for concurrence, which was received on June 3, 2010.

To date, several archeological sites, including two pre-1931 road segments, have been identified within the study area. Additionally, the Pruitt Historic District was outlined and the Pruitt Bridge, the Pruitt Store (Contact Center), the Pruitt Garage (Storage Building), and the 1913 Highway 7 Bridge Concrete Approach were identified as contributing elements to the Pruitt Historic District. Cultural resource findings are summarized below for each proposed project. Relevant correspondence and additional information is provided in Appendix B.

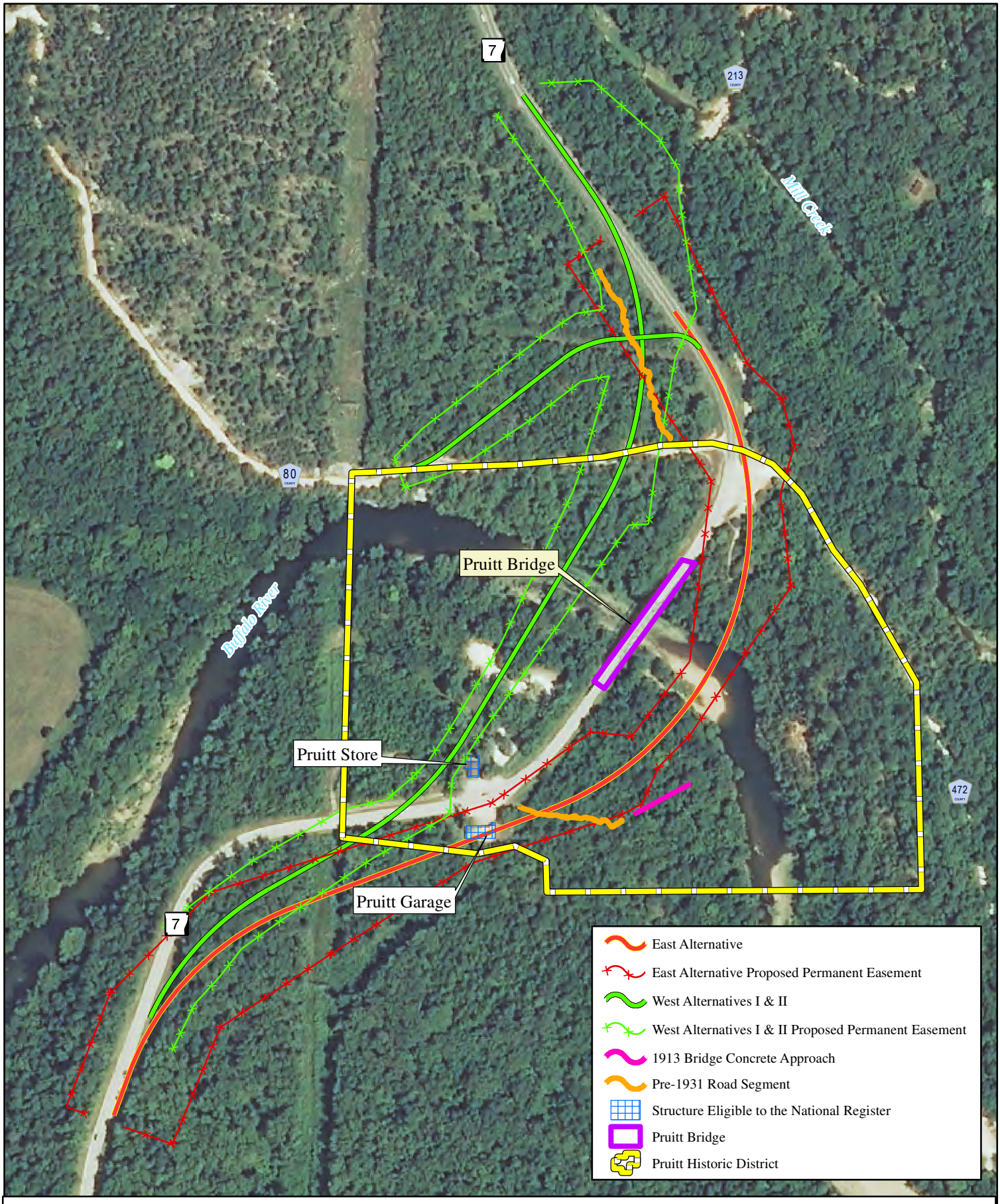
For ease of discussion, cultural resources have been divided into two main categories: archeological resources and historic resources.

5.8.1 BUFFALO RIVER BRIDGE PROJECT

The Pruitt Bridge [NW0029 (AHTD Bridge #01689)] was listed on the NRHP in 1990 as part of the Historic Bridges of Arkansas, Multiple Property Nomination.

Based on the visual survey, the AHTD's 2007 Request for Technical Assistance identified the Pruitt Store and the Pruitt Garage as not NRHP eligible. Subsequent coordination in 2008 between the BNR and the SHPO reversed this NRHP eligibility determination by identifying the Pruitt Store and the Pruitt Garage as NRHP eligible because they are contributing elements to the Pruitt Historic District. It was determined in 2014 that the 1913 Highway 7 Bridge Concrete Approach was NRHP eligible as a contributing element to the Pruitt Historic District.

The AAS site file review indicated three previously recorded archeological sites (3NW0499, 3NW0671, and 3NW1110). The 2010 pedestrian survey resulted in the discovery of four previously unknown archeological sites (3NW1308, 3NW1309, 3NW1310, and 3NW1311) and a pre-1931 road segment north of the river. **Figure 5-3** shows cultural resources in the project study area. The locations of archeological sites are protected information and therefore not depicted on the figure.



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

January 8, 2016

Photography: Summer 2013

Figure 5-3
Cultural Resources

5.8.1.1 HISTORIC RESOURCES

Pruitt Historic District

The Pruitt Historic District (hereinafter the "District") is located along Highway 7 where it crosses the Buffalo River. The District's boundary, defined by the SHPO in September 2008, encompasses both banks of the Buffalo River and both sides of Highway 7 at the river crossing. The District is NRHP eligible under Criteria A and C as a significant site within the contexts of Arkansas highway history and architecture, and as a rural hamlet associated with tourism in the Ozarks.

Early 20th century auto touring led to the creation of camps specifically built as places for people to stop and rest during their travels. The camps were built to entice auto tourists by capitalizing on the popularity of local natural areas such as the Buffalo River. The Shady Grove Camp, an auto tourist destination on the east side of Highway 7 south of the Buffalo River, existed prior to the construction of the 1931 Buffalo River Bridge. It was comprised of a store and rental cabins. From the 1910s through the 1950s, auto tourists stopped here to rest, camp, picnic, and swim along the shores of the Buffalo River.

With the construction of the new Pruitt Bridge in 1931, the original 1913 Highway 7 Bridge was removed. The 1913 Highway 7 Bridge's concrete approach remained in place on the south side of the river, however, and the Shady Grove Camp also became popular as a put-in for boaters in addition to its function as an auto touring stop. Shady Grove Camp subsequently constructed a series of unique cabins on top of the concrete approach. Only the foundations of these cabins remain.

As auto traffic increased, the village of Pruitt expanded from the Shady Grove Camp. The original store was replaced in 1941 with a new store and post office (the Pruitt Store) on the west side of the highway. A new garage/community center/American Legion Post (the Pruitt Garage) was built in 1955. The Buffalo Motel was built on the northeast quadrant along with a series of vacation cabins to the east of it.

By the time it was acquired by the BNR in the 1970s, Pruitt had expanded to all four quadrants of the Pruitt Bridge and consisted of the Buffalo Motel, Pruitt Store, the Pruitt Garage, a few homes and cabins, and a campground. Recreational areas had been established on the northwest and southwest banks of the river. Most of the structures were removed by the BNR after the establishment of the BNR and only the Pruitt Store, the Pruitt Garage, the 1913 Highway 7 Bridge concrete approach, a privy pad associated with the former bridge approach cabins, and the pre-1931 road segments remain.

Pruitt Store

The Pruitt Store, depicted in **Photo 5-1**, was built in 1941 to replace a previous store and post office constructed in the 1920s. The vernacular building reflects the Ozark style and workmanship relative to its period of construction. The Pruitt Store provided postal and phone service, gasoline, groceries, recreation, and social opportunities to Pruitt area residents and tourists visiting Shady Grove Camp. The Pruitt Store is NRHP eligible under Criterion A for its association with the establishment and development of Pruitt and early- to mid-century recreational uses of the Buffalo River. The building has been converted to serve as the BNR's Upper District Contact Center.

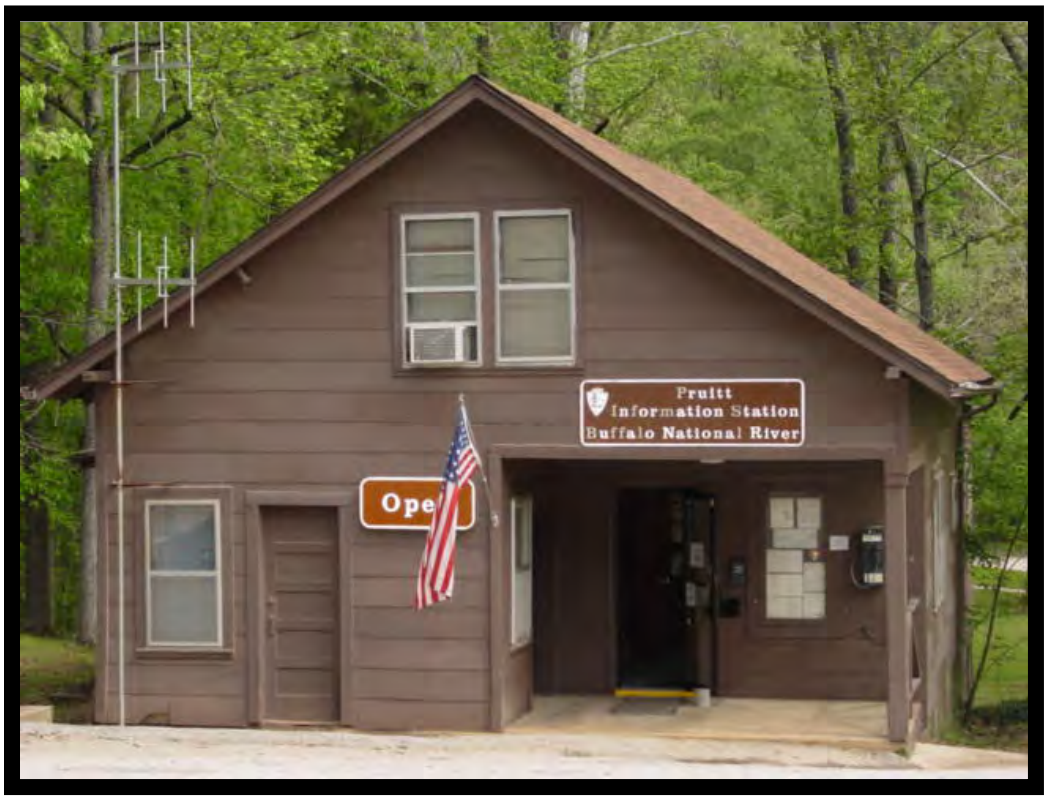


PHOTO 5-1 FORMER PRUITT STORE – CURRENT CONTACT CENTER

Pruitt Garage

The Pruitt Garage, depicted in **Photo 5-2**, is a cinder block building with a flat roof and additions on each end. The building was constructed in 1955, with the additions completed in 1959. The Pruitt Garage provided automobile repair and service and served as a community center to Pruitt area residents and tourists visiting Shady Grove Camp. Following construction of the 1959 additions, it also served as an American Legion Post. Similar to the Pruitt Store, the Pruitt Garage reflects the construction style and workmanship of the Ozarks relative to its period of construction. It is NRHP eligible under Criterion A for its association with the establishment and development of Pruitt, as well as early- to mid-century recreational uses of the Buffalo River. The garage has been converted to a BNR equipment storage facility.



PHOTO 5-2 FORMER PRUITT GARAGE – CURRENT STORAGE BUILDING

Pruitt Bridge

The Pruitt Bridge, depicted in **Photo 5-3**, was constructed in 1931 and listed on the NRHP as the "Buffalo River Bridge" in April 1990. The bridge is a Pennsylvania through truss design. It is 375 feet in length, comprised of one 160-foot through truss center span flanked by two 80-foot Warren pony spans. Additionally, a 55-foot girder approach span is located on the south end of the bridge. The Pruitt Bridge is a unique interpretation of the Pennsylvania through truss design, and is the only experimental design produced by the AHTD for metal truss bridges. It is therefore eligible under NRHP Criterion C for its architecture. The bridge is also eligible under NRHP Criterion A as a contributing element of the District, because its construction helped increase traffic and tourism in the area, thereby contributing to the growth of Pruitt from the 1930s through the 1960s.



PHOTO 5-3 PRUITT BRIDGE

1913 Highway 7 Bridge Concrete Approach

The 1913 Highway 7 Bridge Concrete Approach, depicted in **Photo 5-4**, is a remnant of the first Pratt Through Truss bridge built across the Buffalo River in 1913. After the bridge was replaced in 1931, the approach was left in place for use by the Shady Grove Camp. The approach is considered a contributing element to the District because it was used as a platform to construct cabins which were used by visitors to Pruitt and Shady Grove Camp.



PHOTO 5-4 1913 HIGHWAY 7 BRIDGE CONCRETE APPROACH

5.8.1.2 ARCHEOLOGICAL SITES

Prehistoric

3NW0671- Lithic Scatter

This site contains a light lithic scatter. Shovel testing revealed that the artifacts were restricted to the disturbed upper soil horizon. Trenching at the site revealed only small amounts of lithic artifacts and no subsurface deposits. The SHPO has determined that this site is not eligible for the NRHP.

3NW1308 – Archeological Site

Artifacts observed at the site include lithic flakes, a lithic scraper, shell-tempered sherds, small animal bone and mussel shell fragments, charcoal, and a hearth feature. A 1-by-1 meter test unit was excavated at the site; with artifacts extending down to a sandstone cap, which probably covers earlier habitation strata. Artifacts found at the site indicate habitation during the Mississippian period. The SHPO has recommended further testing to determine the eligibility of the site.

3NW1309 – Archeological Site

Artifacts observed at the site include lithic flakes, shell-tempered sherds, small animal bone fragments, mussel shell fragments, and charcoal. It is located next to 3NW1308. A 50-by-50 centimeter control column was excavated at the site; with artifacts extending down to the limestone bedrock. Artifacts found at the site indicate habitation during the Mississippian period. The SHPO has recommended further testing to determine the eligibility of the site.

Historic

North Road Segment

The north road segment is located on the north side of the Buffalo River within the project area and is a remnant of the pre-1931 roadway which was bypassed during the construction of the Pruitt Bridge. The north road segment runs northwest for 500 feet paralleling the current Highway 7 alignment on its western side. The north road segment is typical of road construction from the 1880s to 1930s. The north road segment was determined not eligible for inclusion on the NRHP.

3NW0499 – Buffalo Hotel and Campground/Lithic Scatter

The site contains both prehistoric and historic artifacts and is located within the Pruitt Historic District. The prehistoric component consists of a lithic scatter and one Gary point preform which were associated with the Archaic/Woodland time period. The historic component consists of a lead bullet and miscellaneous glass fragments found in the area of previously extant cabins that may have been associated with the Buffalo Hotel from the early 1940s to the late 1950s. The SHPO has determined that this site is not eligible for the NRHP.

3NW1110 – 1913 Buffalo River Bridge Concrete Approach

The site contains the 1913 Highway 7 Bridge Concrete Approach, a concrete two-seat privy pad, a pre-1931 road segment, and bridge piers. As previously described, Shady Grove Camp cabins were once located on top of the 1913 Highway 7 Bridge Concrete Approach. The SHPO has determined that this site is not eligible for the NRHP; however, the 1913 Highway 7 Bridge Concrete Approach has been determined eligible as a structure that is a contributing element to the Pruitt Historic District.

3NW1310 - Outbuilding

The site consists of a small concrete slab feature and a small cinderblock outbuilding located approximately 100 feet southwest of the Pruitt Garage. The SHPO has determined that this site is not eligible for the NRHP.

3NW1311 - Foundation

The site consists of the remnants of a rock and mortar foundation and a very sparse associated artifact scatter situated on the north side of the Buffalo River, situated on a slope roughly 16 feet west of the north road segment. The site does not show evidence of sustained occupation and is not considered eligible for the NRHP.

5.8.2 MILL CREEK CROSSING PROJECT

The AAS site files indicated one previously recorded archeological site (3NW0687) and the AHPP structure files indicated one structure (NW0185) listed in the proposed project area.

The pedestrian and visual surveys found no new archeological sites, but did identify one new historic property (the Canton Mine) in the proposed project area.

5.8.2.1 HISTORIC RESOURCES

NW0185 - Shaddox Cabin

The Shaddox Cabin, depicted below in **Photo 5-5**, is a one room log cabin with a metal roof. The cabin was originally one pen of a double pen dog-trot house constructed in the 1850s by slaves owned by Ezekial Shaddox. One pen was dismantled and moved approximately 328 feet to its current location in the 1930s. The Shaddox Cabin was then reconstructed on a rock and concrete foundation with concrete chinking and a lean-to rear addition. The Shaddox Cabin was previously evaluated by the SHPO and determined to be not eligible for the NRHP.



PHOTO 5-5 SHADDOX CABIN

Canton Mine

The Canton Mine, depicted below in **Photo 5-6**, is a series of surface cuts excavated from the late nineteenth century to the mid twentieth century. The excavation of these surface cuts began in the 1890s once it was determined that the area contained large concentrations of both lead and zinc near the surface. The mine consists only of surface cuts and open pits. This area was mined on and off by both individual miners and small mine companies until the early 1940s, when mining in the area ended. The Canton Mine was previously evaluated by the SHPO and determined to be eligible for inclusion on the NRHP under Criteria A for its association with early mining in Arkansas.



PHOTO 5-6 CANTON MINE

5.8.2.2 ARCHEOLOGICAL SITES

3NW0687 – Shaddox Farmstead

The site consists of both a historic and prehistoric component. The prehistoric component is concentrated on the southern portion of the ridge above the drainage and consists of thinning flakes, cores, and biface pieces. The historic component consists of the remains of the 1850s log cabin and evidence suggesting at least two outbuildings. The SHPO recommended further testing to determine the eligibility of the site.

5.9 VISUAL RESOURCES

The BNR's scenic qualities were an integral component of its designation as the first National River. The *NPS Management Policies 2006*, the first level of policy guidance within the NPS directives system, states that scenic views and visual resources are considered highly valued associated characteristics that the NPS should strive to protect.

VISUAL QUALITY DEFINITIONS

The term "viewshed" is used to describe the portion of a landscape that can be seen from within a project area and that has views of the project area. The boundaries of a viewshed are determined by the surrounding topography, vegetation, and built environment. The landforms, water, and vegetation contribute to the vividness of a viewshed, and its visual diversity can be defined in terms of form, line, color, and texture. Additionally, views of high visual quality have several of the following six characteristics:

- Topographic relief
- A variety of vegetation
- Rich colors
- Impressive scenery
- Unique natural features
- Unique built features

These characteristics were considered in assessing the project study area's viewshed.

VIEWERS AND VANTAGE POINTS

The variety of viewers and vantage points were taken into account to assess the project study area's viewshed.

The viewshed's visual quality is an important part of the recreational experience for all categories of visitors, and a wide variety of vantage points are available along the roadway, river, and trails. BNR visitors such as boaters, hikers, and horseback riders may see the landscape from more remote points such as trails and waterfront areas. Visitors such as picnickers and

swimmers observe certain landscape features from closer points. Motorists view the landscape while traveling to destinations within the BNR, from parking areas, or traveling to destinations outside of the BNR.

5.9.1 BUFFALO RIVER BRIDGE PROJECT

In addition to the existing bridge and roadway, manmade elements in the Buffalo River Bridge viewshed include a 100-foot wide north-south electric transmission line right of way crossing the river approximately 800 feet west of the existing bridge; the Contact Center, the Pruitt Day Use Area amenities, including the picnic units, restrooms, and gravel parking area; and the Storage Building.

The Buffalo River Bridge project viewshed is characterized by steep hillsides and bluffs that create long continuous walls along the river. This type of landscape is characterized as "enclosed" from a river level vantage. Viewshed elevations range from about 790 feet above mean sea level (msl) at the river to about 1,100 feet above msl at the ridges near Highway 7. The enclosed nature of the landscape transitions to more panoramic vistas when viewed from the ridges and the bluff tops. Moderately panoramic characteristics are present at the river bends from a river level vantage; however, the views generally remain enclosed due to the steep bluffs and river banks.

The texture of the hillsides varies from bluffs to vegetation to patches of exposed ground. A long axial view up and down the river is strengthened by the contrasting nature of the water surface and the sky. The relatively uniform height of the bluffs and ridges provides a "frame" for river level views.

The north side of the Buffalo River has steeper gradients and the higher bluffs are closer to the river. On the south side, the bluff is set back and a low floodplain area and sand bars lie adjacent to the river. The line of contrast between the tops of the bluffs and ridges and the sky (i.e., the skyline) is gently rolling as it follows the topography. The winding course of the river itself connects this mix of visual patterns and elements.

The rock and exposed ground present a wide range of colors, from light tans to deep browns and from light grays to blacks. Vegetation, tree forms, and colors change with the seasons and vary from autumnal colors to spring and summer greens. Due to its exceptional chemical quality, the water is generally a transparent green color.

A 110-foot bluff known as the Pruitt Bluff is situated to the north of the Pruitt Bridge and west of Highway 7. The Pruitt Bluff is noted for its dramatic exposure of massive Everton Formation sandstone. A limestone and sandstone bluff of somewhat lesser vertical relief (designated as the "East Bluff" for purposes of this EA) is situated to the north of the Pruitt Bridge and east of

Highway 7. These bluffs are prominent features in views from the south side of the Buffalo River, as well as in views from the river itself.

In addition to providing striking examples of the BNR's geology, these bluffs are a unique natural feature above the Pruitt Day Use Area swimming locales, contributing to the inviting "swimming hole" aesthetic. The renowned artist Thomas Hart Benton, who stayed at the Shady Grove Camp during painting trips to the Buffalo, depicted the river bluffs and landscape near Pruitt in several of his paintings.

The Equestrian Trail also offers views of the river, the bluffs and vegetation, and the bridge. Likewise, views of this setting are available to recreational river users in and around the Pruitt Day Use Area and the Pruitt Access Area. The lower portion of the Buffalo River Trail and its trailhead afford limited views of the river, bluffs, and vegetation near the western limit of the project study area.

Within the project study area, the view from both the north and south sides of Highway 7 and the Pruitt Bridge affords a vantage point for motorists to appreciate the setting of the river, the bluffs, and the bridge itself. The bridge's overhead truss system is a prominent visual feature, adding color and visual diversity to the scene. The bridge's historic setting, with the Contact Center and the Storage Building flanking the south roadway approach, contribute to its ambiance and charm (Fitzgerald, Young, and Rogers 2008).

In sum, the Buffalo River Bridge project area is of high visual quality and contains multiple visual resources.

Figure 5-4 shows the visual resources and other features in the project study area.

SCENIC 7 BYWAY/HIGHWAY 7

In contrast to modern highway travel, tourists drawn to scenic byways in general may expect slower speeds and enjoy a roadway's rural visual character (KRTPO 2011). Scenic 7 Byway draws tourists year round and has long enjoyed a reputation as one of the nation's most scenic drives; it would therefore be expected that tourists driving Highway 7 specifically because of its Scenic 7 Byway designation highly value the scenery and rustic aspects of the roadway. Many general recreationists and other travelers along Scenic Byway 7/Highway 7 would also be expected to appreciate the scenic views.

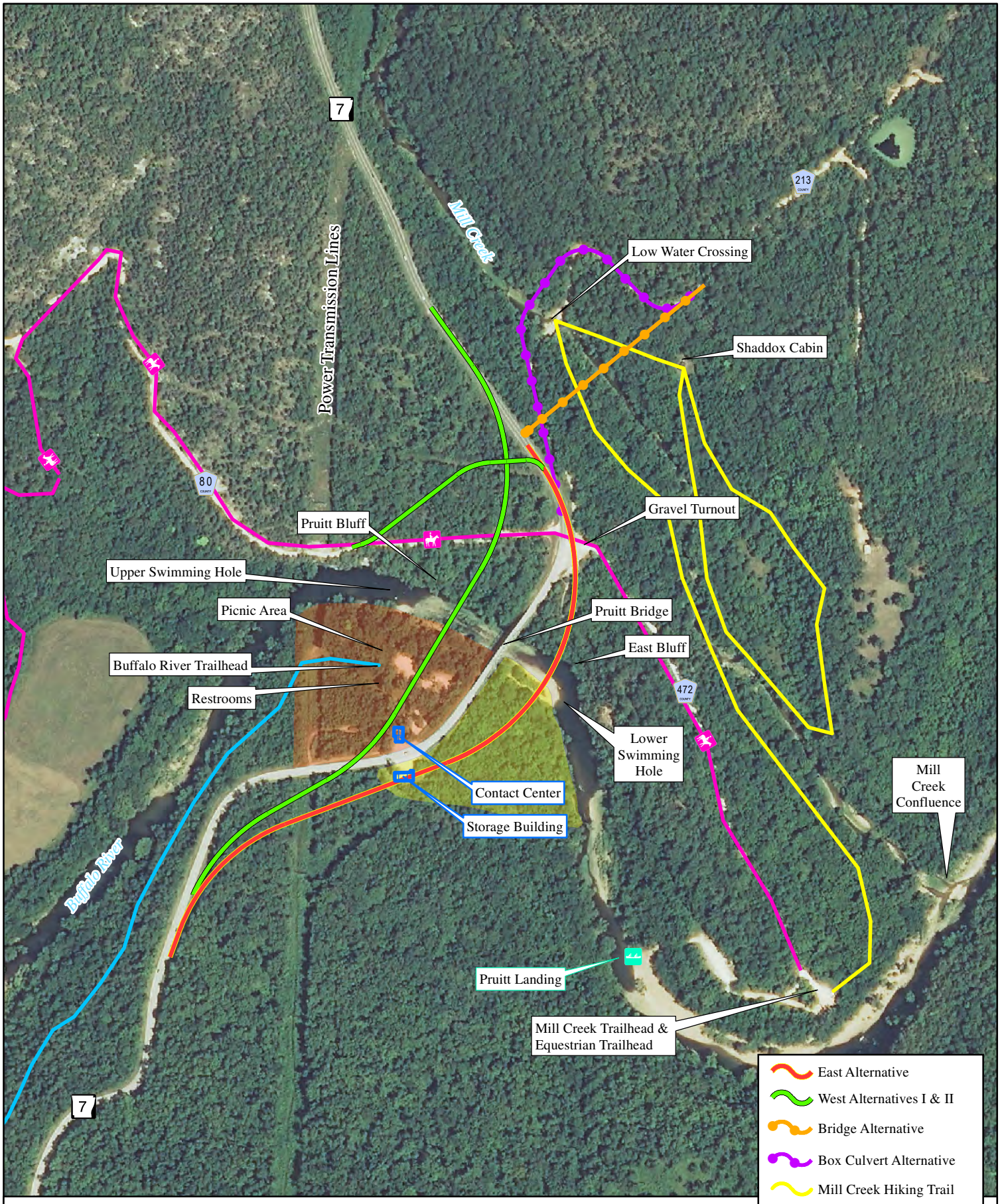


Figure 5-4
Visual Resources

The landscape along Scenic 7 Byway/Highway 7, both in and out of the BNR boundaries, affords new scenery and vistas with nearly every turn of the road. It should be noted that the 1931 roadway was built with minimum cuts and fills, resulting in generally less safe horizontal and vertical alignment compared to current engineering standards. New roadways and bridges are required by modern safety standards to be constructed with less curvature and grades that are less steep. Striking a balance between tourists' and other recreationists' expectations regarding scenic byways with modern highway engineering standards has been an ongoing topic in many regions throughout the U.S.

5.9.2 MILL CREEK CROSSING PROJECT

The Mill Creek project area's viewshed is characterized by steep hillsides, narrow topography, wooded areas, and a shallow, rocky streambed. Viewshed elevations in general range from approximately 783 feet above msl at the low water crossing to about 815 feet above msl at its roadway approaches. The Shaddox Homestead, which includes an open field and the Shaddox Cabin, is a historic feature situated approximately 240 feet east of Mill Creek and at an elevation approximately 37 feet higher than the low water crossing.

The low water crossing is located about 525 feet northwest of the Shaddox Homestead and vehicles using it are visible from the Shaddox Cabin. County Road 213 passes within 215 feet north of the Homestead.

Individuals hiking the Mill Creek Trail and/or visiting the Shaddox Homestead were identified as the primary viewer/user group to be affected by the proposed project; therefore, views from the trail on and adjacent to the Mill Creek low water crossing and from the Shaddox Homestead were considered for this EA.

The closest the proposed project area would be from Mill Creek's confluence with the Buffalo River is 0.46 mile. Due to distance, elevation, and bends in the streambed, it is not anticipated that any portions of the proposed project would be visible from the Buffalo River.

Applying the Department of the Interior, Bureau of Land Management Visual Resource Management principles of visual resource inventory components, the variety class within the proposed project vicinity may be characterized as Class B, or Common. The sensitivity rating would be Level 2, or Average Sensitivity. Vegetative cover is continuous with interspersed patterns of understory, overstory, and ground cover; unique vistas and unusual or outstanding rock forms are not present. Mill Creek's drainage has meanderings and flow characteristics common to Ozark highlands streams.

5.10 NOISE

Management policies direct the NPS to preserve the natural soundscapes of parks to the greatest extent possible. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among and even within NPS units, being generally greater in developed areas and less in undeveloped areas. These considerations contributed to the EA's determination of "affected environment" and potential impacts (presented in Section 6.9) to the BNR's soundscape.

A noise study was performed in 2013 and 2014 for the Buffalo River Bridge project. Project scoping did not indicate that noise levels associated with the Mill Creek Crossing project were of concern; therefore, the noise study did not include the Mill Creek Crossing project area.

The noise study included identifying the areas with the highest likelihood of being affected by any sound level increases, obtaining ambient sound level measurements, and using the FHWA Traffic Noise Model (TNM 2.5) to calculate potential sound level increases. The detailed noise study report is provided as **Appendix H.**

DEFINITIONS

Sound magnitude or intensity is measured in a logarithmic unit called a decibel (dB). The human ear is more sensitive to middle and high frequency sounds than it is to low frequency sounds, so sound levels are weighted to more closely reflect human perceptions. The most common measure to achieve this is the A-weighted sound level, or dB(A).

The sound level for any roadway fluctuates in duration from moment to moment as time passes. This fluctuation represents the time-varying properties of roadway noise. The sound level descriptor L_{eq} is defined as the equivalent steady-state sound level which in stated periods of time contain the same acoustic energy as the time-varying sound level during the same time period. L_{eq} is a particularly stable descriptor for roadways with low traffic volumes, thus the noise study presents all sound levels as L_{eq} over a 1-hour period of peak traffic.

In order to determine if highway noise levels are or are not compatible with various land uses, the FHWA has developed land use activity categories, and associated Noise Abatement Criteria (NAC). Traffic noise impacts occur when predicted traffic noise levels either approach or exceed the FHWA NAC or substantially exceed the existing noise levels.

Encompassing "picnic areas", "recreation areas", and "Section 4(f) sites", the applicable FHWA land use activity category within the study area is C, which has a corresponding NAC of 67 dB(A) (hereinafter "Category C NAC of 67 dB(A)").

CONDITIONS

Ambient (i.e., background) sound level measurements were obtained for the Buffalo River Bridge project from the sites listed below. As indications of potential sound reflectivity, the predominant surfaces of the areas are also listed.

- **Site 1** – under the south side of the Pruitt Bridge; rocks, pebbles, and sand.
- **Site 2** – approximately 130 feet east of the Pruitt Bridge near the Lower Swimming Hole; cobbles, pebbles, and sand.
- **Site 3** – approximately 330 feet west of the Pruitt Bridge near the Upper Swimming Hole; cobbles, pebbles, and sand.
- **Site 4** – handicapped accessible picnic table in the Pruitt Day Use Area; grass.

Table 5-2 summarizes the ambient sound level measurements, while **Figure 5-5** shows the ambient sound level measurement locations. As demonstrated in Table 5-2, all of the ambient sound level measurements were below the Category C NAC of 67 dB(A), indicating that existing sound levels are compatible with current land uses. As detailed in the noise study report and analyzed in Section 6.9, TNM 2.5 modeling also indicated that existing sound levels are compatible with current land uses.

TABLE 5-2 AMBIENT SOUND LEVEL MEASUREMENTS

SITE NUMBER	DATE	PERIOD	L_{eq} dB(A)
1	April 16, 2013	1:55 PM – 2:40 PM	54.4
2	April 16, 2013	11:15 AM – 12:00 PM	55.5
3	June 20, 2013	11:15 AM – 12:00 PM	52.7
4	January 16, 2014	11:34 AM – 12:06 PM	53



Job 009784
AHTD Environmental GIS - Dudley
Map Date: January 29, 2014

Figure 5-5
Ambient Sound Level Measurements

CHAPTER 6 ENVIRONMENTAL IMPACTS AND MITIGATION

This chapter analyzes both beneficial and adverse impacts that would result from implementing any of the detailed study alternatives. Impact definitions (e.g., negligible, minor, moderate, and major) and the methods used to analyze impacts are provided. The impact topics and the organization of these topics correspond to the resource discussions contained in Chapter 5.

All of the alternatives under consideration involve removing segments of existing roadway. Where relevant, the potential impacts of removing these roadway segments are also addressed. Chapter 7 provides the cumulative impact analysis for these impact topics.

A description of how impact definitions were established and effects were measured is provided below.

GENERAL ANALYSIS METHODS

Methodologies to measure the change in BNR resources that would occur with the implementation of each alternative were specified. Thresholds for each impact topic were established to indicate the magnitude of changes in resource conditions, both adverse and beneficial, of the various alternatives.

Potential impacts are described in the terms listed below.

- 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)?
- Intensity: Are the effects negligible, minor, moderate, or major?

Because definitions of intensity vary by impact topic, intensity definitions are provided separately for each impact topic.

Each alternative is compared to a baseline to determine the context, duration, and intensity of resource impacts. For impact analysis purposes, the baseline is the continuation of current conditions (the No Build Alternative) projected over the next 6 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 resource agencies.

6.1 GEOLOGY, TOPOGRAPHY, AND SOILS

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

Potential impacts were assessed based on the extent of disturbance to geology, topography, and soils. Potential impacts to natural undisturbed soils, the potential for soil erosion resulting from disturbance, and limitations associated with soils were of particular concern. Analysis of possible impacts to geology, topography, and soils were based on the review of existing literature and maps, information provided by the NPS–BNR and other agencies, and professional judgment.

The geographic study area for geology, topography, and soils impacts corresponds with the project study area. Offsite use areas, including borrow and waste areas, would be required during construction; however, these areas would be outside of the BNR in locations to be determined at a later date, subject to the AHTD's offsite use area review process, and addressed in a Special Provision. Potential impacts of using these off site areas could not be evaluated in this EA because the locations have yet to be identified.

IMPACT DEFINITIONS

The impact intensities for geology, topography, and soils were defined as follows:

Negligible: The alternative would result in a change to geology, topography, and soils, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: The alternative would result in impacts on geology, topography, and soils, but the change would be small and localized and of little consequence.

Moderate: The alternative would result in a change to geology, topography, and soils over a relatively wide area. Mitigation measures may be necessary to offset effects and would likely be successful.

Major: The alternative would result in a noticeable change to soils geology, topography, and soils; the change would be measurable and would result in a severely adverse impact. Mitigation measures necessary to offset adverse impacts would be needed and would be extensive, and their success would not be guaranteed.

Duration: Short-term – Occurs during the implementation of the alternative.
Long-term – Extends beyond the completion of the alternative.

6.1.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

EAST ALTERNATIVE

The volume of rock cut for the north approach would be approximately 30,507 cubic yards (cy) and the average height of the rock cut area would be 10 feet. Approximately 11.6 acres of new easement would be required for construction. The topography and soils within the project area have been previously disturbed as a result of past land use and development associated with the Pruitt Community. Impacts would result primarily from grading, excavation, placement of fill, and compaction. The removal of vegetation during site preparation could also result in the erosion of soils. This alternative would require the disturbance of 3.2 acre of the Lily-Udorthents-Rock outcrop complex soil type. As previously described in Section 5.1, the clearance of native vegetation is not recommended for this soil type. It would also disturb 2.3 acres of the Estate-Lily-Portia complex soil type, which has severe erosion potential and low natural fertility.

Sediment and erosion control Best Management Practices (BMPs) would be implemented to minimize erosion and the transport of sediment into the Buffalo River. Moderate, short- and long-term impacts to geology, topography, and soils would be expected for the East Alternative.

WEST ALTERNATIVE I AND II (ALL OPTIONS)

The volume of rock cut for the north approach would be approximately 137,940 cy with an average height of 20 to 25 feet. These cuts would result in major, short- and long-term impacts to geology, topography, and soils. Approximately 10.3 acres of new easement would be required for the construction of the West Alternatives. North of the river, the West Alternatives would occur west of Highway 7 in an area that has been less previously disturbed than east of Highway 7. The West Alternatives would require the disturbance of 3.6 acres of the Lily-Udorthents-Rock outcrop complex soil type. As described in Section 5.1, the clearance of native vegetation is not recommended for this soil type. It would also disturb 3.2 acres of the Estate-Lily-Portia complex soil type, which has severe erosion potential and low natural fertility.

As discussed for the East Alternative, sediment and erosion control BMPs would minimize the potential effects of erosion and sediment transport. The success of mitigation measures for the topographic and geologic impacts of the northern approach rock cuts could not be guaranteed, however.

6.1.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE

The Bridge Alternative would have minor, short- and long-term impacts to geology, topography, and soils. Approximately 2.5 acres of new easement would be required for construction. The expected impacts associated with highway construction activities would result primarily from

grading, excavation, fill placement, and compaction. The vegetation removal during site preparation could also result in soil erosion. This alternative would disturb 0.24 acre of the Lily-Udorthents-Rock outcrop complex soil type; native vegetation should not be cleared from this soil type. It would also disturb 0.2 acre of the Estate-Lily-Portia complex soils type, which has low fertility and a high erosion potential.

Sediment and erosion control BMPs would be used to minimize erosion and the transport of sediment into Mill Creek. Additional impacts would be expected at offsite locations, including borrow and waste areas.

BOX CULVERT ALTERNATIVE

Minor, short- and long-term impacts to geology, topography, and soils would be expected for the Box Culvert Alternative. An estimated 3.3 acres of new easement would be required for constructing the Box Culvert Alternative. This alternative would disturb 1.16 acre of the Lily-Udorthents-Rock outcrop complex soil type and 0.94 acre of the Estate-Lily-Portia complex soils type. The expected impacts associated with highway construction activities would be the same as those described for the Bridge Alternative.

6.1.3 ELEMENTS SHARED BY BOTH PROJECTS

Severe erosion hazards are associated with four of the five soil types in the project study area, and low natural fertility is associated with three of the five soil types. These factors should be taken into consideration as soil and erosion BMPs are incorporated into the site-specific SWPPP and as the revegetation plan is developed.

OBLITERATED ROAD SEGMENT ACTIVITIES

Activities associated with the obliterated road segments would serve as mitigation for the alternatives. Some soil loss would be expected during the construction phase; however, sediment and erosion BMPs would minimize this loss as described for each of the alternatives.

NO BUILD ALTERNATIVE

The No Build Alternative would have no effect on geology, topography, or soils.

6.2 CAVE AND KARST RESOURCES

GUIDING REGULATIONS AND POLICIES

The Federal Cave Resources Protection Act of 1988 (16 U.S.C., Chapter 63) was established to protect, to the extent practicable, significant caves and cave resources on federal lands. The protection of BNR karst resources is necessary to ensure water quality protection.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

The geographic study area for impacts on cave and karst resources includes a 1-mile radius from the Pruitt Bridge. The Pruitt Cave is located in the Buffalo River Bridge project vicinity and it is known to provide habitat for a variety of bats, including the endangered gray bat and threatened northern long-eared bat. Potential impacts to cave dependent species are analyzed under Section 6.4.

Field investigations of the project area by AHTD and BNR personnel have not identified any indicators of karst resources such as sinkholes or caves within the footprint of the East Alternative or the footprint of either of the West Alternatives; however potential impacts to karst resources cannot be entirely ruled out due to the inherent difficulty in identifying these underground resources. It is assumed that the likelihood of cave and karst discovery would be proportionate with the volume of rock cut required. It is also assumed that the length and duration of blasting activities would increase with the volume of rock cut required.

Vibrations created during construction activities, particularly blasting, can damage structures or geological features in cave and karst resources. The U.S. Bureau of Mines has determined the threshold for impacts to structures to be 0.90 inches per second (in/sec), meaning particle velocities less than 5mm/s are extremely unlikely to cause damage to structures. By contrast, the threshold of human perception is roughly 0.01 in/sec (Hendricks 2002). A 2001 vibration monitoring report conducted by Caltrans demonstrated that few impacts to structures were detected at distances greater than 984 feet (Egan *et al* 2001), while no impacts were reported at distances greater than 920 feet. The closest known cave, Pruitt Cave, is located approximately 1,575 feet (0.3 mile) from the potential blasting area. Based on this information, it is unlikely that vibrations caused during construction activities, including blasting, would adversely affect known cave resources.

IMPACT DEFINITIONS

The impact intensities for cave and karst resources were defined as follows:

Negligible: There would be no observable or measurable impacts on cave or karst resources, the species living within, or the natural processes sustaining them. Impacts would be well within natural fluctuations.

Minor: Impacts would be detectable, but they would not be expected to be outside the natural range of variability. Impacts would likely be temporary and would not likely require mitigation to offset adverse impacts.

Moderate: Readily detectable impacts outside the range of natural variability would occur. The change would be measurable in terms of air or water quality,

population abundance, distribution, etc. Mitigation to offset adverse impacts could be extensive, but would likely be successful.

Major: Readily apparent impacts outside the range of natural variability would occur. The change would be measurable in terms of air or water quality, integrity of geological formations and population viability and could involve the displacement, loss, or restoration of a cave and karst dependent species. Mitigation measures to offset the adverse impacts would be required and would be extensive, and success of the mitigation measures would not be guaranteed.

Duration: Short-term – Occurs during the implementation of the alternative.
Long-term – Extends beyond implementation of the alternative.

6.2.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

EAST ALTERNATIVE

Approximately 11.6 acres of new easement would be required for implementing the East Alternative. Impacts include vegetation removal and fill placement for constructing bridge approaches and bridge pier footings. Some excavation would also be required for bridge pier footings, etc. Blasting could be required to make the north approach rock cuts, which would involve the removal of 30,507 cy and average about 10 feet in height. Sediment and erosion control BMPs would be used to minimize erosion and sedimentation during construction.

In the event construction operations encounter any indications that a cave (or other karst resource) has been discovered, work would immediately be discontinued in the area. If an opening into a cave is discovered, access would be denied and the area secured to prevent unauthorized entry. The BNR and USFWS would be contacted for a determination of the proper procedures to be followed. With proper construction and maintenance of sediment and erosion control BMPs and the inclusion of cave discovery protocols into the project plans, direct and indirect impacts to cave and karst resources associated with the East Alternative would be negligible to minor and short-term in duration.

WEST ALTERNATIVE I AND II (ALL OPTIONS)

Approximately 10.3 acres of new easement would be required for implementing the West Alternatives. Impacts would include vegetation removal and fill placement for constructing the southern bridge approach and bridge pier footings. Some excavation would also be required for bridge pier footings, etc. The 137,940 cy rock cut with an average height of 20 to 25 feet on the northern bridge approach would be made utilizing explosives. Sediment and erosion control BMPs would be used to minimize erosion and sedimentation during construction.

With proper construction and maintenance of sediment and erosion control BMPs and the inclusion of cave discovery protocols as described above for the East Alternative into the project plans, direct and indirect impacts to cave and karst resources associated with the West Alternates would be negligible to minor and short-term in duration.

6.2.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE

An estimated 2.5 acres of new easement would be required for implementing the Bridge Alternative. Impacts include vegetation removal and fill placement for constructing bridge approaches and bridge pier footings. Some excavation would also be required for bridge pier footings, etc. Sediment and erosion control BMPs would be used to minimize erosion and sedimentation during construction.

With proper construction and maintenance of sediment and erosion control BMPs and the inclusion of the cave discovery protocols into the project plans as described above for the Buffalo River Bridge project alternatives, direct and indirect impacts to cave and karst resources associated with the Bridge Alternative would be negligible to minor and short-term in duration.

BOX CULVERT ALTERNATIVE

An estimated 3.3 acres of new easement would be required for implementing the Box Culvert Alternative. Potential impacts include vegetation removal and fill placement for constructing the culvert approaches. Some excavation would also be required for the box culvert construction, etc. It is anticipated that the location of the spring is in a fill section and thus a spring box would be constructed to capture and redirect the flow of water to the edge of the easement.

Due to the presence of the spring, which is a karst resource, and the need to construct a spring box, direct and indirect impacts to cave and karst resources associated with the Box Culvert Alternative would be minor to moderate and long-term in duration. Mitigation measures would be the same as described above for the Bridge Alternative.

6.2.3 ELEMENTS SHARED BY BOTH PROJECTS

NO BUILD ALTERNATIVE

The No Build Alternative would not affect cave or karst resources.

6.3 VEGETATION

GUIDING REGULATIONS AND POLICIES

See the Guiding Regulations and Policies in Section 5.4, Wildlife and Wildlife Habitat, Including Sensitive Species. Additional regulations and policies include the Federal Noxious Weed Act (7 U.S.C. §§ 2801-2814) and Executive Order 13112 – Invasive Species.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

Available information on vegetation and vegetative communities occurring at the BNR was compiled and reviewed. Predictions about short- and long-term project impacts on vegetation were based on general characteristics and proposed actions affecting vegetated areas associated with the proposed projects. The proposed project alternative footprints comprise the geographic study area for vegetation impacts.

IMPACT DEFINITIONS

The impact intensities for vegetation were defined as follows:

Negligible: Some individual plants could be affected as a result of the alternative, but measurable or perceptible changes in plant community size, integrity, or continuity would not occur. The impacts would be on a small scale.

Minor: The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. The viability of the plant community would not be affected and the community would recover.

Moderate: The alternative would affect some individual native plants and a relatively large area in the native plant community that would be readily measurable in terms of abundance, distribution, quantity, or quality. Mitigation to offset adverse impacts could be extensive and would likely be successful.

Major: The alternative would have a considerable effect on native plant communities that would be readily apparent, and would substantially change vegetation community types over a large area in and out of the BNR.

Duration: Short-term – Occurs during the implementation of the alternative.
Long-term – Extends beyond implementation of the alternative.

6.3.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

EAST ALTERNATIVE

Implementing the East Alternative would impact both undisturbed oak-hickory forest and somewhat disturbed, but recovering, forest land that was formerly the community of Pruitt. Oak-hickory and mixed pine-oak forest occupy the south side of the river, while more eastern red cedar are interspersed with the mixed pine-oak on the north side of the river. Mixed pine-oak communities are indicators of human disturbance. Some former pasture land can still be observed, due to the presence of modern pasture grasses. Sandbars and a small area of riparian forest would be affected. Direct impacts would be minor and long-term. In general, the land east of Highway 7 north of the river has previously undergone more disturbance than land west of Highway 7 north of the river. Newly disturbed ground susceptible to invasion by non-native species would be a potential indirect construction impact. Indirect impacts due to invasion by non-native plant species may be negligible, or, unpredictably, minor and long-term.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

Implementing the West Alternatives would impact both undisturbed oak-hickory forest and the very disturbed Pruitt Day Use area on the west side of Highway 7. It would also impact riparian forest in the Pruitt Day Use Area. North of the river, it would impact oak-hickory and eastern red cedar forest, and relocation of County Road 80 would impact Pruitt Glade, which contains Ashe's Juniper, yellow coneflower, and many plant species that are confined to cedar glades. Alabama snow-wreath in the Pruitt Day Use Area would require transplanting to avoid its loss.

Impacts on oak-hickory and eastern red cedar forest would be minor and long-term. Impacts to Pruitt Glade, which is a much more specialized type of habitat of limited occurrence, would be moderate and long-term. The land west of Highway 7 on the north side of the river and in the vicinity of County Road 80 has previously undergone less disturbance than the land east of Highway 7. Areas of new ground disturbance, such as those required for the new County Road 80 connections, would be susceptible to invasion by non-native species. This would be a potential indirect construction impact. Indirect impacts due to invasion by non-native plant species may be negligible, or, unpredictably, moderate and long-term.

6.3.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE AND BOX CULVERT ALTERNATIVE

A small amount of riparian and oak-hickory forest would be impacted under either alternative. The impacts would be negligible and short-term.

6.3.3 ELEMENTS SHARED BY BOTH PROJECTS

Low natural fertility is associated with three of the five soil types. These factors should be taken into consideration as the revegetation plan is developed. The BNR has expressed particular concern about the inadvertent creation of additional habitat for tree of heaven, which is already present on Highway 7 right of way.

OBLITERATED ROAD SEGMENT ACTIVITIES

Revegetation of the obliterated road segments would be beneficial and serve as mitigation for the build alternatives.

NO BUILD ALTERNATIVE

The No Build Alternative would have no effects on existing vegetation.

6.4 WILDLIFE AND WILDLIFE HABITAT, INCLUDING SPECIAL STATUS SPECIES

GUIDING REGULATIONS AND POLICIES

The Endangered Species Act of 1973 requires examination of potential effects on all federally-listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the USFWS.

According to the NPS's *Management Policies 2006*, the NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals via the following actions:

- Preserving and restoring native plant and animal populations and the communities and ecosystems in which they occur.
- Restoring native plant and animal populations harmed by past human actions.
- Minimizing human impacts on native plants, animal populations, communities, and ecosystems.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

Information on wildlife species occurring in the project study area was based on review of existing literature on common wildlife species likely to occur in the BNR, consultation with the BNR and the USFWS, and field surveys. It should be noted that USFWS concurrence on threatened and endangered species determinations must be received prior to issuance of a FONSI for any proposed project.

The analysis of potential impacts on wildlife was based on the potential for species to use the proposed project sites or to be affected by project activities or loss of habitat associated with the

proposed projects. The proposed projects would occur in areas that are already developed and receive frequent human visitation. Wildlife typically avoid these areas during daylight hours to avoid humans.

Highway construction impacts to wildlife and wildlife habitat may include direct mortality, reduction of available habitat, degradation of habitats, loss or reduction of prey base, and disruption of reproductive cycles. Direct mortality typically only occurs to smaller, relatively immobile species. Habitat loss and/or the degradation of habitats occurs most often during highway construction activities. As shown on **Figure 6-1**, the geographic study area for impacts on wildlife and wildlife habitat includes a 1-mile radius from the Pruitt Bridge.

METHODOLOGY AND ASSUMPTIONS FOR SPECIAL STATUS SPECIES

As noted in Section 5.4, endangered bat surveys of the project study area consisted of an observational survey of Pruitt Cave and an acoustic monitoring survey.

One endangered gray bat was observed hibernating in Pruitt Cave during the observational survey.

Species detected near Pruitt Cave during the acoustic monitoring survey in July 2012 included the endangered gray bat and Indiana bat, the threatened northern long-eared bat, and the rare eastern small-footed bat, among numerous other species. The gray bat, Indiana bat, and the northern long-eared bat were also detected along Mill Creek, among numerous other species.

The ANHC-tracked western fanshell, fluted shell, Ouachita kidneyshell, purple lilliput, bleeding tooth, rainbow, and little spectaclecase mussels were all found within the Lower Swimming Hole area during the September 2011 survey. As noted in Section 5.4, freshwater mussel surveys of the project area did not detect the threatened rabbitsfoot mussel; however, this segment of the Buffalo River has been designated as Critical Habitat for the rabbitsfoot.

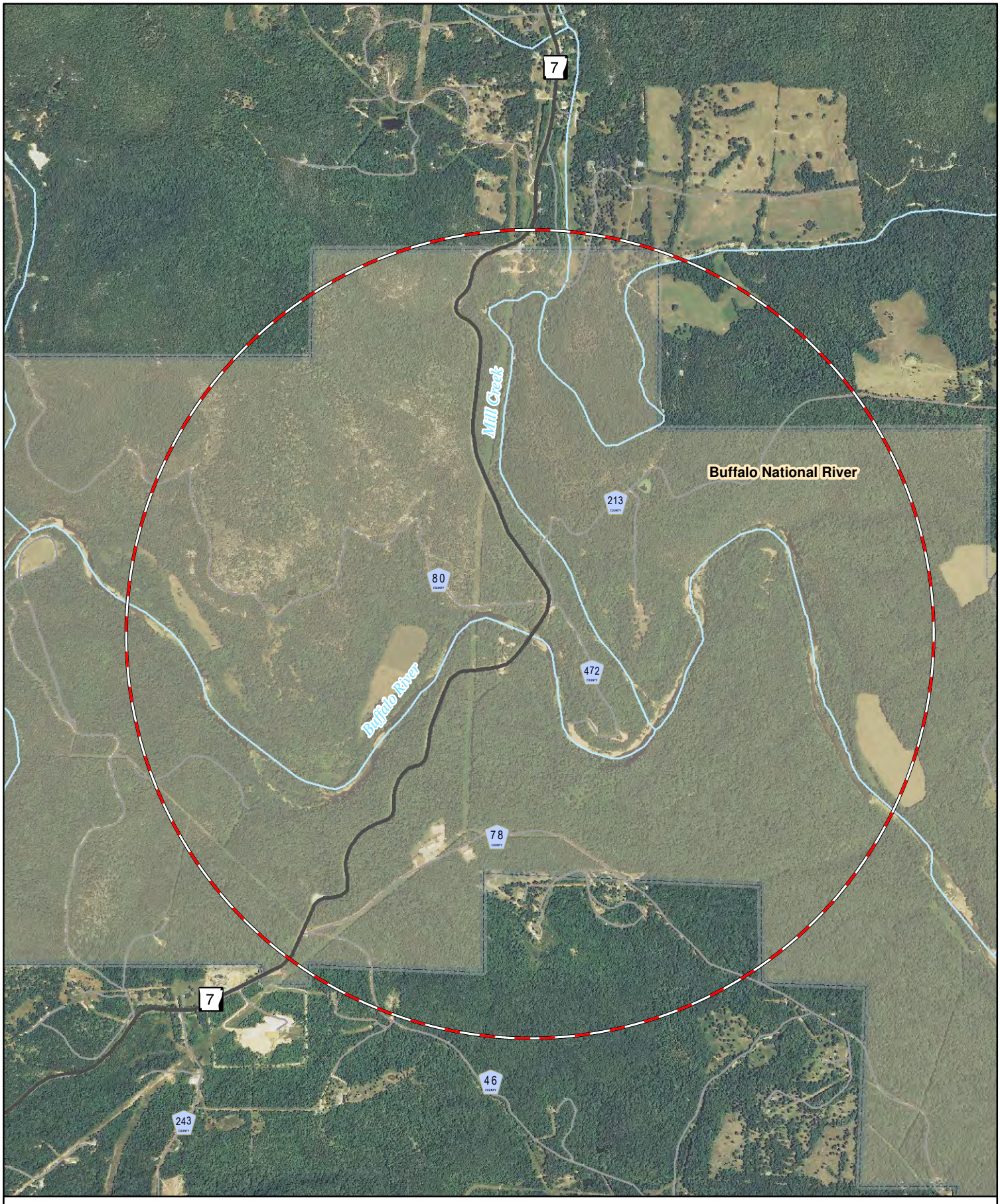
It is assumed that the length and duration of blasting activities would increase with the volume of rock cut required.

IMPACT DEFINITIONS

The impact intensities for wildlife and wildlife habitat were defined as follows:

Negligible: There would be no observable or measurable impacts on native species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.

Minor: Impacts would be detectable, but they would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them.



N

0 500 1,000
Feet

Jobs 009784 & BR5102
AHTD Environmental GIS - Dudley
April 3, 2014

Figure 6-1
Wildlife and
Wildlife Habitat Study Area

Habitat Study Area

Moderate: Readily detectable impacts outside the range of natural variability would occur on native animal populations, their habitats, or the natural processes sustaining them. The change would be measurable in terms of population abundance, distribution, quantity, or quality, and would occur over a relatively large area. Mitigation to offset adverse impacts could be extensive, but would likely be successful.

Major: Readily apparent impacts outside the range of natural variability would occur on native animal populations, their habitats, or the natural processes sustaining them. The change would be measurable in terms of population viability and could involve the displacement, loss, or restoration of a wildlife population or assemblage. Mitigation measures to offset adverse impacts would be required and would be extensive, and success of mitigation measures would not be guaranteed.

Duration: Short-term – Occurs during the implementation of the alternative.
Long-term – Extends beyond implementation of the alternative.

The impact intensities for threatened and endangered species were classified using the following terminology, as defined under the Endangered Species Act:

No effect: The proposed action would not affect a listed species or designated critical habitat OR listed species or designated habitat are not present.

May affect / not likely to adversely affect: Effects on listed species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial.

May affect / likely to adversely affect: When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect is either not discountable or completely beneficial.

Likely to jeopardize proposed species / adversely modify proposed critical habitat: The appropriate conclusion upon identification of situations in which actions could jeopardize the continued existence of a proposed species or adversely modify critical habitat to a listed species within and/or outside BNR boundaries.

6.4.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

EAST ALTERNATIVE

Wildlife and Wildlife Habitat

Approximately 11.6 acres would be permanently converted to new easement for the East Alternative. This conversion of BNR property to highway right of way represents a 0.0001 percent loss of habitat within the BNR boundary (95,730 total acres). Factors such as loss or reduction of prey/food sources and the disruption of reproductive cycles tend to have more temporary effects to the overall fitness of wildlife species.

Given the relatively minor amounts of right of way to be taken and its adjacency to an existing highway and established public use areas, the impacts to wildlife and wildlife habitats are likely to be negligible and short- to long-term in duration.

Special Status Species

Mammals: Highway construction activities can impact bats through the loss of summer roost sites, destruction of or disturbance to winter hibernacula, loss or reduction of prey base due to the removal of vegetation, and/or an increase in sedimentation into the receiving streams. Bats are highly mobile; therefore, direct mortality is unlikely unless disturbances to the hibernacula occur.

Through informal consultation with the USFWS, the following conservation measures would be implemented to minimize potential harm to special status bat species:

a. Between March 15 and November 30 all mechanized work on the job site will cease 1 hour before sunset until 1 hour after sunrise to avoid disturbance of bats foraging along the river or stream.
b. Blasting will not be permitted between November 30 and March 15 to avoid disturbance of bats within hibernacula.
c. The clearing of trees will be prohibited during the active season for Indiana and northern long-eared bats, currently March 16 through October 15.
d. Erosion control BMPs will be installed and adequately maintained to minimize sedimentation into the river.
e. The quantity of petroleum products stored in the construction zone would be limited and products would not be placed or used in flood zones to prevent spillage.

The East Alternative northern approach rock cut is approximately 30,507 cy with an average height of 10 feet. The blasting required for this cut presents some potential for effects on bat species. With the implementation of the conservation measures listed above, it has been determined that the project may affect, but is not likely to adversely affect the gray bat, Indiana

bat, or northern long-eared bat. Likewise, the project was determined to have negligible to minor, short-term effects to the extremely rare eastern small footed bat.

Aquatic Life: Bridge construction activities such as the construction of bridge piers and footings and temporary work roads have the potential to cause direct mortality to mussels by crushing and by clogging gill filaments with increases in turbidity and sedimentation. Reproduction can also be interrupted if construction activities disturb fish hosts or if increases in turbidity and sedimentation prevent fish hosts from seeing attractive structures (mantle flaps, conglutinates, etc.) used by mussels to facilitate dispersal of larva (glochidia).

Conservation measures including sediment and erosion control BMPs should minimize the potential effects of increase turbidity and sedimentation. Any effects should be temporary in nature. As previously stated, no freshwater mussels were discovered within the footprint of the East Alternative; however, to ensure that no mussels have moved into the area, an additional survey will be completed within a year prior to construction and the USFWS and BNR would be consulted for appropriate actions should mussels be found.

Based on the incorporation of the conservation measures described above, it was determined that the project may affect but is not likely to adversely affect the rabbitsfoot mussel or adversely modify Critical Habitat. The project would have minor, short-term effects for the western fanshell, fluted shell, Ouachita kidneyshell, purple lilliput, bleeding tooth, rainbow, and little spectaclecase mussels.

Potential impacts to the Ozark shiner, Ozark chub, and American eel are similar to those discussed above for freshwater mussels except the potential for direct mortality is lower due to their ability to swim. Eggs and young of the year are most susceptible to direct mortality from bridge construction activities. Local populations may also see a temporary reduction in the availability of prey. Due to their ability to move and with the incorporation of sediment and erosion control BMPs, potential impacts to these fish species is considered to be negligible to minor and short-term in duration.

Reptiles: The eastern collared lizard is restricted to only five glades within the BNR, this includes Pruitt Glade. The East Alternative avoids Pruitt Glade; therefore, these alternatives would not affect eastern collared lizards.

WEST ALTERNATIVE I AND II (ALL OPTIONS)

Wildlife and Wildlife Habitat

Approximately 10.3 acres would be permanently converted to easement under the West Alternatives. Given the relatively minor amounts of easement to be granted and its adjacency to an existing highway and public use areas, the impacts to wildlife and wildlife habitats are likely to be negligible and short- to long-term in duration.

Special Status Species

The effects of West Alternative I on special status species are similar to those discussed for the East Alternative. Additionally, the following conditions are present.

1) The West Alternatives northern approach rock cut is approximately 137,940 cy with an average height of 20 to 25 feet. The extent of blasting required for this cut presents the potential for effects on bat species. Restrictions on the dates on which blasting would be allowed would render the effects determination as may affect but not likely to adversely affect gray, Indiana, and northern long-eared bats.
2) The West Alternatives would impact 0.7 acre of the Pruitt Glade as part of the County Road 80 relocation. Potential impacts to the eastern collared lizard include direct mortality as the result of mechanical clearing activities and the loss of habitat. The likelihood of direct mortality is relatively small given their ability to move, but is more likely during the winter months when individuals are hibernating. BNR personnel estimate total acreage of Pruitt Glade at 55.7 acres. The 0.7 acre conversion to highway easement represents a 1 percent loss of available habitat. Given the relatively minor amount of habitat that would be taken, the effects were determined to be negligible to minor and long-term in duration.

Figure 6-2 shows the Pruitt Glade and known mussel location.

6.4.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE

As described above for the Buffalo River Bridge project alternatives, the minor amount of easement to be granted and its adjacency to existing roadways and public use areas, the impacts to wildlife and wildlife habitats are likely to be negligible and short- to long-term in duration.

The effects of the Bridge Alternative on special status species are similar to those discussed above for the Buffalo River Bridge project's East Alternative with the following exceptions:

- The Mill Creek alternatives are closer to Pruitt Cave than the Buffalo River Bridge alternatives; therefore, construction activities would be more likely to affect bats utilizing the cave. It is not anticipated that blasting would be required for either alternative, thereby rendering the effects determination as may affect but not likely to adversely affect.



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

April 3, 2014

Photography: Summer 2013

Figure 6-2
Special Status Species Habitat Locations

Mussel Location

Pruitt Glade

- No mussels are known to occur within Mill Creek. Sediment leaving the construction site downstream Mill Creek into the Buffalo River could potentially impact mussel communities. These impacts would likely be temporary during construction; therefore, the Bridge Alternative may affect the rabbitsfoot but is not likely to adversely affect the species or adversely modify critical habitat.

BOX CULVERT ALTERNATIVE

As described above for the Bridge Alternative, given the minor amount of easement to be granted and its adjacency to existing roadways and public use areas, the impacts to wildlife and wildlife habitats are likely to be negligible and short- to long-term in duration.

The effects of the Box Culvert Alternative on special status species would be similar to those discussed for the Bridge Alternative with the following exception: the spring located within the footprint of the proposed alternative is a possible indicator of other undiscovered karst resources. It is anticipated that the spring would be located in a fill section.

Infiltration of organic matter is important for karst species, which exist in a nutrient-poor environment. Potential impacts to any undiscovered cave or karst-dwelling species would therefore be moderate, adverse, and long-term in duration because the fill area would reduce organic matter infiltration. The effects determination would remain may affect but not likely to adversely affect endangered bat species.

6.4.3 ELEMENTS SHARED BY BOTH PROJECTS

OBLITERATED ROAD SEGMENT ACTIVITIES

The activities associated with the obliterated road segments could lead to a temporary increase in turbidity and sedimentation. These activities would have a negligible, short-term effect on special status species.

NO BUILD ALTERNATIVE

The No Build Alternative would have no effect on wildlife, wildlife habitat, or special status species.

6.5 WATER QUALITY

GUIDING REGULATIONS AND POLICIES

The 1972 Federal Water Pollution Control Act, as amended by the CWA of 1977, is a national policy to restore and maintain the integrity of the nation's waters, enhance the quality of water resources, and to prevent, control, and abate water pollution. The NPS *Management Policies 2006* and the *Buffalo National River Water Resources Management Plan* provide direction for

the preservation, use, and quality of water originating, flowing through, or adjacent to BNR boundaries.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

The BNR is required to make a written evaluation and determination of the effects of projects that may have a direct or adverse effect on the values of the Buffalo River. The values and purposes of the river include free-flow, water quality, scenic, and scientific features. Any project determined by the BNR to have a direct and adverse effect on or invade or unreasonably diminish the free-flow or the values of the river is prohibited under the law. The BNR is afforded considerable protection from and statutory authority over internal and external disturbances under the Organic Act (39 Stat. 535; 16 U.S.C. 1 et seq.) and through specific language (section 4 of the Act) that further limits construction activities that may harm the river from within the river corridor, up and downstream on the Buffalo River's mainstem, or on its tributaries.

The BNR was established to preserve and protect the Buffalo River, its most important resource, for the benefit and enjoyment of the public. The methodology used for assessing effects to water quality is based on how the proposed projects would affect the BNR's primary resource during construction and afterwards. Context is defined with the intensity as the two are directly related.

IMPACT DEFINITIONS

The thresholds for this impact assessment are as follows:

Negligible: Changes to water quality would be either undetectable or, if detectable, would have effects that would be considered slight. If detectable, these changes would be undetectable beyond 0.25 mile downstream.

Minor: Changes in water quality would be measurable, although the changes would be small and undetectable at a distance of 0.5 mile downstream. No mitigation measure would be necessary.

Moderate: Changes in water quality would be measurable and apparent, but would be undetectable at a distance of 1 mile downstream. Mitigation measures would be necessary and the measures would likely be successful.

Major: Changes in water quality would be readily measurable, would have substantial and possible permanent consequences, and would be noticed far downstream, well beyond 1 mile. Mitigation measures would be necessary and their success would not be guaranteed.

Duration: Very short-term – Recovers immediately following the end of a storm event and return of the river to its pre-storm level.

Short-term – Recovers in less than 1 year.
Long-term – Takes more than 1 year to recover.

6.5.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

EAST ALTERNATIVE

Impacts to surface waters under the East Alternative would include the direct placement of fill for the construction of bridge piers and footings (including temporary work roads) as well as a temporary increase in sedimentation and turbidity associated with the clearing of approximately 11.6 acres of new easement. Potential impacts to surface waters would be minimized by using sediment and erosion control BMPs.

The Buffalo River is a jurisdictional water of the U.S., and as such the activities described above would require a CWA Section 404 permit, Section 401 Water Quality Certification, and a Section 401 Short Term Activity Authorization. Total direct impacts of the East Alternative would represent less than 0.5 acre of impacts to waters of the U.S.; therefore, the project should be allowed under the terms of a Section 404 Nationwide 14 permit for Linear Transportation Projects as defined in Federal Register 77(34):10184-10290.

With proper construction and maintenance of sediment and erosion control BMPs, direct impacts to surface waters associated with the East Alternative would be minor to moderate and short-term in duration. No indirect impacts were identified.

WEST ALTERNATIVE I AND II (ALL OPTIONS)

Impacts to surface waters under the West Alternatives would include the direct placement of fill for the construction of bridge piers and footings (including temporary work roads) as well as a temporary increase in sedimentation and turbidity associated with the clearing of approximately 10.3 acres of new easement. Potential impacts to surface waters would be minimized by using sediment and erosion control BMPs. The permitting activities for jurisdictional waters described above for the East Alternative would remain the same under this alternative.

With proper construction and maintenance of sediment and erosion control BMPs, direct impacts to surface waters associated with the West Alternatives would be minor to moderate and short-term in duration. No indirect impacts were identified.

6.5.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE

Impacts to surface waters would include the direct placement of fill for the construction of bridge piers and footings (including temporary work roads) as well as a temporary increase in sedimentation and turbidity associated with the clearing of approximately 2.5 acres of new

easement. Potential impacts to surface waters would be minimized with the use of sediment and erosion control BMPs. The permitting activities for jurisdictional waters described above for the Buffalo River Bridge project would remain the same under this alternative. Total direct impacts of the Bridge Alternative would represent less than 0.5 acre of impacts to waters of the U.S.; therefore, the project should be allowed under the terms of a Section 404 Nationwide 14 permit for Linear Transportation Projects as defined in Federal Register 77(34):10184-10290.

With proper construction and maintenance of sediment and erosion control BMPs, direct impacts to surface waters associated with the Bridge Alternative would be minor to moderate and short-term in duration. The predicted change in stream morphology associated with the removal of the existing low water crossing would result in a moderate and long-term beneficial impact. No indirect impacts were identified.

BOX CULVERT ALTERNATIVE

Impacts to surface waters would include the direct placement of fill into Mill Creek for the construction of the box culvert as well as a temporary increase in sedimentation and turbidity associated with the clearing of approximately 3.3 acres of new easement. Additional impacts would include the construction of a spring box and the relocation of the spring run. The total length of impacts to the spring and spring run would be approximately 140 feet. Potential impacts to surface waters would be minimized by using sediment and erosion control BMPs. As jurisdictional waters, Mill Creek and the spring run would be subject to the same permitting activities as described above for the Bridge Alternative. Stream mitigation may be required to offset the permanent loss of stream functions and values.

Using the mitigation measures described above, direct impacts to surface waters associated with the Box Culvert Alternative would be moderate and short- to long-term in duration.

6.5.3 ELEMENTS SHARED BY BOTH PROJECTS

It is essential that comprehensive and innovative BMPs be implemented to eliminate sedimentation and minimize impacts to the aquatic environment in the project areas. A site-specific SWPPP would be prepared and include all specifications and BMPs needed for erosion and sedimentation control.

OBLITERATED ROAD SEGMENT ACTIVITIES

Sediment and erosion control BMPs would be used to minimize erosion and sedimentation during construction. With proper construction and maintenance of sediment and erosion control BMPs, the impacts to surface waters associated with obliterated road segment activities would be negligible and short-term in duration.

NO BUILD ALTERNATIVE

The No Build Alternative would not affect surface waters.

6.6 FLOODPLAINS AND STREAM PROCESSES

GUIDING REGULATIONS AND POLICIES

Section 4.6.4 of the NPS Management Policies directs the preservation of floodplain values and minimization of potentially hazardous conditions associated with flooding. Section 4.6.6 of the NPS Management Policies requires the protection of stream processes that create habitat features and maintain stream health, among other considerations.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

The floodplains and stream processes impact analysis was based on field inspections of Mill Creek, review of available literature and studies, previous experience of projects of similar scope and characteristics, and professional judgment. Modeling was performed using the Hydrologic Engineering Center River Analysis System (HEC-RAS). HEC-RAS is a modeling system used to analyze channel flows and make floodplain determinations.

The rationale for dismissing the floodplain and stream process impact topic for the Buffalo River project while carrying it forward for the Mill Creek Crossing project was provided in Section 3.1 of this EA.

The primary purposes of most floodplain hazard analyses are to protect property and structures and to comply with insurance regulations. However, these purposes are not factors for the Mill Creek Crossing project in the absence of FEMA/Special Flood Hazard Area maps or property/structures requiring protection. Instead, impact analysis was performed to determine potential impacts on stream flow processes, which include flooding, stream migration, and associated erosion and sediment deposition. For purposes of this analysis, "floodplain" impacts address the flooding element of the stream flow process and "streamflow characteristics" impacts address stream migration, erosion, and deposition.

Mill Creek is assumed to be a stable stream, based on available information and the following geomorphic factors that affect stability in the project area:

- Flow Habit – Perennial but flashy
- Bed Material – Sand and gravel on bedrock and/or chert substrate
- Valley Setting – Moderate relief (100-1,000 feet deep)
- Apparent Incision – Not Incised
- Channel Boundaries – Non-alluvial
- Tree Cover on Banks – > 90 percent of bankline
- Sinuosity – Straight (1 to 1.05 percent)

- Braided Streams – Not braided (<5 percent)
- Anabranched Streams – Not anabranched (<5 percent)
- Variability of Width and Development of Bars – Irregular point and lateral bars to random variation)

IMPACT DEFINITIONS

The thresholds for this impact assessment are as follows:

Negligible (Floodplain): Floodplain characteristics (e.g., water elevations) would not be affected, or changes would be either non-detectable or if detected, would have effects that would be considered slight and local. Project would not contribute to flooding.

Negligible (Streamflow): Changes in streamflow characteristics would occur, but the change would be so small that it would not be measurable or perceptible.

Minor (Floodplain): Changes to floodplain characteristics would be measurable, although the changes would be small and the effects would be localized. No mitigation measures associated with hydrology would be necessary. Project would not contribute to flooding.

Minor (Streamflow): Changes in streamflow characteristics would be measurable, although the changes would be small and of little consequence with respect to effects on channel forming processes or aquatic species. No mitigation measures would be necessary.

Moderate (Floodplain): Changes to floodplain characteristics would be measurable and have both localized and regional scale impacts. Mitigation measures would be necessary and the measures would likely succeed.

Moderate (Streamflow): Changes in streamflow characteristics would be measurable with consequence with respect to effects on channel-forming processes or aquatic species. Mitigation measures would be necessary and the measures would likely be successful.

Major (Floodplain): Changes to floodplain characteristics would be readily measurable and would have substantial consequences on a local and regional level. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the stream channel would be expected.

Major (Streamflow): Changes in streamflow characteristics would be readily measurable and result in noticeable adverse effects on channel-forming processes or aquatic species. Mitigation measures would be necessary and their success would not be guaranteed.

Duration (Floodplain): Very short-term – Recovers immediately following the end of a storm event and return of the river to its pre-storm level.

Short-term – Recovers in less than 1 week.
Long-term – Takes more than 1 week to recover.

Duration (Streamflow): Short-term – Effects lasting less than 2 years.
Long-term – Effects lasting longer than 2 years.

6.5.2 MILL CREEK CROSSING PROJECT EFFECTS

The placement of structures or fill in floodplains can cause increases in both water surface elevations and downstream water velocities and a decrease in water velocities upstream. Water surface elevation increases are of concern because they indicate a potential increase in the severity of flooding, and water velocity increases are of concern because they indicate potential increases in scouring, erosion, and other adverse changes to streamflow characteristics. Decreases in upstream velocities can alter sediment transport, leading to the aggradation of sediments upstream of the structure or fill.

The HEC-RAS modeled water surface elevation and velocity for the existing low water crossing and the proposed and conceptual structures. The existing low water crossing was modeled as representative of current conditions so that comparisons could be made between predicted changes caused by the structures. Because River Stations (RSs) are numbered from downstream to up, the lower numbers in the tables indicate locations that are downstream of the higher numbers.

The model was adjusted to account for the placement of the proposed structures at different locations rather than on the existing low water crossing alignment. For the Box Culvert

Alternative, which would be upstream of the low water crossing, the water surface elevation and channel velocity that would occur upstream were compared at RS 5061. The channel velocity that would occur downstream was compared at RS 4950.

For the Bridge Alternative (290-foot bridge), which would be downstream of the low water crossing, RS 4850 was used to predict the water surface elevation and channel velocity that would occur upstream. The channel velocity that would occur downstream was compared at RS 4690. For comparison purposes, a conceptual 290-foot bridge was also modeled to determine differences at the same RSs if a lengthier bridge was used to reduce the quantity of fill.

Table 6-1 and **Table 6-2** summarize the HEC-RAS modeling results.

TABLE 6-1 WATER SURFACE ELEVATIONS

Structure and River Station	2-yr Water Surface Elevation (ft)	25-yr Water Surface Elevation (ft)	50-yr Water Surface Elevation (ft)	100-yr Water Surface Elevation (ft)	500-yr Water Surface Elevation (ft)
BOX CULVERT ALTERNATIVE					
Existing Low Water Crossing RS 5061	788.70	792.78	793.68	**794.40**	795.33
Box Culvert Alternative RS 5061	785.54	791.47	793.67	**795.25**	796.50
BRIDGE ALTERNATIVE					
Existing Low Water Crossing RS 4850	785.03	790.08	791.43	**792.61**	793.83
Bridge Alternative (250-ft length) RS 4850	785.29	791.14	792.86	**794.42**	796.08
Conceptual 290-ft Bridge RS 4850	785.27	790.71	792.22	**793.55**	794.93

Table 6-1 shows water surface elevation changes for the standard 2- , 25- , 50- , 100- , and 500-year flood events. The years represent recurrence intervals and probabilities of occurrences. For example, the 2-year flood has a 1 in 2 probability and the 25-year flood has a 1 in 25 probability of occurring in any given year. Because the 100-year flood is the floodplain management standard, the impact analysis references the 100-year flood water surface elevations listed in the shaded 100-year Water Surface Elevation column.

TABLE 6-2 CHANNEL VELOCITIES

Structure and River Station	2-yr Channel Velocity (ft/s)	25-yr Channel Velocity (ft/s)	50-yr Channel Velocity (ft/s)	100-yr Channel Velocity (ft/s)	500-yr Channel Velocity (ft/s)
BOX CULVERT ALTERNATIVE					
Existing Low Water Crossing RS 5061	4.01	9.31	10.91	**12.37**	13.60
Box Culvert Alternative RS 5061	7.72	10.79	10.92	**11.46**	12.35
Existing Low Water Crossing RS 4950	6.55	11.02	12.10	**13.00**	13.92
Box Culvert Alternative RS 4950	6.55	11.02	12.10	**13.00**	13.92
BRIDGE ALTERNATIVE					
Existing Low Water Crossing RS 4850	6.74	11.24	12.33	**13.24**	14.14
Bridge Alternative (250-ft Bridge) RS 4850	6.34	9.93	10.65	**11.25**	11.75
Conceptual 290-ft Bridge RS 4850	6.37	10.42	11.35	**12.0**	12.88
Bridge Alternative (250-ft Bridge) RS 4690	6.73	11.24	12.32	**13.23**	14.13
Conceptual 290-ft Bridge RS 4690	6.73	11.24	12.32	**13.23**	14.13

Table 6-2 shows the channel velocities for the 2- , 25- , 50- , 100- , and 500-year flood events. The impact discussions reference the 100-year flood channel velocities in the shaded 100-year Channel Velocity column. Because the channel velocities are restricted to the main channel, floodplain velocities would be considerably lower than those shown in the table.

BOX CULVERT ALTERNATIVE

As shown in Table 6-1, the water surface elevation associated with the Box Culvert Alternative (795.25 ft) would be 0.85 ft higher in comparison to the existing low water crossing (794.0 ft).

As shown in Table 6-2, the channel velocity associated with the Box Culvert Alternative (11.46 ft per second [ft/s]) would be 0.91 ft/s lower in comparison to the existing low water crossing (12.37 ft/s). At 13.00 ft/s, there would be no downstream velocity difference between the Box Culvert Alternative and the existing low water crossing. The Box Culvert Alternative channel velocity upstream would increase by 1.54 ft/s compared to the channel velocity downstream.

The HEC-RAS modeling results indicate that water elevation and channel velocity changes associated with the Box Culvert Alternative compared to current conditions would not be substantial. Additionally, the Mill Creek reach in the project area is stable. Based on this information, impacts to floodplains would be negligible to minor and very short-term to short-term in duration. Impacts to streamflow characteristics would be negligible to minor and long-term in duration.

BRIDGE ALTERNATIVE

As shown in Table 6-1, the water surface elevation associated with the Bridge Alternative (794.42 ft) would be 1.81 ft higher in comparison to the existing low water crossing (792.61 ft). Water surface elevations associated with the conceptual 290-foot bridge (793.55 ft) would be 0.94 feet higher in comparison to the existing low water crossing.

As shown in Table 6-2 for RS 4850, the upstream channel velocity associated with the Bridge Alternative (11.25 ft/ft/s) would be 1.99 ft/s lower in comparison to the existing low water crossing (13.24 ft/s). Upstream channel velocities associated with the conceptual 290-foot bridge (12.0 ft/s) would be 1.24 ft/s lower in comparison to the existing low water crossing. At 13.23 ft/s, there would be no downstream velocity difference between the Bridge Alternative and the conceptual bridge. The Bridge Alternative channel velocity upstream would increase by 1.98 ft/s compared to the channel velocity downstream.

In general, the water surface elevations are slightly greater for the Bridge Alternative in comparison to the conceptual bridge, while the velocity rates are slightly lower. The magnitude of these differences is not substantial.

The HEC-RAS modeling results indicate that water elevation and channel velocity changes associated with the Bridge Alternative compared to current conditions would not be substantial. Additionally, the Mill Creek reach in the project area is stable. Based on this information, impacts to floodplains would be negligible to minor and very short-term to short-term in duration. Impacts to streamflow characteristics would be negligible to minor and long-term in duration.

6.7 WILD AND SCENIC RIVERS

GUIDING REGULATIONS AND POLICIES

The Wild and Scenic Rivers Act (Public Law 88-29 and 90-542, as amended), describes those river areas eligible to be included in a national system to preserve certain rivers with outstanding natural, cultural, or recreational features in a free flowing condition. The NPS is responsible for identifying and inventorying rivers or river segments that could be potential candidates for inclusion in the National Wild and Scenic Rivers system. To develop an inventory of rivers eligible for inclusion in this System, the NRI was compiled as a comprehensive source of consistent data on the nation's significant free-flowing streams. The NRI lists rivers based on the degree to which they are free flowing, the degree to which the rivers and their corridors are undeveloped, and the outstanding natural and cultural characteristics of the rivers and their immediate environs. A Presidential directive was issued in 1979 to strengthen the National Wild and Scenic Rivers System and to take particular care not to harm those rivers that may qualify for inclusion in this system. The directive was issued to Federal agencies through the CEQ and stated that:

> Each Federal agency shall, as part of its normal planning and environmental review process, take care to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory prepared by the [National Park Service] Department of the Interior. Agencies shall, as part of their normal environmental review process, consult with the [National Park Service] prior to taking actions which could effectively foreclose wild, scenic, or recreational river status on rivers in the Inventory.

METHODOLOGY AND ASSUMPTIONS/STUDY AREAS

The AHTD initiated early coordination with the NPS–BNR in for the proposed projects in October 2007. The response letter from the BNR dated December 2007 stated, in part, the following:

> As noted in your October letter, the Buffalo River is listed on the Nationwide Rivers Inventory (NRI), which is a list of rivers potentially eligible for inclusion in to the National Wild and Scenic Rivers System. The NPS maintains the NRI in partial fulfillment of section 5(d) of the Wild and Scenic Rivers Act. The intent of the NRI is to provide information to assist agencies in making balanced decisions regarding the use of the nation's river resources. A Presidential directive and subsequent instructions issued by the Council on Environmental Quality (CEQ) require that each Federal agency as part of its normal planning and environmental review processes, take care to avoid or mitigate adverse effects on rivers identified in the NRI. Further, all agencies are required to consult with NPS prior to taking actions that could effectively foreclose wild, scenic, or recreational status for rivers on the inventory. The CEQ procedures for interagency consultation to avoid or mitigate adverse effects on rivers in the NRI may be found at: http://www.ncrc.nps.gov/programs/rtca/nri/index.html. Adherence to the provisions of the Determination of Effect process described above will satisfy the consultation requirements directed by CEQ for rivers identified on the NRI.

The same letter described the Determination of Effect process thusly:

> The NPS is responsible for evaluating water resource projects and their effects on Buffalo National River and its tributaries in a Determination of Effect (Determination) document. Water resources projects that are determined to have a "direct and adverse effect" to the values for which the river was designated, or that are found to "invade the area or unreasonably diminish" the scenic, recreational, fish and wildlife values of the river are prohibited. Bridge replacements, stream alterations, dewatering, and other construction activities within the bed or banks of a river requiring a section 404 permit from the ACOE are water resources projects. As such, the crossing of the Buffalo National River and the Mill Creek crossing will require a Determination from the NPS prior to issuance of an ACOE Section 404 permit. As such, efforts to avoid or minimize adverse impacts to the river, including its free-flowing condition, water quality, scenic, recreational, and fish and wildlife values should be incorporated into early project planning in order to avoid an adverse Determination. To assist in the planning process, we can provide a preliminary Determination and include it as an appendix to the Draft EA. The preliminary Determination would be useful in identification of potential areas of concern and could provide recommended measures to avoid and/or minimize impacts. A final Determination would be provided in response to the ACOE Section 404 permitting process for the associated work. Absent a favorable Determination, the USACE may not issue a permit for the project.

According to CEQ *Procedures for Interagency Consultation to Avoid or Mitigate Adverse Effects on Rivers in the Nationwide Inventory*, adverse impacts by a proposed action to a river included in the NRI could occur if: 1) the free flowing nature of the river is destroyed or altered, 2) visual, audible, or other sensory intrusions are introduced which are out of character with the river or alter its setting, 3) water quality is deteriorated, or 4) property interests are transferred without adequate restrictions for protecting the river or its surrounding environment. Pending additional consultation with the NPS–BNR, the AHTD has not established any impact definitions or thresholds of significance associated with impacts to wild and scenic rivers or NRI for purposes of this EA.

6.8 CULTURAL RESOURCES

GUIDING REGULATIONS AND POLICIES

The assessment of impacts to cultural resources conducted under NEPA integrates analyses required by the NHPA of 1966, as amended. Section 106 of the NHPA requires that federal agencies take into account the effects of their undertakings on historic properties, and that the Advisory Council on Historic Preservation be provided an opportunity to comment on an undertaking's adverse effects. Historic properties are buildings, structures, objects, sites, and districts that are listed or meet eligibility for listing on the NRHP.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

The methodology for the analysis of potential effects to historic properties listed on or eligible for the NRHP within or adjacent to the study area encompassed the identification of the potential

effects and the application of the Criteria of Adverse Effect to the identified effects. The Criteria of Adverse Effect states:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Examples of adverse effects include: the physical destruction of all or part of the historic property; an alteration of the property that is not consistent with the Secretary of Interior's standards for the treatment of historic properties (36 CFR 68); the removal of the property from its historic location; changing the character of the property's use or of physical features of its setting that contribute to its significance; and the introduction of visual, aural, and atmospheric elements that diminish the integrity of the property's significant historic features (26 CFR 800.5).

The requirements of NHPA, Section 106, dictate that cultural resource surveys be conducted prior to ground disturbing activities and the results submitted to the SHPO, ACHP, and any affiliated Tribes for review and consultation.

The SHPO and NPS–BNR cultural resources staffs were contacted for consultation and to fulfill the requirements of Section 106.

The following cultural and historic resource objectives were established during the internal scoping process between the NPS–BNR and the AHTD:

- Ensure that qualities of historic properties are protected during the construction, operation, and maintenance of the proposed properties unless it is determined through formal process that disturbance or demolition is unavoidable.
- Ensure that the proposed projects are permitted in a manner that protects archaeological sites in an undisturbed condition unless it is determined through formal processes that disturbance or natural deterioration is unavoidable.

The project study area comprised the geographic study area for cultural and historic resources.

IMPACT DEFINITIONS

The following thresholds were used to determine the magnitude of effects on cultural and historic resources:

No Effect: The activity would not affect structures, districts, or cultural landscapes in the project area that are listed or meet eligibility for listing on the NRHP, and the activity would affect an archeological site(s) either currently undetermined or determined eligible for inclusion on the NRHP.

Minor: The activity would affect an archeological site(s) either currently undetermined or determined eligible for inclusion on the NRHP. The effect does not alter the character-defining features of a NRHP eligible or listed structure, district, or cultural landscape.

Major: The activity would affect an archaeological site(s) determined eligible for inclusion on the NRHP. For a NRHP eligible or listed structure, district, or cultural landscape, the effect changes a character defining feature(s) of the resource, diminishing the integrity of the resource to the extent that it is no longer eligible to be listed on the NRHP.

Duration: Long-term – Most cultural resources are nonrenewable, so effects would be long term.

In keeping with NHPA and Section 6 protocols, the thresholds are italicized in the discussions below.

6.8.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

EAST ALTERNATIVE

Construction of the East Alternative would result in the destruction of the Pruitt Bridge and the Pruitt Garage; take substantial property from the Pruitt Historic District, and impact two eligible archeological sites (3NW1308 and 3NW1309). This alternative would result in a *major* impact to these cultural resources.

WEST ALTERNATIVE I – OPTION A (CONTACT CENTER AND STORAGE BUILDING REMOVED)

Construction of West Alternative I – Option A would result in the destruction of the Pruitt Bridge, the Pruitt Store, and the Pruitt Garage; and take substantial property from the Pruitt Historic District. This alternative would result in a *major* impact to these cultural resources.

WEST ALTERNATIVE I – OPTION B (CONTACT CENTER RETAINED – STORAGE BUILDING REMOVED)

Construction of West Alternative I – Option B would result in the destruction of the existing Pruitt Bridge and the Pruitt Garage; and take substantial property from the Pruitt Historic District. The alternative would result in a *major* impact on these cultural resources.

WEST ALTERNATIVE II – OPTION A (CONTACT CENTER AND STORAGE BUILDING RETAINED)

Construction of West Alternative I – Option A would result in the destruction of the existing Pruitt Bridge and take substantial property from the Pruitt Historic District. This alternative would result in a *major* impact to these cultural resources.

WEST ALTERNATIVE II – OPTION B (STORAGE BUILDING RETAINED – CONTACT CENTER REMOVED)

Construction of West Alternative I – Option B would result in the destruction of the existing Pruitt Bridge and the Pruitt Store; and take substantial property from the Pruitt Historic District. This alternative would result in a *major* impact to these cultural resources.

6.8.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE

Construction of the Bridge Alternative would result in an impact to one archeological site (3NW0687) which requires additional testing to determine its eligibility for inclusion on the NRHP. This alternative would have a *minor* impact on the archeological site.

BOX CULVERT ALTERNATIVE

Construction of the Box Culvert Alternative would result in an impact to one historic property (the Canton Mine) which is eligible for inclusion on the NRHP. This alternative would have a *major* impact on the historic property.

6.8.3 ELEMENTS SHARED BY BOTH PROJECTS

NO BUILD

This alternative would not replace the Buffalo River Bridge or the Mill Creek low water crossing, and would result in *no effect* to cultural resources located in the project areas.

SUMMARY

Any of the resources identified as listed on or eligible for inclusion to the NRHP which cannot be avoided by the Selected Alternative would have site-specific treatment plans prepared and carried out at the earliest practicable time. Treatment plans involving sites with Native American components would be developed in consultation with the appropriate federally recognized tribes.

Table 6-3 compares the estimated impacts based on the information collected to date.

TABLE 6-3 CULTURAL RESOURCES IMPACTED

ALTERNATIVE	ARCHEOLOGICAL SITES	HISTORIC STRUCTURES AND DISTRICTS	HISTORIC BRIDGES[§]	ROADS
Buffalo River Bridge East Alternative	3NW0499[†] 3NW1110* 3NW1308 3NW1309 3NW1311[†]	Pruitt Garage Pruitt Historic District	Pruitt Bridge	Pre-1931 Road Segments (north & south) [†]
Buffalo River West Alternative I Option A	3NW0671[†] 3NW1310[†] 3NW1311[†]	Pruitt Store Pruitt Garage Pruitt Historic District	Pruitt Bridge	Pre-1931 Road Segments (north) [†]
Buffalo River Bridge West Alternative I Option B	3NW0671[†] 3NW1310[†] 3NW1311[†]	Pruitt Garage Pruitt Historic District	Pruitt Bridge	Pre-1931 Road Segments (north) [†]
Buffalo River Bridge West Alternative II Option A	3NW0671[†] 3NW1310[†]	Pruitt Historic District	Pruitt Bridge	Pre-1931 Road Segments (north) [†]
Buffalo River Bridge West Alternative II Option B	3NW0671[†] 3NW1310[†]	Pruitt Store Pruitt Historic District	Pruitt Bridge	Pre-1931 Road Segments (north) [†]
Mill Creek Crossing Bridge Alternative	3NW0687[‡]	None	None	None
Mill Creek Crossing Box Culvert Alternative	None	Canton Mine	None	None

[§] Pruitt Bridge removal assumed.

[†] Determined not eligible for inclusion on the NRHP.

[‡] Needs Phase II testing to determine eligibility to the NRHP.

6.9 VISUAL RESOURCES

GUIDING REGULATONS AND POLICIES

Both NEPA and FHWA policies require the identification of adverse impacts to existing visual resources presented by a transportation project's alternatives, as well as measures to avoid, minimize, or reduce adverse impacts. A framework of law, regulation, and policy – including the NPS Organic Act, the NPS General Authorities Act, NPS Management Policies, and the BNR's enabling legislation and General Management Plan – specify the preservation, protection, and restoration of scenic resources. Additionally, Section 106 of the NHPA requires the determination of visual, atmospheric, or audible adverse effects of a proposed project's alternatives.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

The visual impact assessment process takes account of potential changes to physical elements within the landscape, as well as the way in which people visually perceive the landscape. The landscape takes its character from a combination of elements, including landforms, land use, vegetation cover, patterns and boundaries, and types of buildings, roads, and rights of way. Landscapes vary considerably in both character and quality, and they are the key components of the distinctiveness of any local area or region. The assessment of impacts on landscape therefore addresses changes in any of these components that would be caused by a proposed development.

Visual impact assessment seeks to identify where existing views, or their absence, would be altered by any proposed changes in the landscape, and to assess the effects of those changes, taking into account the quality and extent of existing views, the type and number of people affected, and the nature of the change.

The visual impact analysis conducted for the proposed projects therefore took into consideration aspects such as rock cuts, fill areas, the addition of structures, and the removal of vegetation. These aspects were then analyzed for impacts to potential viewers of and from the proposed projects given existing conditions and predicted changes to vegetation, topography, or other elements. The study area included public access points and recreational areas in the vicinity of the projects. Viewshed modeling was also performed to quantify predicted visibility of the Buffalo River Bridge project, and the results are included as **Appendix I**. A brief explanation of viewer visual sensitivity assumptions is also provided in Appendix I.

The Bureau of Land Management developed the Visual Resource Management system to provide a way to evaluate and maintain visual quality. The U.S. Department of Agriculture, Forest Service developed the Scenery Management System to assess National Forest Land aesthetic values. Principles common to these methods were considered for assessing the visual resource and potential vantage points in the proposed project areas. Additionally, the following

FHWA *Visual Impact Assessment for Highway Projects* evaluative criteria were taken into account:

- *Vividness* – visual power or memorable qualities of landscape components combined in distinctive patterns.
- *Intactness* – visual integrity of the natural and man-built landscape and freedom from encroaching elements.
- *Unity* – visual coherence and compositional harmony of the landscape considered as a whole.

IMPACT DEFINITIONS

In order to evaluate the alternatives, the following criteria were established to define the level of impacts to viewsheds:

Negligible: Visitors would likely be unaware of impacts associated with implementation of the alternative. There would be no noticeable change to scenic views and visual resources.

Minor: Changes in scenic views and visual resources would be slight and detectable, but would not appreciably limit or enhance critical characteristics of the scenic river. Visitors would be unlikely to express an opinion regarding the changes. Effects would be minor in number and/or extent. Examples of minor impacts could include temporary visual disturbances during construction that would not alter the character of the viewshed, and the viewshed would be returned to its original state following project implementation.

Moderate: Impacts to scenic views and visual resources are anticipated, and these effects would be greater in number and/or extent than minor impacts. A few critical characteristics of scenic views and visual resources would change. The changes would be notable and some visitors would be likely to express an opinion about them. Examples of moderate impacts could include disturbances altering the character of the viewshed, and when the viewshed might not resume its original state following project implementation.

Major: Impacts to scenic views and visual resources are anticipated, and these effects would be more substantial in number and/or extent than moderate impacts. Multiple critical characteristics of scenic views and visual resources would change. Major impacts could result in the alteration of the character of the viewshed.

Impairment: A major, adverse impact to a resource or value whose conservation is 1) necessary to fulfill specific purposes identified in the BNR's establishing legislation; 2) key to the natural or cultural integrity of the BNR; or 3) identified as a goal in the BNR's GMP or other relevant NPS planning documents.

Beneficial: For some scenic values and resources, the natural viewshed would be improved, reducing manmade structures and restoring the scenic landscape to its natural or historic condition. For other scenic values and resources, manmade features or unique built elements would be improved, and/or elements such as panoramic vistas would be enhanced.

Duration: Short-term – Occurs during the implementation of the alternative.
Long-term – Extends beyond implementation of the alternative.

Vegetation Duration: Short-term – During construction.

Short/medium-term – 1 to 5 years while new planting becomes established after construction.

Medium/long-term – 5 to 15 years after construction when planting would be effective mitigation.

Long-term – Over 15 years.

Visual Absorption Capability: The Visual Absorption Capability (VAC) is the relative ability of landscapes to defuse human-caused alterations without losing landscape character or scenic qualities. Components of VAC are the degree of visual screening effect inherent in the natural landscape provided by landforms, vegetative cover, and rocks; variety or pattern (generally, the higher the "pattern effect" the greater the absorption capability); vegetation height, density, and regenerative capability; and soil color and geologic stability. For example, the more homogenous the canopy tree species composition is (e.g., pine stands), the lower the VAC or the greater the contrast of alterations. Areas with steep slopes also have a lower ability to absorb linear alterations than do flatter landscapes.

6.9.1 BUFFALO RIVER BRIDGE PROJECT EFFECTS

Table 6-4 provides bridge and approach elevation, length, rock cut, and fill information for the Buffalo River Bridge project.

TABLE 6-4 BRIDGE CONSTRUCTION DETAILS

DIMENSIONS	EXISTING PRUITT BRIDGE	EAST ALTERNATIVE	WEST ALTERNATIVES I AND II
Length (ft)	375	670	772
North Bridge End Elevation (ft)	830	840	850
South Bridge End Elevation (ft)	818	830	842
Estimated Rock Cut Volume (cy)	NA	30,507	137,940
Average Rock Cut Height (ft)	NA	10	20-25
Estimated Fill Volume (cy)	NA	23,766	16,572
Number of Bridge Bents (Pilings)	3	3	5

EAST ALTERNATIVE

Situated approximately 150 feet east of the existing bridge, the East Alternative bridge would be routed more than 450 feet east of the Pruitt Bluff, a unique natural feature. The north roadway approach roughly approximates the existing north roadway approach. The line of the bridge would gently curve as it passes over the river, promoting visual continuity with the surrounding landforms.

The north bridge approach would avoid encroaching on the Pruitt Bluff, allowing the vividness of the exposed rock patterns to remain intact and harmonized with its adjacent landforms. The proposed bridge's curvature would enhance the unity of this manmade feature in the context of the area's rolling topography and the winding course of the river.

As shown in Table 6-4, the proposed bridge would be 295 feet longer and the bridge ends would be an average of 11 feet higher than the Pruitt Bridge. The proposed bridge would have three bents (i.e., pilings), the same as the Pruitt Bridge. The maximum rock cut height would measure approximately 10 feet in height and occur along the roadway north of the bridge, with the total volume of cut estimated at 30,507 cy. Approximately 23,766 cy of fill would be required, generally in the vicinity of Pruitt Day Use Area–East.

In general, VAC in the project area is high due to the height and resiliency of vegetation and the presence of multiple pattern effects. The less steep slopes and more abundant vegetation on the south side of the river lessen VAC in comparison to the north side of the river, with its steeper slopes and bluffs. On the north side of the river, the more abundant vegetation and less exposed rock east of Highway 7 creates a higher VAC than west of Highway 7, where the landscape transitions to more exposed rock surfaces, steeper bluff, eastern cedar forest, and more glade-like conditions.

Vantage Point/Viewer Thresholds

The impact thresholds for different vantage points and viewers are described below.

The location of the proposed bridge directly west of the Lower Swimming Hole and the East Bluff would increase its visual intrusiveness for recreationists in this area. No changes to unique natural or topographic features would be visible. Vegetation impacts would be short/medium-term. Although its current intactness would be effected, overall impacts to visual resources in this locale would be minor to moderate and long-term.

The location of the proposed bridge further away from the Pruitt Day Use Area, the Upper Swimming Hole, and the prominent Pruitt Bluff would decrease its visual intrusiveness for recreationists in these areas. No changes to unique natural or topographic features would be visible. Vegetation impacts would be short/medium-term. Overall visual resource impacts in this locale would be negligible.

Relative to the existing bridge elevation, the greater elevation of the proposed bridge and the north approach would enhance the panoramic aspects of the view from the roadway – a potentially beneficial impact for motorists. Long-term topographic changes would be visible due to roadway cuts. Vegetation impacts would be medium/long-term. For Equestrian Trail users crossing Highway 7 and for motorists, the roadway cuts would present minor and long-term impacts.

The proposed bridge would have a lower structural profile and be set at a higher elevation than the existing bridge. For recreationists along the river and in the Pruitt Day Use Area, this combination of aspects of the proposed bridge would enhance the unity of the view up and down

the river by lifting a manmade feature out of the enclosed natural view – a potentially beneficial long-term impact.

Figure 6-3 shows how the completed project might look from the ridge on the south side of the Buffalo River, while **Figure 6-4** shows the view from the river bank adjacent to the picnic units. **Figure 6-5** shows the proposed locations of the bridge bents.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

The West Alternatives would pass over the Pruitt Day Use Area, where the Contact Center, restroom, picnic units, gravel parking, accessible river vantage points, and Upper Swimming Hole are located. Situated approximately 275 feet west of the existing bridge location, the West Alternates would pass just east of the Pruitt Bluff.

Although the north bridge approach would not be on top of the Pruitt Bluff, its immediate adjacency to it would disrupt the vividness and intactness of current bluff views. It would add a north-south manmade feature closer to the existing north-south electric transmission line right of way. The West Alternatives linear design would also contrast visually with the rolling topography and curving course of the river.

As shown in Table 6-2, the proposed bridge would be 397 feet longer than the Pruitt Bridge. The bridge ends would be an average of 23 feet higher than the Pruitt Bridge. The proposed bridge would have five bents, two more than the Pruitt Bridge. The maximum rock cut height would occur along the roadway north of the bridge and measure approximately 20 to 25 feet, with the total volume of cut estimated at 137,940 cy. The total estimated volume of fill would be 16,572 cy, with the largest area of fill generally required in the vicinity of the Pruitt Day Use Area.

The West Alternatives would be located in the lower VAC zone west of Highway 7, as opposed to the higher VAC zone east of Highway 7. The linear quality of the West Alternatives bridge in contrast with the sheer Pruitt Bluff would further decrease VAC.

Vantage Point/Viewer Thresholds

The impact thresholds for different vantage points and viewers are described below.

The location of the bridge closer to the Upper Swimming Hole would increase its visual intrusiveness for recreationists in this area; however, topography, vegetation, and unique natural features at the Upper Swimming Hole would not change and long-term visual resource impacts would be negligible.

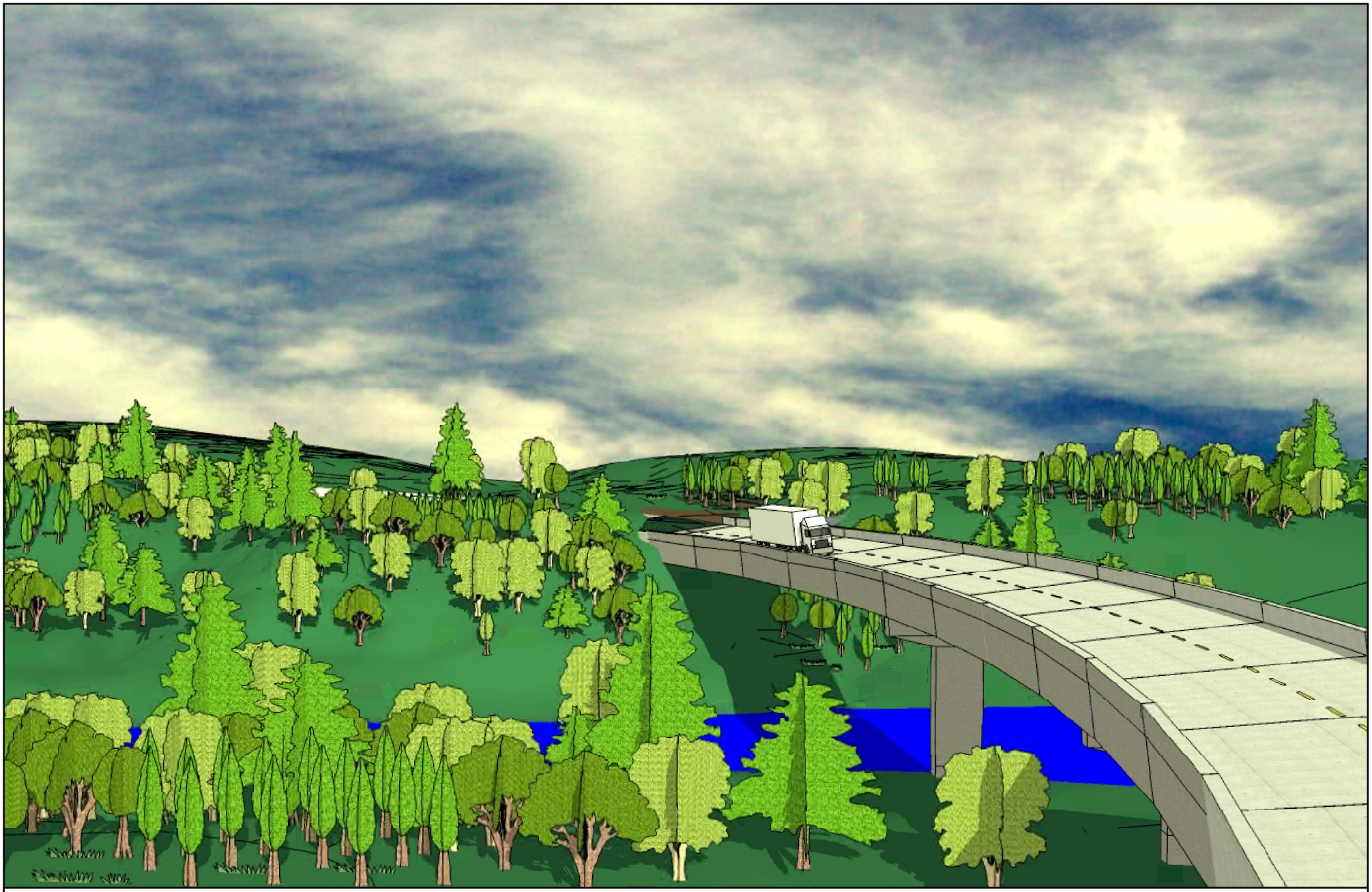


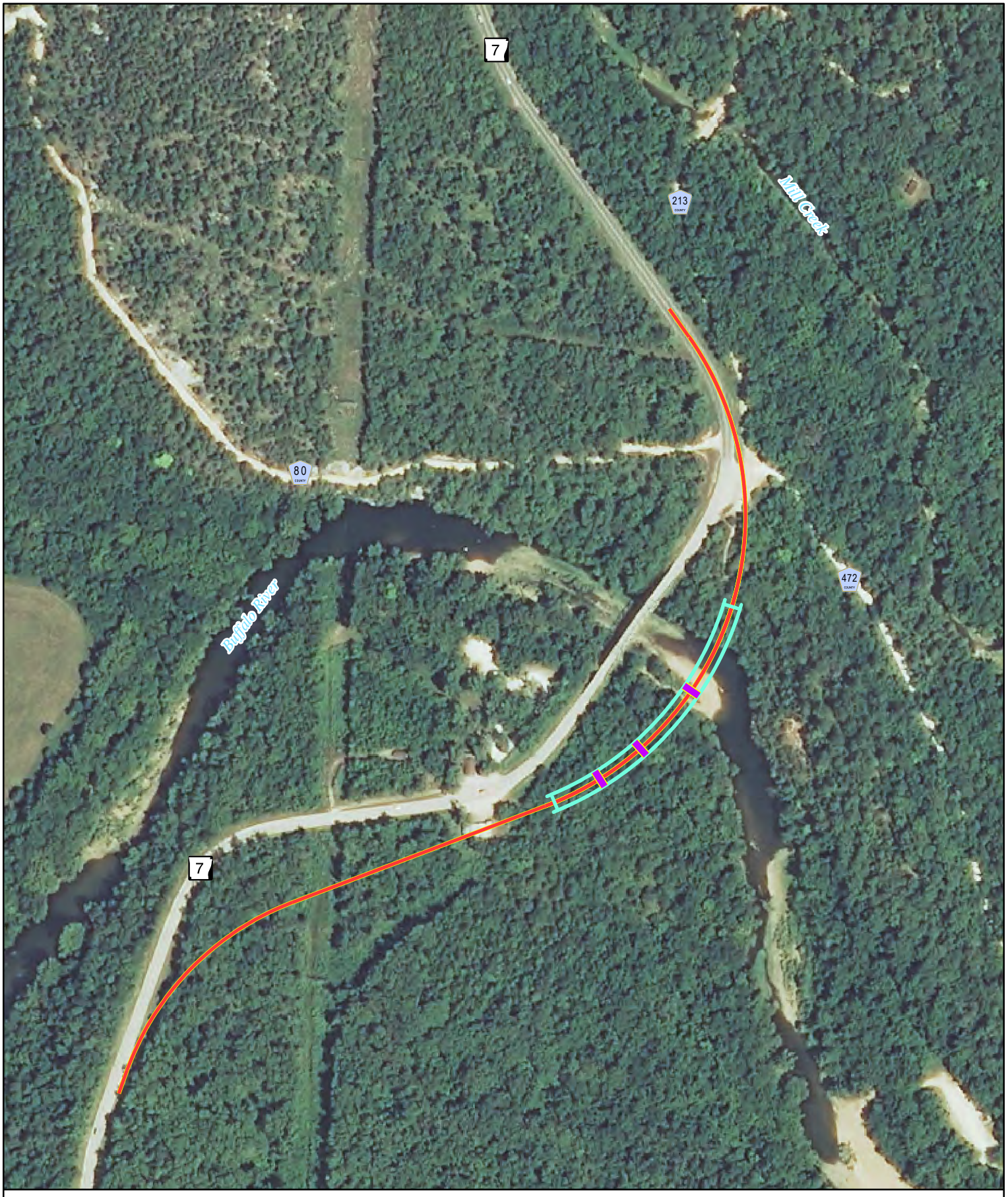
Figure 6-3
Visualization of East Alternative

Job 009784
AHTD Environmental GIS - Dudley
April 7, 2014



Figure 6-4
Visualization of East Alternative
River Perspective

Job 009784
AHTD Environmental GIS - Dudley
January 22, 2014



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

April 30, 2015

Photography: Summer 2013

Figure 6-5
East Alternative
Bridge Bent Locations

Bridge Bent

Bridge

East Alternative

Pruitt Day Use Area visitors would potentially experience adverse visual intrusion effects due to the proximity of the bridge to this area's amenities, including the picnic units. Passive users such as picnickers may be particularly sensitive to such visual intrusion effects because they have more time to concentrate on visual aspects than persons engaged in more active pursuits.

The adjacency of the West Alternatives' north approach to the Pruitt Bluff would visually impact a unique natural feature. Some medium/long-term vegetation changes would be visible in portions of the Pruitt Day Use Area, as would long-term topographic changes created by the north approach road cuts. The vividness and intactness of current views would be lessened. For these reasons, the overall visual resource impacts in this locale would be long-term and moderate to major.

The bridge would also pass within approximately 200 feet of, and be partially visible from, the Buffalo River Trail trailhead during leaf-off periods, although this impact would be negligible to minor. The Equestrian Trail would be re-routed to pass under Highway 7, somewhat decreasing the panoramic values of the existing trail within proximity of Highway 7. Some vegetation and topographic changes caused by the trail re-routing and the north approach road cuts would create minor to moderate long-term visual resource impacts.

Relative to the existing bridge end elevations, the greater West Alternatives bridge end elevations would enhance the panoramic aspects of the view from the roadway – a potentially beneficial impact for motorists. Medium/long term vegetation impacts would occur, and long-term topographic changes would be visible due to roadway cuts. Overall, minor to moderate long-term visual resource impacts to motorists would occur.

The proposed bridge would have a lower structural profile and be set at a higher elevation than the existing bridge. The combination of these aspects of the proposed bridge would enhance the axial view up and down the river could by lifting a manmade feature out of the enclosed natural view – a potentially beneficial impact. However, the West Alternative bridge's additional length would introduce a disproportionate framing element to axial views up and down the river. The number of West Alternative bridge bents would introduce additional manmade elements in the Pruitt Day Use Area.

Figure 6-6 shows how the completed project might look from the ridge on the south side of the Buffalo River, while **Figure 6-7** shows the view from the river bank adjacent to the picnic units. **Figure 6-8** shows the proposed locations of the bridge bents.

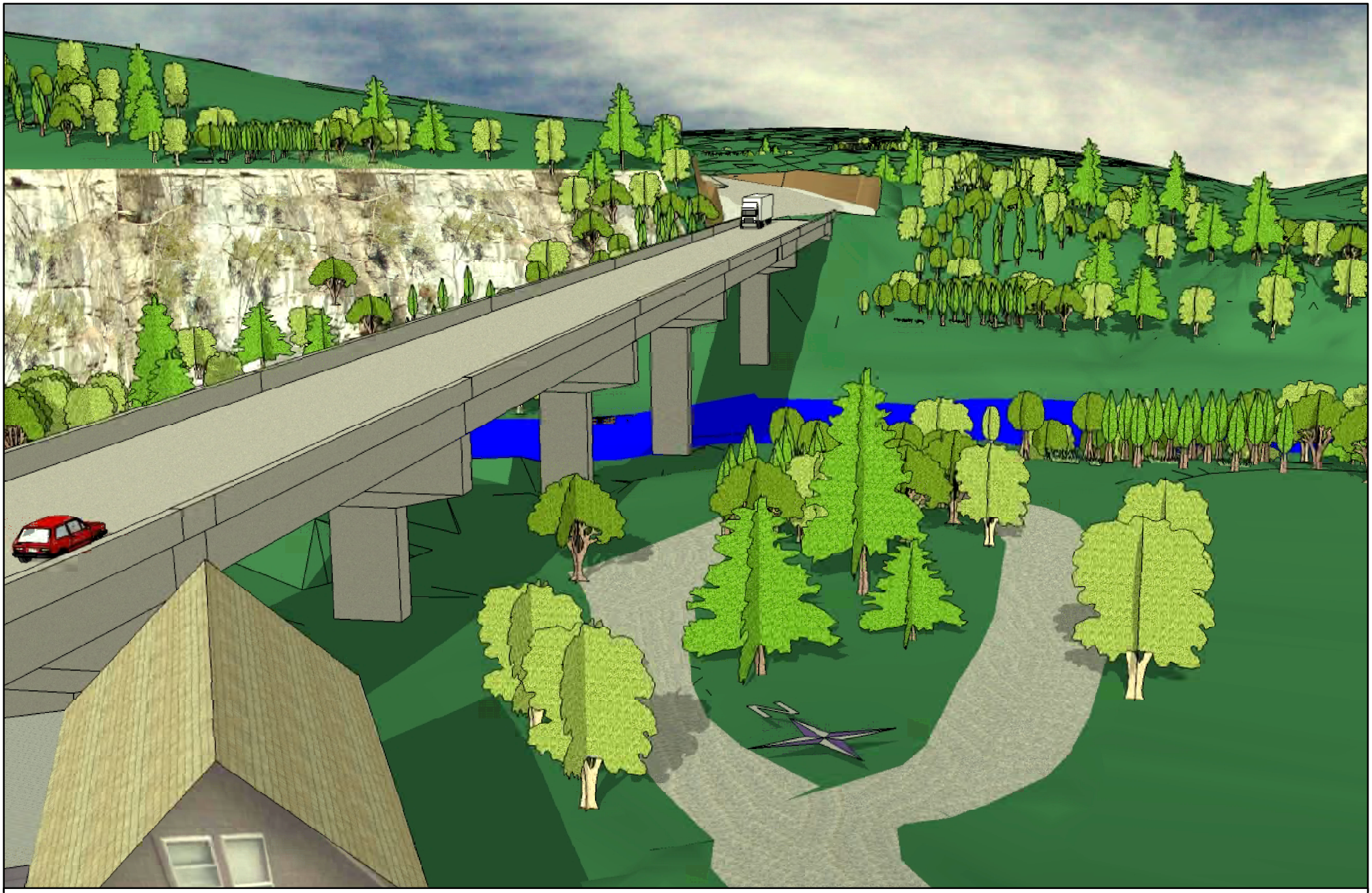


Figure 6-6
Visualization of West Alternatives I & II

Job 009784
AHTD Environmental GIS - Dudley
April 7, 2014



Figure 6-7
Visualization of West Alternatives I & II
River Perspective

Job 009784
AHTD Environmental GIS - Dudley
April 21, 2015



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

March 31, 2014

Photography: Summer 2013

Figure 6-8
West Alternatives I & II
Bridge Bent Locations

Bridge Bent

Bridge

West Alternatives I & II

PRUITT BRIDGE REMOVAL

All of the detailed study alternatives require the removal of the Pruitt Bridge. The Pruitt Bridge is a historic structure and a substantial contributing element to the visual character of the project study area. The bridge's distinctive overhead truss and vivid setting have become iconic of the Pruitt area. Demolition of the existing bridge and construction of a new bridge and approaches would result in a major and long-term impact to the visual character of the viewshed. The removal of the Pruitt Bridge and construction of a new bridge and approaches would also have major and long-term impacts on the historic setting and ambience of the Pruitt Historic District. Section 6.7 discusses these cultural resource impacts and mitigation measures.

Table 6-5 summarizes visual resource impacts for the Buffalo River Bridge project.

TABLE 6-5 BUFFALO RIVER BRIDGE PROJECT VISUAL RESOURCE IMPACT SUMMARY

ALTERNATIVE	VANTAGE POINT	IMPACT	COMMENTS
East Alternative	Pruitt Day Use Area Upper Swimming Hole Lower Swimming Hole River Views Equestrian Trail Buffalo River Trail Highway 7	Negligible Negligible Minor to Moderate Beneficial Minor None Minor to Beneficial	Located in higher VAC zone; curvilinear design increases VAC Adverse impacts from north approach road cut; beneficial impacts from increased panoramic views
West Alternatives	Pruitt Day Use Area Upper Swimming Hole Lower Swimming Hole River Views Equestrian Trail Buffalo River Trail Highway 7	Moderate to Major Negligible Minor to Moderate Beneficial Minor None Minor to Beneficial	Located in lower VAC zone; linear design decreases VAC Adverse impacts from north approach road cut; beneficial impacts from increased panoramic views

6.9.2 MILL CREEK CROSSING PROJECT EFFECTS

BRIDGE ALTERNATIVE

The proposed bridge's substantially higher elevation and scale in comparison to the existing low water crossing would alter existing views. The impact thresholds for different vantage points and viewers are described below.

The bridge would be located approximately 250 feet downstream of the existing low water crossing, and the west roadway approach would be approximately 30 feet higher in elevation than the existing roadway at that location. The bridge would be approximately 250 feet closer to the Shaddox Cabin than the existing low water crossing.

Vehicles passing over the low water crossing and driving on County Road 213 are currently partially visible from the Shaddox Cabin and other Homestead vantage points, although the low water crossing itself is not visible. The closer proximity and higher elevation of the bridge would increase the visual intrusiveness of passing vehicles and the bridge and roadway approaches would cause minor to moderate long-term visual resource impacts.

Hikers passing over the bridge would be afforded more panoramic views of Mill Creek and the surrounding area than are currently available, and portions of the Shaddox Homestead would be visible. These new panoramic and historic feature views would be a beneficial impact for some viewers.

No unique vistas or unusual or outstanding rock forms were identified in the project area and the overall Visual Sensitivity within the project area was determined to be Average; however, the proposed scale of the bridge and approaches would increase the presence of a modern, manmade structure along the Mill Creek Trail. The Mill Creek Trail would also need to be shortened and re-routed over the bridge to allow hikers to cross Mill Creek.

Long-term topographic and medium/long-term vegetation changes in the immediate vicinity of Mill Creek would occur. The bridge would be visible at limited points along the Mill Creek Trail during the leaf-off months, although the presence of vegetation during the leaf-on months would likely obscure most views away from the immediate vicinity of the bridge. For these reasons, visual resource impacts would range from minor to moderate and from short- to long-term. **Figure 6-9** shows how the completed project might look from the perspective of a hiker along Mill Creek Trail.

It is unlikely that the new bridge would be visible from the Buffalo River, which is 0.46 mile downstream from the project location. Visual resource impacts would therefore be negligible from this vantage point.



Figure 6-9
Visualization of Bridge Alternative
Mill Creek Trail Perspective

Job BR5102
AHTD Environmental GIS - Dudley
January 22, 2014

The VAC in the project area is high to very high due to the height, variety, and resiliency of vegetation and the presence of pattern effects.

BOX CULVERT ALTERNATIVE

This alternative would place the new crossing approximately 120 feet upstream from the existing low water crossing. No adverse visual intrusion effects to the Shaddox Cabin or the Mill Creek Trail are anticipated. Hikers passing over the new crossing would be afforded views of Mill Creek similar to those currently available. For these reasons, long-term visual resource impacts would be negligible. The VAC is high to very high due to the height, variety, and resiliency of vegetation and the presence of pattern effects in the project area.

Table 6-6 provides a summary of visual resource impacts for the Mill Creek Crossing project.

TABLE 6-6 MILL CREEK CROSSING PROJECT VISUAL RESOURCE IMPACT SUMMARY

ALTERNATIVE	VANTAGE POINT	IMPACT	COMMENTS
Bridge Alternative	Shaddox Cabin/Homestead	Minor to moderate	Located in very high VAC zone
	Mill Creek Trail	Minor to moderate to beneficial	Adverse impacts to hikers on trail; beneficial impacts from panoramic views on bridge
	Buffalo River	None	
Box Culvert Alternative	Shaddox Cabin/Homestead	Negligible	Located in very high VAC zone
	Mill Creek Trail	None	
	Buffalo River	None	

6.9.3 ELEMENTS SHARED BY BOTH PROJECTS

MITIGATION MEASURES

Construction activities would involve the use of heavy equipment, cranes, crane pads, scaffolding, stockpiles of materials, and other visual signs of construction. Several potential mitigation measures for short-term adverse impacts have been identified and include the following:

- Staging equipment and materials away from view points.
- Using existing topography, vegetation, or other elements to provide visual barriers.

- Using existing roads and disturbed areas to the maximum extent feasible to avoid additional surface disturbance.
- Removing construction- or detour-related equipment or structures as soon as possible following project completion.
- Reducing glare caused by nighttime construction activities by requiring contractors to use light source shielding and direct lighting onto the immediate area under construction.

A variety of measures to mitigate long-term adverse impacts exist. These measures include:

- Incorporating context sensitive design and bridge building materials and colors to ensure consistent aesthetic treatments, create visual unity, and promote visual blending with the surrounding landscape.
- Replanting cleared areas with native vegetation in composition consistent with the form, line, and texture of the surrounding undisturbed landscape.
- Restoring natural streamside conditions.
- Incorporating blasting techniques to achieve naturalistic surfacing of cut rock faces using native stone as fill and riprap.
- Applying rock staining products to fill, riprap, and excavated rock cuts to match the color and texture of the bedrock geology and to achieve a natural, weathered appearance.
- Stacking fill and riprap in place and inter-planting with native vegetation wherever possible.

The AHTD and FHWA will coordinate with the NPS–BNR to determine appropriate mitigation criteria.

NO BUILD ALTERNATIVE

Under the No Build Alternative, a new Buffalo River Bridge and Mill Creek Crossing would not be constructed and the roadway approaches would not be improved. Visual resources would remain in their current state. No impacts would occur to visual resources in the short- or long-term.

6.10 NOISE

GUIDING REGULATIONS AND POLICIES

In accordance with *Management Policies 2006* and Director's Order-47 *Sound Preservation and Noise Management*, a component of the NPS's mission is the preservation of natural soundscapes (NPS 2006). Natural soundscapes exist in the absence of human-caused sound. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

The FHWA noise standard, *Procedures for Abatement of Highway Traffic and Construction Noise* (23 CFR 772) provides guidance for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. The AHTD's *Policy on Highway Traffic Noise Abatement* (hereinafter "noise policy") describes the AHTD program to implement the 23 CFR 772 standards.

METHODOLOGY, ASSUMPTIONS, AND STUDY AREA

Traffic noise impacts occur when the predicted noise level in the design year (the future year used to estimate the probable traffic volume for which a highway is designed - typically 20 years) approaches or exceeds the specified NAC, which would be the Category C NAC of 67 dB(A) for the Buffalo River Bridge project. Traffic noise impacts would also occur if a predicted noise level substantially exceeds the existing noise level (a "substantial" noise increase). The terms "substantial increase" or "approach" are defined in the AHTD's noise policy, as described in the noise study report in Appendix I.

Table 6-7 provides the AHTD's noise policy criteria for determining the severity of a noise level increase. As shown in this Table, a substantial increase would occur if design year noise levels were predicted to increase by 10 dB(A) or more above existing noise levels.

TABLE 6-7 NOISE LEVEL INCREASE SEVERITY

INCREASE IN EXISTING NOISE LEVELS [dB(A)]	SUBJECTIVE DESCRIPTOR
0 - 5	Minor Increase
6 - 9	Moderate Increase
10 or more	Substantial Increase

The AHTD's noise policy also states that a sound level is considered to approach a NAC level when the sound level is within 1 dB of a NAC. For example, 66 dB(A) is considered to approach the NAC of 67 dB(A), but 65 dB(A) is not.

As noted in Section 5.9, a noise study has been completed and is included as Appendix H. The Buffalo River Bridge project area comprised the geographic study area for the noise study, and the findings are summarized below.

Locations within the Pruitt Day Use Area and along the river were identified as "receptors" for noise modeling purposes. Receptors are representative locations at which impacts are assessed. A location beneath the Pruitt Bridge was also included as a receptor for noise modeling purposes, so that comparisons could be made to bridges that have been constructed elsewhere in similar

terrain and using materials similar to the proposed bridge. Ambient sound level measurements were then obtained from all four receptors, all of which were below the FHWA Category C NAC of 67 dB(A).

The TNM 2.5 modeling program uses modeling points (hereinafter "receivers") within receptors to predict noise levels. A total of 52 receivers were modeled. Ten receivers were modeled in the Pruitt Day Use Area and included the Contact Center, the restroom facility, the Storage Building, and seven picnic tables. Eight receivers were modeled at the Upper Swimming Hole and eight receivers were modeled at the Lower Swimming Hole, while 26 receivers were modeled along the river to simulate canoeists passing through the proposed project area.

IMPACT DEFINITIONS

The FHWA/AHTD impact threshold definitions are as follows:

Adverse: Impacts involving noise would be considered adverse if an alternative would result in:

- A substantial permanent increase in ambient noise levels.
- Exposure of people to noise levels in excess of FHWA, AHTD, and/or NPS standards.
- A substantial temporary or periodic increase in ambient noise levels in excess of FHWA, AHTD, and/or NPS standards.

Minor Increase: Highway traffic noise impacts would occur if an increase in design year noise levels are predicted to increase by 0 to 5 dB(A).

Moderate Increase: Highway traffic noise impacts would occur if an increase in design year noise levels are predicted to increase by 6 to 9 dB(A).

Significant Increase: Highway traffic noise impacts would occur if an increase in design year noise levels are predicted to increase by 10 dB(A) or more.

Category C NAC Approach: 66 dB(A)

Category C NAC Exceedence: 67 dB(A)

In addition to the FHWA/AHTD definitions, the following impact thresholds were established for analyzing impacts to soundscape resources:

Negligible: The impact is at the lower level of detection; there would be no measurable change.

Minor: The impact is slight but detectable; there would be a small change.

Moderate: The impact is readily apparent; there would be a small, measurable change.

Major: The impact is severe; there would be a highly noticeable, measurable change.

Impairment: The frequency, magnitude, and duration of the impact contribute substantially to the deterioration of the BNR's natural soundscape to the extent that the natural soundscape, other BNR resources and values, visitor experience, and resources in the region are significantly compromised. The natural soundscape is affected over the long-term to the point that the BNR's purpose is not fulfilled and the resource cannot be experienced and enjoyed by future generations.

Duration: Short-term – Occurs during the implementation of the alternative.
Long-term – Extends beyond implementation of the alternative

The noise impacts from the proposed alternatives are presented below.

EAST ALTERNATIVE

The modeled future noise levels at the East Alternative receivers are between 47.6 and 57.2 dB(A) and the modeled future noise level differences over the existing levels are on the order of -6.4 to 3.4 dB(A). This would represent an overall minor increase and would not approach or exceed the Category C NAC. The soundscape resource impact would be minor and long-term, but not adverse.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

The modeled future noise levels at the West Alternatives receivers are between 45.5 and 55 dB(A) and the modeled future noise level differences over the existing levels are on the order of -8.3 to 5 dB(A). This would represent an overall minor increase and would not approach or exceed the Category C NAC. The soundscape resource impact would be minor and long-term, but not adverse.

ALL ALTERNATIVES

Some of the highest roadway sound levels occur under bridges due to amplification and reflectivity factors. As explained in the noise study report, a location under the Pruitt Bridge (Site 1) was measured to provide a sound level to compare with AHTD bridges constructed in terrain similar to the study area and using materials similar to those that would be used for the project build alternatives.

Table 6-8 presents the ambient sound level measurement comparisons between under the Pruitt Bridge and under three bridges constructed within the past 10 years (hereinafter "new bridges"). As shown in Table 6-8, the ambient sound levels under two of the three new bridges measured lower than the ambient sound level under the Pruitt Bridge. This data suggests that current sound levels in the project area are similar to or even somewhat higher than in the vicinity of new bridges.

CONSTRUCTION ACTIVITIES

Major construction phases would consist of site preparation, installation (grubbing and grading, cut and fill activities), abandoned road removal, and site restoration and cleanup. Noise emissions would vary with each phase of construction depending on the construction activity and the associated equipment.

TABLE 6-8 AMBIENT SOUND LEVEL MEASUREMENT COMPARISONS

New Bridge Identification Number	Location	Ambient Sound Level [dB(A)]	Pruitt Bridge Ambient Sound Level [dB(A)]	Ambient Sound Level Difference between New Bridge and Pruitt Bridge [dB(A)]
07000	US 65 Near Damascus	44.3	54.4	-10.1
06200	US 65 West of Gilbert	62.2	54.4	7.8
05927	State Hwy. 74 Near Ponca	51.6	54.4	-2.8

Equipment would include: backhoes, scrapers, dump trucks, graders, and front-end loaders. Engine noise, vehicle movement, and rock and debris removal would dominate noise emissions

during site preparation. Installation would involve the use of trenchers, earth-moving equipment, equipment and materials delivery, dewatering pumps, blasting and jack-hammer equipment, and pile drivers, all of which emit substantial noise.

Construction equipment operations can vary from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently. General mitigation measures for construction noise impacts that have been identified include:

- Using properly designed and maintained equipment (e.g., ensuring construction equipment engines are equipped with adequate mufflers, intake silencers, and engine closures).
- Minimizing idling equipment and machinery engines.
- Sequencing construction to avoid the simultaneous use of multiple noisy machines and to avoid the loudest operations (such as pile driving) during specific time periods, as determined by the BNR.
- Setting construction start and stop times to avoid noise disruptions, as appropriate.

NO BUILD ALTERNATIVE

Under the No Build Alternative, a new bridge would not be constructed and the soundscape would remain in its current state. No impacts would occur to soundscape resources in the short- or long-term.

This page intentionally left blank.

CHAPTER 7 CUMULATIVE IMPACTS

GUIDING REGULATIONS AND POLICIES

The CEQ regulations (40 CFR 1508.7) require the assessment of "cumulative impacts" which are defined as:

> The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

As stated in the CEQ handbook, *Considering Cumulative Effects* (CEQ 1997), cumulative impacts should be analyzed in terms of the specific resource, ecosystem, and human community being affected. Cumulative impacts are most likely to arise when a relationship exists between a proposed action and other actions that have, or are expected, to occur in a similar location, time period, or involving similar actions. Projects in close proximity to a proposed action would be expected to have more potential for cumulative impacts than those more geographically separated.

METHODOLOGY AND ASSUMPTIONS

Cumulative impacts were analyzed using the following four steps:

Step 1 – Identify Resources Affected. The information gathered and analysis conducted for each impact topic was used as a starting point for making a determination as to which resources would potentially have more than minimal cumulative impacts and should be analyzed in-depth. These resources include: geology, topography, and soils; vegetation; special status species; water quality; and visual. Mitigation measures were described in Chapter 6 and incorporated in the impact determinations for each of these resources; therefore, mitigation measures are not reiterated in this cumulative impact analysis.

Step 2 – Set Boundaries. The spatial, or geographic, boundaries for this analysis were initially identified as the BNR boundary and the 19-mile Highway 7 segment between Jasper and Harrison. The BNR boundary was identified because it represents the entirety of the BNR, while the Highway 7 segment between Jasper and Harrison was identified because it represents a discrete transportation corridor between regional population centers. The temporal scope for this analysis was established as between 2002 and 2020. The rationale for this temporal scope is that coordination between the AHTD and the BNR regarding the Buffalo River Bridge replacement project was first initiated in 2002, and the currently programmed Highway 7 transportation projects would reasonably be expected to be completed by 2020. These initial geographic and temporal boundaries are preliminary and likely to be refined upon consultation with the NPS-BNR.

Step 3 – Identify Associated Actions. The past, present, and reasonably foreseeable future actions to include with each resource were determined.

Step 4 – Cumulative Impact Analysis. The impacts of these actions were summarized and considered in combination with the potential impacts presented by the proposed projects to arrive at the total cumulative impact.

The past, present, and reasonably foreseeable future plans, policies, and actions identified as having potential resource impacts are listed below.

BNR Projects

Development of Fire Management Plan, 2003: One of the primary actions prescribed by the fire management plan is the reduction of hazardous fuels and maintenance of ecosystem health and diversity through prescribed burning.

Development of Herpetofaunal Inventory, 2003: This comprehensive inventory established herpetofaunal baseline data necessary for resource management decisions. The inventory indicated that a healthy diversity and abundance of herpetofauna exists within undeveloped portions of the Buffalo River watershed. Although the inventory was not developed as a formal management plan for herpetological species, it provided management recommendations. These recommendations included the continuation of habitat restoration activities, especially glade and prairie enhancement.

Buffalo River Trail, 2003 and ongoing: A 26-mile extension of the Ozark Highland Trail with portions passing through the BNR is planned. It is designated as a pedestrian hiking trail only.

Development of Water Resources Management Plan, 2004: This plan presents a list of recommendations that includes, among others, recommendations for monitoring water quality, reducing erosion of streambanks, and restoring riparian areas.

Development of Streambank Management Plan, 2005: This plan was developed as an outgrowth of the Water Resources Management Plan. It addresses streambank stabilization and riparian area restoration.

Development of Terrestrial Habitat Management Plan, 2006: This plan established a strategy for managing upland forests, bottomland forests, canebrakes, open fields, glades, savannahs, and early succession habitat. Plan goals included preserving and enhancing plant and wildlife habitat, as well as perpetuating visual diversity.

Facilities Improvements at Rush Landing, Spring Creek Trailhead, Hasty Landing, and Lost Valley, 2011: The EA for these improvements was completed in 2010 and a FONSI was signed in 2011. Construction of these projects began in the fall of 2011. These improvements

include traffic, pedestrian, parking, and drainage improvements at Rush Landing; a parking facility at the Spring Creek trailhead; drainage, parking, and restroom facility improvements at Hasty Landing; and safety improvements at Lost Valley.

Improvements at the Fishing Ponds at Cedar Glade, 2011: The trail to the first fishing pond at Cedar Glade would be upgraded to meet Americans with Disabilities Act /Architectural Barriers Act (ADA/ABA) standards and a wheelchair accessible dock would be installed. Vegetation surrounding both ponds would be cleared.

Repair of Woolum Highbanks Road, Ongoing: The public comment period for the proposed repair of a landslide at Woolum Road, approximately 5 miles west of Highway 65, closed in November 2012. The proposed repairs would include stabilization of the failed slope and reconstruction of the rock wall that collapsed as a result of frequent flooding. Proposed work may also include reconstruction or realignment of the road.

Facilities Improvements at Lost Valley Trail & Campground, Ongoing: The public comment period for the EA closed in November 2013. The purpose of the project is to repair 2011 flood damage by replacing the trail bridge over Clark Creek, realigning low-lying sections of the trail outside of the 100-year flood zone, and permanently closing the campground to eliminate danger from future flash flood events. A relocated portion of the trail would meet ADA/ABA standards.

Heartland Exotic Plant Management Plan, Ongoing: Heartland Inventory and Monitoring Network Parks, including the BNR, proposed establishing a management team to cooperatively control exotic invasive species. To this end, the Heartland Invasive Plant Management Plan and Environmental Assessment was prepared in 2012/2013. It is anticipated that actions for prevention and early detection of exotic invasive species would be beneficial and have little or no potential for harmful environmental impact. Some proposed treatments may require mitigation for their use and would require a higher level of compliance than the existing protocol of Categorical Exclusion tiering from existing vegetation plans. The project is also expected to result in the adoption of an Exotic Invasive Plant Management Plan.

Development of a Buffalo National River Elk Management Plan, Ongoing: The NPS has partnered with the AGFC to develop a plan and EA for Management of Elk on Buffalo National River. The project would manage the elk population to ensure long-term protection of BNR resources, minimize negative impacts from elk to private lands, and allow for and promote quality viewing opportunities and visitor education.

Development of a General Management Plan, Ongoing: Some topics that may be included in the GMP are boat launch ramps, development of an overflow parking lot at Hasty Landing, and expanded horse trailer parking areas and campgrounds at various locations. Public comments received to date were summarized in the BNR's General Management Plan Newsletter #2 and

included topics such as: concerns about overdevelopment of not only the BNR, but also the surrounding and adjacent lands; access to recreational opportunities in the BNR; the types of BNR uses and activities that are appropriate or compatible; protection of the BNR's cultural resources; and protection of sensitive natural resources.

AHTD Projects

Buffalo River Structure & Approaches – County Road 84 (AHTD Job No. FA5107), 2009: This project included building a two-lane bridge to replace a single-lane low-water crossing of the Buffalo River on Newton County Road 84 near Hasty. The total length of the project including new approaches was 0.3 mile in length and required: stabilizing the bank of a small tributary along the county roads; removing approximately 250 feet of vegetation of the tributary and filling it with riprap; and relocating approximately 150 feet of an existing small stream channel away from the bridge approach. Approximately 2.6 acres of additional permanent construction and maintenance easement was needed to construct the project, which was completed in 2009.

Valley Springs – Buffalo River Passing Lanes (AHTD Job No. R90098), 2011: This project included providing a passing lane and constructing a 1.4 mile segment of Highway 65 on new location between the Buffalo River and Highway 333. It involved acquiring 11.9 acres of easement from the BNR and removing 5.6 acres of existing roadway. The project was completed in 2011.

Mill Creek – Hwy. 7 Safety Improvements (Marble Falls) (AHTD Job No. 090221), 2012: This project was 0.7 mile in length and increased the width of the existing travel lanes from 11 feet to 12 feet, and the width of the shoulders from 2 feet to 8 feet. Barrier walls were added and approximately 10.2 acres of additional right of way was acquired. The project was completed in 2012.

Jasper – County Road 46 Passing Lanes & County Road 46 – Buffalo River (AHTD Job No. 090169 and 090213), 2014: An EA, Section 4(f) Evaluation, and Finding of No Significant Impact have been approved for the addition of passing lanes to sections of Highway 7. The passing lanes begin approximately 1.8 miles south of the Buffalo River and end approximately 0.9 mile south of the river. Approximately 9 acres of new right of way will be required, of which 1.3 acres will be easement granted by the NPS–BNR. Construction of this project is scheduled to begin in 2015.

Harp & Mill Creek Structures and Approaches (AHTD Job No. 090311), Programmed: This project would replace the existing Highway 7 bridges over Harp Creek and Mill Creek approximately 2 and 2.25 miles north of the Buffalo River, respectively. Roadway and shoulder widths would also be increased.

Buffalo River - Harrison (AHTD Job No. 090249), Programmed: This project would be 2.8 miles in length and would add passing lanes to three Highway 7 segments between the Buffalo River and Harrison.

Surrounding Area Projects

As described in section 5.3, the BNR boundary includes only 11 percent of the Buffalo River's 857,607-acre watershed. This leaves many important parcels of land unprotected and subject to development. Land uses near the BNR are changing and the development of private lands adjacent to the BNR boundaries continues to expand. Development from various sources poses potential ecological impacts such as watershed degradation.

Traffic Projections and General Improvements

Traffic projections are based on traffic history. The AHTD has been collecting traffic volume and truck percent data on Highway 7 since 1986. Projected traffic volumes are based on regression analysis. Between the cities of Dover and Harrison, traffic volumes have fluctuated over the record-keeping period. Truck percentages have also varied, influenced by weather, season, and logging operations in the Ozark National Forest and private properties along the route. Projected growth rates are predicated on anticipated population and economic growth in the region.

The proposed improvements are anticipated to improve safety for all vehicles and efficiency for non-commercial vehicles within the limits of the projects. The proposed improvements are not anticipated to improve overall efficiency for commercial traffic on Highway 7 because the vast majority of the route's geometric will not be involved. Most of the steep grades and tight curves will remain, so that projected truck traffic increases will simply be part of the overall projected traffic growth. Variations in logging operations should have more influence on truck volumes than the proposed improvements.

The addition of passing lanes will allow non-truck traffic, including recreational traffic, to flow more freely around slower-moving vehicles on steep grades. Additionally, the completion of similar passing lane and geometric improvement projects on Highway 65 at the Buffalo River Bridge resulted in a substantial reduction in the number of crashes and crash rates on the approaches to the river. Because of the data collected on Highway 65 in the vicinity of the Buffalo River before and after the improvements, it is anticipated that the projects on Highway 7 will have similar crash reductions, thereby increasing safety for all vehicles and protecting resources within this corridor.

7.1 GEOLOGY, TOPOGRAPHY, AND SOILS

Projects that could contribute to cumulative impacts to geology, topography, and soils include facilities improvements, the Woolum Highbanks Road repair, a new visitor's center, the General

Management Plan, and each AHTD project. The EAs prepared for facilities improvements indicated the following: 1) no adverse soil impacts were anticipated; and 2) the revegetation that occurs during temporary closures allow for direct, site-specific, long-term, and minor beneficial impacts on soils by reducing erosion. EAs prepared for previous AHTD projects have not specifically addressed geology, topography, and soils as impact topics, although cumulative impacts on natural resources were determined to be minimal.

For potential construction projects, impacts to geology, topography, and soils would depend on the level and location of potential development; however, impacts would be expected to be localized, minor adverse. For projects involving habitat and vegetation management and restoration activities, the potential reestablishment of natural vegetation would result in beneficial impacts.

As described in Chapter 6, localized, long-term moderate to major impacts to geology, topography, and soils would be expected for the Buffalo River Bridge project. Localized, minor to moderate impacts to geology, topography, and soils would be expected for the Mill Creek Crossing project. Cumulative impacts for both projects are anticipated to be long-term, minor adverse.

7.2 VEGETATION

Soils and vegetation effects are closely related, and projects that could contribute to cumulative impacts to vegetation are similar to those described above for geology, topography, and soils. EAs prepared for facilities improvement projects have not identified adverse cumulative impacts on vegetation, and previous AHTD EAs have identified only minimal cumulative impacts on natural resources.

Potential construction impacts to vegetation would depend on the level and location of potential development and would be expected to be localized, minor adverse. Projects involving habitat and vegetation management and restoration activities include the reestablishment of natural vegetation and the management of exotic plants and would result in beneficial impacts. As described in Chapter 6, localized, minor to moderate impacts to vegetation by the Buffalo River Bridge project would be expected. Localized, negligible impacts to vegetation would be expected for the Mill Creek Crossing project. Cumulative impacts for both projects are anticipated to be long-term, minor adverse.

7.3 WILDLIFE AND WILDLIFE HABITAT, INCLUDING SPECIAL STATUS SPECIES

Soil and vegetation effects are interrelated and projects that could contribute to cumulative impacts to wildlife and wildlife habitat are similar to those described above for these resources. Previous AHTD EAs have identified only minimal cumulative impacts on natural resources, including wildlife, wildlife habitat, and special status species.

Potential construction impacts to wildlife and wildlife habitat would depend on the level and location of potential development and would be expected to be localized, negligible to minor adverse. Projects involving wildlife habitat and vegetation management, enhancement, and restoration activities would result in beneficial impacts. As described in Chapter 6, localized, primarily short-term, negligible to minor impacts to wildlife, wildlife habitat, and special status species would be expected for both the Buffalo River Bridge and the Mill Creek Crossing project. Cumulative impacts for both projects are anticipated to be short-term, negligible to minor adverse.

7.4 WATER QUALITY

Projects that could contribute to cumulative impacts to water quality include facilities improvements, the Woolum Highbanks Road repair, construction of a new visitors center, implementing new projects associated with the General Management Plan, and both completed and programmed AHTD projects. The EAs prepared for facilities improvements indicated the following: 1) no adverse water quality impacts were anticipated; and 2) potential net benefits would be achieved in combination with other efforts such as prescribed burning, streambank stabilization, and riparian area restoration. EAs prepared for previous AHTD projects identified cumulative impacts posed by transportation projects within the Highway 7 corridor due to alterations of localized hydrological cycles and an increase in stormwater runoff; however, these impacts were considered to be minor. Additional EAs for previous AHTD projects determined cumulative impacts to natural resources to be minimal.

For potential construction projects, water quality impacts would depend on the level and location of potential development; however, impacts would be expected to be localized, minor adverse. Beneficial water quality impacts would be expected for projects involving habitat and vegetation management and restoration activities, including streambank stabilization, riparian area restoration, and water quality monitoring. As described in Chapter 6, localized, short-term, minor to moderate impacts to water quality would be expected for both the Buffalo River Bridge and Mill Creek Crossing projects. Cumulative impacts for both projects are anticipated to be short-term, minor adverse.

7.5 VISUAL RESOURCES

A study conducted in 1990 and 1991 indicated that approximately 84 percent of drivers along Scenic 7 Byway are recreationists (Carolan and Saunders, undated). The purposes of travel along Scenic 7 Byway/Highway 7 have not been recently studied, and the uses of the segment between Jasper and Harrison have never been studied; however, it is assumed that the majority of purposes remain recreational. Commercial, commuter, and local traffic use also occurs between Jasper and Harrison.

Although the State Scenic Byway designation does not preclude roadway improvement projects, this designation acknowledges the importance of scenic values and visual resources along the corridor. A variety of viewsheds occur along the corridor between Jasper and Harrison. The vividness and visual diversity of these viewsheds (e.g., visual quality) vary in accordance with the presence of such characteristics as: topographic relief; vegetation variety; rich colors; impressive scenery; unique natural features; and unique built features.

As shown on **Figure 7-1**, five Highway 7 AHTD projects have either been completed or are programmed between Jasper and Harrison. AHTD project 090221 was completed in 2012 and included increasing the width of the existing roadway and adding barrier walls. Additionally, AHTD project 090169 (a passing lanes project 0.9 mile in length) is south-adjacent to the Buffalo River Bridge project and construction is scheduled for completion in 2016. AHTD programmed project 090311 (a project involving replacing two bridges at a distance of 2 and 2.25 miles north of the Buffalo River), and 090249 (a passing lanes project 2.8 miles in length) all occur within a 7.8-mile segment of Highway 7 between Jasper and Harrison.

These current and reasonably foreseeable actions, along with any other projects requiring construction (e.g., any new construction activities associated with the GMP) would impact visual resources. Impacts of current and reasonably foreseeable impacts could include the following:

- Landform changes, particularly grading, rock cuts, and fills to accommodate new roadway alignments, structures, or buildings which could modify topographic features.
- Vegetation removal leading to less overall textural, color, shape, and form variation across the landscape and/or the elimination of intact stands of mature shrubs and trees which provide a natural visual buffer.
- Intrusion upon natural edges (e.g. tree lines, rivers, rock outcroppings) by lines and angular shapes (e.g., roads, bridges, and other structures or buildings).

Beneficial visual impacts would be expected for projects involving vegetation management and restoration activities, including reestablishing native vegetation, prescribed burns, and eradicating invasive plant species. For construction projects, the use of context sensitive design measures, including appropriate contouring and landscaping, could also yield beneficial visual impacts.

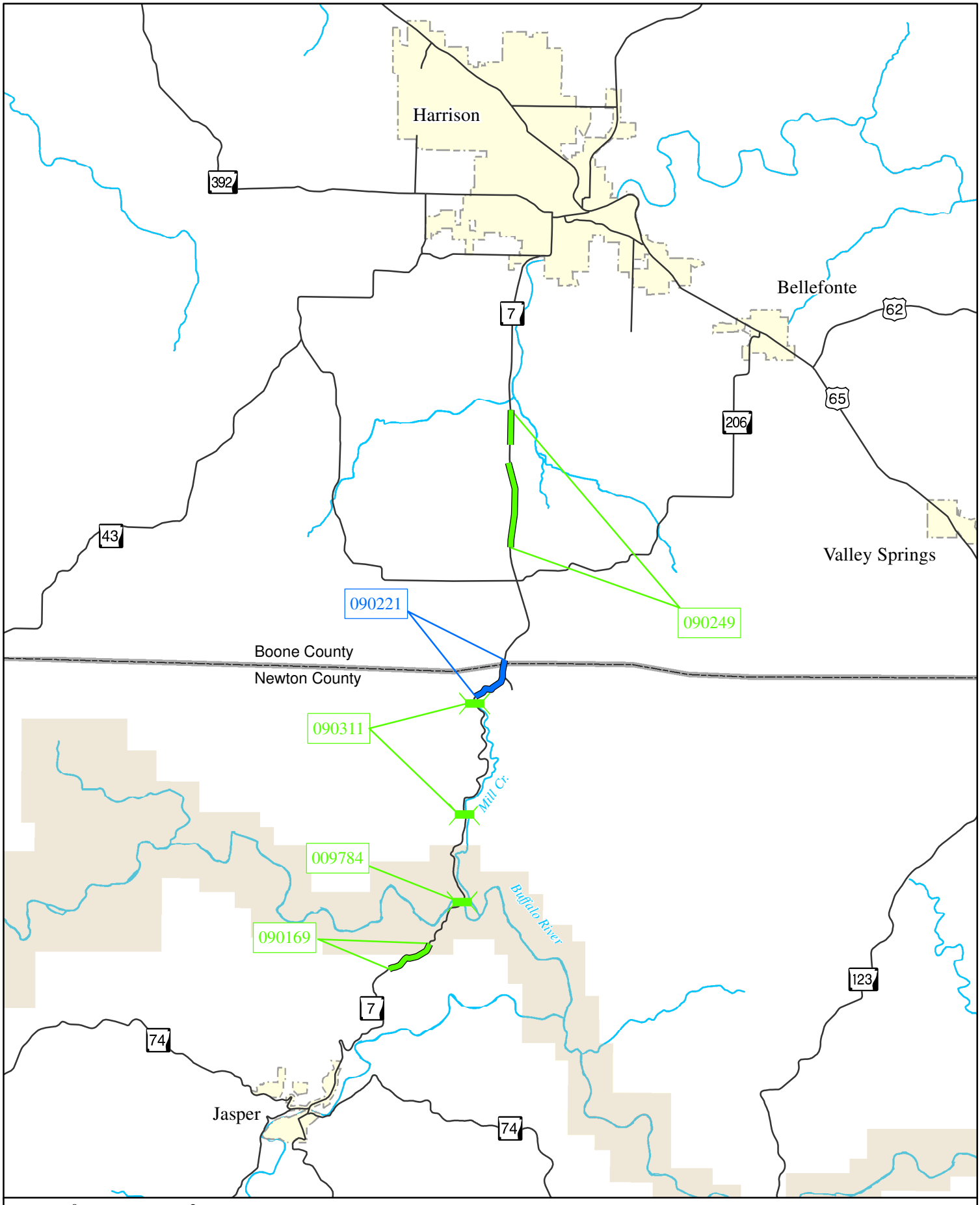


Figure 7-1
AHTD Hwy. 7 Projects
Between Jasper and Harrison

As described in Chapter 6, long-term negligible to major impacts to visual resources would be expected for the Buffalo River Bridge project. Negligible to moderate impacts would be expected for the Mill Creek Crossing project. Also as described in Chapter 6 and detailed in Appendix I, responses to changes in visual quality vary between viewer categories. Specific groups are predicted to be more sensitive to changes – and therefore more likely to be adversely affected – than others. The findings below are based on established methodology and assumptions.

The cumulative impacts for both projects may be long-term and range from minor to major adverse for recreationists and persons traveling Highway 7 specifically to enjoy its rustic qualities and scenic nature. The cumulative impacts for both projects may range from long-term, negligible to minor adverse for commercial drivers and commuters.

CHAPTER 8 ENVIRONMENTAL COMMITMENTS

The AHTD proposes to minimize environmental consequences by pursuing the additional measures listed below. A pre-construction conference will be held and all concerned parties (i.e., AHTD, FHWA, NPS–BNR, USFWS, U.S. Army Corps of Engineers [USACE], and Newton County Officials) will be invited to participate.

8.1 GEOLOGY, TOPOGRAPHY, AND SOILS

Soil erosion commitments will be addressed in conjunction with water quality protection commitments.

8.2 CAVE AND KARST RESOURCES

In the event construction operations encounter any indications that a cave has been discovered, work will immediately be discontinued in the area, access shall be denied, and the area secured to prevent unauthorized entry. The NPS–BNR and USFWS will be contacted for the proper procedures to be followed to examine the cave and to determine usage by any listed species.

8.3 VEGETATION

Vegetation within the easements will be preserved to the extent possible. Permanent seeding consisting of native Ozark grasses and forbs will begin as early as feasible to re-establish ground cover. The AHTD will develop a re-vegetation plan in consultation with the NPS–BNR to ensure that guidelines are followed and to prevent the spread of invasive plant species. New easement outside of the temporary construction easement will be allowed to re-vegetate naturally to upland forest. Post-construction surveys will be conducted.

All of the above actions will be included in Special Provisions designed to minimize impacts to vegetation. The Special Provisions will include measures to minimize disturbances to undisturbed areas such as eastern red cedar forest, oak-hickory forest, and special areas such as the riparian corridor (including river cane) and the Pruitt glade.

8.4 WILDLIFE AND WILDLIFE HABITAT, INCLUDING SPECIAL STATUS SPECIES

Conservation measures to protect special status bat species will include the cessation of construction work 1 hour prior to sunset and 1 hour prior to sunrise from March 15 through November 30 to avoid disturbing their foraging. Additionally, blasting operations will not be permitted between November 30 and March 15 to avoid disturbing their hibernation. The clearing of trees will also be prohibited during the active season of Indiana and northern long-eared bats, currently March 16 through October 15. Erosion control BMPs and the

prohibition of storing petroleum or other materials within flood zones as well as limiting storage quantities, will also help protect bat species.

Erosion control BMPs and material storage and quantity limitations will also be used to protect aquatic life such as freshwater mussels, the Ozark shiner, Ozark chub, and American eel. Additionally, a mussel survey will be conducted within 1 year prior to construction; the BNR and the USFWS will be consulted regarding appropriate measures should mussels be found in the proposed project footprints. As appropriate, measures to conserve glade habitat and the eastern collared lizard will be taken.

All of the above actions will be included in Special Provisions designed to minimize potential impacts to wildlife and wildlife habitat. Actions such as conducting training for construction personnel may also be included in the Special Provisions. Monitoring will be performed during construction to ensure adherence to the Special Provisions, and a post-construction survey will be conducted to determine if additional measures need to be taken.

8.5 WATER QUALITY

The AHTD will comply with all requirements of the CWA, as Amended, for the construction of this project. This includes Section 401, Water Quality Certification; Section 402; NPDES; and Section 404, Permits for Dredged or Fill Material.

The NPDES Permit requires the preparation and implementation of a SWPPP. The SWPPP will include all specifications and BMPs needed for control of erosion and sedimentation.

The SWPPP will be prepared when the roadway design work has been completed in order to best integrate the BMPs with the project design.

All of the above actions will be included in Special Provisions designed to minimize potential construction-related impacts to water quality. Monitoring will be performed during construction to ensure adherence to the Special Provisions, and a post-construction survey will be conducted to determine if additional measures need to be taken.

8.6 WILD AND SCENIC RIVERS

The BNR will complete Wild and Scenic Rivers coordination with the NPS Midwest Region.

8.7 CULTURAL RESOURCES

In coordination with the NPS–BNR and Section 106 consulting parties, specific mitigation measures will be developed for Section 106 MOAs. Mitigation measures and commitments will be fully documented the MOAs. NPS–BNR comments regarding potential mitigation measures

include the following: conducting Historic American Building Survey/Historic American Engineering Record documentation and laser scanning of the structures; laser scanning and archeological documentation of the Canton Mine; and Phase 3 cultural resources work and data recovery for archeological sites 3NW1308 and 3NW1309. The existing draft MOA for the Pruitt Bridge will be finalized.

8.8 VISUAL RESOURCES

Blast plans and approaches will be formulated to the extent practicable so that cut faces will blend with surrounding natural features of the landscape such as rock outcrops, draws, and slope of terrain.

Fill and riprap will be comprised of native stone and stacked in place rather than dumped. Where possible, native vegetation will be used to inter-plant fill and riprap. Cleared areas will be replanted with native vegetation.

Special Provisions designed to minimize potential visual resource impacts will be prepared.

This page intentionally left blank.

CHAPTER 9 PUBLIC AND AGENCY INVOLVEMENT

The AHTD provided the opportunity for public and agency involvement during the development of the proposed projects. The NPS and the USACE are cooperating agencies on this project. **Table 9-1** lists information related to each public and agency meeting. Scoping letters were sent to various federal and state agencies, as well as conservation groups in July 2004, October 2007 and May 2011. **Table 9-2** lists the other state agencies and Native American tribes included in coordination activities. Copies of relevant correspondence related to recent coordination efforts are included in Appendix C, and copies of tribal consultation letters are included in Appendix D.

TABLE 9-1 PUBLIC AND AGENCY MEETINGS

MEETING TYPE	DATE	PARTICIPANTS	APPROXIMATE ATTENDANCE
Agency	November 2002	AHTD, NPS, USACE	14
Agency	May 2004	AHTD, NPS	14
Agency	July 2004	AHTD, NPS, FHWA	13
Public Involvement	July 2004	Various	42
Agency	May 2005	AHTD, NPS, USACE, FHWA, AHPP, USFWS, Newton County	22
Agency	August 2007	AHTD, NPS, Newton County	17
Public Involvement	November 2007	Various	44
Agency	February 2008	AHTD, NPS, FHWA, USFWS	26
Agency	June 2008	AHTD, NPS, FHWA, AHPP	20
Agency	May 2009	AHTD, NPS, FHWA	10
Agency	September 2011	AHTD, NPS, FHWA	8
Agency	November 2012	AHTD, NPS, FHWA	4
Agency	March 2013	AHTD, NPS, FHWA	13
Agency	October 2014	AHTD, NPS, FHWA	16
Agency	April 2015	AHTD, NPS, FHWA	11

Public notice will be placed in the Newton County and Boone County newspapers concerning the preparation of this document. Public notice will also appear on the NPS Planning, Environment & Public Comment website. Upon approval for public dissemination, it will be available to the public for review and comment. A public hearing will be offered.

TABLE 9-2 STATE AGENCY AND NATIVE AMERICAN COORDINATION

AGENCY / TRIBE	DATE
Arkansas Natural Heritage Commission	11/2007
Arkansas State Historic Preservation Officer	5/2009, 5/2010, 6/2010, 5/2014, 6/2014, 8/2014 and 11/2014
United States Fish and Wildlife Service	12/2007, 6/2011 and 2/2012
Quapaw Tribe of Oklahoma	12/2008, 4/2010 and 5/2011
The Shawnee Tribe	12/2008, 1/2009, 4/2010 and 5/2011
United Keetoowah Band of Cherokee Indians Nation	12/2008, 4/2010 and 5/2011
The Osage Nation	12/2008, 4/2010 and 5/2011
Eastern Shawnee Tribe	12/2008, 4/2010 and 5/2011
Wichita and Affiliated Tribes	12/2008, 4/2010 and 5/2011
Absentee Shawnee Tribe	12/2008, 4/2010 and 5/2011
Cherokee Nation of Oklahoma	12/2008, 4/2010 and 5/2011
Caddo Nation	12/2008, 4/2010 and 5/2011
Tunica-Biloxi Indians of Louisiana, Inc.	12/2008, 4/2010 and 5/2011

CHAPTER 10 SUMMARY AND RECOMMENDATIONS

BUFFALO RIVER BRIDGE PROJECT

Table 10-1 summarizes the impacts associated with the Buffalo River Bridge alternatives. As described in Section 3.4, a Section 4(f) Evaluation was prepared for the proposed projects. The Section 4(f) Evaluation identified the East Alternative as the "least overall harm alternative".

Based on the EA and Section 4(f) Evaluation findings, the East Alternative is recommended for the Buffalo River Bridge project.

MILL CREEK CROSSING PROJECT

Table 10-2 summarizes the impacts associated with the Mill Creek Crossing alternatives. The Section 4(f) Evaluation identified the Bridge Alternative as the "least overall harm alternative".

Based on the EA and Section 4(f) Evaluation findings, the Bridge Alternative is recommended for the Mill Creek Crossing project.

BOTH PROJECTS

The public will have an opportunity to review and provide comments on this EA. Public comments will be addressed in the FHWA's FONSI. The FONSI will record the Selected Alternative for both projects.

This page intentionally left blank.

TABLE 10-1. SUMMARY OF ALTERNATIVE IMPACTS – BUFFALO RIVER BRIDGE PROJECT

	EAST ALTERNATIVE	WEST ALTERNATIVE I - A	WEST ALTERNATIVE I - B	WEST ALTERNATIVE II - A	WEST ALTERNATIVE II - B
Cost (Million 2015 $)	7.9	9.4	9.3	9.8	9.4
New Right of Way (Acres)	11.6	10.3	10.3	10.3	10.3
Abandoned Roadway (Total Acres)	0.26	0.94	0.94	0.68	0.68
Bridge Length (Feet)	670	772	772	772	772
Number of Bridge Bents	3	5	5	5	5
Rock Cut Volume (Cubic yards)	30,507	137,940	137,940	137,940	137,940
Fill Volume (Cubic yards)	23,766	16,572	16,572	16,572	16,572
Environmental Resource Effects					
Geology, Topography, Soils	▪ Moderate impacts, primarily from larger area of fill ▪ Less disturbance of erosion-vulnerable soil	▪ Major impacts, primarily from larger area of rock cut ▪ More disturbance of erosion-vulnerable soil	▪ Major impacts, primarily from larger area of rock cut ▪ More disturbance of erosion-vulnerable soil	▪ Major impacts, primarily from larger area of rock cut ▪ More disturbance of erosion-vulnerable soil	▪ Major impacts, primarily from larger area of rock cut ▪ More disturbance of erosion-vulnerable soil
Cave and Karst Resources	▪ Negligible to minor ▪ Decreased potential for cave discovery due to smaller rock cuts ▪ Less waste rock generated due to smaller rock cuts	▪ Negligible to minor ▪ Increased potential for cave discovery due to larger rock cuts ▪ More waste rock generated due to larger rock cuts	▪ Negligible to minor ▪ Increased potential for cave discovery due to larger rock cuts ▪ More waste rock generated due to larger rock cuts	▪ Negligible to minor ▪ Increased potential for cave discovery due to larger rock cuts ▪ More waste rock generated due to larger rock cuts	▪ Negligible to minor ▪ Increased potential for cave discovery due to larger rock cuts ▪ More waste rock generated due to larger rock cuts
Vegetation	▪ Minor impacts ▪ More previously-disturbed land present in project area ▪ No special habitat disturbance	▪ Moderate impacts ▪ Less previously disturbed land present in project area ▪ Special habitat disturbance	▪ Moderate impacts ▪ Less previously disturbed land present in project area ▪ Special habitat disturbance	▪ Moderate impacts ▪ Less previously disturbed land present in project area ▪ Special habitat disturbance	▪ Moderate impacts ▪ Less previously disturbed land present in project area ▪ Special habitat disturbance
Wildlife & Special Status Species	▪ Negligible to minor ▪ Closer to known mussel locations ▪ Less potential disturbance to bats due to less blasting	▪ Negligible to minor ▪ Further from known mussel locations ▪ More potential disturbance to bats due to more blasting	▪ Negligible to minor ▪ Further from known mussel locations ▪ More potential disturbance to bats due to more blasting	▪ Negligible to minor ▪ Further from known mussel locations ▪ More potential disturbance to bats due to more blasting	▪ Negligible to minor ▪ Further from known mussel locations ▪ More potential disturbance to bats due to more blasting
Water Quality	▪ Minor to moderate	▪ Minor to moderate	▪ Minor to moderate	▪ Minor to moderate	▪ Minor to moderate
Cultural Resources	▪ 1 NRHP-Eligible building removed ▪ Retaining wall may be required	▪ 2 NRHP-eligible buildings removed ▪ No retaining wall required ▪ New connector to Pruitt Day Use Area required	▪ 1 NRHP-eligible building removed ▪ Retaining wall required ▪ New connector to Pruitt Day Use Area required	▪ No NRHP-eligible buildings removed ▪ Retaining wall required ▪ Overpass required	▪ 1 NRHP-eligible building removed ▪ No retaining wall required ▪ Overpass required
Visual Resources	▪ Negligible to moderate ▪ Less overall impact to Pruitt Day Use Area and Pruitt Bluff	▪ Negligible to major ▪ More overall impact to Pruitt Day Use Area and Pruitt Bluff	▪ Negligible to major ▪ More overall impact to Pruitt Day Use Area and Pruitt Bluff	▪ Negligible to major ▪ More overall impact to Pruitt Day Use Area and Pruitt Bluff	▪ Negligible to major ▪ More overall impact to Pruitt Day Use Area and Pruitt Bluff
Noise	▪ Would not approach or exceed Noise Abatement Criteria	▪ Would not approach or exceed Noise Abatement Criteria	▪ Would not approach or exceed Noise Abatement Criteria	▪ Would not approach or exceed Noise Abatement Criteria	▪ Would not approach or exceed Noise Abatement Criteria
Other					
Construction Footprint	▪ Smaller due to smaller scale of bridge ▪ Smaller construction equipment (e.g., cranes) required	▪ Larger due to larger scale of bridge ▪ Larger equipment (e.g., cranes) required	▪ Larger due to larger scale of bridge ▪ Larger equipment (e.g., cranes) required	▪ Larger due to larger scale of bridge ▪ Larger equipment (e.g., cranes) required	▪ Larger due to larger scale of bridge ▪ Larger equipment (e.g., cranes) required

This page intentionally left blank.

TABLE 10-2 SUMMARY OF ALTERNATIVE IMPACTS – MILL CREEK CROSSING PROJECT

	BRIDGE ALTERNATIVE	BOX CULVERT ALTERNATIVE
Cost (Million 2015 $)	1.9	1.8
New Easement (Acres)	2.5	3.3
Obliterated Roadway (Total Acres)	0.62	0.27
Environmental Resource Effects		
Geology, Topography, Soils	▪ Minor impacts	▪ Minor impacts
Cave and Karst Resources	▪ Negligible to minor impacts	▪ Minor to major impacts
Vegetation	▪ Negligible impacts	▪ Negligible impacts
Wildlife & Special Status Species	▪ Negligible impacts	▪ Negligible impacts
Water Quality	▪ Minor to moderate impacts	▪ Minor to moderate impacts
Cultural Resources	▪ Minor impact to one archeological site	▪ Major impact to one historic site
Visual Resources	▪ Minor to moderate impacts	▪ Negligible impacts

This page intentionally left blank.

.

CHAPTER 11 LIST OF PREPARERS

EA Coordinator

Mary Pearson
Environmental Analyst I
Environmental Division, AHTD
BA Environmental Studies – Pitzer College

Resource Personnel

Frank M. Bray, Jr.
Staff Design Engineer
Roadway Design Division, AHTD
BS Civil Engineering – Louisiana Tech University
Registered Professional Engineer, Arkansas

Linda M. DeMasi
Environmental Scientist III
Environmental Division, AHTD
BS History and Geography - University of Central Arkansas
BA Psychology - University of Arkansas at Little Rock
MS Community and Economic Development - University of Central Arkansas

Bart Dudley
Environmental Analyst III
Environmental Division, AHTD
BS Biology – Florida State University

Julia Hart
Transportation Planner
Planning and Research Division, AHTD
BA Historical Physical Anthropology – Rice University

Phillip Moore
Botanist
Environmental Division, AHTD
AA Mathematics – Arkansas State University
BS Education – University of Nebraska at Omaha
MA Biology – University of Nebraska at Omaha

Don Nichols
Section Head – Assessments
Environmental Division, AHTD
BS Natural Sciences – University of Arkansas
MS Soil Science – University of Arkansas

Aileen M. Schubel
Staff Bridge Design Engineer
Bridge Design Division, AHTD
BS Civil Engineering – University of Arkansas
Registered Professional Engineer, Arkansas

Robert Scoggin
Environmental Scientist I
Environmental Division, AHTD
BS History – University of Central Arkansas

Josh Seagraves
Section Head – Special Studies
Environmental Division, AHTD
BS Wildlife Management and Ecology – Arkansas State University
MS Biology – Arkansas State University

Diana Wilks
Section Head – Cultural Resources
Environmental Division, AHTD
BA Anthropology – University of Arkansas
MA Anthropology – University of Arkansas

CHAPTER 12 REFERENCES

Adams, G.I. 1904. Zinc and Lead Deposits of Northern Arkansas. United States Geological Survey. 83 pp.

Arkansas Department of Environmental Quality (ADEQ) website: http://www.adeq.state.ar.us/air/regulations/htm. Accessed 2014

Arkansas Pollution Control and Ecology Commission. 2004. Regulation No. 2, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas. 42 p. + Appendices.

Arkansas State Board of Health (ASBH), Department of Health Center for Local Public Health, Environmental Health Branch, Engineering Section. February 2014. Rules and Regulations Pertaining to Public Water Systems.

Arkansas State Highway and Transportation Department (AHTD), Planning and Research Division. 2005. Highway 7 Corridor Study: Interstate 30 Near Arkadelphia to Highway 65 at Harrison.

Arkansas Watershed Information System (AWIS) website: http://watersheds.cast.urak.edu. Accessed 2014.

Buffalo National River (BNR). September 2007. Correspondence to AHTD from Superintendent K. Cheri.

Branner, J.C. 1900. Annual Report of the Geological Survey of Arkansas for 1892, Volume V. The Zinc and Lead Region of North Arkansas. 144-146 pp.

Callahan, E.V. 1993. Indiana bat summer habitat requirements. M.S. Thesis. University of Missouri, Columbia. 84 pp.

Carolan, L.E. and D. Saunders. Undated. Scenic 7 Byway Plan, including Scenic 7 Byway Market Research Report for Fall 1990 through Spring 1991. Prepared for the Scenic 7 Byway Planning Group.

Carter, T.C. 2003. Summer habitat use of roost trees by the endangered Indiana bat (*Myotissodalis*) in the Shawnee National Forest of southern Illinois. Dissertation. Southern Illinois University, Carbondale, IL. 82 pp.

Clark, B.S. 1991. Activity patterns, habitat use, and prey selection by the Ozark big-eared bat (*Plecotus townsendii ingens*). PhD Dissertation. Oklahoma State University, Stillwater, OK. 80 pp.

Clark, B.S., D.M. Leslie Jr., and T.S. Carter. 1993. Foraging activity of adult female Ozark big-eared bats (*Corynorhinus townsendii ingens*). Journal of Mammalogy74:422-427.

Cooley, C.L., E.M. Hargis, B.M. Henderson, and J.R. Lipanovich. 2011. National Park Service Abandoned Mined Lands Field Inventory. Unpublished. 13pp.

Council on Environmental Quality (CEQ). December 1997. Environmental Justice; Guidance under the National Environmental Protection Act.

CEQ. January 1997. Considering Cumulative Effects Under the National Environmental Policy Act.

CEQ. August 1980. Part 657 – Prime and Unique Farmlands.

Fitzgerald, K., R. Young, and S. Rogers. 2008. Buffalo National River, National Park Service, Pruitt Ranger Station & Garage, Newton County, Arkansas, History, Function, & Significance. Prepared for the Arkansas Historic Preservation Program.

Gardner, J.E., J.D. Garner, and J.E. Hofmann. 1991. Summer roost selection and roostingbehavior of *Myotis sodalis* (Indiana bat) in Illinois. Unpublished report to Region-3 U.S.Fish and Wildlife Service, Fort Snelling, MN. 56 pp.

Gumbert, M.W., J.M. O'Keefe, and J.R. MacGregor. 2002. Roost fidelity in Kentucky pp. 143-152 *in* A. Kurta and J. Kennedy (eds.), The Indiana bat: biology and management of anendangered species Bat Conservation International, Austin, TX.

Harris, J.L. 1996. The Freshwater Mussel Resources of the Buffalo National River. Final Report submitted to US National Park Service, Buffalo National River Resource Management Division.

Harvey, M.J. 1994. Status of summer colonies of the endangered gray bat, *Myotisgrisescens* in Tennessee. Unpub. Rep. to the Tennessee Wildlife Resources Agency. Tennessee Technological University, Cookeville, TN. 44 pp.

Harvey, M.J., J.J. Cassidy and G.G. O'Hagan. 1981. Endangered bats of Arkansas:distribution, status, ecology, and management. Memphis State University, Department of Biology, Ecological Research Center Report to the Arkansas Game and Fish Commission, U.S. Forest Service, and National Park Service- Buffalo National River, Memphis, TN. 137 pp.

Harvey, M.J. and R.K. Redman. 2002. Endangered Bats of Arkansas: Distribution, Status, and Ecology. Annual Report Submitted to the Arkansas Game and Fish Commission.

Hudson, M.R., K.E. Murray, and D. Pezzutti. 2001. Geologic map of the Jasper Quadrangle, Newton and Boone Counties, Arkansas: U.S. Geological Survey Miscellaneous Field Studies Map MF-2356, 1:24,000 scale.

Huggins, D.G., R.C. Everhart, D.S. Baker, and R.H. Hagen. 2005. Water Quality Analysis for the Heartland Inventory and Monitoring Network (HTLN) of the US National Park Service: Buffalo National River. Center Plains Center for BioAssessment, Kansas Biological Survey, University of Kansas.

Humphrey, S.R., A.R. Richter, and J.B. Cope. 1977. Summer habitat and ecology of theendangered Indiana bat, *Myotis sodalis*. Journal of Mammalogy 58:334-346.

Hunter, C.G. 1995. Trees, Shrubs, and Vines of Arkansas. The Ozark Society Foundation. Little Rock, AR. 207 pp.

Kiser, J.D. and C.L. Elliott. 1996. Foraging habitat, food habits, and roost tree characteristics of the Indiana bat (*Myotis sodalis*) during autumn in Jackson County, Kentucky. Report prepared for Kentucky Department of Fish and Wildlife Resources, Nongame Program,Frankfort, KY. 65 pp.

Knoxville Regional Transportation Planning Organization (KRTPO). 2011. Road Management Guidelines and Considerations for the Great Smoky Mountains Scenic Byway.

LaVal, R., R. Clawson, M. LaVal, W. Caire. 1977. Foraging behavior and nocturnal activity patterns of Missouri bats, with emphasis on the endangered species *Myotis grisescens* and *Myotis sodalis*. Journal of Mammalogy 58:592-9.

Maner, M. and D. Mott. 1991. Mill Creek Survey. Arkansas Department of Pollution Control and Ecology.

Martin, C.O. 2007. Assessment of the population status of the gray bat (*Myotis grisescens*). Status review, DoD initiatives, and results of a multi-agency effort to survey wintering populations at major hibernacula, 2005-2007. Environmental Laboratory, U.S. Army Corps of Engineers, Engineer Research and Development Center Final Report ERDC/EL TR-07-22. Vicksburg, Mississippi. 97 pp.

Matthews, M.W. 2007. Freshwater bivalve (Mollusca:Unionidae, Corbiculidae) assemblages in an Ozark river: structure and role in nutrient recycling [MS thesis]. Arkansas State University. State University, AR. 189 pp.

McKnight, E.T. 1935. Zinc and Lead Deposits of Northern Arkansas. United States Department of the Interior, Geological Survey. Bulletin 853. Prepared in Cooperation with the Arkansas Geological Survey, Banner, George C., Geologist. 170 pp.

Middlemis-Brown, S.A. and C.C. Young. 2012. Heartland Invasive Plant Management Plan and Environmental Assessment. Natural Resource Data Series NPS/MWR/HTLN/NRDS-2012/XXX. National Park Service, Philadelphia, Pennsylvania.

Mott, D.N., M.R. Hudson, and T. Aley. 2000. Nutrient Loads Traced to Interbasin Groundwater Transport at Buffalo National River, Arkansas. Inside Earth: A Newsletter of the National Park Service Cave & Karst Programs.

Mott, D.N. and J. Laurans. 2004. Water Resources Management Plan, Buffalo National River, Arkansas. United States Department of the Interior, National Park Service.

National Park Service (NPS). September 2003. Director's Order 77-2 Floodplain Management Guidelines.

National Highway Institute website: https://connectdot.connectsolutions.com/n135086geomorphicfactors . Accessed March 2015.

NPS Buffalo National River website: www.nps.gov/buff/naturescience/climate-and-geology.htm. Accessed 2014a.

NPS Buffalo National River website: www.nps.gov/buff/temporary-cave-closings.htm. Accessed 2014b.

NPS National Rivers Inventory website: http://www.nps.gov/ncrc/programs/rtca/nri/consult.html. Accessed 2014.

NPS National Rivers Inventory website: http://nps.gov.ncrc/programs/rtca/nri/hist.html. Accessed 2014.

National Wild and Scenic Rivers System website: http://www.rivers.gov/rivers/buffalo.php. Accessed 2014.

Nelson, P.W., J.A. Fitzgerald, K. Larson, R. McCoy, A. Schotz, J. Taft, T. Witsell, B. Yahn. 2013. Central Hardwoods Joint Venture Glade Conservation Assessment for the Interior Highlands and Low Plateaus of the Central Hardwoods Region.

Palm, J. 2003. Indiana bat (*Myotis sodalis*) summer roost tree selection and habitat use in the Champlain Valley of Vermont. M.S. Thesis. Antioch University, Keene, New Hampshire. 44 pp.

Raesly, R.L. and J.E. Gates. 1987. Winter habitat selection by north temperate cave bats. American Midland Naturalist, pp. 15-31.

Sasse, D.B. and P.J. Pekins. 1996. Summer roosting ecology of northern long-eared bats (Myotis septentrionalis) in the white mountain national forest. Bats and Forests Symposium October 1995, Victoria, British Columbia, Canada, pp. 91-101.

Sealander, J.A. and G.A. Heidt. 1990. Arkansas Mammals: Their Natural History, Classification, and Distribution. University of Arkansas Press. Fayetteville, Arkansas. 308 pp.

Taylor, D. 2009. Caves and Karst of Arkansas. Association for Arkansas Cave Studies.

Trauth, S.E., H.W. Robison, and M.V. Plummer. 2004. The Amphibians and Reptiles of Arkansas. University of Arkansas Press. Fayetteville, Arkansas. 421 pp.

Tuttle, M.D. 1976a. Population ecology of the gray bat (*Myotis grisescens*): Factors influencing growth and survival of newly volant young. *Ecol.* 57:587-595.

Tuttle, M.D. 1976b. Population ecology of the gray bat (*Myotis grisescens*): philopatry, timing and patterns of movement, weight, loss during migration, and seasonal adaptive strategies. Occasional Paper No. 54, University of Kansas Museum of Natural History, Lawrence. 38 pp.

Tuttle, M.D. and J. Kennedy. 2005. Field guide to eastern cave bats. Bat Conservation International, Inc., Austin, Texas. 41 pp.

U.S. Department of Agriculture, Forest Service. 1995. Landscape Aesthetics: A Handbook for Scenery Management. Agriculture Handbook Number 701.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2013. Custom Soil Resource Report for Newton County, Arkansas, Pruitt Area.

U.S. Department of Agriculture, Soil Conservation Service. Undated. Soil Survey of Newton County, Arkansas.

U.S. Department of the Interior (USDOI), Bureau of Land Management (BLM). 1984. Manual 8400 Visual Resource Management.

USDOI, BLM. 1986. Manual 8410-1 Visual Resource Inventory.

USDOI, BLM. 1986. Manual 8431 Visual Resource Contrast Rating.

USDOI, National Park Service (NPS), Southwest Region and Denver Service Center. 1975. Final Environmental Statement (FES 75-74), Proposed Master Plan, Buffalo National River, Arkansas.

USDOI, NPS, Denver Service Center. 1977. Final Master Plan, Buffalo National River, Arkansas.

USDOI, NPS, Denver Service Center. 1981. Development Concept Plan, Pruitt, Buffalo National River, Arkansas.

USDOI, NPS, BNR, Southwest Regional Office. 1982. Proposal/Environmental Assessment, River Use Management Plan, Supplement to the 1975 Master Plan, Buffalo National River, Arkansas.

USDOI, NPS, Denver Service Center. 1986. Road System Evaluation, Pruitt, Buffalo National River, Arkansas.

USDOI, NPS, Denver Service Center. 1987. Trail Plan, Pruitt, Buffalo National River, Arkansas.

USDOI, NPS, BNR, Arkansas Game and Fish Commission, Ozark National Forest Buffalo Ranger District. 1995. Fishery Management Plan, Buffalo National River, Arkansas.

USDOI, NPS, BNR, Arkansas Game and Fish Commission. 2005. Terrestrial Habitat Management Plan Environmental Assessment.

USDOI, NPS, BNR. 2003. Fire Management Plan Environmental Assessment.

USDOI, NPS. 2006. Management Policies.

USDOI, NPS, BNR. 2010. Facilities Improvement Environmental Assessment.

USDOI, NPS, BNR. 2010. General Management Plan Newsletter #2.

USDOI, NPS, BNR. March 2013. Cedar Glade Pond Improvements Environmental Assessment.

USDOI, NPS, BNR. April 2013. Lost Valley Trail & Campground Environmental Assessment.

USDOI, NPS, BNR. Undated. Wilderness and Backcountry Management Plan.

USDOI, NPS. Undated. Currents (Visitors Guide Buffalo National River). Volume 17.

U.S. Department of Transportation, Federal Highway Administration. 1988. Visual Impact Assessment for Highway Projects. Publication No. FHWA-HI-88-054.

U.S. Department of Transportation, Federal Highway Administration. 2015. Guidelines for the Visual Impact Assessment of Highway Projects. Publication No. FHWA-HEP-15-029.

U.S. Department of Transportation, Federal Highway Administration. 2006. Assessing Stream Channel Stability at Bridges in Physiographic Regions. Publication No. FHWA-HRT-05-072.

U.S. Fish and Wildlife Service (USFWS). 1995. Ozark Big-Eared Bat (*Corynorhinus townsendii ingens*) Revised Recovery Plan. Tulsa, OK. 51 pp.

USFWS. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. Fort Snelling, MN. 258 pp.

USFWS. 2008. Ozark Big-Eared Bat (*Corynorhinus townsendii ingens*) 5 Year Review: Summary and Evaluation. Tulsa, OK. 44 pp.

USFWS. 2009. Gray Bat (*Myotis grisescens*) 5 Year Review: Summary and Evaluation. Columbia, MO. 34 pp.

U.S. Forest Service, San Dimas Technology and Development Center. 2002. Scenic Byways: A Design Guide for Roadside Improvements. Prepared for U.S. Department of Transportation, Federal Highway Administration, Coordinated Federal Lands Highway Technology Implementation Program.

U.S. Geological Survey (USGS). 1998. Hydrologic Investigations Atlas 730-F. 28 pp.

Wiggs, R.L. and D.R. Angelo. 2003. A Herpetofaunal Inventory of Buffalo National River. Final Report submitted to US National Park Service, Buffalo National River Resource Management Division. U.S. Geological Survey Hydrologic Investigations Atlas 730-F. 1998. 28 pp.

This page intentionally left blank.

APPENDIX A

PROJECT MILESTONES

This page intentionally left blank.

PROJECT MILESTONES

Fall 2002

- AHTD requested BNR be a NEPA cooperating agency for replacing the substandard Pruitt Bridge (Bridge Project) and adding passing lanes to Hwy 7 (Passing Lanes Project)
- BNR requested both Pruitt Bridge removal and left in place options be considered; expressed concerns about safety on Hwy 7 between end point of Passing Lanes Project and start point of Bridge Project

Spring 2004

- AHTD/BNR meeting to discuss alternatives developed to date

Summer 2004

- EA scoping, including public involvement meeting
- AHTD/BNR agreement to address Bridge Project, Passing Lanes Project, and other improvements in single EA

Spring 2005

- AHTD meeting to discuss constraints and alternatives developed to date

Spring 2006

- Safety Improvements Project programmed for portion of Hwy 7 between Passing Lanes and Bridge Projects

Winter 2006

- Newton County-sponsored low water crossing replacement (Mill Creek Project) in development
- Bridge, Passing Lanes, and Safety Improvements Projects to be addressed in single EA

Fall 2007

- BNR requested the Mill Creek Project be addressed in same EA as Bridge, Passing Lanes, and Safety Improvements Projects
- EA scoping, including public involvement meeting

Spring 2008

- AHTD/BNR meeting resulted in preliminary approval of conceptual designs
- EA process started

Spring 2009

- AHTD/BNR meeting to discuss Draft EA comments

Spring 2011

- BNR concurred with AHTD's proposal to finalize the Passing Lanes and Safety Improvements Projects in one EA and address the Bridge and Mill Creek Projects in a separate EA

Summer 2013

- Finding of No Significant Impact for Passing Lanes and Safety Improvement Projects approved

Winter 2013-14

- Preliminary Draft EA and Section 4(f) Evaluation started for Bridge and Mill Creek Projects

Summer 2014

- Preliminary Draft EA and Section 4(f) Evaluation submitted to BNR for internal review and comment
- BNR provided review comments on Preliminary Draft EA and Section 4(f) Evaluation
- New cultural resources and karst concerns identified

Fall 2014

- AHTD/BNR meeting to discuss Preliminary Draft EA and Section 4(f) Evaluation review comments
- Determination that bluff shelter impacts were likely under Bridge Project eastern alignment alternative

Winter 2014-15

- Additional bluff shelter avoidance alternative for Bridge Project developed; not carried forward for detailed study due to cost and limited feasibility
- Prepared Draft EA and Section 4(f) Evaluation in response to BNR comments

Spring 2015

- AHTD/BNR meeting to discuss Section 4(f) Evaluation "least overall harm analysis" and EA archeological site avoidance considerations

Fall/Winter 2015

- Least Overall Harm Alternatives identified
- Draft EA and Section 4(f) Evaluation AHTD/FHWA review comments received and incorporated

Winter/Spring 2015-2016

- EA approval anticipated
- Hold Public Hearing

Summer 2016

- Finding of No Significant Impact is anticipated

APPENDIX B

CULTURAL RESOURCES CORRESPONDENCE

This page intentionally left blank.

009784

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

October 1, 2002

Superintendent Ivan D. Miller
U.S. Department of the Interior
National Park Service
Buffalo National River
402 North Walnut, Suite 136
Harrison, Arkansas 72601

Re: AHTD Job Number 009784
Buffalo River Br. & Apprs. (Hwy. 7)
Newton County

Dear Superintendent Miller:

The Arkansas State Highway and Transportation Department (AHTD) and Federal Highway Administration are beginning the preparation of the environmental documentation for the referenced project. This project proposes replacement of the existing bridge over the Buffalo River along State Highway 7 in Newton County. A project location map is enclosed.

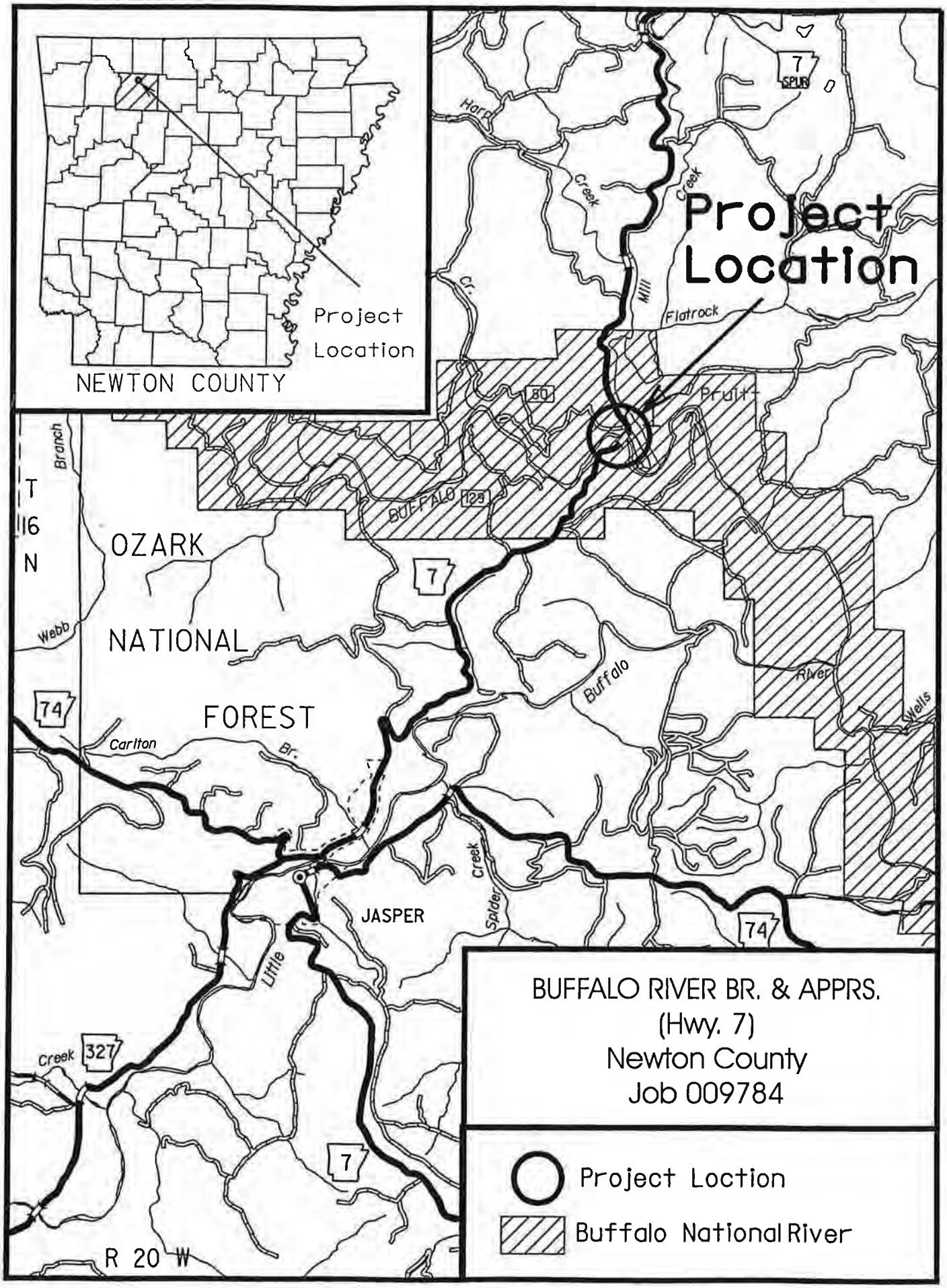
The AHTD would like to invite the National Park Service to be a cooperating agency in the preparation of the NEPA document. In addition, the U.S. Army Corps of Engineers will also be invited to be a cooperating agency.

The AHTD would also like to request permits for preliminary environmental data collection. Information will be submitted for an Archeological Resource Protection Act (ARPA) Permit needed for a Phase I Archeological Survey. We would also like to request the names of Phillip Moore (botanical specimens) and John Harris (aquatic specimens) be added to a collecting permit. These surveys will be performed by the AHTD personnel within the project area.

If additional information is needed, please contact Don Nichols of my staff at (501) 569-2611.

Sincerely,

Marion Butler
Division Head
Environmental Division


Project Location
Project Location
NEWTON COUNTY
OZARK
NATIONAL
FOREST
JASPER
BUFFALO
Buffalo River
Carlton Br.
Spider Creek
Little Creek
Flatrock
Fruit
Webb Branch
T 16 N
R 20 W
7
74
327
80
123
7 SPUR
BUFFALO RIVER BR. & APPRS.
(Hwy. 7)
Newton County
Job 009784
Project Loction
Buffalo National River

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

May 29, 2003

Mr. Irvan Miller
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

Subject: Historic Bridge No. 01689
AHTD Job Number 009784
Buffalo River Br. & Apprs.
Newton County

Dear Mr. Miller:

The Arkansas State Highway and Transportation Department Project 009784 will replace bridge number 01689 on Highway 7 in Newton County. This bridge was listed on the National Register of Historic Places as part of AHTD's 1987 Historic Bridge Inventory. The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) Section 123(f) states: "prior to the demolition of a historic bridge, the State shall market (sell or donate) the bridge to a State or local government, agency or responsible private entity." As part of the mitigation process, AHTD is offering Bridge Number 01689 for sale or donation to any government or entity that demonstrates a willingness to accept title for, preserve the historic integrity of and assume the financial responsibility for the continued maintenance on the structure. AHTD will reimburse costs associated with preservation that could include modifications for recreational use, relocation, site preparation, reassembly, etc. The cost reimbursement to be determined by Federal Highway Administration will not exceed the cost of demolition of the bridge, which will be based on the estimate of AHTD. If you are interested in acquiring this bridge, please respond with a letter of interest within 30 days of receipt of this letter. For further information contact Robert Scoggin at (501) 569-2077.

Sincerely,

Marion Butler
Division Head
Environmental Division

MB:RS/al

c: FHWA
District Nine Engineer
Assistant Chief Engineer for Planning

009784

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867
(501) 324-5751 □ FAX: 501-324-5605 □ http://www.swl.usace.army.mil

REPLY TO
ATTENTION OF

11 JUN 2003

Planning, Environmental and Regulatory Division
Planning Branch

Mr. Marion Butler
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Dear Mr. Butler:

Thank you for you inquiry concerning Bridge Number 01689. The bridge is located over the Buffalo River on Highway 7 in Newton County, Arkansas. Your letter dated May 29, 2003, indicated that your agency was considering demolishing the bridge, but that you are required to offer the structure, either by selling or donating, to a government agency or responsible entity. At present, the Little Rock District Corps of Engineers has no interest in acquiring this structure.

Thank you for your time. If you have any questions concerning this matter, please contact Mr. Christopher G. Davies of my staff at (501) 324-5752.

Sincerely,

Benjamin H. Butler, P.E.
Colonel, US Army
District Engineer

Newton

HAROLD SMITH
NEWTON COUNTY JUDGE

JASPER, ARKANSAS 72641
: (870) 446-5127
FAX: (870) 446-5902

November 20, 2003

Dear Mr. Flowers:

As plans proceed to construct a new bridge on Hwy. 7 at Pruitt, please advise the Commissioner that many of our local residents would like to see the Old Bridge preserved as an historic Landmark. As County Judge, I will work with the commissioner in any way necessary in order to take the current bridge into our County Road System. As always, your assistance and cooperation will be greatly appreciated.

Sincerely,

Harold Smith
Newton County Judge

cc: Jon Barnett, Commissioner
Randy Laverty, Senator
Mike Hathorn, Representative

Newton

HAROLD SMITH
NEWTON COUNTY JUDGE

P. O. BOX 435
JASPER, ARKANSAS 72641

PHONE: (870) 446-5127
FAX: (870) 446-5902

February 10, 2004

RE: Historic Pruitt Bridge

To The Arkansas State Commission,

Newton County will except ownership of the Pruitt Bridge, for Historic Preservation for our County.

Harold Smith
Newton County Judge

Copy to DLF for handling
cc: JB
02-10-2004
LHW

The Department of
Arkansas
Heritage

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Natural Heritage
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum

August 29, 2007

Mr. Lynn P. Malbrough
Division Head, Environmental Division
Arkansas State Highway and Transportation Department
PO Box 2261
Little Rock, AR 72203-2261

RE Newton County – Pruitt
Section 106 Review – FHWA
Replacement of bridge over Buffalo River on State Highway7
AHTD Job #009784
AHPP Tracking #64162

Dear Mr. Malbrough:

This letter is written in response to your inquiry regarding properties of architectural or historic significance in the area of the above referenced project. The staff of the Arkansas Historic Preservation Program has reviewed your submission and determined that structures A and B are not eligible for inclusion in the National Register of Historic Places.

Once the undertaking is further along in the planning stages, we look forward to reviewing the proposed project. If you should have any questions or comments, please do not hesitate to contact Elizabeth Blackwell of my staff at (501) 324-9880

Sincerely

for Ken Grunewald
Deputy State Historic Preservation Officer

cc: Federal Highway Administration

Buffalo National River

Arkansas Historic
Preservation Program

1500 Tower Building
323 Center Street
Little Rock, AR 72201
(501) 324-9880
fax: (501) 324-9184
tdd: (501) 324-9811

website:
www.arkansaspreservation.com

United States Department of the Interior

NATIONAL PARK SERVICE

Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:

H32(BUFF-HCR)

September 25, 2007

Mr. Lynn P. Malbrough
Division Head, Environmental Division
Arkansas State Highway and Transportation Department
P. O. Box 2261
Little Rock, Arkansas 72203

Dear Mr. Malbrough:

Recently your office submitted a National Register Determination of Eligibility (DOE) request to the Arkansas Historic Preservation Program for two buildings owned by Buffalo National River and currently in use as park facilities. This request was identified as AHTD Job #009784 and AHPP Tracking #64162.

We were unaware that your agency was submitting these buildings for a DOE and would like to receive a copy of your submission for these buildings with any accompanying documentation that you provided.

We request that actions involving park resources and facilities be discussed and reviewed with the park before any action by your office.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

cc: Ken Grunewald, Arkansas Historic Preservation Program

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

October 10, 2007

Honorable Harold Smith
Newton County Judge
Newton County Courthouse
P.O. Box 435
Jasper, Arkansas 72641

Re: Job Number 009784
Buffalo River Br. & Apprs. (Pruitt)
Newton County, Arkansas

Dear Judge Smith:

The Buffalo National River has agreed to allow the Arkansas State Highway and Transportation Department (AHTD) to leave Bridge Number 01689 (Pruitt Bridge) in place as part of the proposed project to build a new bridge at the State Highway 7 crossing of the Buffalo River. Due to the length of time since your first letter stating your interest in taking ownership of the Pruitt Bridge in a non-vehicular capacity at its current location, AHTD would appreciate your sending an updated letter stating your County's intention to assume ownership of the bridge. If you need additional information please contact Robert Scoggin of my staff at 501-569-2595.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

October 10, 2007

Honorable Harold Smith
Newton County Judge
Newton County Courthouse
P.O. Box 435
Jasper, Arkansas 72641

Re: Job Number 009784
Buffalo River Br. & Apprs. (Pruitt)
Newton County, Arkansas

Dear Judge Smith:

The Buffalo National River has agreed to allow the Arkansas State Highway and Transportation Department (AHTD) to leave Bridge Number 01689 (Pruitt Bridge) in place as part of the proposed project to build a new bridge at the State Highway 7 crossing of the Buffalo River. Due to the length of time since your first letter stating your interest in taking ownership of the Pruitt Bridge in a non-vehicular capacity at its current location, AHTD would appreciate your sending an updated letter stating your County's intention to assume ownership of the bridge. If you need additional information please contact Robert Scoggin of my staff at 501-569-2595.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

Newton

HAROLD SMITH
NEWTON COUNTY JUDGE

P. O. BOX 435
JASPER, ARKANSAS 72641

PHONE: (870) 446-5127
FAX: (870) 446-5902

October 11, 2007

To Whom It May Concern:

Newton County is asking for ownership of the Pruitt Bridge (Number 01689) to be left in place for historical purposes. If you need any additional information, please feel free to call me.

Harold Smith

Harold Smith
Newton County Judge

The Department of
Arkansas
Heritage

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

•

Arkansas Natural Heritage
Commission

•

Delta Cultural Center

•

Historic Arkansas Museum

•

Mosaic Templars
Cultural Center

•

Old State House Museum

Arkansas Historic
Preservation Program

1500 Tower Building
323 Center Street
Little Rock, AR 72201
(501) 324-9880
fax: (501) 324-9184
tdd: (501) 324-9811
e-mail:
info@arkansaspreservation.org
website:
www.arkansaspreservation.com

April 10, 2008

Mr. Kevin G. Cheri, Superintendent
National Park Service
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR. 72601

RE: Newton County- Pruitt
106 Review – NPS
National Register Eligibility Determination for the Pruitt Ranger Station and Garage at Buffalo National River.
AHPP Project Number: #63911

Dear Mr. Cheri:

My staff in the Arkansas Historic Preservation Program has reviewed the two referenced historic properties. Based upon the additional information provided by the NPS, the AHPP believes that the Pruitt store/ ranger station and the Pruitt garage/ community building are eligible for inclusion in the National Register as the Pruitt Historic District. Therefore, we reverse our earlier opinion of August 29, 2007 that these two structures are ineligible.

Thank you for bringing this matter to our attention. If you should have any questions or comments, please do not hesitate to contact Tom Marr of my staff at (501)-324-9880

Sincerely,

Frances McSwain

Frances McSwain
Deputy State Historic Preservation Officer

cc: Federal Highway Administration
Arkansas State Highway and Transportation Department

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
D30 (BUFF)

October 8, 2008

Mr. Don Nichols
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Nichols:

Buffalo National River (BNR) is willing to take ownership and management responsibility for the existing Highway 7 Pruitt Bridge, subsequent to construction and operation of a new Highway 7 bridge. After the Highway 7 realignment is complete, BNR prefers that the existing highway remain intact from the Pruitt Visitor Station to where the existing highway would intersect with the new highway on the north side of the river. Please incorporate conveyance of bridge ownership from the Arkansas Highway and Transportation Department to Buffalo National River in the Memorandum of Agreement, and include this transaction as a component of the Environmental Assessment.

Your previous offer to convey bridge ownership to Newton County included a proposal to transfer the funding that would be expended to remove the bridge, to Newton County for long-term bridge maintenance. We also request that you transfer these same funds to BNR, so that the bridge infrastructure can be brought up to National Park Service standards and for bridge maintenance, subsequent to and as a condition of the property transfer.

Please contact me at (870) 741-5446 x 240, or email to buff_superintendent@nps.gov if you have further questions regarding these comments.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

ARKANSAS STATE HIGHWAY COMMISSION

MINUTE ORDER

District: Nine

County: Newton

Category: Miscellaneous

WHEREAS, IN NEWTON COUNTY, Job 009784, Buffalo River Br. & Apprs. (Pruitt) on Highway 7 requires the removal of Bridge 01689, commonly known as the Buffalo River Bridge; and

WHEREAS, the U.S. Department of the Interior, National Park Service, Buffalo National River has requested that the Department transfer Bridge 01689 to the National Park Service for transportation use as a pedestrian bridge; and

WHEREAS, the National Park Service shall agree to adopt a release of title holding the Department, its officers and employees harmless from any action of any kind; to prohibit vehicular traffic on the bridge in perpetuity; and to assume responsibility for maintenance and inspection of the bridge in consideration for the transfer of the bridge to the National Park Service.

NOW THEREFORE, the Director is authorized to release the bridge commonly known as the Buffalo River Bridge (Bridge 01689) to the National Park Service upon completion of Job 009784.

Approved:

Chairman

Vice-Chairman

Member

Member

Member

Env.

Submitted By: Scott E. Bennett

Assistant Chief Engineer - Planning

Approved:

Director

Minute Order No. 2009 018

Date Passed JAN 7 2009

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTER OFFICE MEMORANDUM

January 9, 2009

TO: Mr. Phillip McConnell, Assistant Chief Engineer for Design

FROM: Phil Brand, Chairman-Historical Bridge Analysis Committee PB

SUBJECT: Job No. 009784, Buffalo River Br. & Apprs. (Pruitt) (S)
Historic Bridge Analysis Committee Recommendation for
Buffalo River Bridge

Bridge No. 01689 on State Highway 7, Log 20.15 in Newton County over Buffalo River was built in 1931. The bridge has a current sufficiency rating of 7.3, SD. It is eligible for replacement using Federal Bridge Replacement funding and has been programmed for replacement by Job No. 009784.

This bridge is listed on the National Register of Historic Places. The bridge is 375' long and has a 20' clear roadway. It is a 320 feet, 3-span continuous Pennsylvania through truss, which is considered historically significant. One reinforced concrete tee-beam approach span abuts the south approach.

As part of the process used when historic bridges are programmed for replacement, the Historic Bridge Analysis Committee (HBAC) reviewed five options for AHTD retaining the bridge:

1) Take no action;
2) Rehabilitate Bridge;
    a. Rehabilitate the existing bridge for two lanes of traffic;
    b. Rehabilitate the existing bridge for one lane of traffic, and construct a new bridge with one lane of traffic, with each conforming to minimum design standards;
    c. Rehabilitate the existing bridge to below the minimum design standards for one lane of traffic, and construct a new bridge to minimum design standards for one lane of traffic;
3) New Location Alternative;
    a. Construct a new bridge for two lanes of traffic with the Department maintaining ownership of the bridge;

b. Construct a new bridge for two lanes of traffic with another entity maintaining ownership of the bridge.

Since the purpose of this project is to improve the facility, and given that the Department does not wish to reduce its minimum design standards for safety reasons, the HBAC determined that the options for rehabilitating the bridge were not viable due to the increased costs to the project or adverse impacts to the historic integrity of the bridge, and recommended that the bridge be marketed.

Through the subsequent marketing efforts of the Environmental Division, the Buffalo National River (BNR) has requested that the bridge be left in place and ownership transferred to them for use in a non-vehicular capacity.

The Department has estimated the contract demolition costs for this bridge to be $82,000. In accordance with FHWA rules, the amount of funds equal to the estimated demolition costs can be applied to preserving the historic bridge.

The HBAC discussed BNR's request and recommended it be approved and that the bridge be left in place, with the BNR accepting title to the bridge and that the $82,000 would be made available for reimbursement to the BNR for historic preservation work on the bridge until 18 months after the contract completion of Job No. 009784.

Appropriate agreements to provide for the transfer of ownership reflecting the above stipulations will be prepared for the signatures of the proper officials upon approval of this recommendation.

SUBMITTED: Historical Bridge Analysis Committee

Phil Brand — Chairman

1/9/2009 — Date

RECOMMENDED: Historical Bridge Analysis Review Committee

ACE-Design

Scott A. Bennett — ACE-Planning

FHWA

APPROVED:

Deputy Director & Chief Engineer

1/23/09 — Date

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO

L7617 (BUFF-ONR)

May 5, 2010

Lynn P. Malbrough
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Malbrough:

This letter is to acknowledge the receipt of the Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and approaches on State Highway 7 at Pruitt, Newton County.

We have reviewed the document and accept the findings therein. This report meets the obligations specified in your Permit for Archeological Investigations (ARPA 2010-01). If you have any specific questions regarding these items contact Dr. Caven Clark at (870) 365-2792

Sincerely,

Connie L. Moody

for Kevin G. Cheri
Superintendent

cc: Absentee Shawnee Tribe; Caddo Tribe of Oklahoma; Cherokee Nation of Oklahoma; Eastern Shawnee Tribe of Oklahoma; Osage Tribe of Oklahoma; Quapaw Tribe of Oklahoma; The Shawnee Tribe; Tunica-Biloxi Tribe of Louisiana; United Keetoowah Band of the Cherokee Indian Nation; Wichita and Affiliated Tribes; and Associate Regional Director, Cultural Resources, Midwest Region; Attn. Chief, History and National Register Programs; Deputy State Historic Preservation Officer, Arkansas Historic Preservation Program

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

May 11, 2009 2010

Mr. George McCluskey
Section 106 Review Officer
1500 Tower Building
323 Center Street
Little Rock, Arkansas 72201

Re: AHTD Jobs 009784,090213
and 090169
Newton County

Dear Mr. McCluskey:

Enclosed is a copy of a draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the consulting tribes for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please review for concurrence with the findings of my staff. If you have any questions or require additional information, please contact Chris Branam of my staff at 501-569-2594.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

The Department of
Arkansas
Heritage

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Natural Heritage Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars Cultural Center

Old State House Museum

Arkansas Historic Preservation Program

1500 Tower Building
323 Center Street
Little Rock, AR 72201
(501) 324-9880
fax: (501) 324-9184
tdd: (501) 324-9811
e-mail:
info@arkansaspreservation.org
website:
www.arkansaspreservation.com

An Equal Opportunity Employer

June 3, 2010

Mr. Lynn P. Malbrough
Division Head, Environmental Division
Arkansas Highway & Transportation Dept.
Environmental Division
Post Office Box 2261
Little Rock, Arkansas 72203-2261

RE: Newton County - General
Section 106 Review - FHwA
AHTD Jobs 090169 (Highway 7 Passing Lanes), 090213 (Highway 7 Safety Improvements) and 009784 (Buffalo River Bridge & Approaches on State Highway 7 at Pruitt)
AHPP Tracking No: 64162

Dear Mr. Malbrough:

My staff has reviewed the draft report entitled "A Cultural Resources Survey of Proposed Arkansas Highway and Transportation department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge and Approaches on State Highway 7 at Pruitt, Newton County" by AHTD staff archeologists. This report documents cultural resources survey of the above-referenced undertakings and is acceptable.

On the basis of the information contained in this report, we find that AHTD Jobs 090169 and 090213 will have no effect on historic properties.

With regard to AHTD Job No. 009784, we agree that archeological sites 3NW499, 3NW671 and 3NW1310 are not eligible for inclusion in the National Register of Historic Places (NRHP) and require no further work. We also have strong reservations regarding the eligibility of 3NW1311, but the present report does not present sufficient information to enable a well founded assessment, and its eligibility remains undetermined.

We believe that the report presents sufficient information to document that 3NW1308 is eligible for inclusion in the NRHP. The deposits are obviously intact; there are cultural diagnostics; and at least one feature is present. The nearby site 3NW1309 may well be eligible as well, but sufficient work has not been conducted to make a judgment, and its eligibility remains undetermined.

The eligibility of site 3NW1110 is also undetermined. While the archeological deposits associated with the structural remains appear not to be significant, this site could be a contributing element of the planned Pruitt Historic District.

It is clear, regardless of which alternative is selected for the new Pruitt bridge, that adverse effects to historic properties will result. Foremost among these is the existing Pruitt Bridge, which is listed in the NRHP. Therefore, we recommend that Phase II work take place at sites 3NW1110, 3NW1309 and

3NW1311 to assess their eligibility for inclusion in the NRHP. For sites 3NW1110 and 3NW1311, this assessment should gauge eligibility under criteria A or B, since the archeological remains appear to be negligible. Following that, a Memorandum of Agreement should be developed to implement an historic properties treatment plan once a final route is selected.

Thank you for the opportunity to comment on this undertaking. If you have any questions, please contact George McCluskey of my staff at (501) 324-9880.

Sincerely,

Frances McSwain

Frances McSwain
Deputy State Historic Preservation Officer

cc: Dr. Richard Allen, Cherokee Nation
Mr. Earl J. Barbry, Tunica-Biloxi Tribe of Louisiana, Inc.
Ms. Margaret Bell, Wichita & Affiliated Tribes
Mr. Robert Cast, Caddo Nation
Mr. Kevin G. Cherri, Buffalo National River
Mr. Tracy L. Copeland, State Clearinghouse
Mr. Steven L. De Vore, NPS, Midwest Archeological Center
Dr. Ann M. Early, Arkansas Archeological Survey
Dr. Andrea A. Hunter, Osage Nation
Ms. Karen Kaniatobe, Absentee Shawnee Tribe
Ms. Lisa Larue-Stopp, United Keetoowah Band of Cherokees
Mr. Randall Looney, Federal Highway Administration
Ms. Belinda Pryor, Shawnee Tribe of Oklahoma
Ms. Glenna J. Wallace, Eastern Shawnee Tribe of Oklahoma
Ms. Carrie V. Wilson, Quapaw Tribe of Oklahoma

July 2010 Historic Bridge Marketing Letter - Copies were also sent to the entities listed on Table B-1 on page B-23.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

July 6, 2010

Honorable John Griffith
Newton County Judge
Newton County Courthouse
P.O. Box 435
Jasper, AR 72641

Subject: Historic Bridge #01689
AHTD Job Number 009784
Buffalo River Br. & Apprs.
(Pruitt)
Newton County

Dear Honoralbe John Griffith:

The Arkansas State Highway and Transportation Department is planning to replace Bridge Number 01689 (Pruitt Bridge) on State Highway 7 in Newton County. This bridge was determined eligible to the National Register of Historic Places as part of AHTD's 1987 Historic Bridge Inventory

The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) Section 123(f) states: "prior to the demolition of a historic bridge, the State shall market (sell or donate) the bridge to a State or local government, agency or responsible private entity." As part of the mitigation process, AHTD is offering Bridge Number 01689 for donation to any government or entity that demonstrates a willingness to accept title for, preserve the historic integrity of and assume the financial responsibility for the continued maintenance on the structure.

AHTD will reimburse costs associated with preservation that could include modifications for recreational use, relocation, site preparation, reassembly, etc. The cost reimbursement to be determined by Federal Highway Administration will not exceed 100% of the cost of demolition of the bridge, which will be based on the estimate of AHTD.

If you are interested in acquiring this bridge, please respond with a letter of interest within 45 days of receipt of this letter. For further information contact Robert Scoggin at (501) 569-2077.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

LM:RS:ab

c: FHWA
District Nine
Assistant Chief Engineer for Planning

Table B-1. July 2010 Historic Bridge Marketing Letter Recipients

Name / Agency / Entity	Title	Address
Harrison Daily Times	Editor	PO Box 40 Harrison, AR 72602
Newton County Historical Society	Editor	PO Box 360 Jasper, AR 72641
Newton County Times	Editor	PO Box 453 Jasper, AR 72641
Arkansas Democrat-Gazette	Editor	PO Box 2221 Little Rock, AR 72203
Ms. Laura A. Miller Arkansas Historical Association	President	History Department – Ozark Hall 12 University of Arkansas Fayetteville, AR 72701
Mr. John Gill Historic Preservation Alliance of Arkansas	President	PO Box 305 Little Rock, AR 72203
Ms. Nancy Atkinson Jasper/Newton County Chamber of Commerce	Executive Director	PO Box 250 Jasper, AR 72641
Ms. Judith Henry Ozark Forest Service	Forest Supervisor	605 West Main Russellville, AR 87208
Ms. Cathie Matthews Department of Arkansas Heritage	Director	1500 Tower Building, 323 Center Street Little Rock, AR 72201
Colonel Donald E. Jackson, Jr. U.S. Army Corps of Engineers Little Rock District	District Engineer	PO Box 867 Little Rock, AR 72203
Honorable Shannon Willis City of Jasper	Mayor	PO Box 434 Jasper, AR 72641
Honorable Lioneld Jordan City of Fayetteville	Mayor	113 West Mountain Fayetteville, AR 72701
Mr. Kevin G. Cheri National Park Service, Buffalo National River	Superintendent	402 N. Walnut, Suite 136 Harrison, AR 72602
Mr. Scott Henderson Arkansas Game and Fish Commission	Director	2 Natural Resources Drive Little Rock, AR 72205

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
D30 (BUFF-Hwy 7 Bridge)

July 14, 2010

Lynn P. Malbrough
Environmental Division
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72206-2261

Dear Mr. Malbrough:

In response to your letter dated July 6, 2010, requesting a letter of interest in assuming ownership of Bridge Number 01689 – Pruitt Bridge, we have determined at this time that ownership of the bridge is not feasible due to the extensive costs related to re-purposing and maintenance. Additionally, we have significant concerns about allowing the bridge to remain on the Buffalo National River (BNR) managed property while under the ownership and control of another entity, be it federal, state, or local.

With these concerns in mind, we also request that demolition or removal of the bridge from BNR property be included in one or more of the alternatives in the Highway 7 Bridge Replacement Project (AHTD Job Number 009784) Environmental Assessment currently being prepared.

Sincerely,

Kevin G. Cheri
Superintendent

Fayetteville
ARKANSAS
www.accessfayetteville.org

THE CITY OF FAYETTEVILLE, ARKANSAS
ADMINISTRATION
113 West Mountain
Fayetteville, AR 72701
P (479) 575-8330 F (479) 575-8257

July, 28th 2010

Lynn P. Malbrough, Division Head
Arkansas State Highway and Transportation Department
Environmental Division
P.O. Box 2261
10324 Interstate 30
Little Rock, AR 72203

Re: Letter of Interest – Highway 7 bridge over the Buffalo River at Pruitt

Dear Mr. Malbrough,

The City of Fayetteville would like to express our interest in the historic Highway 7 bridge over the Buffalo River at Pruitt. We would like to consider the possibility of using the bridge for our expanding multi-use trail system. The City has several upcoming trail projects that include bridge crossings over creeks, the White River and even over a major roadway. We understand that there will be many challenges to relocate the bridge, so at this point we would like to express our interest, but ask that we are not be bound to accept the bridge if relocation costs and logistics are not feasible.

This could be a great opportunity to reuse the bridge for enjoyment by pedestrians while helping preserve the history of Arkansas. The staff contact for this project will be Matt Mihalevich, Trails Coordinator (479) 444-3416 or mmihalevich@ci.fayetteville.ar.us.

Sincerely,

Lionell Jordan

Lioneld Jordan
Mayor

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

September 21, 2010

Honorable Lioneld Jordan
Mayor of Fayetteville
113 West Mountain
Fayetteville, AR 72701

Re: Bridge Number 01630
AHTD Job Number 009784
Highway 7
Newton County

Dear Mayor. Jordan,

Your expressed interest in the potential reuse of this bridge is in keeping with the Arkansas State Highway Commission policy of preserving historic bridges whenever possible. The Arkansas State Highway and Transportation Department (AHTD) is pleased you have expressed an interest in the reuse of this bridge in a new location as part of a walking trail. It is an excellent example of this bridge type, and is the only example of its type remaining in the state.

As per your letter dated July 28th we have developed estimated costs for the removal and storage of the bridge for later transportation and re-erection of the bridge by the City of Fayetteville (see enclosure). The estimated cost developed by AHTD for removal and storage of the bridge is $300,000, this does not include transportation and re-erection costs. Preliminary AHTD estimates indicate that an equivalent amount of money would likely be required for transportation and re-erection. These estimates do not include work related to bridge foundation and approach construction likely to be required at the new bridge location.

The AHTD Bridge Engineer has estimated the amount funds, equal to the cost of demolition, which are available for reimbursement to the City of Fayetteville for historic preservation work related tor the transportation and re-erection of this bridge. The AHTD Bridge Engineer estimates that $85,000 is available for reimbursement from a standard demolition of the bridge or $150,000 if special removal standards are required by the Buffalo National River.

In summary, the City of Fayetteville would likely be responsible for an estimated $450,000 to $515,000 to move and re-erect this bridge, while maintaining its historic architectural integrity, above the available reimbursement.

Also enclosed is a copy of the historic bridge preservation guidelines that includes information regarding the availability and use of federal funds for historic bridge rehabilitation or reuse, should you decide to reuse the bridge. If you have any questions about the project, please contact Robert Scoggin of my staff at 569-2077.

Sincerely,

Lynn Malbrough
Division Head
Environmental Division

LM:RS:ab

Cc: FHWA
Division Head - Bridge
District Four Engineer
Assistant Chief Engineer for Planning
Arkansas Historic Preservation Program

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

November 19, 2010

Honorable John Griffith
Newton County Judge
Newton County Courthouse
P.O. Box 435
Jasper, Arkansas 72641

Re: Job Number 009784
Buffalo River Br. & Apprs. (Pruitt)
Newton County, Arkansas

Dear Judge Griffith:

It is our understanding that Newton County does not wish to accept title for the Historic Buffalo River Bridge (Bridge #01689) on Highway 7 for reuse or relocation. If this is not the case please let us know of any plans you may have for the historic structure within 14 days of the receipt of this letter. Otherwise, we will move forward with the project with the assumption that Newton County does not wish to accept title for the historic bridge. If you need additional information, please contact Robert Scoggin of my staff at 501-569-2595.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

LM:RS:ab

April 2003 Historic Bridge Marketing Letter - Copies were also sent to the agencies/entities listed in Table B-2 on pages B-30 and B-31.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

April 24, 2013

Honorable Warren Campbell
Newton County Judge
Newton County Courthouse
P.O. Box 435
Jasper, AR 72641

Subject: Historic Bridge 01689
AHTD Job Number 009784
Buffalo River Br. & Apprs.
Newton County

Dear Judge Campbell:

The Arkansas State Highway and Transportation Department is planning to replace Bridge Number 01689 (Pruitt Bridge) on Highway 7 in Newton County. This bridge was determined eligible to the National Register of Historic Places as part of the AHTD's 1987 Historic Bridge Inventory.

The Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA) Section 123(f) states: "prior to the demolition of a historic bridge, the State shall market (sell or donate) the bridge to a State or local government, agency or responsible private entity." As part of the mitigation process, the AHTD is offering Bridge Number 01689 for sale or donation to any government or entity that demonstrates a willingness to accept title for, preserve the historic integrity of and assume the financial responsibility for the continued maintenance on the structure.

The AHTD will reimburse costs associated with preservation that could include modifications for recreational use, transportation to a new location or preparation of a new location. The cost reimbursement to be determined by the Federal Highway Administration will not exceed 100 % of the cost of demolition of the bridge, which will be based on the estimate of the AHTD.

If you are interested in acquiring this bridge, please respond with a letter of interest within 45 days of receipt of this letter. For further information contact Robert Scoggin at (501) 569-2077.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

Table B-2. April 2013 Historic Bridge Marketing Letter Recipients

Name / Agency / Entity	Title	Address
Mr. Dwain Lair Harrison Daily Times	Editor	PO Box 40 Harrison, AR 72602
Ms. Lisa Thompson Northwest Arkansas Times	Managing Editor	PO Box 1607 Fayetteville, AR 72702
Mr. Jeff Dezort Newton County Times	Editor	PO Box 453 Jasper, AR 72641
Mr. Timothy G. Nutt Arkansas Historical Association	President	History Department – Ozark Hall 12 University of Arkansas Fayetteville, AR 72701
Newton County Historical Society		PO Box 360 Jasper, AR 72641
Mr. John Greer, Jr. Historic Preservation Alliance of Arkansas	President	PO Box 305 Little Rock, AR 72203
Ms. Nancy Atkinson Newton County Chamber of Commerce	Executive Director	PO Box 250 Jasper, AR 72641
Ms. Judith Henry Ozark Forest Service	Forest Supervisor	605 West Main Russellville, AR 87208
Ms. Martha Miller Department of Arkansas Heritage	Director	1500 Tower Building, 323 Center Street Little Rock, AR 72201
Colonel Glen A. Masset U.S. Army Corps of Engineers Little Rock District	District Engineer	PO Box 867 Little Rock, AR 72203
Colonel Thomas P. Smity U.S. Army Corps of Engineers Memphis District	District Engineer	167 N. Main Memphis, TN 38103

Colonel Thomas P. Smity U.S. Army Corps of Engineers Vicksburg District	District Engineer	4155 E. Clay Street Vicksburg, MS 39183
Honorable Shane Kilgore City of Jasper	Mayor	PO Box 434 Jasper, AR 72641
Honorable John Griffith Newton County Judge	Judge	Newton County Courthouse PO Box 435 Jasper, AR 72641
Honorable James Norton Boone County Judge	Judge	Boone County Courthouse 100 North Main Street Harrison, AR 72601
Honorable Terry Ott Marion County Judge	Judge	Marion County Courthouse PO Box 545 Yellville, AR 72687
Honorable Frank Weaver Madison County Judge	Judge	Madison County Courthouse PO Box 37 Huntsville, AR 72740
Honorable Jim Ed Gibson Pope County Judge	Judge	Pope County Courthouse 100 West Main Russellville, AR 72801
Honorable Johnny Hinchey Searcy County Judge	Judge	Searcy County Courthouse PO Box 1370 Marshall, AR 72650
Honorable Lioneld Jordan City of Fayetteville	Mayor	113 West Mountain Fayetteville, AR 72701
Mr. Kevin G. Cheri National Park Service, Buffalo National River	Superintendent	402 N. Walnut, Suite 136 Harrison, AR 72602
Mr. Mike Knoedl Arkansas Game and Fish Commission	Director	2 Natural Resources Drive Little Rock, AR 72205
Mr. Richard Davies Department of Parks and Tourism	Director	One Capitol Mall 4A-900 Little Rock, AR 72201

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
4.B.1 (BUFF)

April 29, 2013

Lynn P. Malbrough, Division Head
Environmental Division
Arkansas Highway and Transportation Department
P. O. Box 2261
Little Rock, Arkansas 72206-2261

Dear Mr. Malbrough:

In response to your letter dated April 24, 2013, requesting a letter of interest in assuming ownership of Bridge Number 01689 (Pruitt Bridge) on Highway 7 in Newton County, we have determined that ownership of the bridge is not feasible due to the extensive costs related to re-purposing and maintenance. We also wish to reiterate our significant concerns about allowing the bridge to remain on the Buffalo National River (BNR) managed property while under the ownership and control of another entity, be it federal, state, or local.

With these concerns in mind, we also request that demolition or removal of the bridge from BNR property be included in one or more of the alternatives in the Highway 7 Bridge Replacement Project (AHDAT Job Number 009784) Environmental Assessment currently being prepared if not clearly identified to be removed elsewhere in the document.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTEROFFICE MEMORANDUM

May 30, 2013

TO: District Engineers

FROM: CJF Carl Fuselier, Chairman, Historic Bridge Analysis Committee

SUBJECT: Historic Bridge Available for Reuse
Bridge No. 01689
Highway 7 over Buffalo River
Newton County

Bridge number 01689 located on State Highway 7 in Newton County over Buffalo River is historic and is programmed for replacement under Job No. 009784. See the attached location map.

The bridge was constructed in 1931 and has a 20' clear roadway width. The structure includes a 160' long steel Pennsylvania through truss and 2 – 80' long Warren pony trusses. See the attached photo with description. It is currently listed as structurally deficient with a sufficiency rating of 7.3 but does not have any weight restrictions.

As part of the historic bridge replacement process, the AHTD Historic Bridge Analysis Committee is required to determine if there is a possibility of reuse of this bridge by the Department. If you are interested in reusing this bridge in your District, please contact Robert Scoggin in the Environmental Division within 30 days of receipt of this memo at 501-569-2077.

Attachments

c: Assistant Chief Engineer for Planning
District Maintenance Engineers
Environmental Division – Bob Scoggin

JAMES NORTON
BOONE COUNTY JUDGE

PHONE: 870-741-5760 100 N. MAIN ST., SUITE 300 FAX: 870-741-2855

June 6, 2013

Lynn P Malbrough
Division Head/Environmental Division
Arkansas State Highway & Transportation Department
P. O. Box 2261
Little Rock, Arkansas 72203-2261

VIA Telefax: 501-569-2400

Attn: Robert Scoggin with Lynn Malbrough

Gentlemen:

This is a follow-up letter to the one faxed to you at 12:04PM June 7, 2013.

This is a request for additional information on the following points concerning the Pruitt Bridge in Newton County.

1. The tort immunity a county would have from liability issues if a county were to accept ownership of this bridge.

2: In light of the 20-year upgrade for vehicular traffic that the Pruitt Bridge received in 2008, once vehicular traffic was stopped on it (upon completion of the new bridge in appx. 2016), how much would the "life-extension" be increased concerning the safe condition of that bridge for pedestrian, equestrian and bicycle traffic only? If it would double or triple due to weight, etc. issues no longer being a factor, would it be safe to say that maintenance for a county would not be an issue for 40 or more years into the future?

3. Would the AHTD do a final inspection and any necessary repairs before the transfer of the title just prior to that transfer of title?

4. Pertaining to the demolition cost estimate of $82,000 plus cost of increase since the original estimate) that would be reimbursed to a county for accepting

title to the bridge for preserving it in place, what are the list of uses that amount could be applied toward by the county?

5. Please explain/provide information as to other funding sources that would be available to the county or other entity that accepts ownership of this bridge.

6. If the plans for the new bridge are complete (as I assume they would have to be for the present bridge to be being marketed), or as soon as they are complete, I ask for a copy of them to be sent to my office as soon as possible so that Boone County officials may see if the construction of the new bridge and new approaches will any way pertain to the right of way of Job #009784 (that extends more than a mile into Boone County) and the 1949 Boone County Court Order property descriptions pertaining to this matter.

Thank you for a speedy reply and your service to our state is appreciated.

Respectfully,

James Norton
Boone County Judge

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

July 17, 2013

The Honorable Warren Campbell
Newton County Judge
Post Office Box 435
Jasper, Arkansas 72641

RE: Historic Bridge 01689
AHTD Job Number 009784
Buffalo River Str. & Apprs.
Independence County

Dear Judge Campbell:

The attached document is provided for your information and addresses questions from Judge Norton of Boone County. If you have any questions about the project, please contact Robert Scoggin of my staff at (501) 569-2077.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

LPM:DW:jh

Enclosure
Bridge Information Packet

JAMES NORTON
BOONE COUNTY JUDGE

PHONE: 870-741-5760 **100 N. MAIN ST., SUITE 300** **FAX: 870-741-2855**

June 7, 2013

Lynn P Malbrough
Division Head/Environmental Division
Arkansas State Highway & Transportation Department
P. O. Box 2261
Little Rock, Arkansas 72203-2261

VIA Telefax: 501-569-2400

Attn: Robert Scoggin with Lynn Malbrough

Gentlemen:

This is a follow-up letter to the one faxed to you at 12:04PM June 7, 2013.

This is a request for additional information on the following points concerning the Pruitt Bridge in Newton County.

1. The tort immunity a county would have from liability issues if a county were to accept ownership of this bridge.

2: In light of the 20-year upgrade for vehicular traffic that the Pruitt Bridge received in 2008, once vehicular traffic was stopped on it (upon completion of the new bridge in appx. 2016), how much would the "life-extension" be increased concerning the safe condition of that bridge for pedestrian, equestrian and bicycle traffic only? If it would double or triple due to weight, etc. issues no longer being a factor, would it be safe to say that maintenance for a county would not be an issue for 40 or more years into the future?

3. Would the AHTD do a final inspection and any necessary repairs before the transfer of the title just prior to that transfer of title?

4. Pertaining to the demolition cost estimate of $82,000 plus cost of increase since the original estimate) that would be reimbursed to a county for accepting

title to the bridge for preserving it in place, what are the list of uses that amount could be applied toward by the county?

5. Please explain/provide information as to other funding sources that would be available to the county or other entity that accepts ownership of this bridge.

6. If the plans for the new bridge are complete (as I assume they would have to be for the present bridge to be being marketed), or as soon as they are complete, I ask for a copy of them to be sent to my office as soon as possible so that Boone County officials may see if the construction of the new bridge and new approaches will any way pertain to the right of way of Job #009784 (that extends more than a mile into Boone County) and the 1949 Boone County Court Order property descriptions pertaining to this matter.

Thank you for a speedy reply and your service to our state is appreciated.

Respectfully,

James Norton
Boone County Judge

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

July 16, 2013

Honorable James Norton
Boone County Judge
Boone County Courthouse
100 North Main Street, Suite 300
Harrison, AR 72601

RE: Historic Bridge 01689
AHTD Job Number 009784
Buffalo River Str. & Apprs.
Newton County

Dear Judge Norton:

This letter addresses the questions contained in your correspondence of June 7, 2013 regarding the referenced project proposed to replace the historic Pruitt Bridge. Our responses to your questions can be found in the following information.

Question 1:

We suggest you contact Mark Whitmore of the Association of Arkansas Counties for legal questions regarding tort immunity of a county. He should be able to explain Ark. Code Ann. § 21-9-301 concerning tort liability-immunity and the Arkansas Recreational-Use Statute found at Ark Code Ann. §§ 18-11-301 et seq., and cases regarding this statute. His address is as follows: Association of County Judges, 1415 West 3rd Street, Little Rock, AR 72201, and he can be reached by telephone at (501) 372-7550.

Question 2:

The AHTD did not conduct a 20-year upgrade for vehicular traffic on the Pruitt Bridge in 2008. Some repair work was done to the bottom chords of the truss and ends of the

floorbeams in 2008 but it was classified as routine maintanence. Typically the life of a bridge would be extended if vehicular traffic were removed. But the bridge would not last 40 years without basic routine maintanance such as cleaning and spot painting to prevent section loss of the steel members, deck patching, etc.

Question 3:

The AHTD inspects the Pruitt Bridge every 12 months. While some deficiencies reported during these inspections are repaired to insure safety and to extend the life of the bridge until its replacement, not everything reported is repaired since it is programmed for replacement. The last regularly scheduled inspection for the bridge before its closure will be the final inspection by AHTD. Other repairs that would be needed to extend the life of the bridge may be requested, but the cost of these repairs would be deducted from the estimated demolition funds available for reimbursement to the County.

Question 4:

The estimated bridge demolition cost was calculated in 2003 as $82,000; the AHTD has revised the demolition costs estimate as of April 2013 to be $200,000. Please see the enclosed historic bridge preservation guidelines for more information regarding the use of the estimated demolition funds.

Question 5:

With the listing of the historic Pruitt Bridge on the National Register of Historic Places, it is eligible for a tax break associated with historic structures; and grants from the Arkasnas Historic Preservation Program and the Arkansas Natural Resources Council.

Question 6:

The plans for the project have not been finalized and are not available at this time. The new bridge will be located in the general area of the existing bridge with the entire proposed project located within Newton County. Therefore Boone County has no involvement in this project unless the County wishes to assume ownership and responsibility for the preservation of the Pruitt Bridge at a relocation site within Boone County. As per the historic bridge preservation guidelines, relocation expenses would be deducted from the estimated demolition funds.

Your letter dated June 6, 2013 requested further information, including court orders, surveys and previous correspondence pertaining to this proposed project. This information is also enclosed.

If you have any questions about the project, please contact Robert Scoggin of my staff at 501-569-2077.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

LPM:DW:RS:jh

Enclosure
- Boone County Right of Way Court Order and Survey
- Buffalo National River Correspondence
- Historic Bridge Preservation Guidelines
- Newton County Correspondence
- Newton County Right of Way Court Order and Survey
- Newton County - 2004 Memorandum of Agreement

JAMES NORTON
BOONE COUNTY JUDGE

PHONE: 870-741-5760 | 100 N. MAIN ST., SUITE 300 HARRISON, ARKANSAS 72601 | FAX: 870-741-2853

June 6, 2013

Lynn P. Malbrough
Division Head/Environmental Division
Arkansas State Highway & Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

VIA Telefax: 501-569-2400

Attn: Robert Scoggin with Lynn Malbrough

Gentlemen:

Having just today been made aware of the April 24, 2013 letter to Honorable Judge Campbell of Newton County from your Department pertaining to the Pruitt Bridge, and further finding that AHTD Job Number 009784 also includes a portion of Boone County, I am hastening to send this letter of inquiry ahead of the 45 day time limit referenced in your letter to Judge Campbell.

I regret that I have not been informed prior to today that Boone County's land that is detailed in a 1949 Boone County Court Order that is part of the AHTD Job Number 009784 is apparently tied to the future of the Pruitt Bridge.

I request that your 45 day time limit to Judge Campbell be cancelled at this time so that Boone County officials may consult with Newton County officials, etc. who have obviously been involved in this matter for a number of years now. I would like to say that I and others of our Boone County Quorum Court are very interested in acquiring full information about all the potentialities of accepting or declining ownership of this bridge with its approaches.

Please send to my office as soon as possible all court orders, surveys, and previous correspondences with former officials of either county that pertain to this bridge, including the 2004 MOA with Newton County Judge Harold Smith.

I would appreciate a letter of explanation from your office also as to Boone County's area and potential involvement in this matter.

Respectfully,

James Norton
Boone County Judge

JAMES NORTON
BOONE COUNTY JUDGE

PHONE: 870-741-5760 100 N. MAIN ST., SUITE 300 FAX: 870-741-2855

September 27, 2013

Lynn P. Malbrough
Division Head/Environmental Division
Arkansas State Highway & Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Re: Historic Bridge 91689

Attn: Robert Scoggin with Lynn Malbrough

Gentlemen:

Thank you for you 7-16-2013 response to my 6-7-2013 list of inquiries. I remind you that a few hours before I sent that list of inquiries, I had already sent a separate letter requesting that your 45-day time limit to Judge Campbell of Newton County, etc. be cancelled so that our county could take time to consider all that is involved in this matter.

I would appreciate formal written confirmation from your office of your timely receipt of that 6-6-2013 request of mine, and also please include your comments as to a time frame for our county to have to make a final decision on this matter.

I continue to wait for information from you as to the finalized plans of the new bridge project as I requested earlier. I had expected that it would be forthcoming in August, but have heard nothing from your offices. Please update my office with that information also.

I now would like to address your 7-16-2013 responses to my six questions I had submitted to you on 6-7-2013 as follows:

1. We already have accessed the statutory citations you listed plus copies of case law pertaining to this liability issue, and we also have contact with local and other able attorneys who we trust to advise us on this matter.
2. We have documents obtained by FOIA that indicate that a 20-year upgrade WAS done in 2008-09 by your department to the bridge. Also, why did you not qualify in your statement what the difference in maintenance and repairs would be if the bridge were no longer used for vehicular traffic, but only for pedestrian purposes? Please provide that information in professional detail for us.
3. What is your "regular" inspection schedule for the Buffalo Bridge at Pruitt through August 2014 or the planned opening of the new project, whichever is later?

Also, please provide all documents pertaining to inspections of the Buffalo Bridge at Pruitt from 2008 to the present.

4. The Historic Bridge Preservation Guideline you sent to me seems to be specific to the Buffalo Bridge. If there is a standard version of Historic Bridge Preservation Guideline, please send it to me for comparison. Also, if your department or other agencies have other bridge specific Historic Bridge Preservation Guideline documents, also please send those to me. Please provide a **specific and exact** list of what expenses would be eligible for reimbursement by the $200,000.00 demolition fund. From where would those reimbursements be issued? What tax issues would apply?
5. Please send a chart or other explanation of the "tax breaks associated with historic structures" that you referenced in your response. Please provide contact information for the Arkansas Historic Preservation Program and the Arkansas Natural Resources Council.
6. In previous letters of AHTD, it is repeatedly stated that options "***could*** include… relocation" not ***must*** or ***shall.*** Your response to my question 6 implies that if we accept ownership that we would be ***required*** to relocate the bridge to Boone County. That is not our intention at all, nor our belief that we would be required to do so. Our interest is ONLY the possibility of preserving it IN PLACE, as has been documented as allowable in the past by all entities concerned with this bridge. Such conflicting words of government agencies as has obviously been the case with this bridge is certainly not a good service to the public we are entrusted to serve. Please be clear pertaining to our option to accept the bridge IN PLACE.

In response to the Department of Interior letters dated 7-14-2010 and 4-29-2013, in which it is twice stated that the bridge is on their "managed property" is a puzzle to me. It is our understanding that the bridge now rests on state of Arkansas property and would then become the property of our county if we decide to take ownership. If they claim "managerial" power, then would they not also be responsible for financial costs of upkeep? Does or has or will or can AHTD in any way make an exchange or agreement with NPS/DOI that would or could compromise future full ownership of the bridge and approaches by a county or any other entity who would be willing to accept ownership? Please provide written documentation and certain terms for all your answers.

And pertaining to the 11-19-2010 AHTD letter to Newton County Judge Griffith, I would ask how could your department lawfully move forward on an "assumption" with no written confirmation from the county when there were already numerous documents on file in which the county had plainly revealed that a decision had already been made to the contrary of what your departments' "assumption" was?! Has the public of Newton County been informed/consulted pertaining to this matter?

Thank you for your service to our state and for a speedy reply to these further inquiries. I must have comprehensive information on this subject before responsible decisions can be made. Again, please provide definite information of the plans and time frame for the new project.

Respectfully,

James Norton, Boone County Judge

Copies to interested officials, etc.

Newton

WARREN CAMPBELL
NEWTON COUNTY JUDGE

P.O. BOX 435
JASPER, ARKANSAS 72641

PHONE: 870-446-5127
FAX: 870-446-5902

October 17, 2013

To: Arkansas State Highway & Transportation Department

RE: Historic Pruitt Bridge

Newton County will not accept ownership/responsible of the Pruitt Bridge, RE: Historic Bridge 01689 AHTD Job Number 009784.

Warren Campbell
Newton County Judge

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

December 23, 2013

The Honorable James Norton
Boone County Judge
100 N. Main Street, Suite 300
Harrison, AR 72601

RE: AHTD Job Number 009784
Buffalo River Br. & Apprs. (Pruitt)
Newton County

Dear Judge Norton:

Reference is made to your numerous letters this fall that documented your interest and the possible options related to your County's acquisition of the existing Highway 7 Bridge over the Buffalo River at Pruitt. The Arkansas State Highway and Transportation Department's legal staff researched the legal issues related to your request and determined that relocation of the Highway 7 bridge would be the only alternative available to an entity that does not have jurisdiction over the subject bridge in Newton County. See Ark. Const. Amend. 55 §3, Amend. 61, and Article 12 § 5 of the Arkansas Constitution. The only entities that may have jurisdictional authority to operate and preserve the bridge at its present location would, in our opinion, be Newton County or the Secretary of Interior, National Park Service, Buffalo National River. See 16 USC §§460m-8, 460m-9 and Ark. Code Ann. §§22-7-102, 22-7-202, 22-7-223(a)(4) and see the enclosed Attorney General Opinions 2007-321, 96-175, 94-400, 95-198, and 95-189.

Correspondence from the Buffalo National River and Newton County states that they are unwilling to accept ownership and responsibility for the Pruitt Bridge. Based on the legal opinion developed by the Department's staff, the only option available to Boone County would be to assume ownership and responsibility for the preservation of the Pruitt Bridge at a relocation site within Boone County. Please respond within 45 days if you wish to exercise this option.

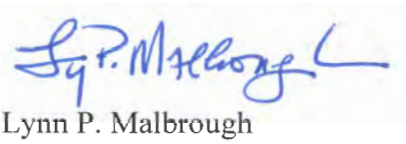
The exercise of this option would require written approval from Boone County Quorum Court, the Federal Highway Administration, Arkansas State Historic Preservation Commission, and the Arkansas Highway Commission in an agreement to relocate the bridge.

We can provide technical guidance and assistance to you related to the removal and relocation of the Pruitt Bridge. The Department intends to complete the environmental assessment (EA) of the Pruitt Bridge Replacement on Highway 7 that will include either the relocation or demolition of the bridge as part of the project's proposed action.

When the Federal Highway Administration approves the EA for public dissemination, there will be a public comment period and a public hearing offered to solicit comment on this proposed action. After addressing the public hearing comments, the Department will submit a Finding of No Significant Impact (FONSI) to the Federal Highway Administration to establish the Selected Alternative for the proposed bridge replacement.

If at that time, you and your staff determine that the Selected Alternative is not in Boone County's best interest, you may take further action. We anticipate completing the EA/FONSI process for this project by late spring or summer of 2014. If you have any questions or need additional information, please contact me.

Sincerely,



Lynn P. Malbrough
Division Head
Environmental Division

Enclosure

c: Assistant Chief Engineer – Planning
Legal
District 9
Environmental
Master File
Randal Looney, FHWA

MEMORANDUM OF AGREEMENT

AMONG THE
FEDERAL HIGHWAY ADMINISTRATION, THE
ARKANSAS STATE HISTORIC PRESERVATION OFFICER AND THE
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
REGARDING

AHTD JOB NUMBER 009784
BUFFALO RIVER BRIDGE & APPROACHES (PRUITT)
HIGHWAY 7, NEWTON COUNTY, ARKANSAS
AHTD BRIDGE NUMBER 01689

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and the transportation needs in north Arkansas; and the old Buffalo River Bridge (AHTD Number 01698) will be demolished for construction of a new bridge; and

WHEREAS, the old Buffalo River Bridge is a property listed on the National Register of Historic Places (NRHP); and

WHEREAS, through the Programmatic Section 4(f) Evaluation process the Federal Highway Administration (FHWA) has determined that no feasible and prudent alternative to the demolition of the old Buffalo River Bridge exists; and

WHEREAS, the FHWA has marketed the old Buffalo River Bridge to federal agencies, the Newton County Judge, local governments, and the historic society in Newton County, Arkansas; and

WHEREAS, no entities were found willing to accept title for preservation of the old Buffalo River Bridge at its current location or reuse at another location; and

WHEREAS, the FHWA has determined that this undertaking will have an adverse effect on a property listed on the NRHP and in accordance with 36 Code of Federal Regulations (CFR) Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), must address this effect; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this Memorandum of Agreement (MOA); and

NOW THEREFORE, the FHWA and the State Historic Preservation Officer (SHPO) agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of this undertaking on the historic property.

STIPULATIONS

The FHWA, through the AHTD, will ensure that the following stipulations are carried out.

I. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTY: (Buffalo River Bridge)

1. The FWHA will update the existing Historic American Engineering Record (HAER) history (AR-23) for the old Buffalo River Bridge. This history was produced during the 1988 HAER project during which only a limited number of historic bridges were documented to Level I, with most project bridges limited to Level III documentation. The old Buffalo River Bridge was documented at Level III during this project with limited historic information and photographs. The updated history will include more detailed information for the bridge, as one of a limited number of experimental bridge types designed and constructed by the AHTD, as well as its relationship to early Arkansas transportation history.

2. The documentation will meet the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 CFR 44716.

3. The National Park Service's *Historic American Engineering Record Guidelines for Historic Reports 2008, updated 2010* shall be followed in producing the historic documentation.

4. Copies of the original design plans for the bridge, which were not included in the original submission to the NPS, will be included with the updated HAER history for the bridge.

5. The updated documentation will be curated at the Arkansas Historic Preservation Program (AHPP), the AHTD, the Arkansas History Commission, and the Torreyson Library at the University of Central Arkansas.

6. A documentary video will be produced that will discuss the history and construction of the old Buffalo River Bridge.

7. A physical scale model of the old Buffalo River Bridge will be created to be displayed at a location to be chosen at a future date.

8. The old Buffalo River Bridge will be laser scanned and a 3-dimensional digital model of the bridge will be created and housed in the Historic Bridge Program Section of the AHTD website.

9. A kiosk will be constructed that will describe the history and significance of the old Buffalo River Bridge using the updated HAER history, original design plans, 3-Dimensional model and photographs from the HAER and AHTD collections. The kiosk will be located near the new bridge at the Pruitt access area.

10. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

11. The FHWA shall ensure that adequate time and funding are provided in order to carry out all aspects of the required mitigation.

II. HUMAN REMAINS

Human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the project, all activity in the vicinity of the discovery shall cease. The treatment of human remains shall follow the guidelines developed for the *Arkansas Burial Law* (Act 753 of 1991, as amended) and the Advisory Council on Historic Preservation's *Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects* published February 23, 2007.

III. DURATION

This MOA will remain in effect for a period not to exceed ten years from the date of ratification, or until the proposed construction is complete. It may be extended by agreement of all the signatories.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic preservation activities to this MOA are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (48 CFR 44739).

V. ARCHEOLOGICAL FIELDWORK AND REPORT STANDARDS

All archeological field work and report writing shall follow the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48

CFR 44716-39) and *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010).

VI. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR Part 800.13, if cultural material is discovered during implementation of the project, the FHWA shall ensure that all construction activities cease in the area of the discovery and the consulting parties are notified. The FHWA and the SHPO shall determine if the discovery is eligible for inclusion in the National Register of Historic Places. If so, the FHWA and the AHTD will develop a treatment plan for historic properties which shall be reviewed and approved by the SHPO. Disputes arising from such review shall be resolved in accordance with Stipulation VII.

VII. DISPUTE RESOLUTION

Should the SHPO or any consulting party object within thirty (30) calendar days to any findings, proposed actions or determinations made pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, it shall request further comments from the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800.7. Any Council comment provided in response to such a request shall be taken into account by the FHWA in accordance with 36 CFR 800.7 with reference only to the subject of the dispute; the FHWA responsibility to carry out all actions under this MOA that are not subject to dispute shall remain unchanged.

VIII. MONITORING

The consulting parties or one or more parties in cooperation may monitor the undertaking and stipulations carried out pursuant to this MOA.

IX. AMENDING THE MEMORANDUM OF AGREEMENT

Should any of the signatories to this MOA believe that the terms of this MOA are not being met or cannot be met, that party shall immediately notify the other signatories and request consultation to amend this MOA in accordance with 36 CFR Part 800. The process to amend this MOA shall be conducted in a manner similar to that leading to the execution of this MOA.

X. TERMINATING THE MEMORANDUM OF AGREEMENT

Any signatory to this MOA may terminate it by providing thirty (30) calendar days notice to the other parties provided that the parties shall consult during the period

prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

XI. FAILURE TO CARRY OUT THE MEMORANDUM OF AGREEMENT

In the event the FHWA does not carry out the terms of the MOA, the FHWA shall comply with 36 CFR Part 800.4 through Part 800.6 with regard to the undertaking covered by this MOA.

XII. FULFILLMENT OF SECTION 106 RESPONSIBILITIES

Execution and implementation of this MOA evidences that the FHWA has afforded the ACHP a reasonable opportunity to comment pursuant to 36 CFR Part 800 on the proposed replacement of the National Register listed old Buffalo River Bridge in Newton County, Arkansas and its effect on the historic property, and the FHWA has taken into account the effect of the undertaking on the historic property.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Sandra Otto
Arkansas Division Administrator

10/6/2014
Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Martha Miller
Arkansas State Historic Preservation Officer

8/22/14
Date

Signatory

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director of Highways and Transportation

7-24-2014
Date

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

May 19, 2014

Mr. Eric Gilliland
Arkansas Historic Preservation Program
1500 Tower Building
323 Center Street
Little Rock, Arkansas 72201

RE: AHTD Job Number 009784
Buffalo River Br. & Apprs.
(Pruitt)
Newton County

Dear Mr. Gilliland:

This is an addendum to a previous Request for Technical Assistance for the above referenced project. One additional property may be impacted by the project.

A photograph, description and location map for the property are included so your staff may evaluate its eligibility for inclusion in the National Register of Historic Places. If you have any questions about the project, please contact Robert Scoggin of my staff at (501) 569-2077.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

LPM:DW:RS:jh

Enclosure
Request for Technical Assistance Addendum



Property C

This property consists of the southern concrete approach to the original 1913 bridge over the Buffalo River. The 1913 bridge was replaced in 1931 and demolished. The southern approach and rock piers were abandoned in place. The approach was acquired by the Shady Grove Camp and used as the elevated foundation for three cabins built in the 1920s. The cabins elevation above the rest of the camp allowed natural air conditioning from the wind and they became the most popular cabins in the camp. The cabins were demolished by the Buffalo National River in the 1970s but the cabin foundations still remain on the bridge approach.

The bridge approach, along with the concrete foundation of a privy and the rock piers, are included as part of archeological site 3NW1110. The archeological deposits associated with the structural remains of 3NW1110 were determined not significant in a June 3, 2010 letter from the AHPP. The eligibility of the structures was not addressed.

Though the privy foundation and rock piers of the 1913 bridge are still extant, they do not contribute to the historic integrity of the camp. The extant 1913 southern bridge approach which contains the foundations of the Shady Grove Camp cabins is the only remaining intact part of the original camp which gave rise to the village of Pruitt. The bridge approach is not eligible under Criteria C for its architecture. It is however the earliest remaining structure adapted for use by the Shady Grove Camp. Based on the information provided above, please provide a determination of eligibility for this structure.

The Department of
Arkansas
Heritage

Mike Beebe
Governor

Martha Miller
Director

Arkansas Arts Council

Arkansas Natural Heritage Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars Cultural Center

Old State House Museum

Arkansas Historic Preservation Program

323 Center Street, Suite 1500
Little Rock, AR 72201
(501) 324-9880
fax: (501) 324-9184
tdd: (501) 324-9811
e-mail:
info@arkansaspreservation.org
website:
www.arkansaspreservation.org

June 6, 2014

Mr. Lynn P. Malbrough
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
PO Box 2261
Little Rock, AR 72203-2261

RE: Newton County – Pruitt
Section 106 Review – FHWA
Request for Technical Assistance
AHTD Job Number 009784
AHPP Tracking Number 64162

Dear Mr. Malbrough:

This letter is written in response to your inquiry regarding properties of architectural or historical significance in the area of the proposed referenced project. The staff of the Arkansas Historic Preservation Program has reviewed the documents contained in your May 19, 2014 letter and has determined that Property C is eligible for inclusion in the National Register of Historic Place under Criteria A and possibly also under Criteria C.

Once the undertaking is further along in the planning stages, we look forward to reviewing the cultural resources survey report of the proposed project. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Theresa Russell of my staff at (501)-324-9357.

Sincerely,

Frances McSwain

Frances McSwain
Deputy State Historic Preservation Officer

cc: Mr. Randal Looney, Federal Highway Administration
Ms. Rebecca Brave, Osage Nation
Mr. Everett Bandy, Quapaw Tribe of Oklahoma
Dr. Ann Early, Arkansas Archeological Survey

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

November 6, 2014

Mr. Eric Gilliland
Arkansas Historic Preservation Program
1500 Tower Building
323 Center Street
Little Rock, Arkansas 72201

RE: AHTD Job Number BR5102
Mill Creek Str. & Apprs.
Newton County

Dear Mr. Gilliland:

This project proposes to replace one bridge over Mill Creek on County Road 472 in Newton County. Two properties may be impacted by the project.

Photographs, descriptions and a location map for the properties are included so your staff may evaluate its eligibility for inclusion in the National Register of Historic Places. If you have any questions about the project, please contact Robert Scoggin of my staff at (501) 569-2077.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

JF:DW:RS:jh

Enclosure
Request for Technical Assistance Addendum

The Department of
Arkansas
Heritage

Mike Beebe
Governor

Martha Miller
Director

Arkansas Arts Council
*
Arkansas Natural Heritage Commission
*
Delta Cultural Center
*
Historic Arkansas Museum
*
Mosaic Templars Cultural Center
*
Old State House Museum

Arkansas Historic Preservation Program

323 Center Street, Suite 1500
Little Rock, AR 72201
(501) 324-9880
fax: (501) 324-9184
tdd: (501) 324-9811
e-mail:
info@arkansaspreservation.org
website:
www.arkansaspreservation.org

November 14, 2014

Mr. John Fleming
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
PO Box 2261
Little Rock, AR 72203-2261

RE: Newton – General
Section 106 Review – FHWA
Request for Technical Assistance
AHTD Job Number BR5102
Mill Creek Str. & Apprs.
AHPP Tracking Number 74437.1

Dear Mr. Fleming:

This letter is written in response to your inquiry regarding properties of architectural or historical significance in the area of the proposed referenced project. The staff of the Arkansas Historic Preservation Program has reviewed the documents contained in your November 6, 2014 letter and has determined that both properties (A and B) possibly impacted are eligible for inclusion in the National Register of Historic Places.

Once the undertaking is further along in the planning stages, we look forward to reviewing the cultural resources survey report of the proposed project. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Theresa Russell of my staff at (501)-324-9357.

Sincerely,

Frances McSwain

Frances McSwain
Deputy State Historic Preservation Officer

cc: Mr. Randal Looney, Federal Highway Administration
Ms. Lisa Baker, United Keetoowah Band of Cherokee Indians
Dr. Andrea Hunter, Osage Nation
Mr. Everett Bandy, Quapaw Tribe of Oklahoma
Dr. Ann Early, Arkansas Archeological Survey

APPENDIX C

AGENCY CORRESPONDENCE

This page intentionally left blank.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Telephone (501) 569-2000

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400

October 1, 2002

Superintendent Ivan D. Miller
U.S. Department of the Interior
National Park Service
Buffalo National River
402 North Walnut, Suite 136
Harrison, Arkansas 72601

Re: AHTD Job Number 009784
Buffalo River Br. & Apprs. (Hwy. 7)
Newton County

Dear Superintendent Miller:

The Arkansas State Highway and Transportation Department (AHTD) and Federal Highway Administration are beginning the preparation of the environmental documentation for the referenced project. This project proposes replacement of the existing bridge over the Buffalo River along State Highway 7 in Newton County. A project location map is enclosed.

The AHTD would like to invite the National Park Service to be a cooperating agency in the preparation of the NEPA document. In addition, the U.S. Army Corps of Engineers will also be invited to be a cooperating agency.

The AHTD would also like to request permits for preliminary environmental data collection. Information will be submitted for an Archeological Resource Protection Act (ARPA) Permit needed for a Phase I Archeological Survey. We would also like to request the names of Phillip Moore (botanical specimens) and John Harris (aquatic specimens) be added to a collecting permit. These surveys will be performed by the AHTD personnel within the project area.

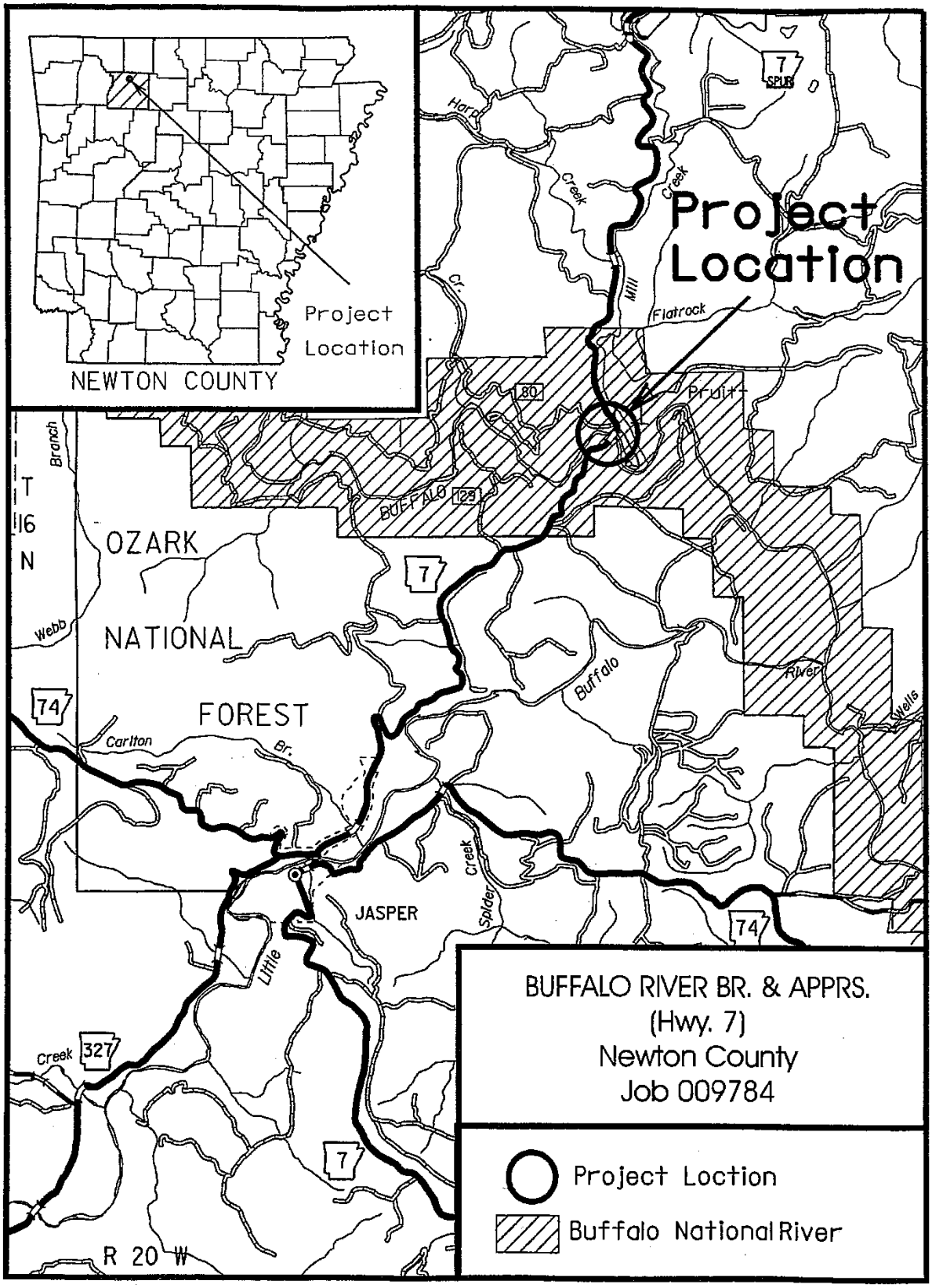
If additional information is needed, please contact Don Nichols of my staff at (501) 569-2611.

Sincerely,

Marion Butler
Division Head
Environmental Division

Enclosure

MB:DN:dfs


Project Location
NEWTON COUNTY
Project Location
Flatrock
Pruitt
BUFFALO
OZARK
NATIONAL
FOREST
JASPER
Buffalo River
Little Creek
Spider Creek
Carlton Br.
Webb Branch
Hard Creek
Mill Cr.
T 16 N
R 20 W
7
74
80
123
327
BUFFALO RIVER BR. & APPRS.
(Hwy. 7)
Newton County
Job 009784
Project Loction
Buffalo National River

INTER OFFICE MEMORANDUM

DATE: December 16, 2002

TO: Master Files

FROM: Don Nichols, Environmental Analyst II, Environmental Division DN.

SUBJECT: NPS Coordination Meeting, Buffalo River National Park
AHTD Job Number 009784
Buffalo River Br. & Apprs. (State Hwy. 7)
Newton County

A coordination meeting was held on site with Buffalo National River Park representatives on November 26, 2002. A list of those attending is attached. The meeting addressed the subject proposed highway project.

A project corridor that was developed by AHTD was presented for consideration. Potential archeological, historic, endangered species, and special habitat constraints were discussed and outlined on maps.

In addition to constraints mapping, the following issues were discussed:

1) Consideration should be given to constructing an underpass on the north side of the river to increase safety along the existing horse trail.

2) The potential for the existing bridge to remain after completion of the new bridge is uncertain due to maintenance costs. Due to this fact, the alternatives considered should include examination of impacts with and without the existing bridge remaining in place.

3) Possible alternatives east of the current study coridoor were discussed and will be investigated further.

4) Requirements to acquire a Letter of Permission from the USCOE were discussed and will be completed if this 404 permit type is deemed appropriate.

The AHTD will develop possible alignments and present those to the Buffalo National River Park representatives for discussion within the next several months.

Attachment

DN

NPS Coordination Meeting Attendees
AHTD Job Number 009784
Buffalo River Br. & Apprs. (State Hwy. 7)
Newton County

Name	Department
Don Nichols	AHTD, Environmental Division
Martin Cruce	AHTD, Roadway Division
Butch Martin	AHTD, District Nine
Steve Lawrence	AHTD, District Nine
Larry Harrison	USCOE
Ivan Miller	NPS, Buffalo National River
Sammy Lail	NPS, Buffalo National River
Robert Howard	NPS, Buffalo National River
Robert Mcguire	NPS, Buffalo National River
Roger Dillard	NPS, Buffalo National River
David Mott	NPS, Buffalo National River
Charlotte Hunter	NPS, Buffalo National River
Bob White	NPS, Buffalo National River
Chuck Bitting	NPS, Buffalo National River

INTER OFFICE MEMORANDUM

DATE: May 28, 2004

TO: Master Files

FROM: Don Nichols, Environmental Analyst II, Environmental Division

SUBJECT: NPS Coordination Meeting, Buffalo River National Park
AHTD Job Number 009784
Buffalo River Br. & Apprs. (State Hwy. 7)
Newton County

A coordination meeting was held on site with Buffalo National River (BNR) representatives on May 26, 2004. A list of those attending is attached. The meeting addressed the subject proposed highway project.

Alternative alignments that were developed by AHTD were presented for consideration. Potential archeological, historic, and threatened and endangered species constraints were discussed and outlined on maps.

In addition to constraints mapping, the following issues were discussed:

1) Consideration should be given to providing a 10-foot clearance under the north end of the new bridge to accommodate horse trail traffic.
2) Due to recreational concerns, it was requested that we investigate a bridge design without piers in the river and included sidewalks.
3) The BNR concurs that the easternmost line, originally proposed by the BNR, is not a viable alternative compared to the new alternatives that have been developed.
4) There was concern related to the total impacts to the park that would occur from trying to straighten out the existing curves.

The following concerns were cited related to leaving the historic bridge in place and allowing the county to handle maintenance on the bridge and access roads:

1) The BNR would like to limit any new county road additions in the Park.
2) The BNR would like to minimize obstructions to the free flowing nature of the Buffalo River.
3) Moving the bridge should be explored.

The AHTD will send the BNR a response letter related to the historic bridge issues. The BNR will notify the AHTD about their decision on removing the curves. This will allow the AHTD to refine the alternatives for an environmental assessment.

Attachment

DN

NPS Coordination Meeting Attendees
AHTD Job Number 009784
Buffalo River Br. & Apprs. (State Hwy. 7)
Newton County

Name	Department
Don Nichols	AHTD, Environmental Division
Henry Langston	AHTD, Environmental Division
Claude Klinck	AHTD, Roadway Division
Leo Priest	AHTD, Roadway Division
Steve Lawrence	AHTD, District Nine
Jeff Wheeler	AHTD, District Nine
Ivan Miller	NPS, Buffalo National River
Sammy Lail	NPS, Buffalo National River
Cavin Clark	NPS, Buffalo National River
Jim Lotz	NPS, Buffalo National River
Zed Davenport	NPS, Buffalo National River
David Mott	NPS, Buffalo National River
Suzanne Rogers	NPS, Buffalo National River
Robert Mcquire	NPS, Buffalo National River

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72602

IN REPLY REFER TO

L7617 (BUFF-ONR)

May 21, 2009

Lynn P. Malbrough
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Malbrough:

The purpose of this letter is to provide a written response to the Draft Environmental Assessment and Section 4(f) Evaluation for the Highway 7 Passing Lanes, Safety Improvements, and Buffalo River Bridge and Approaches. On May 14, 2009, we met with Arkansas Highway and Transportation Department (AHTD) representatives Don Nichols and John Harris and Randal Looney of the Federal Highway Administration this morning to provide suggestions and discuss several concerns related to the draft document. The comments are arranged by topic.

We have found a few errors of the editorial type throughout the document.

1. On page 1, paragraph 2, the county roads are mislabeled, CR 78 goes to the Pruitt Maintenance Shop.
2. The Pruitt Day Use Area has no CR number that we are aware of.
3. On page 6, paragraph 1, the description of the shoulder width should have meters in the parentheses.
4. On page 40 in the first full paragraph, hunting should be added to the list of recreational activities.
5. On page B-6, Section 5, the second sentence should be changed to "A bat hibernaculum for the gray bat that also hosts a summer colony of gray bats was identified approximately 0.33 mile (0.53 kilometer) from AHTD Job Number 009784, the Buffalo River Bridge Replacement Section."
6. On page B-8, section 6, second paragraph, remove "transient" from the third sentence.
7. On page E-6 second paragraph, remove "as a natural recreation area" in the first sentence, and change "recreation area" in the fourth sentence to "national river".

8. The reference to canoeists in the second paragraph of page E-7 should be changed to "boaters".
9. On page E-12 in the last paragraph, add hunting to the list of recreational opportunities in the area.
10. On page E-19 in the first sentence the word "additional" should be added in front of "right of way"

We feel the analysis is insufficient to comprehensively evaluate all feasible options and all the potential alternatives have not been identified within the existing document. We prefer that you obtain public comments before a preferred alternative is selected. We request, once again, that one of the alternatives examines removal of the existing bridge. This could be done by developing additional alternatives for the Buffalo River West (BRW) and Buffalo River East (BRE) corridors, without the bridge. There are a number of reasons we are requesting this change.

1. We believe that Structures A or B will lose their historic value and current function when the new highway and bridge are constructed.
2. We believe the historic significance of the Pruitt district will be diminished by the construction of a second bridge.
3. We do not feel the public has been afforded adequate opportunity to discuss this topic.
4. We feel the visitor enjoyment of the area will be significantly degraded by the construction of a second bridge across the river at Pruitt.
5. The southern approach to the 1937 bridge constricts the floodplain of the Buffalo River. We prefer to minimize impacts to the floodplain, and feel removal of this earthen dike would improve floodplain function.
6. The impacts to the Pruitt day use area have been inadequately analyzed.

The Biological Analysis needs to evaluate potential impacts to the collared lizard (Crotophytus collaris) by the BRW alternative. The actions described in the alternatives will impact the edge of the Pruitt glade via the relocation of a portion of county road 80. The Pruitt glade provides habitat for this species. The road work required to build the BRW alternative may diminish collared lizard populations and impair recovery of the species.

The Biological Assessment also needs to examine the potential impacts of the alternatives upon the chorus frog and tree frog. Both species are present in the Buffalo River and are considered sensitive, but population impacts are not discussed. The BRW alternatives are less likely to cause harm to other sensitive aquatic resources than the BRE alternative.

The sensitive plant resources present at the Pruitt day use area need to be evaluated for transplanting in the BA. For example, Alabama snow wreath is extant within the BRW footprint and can be successfully relocated. Consequently, the BA should evaluate transplanting rare plants.

Prevention of water pollution from the construction activities is a prime concern. We ask that AHTD ensure the Storm Water Pollution Prevention Plan consider impacts to the

Buffalo River and Mill Creek and other streams that exist within the construction corridor.

We would like to see utilization of native plants and rock in a manner that harmonizes with the existing landscape.

1. We are not in favor of retaining walls as they will be visually distracting and will not harmonize with the natural curvature of the landscape.
2. We would like to see rip-rap or ditch liners used with vegetative inter-plantings wherever possible.
3. We prefer rip-rap that is stacked in place rather than dumped.
4. The geology of the Buffalo River valley in the Pruitt area starts out in the Ordovician age Everton formation near river level. At approximately 900 feet in elevation on the south side of the bridge, the rock changes to the Boone limestone of Mississippian age. It remains in the Boone formation for most of the remaining distance to the southern terminus of the passing lane section. North of the river, the entire project is located in the Everton formation. To place rip-rap and ditch linings in the context of the environment, it is important to try and match the color and texture of the bedrock geology. We suggest Everton formation materials be used in the Everton sections, with Boone formation materials used in the Boone formation sections of the project.
5. The EA fails to discuss the impact of fill areas on the view of the landscape. This should be corrected.

We do not believe the noise impacts as presented in the EA and Appendix F adequately address or model the noise impacts the bridges will create. We would like to see noise modeling with a larger number of points. Some of these points should be on the river, below, upstream, and downstream of the current bridge. Other points should be scattered through the picnic area, around the visitor contact station, and at the canoe launch and parking area. We expect the new bridge to be louder simply as a function of size, increased traffic speed, and increased traffic volume. We are very sensitive to intrusion of man-made sounds on this natural environment.

We feel the EA needs to describe the impacts of placing the telephone line underground for the length of the project on NPS property. This will include design of conduit or some other method to bring the line across the new bridge. We also suggest AHTD be prepared to meet a demand to place a rural water system line in the new bridge design. In the alternatives where the 1937 bridge is removed, we request AHTD incorporate a pedestrian walkway or walkways on the bridge to accommodate foot traffic, viewing of the river, and photography.

The increased sight distance that would be created on the north side of the bridge is likely to improve the safety of equestrians crossing the highway from the horse trail. We request AHTD evaluate the sight distances that may be created on both the north and south side of the new bridge, and evaluate the influence this may have on people and horse riders crossing the road.

We believe the bridge alternatives, other than no-action, will severely degrade the cultural and historic integrity of the viewshed and the district. We feel the structures will lose their context in the district with the build alternatives. We also feel the function these structures have served since the mid 1970's will be lost. We are in favor of removing these structures with proper documentation rather than attempting to save two structures that will lose their adaptive use and serve no purpose. These structures will require continued maintenance to preserve and to keep our visitors safe from structural deficiencies.

With regards to archeological resources, there is insufficient information in the EA to make a determination of a preferred alternative. We strongly recommend AHTD begin Phase 1 evaluation of archeological deposits as soon as practicable. We routinely find deeply buried deposits in the floodplains of the Buffalo River, and fully expect this to continue. The Phase 1 investigations should look at both the BRE and BRW alternatives so a fair comparison of impacts may be developed before a preferred alternative is chosen.

We request an analysis in Tables 4 and E-2 of the total footprint of direct impact for each alternative. This will allow for better comparisons.

The NPS has been considering the construction of a new visitor center northeast of the 1937 bridge. This is contrary to the information provided in section 4.25.

The NPS concurrence on the BRW alternative was based upon scoping, and not the result of thorough analysis of impacts. The text in section 7.1 should be modified to reflect this.

Thank you for the opportunity to meet with your staff and comment on this draft. If you have any specific questions regarding these items contact Chuck Bitting at (870) 365-2762

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
L7617(BUFF)
Hwy. 7 Projects

March 23, 2011

Lynn P. Malbrough
Division Head
Environmental Division
Arkansas State Highway and
Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Dear Mr. Malbrough:

Thank you for sending the proposed layouts and plans for the two roadway improvement projects (AHTD Job Nos. 090169 and 0901213) and two bridge replacement projects (AHTD Job nos. 009784 and BR5102) in Newton County. We concur with your request to separate the roadway improvement projects from the bridge replacement projects with regards to the development of NEPA documentation.

My staff is currently looking into the appropriate National Park Service Right of Way process for this project and should be able to provide that information shortly. In the mean time, please provide a letter requesting access to the proposed project area for geotechnical investigatory or other intrusive investigative reasons at least 90 days prior to anticipated arrival so that we may have time to prepare our own NEPA documentation. This letter should include a description of the project and map of the location of interest. Once you have received notice of NEPA clearance, please send an email with basic security information to our chief Ranger, Kevin Moses at least seven day in advance on arrival. This information should include the names, addresses, and phone numbers (including cell phone numbers) of all whom will be present, the dates of the work and the make, model and year of any vehicles and equipment that will be used for the proposed operation. Should you or your contractors require access for non-intrusive reasons, you should also provide an email to Kevin Moses, Acting Chief Ranger (kevin_moses@nps.gov) providing similar security information and anticipated dates of field work. Ranger Moses can also be reached at 870-365-2740.

In reviewing the road improvement projects, concerns were raised in reference to the alignment and design of the safety improvement section. Of particular concern is the likelihood of visitors being able to see large embankment scars from the river. An onsite visit with the design engineer may alleviate some of these concerns.

Please contact Barbara Wilson, Chief of Fire and Resource Management, at (870) 365-2760 to arrange of any onsite meetings or should you require any further assistance.

Sincerely,

Barbara A Wilson

for Kevin G. Cheri
Superintendent

INTEROFFICE MEMORANDUM

DATE: February 7, 2008

TO: Master Files

FROM: Don Nichols, Environmental Scientist, Environmental Division

SUBJECT: Buffalo National River Coordination Meeting
AHTD Job Numbers
009784 - Buffalo River Br. & Apprs. (Hwy. 7)
090169 - Jasper – Buffalo River (Passing Lanes)
090213 - Co. Rd. 46-Buffalo River (Safety Impvts.)
BR5102 - Mill Creek Str. & Apprs.
Newton County

A coordination meeting was held with representatives of the National Park Service-Buffalo National River (BNR) and the Arkansas Highway and Transportation Department (AHTD) on February 6, 2008 at the BNR Headquarters in Harrison. A list of those attending is attached. The meeting addressed the proposed highway projects listed above.

Conceptual design of the proposed alternatives for each project were available for viewing. The following issues related to the conceptual design plans and potential impacts were discussed:

1) Abandoned sections of road (state and county) should be re-contoured and revegetated.
2) The need for a climbing lane on the Safety Improvements job should be evaluated.
3) Addition of turning lanes on the south side of the Buffalo River onto the access road to the day use area needs to be investigated.
4) Visual impacts effecting road, trail, and river users should be evaluated for each project.
5) The Pruitt Information Station will not be usable if the western alignment alternative is built for the Buffalo River Bridge job.
6) The need for additional right of way for utility relocations needs to be determined.
7) Ownership options for the abandoned approaches to the existing bridge need to be determined.
8) Recreational impacts to the Mill Creek trail need to be outlined for each alternative of the Mill Creek Bridge project.
9) All threatened and endangered plant species in the project area need to be identified.
10) Clearances from the BNR will need to be obtained for all materials investigation drilling.
11) If the Passing Lanes project is constructed first, with a long lag time before the

Safety Improvements job is completed, there could be safety concerns. This could lead to traffic traveling faster into a sharp curve that has not been flattened out by the Safety Improvements job.

Attachment

DN

NPS Coordination Meeting Attendees
AHTD Job Numbers 009784, 090169, 090213, and BR5102
Newton County

Name	Department
Lee Buschkowsky	NPS, Buffalo National River
Kevin Cheri	NPS, Buffalo National River
Mark DePoy	NPS, Buffalo National River
Rober Mcguire	NPS, Buffalo National River
Terry Saunders	NPS, Buffalo National River
Doug Wilson	NPS, Buffalo National River
Phillip Ammons	AHTD, State Aid
Jon Annable	AHTD, Materials
Robert Armon	AHTD, Right of Way
Elizabeth Batten	AHTD, Roadway Design
Frank Bray	AHTD, Roadway Design
Stacy Burge	AHTD, District Nine
Danny Cornett	AHTD, Right of Way
John Harris	AHTD, Environmental
Mike Hiley	AHTD, Right of Way
Randy Lively	AHTD, Right of Way
Robert Moore	AHTD, District Nine
Don Nichols	AHTD, Environmental
Brenda Price	AHTD, Environmental Division
Floyd Rippond	AHTD, Right of Way
Aileen Schubel	AHTD, Bridge Design
Josh Seagraves	AHTD, Environmental
Jeff Wheeler	AHTD, District Nine
Kyle Yeary	AHTD, Bridge Design
Susan Wimberly	FHWA
Mitch Wine	USFWS

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Phone (501) 569-2000 Fax (501) 569-2400

P.O. Box 2261
Little Rock, Arkansas 72203-2261
WWW.ARKANSASHIGHWAYS.COM

February 26, 2008

Superintendent Kevin Cheri
U.S. Department of the Interior
National Park Service
Buffalo National River
402 North Walnut, Suite 136
Harrison, Arkansas 72601

Re: Buffalo National River Coordination for
AHTD Job Number 009784
Buffalo River Br. & Apprs. (Hwy. 7)
-And-
AHTD Job Number 090169
Jasper – Buffalo River (Passing Lanes)
-And-
AHTD Job Number 090213
Co. Rd. 46-Buffalo River (Safety Impvts.)
-And-
AHTD Job Number BR5102
Mill Creek Str. & Apprs.

Dear Superintendent Cheri:

We would like to thank the Buffalo National River (BNR) for your participation and contribution during the February 6, 2008 coordination meeting to discuss the referenced projects. A copy of the coordination meeting minutes is enclosed for your information and comment. The Department would like to address two issues that arose during the coordination meeting. The remaining issues noted in the minutes will be evaluated and addressed in the Department's NEPA process for these proposed projects.

The BNR inquired into the possible addition of a climbing lane south of the Buffalo River Bridge. In 2002, a review committee of Department administration and District personnel evaluated Highway 7 between the Pope County line and Harrison to identify areas needing passing/climbing lanes. The area south of the Buffalo River was not identified as needing a climbing lane (see enclosed memorandum). With the addition of the passing/climbing lanes outlined in the memorandum, the replacement of the Highway 7 Bridge over the

Buffalo River, and completion of the Safety Improvements project developed in response to a request by the BNR, the Department believes that overall safety issues in this corridor will be sufficiently addressed.

Another issue discussed was the ultimate ownership of the existing bridge and approaches once the new bridge is in place. In a memorandum dated August 31, 2004 (see enclosure) the Department concluded that the bridge and approaches could be released to Newton County based on the Court Order acquisition. If you have any additional concerns or comments on this issue, please let us know.

We appreciate your continuing cooperation in the environmental review of these projects. If additional information is needed, please contact me or Don Nichols of my staff at (501) 569-2611.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

Enclosures

c: Bridge Design
Roadway Design
State Aid
District Nine
FHWA

LPM:DN:trb

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Phone (501) 569-2000 Fax (501) 569-2400

P.O. Box 2261
Little Rock, Arkansas 72203-2261
WWW.ARKANSASHIGHWAYS.COM

February 28, 2011

Kevin Cheri, Superintendent
Buffalo National River
402 North Walnut Street, Suite 136
Harrison, AR 72601

Dear Mr. Cheri:

Enclosed are proposed layouts and plans for two roadway improvement projects (AHTD Job Nos. 090169 and 090213) and two bridge replacement projects (AHTD Job Nos. 009784 and BR5102) in Newton County near or within the Buffalo National River boundaries. As we discussed at our meeting last week, the Arkansas State Highway and Transportation Department (AHTD) is proposing to evaluate and process the two roadway projects in one NEPA document and the two bridge projects in a separate NEPA document that would include cross-references to the other document. We are requesting your concurrence with this proposed course of action on the NEPA processing of these projects.

Upon completion of the NEPA process, the Department anticipates that a property transfer from your agency through the Federal Highway Administration will likely be the method of right-of-way acquisition. However, the "right-of-entry" process could potentially expedite this project's implementation and we would like to visit with you and your staff regarding the requirements of this process for the National Park Service, the Federal Highway Administration and the AHTD.

If you or your staff have any questions or need additional information regarding these layouts and project plans, please contact me or Don Nichols, the Division's project manager for these projects. Don and I are also available to meet with you and your staff to discuss any issues related to these projects and their evaluation.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

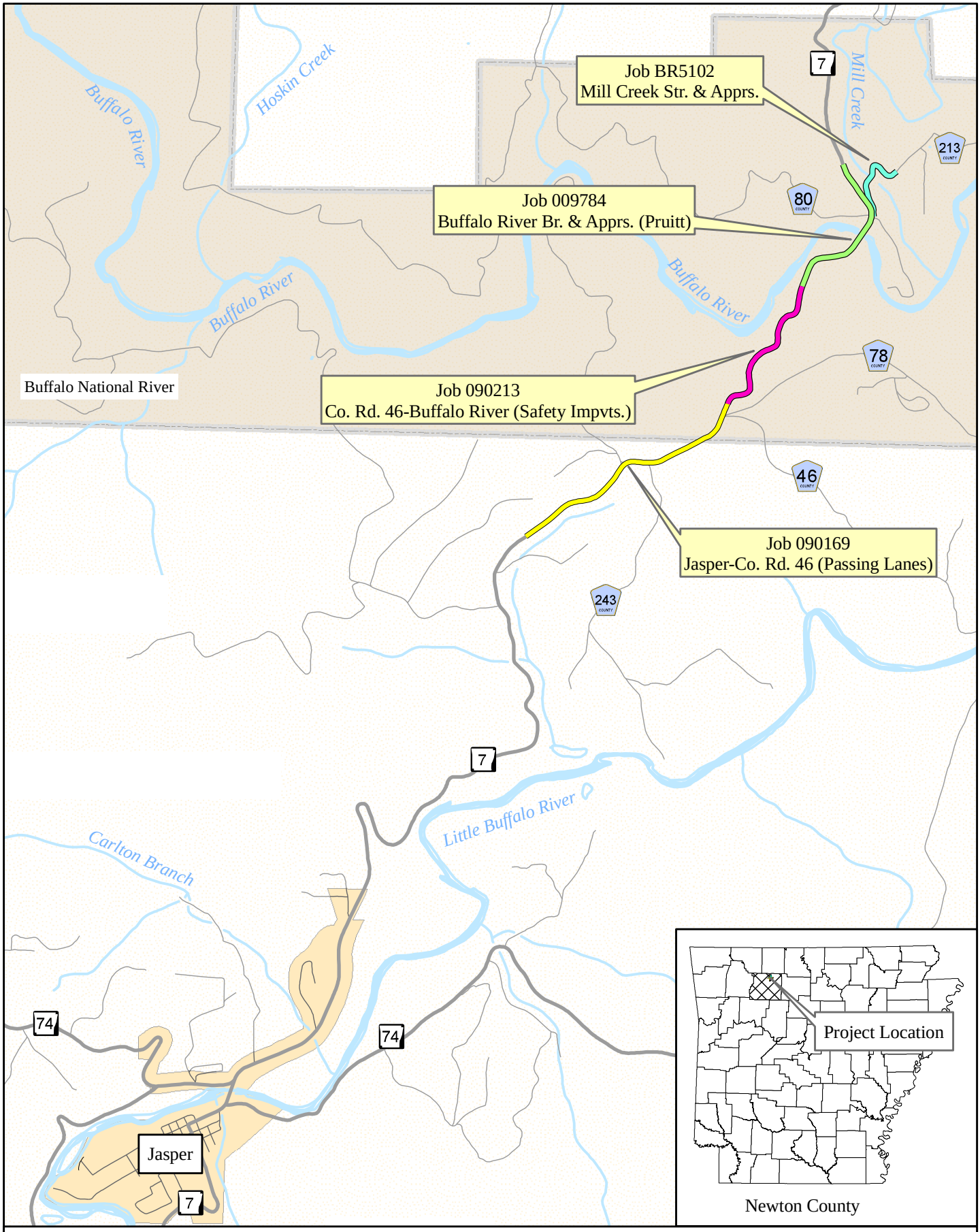


Figure 1
Project Location

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Dan Flowers
Director
Phone (501) 569-2000 Fax (501) 569-2400

P.O. Box 2261
Little Rock, Arkansas 72203-2261
WWW.ARKANSASHIGHWAYS.COM

February 28, 2011

Kevin Cheri, Superintendent
Buffalo National River
402 North Walnut Street, Suite 136
Harrison, AR 72601

Dear Mr. Cheri:

Enclosed are proposed layouts and plans for two roadway improvement projects (AHTD Job Nos. 090169 and 090213) and two bridge replacement projects (AHTD Job Nos. 009784 and BR5102) in Newton County near or within the Buffalo National River boundaries. As we discussed at our meeting last week, the Arkansas State Highway and Transportation Department (AHTD) is proposing to evaluate and process the two roadway projects in one NEPA document and the two bridge projects in a separate NEPA document that would include cross-references to the other document. We are requesting your concurrence with this proposed course of action on the NEPA processing of these projects.

Upon completion of the NEPA process, the Department anticipates that a property transfer from your agency through the Federal Highway Administration will likely be the method of right-of-way acquisition. However, the "right-of-entry" process could potentially expedite this project's implementation and we would like to visit with you and your staff regarding the requirements of this process for the National Park Service, the Federal Highway Administration and the AHTD.

If you or your staff have any questions or need additional information regarding these layouts and project plans, please contact me or Don Nichols, the Division's project manager for these projects. Don and I are also available to meet with you and your staff to discuss any issues related to these projects and their evaluation.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

April 15, 2013

TO: Master Files

FROM: Mary Pearson, Environmental Analyst I, Environmental Division

SUBJECT: AHTD Job Number 009784 and BR5102
FAP Numbers STPR 0019(10) and BRN-0051(15)
Buffalo River Br. & Apprs. (Pruitt) (Hwy. 7) and Mill Creek Strs. & Apprs.
Newton County
NPS Coordination Meeting, Buffalo National River

A coordination meeting was held on site with Buffalo National River (BNR) representatives on March 15, 2013. A list of meeting attendees is attached. The meeting addressed the subject proposed highway projects and the status of the Environmental Assessment (EA) submitted to the BNR in February 2013 for AHTD Job Numbers 090169 (Passing Lanes) and 090213 (Safety Improvements).

The AHTD distributed a meeting agenda and a copy of the BNR Comment Letter (dated May 21, 2009) for the Draft EA for Job Numbers 090169, 090213, and 009784 (Buffalo River Bridge). The AHTD presented a summary of the history of project development from 2002 to the present.

The AHTD reiterated that the Passing Lanes and Safety Improvements projects were jointly evaluated for the February 2013 EA. The AHTD noted that the Mill Creek project had not been included in the 2009 Draft EA due to its status as a Newton County project; however, the Mill Creek and the Buffalo River Bridge projects will be jointly evaluated in the Buffalo River Bridge/Mill Creek EA to be prepared in 2013.

In response to the AHTD's query regarding the status of the Passing Lanes and Safety Improvements EA submitted to the BNR in February 2013, the BNR indicated that the EA had been forwarded to the NPS Regional Office for review. The BNR and the AHTD concurred that a Passing Lanes and Safety Improvements EA public hearing will be offered.

Mill Creek Project

The AHTD and the BNR discussed design and location alternatives for the Mill Creek project, which includes improving County Road 213 and installing a new Mill Creek crossing to eliminate use of the existing low water structure. The new crossing would be either a bridge or a box culvert. The AHTD indicated that the Mill Creek plans and designs are in very preliminary stages.

The AHTD and the BNR discussed several Mill Creek project considerations, including the existing spring run, bat cave, and other ecological concerns. The AHTD noted that context sensitive design options to minimize potential ecological impacts will be considered in the Buffalo River Bridge/Mill Creek EA. The AHTD also noted that the preferred Mill Creek alternative design could be influenced by Newton County budget limitations. Additionally, the need to determine if the existing gravel bed load behind the low water crossing was discussed.

It was established that limited geotechnical work for the Mill Creek project has been performed; however, the completion of the geotechnical work is indeterminate. The possibility of relocating the Pruitt Bridge to Mill Creek was discussed; however, the BNR and the AHTD concurred that relocation was not a viable option due to Newton County's declination to take possession of the Pruitt Bridge because of cost and maintenance concerns.

Buffalo River Bridge Project

The AHTD and the BNR discussed the Buffalo River Bridge project topics that had been included in the May 2009 BNR Comment Letter. Brief summaries of the project topic discussions are provided below.

Status of Existing Pruitt Bridge. The BNR expressed the preference to remove the Pruitt Bridge. The BNR concurred with the AHTD that retention of the Pruitt Bridge would therefore not be considered as an alternative in the Buffalo River Bridge / Mill Creek EA.

Biological Assessment Issues. The AHTD indicated that an assessment of the Buffalo River's pending designation as critical habitat for the rabbitsfoot mussel will be included in the Buffalo River Bridge/Mill Creek EA. A clarification of which bats are present in the project areas during the spring and summer months will also be included in the EA.

Rip Rap and Ditch Linings. The BNR described elements of the Hasty Bridge replacement project as examples of what should be avoided for the Buffalo River Bridge project (e.g., large areas of local limestone used as rip rap creating distracting visual effects). The AHTD noted the difficulties of obtaining weathered rock for use as rip rap and/or ditch linings. The possibility of inter-planting rip rap with native species such as trumpet creeper was discussed, as were the moisture requirements for inter-plantings. The AHTD also noted that the potential exposure of bedrock in the Buffalo River Bridge project could eliminate the need for ditch linings.

Noise Impacts. The AHTD described preparations to conduct an additional noise assessment, and indicated that the expertise of a noise assessment contractor would be used if necessary. At the request of the FHWA, the BNR provided the name of a BNR Point of Contact to assist with the selection of noise assessment locations. The AHTD indicated that results obtained from noise assessments completed for various new bridge projects will be reviewed to assist with the completion of the additional noise assessment for the Buffalo River Bridge / Mill Creek EA.

Utilities. In response to a BNR inquiry, the AHTD indicated that it is unlikely that a regional water line would be associated with the proposed Buffalo River Bridge/Mill Creek project.

Sight Distances/Equestrian Trail. The AHTD and the BNR concurred that it should be possible to route the Equestrian Trail underneath either of the proposed Buffalo River West Alternatives. Options such as constructing a partial bench and regrading portions along the bluff line were discussed, as was the need to determine the grade of potential routes. The AHTD and the BNR concurred that the BNR would be the lead agency for determining the Equestrian Trail design. The BNR's role in the design and construction of the Equestrian Trail route outside of the existing/proposed right of way would reduce the size of the Buffalo River Bridge project construction footprint. The need to address any Equestrian Trail considerations related to the Mill Creek project was identified. The BNR requested that Equestrian Trail considerations be addressed in the Buffalo River Bridge/Mill Creek EA.

Archeological Resources. The AHTD and the BNR discussed the need for any additional archeological field work. It was concluded that no additional work will be required for the Buffalo River Bridge/Mill Creek EA.

Historic District and Structures. The BNR stated that recent discussions between the BNR and the SHPO resulted in concurrence that the Contact Center and the Storage Building (identified in the 2009 Draft EA as Structure A - Pruitt Information Station and Structure B - Storage Building) could be taken with proper documentation. The AHTD and the BNR discussed the design alternatives, which would require the removal of either Structure A or B. One of the design alternatives would preserve Structure A via the use of a retaining wall. The BNR indicated that this option (identified in the 2009 Draft EA as the "Buffalo River West Alternative") was not viable due to safety concerns presented by the close proximity of bridge traffic to visitors. The BNR also described the operations and maintenance costs associated with both structures. The AHTD informed the BNR that they will be required to provide written justification for the removal of Structures A and B, including the fact that the NPS policies would not allow the public to enter Structure A under the Buffalo River West Alternative. The AHTD also described the FHWA's legal process for conducting Section 4(f) reviews.

NPS Contact Center. The BNR requested that the Buffalo River Bridge/Mill Creek EA specifically address the loss of Structure A (current Contact Center). The BNR expressed the preference to have Structures A and B replaced by a new Contact Center that would include a storage area. The BNR also informed the AHTD that the previously-discussed (circa 2007) Interagency Visitor Center was no longer an option and expressed the preference for any new construction to occur within an existing footprint. The AHTD and the BNR discussed location options for the new Contact Center. The BNR stated that they would be responsible for preparing environmental documentation required for the construction of the new Contact Center, including the installation of utilities. The potential funding mechanisms for construction of the new Contact Center were also discussed. The BNR agreed to provide additional information regarding potential construction costs.

Additional Discussions and Information. The BNR expressed the preference to reduce current and future footprints to reduce maintenance and operations costs. The BNR indicated acceptance of the proposed relocation of the County Road 80 reconnection. The BNR requested that the Buffalo River Bridge/Mill Creek EA incorporate proposals for recontouring and replanting all areas where existing roadways and bridge structures would be removed.

The BNR provided the AHTD with a copy of the USGS Digital Elevation Model created for the BNR basin. These files will be provided to the AHTD GIS Section to assist with mapping.

Action Items. The AHTD and the FHWA, in coordination with the BNR, will proceed with the Section 4(f) process to address the removal of Structures A and B. The AHTD will initiate the additional noise assessment in coordination with the BNR Point of Contact. The AHTD will determine the extent of geotechnical work already performed for the Mill Creek project and identify an estimated completion date.

The AHTD and the BNR will coordinate on developing proposals for the Equestrian Trail, including providing the BNR with the proposed location(s) of bents and using GPS to mark points along potential trail routes. The AHTD will contact the BNR regarding the next public information meeting.

The BNR will provide the AHTD with cost estimates for the construction of the new Contact Center. The BNR will contact the NPS Regional Office regarding the Passing Lanes and Safety Improvements EA review schedule and provide the AHTD with an approximate review completion date, if possible.

DN:MP:fc

Attachment

Attachment

NPS Coordination Meeting Attendees
AHTD Job Numbers 009784 and BR5102 Mill Creek Strs. & Apprs.
Buffalo River Br. & Apprs. (Pruitt) (Hwy. 7)
Newton County

Name	Department
Randal Looney	FHWA
Cordell Lyons	FHWA
Dean McKnight	NPS, Buffalo National River
Caven Clark	NPS, Buffalo National River
Bill Osterhaus	NPS, Buffalo National River
Karen Bradford	NPS, Buffalo National River
Chuck Bitting	NPS, Buffalo National River
Kevin Cheri	NPS, Buffalo National River
Lynn Malbrough	AHTD, Environmental Division
Brenda Price	AHTD, Environmental Division
John Fleming	AHTD, Environmental Division
Don Nichols	AHTD, Environmental Division
Mary Pearson	AHTD, Environmental Division

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

June 26, 2014

Mr. Kevin Cheri
Superintendent
Buffalo National River, NPS
402 North Walnut Street, Suite 136
Harrison, Arkansas 72601

RE: Proposed Projects
AHTD Job 009784 – Buffalo River Bridge & Apprs.
AHTD Job BR5102 – Mill Creek Str. & Apprs.

Dear Mr. Cheri:

Enclosed please find three paper copies and three digital copies of the Preliminary Draft Environmental Assessment (EA) and the Preliminary Draft Section 4(f) Evaluation for the referenced projects.

The EA was prepared to be compatible with the National Park Service's (NPS) EA guidelines. Impact topics presented in the EA may need to be added, removed, or updated using more current Buffalo National River (BNR) information. In order to complete the EA's cumulative impact analysis, we will also require the BNR's input regarding current and future Park projects and appropriate resource boundaries.

The Section 4(f) Evaluation was prepared after a review of NPS and BNR official management plans, enabling legislation, and statutes to identify Section 4(f) activities, features, and attributes within the BNR. The document is intended to be used as a starting point for consultation with the NPS-BNR regarding Section 4(f) resources within the proposed project areas.

We appreciate the time and effort required by you and your staff for review of these preliminary drafts, and we would like to schedule a meeting to discuss the findings of the BNR's review of these documents and to address any outstanding issues.

Please contact Mary Pearson at (501) 569-2644 if additional information or copies are needed.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

Enclosures

JF:MP:fc

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136

IN REPLY REFER TO:
1.B (BUFF)

September 9, 2014

Scott E. Bennett, Director
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203

Dear Mr. Bennett:

My staff has reviewed the Draft Environmental Assessment and Draft Section 4(f) evaluation for Buffalo River Bridge and Approaches and Mill Creek Structure and Approaches (HHTD Job #s 009784 and BR5102), (FAP #s BRN-0051(13) and BRN-0051(15). We found these documents to be a marked improvement over previous documents and would like to commend your staff on their thorough approach and attention to detail. We would like to provide these specific comments to clarify areas which appear ambiguous, partially fulfill our role as Cooperating Agency, and to fix minor typographical and grammatical errors. Thank you for the opportunity to review the document, and for your continued support for Buffalo National River.

Preliminary Draft EA for Buffalo River Bridge and Approaches and Mill Creek Structure and Approaches, Newton County, Arkansas

Your staff has done a good job of presenting the alternatives and their environmental implications. My staff has reviewed the document and we offer these comments and proposed edits.

In Section 3.3 Laws, Regulations, and Policies, the Buffalo National River establishing act, Public Law 92-237, 1972, should be added.

In Section 4.1.2 Mill Creek Crossing Project, first sentence should be re-written to say "…;a new structure would not be built…."

In Section 4.2.1 Buffalo River Bridge Project, fourth paragraph, the build alternatives for the bridge are described as 2 twelve foot travel lanes + 2 eight foot shoulders + 2 five foot walkways. This comes out to 50' width. The bridge is described as 57 feet wide in the alternatives. Is this additional 7 feet taken up in parapet walls? If so, how many walls are anticipated? Will there be parapet walls separating the walkways from the shoulders? How about parapet walls on the outside of the walkways? More clarification on this would be helpful for the public during their review.

Figure 4-2 shows the proposed ROW on the south side of the river as very wide, even up to the river's edge. It would appear this ROW was drawn based upon a bridge approach that is of fill. The design calls for two abutments and two bents under the bridge as shown in Figure 6-5. It is unclear to us why the wide ROW exists. Are we missing something?

Section 4.2.2 Mill Creek Crossing Project, Alternate I – Bridge does not indicate whether or not the abutments for the bridge would be within the floodplain, or whether there would be any bents under the bridge. This should be clarified for the document and should probably include plan, profile, and cross section drawings of the proposed structure.

Section 4.2.2 Mill Creek Crossing Project, Alternate II – Box Culvert says the structure would be approximately 60 feet in length and composed of six bottomless barrels, each measuring 12 feet high by 12 feet wide. 12' x 6 = 72 feet and this does not even take into account the wall thickness of the barrels. This should be clarified for the document and should probably include plan, profile, and cross section drawings of the proposed structure.

Figure 4-9 shows a Temporary Construction Easement of approximately 1.5 acres. We were unable to determine the need for this when reviewing the document.

Section 5.2 Cave and Karst Resources. The second sentence should probably be changed to say "Its karst features are the result of two basic mechanisms: 1) mildly acidic rainfall acting on soluble carbonate bedrock such as limestone and dolomite and 2) dissolution by groundwater flow through the carbonate bedrock."

Section 5.2 Cave and Karst Resources. The second paragraph, second sentence needs to say "The heavily fissured Carlton Fault also lies in close proximity to the project study area and has probably contributed greatly to the formation of karst features."

Section 5.2 Cave and Karst Resources. Third paragraph, third sentence. Change the sentence to read 'Due to the complex nature of karst features, water entering this "underground plumbing" can **rapidly** travel far from its point of origin and re-appear in a spring or seep.'

Section 5.2 Cave and Karst Resources. Third paragraph, last sentence. There are actually closed depressions indicative of sinkholes within the ROW for the box culvert project. They are associated with the Canton Mine property which was active prior to 1890 and directly within the project footprint. The spring also seems to be associated with these workings. Our experience with other underground mining operations that operated in this area of the Ozarks during the 19th and 20th century is that ore appears to have been emplaced in close proximity to karst or paleo-karst features. This certainly seems to be the case with the Canton Mine, though we are unable to access any cave passages.

Section 5.2 Cave and Karst Resources. Fourth paragraph. Please be more discreet with the location of Pruitt Cave. It would not be difficult for someone to deduce the approximate location of this cave by reading the EA. Pruitt Cave is considered significant under the Federal Cave Resource Protection Act and is biologically sensitive because of its use by the endangered gray bat.

Section 5.3 Vegetation. River cane is *Arundinaria gigantea*. MS Word must have changed the species name for you.

Section 5.4.1 Special Status Species. Endangered Species. Third Paragraph. Please be more discreet with the location of Pruitt Cave.

Table 5-1 Species of Special Concern

The Ozark Big-Eared Bat is *Corynorhinus townsendii ingens*

The Ouachita kidneyshell mussel is *Ptychobranchus occidentalis*

Section 5.5 Water Quality. Fourth paragraph. Add roads to the list of sediment loading and nutrient enrichment sources. As you know, gravel roads are a major, if not the major, source of sediment reaching streams in the Ozarks.

Section 5.5 Water Quality. Ninth paragraph. In addition to water quality data for the spring, it may be necessary to conduct some dye tracing. It seems likely that this spring is connected to Flatrock Creek and may actually be connected to Pruitt Cave. Such a sub-surface connection would indicate potential increased impacts to Pruitt Cave should the box culvert be built.

Section 5.6 Wild and Scenic Rivers. Fourth paragraph. This paragraph mentions Section 4 of PL 92-237. The piece of the law quoted is actually from the preamble of the law. Section 4 of the law is nearly identical to Section 7a of the Wild and Scenic Rivers Act (Public Law 90-542).

Section 5.7 Cultural Resources. We require HABS/HAER level documentation, with ground based LiDAR if possible, for all affected structures, including the 1913 bridge approach. We are not in favor of retaining walls near the historic structures as they are ugly and will be an adverse effect. Should the eastern alternative be selected for the Buffalo River bridge, the bluff shelters should have full data recovery.

5.7.2.1 Historic Resources. The Canton Mine should be added as an historic resource. The mine is mentioned in a couple of historic reports on mining in this area (Branner, 1900) (McKnight, 1935).

6.2.2 Mill Creek Crossing Project Effects. Alternate II – Box Culvert. Need to consider the Canton Mine as both an historic feature and as a karst feature. Severe impacts to the mine and potentially severe impacts from the mine to the road are possible under this alternative.

6.4.1 Buffalo River Bridge Project Effects. East Alternate II. Special Status Species. Third paragraph. The volume for the rock cut does not match the volume reported in 6.2.1, paragraph 1. Is it the larger or smaller of the two?

Section 6.4.2 Mill Creek Crossing Project Effects. Alternate II – Box Culvert. Second paragraph. There is a statement in here that potential impacts to undiscovered cave or karst dwelling species would be minimal because the fill area would reduce infiltration. Infiltration of organic matter is

actually very important for karst species which exist in a food-poor environment. We feel it is very likely that this section of the project is underlain by karst at a shallow depth and the effects would be moderate, adverse, and long term.

Section 6.5.1 Buffalo River Bridge Project Effects. It should be noted that there will be an increase in the hardened surface under all of the alternatives that may increase stormwater runoff to the creek and river. These runoff issues will be long term.

Section 6.5.2 Mill Creek Crossing Project Effects. Alternate 1. The document should say something about the benefits to the stream from removal of the existing low water crossing and approaches. This would have a moderate long term beneficial impact.

Section 6.5.2 Mill Creek Crossing Project Effects. Alternate II. We feel that because of the permanent loss of stream functions and values there would be moderate long term impacts to surface waters.

Section 6.6 Wild and Scenic Rivers. This is a pretty good discussion of the topic. We still have to do a Determination of Effect, but should probably wait to see what the preferred alternative is.

Section 6.7 Cultural Resources. We are unsure why the approach span of the 1913 bridge is in danger without the retaining wall. The drawings for the East Bridge show the east side of the southern terminus of the new bridge to be about 65 feet northwest of the south end of the 1913 bridge approach, and the two bridges run more or less parallel to the northeast. Since the span begins at this point, why is a retaining wall necessary, and wouldn't a retaining wall be an impact upon the floodplain as it must be retaining fill material?

6.8 Visual Resources. This section did a reasonable job of describing the visual impacts of the new bridge, though the model for the new bridges appears to be considerably more narrow than those proposed in the EA. There are no shoulders or walkways shown, these nearly double the width of the bridge, and will likely change the artist renderings significantly. These should be re-done to show the wider bridge.

There was one minor typographical error noted in the next to last paragraph of this section. The word "could" was inexplicably included in the second sentence.

6.9 Noise. If the new bridge will result in a concomitant increase in truck traffic on route 7, and the wider bridge deck will increase the amplification of the traffic, the noise impacts may have to be refigured.

Chapter 7 Cumulative Impacts. Will roadway improvements on Route 7 to improve efficiency and safety of commercial traffic, mainly large trucks, result in cumulative adverse impacts to the Buffalo River? One can easily imagine a scenario where increased truck traffic would result in increased accidents on the winding and steep portions of the highway. Increased accidents have the potential to adversely impact water quality and vegetation mainly as well as the slow paced recreational nature of Route 7 and the Buffalo National River.

Chapter 8 Environmental Commitments. As stated in the draft, these will have to be fleshed out once we establish a preferred alternative.

Chapter 9. Public and Agency Involvement. A good summary of the involvement.

Chapter 10. Summary. This section is fine at this time. The tables associated are good. Make sure the cut and fill numbers are the correct ones. Table 10.2 may change because of the historic mine associated with the box culvert alternative.

Draft Section 4(f) Evaluation

We need to hold an additional meeting with your staff to fill out sections of Chapter 10

Section 3.2. "Use" Under Section 4(f). It appears that permanent use and direct use are the same thing. This was a bit confusing when reading the first couple of paragraphs.

Section 4.2.1 Buffalo River. Buffalo National River and Arkansas Game and Fish Commission are currently conducting a survey of boat use on the river in connection with a creel survey. The results of this survey are not likely to be available in time to update this section.

Section 5.1 Park Resources. The first paragraph indicates no historic resources were identified related to the Mill Creek crossing. The Canton Mine has never been evaluated for its significance, but is very close to the existing crossing and partially within the footprint of the box culvert alternative.

6.3.1 Recreation East Alternate II. The Pruitt Day Use area would probably only have to be partially shut down during the construction of this alternative.

6.3.1 Recreation West Alternates I and II (All Options). It is likely that the entire Pruitt Day Use area would have to be shut down during the construction of this alternative, at least for short periods of time as the access would be directly under the bridge.

6.3.2 Visual Resources. East Alternate II. It seems unlikely that the fill in the Pruitt Day Use Area-East would present as much visual intrusiveness for the Pruitt Day Use Area as the existing highway fill does.

6.3.2 Visual Resources. East Alternate II. The mitigation measures certainly should be employed if possible and feasible to get the structure to blend in with the surroundings as much as possible.

6.3.2 Visual Resources. West Alternates I and II (All Options). It seems likely that Pruitt Day Use Area visitors would experience adverse visual intrusion from this bridge. It will dominate the landscape in this area.

6.3.2 Visual Resources. The artist's renderings of the proposed bridges don't show the actual proposed width of the bridge designs. Because the bridges will actually be quite a bit wider than

shown, it is likely the visual impacts or "direct uses" will be greater than discussed in the document.

6.3.3 Buffalo River/Water Quality. East Alternate II. It appears that the design for the East Alternate II bridge will actually present approximately 0.87 acres of impervious surface. The approaches including shoulders and turning lanes will add considerably more impervious surface to the project. These should be included in the document so logical comparisons can be made.

6.3.3 Buffalo River/Water Quality. West Alternates I and II (All Options). It appears that the design for the West Alternate I and II bridges will actually present approximately 1.01 acres of impervious surface. The approaches including shoulders, turning lanes and additional access roads will add considerably more impervious surface to the project. These should be included in the document so logical comparisons can be made.

Figure 6-9. The second bend does not appear to be shown going all the way down to the ground, giving the potential for a false impression of the actual visual impact of this alternative.

6.4 Historic Resources Impacts. East Alternate II. We still question the need for a retaining wall as it appears the ROW for this bridge was drawn wrong. Since retaining walls are usually retaining fill material, we consider a retaining wall to be an intrusion on the floodplain, reducing the floodplain storage potential in this area. Is this necessary?

9.1.1 Park Resources. Visual. Night sky resources are very important to NPS managers from both the perspective of humans attempting to escape from an environment dominated by artificial light, and the perspective of wildlife which have nocturnal habits. We would request that ALL direct lighting onto the construction area be shielded to protect these important resources.

Chapter 10. Much work remains on this chapter. Perhaps a small conference of NPS, AHTD, and FWHA staff could complete much of this in a single meeting.

We work forward to working with your staff to complete these important projects.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

Preliminary Draft EA and Section 4(f) Evaluation
Meeting Summary

Meeting attended by:	**AHTD:** Mitchell Archer; Stacy Burge; John Fleming; Steve Lawrence; Don Nichols; Mary Pearson; Brenda Price; Robert Scoggin; **BNR:** Melissa Baier; Chuck Bitting; Karen Bradford; K. Cheri; Caven Clark; Laura Miller; Bill Osterhaus; **FHWA:** Randal Looney	
Date:	October 29, 2014	
Time:	11:00 am – 12:45 pm	
Facilitators:	**Chuck Bitting (BNR) and Mary Pearson (AHTD)**	
Agenda Topic #5*: Alternate I – Bridge potential floodplain impacts		**Responsible Agency**
Notes: Discussed need for Mill Creek floodplain determinations and hydraulic considerations under Bridge alternative.		
Action Items: Revise EA to include floodplain impacts.		AHTD (MP w/Special Studies [SS])
Agenda Topic #18*: Chapter 5 Water Quality		
Notes: Dye tracing determined that Flatrock Creek and spring are connected; impacts to the spring could cause Pruitt Cave backflooding and impact bats.		AHTD (MP w/SS)
Action Items: Revise EA to include spring impact / Pruitt Cave and bat impacts under Box Culvert alternative.		AHTD (MP w/SS)
Agenda Topic #22*: Canton Mine as historic and karst feature; impacts from mine to road		
Notes: Discussed concern regarding potential karst features associated with mine causing road subsidence.		ATHD (MP w/SS)
Action Items: Revise EA to include potential karst issue; borings could be made if necessary.		AHTD (MP w/SS) Materials Division (if needed)
Agenda Topic #28*: Chapter 6 Wild & Scenic Rivers		
Notes: Discussed Determination of Effect (DoE) to be completed by BNR upon preferred alternative identification and timeframe for DoE completion.		
Action Items: BNR to provide DoE schedule information; EA revision to include sentence about need for DoE.		BNR (CB) AHTD (MP)
Agenda Topic #32*: Noise		
Notes: Discussed Technical Noise Report; no further action necessary.		
Action Items: None		

Agenda Topic #33*: Increased truck traffic cumulative impacts	
Notes: Discussed cumulative impact concerns regarding potentially increased truck traffic and safety concerns.	
Action Items: Revise EA to include updated traffic volume information, if available; incorporate changes to present and future BNR projects, if determined and provided.	AHTD (MP w/Trans. Planning & Policy) BNR (CB)
Additional Topic 1: Possible reuse of Pruitt Bridge at Mill Creek	
Notes: Discussed history of proposals to move Pruitt Bridge to Mill Creek and most recent developments. Inclusion of life cycle maintenance costs should be incorporated.	
Action Items: Develop costs for potential reuse of Pruitt Bridge over Mill Creek to compare with building costs of new bridge over Mill Creek. Cost estimates will be provided to Newton County to determine if reuse of the Pruitt Bridge is preferable to constructing a new bridge. Information from Heavy Bridge Maintenance and possibly District 9 should be incorporated in EA.	AHTD (Cultural Resources [CR] w/MP) (Heavy Bridge Maintenance; District 9)
Additional Topic 2: MOAs	
Notes: Discussed Final (signed) MOA for Pruitt Bridge Removal. Discussed under what circumstances the BNR needs to be a signatory agency on MOAs. Determination that the BNR does not need to be a signatory agency on the Bridge Removal MOA, but requested to be one on the future Pruitt Historic District MOA. BNR expressed readiness to assist with future work (bridge documentation, marker, historic interpretation).	
Action Items: AHTD will write a letter to SHPO requesting a change to the Bridge Removal MOA to substitute a historic marker for the previously described information kiosk. Impact mitigation under the future Pruitt Historic District MOA will include historic interpretation, including Pruitt Bridge information. A kiosk or similar public display may be developed. BNR will be included as a signatory agency on the Historic District MOA.	AHTD (CR w/SHPO) BNR assisting
Additional Agenda Topic 3: Bluff Shelters	
Notes: Discussed status of laser scan, survey results to be used to evaluate a bluff shelter avoidance option for East Alternate II. Further coordination needed regarding bluff shelters (preservation in place or data recovery). BNR would agree to preservation in place.	
Action Items: Complete survey (including laser scanning) and use information to: 1) evaluate avoidance design; 2) determine if non-avoidance design would cause vibration or other adverse impacts; 3) conduct analysis and incorporate in EA, including potential to bury the shelters or conduct data recovery.	AHTD (Surveys, Bridge & Rdwy, CR w/SHPO, MP)
Additional Agenda Topic 4: Tribal Consultation	
Notes: Discussed need to ensure that tribal consultation is continued prior to finalizing; BNR will provide input.	
Action Items: Continue tribal consultation, noting bluff shelter issues.	FHWA (with CR) BNR (CC) assisting

Agenda Topics #4 & 5:** Construction impacts on recreation	
Notes: Discussed length and duration of Pruitt Day Use area/river use closures; concurrence that impacts would be greater under West Alternates. Discussed how bridge will be removed, as yet undetermined. Noted preferred months of July/August, when river levels are lowest. BNR will assist with planning and implementing closures, as needed.	
Action Items: Determine how bridge will be removed; condition to be added to contracts specifying bridge removal and closure impact minimization. Revise EA to incorporate additional information, including District 9 input on constructability issues, impacts, and closures.	AHTD (lead) BNR (assist)
Agenda Topic #6 through 8:** Visual Resources	
Notes: Discussed visual intrusion and impacts of alternatives; clarified that the least harm analysis will take into consideration the BNR's statements regarding visual impact differences between the Alternatives.	
Action Items: Include BNRs views in completing least harm analysis; incorporate context sensitive design in plans.	AHTD
Agenda Topic #15:** Views of BNR regarding resources and relative significance	
Notes: Discussed how the document presented resources and management zones; BNR in concurrence. Discussed need to receive written determinations from the BNR outlining the relative significance of resources in project area.	BNR (provide) AHTD (incorporate)
Action Items: BNR will provide relative significance statements for inclusion in least harm analysis. The need for an additional conference to complete the least harm analysis to be mutually decided at a future date.	BNR (provide) AHTD (incorporate)

*Agenda topic numbers are cross-referenced to Response List for EA

**Agenda topic numbers are cross-referenced to Response List for Section 4(f) Evaluation

May 6, 2015

Mr. Kevin Cheri
Superintendent
Buffalo National River, NPS
402 North Walnut Street, Suite 136
Harrison, Arkansas 72601

Re: Proposed Projects
AHTD Job 009784 – Buffalo River Bridge & Apprs.
AHTD Job BR5102 – Mill Creek Str. & Apprs.

Dear Mr. Cheri:

We would like to thank the Buffalo National River for your participation and contributions during the April 6, 2015 Section 4(f) evaluation meeting to discuss the referenced projects. A copy of the meeting summary is enclosed for your review, comment, and if acceptable, concurrence.

We are currently completing the Draft Environmental Assessment and Draft Section 4(f) Evaluation. Upon completion, we will provide you with copies of the documents so that you can review them concurrently with the Federal Highway Administration.

We appreciate your continuing cooperation in the development and review of these projects. Please contact Mary Pearson at (501) 569-2644 if additional information or copies are needed.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

Enclosure

JF:MP:fc

AHTD Jobs 009784 & BR5102
Draft Section 4(f) Least Overall Harm Analysis
Meeting Summary

Meeting attended by:	**AHTD:** Don Nichols, Mary Pearson, Brenda Price **BNR:** Melissa Baier, Chuck Bitting, Karen Bradford, Kevin Cheri, Caven Clark, Drew McKnight, Mark Miller, Bill Osterhaus **FHWA:** Randal Looney
Date:	April 6, 2015
Time:	10:00 am – 11:45 pm

Meeting Objective: Discuss BNR views on the relative significance of resources so the Draft Section 4(f) Evaluation least overall harm analysis can be completed.

Agenda Items: 1. Section 4(f) Evaluation Least Overall Harm Analysis Consultation 2. Bluff Shelter Avoidance Alternatives (see Attach. 1)

Attachments: 1. Proposed Meeting Agenda; 2 Section 4(f) Evaluation Least Overall Harm Analysis Discussion Points; 3. Bluff Shelter Avoidance Alternatives; 4. Draft EA Impact Summary Tables

Agenda Topic #1: Section 4(f) Resource Categories (see Attach. 2)

Notes:
Discussed the Draft Section 4(f) Evaluation resource categories. BNR concurs with the categories.

Action Items:
None.

Agenda Topic #2: Factors 1 and 2 – Ability to Mitigate Adverse Impacts and Relative Severity of Remaining Harm (see Attach. 2)

Notes:
Discussed what adverse impacts following mitigation would remain and to what degree. BNR expressed the view that the proposed increase in roadway dimensions associated with the Mill Creek Project increases the potential for water quality impacts due to runoff. The BNR requested that paving the existing gravel roads (including to Pruitt Landing) should be considered as mitigation to reduce impacts.

Action Items:
Investigate possibility of including paving as a mitigation measure for Mill Creek Project; modify Draft EA and Section 4(f) Evaluation as appropriate.

Agenda Topic #3: Factor 3 – Relative Significance of Each Section 4(f) Resource (see Attach. 2)

Notes:
BNR stated that the Park Resources, as outlined in the Draft 4(f) Evaluation, were more significant Section 4(f) resources than the Historic Resources.

Action Items:
The Draft Section 4(f) Evaluation will be revised.

Agenda Topic #4: Factor 4 – Views of Officials with Jurisdiction over Section 4(f) Property (see Attach. 2)

Notes:
BNR expressed the view that natural resources are more important to them for protection than cultural resources. The Buffalo River is the most important resource for protection.

Action Items:
The Draft Section 4(f) Evaluation will be revised to include BNR views.

Agenda Topic #5: Factor 6 – After Reasonable Mitigation, the Magnitude of Any Adverse Impacts to Properties Not Protected by Section 4(f) (see Attach. 2)

Notes:
Discussed if any properties or resources not protected by Section 4(f) exist in the project areas. None were identified.

Action Items:
None

Agenda Topic #6: Bluff Shelter Avoidance Alternatives (see Attach. 3)

Notes:
Discussed the four bluff shelter avoidance alternatives; concurrence was reached that all four alternatives have been adequately considered and can be dismissed from additional study. Data recovery was the preferred mitigation if the bluff shelters will be impacted by the Preferred Alternative.

Action Items:
Bluff shelter avoidance alternatives analysis will be included in a cultural resource appendix restricted from public dissemination to reduce public knowledge of the sites' locations.

Additional Topic: Meeting Summary

Notes:
The Meeting Summary will be prepared and BNR review and concurrence requested. The BNR's subsequent concurrence of the Meeting Summary will suffice as a written statement of the BNR's views of the relative significance of Section 4(f) resources.

Action Items:
AHTD will provide the Meeting Summary; BNR will review and provide written concurrence.

Additional Topic: Mill Creek Trail Modifications

Notes:
The BNR has modified the Mill Creek Trail to exclude the Shaddox Cemetery spur.

Action Items: Both the Draft EA and Section 4(f) Evaluation figures will be revised to reflect this change.

Additional Topic: Preferred Alternative

Notes:
The Buffalo River Bridge Project East Alternate II and Mill Creek Crossing Project Alternate I – Bridge have been tentatively identified as the Preferred Alternatives in order to incorporate that information into the documentation.

Action Items: Both the Draft EA and Section 4(f) Evaluation will be revised to reflect identification of the Preferred Alternative.

ATTACH. 1

PROPOSED MEETING AGENDA – SECTION 4(F) LEAST OVERALL HARM ANALYSIS

MEETING INFORMATION

Objective: Discuss BNR views on the relative significance of resources so the Draft Section 4(f) Evaluation least overall harm analysis can be completed.

Date: 04/06/15 ***Location:*** BNR HQ - Harrison
Time: 10:00 AM ***Meeting Type:*** Consultation
Called By: AHTD
Attendees: AHTD – D. Nichols, M. Pearson, B. Price; FHWA - R. Looney; BNR - C. Bitting, K.Cheri, other BNR staff as needed.

PREPARATION FOR MEETING

The Draft Section 4(f) Evaluation provides:

- Chapter 3 – legal and regulatory context for planning mitigation measures and determining the least harm alternative
- Chapters 4 and 5 – resource categories for the Buffalo River Bridge and Mill Creek Crossing projects
- Chapter 10 – the framework for discussing the least overall harm factors

Attachment 1 provides bluff shelter avoidance alternative descriptions and a figure.

AGENDA ITEMS

Item/Facilitator

1. Section 4(f) Evaluation Least Overall Harm Analysis Consultation / M. Pearson
2. Bluff Shelter Avoidance Alternatives Discussion / M. Pearson

OTHER NOTES OR INFORMATION

Hard copies of the Draft Section 4(f) Evaluation will be available at the meeting

Attach. 2

Section 4(F) Least Overall Harm Analysis Discussion Points

1. Section 4(f) Resource Categories

Chapters 4 and 5 provide the rationale for categorizing Section 4(f) resources as follows:

Buffalo River Bridge Project
Park Resources: Buffalo River, Recreational Resources, Recreational Trails, Visual Resources
Historic Resources: Pruitt Bridge, Pruitt Historic District

Mill Creek Crossing Project
Park Resources: Mill Creek Trail, Visual Resources
Historic Resource: Canton Mine

Notes: Section 4(f) considers the activities, features, and attributes qualifying land as a Section 4(f) property within a project area. Public activities (e.g., recreation) and how areas are specifically managed and intended to be used are closely considered. The evaluation process recognizes the potential for competing/conflicting interests and an intended outcome is to determine which alternative causes the **least overall harm** in light of all of the available information – including mitigation measures.

2. Section 10.1 Factors 1 and 2 – Ability to Mitigate Adverse Impacts and Relative Severity of Remaining Harm

Discussion: Following mitigation, what adverse impacts would remain and to what degree?

3. Section 10.2 Factor 3 – Relative Significance of Each Section 4(f) Resource

Discussion: This section could be combined with Factor 4 – Views of Officials with Jurisdiction over Section 4(f) Property.

4. Section 10.3 Factor 4 – Views of Officials with Jurisdiction over Section 4(f) Property

Discussion: The information currently included in the document will be updated to incorporate consultation results.

5. Section 10.5 Factor 6 – After Reasonable Mitigation, the Magnitude of Any Adverse Impacts to Properties Not Protected by Section 4(f)

Discussion: Do any properties or resources not protected by Section 4(f) exist in the project areas?

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO

1.A.2

November 24, 2015

Scott E. Bennett
Director
Arkansas State Highway and Transportation Department
Post Office Box 2261
Little Rock, Arkansas 72203-2261

Dear Director Bennett:

My staff met with members of your Environmental Division on April 6, 2015 to discuss the Draft 4(f) Least Overall Harm Analysis for AHTD Jobs 009784 and BR5102, the Buffalo River bridge replacement at Pruitt and the Mill Creek crossing. AHTD provided a summary of the meeting. We concur with the meeting summary, and believe the Buffalo River Bridge Project, East Alternate II and the Mill Creek Crossing Project, Alternate I are the Preferred Alternatives for the Environmental Assessment.

I thank you and your staff for your continued excellent work on this project, and for your continued support for Buffalo National River. Please feel free to contact Natural Resource Program Manager Chuck Bitting at 870/365-2762 or chuck_bitting@nps.gov with any questions regarding our concurrence.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
1.B

October 2, 2015

Scott E. Bennett, Director
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203

Dear Mr. Bennett:

My staff has reviewed the Draft Environmental Assessment for Buffalo River Bridge and Approaches and Mill Creek Structure and Approaches (AHTD Job #s 009784 and BR5102), (FAP #s BRN-0051 and BRN-0015). We submit the following comments:

Page 3-5, East Alternative: The first sentence describes a bridge 670 feet in length and 57 feet wide. If we understand it correctly, the bridge will have two 12-foot travel lanes, two 8-foot shoulders, and one or two pedestrian walkways. We assume there is a 1-foot-wide centerline between the travel lanes, but none between the travel lanes and shoulders. If our assumptions are correct, the area of the bridge from shoulder to shoulder should be 41 feet wide. The addition of a 6-foot pedestrian walkway and a 2-foot barrier brings the width to 49 feet. With the addition of a 2-foot barrier on either side of the bridge, the total width is 53 feet. This does not result in the 57 foot width stated in the document.

Page 3-6, West Alternative 1: The first sentence describes a bridge 58 feet wide. See above comments.

Figure 3-8 shows a wide easement under the bridge structure, much wider than the roadway on either end. Is this because of fill? The maps should show the fill limits to help us make more informed decisions.

Page 4-3: We looked at the USGS report (Neely, 1985) on the December 1982 flood and the 100 and 500 year floodplains. The 100 year flood elevation is approximately 802 feet and the 500 year flood elevation is approximately 807.5 feet. This should help the designers of the bridges and approaches.

Page 4-8 first paragraph, last sentence: The sentence should end resources or values.

Page 5-4, second to last paragraph: This paragraph describes a "small unnamed spring" in the proposed right of way for the box culvert. This spring is known to us as "Boiling Spring." In a dye trace in 1998 Ozark Underground Laboratory determined that this spring was a resurgence point for Flat Rock Creek (Aley and Aley, 2000).

Page 5-12, Section 5.4.1.2, Second Paragraph: The Buffalo River in this area is Critical Habitat for the Rabbitsfoot Mussel.

Page 5-17, Section 5.5, last sentence of last paragraph alludes to 60 additional water quality monitoring stations. We assume this means the stations for special projects such as dye tracing, and the E. coli sampling stations responding to specific bacterial threats, as well as stations used by the Heartland Network Inventory and Monitoring Program. Specific references, if available, would be useful.

Figure 5-3: This map shows a permanent easement on the south side of the Buffalo River for the East Alternative that appears to represent fill material, and encompasses the 1913 bridge approach. Figure 6-5 shows the bridge bents in this area. The two maps seem to be representing different design styles, one using large amounts of fill on the south side, the other flying over this with a deck elevated by bents. Please check these two maps and ensure the permanent rights of way are correct.

Page 5-36, First paragraph. There is no St. Joe Limestone visible on the "East Bluff." This bluff is entirely in the Ordovician-age Everton formation.

Page 5-40, Table 5-2: The ambient sound measurements were for very short time periods and do not appear to be designed to capture the full range of sounds experienced. The first two sites were sampled on a Tuesday for 45 minutes each. The third and fourth sites were sampled on a Thursday for 45 minutes and 32 minutes respectively. We also question impacts of noise on wildlife and perhaps fish. Is the use of dB(A) appropriate for the range of species which inhabit this area?

Page 6-2, Section 6.1: Shouldn't we consider the impacts from the offsite borrow and waste areas? Is the Special Provision the normal way to consider these?

Page 6-2 under "Moderate" heading. Replace the word "could" with "would" to be consistent.

Page 6-46, Table 6-5: Under the West Alternatives row, in the Impact column, it appears from the text on the previous page the Pruitt Day Use Area would have Adverse Moderate to Major Long Term Impacts, not Negligible as shown in the table.

Page 7-3: We have at least one FONSI (HTLN EPMT EA) to send to AHTD.

Page 7-10, last paragraph: It seems like commercial drivers and recreational drivers would experience long-term minor to major adverse cumulative impacts from the project. It is unclear to us why the impacts differ for recreational and commercial drivers and commuters.

Page 8-1, Section 8.2: NPS as well as USFWS must be notified in the case of an incidental cave discovery.

Page 8-3, Section 8.7: Shouldn't this be HABS-HAER documentation rather than HAER documentation?

REFERENCES

Aley, T. and Aley C., 2000. Inventory and Delineation of Karst Features, Buffalo National River, Arkansas. Report on Phase 2 Investigations and Final Project Report. October, 2000. Pages 48 and 49.

Neely, B. P., 1985. The Flood of December 1982 and the 100- and 500-Year Flood on the Buffalo River, Arkansas. U.S. Geological Survey. Water-Resources Investigations Report 85-4192.

We commend your staff on the preparation of this Draft Environmental Assessment. We thank you for the opportunity to review the document and for your continued support for Buffalo National River. Please feel free to contact Natural Resource Program Manager Chuck Bitting at 870/365-2762 or chuck_bitting@nps.gov with any questions regarding our comments.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

APPENDIX D

TRIBAL CONSULTATION

This page intentionally left blank.

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

James Lee Edwards, Governor
Absentee Shawnee Tribe
2025 S. Gordon Cooper Drive
Shawnee, OK 74801-9381

Dear Governor Edwards:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Absentee Shawnee Tribe regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Absentee Shawnee Tribe.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Glenna J. Wallace, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Wallace:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Eastern Shawnee Tribe of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Eastern Shawnee Tribe of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

includes two 20th century standing structures and several historic sites that appear to date to the late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Robin Dushane





U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Glenna J. Wallace, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Wallace:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Eastern Shawnee Tribe of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Eastern Shawnee Tribe of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

includes two 20th century standing structures and several historic sites that appear to date to the late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Robin Dushane





700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Ron Sparkman, Tribal Chairman
The Shawnee Tribe
29 S Hwy 69A
Miami, OK 74354

Dear Mr. Sparkman:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Shawnee Tribe regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Shawnee Tribe.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Larue Parker, Chairwoman
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Ms. Parker:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Caddo Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Caddo Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Mr. Robert Cast

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Chad Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, Oklahoma 74465

Dear Mr. Smith:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Cherokee Nation of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Cherokee Nation of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

George G. Wickliffe, Chief
United Keetoowah Band of the Cherokee Indian Nation
P.O. Box 746
Tahlequah, OK 74465-746

Dear Mr. Wickliffe:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the United Keetoowah Band of the Cherokee Indian Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the United Keetoowah Band of the Cherokee Indian Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

includes two 20th century standing structures and several historic sites that appear to date to the late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Jim Gray, Chief
Osage Nation
627 Grandview
Pawhuska OK 74056

Dear Mr. Gray:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Osage Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Osage Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Dr. Andrea Hunter

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

John Berrey, Chairperson
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74056

Dear Mr. Berrey:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Quapaw Tribe of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Quapaw Tribe of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Ms. Carrie

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

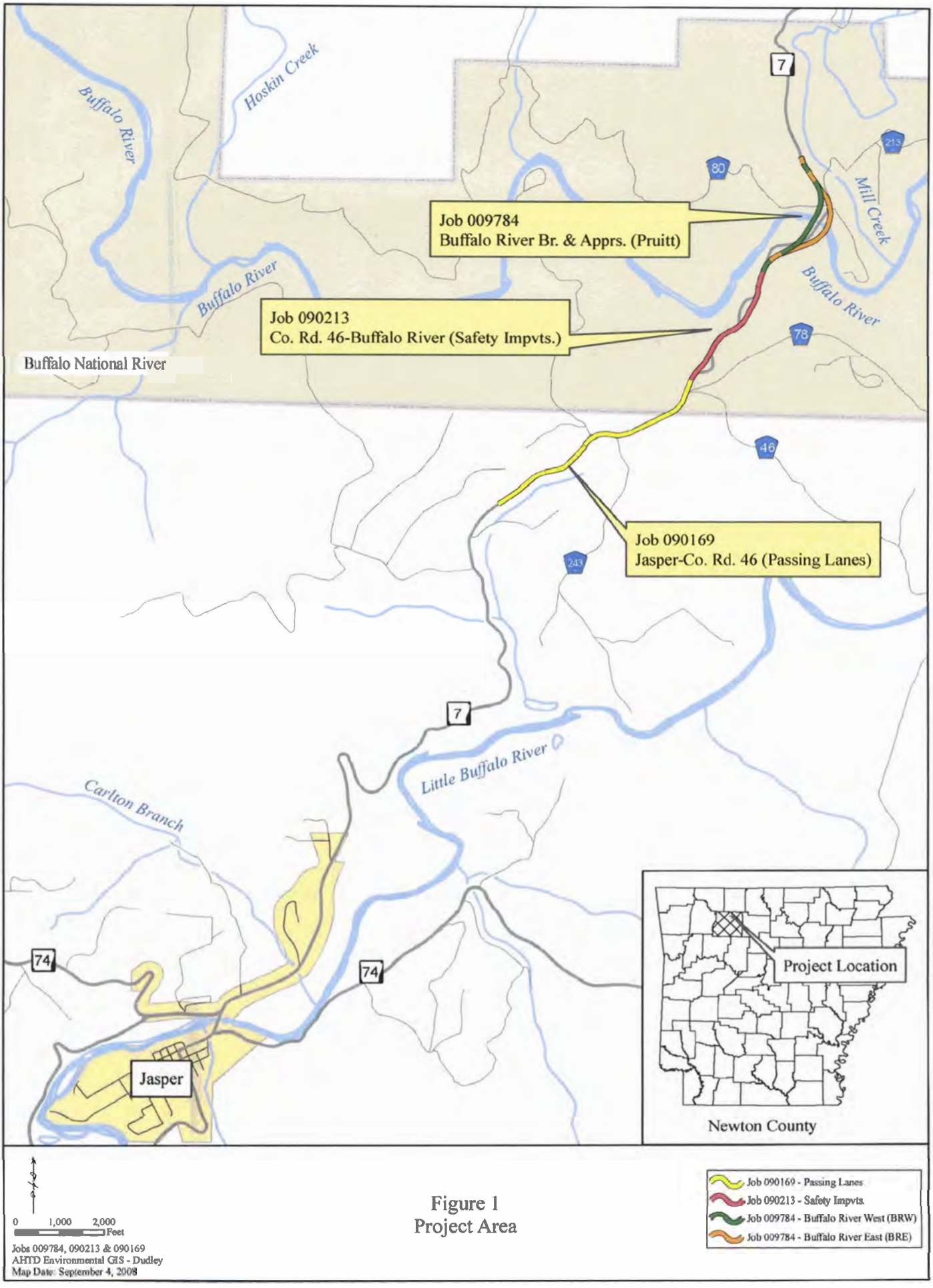


Figure 1
Project Area

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Ron Sparkman, Tribal Chairman
The Shawnee Tribe
29 S Hwy 69A
Miami, OK 74354.

Dear Mr. Sparkman:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

James Lee Edwards, Governor
Absentee Shawnee Tribe
2025 S. Gordon Cooper Drive
Shawnee, OK 74801 -9381

Dear Governor Edwards:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. John Berrey, Chairperson
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74056

Dear Mr. Berrey:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County. A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure
Cc: Ms. Carrie Wilson

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

George G. Wickliffe, Chief
United Keetoowah Band of the Cherokee Indian Nation
P.O. Box 746
Tahlequah, OK 74465-746

Dear Mr. Wickliffe:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County*. A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Glenna J. Wallace, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Wallace:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 I 3
and 0901 69
Newton County
HDA-AR

Mr. Robert Cast
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Cast:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure





U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
P.O. Box 779
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Chad Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, Oklahoma 74465

Dear Mr. Smith:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. Gary McAdams
President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear Mr. Mc Adams;

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. Earl J. Barbry, Sr.
Tribal Chairman
Tunica-Biloxi Indians of Louisiana, Inc.
P.O.Box 331
Marksville, LA 71351

Dear Mr. Barbry:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298
501-324-5625
Fax: 501-324-6423
arkansas.fhwa@dot.gov

May 17, 2011

In Reply Refer To:
AHTD Job 090169
Jasper – Buffalo River
(Passing Lanes) (Hwy. 7)
And
AHTD Job 090213
Co. Rd. 46 – Buffalo River
(Safety Imprvs.) (Hwy. 7)
Newton County

Abseentee Shawnee
Mr. James Lee Edwards
Govenor
2025 South Gordon Cooper Dr.
Shawnee, OK 74801-9381

Dear Mr. Edwards:

The Federal Highway Administration (FHWA), through the Arkansas State Highway and Transportation Department (AHTD), is preparing an Environmental Assessment (EA) and Section 4(f) Evaluation for the referenced projects. These projects propose improvements to sections of Highway 7. A portion of the projects' area is within the Buffalo National River (BNR) in Newton County, Arkansas. The U.S. Department of the Interior, National Park Service; and Federal Highway Administration are cooperating agencies for this project.

The projects begin approximately 1.8 miles south of the Buffalo River and end approximately 0.3 miles south of the river. The total length of the combined projects is 1.5 miles. Alternatives considered will include improvements along the existing highway and the No-Action Alternative. The projects will include a north and south bound passing lane along part of the route with roadway realignment and grade improvements. The improvements would require the conversion of 11 acres of vegetated land within the boundary of BNR to State of Arkansas Highway 7 right of way, including land within 115 feet of the Buffalo River Trail. Large rock cut areas, fill areas including rip-rap, and removal of vegetation will be required for construction of these projects.

Additional projects planned in the project area include a new crossing of the Buffalo River at Highway 7 and a crossing of Mill Creek at County Road 213. While the cumulative impacts of all the projects will be considered in this EA, the final analysis of the Buffalo River and Mill Creek

crossing projects will be presented in a future EA. A map is enclosed that shows the location and extent of each project.

Please identify any constraints or significant concerns that should be considered during the assessment of impacts associated with the proposed projects. Your assistance in identifying any design or location issues is solicited. Examples of these are unique environmental features or environmentally sensitive areas, socio-economic issues, and permits or approvals that should be obtained prior to construction of the projects. Your comments and any supporting documentation you may wish to provide would be helpful to project planners in the timely identification of potential adverse impacts.

If additional information is needed, please contact Don Nichols of AHTD at (501) 569-2281. All comments and information should be sent to the FHWA at the address above.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure
c: Department of the Interior
National Park Service
Buffalo National River

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298
501-324-5625
Fax: 501-324-6423
arkansas.fhwa@dot.gov

June 16, 2011

In Reply Refer To:
AHTD Job Numbers 090169 &
090213, Hwy. 7 Passing Lanes
& Safety Impvts.
HDA-AR

Robin Dushane
Cultural Preservation Director
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Dushane:

Per your request, enclosed is the report entitled *Cultural Resources Survey of Proposed AHTD Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; and 009784 Buffalo River Bridge and Approaches on State Highway 7 at Pruitt, Newton County.* The Arkansas SHPO has approved the recommendations in the report that no cultural resources will be adversely affected by the proposed undertakings for jobs 090169 and 090213 (the passing lanes and safety improvements portions on Highway 7) and that no further archeological work is needed. More archeological work is recommended for job 009784 (the bridge replacement over the Buffalo River on Highway 7). The AHTD has separated the jobs and is proceeding with the safety improvements and passing lanes projects cleared by SHPO. An addendum report for additional work for job 009784 will be submitted when a preferred alternative is chosen for the project and the archeological work is completed. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

George G. Wickliffe, Chief
United Keetoowah Band of the Cherokee Indian Nation
P.O. Box 746
Tahlequah, OK 74465-746

The United Keetoowah Band of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertnetly discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

Lisa C. Stopp, Tribal NAGPRA POC JAN 0 2009 Date

Dear Mr. Wickliffe:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the United Keetoowah Band of the Cherokee Indian Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the United Keetoowah Band of the Cherokee Indian Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

The United Keetoowah Band of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

Lisa C. Stopp, Tribal NAGPRA POC Date

George G. Wickliffe, Chief
United Keetoowah Band of the Cherokee Indian Nation
P.O. Box 746
Tahlequah, OK 74465-746

Dear Mr. Wickliffe:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

TRIBAL HISTORIC PRESERVATION OFFICE

Date: **August 31, 2010** **File: 0910-453AR-5**

RE: **AHTD Highway 7 Passing Lanes (090169), Highway 7 Safety Improvements (090213), and Buffalo River Bridge and Approaches on State Highway 7 (009784) at Pruitt, Newton County, Arkansas**

Randal Looney
Arkansas Highway and Transportation Department
700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298

Dear Mr. Looney,

The Osage Nation Historic Preservation Office has evaluated your submission and concurs that the proposed AHTD Highway 7 Passing Lanes (090169), Highway 7 Safety Improvements (090213), and Buffalo River Bridge and Approaches on State Highway 7 (009784) at Pruitt, Newton County, Arkansas most likely will **not adversely affect properties of cultural or sacred significance to the Osage Nation.** The findings of this S106 review has resulted in a determination of **"No Effect," as sites 3NW1308, 3NW1309, and the standing structure have been recommended for avoidance.**

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S.C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d) (6) (A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969). **As a part of the scoping process the AHTD has fulfilled NHPA and NEPA compliance by consulting with the Osage Nation Historic Preservation Office in regard to the proposed AHTD Highway 7 Passing Lanes (090169), Highway 7 Safety Improvements (090213), and Buffalo River Bridge and Approaches on State Highway 7 (009784) at Pruitt, Newton County, Arkansas.**

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. With the recommended avoidance measures, we do not anticipate that this project will adversely impact any cultural resources or human remains protected under the NHPA, NEPA, the Native American Graves Protection and Repatriation Act, or Osage law. **If artifacts or human remains are discovered during project construction, we ask that work cease immediately and the Osage Nation Historic Preservation Office be contacted.**

Should you have any questions or need any additional information please feel free to contact me at the number and/or email address listed below. Thank you for consulting with the Osage Nation on this matter.

Dr. Andrea A. Hunter
Tribal Historic Preservation Officer

James Munkres
Archaeologist I

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298
501-324-5625
Fax: 501-324-6423
arkansas.fhwa@dot.gov

May 17, 2011

The United Keetoowah Band of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

JUN 0 3 2011

Lisa C. Stopp, Tribal NAGPRA POC Date

In Reply Refer To:
AHTD Job 090169
Jasper – Buffalo River
(Passing Lanes) (Hwy. 7)
And
AHTD Job 090213
Co. Rd. 46 – Buffalo River
(Safety Imprvs.) (Hwy. 7)
Newton County

United Keetoowah Band of Cherokee Indians in Oklahoma
Ms. Lisa Stopp
THPO
P.O. Box 746
Tahlequah, OK 74465-0746

Dear Ms. Stopp:

The Federal Highway Administration (FHWA), through the Arkansas State Highway and Transportation Department (AHTD), is preparing an Environmental Assessment (EA) and Section 4(f) Evaluation for the referenced projects. These projects propose improvements to sections of Highway 7. A portion of the projects' area is within the Buffalo National River (BNR) in Newton County, Arkansas. The U.S. Department of the Interior, National Park Service; and Federal Highway Administration are cooperating agencies for this project.

The projects begin approximately 1.8 miles south of the Buffalo River and end approximately 0.3 miles south of the river. The total length of the combined projects is 1.5 miles. Alternatives considered will include improvements along the existing highway and the No-Action Alternative. The projects will include a north and south bound passing lane along part of the route with roadway realignment and grade improvements. The improvements would require the conversion of 11 acres of vegetated land within the boundary of BNR to State of Arkansas Highway 7 right of way, including land within 115 feet of the Buffalo River Trail. Large rock cut areas, fill areas including rip-rap, and removal of vegetation will be required for construction of these projects.

Additional projects planned in the project area include a new crossing of the Buffalo River at Highway 7 and a crossing of Mill Creek at County Road 213. While the cumulative impacts of all the projects will be considered in this EA, the final analysis of the Buffalo River and Mill Creek

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298
501-324-5625
Fax: 501-324-6423
arkansas.fhwa@dot.gov

May 17, 2011

In Reply Refer To:
AHTD Job 090169
Jasper – Buffalo River
(Passing Lanes) (Hwy. 7)
And
AHTD Job 090213
Co. Rd. 46 – Buffalo River
(Safety Imprvs.) (Hwy. 7)
Newton County

The United Keetoowah Band of Cherokee Indians in Oklahoma has no objection to the referenced project. However, if any remains, artifacts or other items are inadvertently discovered, please cease construction immediately and contact us at 918-456-6533 or by letter.

JUN 0 3 2010

Lisa C. Stopp, Tribal NAGPRA POC Date

United Keetoowah Band of Cherokee Indians in Oklahoma
George G. Wickliffe
Chief
P.O. Box 746
Tahlequah, OK 74465-0746

Dear Mr. Wickliffe:

The Federal Highway Administration (FHWA), through the Arkansas State Highway and Transportation Department (AHTD), is preparing an Environmental Assessment (EA) and Section 4(f) Evaluation for the referenced projects. These projects propose improvements to sections of Highway 7. A portion of the projects' area is within the Buffalo National River (BNR) in Newton County, Arkansas. The U.S. Department of the Interior, National Park Service; and Federal Highway Administration are cooperating agencies for this project.

The projects begin approximately 1.8 miles south of the Buffalo River and end approximately 0.3 miles south of the river. The total length of the combined projects is 1.5 miles. Alternatives considered will include improvements along the existing highway and the No-Action Alternative. The projects will include a north and south bound passing lane along part of the route with roadway realignment and grade improvements. The improvements would require the conversion of 11 acres of vegetated land within the boundary of BNR to State of Arkansas Highway 7 right of way, including land within 115 feet of the Buffalo River Trail. Large rock cut areas, fill areas including rip-rap, and removal of vegetation will be required for construction of these projects.

Additional projects planned in the project area include a new crossing of the Buffalo River at Highway 7 and a crossing of Mill Creek at County Road 213. While the cumulative impacts of all the projects will be considered in this EA, the final analysis of the Buffalo River and Mill Creek

TRIBAL HISTORIC PRESERVATION OFFICE

Date: **August 18, 2011** **File: 1011-1121AR-8**

RE: **AHTD Job 090169 Jasper – Buffalo River (Passing Lanes) (Hwy. 7) and Job Number 090213 Co. Rd. 46 – Buffalo River (Safety Imprvs.) (Hwy. 7) in Newton County, Arkansas**

Randal Looney
Environmental Coordinator, AHTD
700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298

Dear Mr. Looney,

The Osage Nation Historic Preservation Office has received notification and accompanying information for the proposed project listed as AHTD Job 090169 Jasper – Buffalo River (Passing Lanes) (Hwy. 7) and Job Number 090213 Co. Rd. 46 – Buffalo River (Safety Imprvs.) (Hwy. 7) in Newton County, Arkansas. **The Osage Nation requests a copy of the planned Phase I cultural resources survey.**

In accordance with the National Historic Preservation Act, (NHPA) [16 U.S.C. 470 §§ 470-470w-6] 1966, undertakings subject to the review process are referred to in S101 (d)(6)(A), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates reviewing and commenting on the planned Phase I cultural resources survey for the proposed AHTD Job 090169 Jasper – Buffalo River (Passing Lanes) (Hwy. 7) and Job Number 090213 Co. Rd. 46 – Buffalo River (Safety Imprvs.) (Hwy. 7) in Newton County, Arkansas.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

James Munkres
Archaeologist I

APPENDIX E

PLANT SPECIES

This page intentionally left blank.

Vascular Plant Survey of the Buffalo National River (163 taxa)

Pruitt Station

May 5, June 15, 2005

I. Dicots

Acanthaceae	
Justicia americana	Water willow
Aceraceae	
Acer negundo	Box elder
Acer rubrum	Red maple
Anacardiaceae	
Toxicodendron radicans	Poison ivy
Annonaceae	
Asimina triloba	Paw paw
Apiaceae	
Chaerophyllum tainturieri	Wild chervil
Daucus carota	Queen Ann's lace
Osmorhiza longistylis	Sweet cicely
Thaspium trifoliatum	Meadow parsnip
Torilis arvensis	Hedge parsley
Apocynaceae	
Vinca major	Periwinkle
Aquifoliaceae	
Ilex decidua	Deciduous holly
Aristolochiaceae	
Asarum canadensis	Wild ginger
Asclepiadaceae	
Asclepias tuberosa	Butterfly milkweed
Gonolobus gonocarpos	Anglepod
Asteraceae	
Ambrosia artemisiifolia	Common ragweed
Ambrosia trifida	Giant ragweed
Antennaria parlinii	Pussy toes
Symphyotrichum sp.	Aster
Astranthium integrifolium	Western daisy
Chrysanthemum leucanthemum	Oxeye daisy

Asteraceae (cont.)	
Conyza canadensis	Mare's tail
Erigeron annus	Annual fleabane
Erigeron strigosus	Daisy fleabane
Eupatorium rugosum	White snakeroot
Krigia biflora	False dandelion
Lactuca floridana	Wild lettuce
Polymnia uvedalia	Bear's foot
Rudbeckia hirta	Blackeyed Susan
Rudbeckia laciniata	Cutleaf coneflower
Senecio obovatus	Senecio
Solidago rugosa	Goldenrod
Taraxacum officinalis	Dandelion
Verbesina sp.	Winged stem
Balsamanaceae	
Impatiens pallida	Jewelweed
Berberidaceae	
Podophyllum peltatum	Mayapple
Betulaceae	
Alnus serrulata	Alder
Betula nigra	River birch
Corylus americana	Hazelnut
Ostrya virgininiana	Ironwood
Bignoniaceae	
Campsis radicans	Trumpet creeper
Catalpa bignonioides	Catalpa
Boraginaceae	
Cynoglossum officianale	Hound's tongue
Brassicaceae	
Descurainia pinnata subsp. *brachycarpa*	Tansy mustard
Cactaceae	
Opuntia macrorhiza	Plains prickly pear
Caesalpiniaceae	
Cercis canadensis	Redbud
Gleditsia triacanthos	Honey locust

Campanulaceae	
Triodanis perfoliata var. *biflora*	Venus' looking glass
Caprifoliaceae	
Lonicera japonica	Japanese honeysuckle
Sambucus canadensis	Elderberry
Caprifoliaceae, cont.	
Symphoricarpos orbiculatus	Coral berry
Viburnum rufidulum	Rusty black haw
Caryophyllaceae	
Stellaria media	Chickweed
Cornaceae	
Cornus amomum	Silky dogwood
Cornus drummondii	Roughleaf dogwood
Cornus florida	Flowering dogwood
Ebenaceae	
Diospyros virginiana	Persimmon
Ericaceae	
Vaccinium arboreum	Farkleberry
Euphorbiaceae	
Euphorbia collorata	Showy spurge
Fabaceae	
Desmodium spp.	Beggar ticks
Lespedeza cuneata	Sericea lespedeza
Melilotis alba	White sweetclover
Trifolium campestre	Large hop clover
Trifolium pratense	Red clover
Fagaceae	
Quercus alba	White oak
Quercus falcata	Southern red oak
Quercus muehlenbergii	Chestnut oak
Quercus velutina	Black oak
Hammamelidaceae	
Hammamelis virginiana	Witch hazel
Hydrophyllaceae	
Hydrophyllum virginianum	Virginia waterleaf
Phacelia hirsute	Phacelia

Juglandaceae	
Carya cordiformis	Bitternut hickory
Carya tomentosa	Mockernut hickory
Juglans cinerea	Butternut
Juglans nigra	Black walnut
Lamiaceae	
Barbarea vulgaris	Winter cress
Glechoma hederacea	Ground ivy
Hedeoma hispidum	Pennyroyal
Lamiceae, (cont.)	
Lamium amplexicaule	Henbit
Prunella vulgaris	Healall
Salvia lyrata	Lyre-leaf sage
Lauraceae	
Lindera benzoin	Spicebush
Sassafras albidum	Sassafras
Magnoliaceae	
Magnolia acuminata	Cucumber tree
Malvaceae	
Hibiscus syriacus	Rose of Sharon
Menispermaceae	
Menispermum canadense	Moonseed
Mimosaceae	
Albizia julibrissen	Mimosa tree
Nyssaceae	
Nyssa sylvatica	Black gum
Olaeaceae	
Fraxinus americana	White ash
Fraxinus pennsylvanica	Green ash
Ligustrum sinense	Chinese privet
Onagraceae	
Oenothera villosa	Evening primrose
Papaveraceae	
Sanguinaria canadensis	Bloodroot
Phytolaccaceae	
Phytolacca americana	Pokeweed
Plantaginaceae	
Plantago lanceolata	English plantain
Plantago rugellii	Plantain

Platanaceae	
Platanus occidentalis	Sycamore
Polemoniaceae	
Phlox pilosa subsp. *ozarkana*	Ozark phlox
Polygonaceae	
Rumex conglomerates	Native dock
Ranunculaceae	
Anemone virginiana	Virginia anemone
Isopyrum biternatum	False rue anemone
Rananculus abortivus	Buttercup
Rhamnaceae	
Rhamnus caroliniana	Carolina buckthorn
Rosaceae	
Geum canadensis	White avens
Neviusia alabamemsis	Alabama snow wreath
Potentilla norvegica	Cinquefoil
Potentilla recta	Cinquefoil
Potentilla simplex	Potentilla
Prunus americana	American plum
Prunus serotina	Black cherry
Rubus alleganiensis	Allegany blackberry
Rubus flaggellaris	Northern dewberry
Rubiaceae	
Galium aparine	Cleavers
Salicaceae	
Salix nigra	Black willow
Saxifragaceae	
Hydrangea arborescens	Hydrangea
Ribes missouriense	Gooseberry
Scrophulariaceae	
Verbascum thapsus	Great mullein
Simaroubaceae	
Ailanthus altissimus	Tree of heaven
Staphyleaceae	
Staphylea trifolia	Bladdernut
Ulmaceae	
Celtis occidentalis	Hackberry
Ulmus alata	Winged elm

Urticaceae	
Boehmeria cylindrical	False nettle
Laportea canadensis	Wood nettle
Laportea canadensis	Wood nettle
Valerianaceae	
Valerianella radiata	Corn salad
Violaceae	
Viola pubescens	Yellow violet
Viola sororia	Wood violet
Vitaceae	
Ampelopsis arborea	Peppervine
Parthenocissus quinquifolia	Virginia creeper
Vitis aestivalis	Summer grape
Vitis riparia	Riverbank grape

II. Monocots

Araceae	
Arisaema drcontium	Green dragon
Cyperaceae	
Carex glaucodea	Sedge
Carex grisea	Sedge
Eleocharis erythropoda	Spike rush
Dioscoreaceae	
Dioscorea oppositifolia	Chinese yam
Liliaceae	
Allium canadense	Wild garlic
Arisaema triphylla	Jack in the pulpit
Polygonatum biflorum	Solomon's seal
Trillium recurvatum	Trillium
Poaceae	
Aristida purpurea	Three-awn
Arundinaria gigantea	River cane
Bromus diandrus	Ripgut grass
Bromus pubescens	Hairy brome
Bromus secalinus	Cheat
Bromus tectorum	Downy brome
Chasmanthium latifolium	Inland sea oats
Cynodon dactylon	Bermuda grass
Dactylis glomerata	Orchard grass
Danthonia spicata	Oatgrass
Dichanthelium clandestinum	Panic grass
Dichanthelium sphaerocarpon	Panic grass
Elymus virginicus	Virginia wildrye

Poaceae (cont.)	
Poa annua	Annual poa
Poa sylvestris	Wood bluegrass
Smilacaceae	
Smilax tamnoides	Bristly greenbrier
Smilax bona-nox	Cat brier
Smlax rotundifolia	Greenbrier

III. Gymnosperms

Cupressaceae	
Juniperus virginiana	Eastern red cedar
Pinaceae	
Pinus echinata	Shortleaf pine

IV. Ferns

Aspleniaceae	
Asplenium platyneuron	Ebony spleenwort
Dryopteridaceae	
Woodsia obtusa	Cliff fern

Buffalo National River Plant Species of Special Concern

Scientific Name	Common Name	State Status	Global Rank	State Rank
Amorpha canescens	Leadplant	INV	G5	S1
Aster sericeus	Silky aster	INV	G5	S2
Aster shortii	An aster	INV	G4 G5	S1
Bulbostylis capillaris	A sedge	INV	G5	S1
Cacalia muehlenbergii	Great indian-plantain	INV	G4	S2
Callirhoe bushii	A poppy-mallow	INV	G3	S3
Carex gravida var. gravida	A sedge	INV	G5 T5?	S2
Castenea pumila var. ozarkensis	Ozark chinquapin	INV	G5T3	S3S4
Collinsia verna	Spring blue-eyed Mary	INV	G5	S1
Coreopsis grandiflora var. saxicola	Large-flowered tickseed	INV	G5 T4?	S3
Delphinium newtonianum	Moore's larkspur	INV	G3	S3
Delphinium treleasei	Trelease's larkspur	INV	G3	S3
Disporum lanuginosum	Yellow mandarin	INV	G5	S2
Echinacea paradoxa	Bush's yellow coneflower	ST	G2	S2
Evolvulus nuttallianus	An evolvulus	INV	G5	S3
Heuchera parviflora var. puberula	Little-leaved alumroot	INV	G4 T3 T4	S3
Heuchera villosa var arkansana	Arkansas alumroot	INV	G5 T3 Q	S3
Hexalectris spicata	Crested coralroot	INV	G5	S2
Hydrophyllum macrophyllum	Waterleaf	INV	G5	S2
Juglans cinerea	Butternut	INV	G3 G4	S3
Leavenworthia uniflora	A leavenworthia	INV	G4	S3
Mimulus ringens	Square-stem monkeyflower	INV	G5	S1 S2
Minuartia michauxii	Rock sandwort	INV	G5	S1
Muhlenbergia bushii	Bush's muhly	INV	G5	S2
Parnassia grandifolia	Large-flowered grass-of-parnassus	INV	G3	S3
Philadelphus hirsutus	A mock orange	INV	G5	S2 S3
Plantago cordata	Heart-leaved plantain	ST	G4	S2
Ranunculus longirostris	White water-crowfoot	INV	G5	S2 S3
Ribes curvatum	Granite gooseberry	INV	G4	S3
Ribes cynosbati	Prickly gooseberry	INV	G5	S2 S3
Salvia reflexa	Lance-leaved sage	INV	G5	SH
Saxifraga virginiensis	Virginia saxifrage	INV	G5	S3
Scutellaria bushii	Bush's skullcap	ST	G3	S2
Sedum ternatum	Wood stonecrop	INV	G5	S3
Silene regia	Royal catchfly	ST	G3	S2
Smilax ecirrata	Carrion-flower	INV	G5?	S2
Stenosiphon linifolius	Stenosiphon	ST	G5	S1
Thelypteris noveboracensis	New York fern	INV	G5	S3
Tradescantia ozarkana	Ozark spiderwort	INV	G3	S3
Viola canadensis	Canada violet	INV	G5	S2
Zannichellia palustris	Horned pondweed	INV	G5	S2 S3

APPENDIX F

WILDLIFE AND SPECIAL STATUS SPECIES

This page intentionally left blank.

Bat Species Description, Life Cycle, and Habitat Additional Information

Gray Bat

The primary range of the gray bats is concentrated in the cave regions of Alabama, Arkansas, Kentucky, Missouri and Tennessee, with smaller populations found in adjacent states, including a population in Indiana. Gray Bats are one of the few species that inhabits caves year-round, during the winter the species occupies cold hibernating caves or mines and warmer caves in the summer. Summer foraging is strongly correlated with open water of rivers, streams, lakes or reservoirs. The species may travel up to 35 kilometers between occupied caves and prime feeding areas. Gray bats breed at winter caves during September. Females will store sperm over the winter and become pregnant after emerging in late March. A single offspring is born in late May or early June. (USFWS 2006).

Indiana Bat

The Indiana Bat inhabits or has inhabited portions of 19 states including Arkansas. Arkansas supports both winter and summer colonies of the Indiana Bat. Indiana bats begin to swarm in August-September, and breeding usually occurs in the latter half of this time period. After mating, females will enter directly into hibernation and store sperm over the winter. Females become pregnant after emerging the following spring. Indiana bats typically form maternity colonies with 100 or fewer adult bats. Young are born in late June or early July, and become volant within a month after birth. (USFWS 2007).

The Indiana bat is a member of the *Myotis* genus, and is quite small, weighing only three-tenths of an ounce (Service 2007). In flight, it has a wingspan of nine to eleven inches. The fur is dark brown to black and the bat is similar in appearance to many other related species. The most well recognized difference between Indiana bats and other similar *Myotis* species is that Indiana bats have a distinctly keeled calcar (cartilage that extends from the ankle to support the tail membrane). There are other minor differences, such as Indiana bats having smaller, more delicate feet, shorter feet hairs that do not extend past the toenails, and a pink nose.

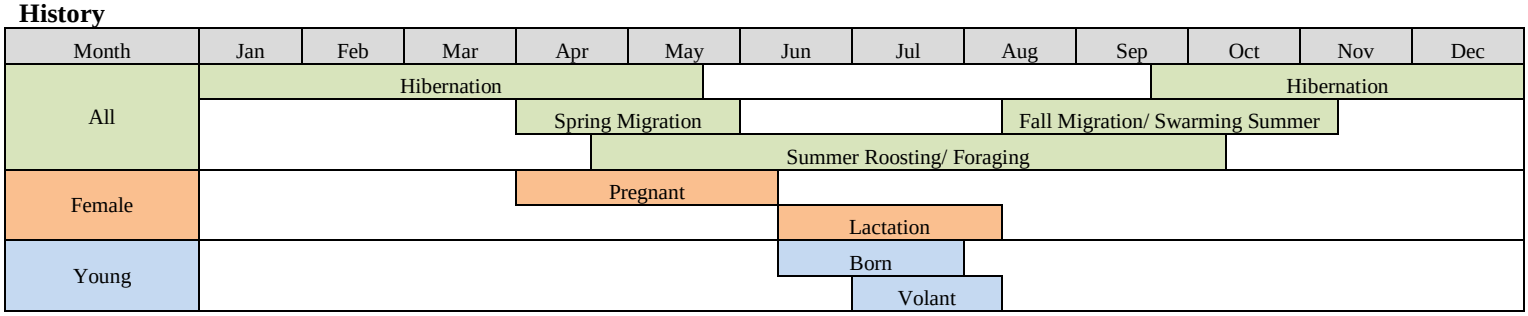
According to the revised draft recovery plan for the Indiana bat (Service 2007), the species inhabits a wide variety of woodland habitats from wetlands to uplands. In winter, most Indiana bats hibernate in caves or mines where the ambient temperature remains below 10°C (50.0°F) but infrequently drops below freezing. In summer, most trees occupied by Indiana bats are dead or nearly so and typically located at forest edges (secondary roost trees are also common in forest interiors) to absorb solar radiation. Indiana bats sometimes are found under bark on large dead branches within a living tree or on a dead trunk of a living tree with multiple trunks.

At least 33 species of trees have supplied roosts for female Indiana bats and their young, and the most desirable are various ash (*Fraxinus*), elm (*Ulmus*), hickory (*Carya*), maple (*Acer*), poplar (*Populus*), and oak (*Quercus*). Indiana bats also occasionally roost under the naturally peelingbark of living trees, most often shagbark (*C. ovata*) and shellbark hickories (*C. lacinosa*). Some common trees, such as American beech (*Fagus grandifolia*), basswood (*Tilia americana*), black cherry (*Prunus serotinus*), box elder (*A. negundo*), and willows (*Salix* spp.) have rarely or never been used, suggesting that they typically are not suitable, especially as primary roosts.

Average roost tree size in Arkansas is unknown, but in other states with large Indiana bat populations roost tree average diameter is between 41 and 62 cm (16 to 24 in) with average heights of 16 to 26 m (52 to 85 ft). Minimum roost tree diameter reported is 6.4 cm (2.5 in) and minimum height is 3.0 m (10 ft). There is no documented "minimum patch size" of trees that Indiana bats will occupy; therefore, any stand of trees with average diameters greater than 6.4 cm (2.5 in) within the action area could be considered potential habitat for the species.

The lifespan for Indiana bats is generally between 5 and 10 years (Thomson 1982), but individuals may live much longer, with the oldest known bat captured 20 years after it was first banded (LaVal and LaVal 1980). The key stages in the annual cycle of Indiana bats are: hibernation, spring staging, pregnancy, lactation, volancy/weaning, migration, and swarming. While varying with weather and latitude, generally bats begin winter torpor in mid-September through late October and begin emerging in April. Females depart shortly after emerging and are pregnant when they reach their summer area. Birth of young occurs between mid-June and early July and then nursing continues until weaning, which is shortly after young become volant in mid to late July. Migration back to the hibernacula may begin in August and continue through September. Males depart later from the hibernacula and begin migrating back earlier than females. The table below details the annual lifecycle.

Table 1: Indiana Bat Life History



Generally, Indiana bats hibernate from October through April depending upon local weather conditions. Bats cluster on cave ceilings during hibernation and are capable of clustering in densities ranging from 300-484 bats per square foot. Hibernation facilitates survival during winter when prey are unavailable. However, the bat must store sufficient fat to support metabolic processes until spring. Substantial risks are posed by events during the winter that interrupt hibernation and increase metabolic rates. Temperature and relative humidity are important factors in the selection of hibernation sites. During the early autumn, Indiana bats roost in warm sections of caves and move down a temperature gradient as temperatures decrease. In mid-winter, Indiana bats tend to roost in portions of the cave where temperatures are cool (37-43^{o} F). Long-term data suggest an ideal temperature range for hibernacula is between 3-6^{o}C (USFWS 1999). A recent study of highly populated hibernacula documented a temperature range of 3-7.2^{o}C (Tuttle and Kennedy 2002). Relative humidity in Indiana bat hibernacula is usually above 74% but below saturation (Hall 1962; Humphrey 1978; LaVal et al. 1976), although relative humidity as low as 54% has been observed (Hall 1962; Humphrey 1978; LaVal et al. 1976).

After hibernation ends in late March or early April, most Indiana bats migrate to summer roosts. Female Indiana bats emerge from hibernation prior to males. The period after hibernation and just before spring migration is typically referred to as "staging," a time when bats forage and a limited amount of mating occurs (Hall 1962; Cope and Humphrey 1977). Most bats leave their hibernaculum by late April. Migration is stressful for the Indiana bat, particularly in the spring when their fat reserves and food supplies are low and females are pregnant. As a result, adult mortality may be highest in late March and April (Thomson 1982).

Indiana bats are known to occupy distinct home ranges, particularly in the summer (Garner and Gardner 1992). However, relatively few studies have determined the home ranges of Indiana bats, and these studies based their calculations on a small number of individuals. Further, direct comparison of the home range estimates between studies is difficult due to different methodologies used in collecting the data, inconsistency in terminology, and different methods of calculating home range size (Lacki et al. 2006). Home range size varies between seasons, sexes, and reproductive status of the females (Lacki et al. 2006). Standardized methodology and terminology as well as additional research will be necessary in order to further refine home range estimates.

Upon emergence from the hibernacula in the spring, females seek suitable habitat for maternity colonies (USFWS 1999). Colonial behavior is thought to improve reproductive success. Females usually start grouping into larger maternity colonies by mid-May and give birth to a single young between late June and early July (Humphrey et al. 1977). These colonies are typically located under the sloughing bark of live, dead and partially dead trees in upland and lowland forest (Humphrey et al. 1977; Gardner et al. 1991).

Colony trees are usually large-diameter, standing dead trees with direct exposure to sunlight. The warmer temperature from sunlight exposure helps development of fetal and juvenile young (USFWS 1999). A maternity roost may contain100 or more adult females and their pups. Roost trees often provide suitable habitat as a maternity roost for only a short period of time. Dead trees retain their bark for only a certain period of time (about 2-8 years). Once all bark has fallen off a tree, it is considered unsuitable to the Indiana bat for roosting (Gardner et al. 1991; Britzke et al. 2003). Traditional summer sites are essential to the reproductive success of local populations. It is not known how long or how far female Indiana bats will search to find new roosting habitat if their traditional roost habitat is lost or degraded. If they are required to search for new roosting habitat, it is assumed that this effort places additional stress on pregnant females at a time when fat reserves are low or depleted and they are already stressed from the energy demands of migration.

It is unknown how many roosts are critical to the survival of a colony, but the temporary nature of the use of the roost trees dictates that several must be available in an area if the colony is to return to the same area and raise their young successfully. Indiana bats require many roost trees to fulfill their needs during the summer (Callahan et al. 1997). In Michigan, Indiana bats used two to four different roost trees during the course of one season (Kurta and Williams 1992). In Missouri, each colony used between 10 to 20 roost trees, and these were not widely dispersed (all within a circle ranging in size from 0.81 to 1.48 km) (Miller et al. 2002). The important factor associated with roost trees is their ability to protect individuals from the elements, and to provide thermal regulation of their environment. Maternity colonies have at least one primary roost, which is generally located in an opening or at the edge of a forest stand (USFWS 1999).

Maternity colonies also use multiple alternate roosts which are located in the open or in the interior of forest stands (USWFS 1999). Exposure to sunlight is important during development of fetal and juvenile young. In Missouri, use of dead trees in the forest interior increased in response to unusually warm weather (i.e., shading provided a cooler thermal environment), and use of live trees and snags in interior forest increased during periods of precipitation (Miller et al. 2002). Maternity colonies in North Carolina and Tennessee used roosts located above the surrounding canopy (Britzke et al. 2003).

Roost trees vary in size. The minimum diameter reported so far is 2.5 inches diameter at breast height (dbh) for a tree used by males (Grumbert 2001) and 4.3 inches dbh for one occupied by females (Britzke 2003), such small trees have not been documented as primary roosts. The average diameter of roost trees used by maternity colonies (primary and alternate) is 24, 22, and 16 inches for Indiana, Missouri, and Michigan, respectively (Callahan et al. 1997, Kurta and Rice 2002, Whitaker and Brack 2002).

The smallest mean diameter of roost trees used by a colony is 11 inches which is for five trees in Pennsylvania; however, the primary roost for this colony was a building, and no tree sheltered more than four bats (Butchkoski and Hassinger 2002). Larger-diameter trees presumably provide thermal advantages and more spaces for more bats to roost. As with most tree-roosting bats (Hayes 2003, Barclay and Kurta in press), female Indiana bats probably select trees, especially primary roosts, that are larger in diameter than nearby apparently suitable, but unoccupied trees (Kurta et al. 1996, 2002; Britzke et al. 2003; Palm 2003; Sparks 2003). Indiana bats have been found roosting in several different species of trees, and it appears that they choose roost trees based on their structural composition. Therefore, it is difficult to determine if one particular species of tree is more important than others. The females' trees were between 6 and 10 inches in diameter and contained bark cover between 54 and 70 percent. Females tended to roost within 0.75 miles of the hibernacula, whereas males roosted anywhere from 0.95 to 2.35 miles from the hibernacula. Both males and females were found to use 2 to 3 roost trees for 2 to 3 days at a time (Kiser and Elliott 1996). Britzke et al. (2003) documented the use of conifers by maternity colonies in the mountains of Tennessee and North Carolina. Some adult males use mature forests around and near their hibernacula for roosting and foraging from spring through fall. However, some male bats have been found to leave the hibernacula area completely (USFWS 1999). Male Indiana bats have been found to use the same habitat in subsequent years (USFWS 1999).

Northern Long-Eared Bat

The Northern long-eared bat (NLEB) is a medium-sized member of the genus *Myotis* whose range includes the Eastern United States and Canada. NLEB have a medium to dark brown back, wings, and ears, and a medium to light brown underside. The common name of the species is derived from their diagnostic ear length and tragus, when compared to other local members of the genus. The NLEB ears are approximately 14 to 19 mm and extend past the nose when laid flat. The tragus is very long and distinctly pointed at the tip, and is usually about 10 to 12 mm in length (Amelon and Burhans 2006). Adults of the species weigh between 5 to 10 grams; have a total length of approximately 77 to 100 mm, a wingspan of between 23 to 26 cm, and a 34 to 39 mm forearm length (Caire et al. 1979, Williams and Findley 1979). Females of the species tend to be larger than males (Kurta, 1995).

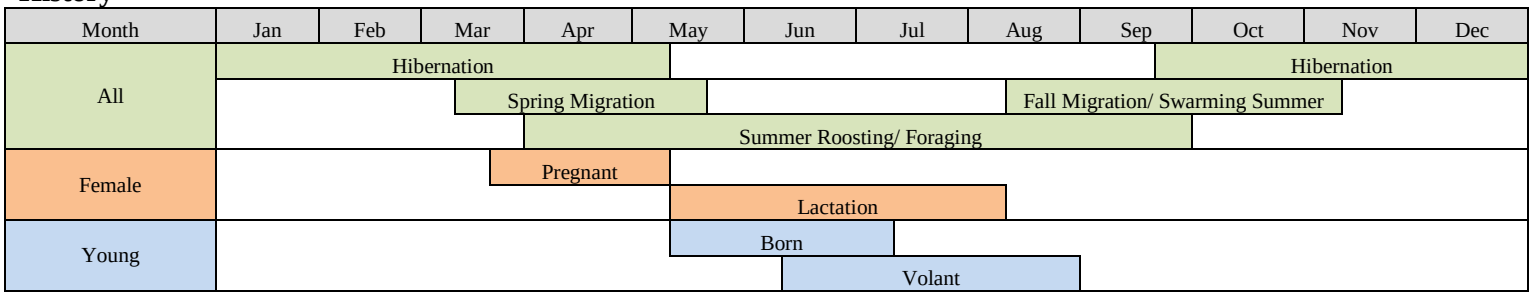
Two similar members of the genus *Myotis* have ranges that overlap the NLEB, the little brown bat (*Myotis lucifugus*) and the Indiana bat (*Myotis sodalis*). Size, appearance, diet, and habitat are similar for all three species and it is possible that all three can be found in the same habitat areas. The NLEB is distinguished from the other members of its genus by its longer ears with a long pointed tragus. The pelage of the little brown bat is glossy, while the NLEB has a duller brown fur. The Ibat has a keeled calcar on its interfemoral membrane that the NLEB and little brown bat lack. The call of the NLEB is higher in frequency than the other two *Myotis*, whose calls greatly overlap.

The NLEB has a longer tail and larger wing area than other *Myotis* of the same mass, which is generally associated with their gleaning behavior (Caceres and Barclay, 2000) and their maneuverability during slow flight in spatially complex areas, such as forests (Krynak 2010).

The NLEB is insectivorous and does most of its feeding by using echolocation in flight, which is called hawking. The diet of the NLEB consists mainly of moths (Lepidoptera), flies (Diptera), and beetles (Coleoptera). Unlike other *Myotis*, the NLEB also utilizes a gleaning foraging strategy, feeding on flightless insects and arachnids from twigs, leaves, and water surfaces (Lee and McCracken 2004). Foraging commences at dusk when the NLEB leaves its diurnal roost, and is bimodal, with a second foraging effort before dawn (Kunz 1973). The main foraging habitat of the NLEB includes upland forested hillsides and ridges (Brack and Whitaker 2001). Although the NLEB will occasionally forage over forest clearings, water or riparian areas, or roadways, they seem to prefer feeding within the canopy of the forest at much lower heights than other Myotis (Nagorsen and Brigham 1993).

The NLEB hibernates in caves in the winter and migrates to forested areas in the summer to forage and rear young. The table below details the annual lifecycle.

Table 2: Northern Long-Eared Bat Life History



Generally, NLEB hibernate in caves and underground mines from September to early November through early March to April or May (Caceres and Barclay 2000). They have also been found hibernating in abandoned railroad tunnels, storm sewer entrances, hydro-electric dam facilities, old aqueducts, and dry wells. Bats rouse either singly or in small clusters and prefer to roost within cracks or crevices in cave walls (Caceres and Barclay 2000). Ideal hibernacula characteristics include cool temperatures between 0-9°C (32-48.2°F), high humidity, and minimal air currents (Caceres and Pybus 1997). The NLEB is more active during hibernation than other Arkansas cave bats. Bats have been observed to move between several hibernacula in the winter, but show strong annual fidelity to a winter roosting location (Caceres and Barclay 2000).

Beginning as early as March, but more typically from April to May, NLEB leave their hibernacula for summer roosting habitat. Migration distance is believed to be generally shorter for NLEB than the other local *Myotis*, ranging from 5 to 168 miles, but most often between 56 and 89 miles (Nagorsen and Brigham 1993; Griffin 1945). NLEB tend to utilize edge habitats for migration, choosing to take long routes with partial canopy protection from predators and weather, rather than shorter open routes. This practice is also advantageous for foraging during the migration periods (Limpens and Kapteyn 1991).

Summer roosting occurs from approximately April 1st to September 30th. Male and non-reproductive female NLEB roost individually in smaller trees or in cooler landscape areas, including caves and mines. Reproductive females form small maternity colonies in often larger trees that provide for warmer, pup-rearing conditions. Roost tree selection for the NLEB is more opportunistic than the other local *Myotis* species; males will roost in trees as small as 3 inches dbh, as long as the tree exhibits roosting conditions. Generally, NLEB roost trees can be of any species, live or dead, that have exfoliating bark, cracks, or crevices. Bats have also been observed roosting in man-made structures, such as buildings, barns, a park pavilion, sheds, cabins, under eaves of buildings, behind window shutters, and in bat houses. The NLEB is less selective than other species of *Myotis* in that they will use smaller diameter trees, shorter trees, areas of greater canopy cover, and tend to roost more often in cracks and crevices (Foster and Kurta 1999). They are generally prone to use of the interior or intact upland forests. Within the forest, NLEB demonstrate preference for stratum type between the sexes, with males preferring upland near stream corridors and females preferring upland interior roosts (Krynak 2010). During summer roosting, the NLEB will change roost trees every 2 to 5 nights (Carter and Feldhamer 2005; Foster and Kurta 1999; Sasse and Pekins 1996; Timpone et al. 2010). Roost trees often are clustered together and are frequently located a considerable distance away from foraging areas (Sasse and Pekins, 1996). Roost switching is thought to be motivated by limiting parasite loads, lessening predation risks, finding optimum thermal radiation, and abandoning roosts that have shed an excess amount of exfoliating bark cover or are at risk of fall (Schultes, 2002). Inter-annual summer roost site fidelity has been recorded in the NLEB for roosting areas, but not necessarily for particular roosting trees (Foster and Kurta 1999; Patriquin et al. 2010). Overall, forested habitat for the NLEB has been characterized as having mixed deciduous species with interspersed open areas with edge habitat for foraging and travel (Owen et al. 2003).

Ozark Big-Eared Bat

The Ozark big-eared bat is endemic to the Ozark Highlands and Boston Mountains ecoregions, where it occurs in oak-hickory hardwood forests (Clark 1991, USFWS 1995 and 2008). In Arkansas, the species is known to occur primarily in Crawford, Franklin, and Washington Counties in northwestern Arkansas, and in Marion County in north-central Arkansas. Based on proximity to known range, presence of suitable roosting and foraging habitat, and evidence of probable use discovered during cave searches for this species in Arkansas, the Ozark big-eared bat potentially may occur in Newton County and other north Arkansas counties. Like the gray bat, the Ozark big-eared bat relies on caves year round and is known to use and roost in limestone and sandstone talus caves. Preferred foraging habitat for the Ozark big-eared bat consists of hardwood forests and edge habitats.

References

Amelon, S., and D. Burhans. "Conservation assessment: *Myotis septentrionalis* (northern long-eared bat) in the Eastern United States." United States Department of Agriculture Forest Service General Technical Report NC 260 (2006): 69.

Barclay, R.M. 1991. Population structure of temperate zone insectivorous bats in relation to foraging behaviour and energy demand. Journal of Animal Ecology 60(1):165-178.

Brack, V.J.R, and J.O. Whitaker. "Foods of the northern myotis, *Myotis septentrionalis*, from Missouri and Indiana, with notes on foraging." Acta Chiropterologica 3.2 (2001): 203-210.Caceres and

Britzke, E.R., M.J. Harvey, and S.C. Loeb. 2003. Indiana bat, *Myotis sodalis*, maternity roosts in the southern United States. *Southeastern Naturalist* 2(2):235-242.

Butchkoski, C.M. and J.D. Hassinger. 2002. Ecology of a maternity colony roosting in a building. Pp. 130-142 in Kurta, A. and J. Kennedy, editors. The Indiana bat: biology and management of an endangered species. Bat Conservation International, Austin, TX.

Caceres C. M., and R. M. R. Barclay. 2000. *Myotis septentrionalis*. Mammalian Species 634:1-4.

Caceres, M. C., and M. J. Pybus. Status of the Northern Long-eared Bat (*Myotis septentrionalis*) in Alberta. Alberta Environmental Protection, Wildlife Management Division. No. 3. Wildlife Status Report, 1997.

Caire, William, *et al*. "Notes on the ecology of *Myotis keenii* (Chiroptera, Vespertilionidae) in eastern Missouri." American Midland Naturalist (1979): 404-407.

Callahan, E.V., R.D. Drobney, and R.L. Clawson. 1997. Selection of summer roosting sites by Indiana bats (*Myotis sodalis*) in Missouri. *Journal of Mammalogy* 78:818-825.

Carter, Timothy C., and George A. Feldhamer. "Roost tree use by maternity colonies of Indiana bats and northern long-eared bats in southern Illinois." Forest Ecology and Management 219.2 (2005): 259-268.

Cope, J.B. and S.R. Humphrey. 1977. Spring and autumn swarming behavior in the Indiana bat, *Myotis sodalis*. *Journal of Mammalogy* 58:93-95.

Foster, Rodney W., and Allen Kurta. "Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*)." Journal of Mammalogy 80.2 (1999): 659-672.

Gardner, J.E., J.D. Garner, and J.E. Hofman. 1991. Summer roost selection and roosting behavior of *Myotis sodalis*, Indiana bat, in Illinois. Final report submitted to the Illinois Natural History Survey, Champaign, IL. 56 pp.

Garner, J.D. and J.E. Gardner. 1992. Determination of summer distribution and habitat utilization of the Indiana bat (*Myotis sodalis*) in Illinois. Unpublished report prepared for Illinois Department of Conservation, Division of Natural Heritage, and Illinois Natural History Survey, Center for Biogeographic Information. 23 pp.

Griffin, Donald R. "Travels of banded cave bats." Journal of Mammalogy (1945): 15-23.

Hall, J.S. 1962. A life history and taxonomic study of the Indiana bat, *Myotis sodalis*. Reading Public Museum and Art Gallery. Reading, Pennsylvania. Gallery Publication 12:1-68.

Krynak, Timothy J. "Bat Habitat Use and Roost Tree Selection for Northern Long-eared Myotis (*Myotis septentrionalis*) in North-Central Ohio." (2010).

Humphrey, S.R. 1978. Status, winter habitat, and management of the endangered Indiana bat *Myotis sodalis*. Florida Scientist 41:65-76.

Humphrey, S.R., A.R. Richter, and J.B. Cope. 1977. Summer habitat and ecology of the endangered Indiana bat, *Myotis sodalis*. Journal of Mammalogy 58:334-346.

Kiser, J.D. and C.L. Elliot. 1996. Foraging habitat, food habits, and roost tree characteristics of the Indiana bat, *Myotis sodalis*, during autumn in Jackson County, Kentucky. Final Report for the Kentucky Department of Fish and Wildlife Resources. 65 pp.

Kunz, T. H. "Population studies of the cave bat." *Myotis velifer* (1973).

Kurta, A. and K.J. Williams. 1992. Roosting habitat, microclimate, and behavior of the endangered Indiana bat (*Myotis sodalis)* in southern Michigan. Final report to the Michigan Department of Natural Resources. 17 pp.

Kurta, Allen. Mammals of the Great Lakes region. University of Michigan Press, 1995.

Kurta, A., K.J. Williams, and R. Mies. 1996. Ecological, behavioural, and thermal observations of a peripheral population of Indiana bats (Myotis sodalis). Pp. 102-117 in R.M.R. Barclay and R.M. Brigham (eds.), Bats and Forests Symposium. Research Branch, British Columbia Ministry of Forests, Victoria, BC, Canada.

Kurta, A., and H. Rice. 2002. Ecology and management of the Indiana bat in Michigan. *Michigan Academician* 177-190.

Kurta, A. and S.W. Murray. 2002. Philopatry and migration of banded Indiana bats (*Myotis sodalis*) and effects of radio transmitters. *Journal of Mammalogy* 83(2):585-589.

Kurta, A., S.W. Murray, and D.H. Miller. 2002. Roost selection and movements across the summer landscape. Pp. 118-129 i*n* A. Kurta and J. Kennedy (eds.), The Indiana bat:

LaVal, R.K., R.L.Clawson, M.L. LaVal, and W. Caire. 1976. Foraging behavior and nocturnal activity patterns of Misssouri bats, with emphasis on the endangered species *Myotis grisescens* and *Myotis sodalis. Journal of Mammalogy* 58(4):592-599.

LaVal, R.K. and M.L. LaVal. 1980. Ecological studies and management of Missouri bats, with emphasis on cave-dwelling species. Terrestrial Series No. 8. Missouri Dept. of Conservation, Jefferson City. 52 pp.

Lee, Ya-Fu, and Gary F. McCracken. "Flight activity and food habits of three species of *Myotis* bats (Chiroptera: Vespertilionidae) in sympatry." ZOOLOGICAL STUDIES-TAIPEI- 43.3 (2004): 589-597.

Limpens, H.J.G.A., AND K. Kapteyn. 1991. Bats, their behaviour and linear landscape elements. *Myotis* 29:63–71.

Brigham, Robert Mark, and Royal British Columbia Museum. Bats of British Columbia. UBC Press, 1993.

Ohio Department of Transportation. 2007. Programmatic Biological Opinion of the Federally-listed endangered Indiana bat (*Myotis sodalist*). USFWS Reynoldsburg, Ohio.

Owen, Sheldon F., *et al*. "Home-range size and habitat used by the northern myotis (*Myotis septentrionalis*)." The American midland naturalist 150.2 (2003): 352-359.

Patriquin, Krista J., et al. "Do social networks of female northern long-eared bats vary with reproductive period and age?." Behavioral Ecology and Sociobiology 64.6 (2010): 899-913.

Sparks, D.W. 2003. How does urbanization impact bats? Ph.D. Dissertation. Indiana State University, Terre Haute, IN. 121 pp..

Thomson, C.E. 1982. *Myotis sodalis*. The American Society of Mammalogists. Mammalian Species No. 162. pp. 1-5.

Whitaker, J.O., Jr., and V. Brack, Jr. 2002. Distribution and summer ecology in Indiana. Pp. 48-54 *in* A. Kurta and J. Kennedy (eds.),. The Indiana bat: biology and management of an endangered species. Bat Conservation International, Austin, TX.

Snuffbox Mussel
Additional Information

The snuffbox is small freshwater mussel found in shallow riffles with swift current in gravel and sand substrates. The snuffbox is known from the Black, Buffalo, Kings, Spring, Strawberry and White Rivers in Arkansas. The only known collection of the snuffbox in the Buffalo River was from river mile 142.1 (Pruitt is located approximately at rm 52) (Matthews 2007).

Although they prefer living in small to medium sized freshwater creeks with swift current, snuffbox mussels can also be found in larger bodies of water. The snuffbox mussels eat microscopic organisms, algae, and decaying matter. Snuffbox mussels are hurt by dams; sedimentation from farming, construction, dredging, logging, and mining; runoff from farms, factories, feedlots, chemical spills, and sewer treatment plants; and competition from the invading zebra mussel.

According to the U.S. Fish and Wildlife Service, the snuffbox mussel no longer can be found in 62 percent of the creeks and streams it used to live in historically. The U.S. Fish and Wildlife Service will develop a recovery plan for the snuffbox mussel and supervise efforts to conserve the snuffbox mussel habitats.

FAUNAL INVENTORY OF SPECIES WITHIN THE BNR

I. Mammals

Marsupials
Virginia Opossum

Shrews
Southeastern Shrew
Southern Short-tailed Shrew
Least Shrew

Moles
Eastern Mole

Bats
Little Brown Myotis
Gray Myotis
Northern Long-eared Bat
Indiana Myotis
Small-footed Myotis
Silver-haired Bat
Eastern Pipistrelle
Big Brown Bat
Red Bat
Hoary Bat
Evening Bat
Ozark Big-eared Bat

Armadillos
Nine-banded Armadillo

Hares, Rabbits
Eastern Cottontail
Swamp Rabbit
Black-tailed Jackrabbit

Squirrels
Eastern Chipmunk
Woodchuck
Gray Squirrel
Fox Squirrel
Southern Flying Squirrel

Pocket Gophers
Baird's Pocket Gopher

Beavers
Beaver

Rats, Mice and Voles
Fulvous Harvest Mouse
Deer Mouse
White-footed Mouse
Texas Mouse
Golden Mouse
Hispid Cotton Rat
Eastern Woodrat
Woodland Vole
Muskrat
Norway Rat
House Mouse

Carnivores
Coyote
Red Fox
Gray Fox
Black Bear
Raccoon
Long-tailed Weasel
Mink
Eastern Spotted Skunk
Striped Skunk
River Otter
Mountain Lion
Bobcat

Ungulates
White-tailed Deer
Elk

Entries to this list are based upon park research and confirmed findings by park staff and visitors. Species nomenclature corresponds with Arkansas Mammals by John A. Sealander and Gary A. Heidt.

II. Birds

Loons, Grebes
Common Loon
Pied-billed Grebe
Horned Grebe

Pelicans, Cormorants
American White Pelican
Double-crested Cormorant

Wading Birds
American Bittern
Great Blue Heron
Great Egret
Snowy Egret
Little Blue Heron
Cattle Egret
Green Heron
Black-crowned Night-Heron
Yellow-crowned Night-Heron

Waterfowl
Snow Goose
Canada Goose
Wood Duck
Green-winged Teal
Mallard
Northern Pintail
Blue-winged Teal
Northern Shoveler
Gadwall
American Wigeon
Canvasback
Redhead
Ring-necked Duck
Lesser Scaup
Common Goldeneye
Bufflehead
Hooded Merganser
Common Merganser
Ruddy Duck

Gamebirds
Ruffed Grouse
Wild Turkey
Northern Bobwhite

Vultures, Eagles, Hawks, Falcons
Black Vulture
Turkey Vulture
Osprey
Bald Eagle
Northern Harrier
Sharp-shinned Hawk
Cooper's Hawk
Red-shouldered Hawk
Broad-winged Hawk
Red-tailed Hawk
Rough-legged Hawk
Golden Eagle
American Kestrel
Merlin
Peregrine Falcon

Rails, Coots, Shorebirds, Gulls
Sora
American Coot
Killdeer
American Avocet
Greater Yellowlegs
Willet
Spotted Sandpiper
Common Snipe
American Woodcock
Ring-billed Gull

Cuckoos
Black-billed Cuckoo
Yellow-billed Cuckoo
Greater Roadrunner

Owls, Goatsuckers
Barn Owl
Eastern Screech Owl
Great Horned Owl
Barred Owl
Common Nighthawk
Chuck-will's-widow
Whip-poor-will

Swifts, Hummingbirds
Chimney Swift
Ruby-throated Hummingbird

Kingfishers
Belted Kingfisher

Woodpeckers
Red-headed Woodpecker
Red-bellied Woodpecker
Yellow-bellied Sapsucker
Downy Woodpecker
Hairy Woodpecker
Northern Flicker
Pileated Woodpecker

Flycatchers, Larks
Olive-sided Flycatcher
Eastern Wood Pewee
Acadian Flycatcher
Alder Flycatcher
Willow Flycatcher
Least Flycatcher
Eastern Phoebe
Great Crested Flycatcher
Eastern Kingbird
Scissor-tailed Flycatcher
Horned Lark

Swallows
Purple Martin
Tree Swallow
Northern Rough-winged Swallow
Bank Swallow
Cliff Swallow
Barn Swallow

Jays, Crows
Blue Jay
American Crow
Fish Crow

Titmice, Chickadees, Nuthatches
Carolina Chickadee
Tufted Titmouse
Red-breasted Nuthatch
White-breasted Nuthatch
Brown Creeper

Pigeons, Doves
Rock Dove
Mourning Dove

Thrushes, Kinglets
Golden-crowned Kinglet
Ruby-crowned Kinglet
Blue-gray Gnatcatcher
Eastern Bluebird
Townsend's Solitaire
Veery
Gray-cheeked Thrush
Swainson's Thrush
Hermit Thrush
Wood Thrush
American Robin
Gray Catbird
Northern Mockingbird
Brown Thrasher

Pipits, Waxwings, Shrikes, Starlings
American Pipit
Cedar Waxwing
Loggerhead Shrike
European Starling

Vireos
White-eyed Vireo
Bell's Vireo
Solitary Vireo
Yellow-throated Vireo
Warbling Vireo
Philadelphia Vireo
Red-eyed Vireo

Tanagers, Grosbeaks, Buntings
Summer Tanager
Scarlet Tanager
Northern Cardinal
Rose-breasted Grosbeak
Blue Grosbeak
Indigo Bunting
Painted Bunting

Blackbirds, Orioles
Red-winged Blackbird
Eastern Meadowlark
Rusty Blackbird
Brewer's Blackbird
Common Grackle
Brown-headed Cowbird
Orchard Oriole
Baltimore Oriole

Warblers	**Sparrows**
Blue-winged Warbler	Dickcissel
Golden-winged Warbler	Eastern Towhee
Tennessee Warbler	Spotted Towhee
Nashville Warbler	American Tree Sparrow
Northern Parula	Chipping Sparrow
Yellow Warbler	Field Sparrow
Chestnut-sided Warbler	Lark Sparrow
Magnolia Warbler	Savannah Sparrow
Yellow-rumped Warbler	Fox Sparrow
Black-throated Green Warbler	Song Sparrow
Blackburnian	Lincoln's Sparrow
Yellow-throated Warbler	Swamp Sparrow
Pine Warbler	White-throated Sparrow
Prairie Warbler	White-crowned Sparrow
Palm Warbler	Harris' Sparrow
Bay-breasted Warbler	Dark-eyed Junco
Cerulean Warbler	
Black-and-white Warbler	**Finches**
American Redstart	Purple Finch
Prothonotary Warbler	House Finch
Worm-eating Warbler	Pine Siskin
Swainson's Warbler	American Goldfinch
Ovenbird	Evening Grosbeak
Northern Waterthrush	House Sparrow
Louisiana Waterthrush	
Kentucky Warbler	**Wrens**
Mourning Warbler	Carolina Wren
Common Yellowthroat	Bewick's Wren
Hooded Warbler	House Wren
Wilson's Warbler	Winter Wren
Canada Warbler	Marsh Wren
Yellow-breasted Chat	

Entries to this list are based upon park research, confirmed sightings by park staff and visitors, and the annual Christmas Bird Count. Assumed listings are included because of the narrow and linear geography of the park. Order of species corresponds with the American Birding Association list, revised 1996.

III. Fish

Lamprey
American Brook Lamprey
Chestnut Lamprey

Gar
Longnose Gar

Eel
American Eel

Herring
Gizzard

Minnow
Southern Redbelly Dace
Bluntnose Minnow
Ozark Minnow
Bigeye Chub
Creek Chub
Hornyhead Chub
Streamline Chub
Central Stoneroller
Largescale Stoneroller
Bigeye Shiner
Duskystripe Shiner
Golden Shinner
Ozark Shiner
Rosyface Shiner
Steelcolor Shiner
Striped Shiner
Telescope Shiner
Wedgespot Shiner
Whitetail Shiner

Suckers
Highfin Carpsucker
*Northern Hog Sucker
Black Redhorse
Golden Redhorse
River Redhorse

Catfish
*Black Bullhead
*Yellow Bullhead
*Channel Catfish
*Flathead Catfish
Checkered Madtom
Ozark Madtom
Slender Madtom

Killifishes
Northern Sutdfish
Blackspotted Topminnow
Silversides
Brook Silverside

Sunfishes
*Largemouth Bass
*Ozark Bass / Goggleye
*Smallmouth Bass / Brownie
*Spotted Bass
*Green Sunfish
*Longear Sunfish
*Bluegill

Perches
Arkansas Saddled Darter
Banded Darter
Blackside Darter
Gilt Darter
Greenside Darter
Logperch
Orangethroat Darter
Rainbow Darter
Speckled Darter
Stipple Darter
Yoke Darter

Sculpins
Banded Sculpin

* = game fish

Entries to this list are based upon park research and confirmed findings by park staff and visitors. Species nomenclature corresponds with Fishes of Arkansas by Henry W. Robinson and Thomas M. Buchanan.

Animals

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Accipiter striatus	Sharp-shinned hawk	-	INV	G5	S1 S2B, SZN
Ardea herodias	Great blue heron	-	MON	G5	S3B, S4N
Corynorhinus townsendii ingens	Ozark big-ear bat	LE*	INV	G4T1	S1
Cyprogenia aberti	Western fanshell mussel	-	INV	G2	S2?
Dendroica petechia	Yellow warbler	-	WAT	G5	S3B, S5N
Derops divalis	Beetle	-	INV	G1	S1
Elaphe guttata guttatta	Corn snake	-	INV	G5 T5	S1?
Falco sparverius	American kestrel	-	WAT	G5	S3 S4B, S5N
Lampetra appendix	American brook lamprey	-	INV	G4	S2?
Limnothlypis swainsonii	Swainson's warbler	-	INV	G4T1	S3B
Myotis grisescens	Gray myotis	LE*	INV	G3	S2
Myotis leibii	Eastern small-footed bat	-	INV	G3	S1
Myotis sodalis	Indiana bat	LE*	INV	G2	S2
Notropis ozarcanus	Ozark shiner	-	INV	G3	S2
Picoides villosus	Hairy woodpecker	-	WAT	G5	S4 S5
Pseudacris triseriata triseriata	Western chorus frog	-	INV	G5 T5	S3
Rana sylvatica	Wood frog	-	INV	G5	S4
Vermivora pinus	Blue-winged warbler	-	WAT	G5	S3B, S5N

*Listed Endangered; the U.S. Fish and Wildlife Service has listed these species as endangered under the Endangered Species Act.

LEGEND

STATE STATUS CODES

INV = Inventory Element; The Arkansas Natural Heritage Commission is currently conducting active inventory work on these elements. Available data suggests these elements are of conservation concern. These elements may include outstanding examples of Natural Communities, colonial bird nesting sites, outstanding scenic and geologic features as well as plants and animals, which, according to current information, may be rare, peripheral, or of an undetermined status in the state. The ANHC is gathering detailed location information on these elements.

SE = State Endangered; The Arkansas Natural Heritage Commission applies this term to native plant taxa which are in danger of being extirpated from the state.

ST = State Threatened; The Arkansas Natural Heritage Commission applies this term to native plant taxa which are believed likely to become endangered in Arkansas in the foreseeable future, based on current inventory information.

Definition of Ranks

Global Ranks

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = Imperiled globally because of rarity (6-20 occurrences or few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 - 100.

G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH = Of historical occurrence throughout its range, i.e., formerly part of the established biota, with the expectation that it may be rediscovered (e.g., Bachman's Warbler).

GU = Possibly in peril range-wide but status uncertain; more information needed.

GX = Believed to be extinct throughout range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered.

T-RANKS = T subranks are given to global ranks when a subspecies, variety, or race is considered at the state level. The subrank is made up of a "T" plus a number or letter (1, 2, 3, 4, 5, H, U, X) with the same ranking rules as a full species.

State Ranks

S1 = Extremely rare. Typically 5 or fewer estimated occurrences in the state, or only a few remaining individuals, may be especially vulnerable to extirpation.

S2 = Very rare. Typically between 5 and 20 estimated occurrences or with many individuals in fewer occurrences, often susceptible to becoming extirpated.

S3 = Rare to uncommon. Typically between 20 and 100 estimated occurrences, may have fewer occurrences but with large number of individuals in some populations, may be susceptible to large-scale disturbances.

S4 = Common, apparently secure under present conditions. Typically 100 or more estimated occurrences, but may be fewer with many large populations, may be restricted to only a portion of the state, usually not susceptible to immediate threats.

S5 = Demonstrably widespread, common, and secure in the state and essentially ineradicable under present conditions.

SA = Accidental.

SH = Historically known from the state, but not verified for an extended period, usually 15 years.

SU = Possibly in peril in the state, but status uncertain, more information is needed.

SX = Apparently extirpated from state.

SZ = Zero occurrences. Not of practical conservation concern in the state because there are no definable occurrences, although the taxa is native and appears regularly in the state.

Q = A "Q" in the global rank indicates the element's taxonomic classification as a species is a matter of conjecture among scientists.

Ranges = Ranges are used temporaily until a final decision can be made.

? = A question mark is used temporarily when there is some indecision regarding the rank assignment or when an element has not been ranked.

B = Breeding status

N = Non-breeding status

APPENDIX G

SPECIAL STATUS SPECIES CORRESPONDENCE

This page intentionally left blank.

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:

D30 (BUFF)

Lynn P. Malbrough
Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Malbrough:

The purpose of this letter is to respond to your August 15, 2007 letter regarding realignment of Highway 7 and replacement of the existing Pruitt Bridge. Please consider Buffalo National River (BNR) as a cooperating agency in this project. We have reviewed the coordination meeting minutes and found them to accurately reflect some of our resource, facility, and transportation access concerns.

In addition, we would like for your environmental document to include analysis of project impacts on downstream mussel beds which, contain state listed rare and sensitive fresh water mussel species. Soil erosion and the resulting sedimentation are known to be deleterious to extant mussel communities. Consequently, the environmental analysis should consider mitigation measures that would attenuate and minimize erosion both during construction and subsequent to project completion. BNR Aquatic Ecologist Faron Usrey is very knowledgeable about the river's mussel community and stands ready to assist you with analysis and strategies to reduce erosion and ameliorate sedimentation.

Your letter accurately documents consideration of the glade areas on the river's north side. These glades are sensitive to disturbance and contain rare plants such as ashes juniper, Echinacea and the collared lizard. BNR Biological Technician Ray Wiggs possesses a replete knowledge of these glade resources and will cooperate with you to analyze impacts and synthesize disturbance mitigation measures.

Since highway realignment requires removal of existing vegetation, we ask that you conduct a plant survey of the disturbed area. BNR contains several rare trees such as the American elm, Ozark chinquapin, and American butternut. Additionally, several rare herbaceous plants such as Alabama snow wreath, ginseng, goldenseal, and the yellow lady slipper orchid exist within the park. Therefore, we ask that your botanical survey focus on the above listed plants and if found, work with Chief of Resource Management Mark DePoy to mitigate vegetation community impacts.

Your letter accurately reflects our stated concerns about project impacts on the current day-use recreational area southwest of the existing bridge and the turn lanes that facilitate entrance into current and future recreational areas in the vicinity of the river.

We defer your question regarding the Mill Creek bridge replacement as a separate county project to Newton County. However, since the highway realignment may impact the Mill Creek low water crossing and Mill Creek as a stream, your environmental analysis should include potential impacts to Mill Creek biota, water quality and the existing low-water crossing.

Buffalo National River concurs that the conceptual alternatives shown on the enclosed map and proposed at the meeting by AHTD are viable alternatives to be analyzed in the environmental document.

BNR ~~is willing~~ to let the existing Highway 7 Bridge remain in-place. However, ~~we do not~~ desire to accept ownership of the bridge after a replacement bridge has been constructed.

BNR would like to be informed of all communications relative to cultural resource issues pertinent to this project. Our park archeologist and section 106 coordinator, Dr. Caven Clark was copied with correspondence dated August 29, 2007 from Ken Grunewald of the Arkansas State Historic Preservation Office to Mr. Lynn P. Malbrough of the Environmental Division of the Arkansas State Highway and Transportation Department with regard to a determination of eligibility. We have received no correspondence regarding the two structures mentioned in the letter, nor on the progress of the archeological survey conducted by John E. Miller of the Arkansas State Highway and Transportation Department under Archeological Resources Protection Act Permit Number 2005-3. We understand, based on a telephone conversation between Mr. Miller and Dr. Clark, that the archeological survey is not yet completed, but would like to remind you that a preliminary report of finding is due to Buffalo National River within six weeks of the conclusion of fieldwork, and a final report is due within six months. We would like the opportunity to be informed of these findings, and to weigh in on any decisions regarding treatment or potential significance of any archeological sites found within Buffalo National River.

We appreciate your cooperation with the environmental review of these projects and look forward to assisting AHTD with synthesis of an environmental impact document. We would like to have the opportunity to review the environmental analysis document prior to public release and to have BNR staff attend the public scoping meetings.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

The Department of
Arkansas
Heritage

Mike Beebe
Governor

Cathie Matthews
Director

Arkansas Arts Council

Arkansas Historic
Preservation Program

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars
Cultural Center

Old State House Museum

Arkansas Natural Heritage
Commission
1500 Tower Building
323 Center Street
Little Rock, AR 72201
(501) 324-9619
fax: (501) 324-9618
tdd: (501) 324-9811
e-mail:
arkansas@naturalheritage..org
website:
www.naturalheritage.com

An Equal Opportunity Employer

Date: November 16, 2007
Subject: AHTD Job No. 009784, Buffalo River Br. & Apprs (Hwy. 7)
AHTD Job No. 090169, Jasper-Buffalo River (Passing Lanes, Hwy. 7)
AHTD Job No. 090213, Co. Rd. 46-Buffalo River (Safety Improv., Hwy. 7)
AHTD Job No. BR5102, Mill Creek Str. & Apprs. (Co. Rd. 213)
ANHC No.: S-AHTD-07-043

Mr. Lynn Marlbrough
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Dear Mr. Marlbrough:

Staff members of the Arkansas Natural Heritage Commission have reviewed the above referenced projects. These projects would provide improvements to sections of Highway 7 and County Road 213 located mostly within the Buffalo National River in Newton County, Arkansas. Our records indicate the occurrence of the following species of conservation concern within the project area:

Alasmidonta viridis, slippershell mussel - state concern
Lasmigona costata, flutedshell - state concern
Neviusia alabamensis, Alabama snow wreath - state concern
Notropis ozarcanus, Ozark shiner - state concern
Ptychobranchus occidentalis, Ouachita kidneyshell - state concern
Quadrula cylindrica, rabbitsfoot - state concern
Stylophorum diphyllum, celandine poppy - state concern
Venustaconcha pleasii, bleedingtooth mussel - state concern
Villosa iris, rainbow - state concern

Detailed information on these occurrences has been made available to the Environmental Division of the Arkansas Highway and Transportation Department. Avoiding and limiting impacts to these species should be a consideration in project development.

The opportunity to comment is appreciated.

Sincerely,

Cindy Osborne

Cindy Osborne
Data Manager/Environmental Review Coordinator

United States Department of the Interior

FISH AND WILDLIFE SERVICE
110 South Amity Road, Suite 300
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480

IN REPLY REFER TO:

December 10, 2007

Mr. Lynn P. Malbrough
Environmental Division Head
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Re: AHTD Job Numbers 009784, 090169, 090213, and BR5102, Hwy 7 Buffalo River Bridge replacement and passing lane construction, County Road 46 safety improvements and Mill Creek bridge replacement, near Pruitt, AR

Dear Mr. Malbrough,

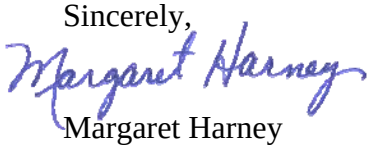
This letter provides U.S. Fish and Wildlife Service (Service) comments concerning the above referenced Arkansas Highway and Transportation Department (AHTD) project and is in response to your later dated October 26, 2007. Our comments are submitted in accordance with the Endangered Species Act of 1973 (Act; 87 stat. 884, as amended; 16 U.S.C. 1531 et seq.).

A review of the proposed project site revealed no federally listed threatened or endangered species within the action area in Newton County. Database records indicate the presence of the rabbitsfoot mussel (*Quadrula cylindrica*), state ranked S2 due to rarity and vulnerability to extirpation, just downstream of the project in the Buffalo River.

Additionally, numerous species of migratory birds protected under the Migratory Bird Treaty Act are located in the area and may be nesting on bridges or other structures. Surveys should be conducted prior to initiation of construction and special consideration given to the times and dates of construction to avoid impacts to these species.

The Service will work with AHTD to avoid and minimize impacts to the affected environment once sufficient information regarding project plans and construction is received. Thank you for allowing our agency the opportunity to comment on the proposed project. For future correspondence on this matter, please contact Mitch Wine of this office at 501-513-4488.

Sincerely,



Margaret Harney
Team Leader

cc:
Randal Looney, FHWA
John Harris, AHTD
John Fleming, AHTD
Don Nichols, AHTD
Cindy Osborne, ANHC
Robert Leonard, AGFC

United States Department of the Interior

FISH AND WILDLIFE SERVICE
110 South Amity Road, Suite 300
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480

IN REPLY REFER TO:

June 15, 2011

Mr. Lynn P. Malbrough
Environmental Division Head
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Re: Environmental Assessment for AHTD Job Numbers 090169 and 090213, Hwy. 7 Buffalo River passing lane construction and safety improvements near Pruitt, Arkansas (Newton County).

Dear Mr. Malbrough,

This letter provides U.S. Fish and Wildlife Service (Service) comments concerning the above referenced Arkansas Highway and Transportation Department (AHTD) environmental assessment and also responds to your later dated May 17, 2011. Our comments are submitted in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e) and the Endangered Species Act of 1973 (87 stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Improvements to Highway 7 located in Newton County, Arkansas, are being proposed by the AHTD. The improvements to Highway 7 include the addition of passing lanes and roadway realignment to improve safety. Proposed improvements for Highway 7 would generally consist of the construction of two 12-foot wide paved travel lanes, with the addition of a 12-foot wide passing lane. Paved shoulder widths would be eight feet wide, except adjacent to a passing lane, where a six-foot wide shoulder would be utilized. The passing lanes project (AHTD Job 090169) would begin 1.8 miles south of the Buffalo River and end 0.9 mile south of the Buffalo River, for a total length of 0.9 mile. One southbound and northbound passing lane would be included.

The safety improvements project (AHTD Job 090213) would begin at the northern end of the passing lanes project and extend to 0.3 mile south of the Buffalo River, for a total length of 0.6 mile. The roadway would be reconstructed on essentially the existing alignment through this section but would also be straightened and the grade decreased to improve safety. No passing lanes are proposed for this project. The Passing Lanes and Safety Improvements Projects would require an average right of way width between 100 and 250 feet. This would result in approximately 11 acres of additional right of way being required for a transportation use within the Buffalo National River.

Appendix Note: Letter included for AHTD Job Number 009784 as indication of USFWS concerns regarding Highway 7 corridor projects.

A review of the proposed project site revealed the presence of the federally listed endangered gray bat (*Myotis grisescens*) in Flea Cave within 2,500 feet of the proposed project area. Buffalo River National Park personnel describe this bat population as a transient summer bachelor colony with relatively few (<10) individuals persisting in winter. Time of day or time of year blasting restrictions may be necessary to avoid impacts to gray bats depending on final project design and blasting requirements for the project. Collection records also indicate the presence of the rabbitsfoot mussel (*Quadrula cylindrica*), recently proposed for federal listing as threatened, approximately 1,500 feet downstream of the proposed project in the Buffalo River. Proper installation and maintenance of best management practices for erosion control at the project site should reduce potential impacts to the rabbitsfoot mussel. However, aquatic surveys will be necessary to quantify the distribution and abundance of the species within the project area prior to initiation of construction. Further consultation with the Service is required prior to project construction for both species to determine potential impacts that could result from large scale landscape alteration.

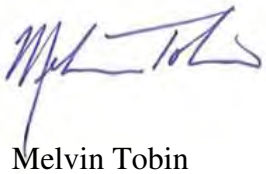
Additionally, numerous species of migratory birds protected under the Migratory Bird Treaty Act are located in the area and may be nesting on bridges or other structures. Surveys should be conducted prior to initiation of construction and special consideration given to the times and dates of construction to avoid impacts to these species which typically nest in Arkansas from March through September.

The Service encourages AHTD to perform extensive geotechnical investigations of the underlying geology of those sections of the proposed project which will need to be excavated for proposed safety improvements prior to final project design. Unconsolidated underlying geology could pose a long term slide risk which could affect the Buffalo National River and surrounding wildlife habitat, as well as present a safety risk for Scenic Highway 7 motorists and chronic maintenance issues for AHTD personnel. Proper signage or other context sensitive design solutions could be evaluated to control speeds of highway traffic through the area to improve overall safety while leaving surrounding landscapes intact; however, the Service is aware that National Park Service personnel should decide final safety improvements designs on their lands.

One alternative to passing lanes on scenic byways is the construction of strategically placed scenic overlooks with deceleration and acceleration lanes that encourage slower drivers to pull off the roadway more frequently to ease roadway congestion. These overlooks may or may not be appropriate for the specific proposed project, but could have utility on other stretches of Highway 7 or other state scenic byways. Such scenic overlooks would address the purpose and need of allowing drivers to safely maneuver around slower traffic while reducing what is usually a much larger project footprint for passing lane jobs and other safety improvements. Scenic overlooks would also serve to enhance the experience of drivers along state scenic byways without increasing speeds, which can be a byproduct of passing lanes. This solution may also serve to avoid impacts to public properties through context sensitive designs that reduce project footprints.

Thank you for allowing our agency the opportunity to comment on the proposed project. The Service will continue work with AHTD, the National Park Service, and other concerned partners to avoid and minimize impacts to the affected environment. For future correspondence on this matter, please contact Mitch Wine of this office at 501-513-4488.

Sincerely,



Melvin Tobin
Deputy Project Leader

cc:
Chuck Bitting, National Park Service
Randal Looney, Federal Highway Administration
Brenda Price, Arkansas Highway and Transportation Department
John Fleming, Arkansas Highway and Transportation Department
Don Nichols, Arkansas Highway and Transportation Department
Cindy Osborne, Arkansas Natural Heritage Commission
Robert Leonard, Arkansas Game and Fish Commission
Johnny Mclean, United States Army Corps of Engineers

C:\Documents and Settings\MSW\My Documents\Transportation\Transportation_FY2011\Highway 7 Buffalo National River

United States Department of the Interior

NATIONAL PARK SERVICE

Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
L7617 (BUFF)

August 11, 2011

Lynn P. Malbrough, Division Head
Environmental Division
Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Dear Mr. Malbrough:

We appreciate the opportunity to comment on the draft Highway 7 Passing Lanes and Safety Improvements Environmental Assessment and Section 4(f) Evaluation and offer the following comments:

1. The proposed cut feature seems severe and a more tiered approach would allow for more vegetated terraces. If this has already been included in the design, please consider including this discussion in the EA.

2. The large fill area is likely to create a sink for invasive weedy species unless steps are taken to cover fill with native vegetation or exclude the growth by way of weed suppression blankets. If this has already been included in the design, please consider including this discussion in the EA.

3. Section 2.2: When was actual determination made for this section of road with regards to level of service?

4. Section 4.3: Insert "river" after "The" in the 4th sentence. Also, in the 4th sentence you introduce the Pruitt Area, which you have not identified or previously discussed in the EA. Please include a map or description on where this is in relationship to the project area. Also this section should discuss the use of Best Management Practices for invasive species control.

5. Section 4.5, page 12: The Biological Assessment (BA) completed in 2007 may not be sufficient considering the fact that the USFWS has listed or is currently undergoing listing procedures for several mussel species that do occur in the Buffalo River as well several bat species that may occupy the terrestrial habitat along the river. The NPS provides the same level of protection for species being proposed for listing as those already listed species. Additionally, there is likely to be large areas of the river identified as critical habitat. We recommend re-opening consultation with the USFWS under Section 7 of the Endangered Species Act with regards to these and any other species being proposed for listing or have been listed since 2007. Our contact with the USFWS concerning endangered mussels is Chris Davidson; he may be reached at Chris_Davidson@fws.gov or (501) 513-4481. We also recommend requesting an up to date review from the Department of Arkansas Heritage Commission with regards to species of conservation concern within the project area. Once consultation is concluded please update EA and 4(f) analysis. Additionally, we have

some concerns that blasting activities could impact bats using both the sink holes and those using Pruitt Cave. This possibility should be analyzed in both the BA and EA.

6. Section 4.7: Both alternatives have the potential to impact surface and groundwater quality. Removing the sediments mantling the bedrock as will be done in the build alternative may increase the likelihood of impacting ground water quality. Section 402 of the Clean Water Act clearly identifies that a NPDES permit is required from Arkansas and that this permit activity requires the development of a SWPPP plan including an erosion control plan. This should be discussed as a mitigation measure.

7. Section 4.12: The park's enabling legislation directed that the national river be established "...for the purposes of conserving and interpreting a park containing unique scenic and scientific features, and preserving as a free flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations..." (March 1, 1972, 86 Stat. 44, 16 U.S.C.), which mirrors Section 1(b) of the Wild and Scenic River Act "... shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations..." and therefore a discussion of possible impacts in reference to these sections of the WSRA and the park's enabling legislation needs to be included in this EA.

8. Section 4.13, page 18, 3rd paragraph, please insert the word "Ozark" before Native grasses in the last sentence. View shed analysis should also be completed from the Buffalo River Trail (BRT). Based on site visit observations, the entire project would be visible from the BRT.

9. Section 4.16: states "all possible planning has been undertaken to minimize harm to the Section 4(f) lands resulting from such use." If other less intrusive construction methods were considered but rejected, these need to be identified in this section. If no others were considered because there were no other methods available for these areas, this also needs to be discussed. This section should both provide a brief summary of the 4(f) analysis undertaken and make reference to the report in the appendices.

10. Section 4.22: The NPS does not grant an easement for the telephone lines, rather a right-of-way.

11. Section 4.23: Please show proposed staging areas on map in EA and include the requirement for the contractor to provide a hazardous spill management plan for review.

12. Section 4.24: In our review of the USDA/National Resource Conservation Service website on Farmland Classifications in Newton County, Arkansas (http://websoilsurvey.nrcs.gov/app/HomePage.htm) it appears as though the projects may impact Prime Farmlands. Please confirm that the total project area (including buffer zones and laydown areas for both projects will not have either a direct nor indirect impact on these resources.

13. Section 4.25: The cumulative impacts section is lacking basic analysis and should include possible impacts to vegetation, wildlife, water quality, visitor enjoyment, sound (noise) and scenery. Also there is no direct connection between the discussion and the table or explanation of the field "Relocations" in the table. Additionally, there is no discussion of the cumulative impacts from the projects being included in the current EA and the ones being included in the future EA, including time frames. These projects are correcting some serious problems which will have both positive and negative effects that should be mentioned.

14. Section 5.1: Add "Ozark" to native grasses and forbs. Additionally, this section makes it seem as though "re-vegetate to upland forest" would occur naturally, when the only way this can happen is through human manipulation by planting appropriate species, which you are doing. So this should be clarified in this section.

15. Section 5.7: This should discuss any surveys that were completed in support of this project, including the results - without identifying locations - as well as summarization of consultation with SHPO, THPO and any other entities.

16. Section 6: please include a section that discusses coordination with other agencies. This should include a list of the Native American Tribes, and all other state and federal agencies. It should also include a list of person's whom worked on this document. We recommend including a table of all the mitigation measures addressed in this document.

Comments related to Appendices are:

The appendices seem to have a lot of information that is not referenced in the body of the EA; please either reference the documents or remove them from the appendices. Also, there are multiple documents discussing only the bridge project. Since the bridge project has been removed from this EA; the documents that refer to them should also be removed. This will help make sense of the appendices.

4(f) Review

In accordance with Section 774.17, part 2, of the Transportation Act, FHWA is required to obtain written concurrence that the project will not adversely affect the activities, features, and attributes that quality the resource for protection under Section 4(f), including a decision to make a "de minimis" decision . Based on the draft determination included in the draft EA, I have attached a signed letter of agreement that this action constitutes a "de Minimis" activity, which can be included in the public EA once our other concerns are addressed.

Special Provision: Special Seeding Requirements

Sharp Brothers Seed has gone out of business and we are currently using either Hamilton Seed (417-967-2190) or Pure Air Seed (660-488-6844). Please remove the Yellow coneflower (Echinacea paradoxa) from the Seed Variety table and replace it with the following species:

- Wild Bergamot - Mondarda fistulosa or Monarda Russelinana
- Butterfly milkweed - Asclepias tuberosa
- Partridge pea - Cassia fasciculata

On page 3 of 3, please amend Section 623.03 to read "Warm season grasses will be planted between April 1 and May 30 and Native forbs should be planted from June 1 - Oct 31. Also a herbaceous layer of native forbs should be planted in the herbaceous layer with the canopy and mid-story trees.

Special Provisions: Tree Planting - Section (d)

Mixture of trees should include native mid-story trees; flowering dogwood or redbud.

Special Provision: Native Stone for Riprap

The color of the stone should be tan, brown, or buff where possible. The stone riprap used at Hasty came from a rock quarry in the Mississippian aged Boone formation and was very bright and white; which

would not blend well into the project area. The area where it needs to come from is the Ordovician aged Everton formation which has a higher content of browns and yellows than the Boone typically does. Additionally, if possible the finish course should be constructed of native sandstone as it presents a duller finish than the fractured limestone.

Special Provision: Native Stone for Ditch Liner
Sandstone slabs or flagstones should be used for ditch lining. The color of the stone should be tan, brown, or buff where possible. It is our experience that local quarry stone is generally bright white angular rocks that do not turn or fade to darker colors.

Special Provision: Cave Discovery
Because all caves on National Park Service land are considered "significant" under the Federal Cave Resources Protection Act of 1988 (FCRPA), and all significant caves on federal lands are an invaluable and irreplaceable part of the Nation's natural heritage, a thorough review of the potential area of impact should be conducted before construction begins. This is particularly important as there is a sinkhole, which is covered by the FCRPA located at the following coordinates: UTM Z15N; NAD83; 487,090 mE; 3,990,130 mN. This sinkhole appears to be within the footprint of the large cut on the north end of the safety improvements project. Two additional potential sinkholes located at the following coordinates: UTM Z15N; NAD83; 486,720 mE; 3,989,595 mN, and UTM Z15N; NAD83; 486,755 mE; 3,989,605 mN. These potential sinkholes also appear to be within 200 feet of the construction footprint. Sinkholes are indicators of the interface between the surface and subsurface. They are generally formed by water flowing down fractures, enlarging and carrying sediment down the fracture to the groundwater below. Sinkholes within construction sites are perfect conduits of surface pollution and can also undermine the stability of construction projects. Impact to and from these sinkholes needs to be addressed in the EA.

Buffalo National River was established "...for the purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations..." The legislative history of the establishment indicates that caves, and cave resources were some of the unique scenic and scientific features spoken to in the legislation.
For the purposes of the FCRPA:

1. The term "cave" means any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any dug, mine, tunnel, aqueduct, or other manmade excavation) and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or manmade. Such term shall include any natural pit, sinkhole, or other feature which is an extension of the entrance.

2. The term "Federal lands" means lands the fee title to which is owned by the United States and administered by the Secretary of Agriculture or the Secretary of the Interior.

3. The term "cave resource" includes any material or substance occurring naturally in caves on Federal lands, such as animal life, plant life, paleontological deposits, sediments, minerals, speleogens, and speleothems.
4. The term "speleothem" means any natural mineral formation or deposit occurring in a cave or lava tube, including but not limited to any stalactite, stalagmite, helictite, cave flower, flowstone, concretion, drapery, rimstone, or formation of clay or mud.

5. The term "speleogen" means relief features on the walls, ceiling, and floor of any cave which are part of the surrounding bedrock, including but not limited to anastomoses, scallops, meander niches, petromorphs and rock pendants in solution caves.

According to Section 4 of the FCRPA, the Secretary shall:

1. Ensure that significant caves are considered in the preparation or implementation of any land management plan if the preparation or revision of the plan began after the enactment of this Act;

2. Foster communication, cooperation, and exchange of information between land managers, those who utilize caves, and the public.

Section 6 of the FCRPA discusses collection and removal of features and resources from federal caves. This section authorizes the Secretary to issue permits for the collection and removal of cave resources under such terms and conditions as the Secretary may impose, including the posting of bonds to insure compliance with the provisions of any permit:

1. Any permit issued pursuant to this section shall include information concerning the time, scope, location, and specific purpose of the proposed collection, removal or associated activity, and the manner in which such collection, removal, or associated activity is to be performed must be provided.

2. The Secretary may issue a permit pursuant this subsection only it he determines that the proposed collection or removal activities are consistent with the purposes of this Act and with other applicable provisions of law.

Please contact me or Chief of Fire and Resource Management Barbara Wilson at (870) 365-2732 or (870) 365-2760, respectively should you have any comments or concerns.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

February 3, 2012

James Boggs
U.S. Fish and Wildlife Service
110 South Amity Road, Suite 300
Conway, AR 72032

RE: AHTD Job Number 090169
Jasper – Co. Rd. 46 (Passing Lanes)
&
AHTD Job Number 090213
Co. Rd. 46 – Buffalo River
(Safety Improvements)
Newton County County
USFWS Concurrence Letter

Dear Mr. Boggs:

In response to comments received from the Buffalo National River, National Park Service, and your office (June 15, 2011) the Arkansas Highway and Transportation Department has determined that the No Build Alternative should be carried forward for AHTD Job No. 090213, with some modifications.

The June 15, 2011 letter identified potential impacts to the federally listed endangered gray bat (*Myotis grisescens*) and the candidate for listing, the rabbitsfoot mussel (*Quadrula cylindrica*). It was determined that further consultation would be necessary to determine potential impacts to both species that could result from the proposed construction design.

Appendix Note: Letter included for AHTD Job Number 009784 as indication of USFWS concerns regarding Highway 7 corridor projects.

The Department is now proposing to build the passing lanes (AHTD Job No. 090169) and provide roadway improvements that could include enhanced warning signage, skid resistant surfacing, guard rails, striping, and a reduction in speed limits to improve safety between the proposed passing lanes and the Buffalo National River bridge replacement project. The Department has also included this roadway section in a research project that was developed to evaluate current and innovative safety enhancements used on existing roadway curves.

Based on the implementation of the proposed changes to the AHTD Job No. 090213, we have determined that AHTD Job Nos. 090169 and 090213 may affect but are not likely to adversely affect the gray bat or rabbitsfoot mussel. We request your concurrence in our determination. If additional information is required, please contact Josh Seagraves or John Fleming of my staff at (501) 569-2281.

Sincerely,

Lynn P. Malbrough
Division Head
Environmental Division

LPM:JF:JS:ad

United States Department of the Interior

FISH AND WILDLIFE SERVICE
110 S. Amity Road, Suite 300
Conway, Arkansas 72032
Tel.: 501/513-4470 Fax: 501/513-4480

IN REPLY REFER TO:

August 7, 2013

Mr. Lynn P. Malbrough
Environmental Division Head
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203-2261

Re: Hwy. 7 passing lane construction from Russellville to Harrison, Arkansas (Pope, Newton and Boone counties).

Dear Mr. Malbrough,

This letter provides U.S. Fish and Wildlife Service (Service) comments concerning your letter dated July 2, 2013. Our comments are submitted in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e) and the Endangered Species Act of 1973 (87 stat. 884, as amended; 16 U.S.C. 1531 et seq.).

According to your letter and map, the Arkansas State Highway and Transportation Department (AHTD) is planning to construct as many as 16 new passing lanes (with one additional passing lane currently under construction) and three bridge replacements on Scenic Highway 7 between Russellville and Harrison, Arkansas.

The projects span three counties in Arkansas including Boone, Newton and Pope Counties (geographic study area). Federally listed species documented in those counties within the project area include the endangered Gray Bat (***Myotis grisescens***), endangered Indiana Bat (***Myotis sodalis***), endangered Ozark Big Eared Bat (***Corynorhinus townsendii ingens***), endangered Snuffbox Mussel (***Epioblasma triquetra***), endangered Spectaclecase Mussel (***Cumberlandia monodonta***), and the proposed threatened Rabbitsfoot Mussel (***Quadrula cylindrica cylindrica***). Bald Eagles (***Haliaeetus leucocephalus***) are known to inhabit the project area and are protected under the Bald and Golden Eagle Protection Act. Other species of migratory birds protected under the Migratory Bird Treaty Act also occur in the project area and usually nest in Arkansas between March and September. Other resources affected by the projects include the Buffalo National River and the Ozark-St. Francis National Forest (to include an inventoried road-less area).

The project locations lie mostly within the karst region of Arkansas which is characterized by caves, sinkholes, springs and sinking streams that can act as conduits directly into groundwater sources. Large cuts and fills for highway projects (in addition to borrow and waste areas) can be especially problematic in such landscapes and should be avoided and minimized to the extent practicable. The Service encourages AHTD to evaluate context sensitive design alternatives that

Appendix Note: Letter included for AHTD Job Number 009784 as indication of USFWS concerns regarding Highway 7 corridor projects.

would meet purpose and need for the project while avoiding large cuts and fills, in order to minimize ground disturbance and sediment entrainment. Detrimental effects to natural resources in the project area may arise directly from large scale landscape alteration that alters upland habitats as well as hydrologic regimes. The addition of passing lanes may also result in faster traffic which can be hazardous to both wildlife and motorists. Consideration should be given to wildlife passage along the route in order to mitigate any detrimental effects from the project.

Further information from AHTD is required in order to better analyze indirect and cumulative effects from the proposed project(s). The potential for more forms of commercial traffic (log trucks, concentrated animal feeding operation vehicles, etc.) is of concern regarding cumulative and indirect effects of the project. Silviculture and concentrated animal feeding operations are proliferating within the Buffalo National River Watershed and throughout the project study area. A clearly defined purpose and need will allow the Service to better ascertain potential detrimental indirect effects associated with the proposed project, and to do so within an environmental assessment seems appropriate for such a large-scale endeavor.

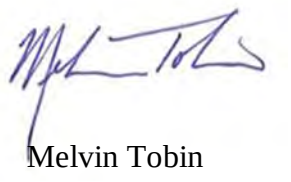
Extensive geotechnical investigations should be conducted on the underlying geology of those sections of the proposed project which will need to be excavated for proposed improvements prior to final project design. Unconsolidated underlying geology could pose a long term slide risk which could affect surrounding landscapes, as well as present a safety risk for Scenic Highway 7 motorists.

One alternative to passing lanes on scenic byways is the construction of strategically placed scenic overlooks with deceleration and acceleration lanes that encourage slower drivers to pull off the roadway more frequently to ease roadway congestion. These overlooks should be placed at the top of steeper inclines where log trucks and other slower moving large vehicles will have lost most or all of their momentum, making them much more likely to use the deceleration lanes or turnouts. Such scenic overlooks would address the purpose and need of allowing drivers to safely maneuver around slower traffic while reducing what is usually a much larger project footprint for passing lane jobs and other safety improvements. Scenic overlooks would also serve to enhance the experience of drivers along state scenic byways without increasing speeds, which can be a byproduct of passing lanes. This solution may also serve to avoid adverse effects to public properties and wildlife resources through context sensitive designs that reduce project footprints. The addition of eight foot shoulders along the roadway could serve a similar purpose while also reducing adverse effects from large cuts and fills.

Another alternative for transportation enhancement in the project area would be improvement of secondary roads. There are many gravel roads currently maintained by county governments that could be resurfaced in order to improve the flow of traffic through the area and reduce travel issues for local residents. Environmental benefits through sediment reduction would also be realized from gravel road upgrades.

Thank you for allowing our agency the opportunity to comment on the proposed project. The Service will continue work with AHTD and other concerned partners to avoid and minimize adverse effects to fish and wildlife resources. For future correspondence on this matter, please contact Mitch Wine of this office at 501-513-4488 or mitch_wine@fws.gov.

Sincerely,



Melvin Tobin
Deputy Project Leader

cc:
Randal Looney, Federal Highway Administration
Brenda Price, Arkansas Highway and Transportation Department
John Fleming, Arkansas Highway and Transportation Department
Josh Seagraves, Arkansas Highway and Transportation Department
Cindy Osborne, Arkansas Natural Heritage Commission
Jennifer Sheehan, Arkansas Game and Fish Commission
Wanda Boyd, United States Environmental Protection Agency
Chuck Bitting, Buffalo National River
Sarah Davis, U.S. Forest Service
Dwayne Rambo, U.S. Forest Service

C:\Documents and Settings\MSW\My Documents\Transportation\Transportation_FY2013\Hwy. 7 Russellville to Harrison

APPENDIX H

TRAFFIC NOISE STUDY REPORT AND NOISE EFFECTS ON WILDLIFE

This page intentionally left blank.

Traffic Noise Study

Job 009784 Buffalo River Br. & Apprs. (Pruitt) (Hwy. 7)

Newton County

February 2014



AHTD Environmental Division

Table of Contents

List of Tables ii
List of Figures ii
Introduction 3
Fundamental Concepts of Roadway Noise 3
Generation of Sound 3
Frequency 5
Intensity 5
Duration and Variation in Time 5
Noise Impact and Abatement Criteria 5
Guiding Regulations and Policies 5
Identification of Noise Sensitive Receptors 8
Site 1 8
Site 2 8
Site 3 8
Site 4 8
Measurement of Existing Sound Levels 8
Model and Model Validation 8
Methodology and Assumptions 12
Determination of Existing and Future One-hour Equivalent Sound Levels 12
Noise Levels under Structures 18
Effects of East Alternate II 23
Effects of West Alternates' I and II 23
Noise Abatement Evaluation 23
Mitigation of Construction Noise 23
Conclusions 24
References 25
Appendix A A-1
Appendix B B-1

List of Tables

Table 1. Noise Abatement Criteria 7
Table 2. Severity of Noise Level Increase 8
Table 3. Measured Existing Equivalent Sound Levels and Model Validation Results 11
Table 4. Predicted Existing and Future Noise Levels 16
Table 5. Under Structure Noise 18

List of Figures

Figure 1. Project Location 4
Figure 2. Noise Measurement Locations 9
Figure 3. Modeled Receiver Locations 13
Figure 4. Structure 07000 20
Figure 5. Structure 06200 21
Figure 6. Structure 05927 22

Introduction

This Traffic Noise Study presents the Arkansas State Highway and Transportation Department's (AHTD) analysis of potential noise impacts associated with a proposed Highway 7 improvement project. Located within the boundaries of the Buffalo National River in Newton County, Arkansas, the proposed project would be approximately 0.6 mile in length and involve replacing the existing substandard Pruitt Bridge with a new bridge and realigning the roadway approaches. Figure 1 shows the proposed project area.

Two locations for the new bridge are under consideration. The East Alternate II design is located east of the Pruitt Bridge. The West Alternate I and West Alternate II designs are located west of the Pruitt Bridge and are variations of the same basic design. The East Alternate II and the West Alternate I and II designs are referred to as the "proposed alternatives".

This study has been prepared in accordance with the Federal Highway Administration (FHWA) noise standards, *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772 [1], and the *Arkansas State Highway and Transportation Department (AHTD) Policy on Highway Traffic Noise Abatement*, revised in 2013 [2]. The noise study included the following tasks

- Identification of noise sensitive areas/sites and associated receptors (discrete or representative locations for the land uses listed in 23 CFR 772);
- Determination of existing sound levels at selected receptors to characterize the existing noise environment in the area;
- Determination of future sound levels with and without the project at the receptors; and
- Determination of impacted receptors;

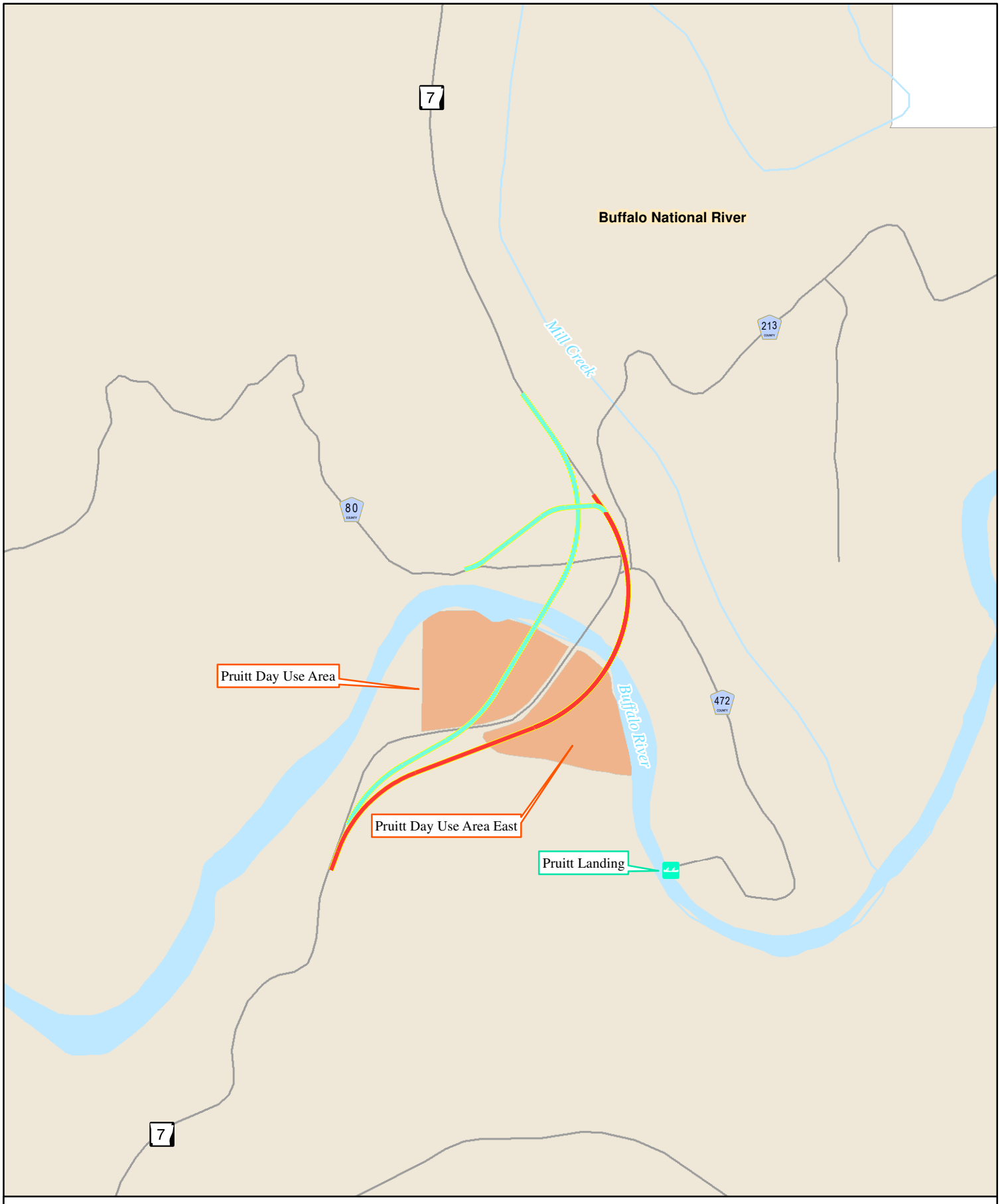
Each of these steps is detailed below, following a discussion of basic terminology and AHTD's criteria for determining noise impacts.

Fundamental Concepts of Roadway Noise

Sounds exist in the natural and human environment. Sound is a pressure fluctuation that travels through the air transmitting mechanical energy caused by vibration and can cause an auditory response in the human ear and brain. Sound can be desirable for communication or enjoyment, some are unnoticed, and some sounds are unwanted or disturbing. Noise is defined as an unwanted sound that interferes with an activity or disturbs the person hearing it. The following sections provide fundamentals for some of the terminology and concepts of sound and noise.

Generation of Sound

Three basic characteristics of environmental noise play primary roles in determining subjective human response to sound. These are: frequency (subjectively, pitch); magnitude or intensity (subjectively, loudness); time (duration and variation).



N

0 300 600

Feet

AHTD Environmental GIS - Dudley
Map Date: February 5, 2014

Figure 1
Project Location
Job 009784

Frequency
As a sound wave passes a point the air pressure falls and rises, alternatively. Each time the pressure rises and falls, it completes one cycle. The number of cycles per second, and the method that frequency is measured, is called Hertz (Hz). Subjectively, sound frequency is observed by humans as tone or pitch. Even though the human ear can detect a wide range of frequencies, from approximately 20 to 17,000 Hz, humans are more sensitive to some frequencies more than others. The lower frequencies (20-500 Hz) have a low-pitched, or bass, sound. Mid-range frequencies range from roughly 500 to 3,000 Hz, where most speech information is carried. High frequencies range from 3,000 to 17,000 Hz.

Intensity
Sound magnitude or intensity is measured in a logarithmic unit called a decibel (dB). The human ear is more sensitive to middle and high frequency sounds than it is to low frequency sounds, so sound levels are weighted to more closely reflect human perceptions. The most common measure to achieve this is the A-weighted sound level (dB(A)). The A-weighted sound level is accepted by acousticians as proper noise impact unit for traffic noise.

An understanding of these relationships is helpful in providing a subjective impression of changes in the A-weighted sound level to the human ear.

- Sound is measured in logarithmic unit called a dB(A) where a ten dB(A) is generally perceived as twice as loud;
- Except in carefully controlled laboratory experiments, an increase of only one dB in A-weighted sound levels cannot be perceived;
- Outside of laboratory controlled experiments, a three dB increase in A-weighted sound levels is a slightly perceptible difference;
- A change in A-weighted sound levels of at least five dB is required before any meaningful change in the noise level in a community is perceived.

Duration and Variation in Time
The sound level for any roadway fluctuates in duration from moment to moment as time passes. The fluctuation represents the variation properties of roadway noise.

The sound level descriptor used in this study is L_{eq}. L_{eq} is defined as the equivalent steady-state sound level which in stated periods of time contain the same acoustic energy as the time-varying sound level during the same time period, with $L_{eq}(h)$ being the hourly value of L_{eq}. L_{eq} has been shown to be a particularly stable descriptor for roadways with low traffic volumes. All noise levels determined in this study are L_{eq} over a 1-hour period of peak traffic.

Noise Impact and Abatement Criteria

Guiding Regulations and Policies

Noise impacts are determined by comparing future "design year" project worst-hour $L_{eq}(h)$ values at areas of frequent human use to: (1) a set of Noise Abatement Criteria (NAC) for different land use categories, and (2) existing $L_{eq}(h)$ values. "Design year" is defined in

Arkansas State Highway and Transportation Department's (AHTD) Policy on Highway Traffic Noise Abatement as "the future year used to determine the probable traffic volume, for which a roadway is designed, typically 20 years". In order to determine if highway noise levels are or are not compatible with various land uses, the Federal Highway Administration (FHWA) has developed land use activity categories A through G, associated Noise Abatement Criteria (NAC), and procedures to be used in the planning and design of highways. The NAC are for impact determination only; they are not design goals or design standards for noise abatement measures. The NAC for various land uses is presented in Table 1. FHWA noise standards (23 CFR 772) and AHTD's Policy on Highway Traffic Noise Abatement both state that when traffic noise impacts have been identified, then noise abatement should be considered.

Specifically, a "receptor," defined as a discrete or representative location, such as a residence, or any of the land uses listed in Table 1 at which impacts are assessed, is impacted in either of two ways. Traffic noise impacts occur when predicted traffic noise levels either approach or exceed the FHWA NAC or substantially exceed the existing $L_{eq}(h)$ noise levels. AHTD defines substantially as ten or more dB(A). AHTD defines traffic noise impacts as 1) design year build conditions that create a substantial noise increase over existing noise levels (Table 2); or 2) design year build condition noise levels that approach or exceed the NAC listed in Table 1 for the future build condition.

ATHD's Policy on Highway Traffic Noise Abatement defines "approach" as used in 23 CFR 722.5, as one-hour equivalent sound levels ($L_{eq}(h)$) that are one dB(A) or less below the NAC levels shown in Table 1. Noise level increase categories are categorized by increases in existing noise levels and compared to categories of "subjective descriptors". Subjective descriptors include attention to both the topic described and the listeners' reaction to that topic. In this case, the topic would be sound. Minor increases are defined as 0 to 5 dB(A), moderate increases are defined as 6 to 9 dB(A), and substantial increases are defined as 10 or more dB(A) as shown in Table 2.

Table 1. Noise Abatement Criteria			
Activity Category	**Activity Critieria[1] L_{eq}(h), dB(A)**	**Evaluation Location**	**Activity Description**
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio stations, recording studios, recreation areas, Section 4(f) sites[4], schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[2]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	–––	–––	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities, (water resources, water treatment, electrical), and warehousing.
G[3]	–––	–––	Undeveloped lands that are not "permitted".

Source: AHTD Policy on Highway Traffic Noise Abatement (2013).

[1] The L_{eq}(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement.

[2] Includes undeveloped lands that have been permitted for this activity category.

[3] Indicates no building permits on or before the date of public knowledge.

[4] Section 4(f) property means publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance, as initially defined in Section 4(f) of the Department of Transportation Act of 1966 and addressed in 23 CFR 774, Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f)).

Table 2. Severity of Noise Level Increase	
Increase in Existing Noise Levels (dB(A))	**Subjective Descriptor**
0 - 5	Minor Increase
6 - 9	Moderate Increase
10 or more	Substantial increase

Identification of Noise Sensitive Receptors

Field reconnaissance and a review of available electronic mapping led to the selection of the following noise measurement locations:

Site 1

Site 1 is located under the Pruitt Bridge in the Day Use Area East.

Site 2

Site 2 is approximately 130 feet east of the Pruitt Bridge in close proximity to the Lower Swimming Hole.

Site 3

Site 3 is approximately 330 feet west of the Pruitt Bridge in close proximity to the Upper Swimming Hole.

Site 4

Site 4 is located in the West Day-Use Area at the handicap accessible picnic table

These sites are shown in Figure 2.

Measurement of Existing Sound Levels

A survey was conducted in the project area in April and June 2013 as well as February 2014 to document ambient, or existing, noise levels. Concurrent traffic counts were also performed. Table 3 lists the noise measurement locations, time and date of data collection and the predominant terrain surface. Each site falls under the FHWA NAC category "C".

Model and Model Validation

AHTD policy requires validation of the FHWA Traffic Noise Model (TNM 2.5) computer program that is used to calculate worst-hour equivalent sound levels for receivers at each location for the existing case and for the proposed build alternatives in the future design year, in this case 2033. The process of validation involves taking noise measurements at a few selected points near the existing roadway while making simultaneous vehicle classification counts of the traffic and estimating travel speed (when possible). If measured estimated traffic speeds are not available,

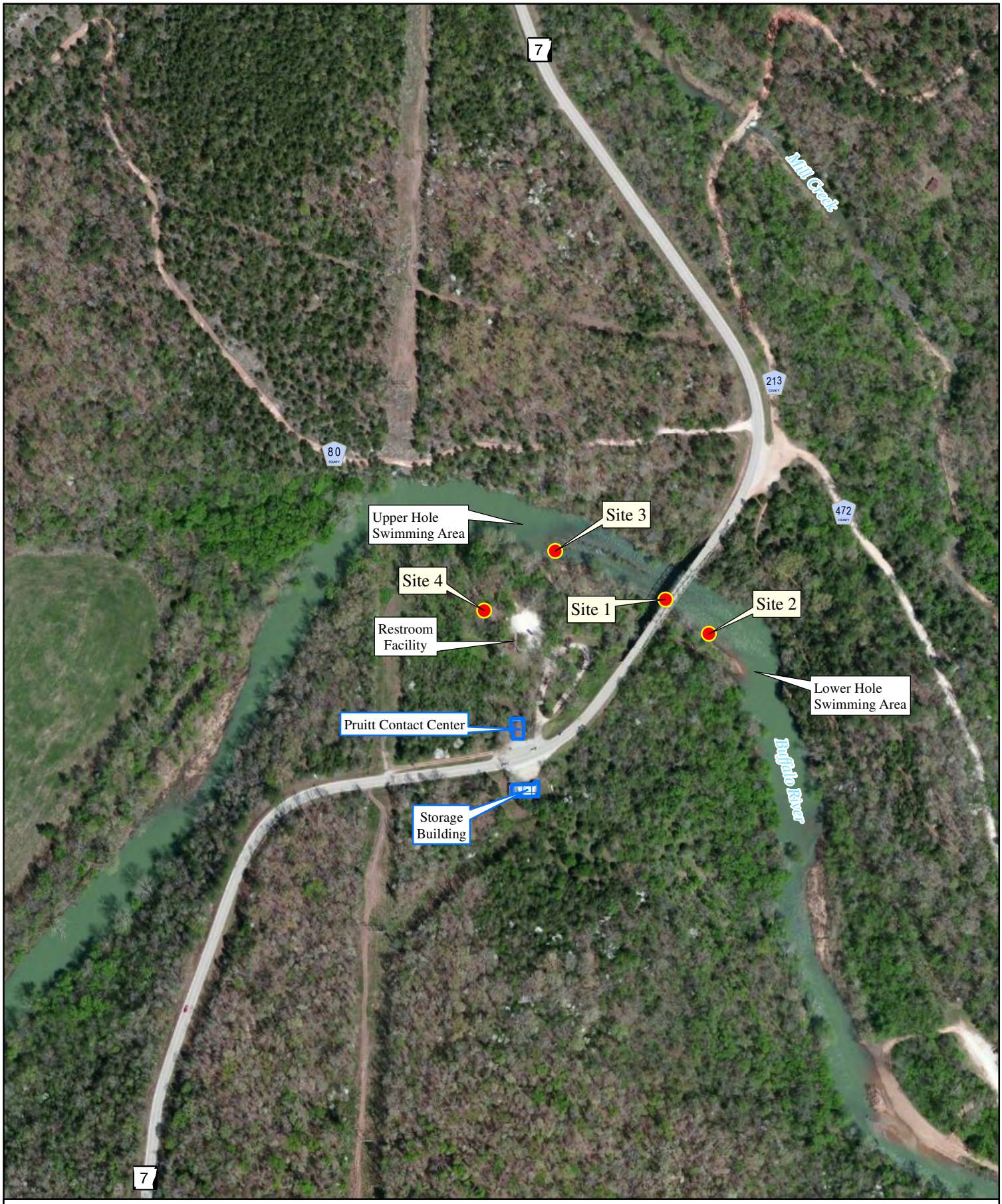


Figure 2
Noise Measurement Locations

present and future design speeds would be used. Then, the traffic counts are factored up to be hourly volumes, and along with the speeds, are entered into a TNM 2.5 model that had been created for the existing highway situation. The modeled levels are compared to the measured levels, and if they are within three dB(A) of the measured levels, the model is said to be validated.

Model validation noise measurements were made on April 16 and June 20 of 2013 and on January 16, 2014, and simultaneous vehicle classification counts were recorded for nearby roadways. Ambient noise level measurements and concurrent traffic counts were conducted at 4 locations. The four sites were chosen to represent areas to be the most affected by any noise level increase. Traffic on Hwy. 7 and the Pruitt Bridge was the dominant source of noise. Sites 1, 2, and 3 were adjacent to the river, so water sound was also a dominant source of noise at those locations. Noise measurements were recorded for 45 minute periods. The noise meter used was a Larson Davis LxT1 sound level meter. Accessories included a Larson Davis CAL200 calibrator, a PCB Piezotronics 377B20 microphone, a LaserCraft Contour XLRic laser range finder, and a microphone windshield. The microphone was placed five feet (1.52 meters) above the ground. The data were extrapolated to one-hour volumes for verification of the sample nose measurements and model calibration and then compared to FHWA's Traffic Noise Model (TNM) version 2.5. Appendix A contains the detailed measurement results.

Table 4 compares the validation locations and presents the validation results. According to AHTD Noise Policy, two of the three modeled levels at each validation location must be within +/- 3 dB(A) of the corresponding measured levels. As shown in the table, the difference in the predicted and measured levels for the validation locations are all equal to or less than +/- 3 dB(A) except for Site Number 2. In this instance, only two of the three modeled levels were within +/- 3 dB(A) (which still falls within the acceptable range of the AHTD Noise Policy). After the model input data was reviewed, it was noted that difference was probably due to the difficult to model terrain.

Table 3. Measured Existing Equivalent Sound Levels and Model Validation Results							
Site Number	**Location and Distance from Existing Pruitt Bridge**	**Predominant Surface**	**Date**	**Period**	**Measured L_{eq} dB(A)**	**Predicted L_{eq} dB(A)**	**Predicted-Measured Difference, dB(A)**
1	Under Bridge	Rocks, Pebbles and Sand adjacent to River	April 16, 2013	1:55 pm to 2:40 pm	54.4	Not Applicable	Not Applicable
2	130 feet east of Bridge	Cobbles, Pebbles and Sand adjacent to River	April 16, 2013	11:15 am to 11:30 am	56.2	56.0	-0.2
			April 16, 2013	11:30 to 11:45 am	55.1	51.3	-3.8
			April 16, 2013	11:45 am to 12:00	50.0	52.7	2.7
3	330 feet west of Bridge	Rocks, Pebbles and Sand adjacent to River	June 20, 2013	10:45 am to 11:00 am	51.2	53.8	2.5
			June 20, 2013	11:00 am to 11:15 am	55.7	52.8	-2.9
			June 20, 2013	11:15 am to 11:309 am	50.0	49.6	-0.4
4	Day-use Area ADA Picnic Table	Cobbles, Pebbles and Sand adjacent to River	February 19, 2014	10:00 am to 10:15 am	52.9	52.7	-0.2
			February 19, 2014	10:15 am to 10:30 am	50.0	52.1	2.1
			February 19, 2014	10:30 am to 10:45 am	48.7	50.5	1.8

Methodology and Assumptions

Determination of Existing and Future One-hour Equivalent Sound Levels

A noise study was conducted using the TNM 2.5 procedures. Data entered included existing and proposed roadway information, existing traffic data, and the traffic volume projected for the 2033 design year. The traffic noise model takes into account factors such as ground absorptions, roadway geometry, receiver distance, operating speed, and traffic volumes. This assessment was based on the design year L_{eq} NAC of 67 decibels dB(A), which has been established by the FHWA as the impact level or noise receptors associated with highway projects. This level or any exceedance of this level is considered a noise impact.

Traffic data were developed by the AHTD for use in the noise modeling. Morning and afternoon design hour traffic projections, including truck percentages, were provided for the existing Hwy. 7 lanes as well as the proposed alternatives.

Highway 7, the existing Pruitt Bridge and approaches, and the proposed alternatives were modeled as a single roadway. The posted speeds of 35 mph for cars and trucks were used for the existing bridge and lanes on Hwy. 7 and the design speed of 50 was used for the proposed alternatives.

TNM 2.5 was used to predict the roadway noise that propagates on a direct, or non-reflected, path to the study locations. The large bluff situated northwest of the Pruitt Bridge could not be used as a parameter in these modeling scenarios because modeling reflection in TNM 2.5 outside of the parallel barrier module is disabled in all versions of TNM. Thus, bluff reflectivity is not included in the noise modeling described in this Study. This prediction does not include any traffic noise generated through the bridge structure itself. In an attempt to compensate, modeling was conducted using twice the hourly traffic counts as determined by AHTD. Twice the hourly traffic counts were used as a worst-case-scenario, as the existing bluffs will not reflect 100 percent of the acoustic noise energy.

Receptors were modeled by TNM “receiver” points at areas of frequent human use of a property. A TNM receiver could represent more than one receptor, such as the picnic tables in the west Day-use common area and canoe points along the Buffalo River. The default ground surface of hard soil was used, with any large areas of water modeled as water. The noise level assessment was conducted using 52 receivers as shown in Figure 3.

A receiver is defined as a modeling point in the FHWA TNM, at which sound levels are predicted. The 52 receivers modeled include a sampling of seven picnic tables in the Day-Use area, 26 canoe points along the river, 8 points at the Upper Hole swimming area, 8 points at the Lower Hole swimming area, the contact center, the restroom facility, and the storage building (where applicable).



N

0 50 100
Feet

Job 009784
AHTD Environmental GIS - Dudley
Map Date: February 21, 2014

Modeled Receiver

Figure 3
Modeled Receiver Locations

This Page Left Intentionally Blank

Existing sound levels for receptors in the project area vary dependent on traffic volume, traffic speed, terrain, and human activity. Future sound levels for these modeled receivers were estimated by comparing existing traffic volumes with future traffic projections. Noise from existing traffic, traffic in 2033 (assuming that the Pruitt Bridge was to remain in place) and traffic in 2033 with the Western and Eastern Alternates were modeled. Three vehicle classifications were assumed: cars (all vehicles with two axles and four tires), medium trucks (all cargo vehicles with two axles and six tires), and heavy trucks (all cargo vehicles with three or more axles).

Traffic noise impacts were assessed using the following three comparisons:

- The change in noise levels from existing conditions to future conditions with the proposed project and whether that difference is substantial;
- The difference in future noise levels with and without the project; and
- Whether noise levels with the proposed project would exceed the FHWA's NAC.

The FHWA's NAC and the definition of what constitutes a substantial increase were presented in Tables 1 and 2.

The predicted noise levels are presented in Table 4.

Table 4. Predicted Existing and Future Noise Levels								
Receiver	**Location Description**	**Activity Category**	**NAC(dBA)**	**Existing (2013) (dBA)**	**Assuming Pruitt Bridge Remains in Place (2033)(dBA)**	**Western Alternates (dBA)**	**Eastern Alternates (dBA)**	**Approaches or Exceeds NAC**
1	Picnic Table 1	C	67	49.2	49.3	53.8	50.4	No
2	Picnic Table 2	C	67	48.1	48.2	53.1	49.7	No
3	Picnic Table 3	C	67	48.6	48.8	53.6	50.2	No
4	Picnic Table 4	C	67	49.5	49.7	54.2	50.7	No
5	Picnic Table 5	C	67	50.1	50.2	54.7	51.2	No
6	Picnic Table 6	C	67	50.5	50.6	54.1	51.5	No
7	Picnic Table 7	C	67	51.6	51.8	55	52.4	No
8	Swimming Area West Water 01	C	67	51.1	51.2	47.3	52	No
9	Swimming Area West Water 02	C	67	51.4	51.5	46.6	52.2	No
10	Swimming Area West Water 03	C	67	51.8	51.9	46	52.4	No
11	Swimming Area West Water 04	C	67	52.2	52.3	45.5	52.7	No
12	Swimming Area East Water 01	C	67	50.9	52.2	50.3	53.3	No
13	Swimming Area East Water 02	C	67	51.2	56.3	50.1	53	No
14	Swimming Area East Water 03	C	67	50.7	51.1	50.5	54.1	No
15	Swimming Area East Water 04	C	67	57.1	57.4	50.2	51.7	No
16	Swimming Area West Bank 01	C	67	50.9	51.4	48.4	52.1	No
17	Swimming Area West Bank 02	C	67	51.2	51.7	47.7	52.2	No
18	Swimming Area West Bank 03	C	67	51.5	52	47	52.4	No
19	Swimming Area West Bank 04	C	67	51.9	52.3	46.4	52.6	No
20	Swimming Area East Bank 01	C	67	52.4	52.8	51.2	55.7	No
21	Swimming Area East Bank 02	C	67	53.8	54.2	51.4	54.4	No
22	Swimming Area East Bank 03	C	67	58.1	58.5	51.6	53.3	No
23	Swimming Area East Bank 04	C	67	57.4	57.8	51.5	52.7	No
24	Restroom	C	67	53.5	53.9	49.3	53.8	No
25	Contact Center	C	67	59.8	60.3	54.4	57.2	No
26	Storage Building	C	67	59	59.4	55	displaced	No

27	Canoe Points 01	C	67	50.9	51	48.3	51.7	No
28	Canoe Points 02	C	67	51.2	51.3	47.5	52	No
29	Canoe Points 03	C	67	51.6	51.7	46.5	52.3	No
30	Canoe Points 04	C	67	52	52.1	46	52.6	No
31	Canoe Points 05	C	67	52.4	52.5	displaced	52.9	No
32	Canoe Points 06	C	67	53.3	53.4	displaced	53.6	No
33	Canoe Points 07	C	67	54.1	54.2	45.8	54.1	No
34	Canoe Points 08	C	67	54.7	54.8	46.6	54.5	No
35	Canoe Points 09	C	67	55.4	55.5	47.5	54.8	No
36	Canoe Points 10	C	67	56.1	56.2	48.4	54.6	No
37	Canoe Points 11	C	67	56.6	56.7	51.3	54.8	No
38	Canoe Points 12	C	67	57.4	57.4	51.3	55.1	No
39	Canoe Points 13	C	67	58.5	58.5	52.5	55.3	No
40	Canoe Points 14	C	67	53.5	53.5	52.1	55.8	No
41	Canoe Points 15	C	67	52.2	52.3	51.7	56	No
42	Canoe Points 16	C	67	52	52	51.1	55	No
43	Canoe Points 17	C	67	52.5	52.6	50.7	53	No
44	Canoe Points 18	C	67	57.9	57.9	51	52	No
45	Canoe Points 19	C	67	55.9	56	50.4	displaced	No
46	Canoe Points 20	C	67	55.2	55.3	50.2	displaced	No
47	Canoe Points 21	C	67	54.5	54.6	49.9	48.3	No
48	Canoe Points 22	C	67	54	54.1	49.6	47.6	No
49	Canoe Points 23	C	67	53.3	53.4	49.2	48.2	No
50	Canoe Points 24	C	67	52.9	53	49	48.4	No
51	Canoe Points 25	C	67	52.7	52.8	48.9	48.9	No
52	Canoe Points 26	C	67	52.4	52.5	48.7	49.7	No

Noise Levels under Structures

TNM 2.5 cannot model for noise levels occurring under a structure. In order to make a comparison, AHTD staff identified the following three bridges located in similar terrain and constructed similarly to the proposed project:

- Structure Number 07000 on Hwy. 65 near Damascus, Arkansas (Figure 4);
- Structure Number 06200 on Hwy. 65 west of Gilbert, Arkansas (Figure 5); and
- Structure Number 05927 on State Hwy. 74 near Ponca, Arkansas (Figure 6).

Ambient noise measurements and concurrent traffic counts were made at these locations. A noise study of these three similar locations was conducted and a noise comparison was made in terms of newer construction (of the same type) to the Pruitt Bridge. Appendix B contains the detailed noise measurement results.

Highway 65, east of Gilbert, AR, has significantly more traffic at higher speeds than Highway 7; therefore we would consider this a worst-case-scenario. As shown in Table 6 the comparison indicated that no significant impact from under structure noise would occur.

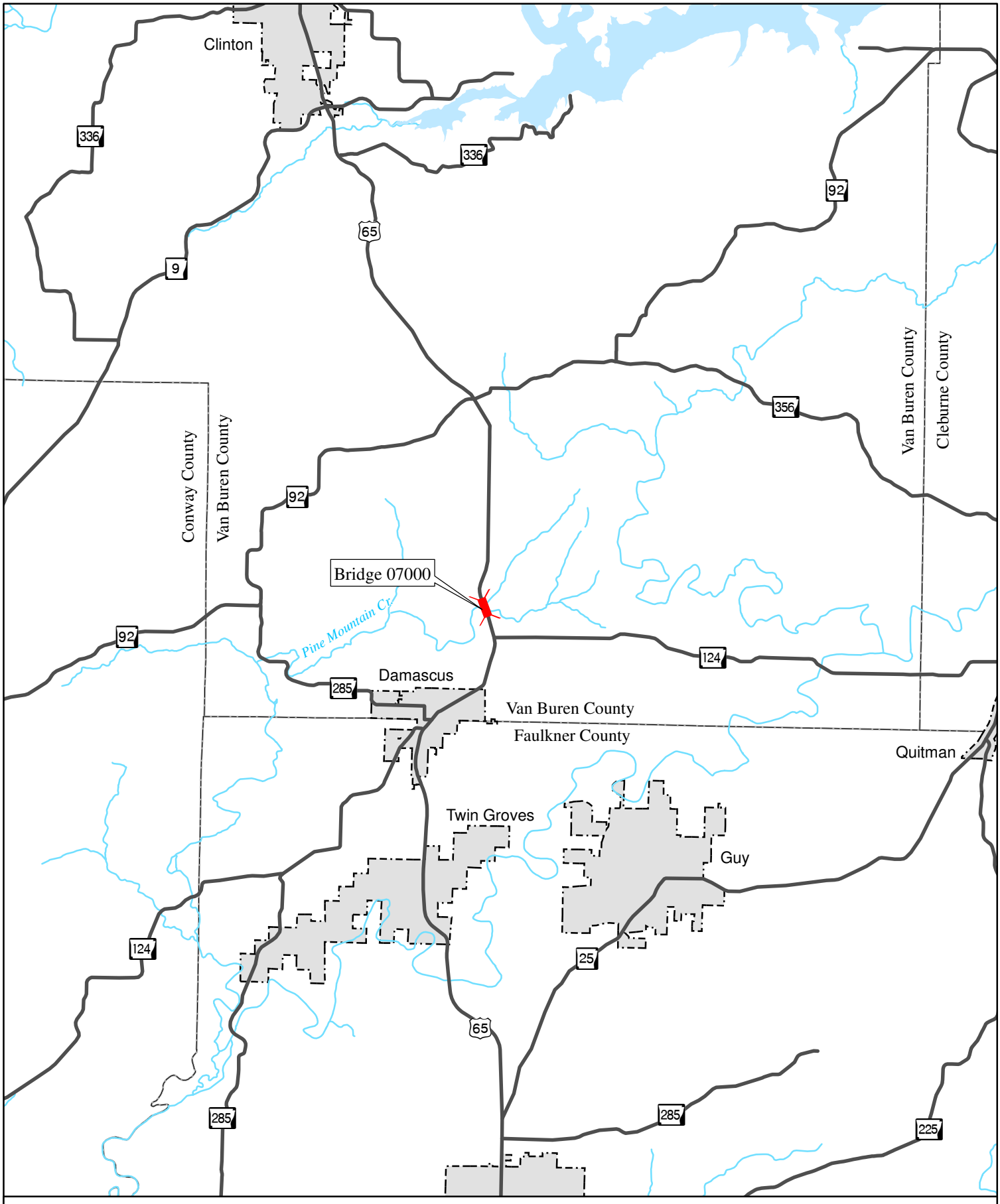
Table 5. Under Structure Noise

Bridge	Location	Under Structure Noise Ambient Noise Measurements $L_{eq}(h)$	Under Structure Noise Ambient Noise Measurements at Pruitt Bridge $L_{eq}(h)$	Difference existing Bridge at Pruitt $L_{eq}(h)$
07000	US 65 Near Damascus	44.3	54.4	-10.1
06200	US 65 West of Gilbert (approximately 27 feet below bridge deck)	62.2	54.4	7.8
05927	State Hwy. 74 near Ponca, AR	51.6	54.4	-2.8

An impact assessment was completed for Existing and the Proposed Alternatives. As noted previously, a receptor can be impacted in two ways:

1. The predicted, worst-hour, design year Leq(H) approaches or exceeds the NAC. AHTD defines approach as one dB(A) or less than the NAC. These levels apply at areas of frequent human use.

2. The predicted, worst-hour, design year Leq(h) substantially exceeds the existing Leq(h). Substantially is defined by AHTD as an increase of 10 or more dB(A).



N

0 1 2
Miles

Job 009784
AHTD Environmental GIS - Dudley
Map Date: February 24, 2014

Figure 4
Structure 07000
Hwy. 65
Near Damascus, Arkansas
Van Buren Co

Bridge

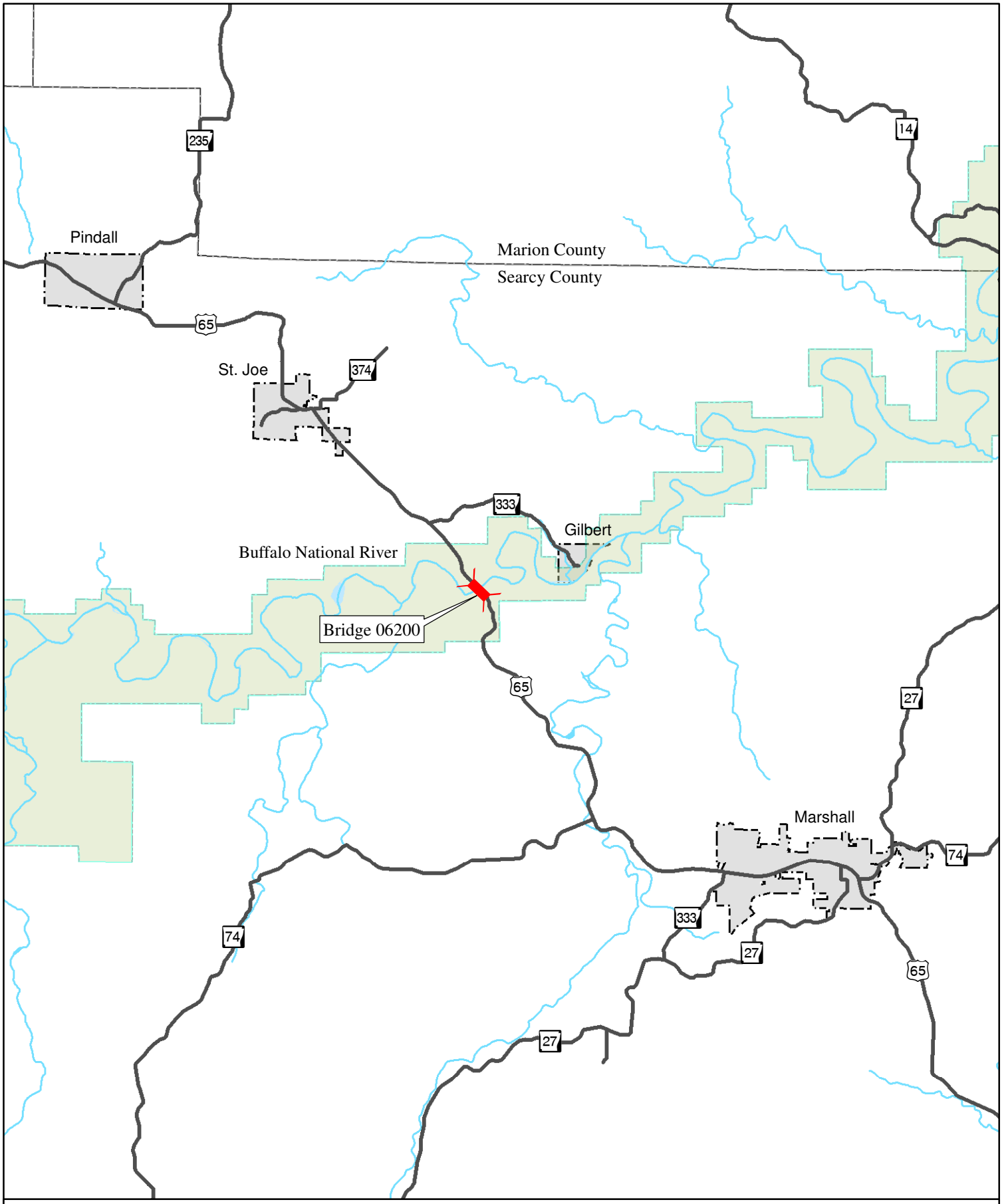


Figure 5
Structure 06200
Hwy. 65
Near Gilbert, Arkansas
Searcy County

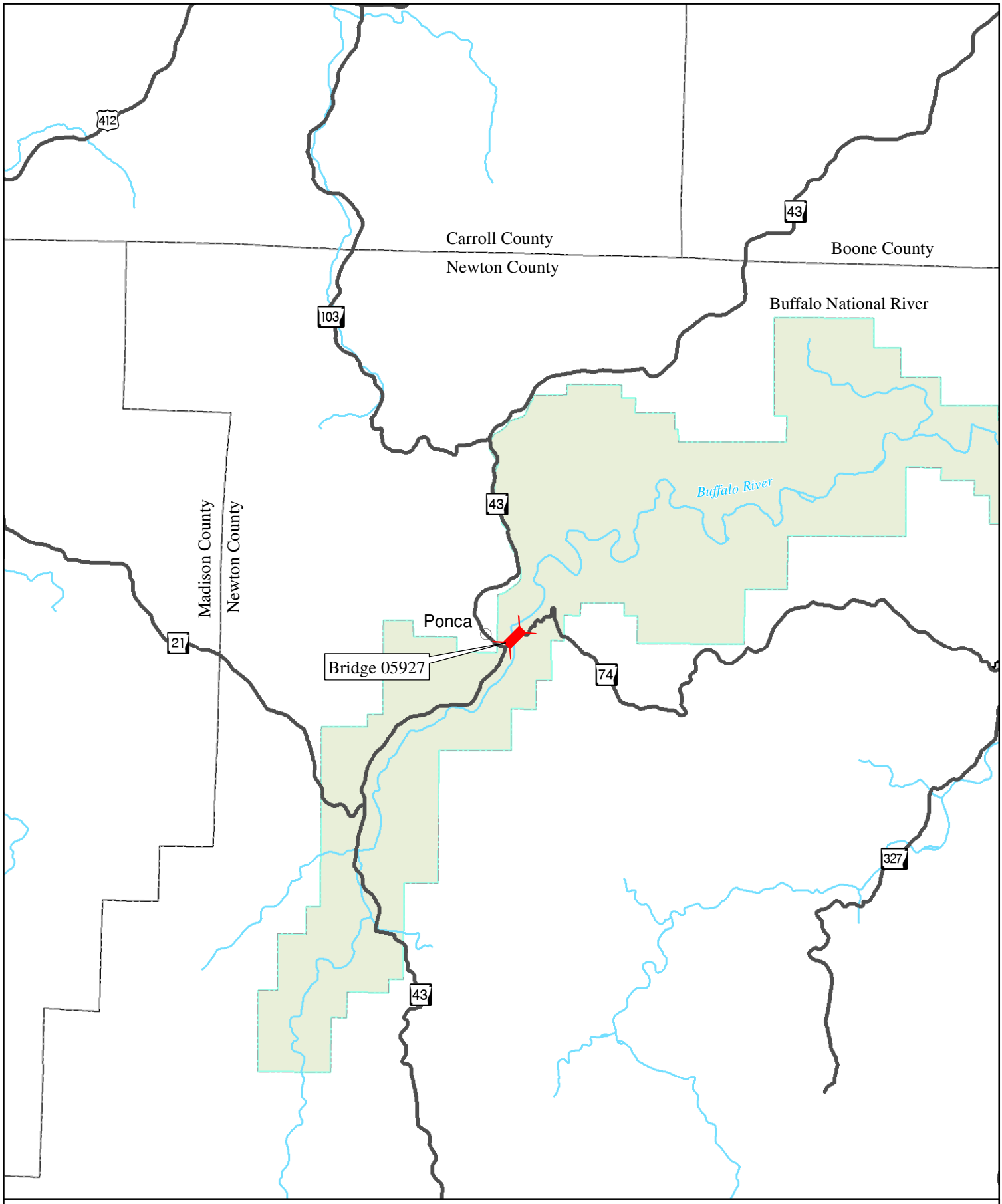


Figure 6
Structure 05927
Hwy. 74
Near Ponca, Arkansas
Newton County

Based on the noise study results, the increase over existing sound levels would be minor and far below the AHTD criterion of 10 or more dB(A) increase. Therefore, no receptors would be impacted by a substantial increase in sound levels.

Table 5 summarizes the predicted impacts for the Existing and Proposed Alternatives. The impacts are then described in detail in the sections that follow.

Effects of East Alternate II

The change in noise levels from existing conditions to future conditions with the proposed East Alternate is minor as defined by AHTD's Noise Policy. The predicted levels at the receivers are between 47.6 and 57.2 dB(A). There are no impacted receivers in this area in terms of approaching or exceeding the Category C NAC of 67 dB(A). Future sound level increases over the existing levels are on the order of -6.4 to 3.4 which are considered minor according to AHTD policy. None of the receivers will experience future sound level increase exceeding the 10 dB(A) AHTD criterion or the FHWA's NAC.

Effects of West Alternates' I and II

The change in noise levels from existing conditions to future conditions with the proposed West Alternate is minor as defined by AHTD's Noise Policy. The predicted levels at the receivers are between 45.5 and 55 dB(A). The difference in future noise levels if the West Alternate is chosen will be an increase from -8.3 to 5 dB(A) as compared to current noise levels. There are no impacted receivers in this area in terms of approaching or exceeding the Category C NAC of 67 dB(A). None of the receivers will experience future sound level increase exceeding the 10 dB(A) AHTD criterion or the FHWA's NAC.

Noise Abatement Evaluation

According to FHWA noise standards and AHTD policy, abatement needs to be evaluated when impacts are predicted to occur. Based on the noise study results, the increase for both alternates are minor and far below the criterion of 10 or more dB(A) increase, noise abatement is not warranted for this project.

Mitigation of Construction Noise

Construction activities would include earthwork, excavation, bridge construction, milling and overlay, painting, and other activities associated with road construction. Construction equipment and machinery would include those typically used in road construction, such as earth movers, bulldozers, cranes, and large vehicles. Project construction is expected to last from 18 to 24 months. Construction of the proposed project will cause temporary noise impacts associated with the operation of construction equipment during site clearing, earthwork/grading, foundation

preparation, and base preparations. Construction equipment operations can vary from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently. Mitigation measures for temporary noise impacts anticipated during construction activities for would include:

- Using properly designed and maintained equipment (e.g., ensuring construction equipment engines are equipped with adequate mufflers, intake silencers, and engine closures).
- Minimizing idling equipment and machinery engines.
- Sequencing construction to avoid the simultaneous use of multiple noisy machines and to avoid the loudest operations (such as pile driving) during specific time periods, as determined by the BNR.
- Setting constructions starts and stop times to avoid noise disruptions, as appropriate.

Conclusions

This study indicates that noise levels are below the FHWA noise criteria beyond the project's proposed right-of-way limits and no sensitive receptors are currently impacted according to FHWA's guidelines. Any increases of roadway noise levels will not be a result of the proposed project, but instead a result of traffic volume increases during the planning period (Year 2033). Therefore, any noise level increases will occur independent of the proposed project, such as higher traffic volumes, and no project related noise impacts are anticipated.

Non-transportation related noise sources in the project area include the occasional aircraft, vehicle noise from the parking lot, the river itself, and recreational activity on and near the river. Additional seasonal noises come from various public events at the park along the river. The additional sources of non-vehicular traffic in the study area are not anticipated to affect peak-hour traffic noise levels from the project.

Within the context of existing noise emissions from traffic on the Pruitt Bridge and other transportation sources, as well as noise that will accrue from any future transportation projects, the increased influence of traffic noise from this project's projects overall noise levels will be minor.

References

[1] *Procedures for Abatement of Highway Traffic and Construction Noise*, 23 CFR 772, Federal Highway Administration.

[2] *Policy on Highway Traffic Noise Abatement*, Arkansas State Highway and Transportation Department, revised 2013.

Appendix A
Noise Measurements Results

Pruitt Bridge West Day Use Area





Pruitt Bridge 330 feet from Bridge Deck

Noise Measurement Data

Date 6/20/2013

Site 3

Set 1

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	10:45:00	50.0	57.1		Y	100178	1
2	10:46:00	49.6	54.1		Y	90597	1
3	10:47:00	56.6	65.4		Y	458467	1
4	10:48:00	50.9	59.6		Y	121801	1
5	10:49:00	49.1	53.9		Y	81608	1
6	10:50:00	48.6	55.1		Y	71918	1
7	10:51:00	49.7	56.2		Y	92622	1
8	10:52:00	47.0	54.9		Y	50527	1
9	10:53:00	46.3	53.4		Y	42239	1
10	10:54:00	47.2	50.6		Y	52060	1
11	10:55:00	48.1	52.6		Y	63988	1
12	10:56:00	47.8	52.8		Y	60436	1
13	10:57:00	53.8	61.4		Y	240168	1
14	10:58:00	55.1	63.3		Y	324571	1
15	10:59:00	52.5	60.6		Y	177148	1
				Energy Sum		2028328	15
				Leq of good periods		51.3	

Set 2

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
16	11:00:00	50.9	59.7	Moved Mike	N	123272	0
17	11:01:00	47.6	53.6		Y	57360	1
18	11:02:00	52.8	59.1		Y	190294	1
19	11:03:00	49.7	55.8		Y	93462	1
20	11:04:00	50.2	58.4		Y	105085	1
21	11:05:00	55.7	65.3	Loud Frogs	N	367654	0
22	11:06:00	47.3	55.0		Y	53102	1
23	11:07:00	58.5	71.3		Y	705835	1
24	11:08:00	61.7	74.7		Y	1488157	1
25	11:09:00	48.0	53.4		Y	63321	1
26	11:10:00	46.8	51.8		Y	48101	1
27	11:11:00	52.7	58.1		Y	184517	1
28	11:12:00	50.1	54.8		Y	101713	1
29	11:13:00	56.1	63.9		Y	407160	1
30	11:14:00	59.5	67.6		Y	889835	1
				Energy Sum		4878869	13
				Leq of good periods		55.7	

Set 3

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	11:15:00	47.6	51.2		Y	57983	1
2	11:16:00	53.7	59.1		Y	233868	1
3	11:17:00	51.4	58.7		Y	137450	1
4	11:18:00	47.5	52.7		Y	56358	1
5	11:19:00	42.4	49.8		Y	17510	1
6	11:20:00	51.4	58.5		Y	139086	1
7	11:21:00	52.5	57.1		Y	175892	1
8	11:22:00	53.6	63.5		Y	230742	1
9	11:23:00	50.4	55.4		Y	110063	1
10	11:24:00	51.9	57.4		Y	153306	1
11	11:25:00	42.6	48.9		Y	18208	1
12	11:26:00	46.7	52.2		Y	46491	1
13	11:27:00	45.8	52.5		Y	37888	1
14	11:28:00	45.3	51.8		Y	33754	1
15	11:29:00	47.4	54.6		Y	54683	1
				Energy Sum		1503281	15
				Leq of good periods		50.0	

Pruitt Bridge East Day Use Area





Pruitt Bridge 130 feet from Bridge Deck

Noise Measurement Data

Date 4/16/2013

Site 2

Set 1

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	11:15:00	53.4	59.5		Y	216738	1
2	11:16:00	51.5	54.6		Y	139699	1
3	11:17:00	58.7	68.3		Y	747482	1
4	11:18:00	51.8	57.0		Y	151127	1
5	11:19:00	54.2	63.3		Y	265394	1
6	11:20:00	53.5	61.9		Y	224128	1
7	11:21:00	50.5	56.1		Y	112617	1
8	11:22:00	55.7	62.7		Y	373739	1
9	11:23:00	54.4	65.4		Y	275454	1
10	11:24:00	60.6	66.4		Y	1151705	1
11	11:25:00	57.8	65.0		Y	604958	1
12	11:26:00	55.8	63.5		Y	376153	1
13	11:27:00	60.6	69.6		Y	1140448	1
14	11:28:00	53.2	62.2		Y	207452	1
15	11:29:00	55.1	64.7		Y	322870	1
				Energy Sum		6309964	15
				Leq of good periods		56.2	

Set 2

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
16	11:30:00	54.8	61.2		Y	123272	1
17	11:31:00	49.8	51.9		Y	57360	1
18	11:32:00	59.1	68.9		Y	190294	1
19	11:33:00	55.1	61.7		Y	93462	1
20	11:34:00	52.7	59.4		Y	105085	1
21	11:35:00	53.8	61.0		Y	367654	1
22	11:36:00	50.8	53.5		Y	53102	1
23	11:37:00	53.3	62.1		Y	705835	1
24	11:38:00	52.6	59.4		Y	1488157	1
25	11:39:00	52.7	56.4		Y	63321	1
26	11:40:00	52.7	60.0		Y	48101	1
27	11:41:00	51.6	55.1		Y	184517	1
28	11:42:00	53.3	59.7		Y	101713	1
29	11:43:00	54.3	61.6		Y	407160	1
30	11:44:00	59.3	67.9		Y	889835	1
				Energy Sum		4878869	15
				Leq of good periods		55.1	

Set 3

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	11:45:00	55.7	61.2		Y	57983	1
2	11:46:00	51.7	57.1		Y	233868	1
3	11:47:00	57.8	67.2		Y	137450	1
4	11:48:00	51.6	57.1		Y	56358	1
5	11:49:00	58.9	67.7		Y	17510	1
6	11:50:00	53.8	61.7		Y	139086	1
7	11:51:00	55.9	63.5		Y	175892	1
8	11:52:00	50.7	55.6		Y	230742	1
9	11:53:00	51.9	59.5		Y	110063	1
10	11:54:00	61.2	71.3		Y	153306	1
11	11:55:00	53.0	58.2		Y	18208	1
12	11:56:00	55.5	64.9		Y	46491	1
13	11:57:00	50.0	52.6		Y	37888	1
14	11:58:00	54.4	63.1		Y	33754	1
15	11:59:00	49.9	53.9		Y	54683	1
				Energy Sum		1503281	15
				Leq of good periods		50.0	

Pruitt Bridge Day Use Area



Pruitt Bridge Day-use Area

Noise Measurement Data

Date 1/16/2014

Site 4

Set 1

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	10:00:00	44.5	52.9		Y	28162	1
2	10:01:00	50.1	53.5		Y	102409	1
3	10:02:00	35.6	42.5		Y	3659	1
4	10:03:00	50.2	56.2		Y	104308	1
5	10:04:00	52.8	60.6		Y	191122	1
6	10:05:00	39.2	48.4		Y	8397	1
7	10:06:00	48.9	55.0		Y	77493	1
8	10:07:00	50.8	59.8		Y	121476	1
9	10:08:00	45.3	52.3		Y	33745	1
10	10:09:00	47.2	54.0		Y	51937	1
11	10:10:00	48.5	55.8		Y	71360	1
12	10:11:00	62.8	72.6		Y	1902308	1
13	10:12:00	52.1	58.0		Y	161957	1
14	10:13:00	40.2	48.3		Y	10479	1
15	10:14:00	47.8	54.1		Y	60541	1
				Energy Sum		2929352	15
				Leq of good periods		52.9	

Set 2

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	10:15:00	46.2	51.0		Y	41864	1
2	10:16:00	49.8	56.8		Y	95000	1
3	10:17:00	37.3	42.4		Y	5389	1
4	10:18:00	46.3	50.4		Y	42199	1
5	10:19:00	46.7	52.2		Y	46615	1
6	10:20:00	50.8	56.7		Y	120085	1
7	10:21:00	59.3	65.0		Y	846709	1
8	10:22:00	51.1	54.7		Y	128566	1
9	10:23:00	42.1	47.4		Y	16381	1
10	10:24:00	44.9	51.1		Y	30737	1
11	10:25:00	41.7	47.8		Y	14668	1
12	10:26:00	46.0	51.9		Y	40169	1
13	10:27:00	44.6	50.7		Y	28763	1
14	10:28:00	45.1	50.5		Y	32625	1
15	10:29:00	42.5	47.7		Y	17634	1
				Energy Sum		1507403	15
				Leq of good periods		50.0	

Set 3

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	10:30:00	49.7	54.3		Y	92866	1
2	10:31:00	43.2	51.8		Y	20801	1
3	10:32:00	46.2	51.9		Y	41228	1
4	10:33:00	47.8	53.0		Y	60200	1
5	10:34:00	46.8	52.3		Y	47933	1
6	10:35:00	47.4	51.3		Y	55244	1
7	10:36:00	42.6	46.8		Y	18322	1
8	10:37:00	42.1	46.0		Y	16056	1
9	10:38:00	53.1	60.0		Y	204103	1
10	10:39:00	50.3	56.5		Y	106695	1
11	10:40:00	45.6	52.7		Y	36571	1
12	10:41:00	48.2	54.8		Y	66116	1
13	10:42:00	34.8	45.0		Y	3036	1
14	10:43:00	41.9	49.1		Y	15632	1
15	10:44:00	55.2	62.6		Y	332732	1
				Energy Sum		1117536	15
				Leq of good periods		48.7	

Appendix B
Under Structure Noise Measurements

Highway 65 West of Gilbert, Arkansas





Hwy. 65 Near Gilbert UB

Noise Measurement Data

Date 4/17/2013

Site

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	10:15:00	57.8	69.0		Y	601767	1
2	10:16:00	62.1	73.4		Y	1604789	1
3	10:17:00	68.1	78.4		Y	6450044	1
4	10:18:00	66.4	76.6		Y	4382671	1
5	10:19:00	61.1	68.7		Y	1287049	1
6	10:20:00	64.0	72.1		Y	2519722	1
7	10:21:00	62.5	73.0		Y	1759354	1
8	10:22:00	62.6	73.5		Y	1798994	1
9	10:23:00	64.2	73.6		Y	2615195	1
10	10:24:00	52.9	64.0		Y	193290	1
11	10:25:00	61.6	69.9		Y	1430372	1
12	10:26:00	43.3	49.0		Y	21171	1
13	10:27:00	62.3	71.7		Y	1706276	1
14	10:28:00	64.6	76.0		Y	2876693	1
15	10:29:00	56.2	65.9		Y	415785	1
16	10:30:00	60.4	69.8		Y	1102723	1
17	10:31:00	57.4	66.4		Y	553903	1
18	10:32:00	58.4	68.1		Y	685668	1
19	10:33:00	56.5	66.0		Y	442695	1
20	10:34:00	63.2	72.5		Y	2086040	1
21	10:35:00	60.9	72.9		Y	1242330	1
22	10:36:00	52.1	63.0		Y	163031	1
23	10:37:00	65.0	73.2		Y	3140956	1
24	10:38:00	56.7	63.5		Y	469073	1
25	10:39:00	60.3	66.8		Y	1073624	1
26	10:40:00	58.0	68.8		Y	627086	1
27	10:41:00	57.7	65.1		Y	592607	1
28	10:42:00	61.4	68.0		Y	1393541	1
29	10:43:00	62.2	73.1		Y	1645859	1
30	10:44:00	64.3	72.6		Y	2668524	1
31	10:45:00	67.4	75.4		Y	5547663	1
32	10:46:00	57.0	66.9		Y	501696	1
33	10:47:00	62.2	73.5		Y	1646044	1
				Energy Sum		55246236	33
				Leq of good periods		62.2	

Highway 65 near Damascus, Arkansas





Hwy. 65 near Damascus UB

Noise Measurement Data

Date 7/17/2013

Site

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	8:35:00	44.6	50.9		Y	28721	1
2	8:36:00	43.9	49.6		Y	24460	1
3	8:37:00	44.6	46.9		Y	28604	1
4	8:38:00	45.5	53.2		Y	35830	1
5	8:39:00	49.9	58.5		Y	96751	1
6	8:40:00	43.9	47.4		Y	24286	1
7	8:41:00	43.7	45.9		Y	23343	1
8	8:42:00	44.1	46.7		Y	25434	1
9	8:43:00	43.2	46.3		Y	20905	1
10	8:44:00	43.2	45.4		Y	21074	1
11	8:45:00	45.8	49.7		Y	38211	1
12	8:46:00	44.0	46.4		Y	25014	1
13	8:47:00	42.8	47.0		Y	18933	1
14	8:48:00	46.2	49.4		Y	41352	1
15	8:49:00	43.7	47.0		Y	23457	1
16	8:50:00	46.2	53.0		Y	42002	1
17	8:51:00	41.3	44.4		Y	13624	1
18	8:52:00	41.3	45.4		Y	13418	1
19	8:53:00	40.6	42.9		Y	11503	1
20	8:54:00	40.7	44.2		Y	11681	1
21	8:55:00	46.0	55.2		Y	39686	1
22	8:56:00	43.1	51.0		Y	20313	1
23	8:57:00	42.6	48.9		Y	18279	1
24	8:58:00	44.9	53.4		Y	30645	1
25	8:59:00	40.5	45.3		Y	11135	1
26	9:00:00	47.1	57.6		Y	50717	1
27	9:01:00	47.5	58.6		Y	56510	1
28	9:02:00	40.6	42.3		Y	11477	1
29	9:03:00	42.4	44.9		Y	17209	1
30	9:04:00	42.1	44.7		Y	16404	1
31	9:05:00	42.1	44.9		Y	16404	1
32	9:06:00	43.4	46.1		Y	21952	1
33	9:07:00	42.6	44.4		Y	18152	1
				Energy Sum		897486	33
				Leq of good periods		44.3	

Highway 74 near Ponca, Arkansas





Hwy. 74 Near Ponca, Arkansas

Noise Measurement Data

Date 7/17/2013

Site

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	12:03:00	49.6	63.1		Y	90627	1
2	12:04:00	57.5	65.0		Y	558716	1
3	12:05:00	42.4	49.3		Y	17199	1
4	12:06:00	51.1	63.9		Y	127367	1
5	12:07:00	55.0	63.5		Y	315318	1
6	12:08:00	55.2	67.0		Y	328202	1
7	12:09:00	42.9	46.8		Y	19359	1
8	12:10:00	50.7	62.1		Y	118692	1
9	12:11:00	55.4	66.0		Y	344287	1
10	12:12:00	40.3	46.9		Y	10793	1
11	12:13:00	44.1	49.3		Y	25546	1
12	12:14:00	44.2	53.9		Y	26271	1
13	12:15:00	46.0	54.1		Y	39648	1
14	12:16:00	49.9	60.0		Y	97945	1
15	12:17:00	51.8	64.2		Y	150011	1
16	12:18:00	38.0	42.9		Y	6382	1
17	12:19:00	39.0	43.5		Y	7934	1
18	12:20:00	55.0	64.2		Y	319012	1
				Energy Sum		2603307	18
				Leq of good periods		51.6	

Pruitt Bridge – Under Structure





Pruitt Bridge Under Structure

Noise Measurement Data

Date 4/16/2013

Site 2

Set 1

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	1:55:00	42.0	47.8		Y	15993	1
2	1:56:00	51.4	61.3		Y	139466	1
3	1:57:00	53.1	64.8		Y	205279	1
4	1:58:00	52.3	65.5		Y	171635	1
5	1:59:00	49.4	59.8		Y	86625	1
6	2:00:00	49.4	60.1		Y	87891	1
7	2:01:00	49.3	59.8		Y	84563	1
8	2:02:00	49.6	60.9		Y	90952	1
9	2:03:00	53.9	64.6		Y	246679	1
10	2:04:00	55.4	64.9		Y	350418	1
11	2:05:00	52.3	62.4		Y	170330	1
12	2:06:00	67.0	79.8		Y	5018947	1
13	2:07:00	57.3	71.0		Y	543181	1
14	2:08:00	53.8	64.5		Y	237974	1
15	2:09:00	54.1	64.5		Y	257971	1
				Energy Sum		7707905	15
				Leq of good periods		57.1	

Set 2

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
16	2:10:00	45.3	56.9		Y	123272	1
17	2:11:00	50.4	61.2		Y	57360	1
18	2:12:00	47.6	57.6		Y	190294	1
19	2:13:00	53.3	61.5		Y	93462	1
20	2:14:00	54.4	66.5		Y	105085	1
21	2:15:00	50.8	58.4		Y	367654	1
22	2:16:00	60.3	71.6		Y	53102	1
23	2:17:00	49.1	60.3		Y	705835	1
24	2:18:00	52.4	61.6		Y	1488157	1
25	2:19:00	49.3	58.3		Y	63321	1
26	2:20:00	51.5	62.1		Y	48101	1
27	2:21:00	51.8	61.5		Y	184517	1
28	2:22:00	48.7	61.9		Y	101713	1
29	2:23:00	50.2	60.7		Y	407160	1
30	2:24:00	55.9	62.8		Y	889835	1
				Energy Sum		4878869	15
				Leq of good periods		55.1	

Set 3

Period #	Time Start	Leq	Lmax	Note	Keep?	Energy	Count
1	2:25:00	41.1	43.0		Y	57983	1
2	2:26:00	48.3	59.2		Y	233868	1
3	2:27:00	42.6	48.8		Y	137450	1
4	2:28:00	55.4	67.2		Y	56358	1
5	2:29:00	52.8	63.6		Y	17510	1
6	2:30:00	50.2	59.8		Y	139086	1
7	2:31:00	49.9	59.4		Y	175892	1
8	2:32:00	48.9	60.2		Y	230742	1
9	2:33:00	54.7	62.2		Y	110063	1
10	2:34:00	45.9	58.1		Y	153306	1
11	2:35:00	41.7	50.6		Y	18208	1
12	2:36:00	51.4	59.2		Y	46491	1
13	2:37:00	48.9	57.8		Y	37888	1
14	2:38:00	49.9	60.3		Y	33754	1
15	2:39:00	44.4	53.6		Y	54683	1
				Energy Sum		1503281	15
				Leq of good periods		50.0	

NOISE EFFECTS ON WILDLIFE, INCLUDING AQUATIC SPECIES, REPTILES, AND AMPHIBIANS

Environmental noise is commonly expressed in terms of the hourly, A-weighted equivalent sound level in decibels (dBA). A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear. The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies.

No uniform weighting has been established for representing the hearing characteristics of wildlife. A-weighting may not apply to animals since their hearing thresholds differ from humans. One of the best documented studies indicated that the sound exposure level (SEL), which accounts for both maximum noise level and duration of the event, is the most useful predictor of responses (Bradley et al., 1990). A few studies have used dBA levels to assess the impacts of noise on wildlife resulting in a no-effect level of 60 dBA for birds and terrestrial organisms. Road noise effects on wildlife should remain the same for the projects described in this EA.

Construction noise may have a temporary effect on birds and terrestrial organisms with the startle response as the most prevalent impact. The effects of pile driving during bridge construction appear to have an impact on aquatic species that may result in permanent effects. No uniform testing approach was found during a review of existing literature. The sound levels for aquatic species are usually expressed in terms of sound pressure such as dB re 1 µPa. It has been found that no damage occurs to fish exposed to sounds with peak levels below 183 dB re 1 µPa. Fish showed a startle response to sounds as low as 160 dB re 1 µPa in an experiment using seismic air-gun exposure on caged fish (Hassel et al., 2004). Sound levels expressed as dB re 1 µPa can be converted to SEL. Interim guidance (Caltrans, 2012) developed by the state of California in cooperation with the National Oceanic and Atmospheric Administration Fisheries Division and the U.S. Fish and Wildlife Service has determined that the following levels would have no significant impact on fish:

- 208 dB-peak
- 187 dB-$SEL_{cumulative}$
- 183 dB-$SEL_{cumulative}$ for fish less than 2 grams

These levels are very conservative and assume that the exposed fish are stationary. The exposure levels to fish in the Buffalo River because of pile driving can be determined with pile information such as size, type, number once this data is available.

Simulated sonic booms have caused startle reactions in guppies. Trout and salmon eggs and fry exposed to sonic booms showed no increase in mortality and there was no apparent difference in the development of fry. The importance of road noise in affecting the behavior

of fish populations, particularly the relationship between road traffic levels and any response is unknown (FHWA, 2004).

Very little quality information is available for noise impacts on aquatic invertebrates. The studies reported in Turnpenny et al. (1994) exposed mussels, periwinkles, amphipods, squid, scallops, and sea urchins to high airgun and slow-rise-time sounds at between 217 dB and 260 dB. Mussels, periwinkles, and amphipods showed no detectable effect at 229 dB (Kosheleva 1992, in Turnpenny et al. 1994), although one Iceland scallop suffered a split shell after being exposed to 217 dB from a single airgun strike (Matishov 1992, in Turnpenny et al. 1994), suggesting the potential for serious injury when percussive underwater noise exceeds these levels. It is unknown if these impacts can translate to freshwater invertebrates.

Reptiles and Amphibians

A few studies of the response of reptiles and amphibians to noise have been conducted, and, as with fish, no study investigating the impact of road noise on these species has been made.

A survey of amphibians found salamanders (woodland and stream species) to be most commonly found along roadsides (interstates) and right of way in both the southeast and northwest. There is no indication of noise as a factor, however a barrier to movement by roads is indicated. Reptiles and amphibians have reportedly shown a reduced species richness up to 2,000 meters from both two and four-lane highways, with an improved diversity in areas of forest cover. This response has been attributed to a lack of dispersal across roads and not to sound levels. A study of frogs and toads also found a decrease in numbers near roads with traffic densities of 8,500–13,000 vehicles/day. Traffic mortality has been suggested as the cause in this case. In contrast, cane toads were found to use roads with lower traffic densities (including vehicle tracks) for dispersal. In this case, numbers were lower even 15 meters from the edge of the road. However, whether this effect would occur at higher traffic densities has not been indicated. Similarly, a reduction of up to 50 percent in large snake species up to a distance of 850 meters from a road has been reported, with the reduction attributed to increased road mortality. The effect was similar whether interstate, forest or county roads were studied indicating that the cause is not likely noise (FHWA, 2004).

The study that has most specifically shown an adverse effect on amphibians related to road noise found spadefoot toads (*Scaphiopus couchi*) undergoing estivation to respond to motorcycle sounds (up to 95 dB(A) at 0.4-4.4 kHz) by leaving burrows. Further, “dune buggy” noise had an adverse effect on hearing in the fringe-toed lizard (*Uma scoparia*) at durations of 500 seconds or longer (95 db(A)). Whether traffic noise has a significant effect on a particular population or community of reptiles or amphibians remains to be determined (FHWA, 2004).

Bibliography

Bradley, F, Book, C., Bowles, A.E.: Effects of Low-altitude Aircraft Overflights on Domestic Turkey Poults, U.S. Air Force, Noise and Sonic Boom Impact Technology Program, Report No. HSD-TR-90-034. June 1990.

Caltrans, 2012. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish.

Federal Highway Administration. Synthesis of Noise Effects on Wildlife Populations. Publication No. FHWA-HEP-06-016. September 2004.

Hassel A., Knutsen, T., Dalen, J., Skaar, K., Løkkeborg,S., Misund, O., Østensen, O., Fonn, M. and Haugland, E., 2004. Influence of seismic shooting on the lesser sand eel (*Ammodytes marinus*). ICES J. Mar. Sci. (2004) 61 (7): 1165-1173.

Kosheleva, V. 1992. The impact of air guns used in marine seismic explorations on organisms, living in the Barents Sea. Fisheries and Offshore Petroleum Exploitation 2nd International Conference, Bergen, Norway, 6-8 April 1992. Cited in Turnpenny et al. 1994.

Matishov, G.G. 1992. The reaction of bottom-fish larvae to airgun pulses in the context of the vulnerable Barents Sea ecosystem. Fisheries and Offshore Petroleum Exploitation 2nd International Conference, Bergen, Norway, 6-8 April 1992. Cited in Turnpenny et al. 1994.

Turnpenny, A.W.H., K.P. Thatcher, and J.R. Nedwell. 1994. The Effects on Fish and Other Marine Animals of High-Level Underwater Sound. Report FRR 127/94. Prepared for UK Defense Research Agency by Fawley Aquatic Research.

APPENDIX I

VIEWSHED ANALYSIS AND VISUAL SENSITIVITY

This page intentionally left blank.

Viewshed Analysis

A viewshed analysis was completed for the Buffalo River Bridge project. The viewsheds were based on the proposed elevations for the alternatives while taking into account topography and existing tree cover in each location. The Geographic Information System (GIS) viewshed model used 5-meter Digital Elevation Model data resolution and assumed the tree height to be 24 meters, or approximately 78 feet. The results are shown on **Figures 1** and **3** for leaf-on conditions and on **Figures 2** and **4** for leaf-off conditions**.** These figures show visible areas shaded as either yellow or light green. The yellow shading indicates where one or more portions of the alternative are predicted to be visible from ground level during leaf-on conditions. The light green shading indicates areas from which one or more portions of the build alternative would be visible from the tops of the projected tree canopy or if the intervening forest cover was removed. Since the observer would be at ground level or the base of the tree cover, it is assumed that the alternative would not be visible to a BNR visitor with the existing forest cover in the areas shaded in light green. Visibility calculations were based on a viewshed analysis overlayed with forest cover using 2010 aerial imagery. This analysis was used to simulate potential views that would be blocked by forest cover or topography and to indicate areas where the alternatives may be visible.

East Alternative Analysis

Figure 1 shows the GIS viewshed model's predicted leaf-on conditions visibility in yellow. As indicated in Figure 1, at least some portions of the East Alternative would be visible to river recreationists from the approximate location of the existing bridge to downstream just beyond the Lower Swimming Hole. Some portions of the East Alternative would be visible to Equestrian Trail users crossing Highway 7. Motorists would also view the areas indicated in yellow as they travel along the proposed route.

Figure 2 shows the GIS viewshed model's predicted during leaf-off conditions visibility in yellow. As previously described, the light green areas show predicted visibility if the intervening forest cover was removed. Since the proposed project does not involve removing intervening forest cover, only the predicted visibility shown in yellow was considered for the viewshed analysis. As indicated in Figure 2, some portions of the East Alternative would be visible to river recreationists from the Upper Swimming Hole downstream to the Pruitt Landing. Some portions of the East Alternative would be visible to Pruitt Day Use Area recreationists, as well as to trail users and Shaddox Cabin visitors.

West Alternatives Viewshed Analysis

Figure 3 shows the GIS viewshed model's predicted visibility during leaf-on conditions in yellow. As indicated in Figure 3, portions of the West Alternatives bridge would be visible to river recreationists from the Upper Swimming Hole. Portions of the West Alternatives would be visible to Pruitt Day Use Area recreationists in the immediate vicinity of the picnic units, Contact Center, and restrooms. Portions of the West Alternatives would be visible to Equestrian Trail users crossing under Highway 7. Motorists would also view the areas indicated in yellow as they travel along the proposed route.

Figure 4 shows the GIS viewshed model's predicted visibility during leaf-off conditions in yellow. As previously described, the light green areas show predicted visibility if the intervening forest cover was removed. Since the proposed project does not involve removing intervening forest cover, only the predicted visibility shown in yellow was considered for the leaf-off conditions viewshed analysis. As indicated in Figure 4, portions of the West Alternatives would be visible to river recreationists from the Upper Swimming Hole to downstream of the Lower Swimming Hole. Some portions of the West Alternatives would be visible to Pruitt Day Use Area recreationists, particularly those in the general vicinity of the picnic units, Contact Center, and restrooms. Some portions would be visible to Equestrian Trail users and from the Buffalo River Trail trailhead.

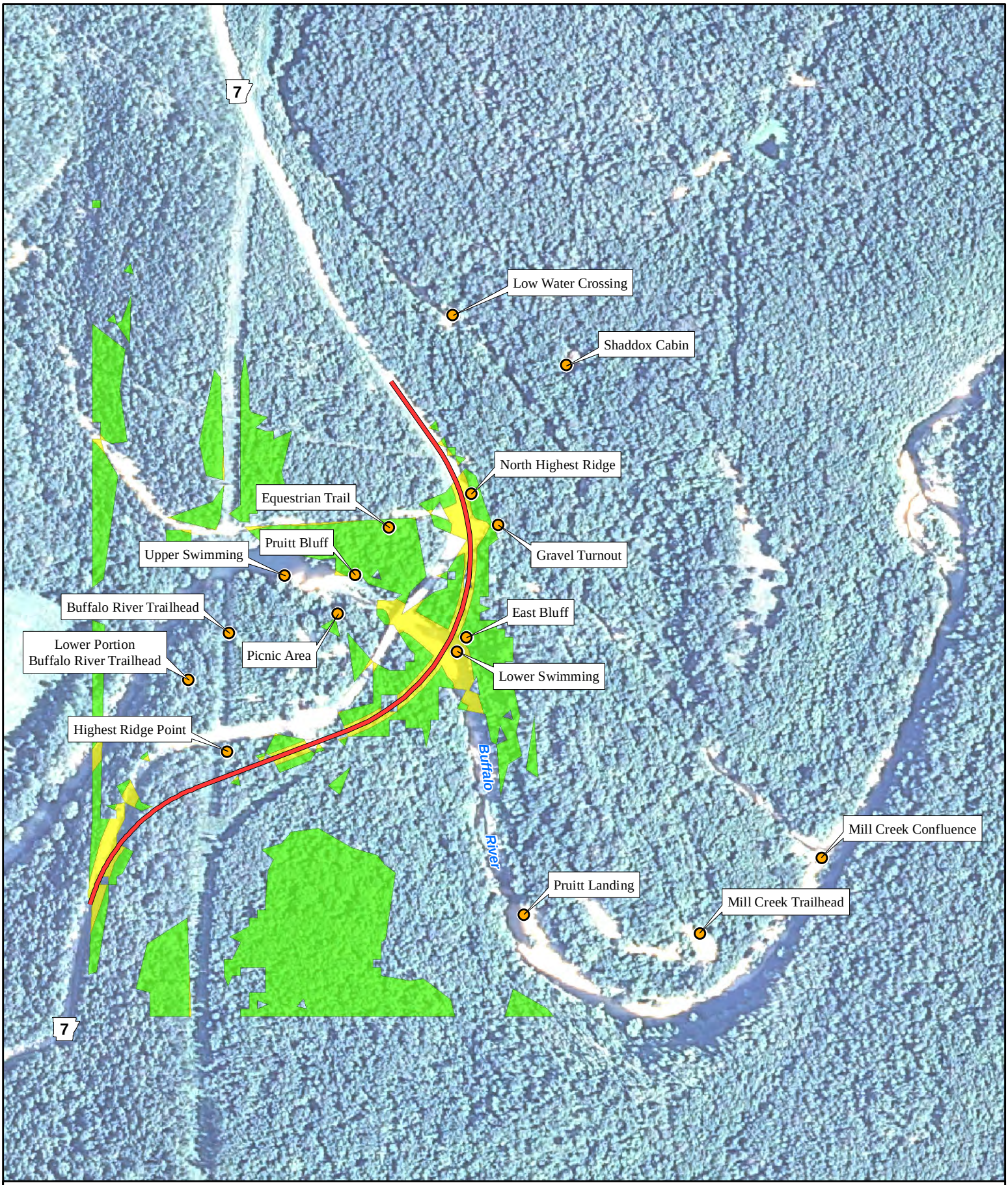
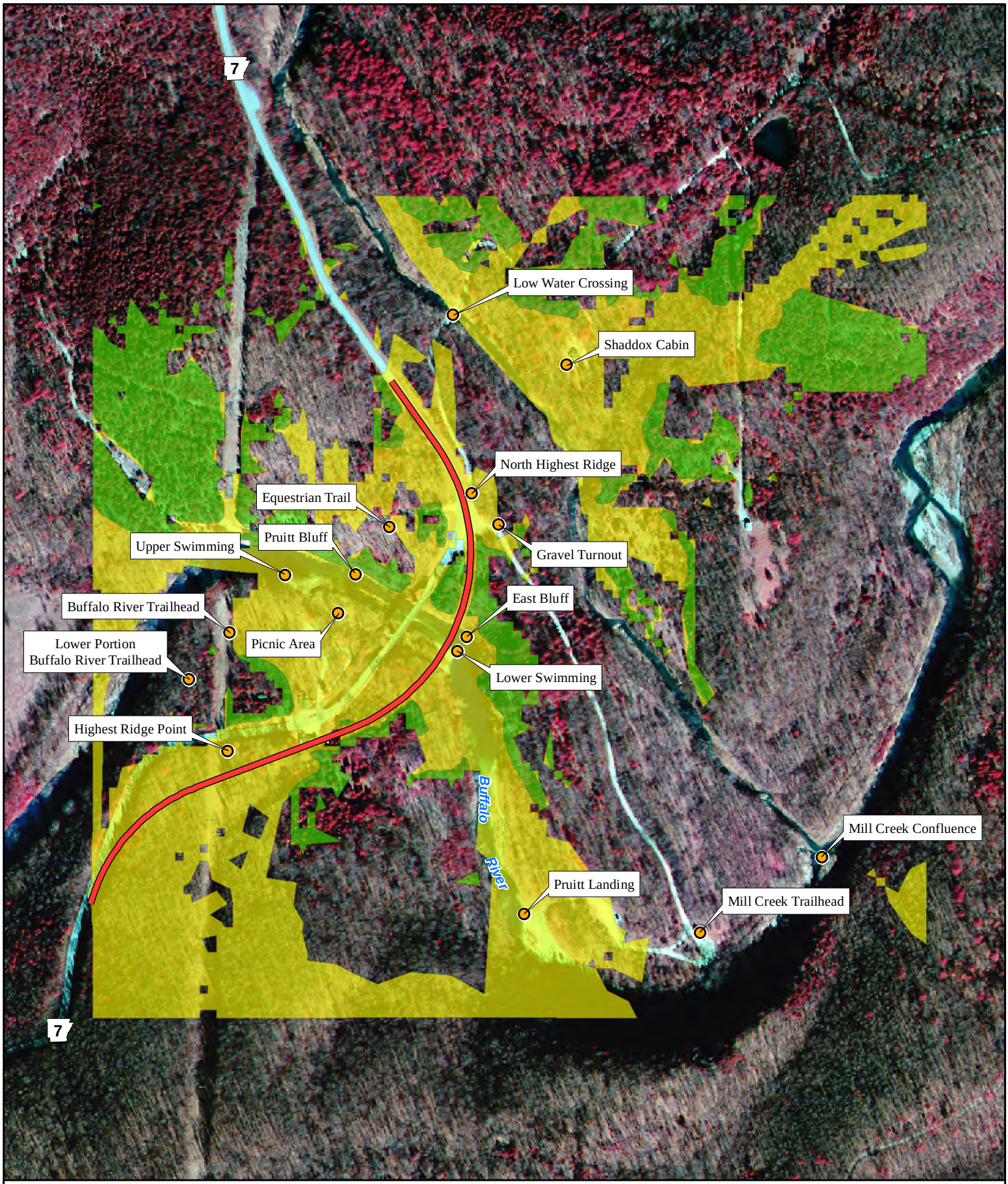


Figure 1
East Alternative
Viewshed Analysis
Summer



N

0 250 500

Feet

Job 009784
AHTD - Environmental GIS - Reed
Map Date: January 15, 2014

Figure 2
East Alternative
Viewshed Analysis
Winter

Point of Interest
Visible
Visible without Tree Cover
Project Location

Photography Date: Winter 2006

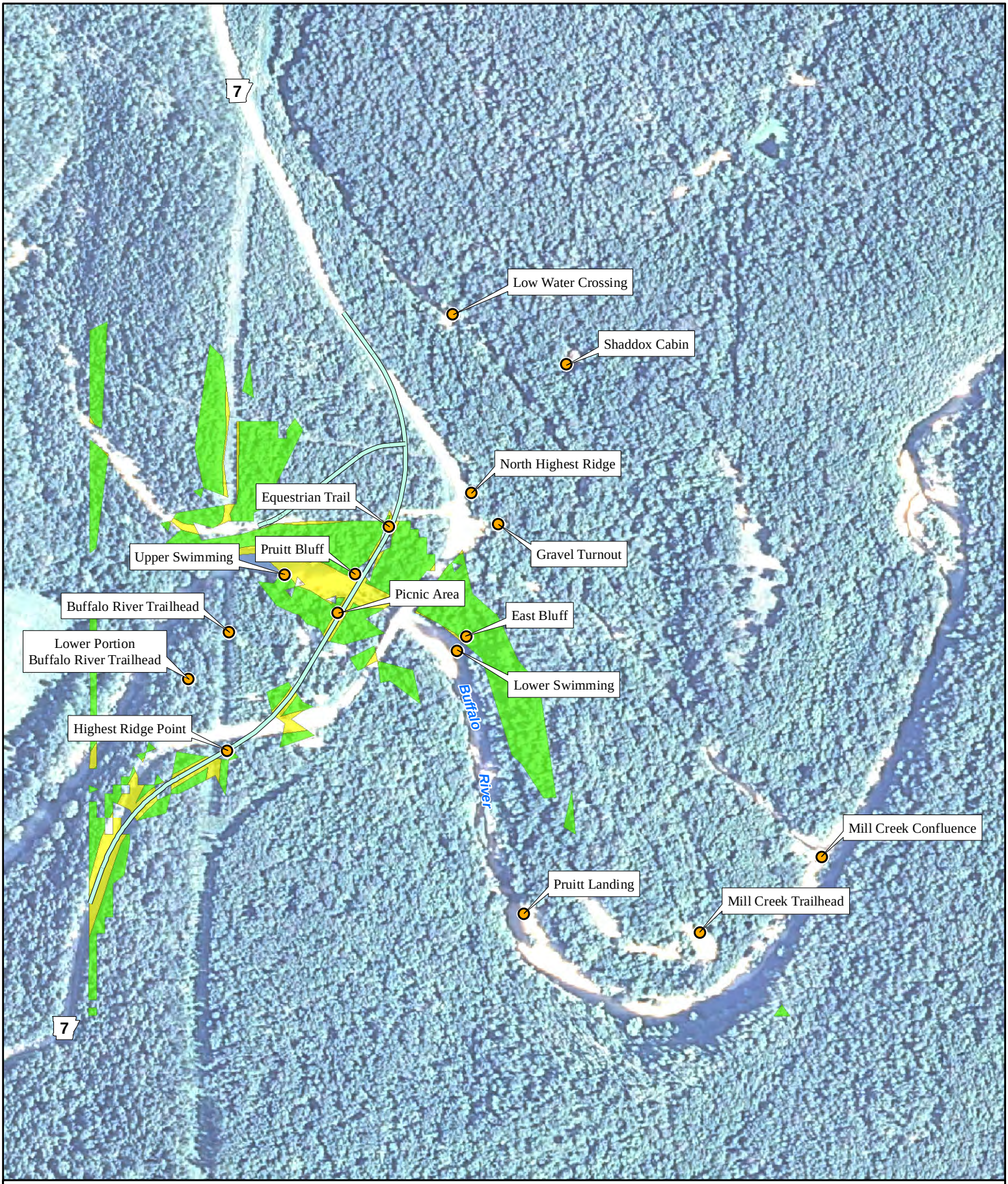
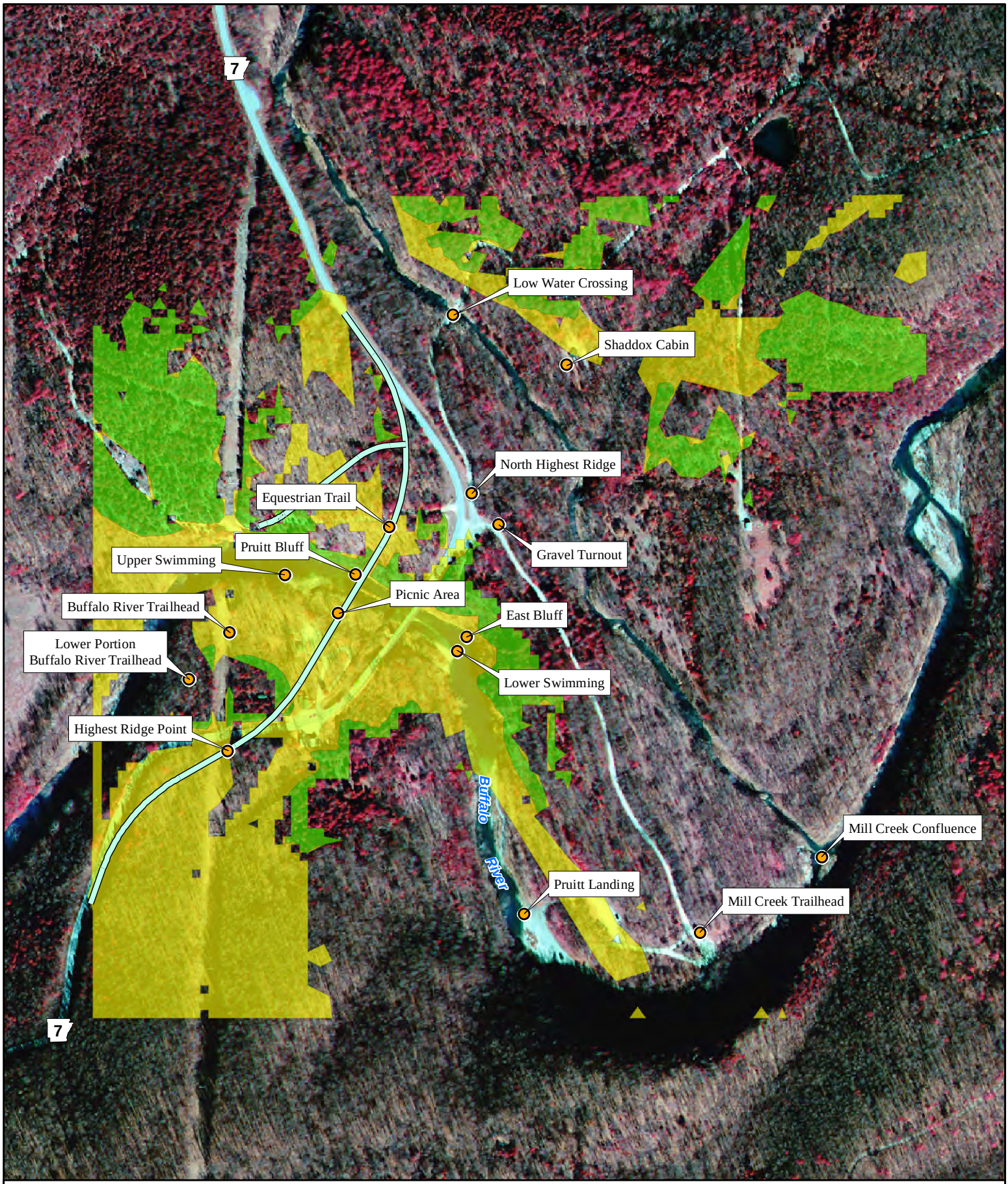


Figure 3
West Alternatives
Viewshed Analysis
Summer



Job 009784
AHTD - Environmental GIS - Reed
Map Date: January 15, 2014

Figure 4
West Alternatives
Viewshed Analysis
Winter

Photography Date: Winter 2006

VISUAL SENSITIVITY ASSUMPTIONS

Concepts and methods of the U.S. Forest Service, Bureau of Land Management, and the Federal Highway Administration treat sensitivity as a function of viewer expectations, activity, awareness, goals, and values. Certain activities tend to heighten viewer awareness of visual resources (e.g., recreational pursuits), while others tend to focus attention on other aspects (e.g., commuting to work).

Viewers and Viewer Response

Viewer categories generally include "neighbors" (people with views *to* the road) and "travelers" (people with views *from* the road). Traveler categories include recreationists/tourists, commuters, and commercial operators.

Factors influencing viewer sensitivity include the following:

Viewer Exposure is the measure of the distance between viewer and the visual resource (proximity), number of viewers (extent), and how long the resource is viewed (duration). Closer proximity to resources, greater numbers of travelers, and slower speeds increase exposure.

Viewer Awareness is the measure of observation based on routine and familiarity (attention), level of concentration (focus), and legal or social constraints on visual resource impacts (protection). In general, attention increases with unfamiliarity with a route and the uniqueness of visual resources. Focus increases with slower speeds and the presence of specific visual elements and scenery transitions. Legal protection considerations (e.g., planning documents and zoning laws) and social protections (e.g., local and/or regional goals and values) also increase viewer awareness.

Viewer activities, such as driving in commuter traffic or through a construction zone, can distract an observer from noticing the visual environment, whereas recreational and tourism-related driving can encourage looking more closely at the view. Recreationists and tourists are more likely to be unfamiliar with a route – a condition that increases attention.

This page intentionally left blank.

SECTION 4(f) EVALUATION

BUFFALO RIVER BRIDGE & APPRS.

MILL CREEK STR. & APPRS.

AHTD JOB NUMBERS 009784 AND BR5102

FAP NUMBERS BRN-0051(13) AND BRO-0051(15)

NEWTON COUNTY, ARKANSAS

Submitted Pursuant to 49 U.S.C. Section 303 and 23 U.S.C. Section 138

by the

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

and the

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

in cooperation with the

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

BUFFALO NATIONAL RIVER

MAY 2017

This page intentionally left blank.

Table of Contents

Chapter 1 Introduction 1-1

Chapter 2 Proposed Projects 2-1

2.1 Purpose And Need For The Proposed Projects 2-3

Chapter 3 Legal And Regulatory Context 3-1

3.1 "Use" Under Section 4(F) 3-1

3.2 "Feasible And Prudent" Alternatives Under Section 4(F) 3-1

3.3 "All Possible Planning" Under Section 4(F) 3-2

3.4 "Least Harm Alternative" Under Section 4(F) 3-2

Chapter 4 Buffalo River Bridge Project Section 4(F) Resource Descriptions 4-1

4.1 Background 4-1

4.2 Park Resources 4-3

4.3 Historic Resources 4-8

Chapter 5 Mill Creek Crossing Project Section 4(F) Resource Descriptions 5-1

5.1 Park Resources 5-1

Chapter 6 Potential Use Of Buffalo River Bridge Project Section 4(F) Resources 6-1

6.1 Introduction And Methodology 6-1

6.2 Description Of Alternatives And Uses Of Section 4(F) Resources 6-2

6.3 Park Resources Impacts 6-8

6.4 Historic Resources Impacts 6-19

6.5 Pruitt Bridge Removal Impacts 6-20

6.6 Obliterated Roadway Impacts 6-21

Chapter 7 Potential Use Of Mill Creek Crossing Project Section 4(F) Resources 7-1

7.1 Introduction And Methodology 7-1

7.2 Description Of Alternatives And Uses Of Section 4(F) Resources 7-1

7.3 Park Resources Impacts 7-2

7.4 Mill Creek Low Water Crossing Removal Impacts 7-7

7.5 Obliterated Roadway Impacts 7-7

Chapter 8 Avoidance Alternatives 8-1

8.1 No Build Alternatives 8-1

8.2 BNR Avoidance Alternatives 8-2

8.3 Pruitt Bridge Replacement On Existing Location 8-2

8.4 Pruitt Bridge Rehabilitation 8-2

8.5 Historic Site Avoidance Alternative 8-5

8.6 Low Water Crossing Replacement On Existing Location 8-5

Chapter 9 Measures To Minimize Harm 9-1

9.1 Minimizing Harm To Buffalo River Bridge Project Resources 9-1

9.2 Minimizing Harm To Mill Creek Crossing Project Section 4(F) Resources 9-6

Chapter 10 Least Overall Harm Analysis 10-1

10.1 Factors 1 And 2 – Ability To Mitigate Adverse Impacts And Relative Severity Of Remaining Harm 10-1

10.2 Factor 3 – Relative Significance Of Each Section 4(F) Property And Factor 4 – Views Of Officials With Jurisdiction Over Section 4(F) Property 10-3

10.3 Factor 5 – Degree To Which Each Alternative Meets The Purpose Of And Need For The Projects 10-6

10.4 Factor 6 – After Reasonable Mitigation, The Magnitude Of Any Adverse Impacts To Properties Not Protected By Section 4(F) 10-6

10.5 Factor 7 – Substantial Differences In Costs Among The Alternatives 10-7

Chapter 11 Coordination 11-1

Chapter 12 Conclusions 12-1

Chapter 13 References 13-1

Figures

Figure 2-1 Project Locations 2-2
Figure 4-1 Section 4(f) Resources – Buffalo River Bridge Project 4-2
Figure 5-1 Section 4(f) Resources – Mill Creek Crossing Project 5-2
Figure 6-1 East Alternative 6-4
Figure 6-2 West Alternative I – Option A 6-6
Figure 6-3 West Alternative I – Option B 6-7
Figure 6-4 West Alternative II – Option A 6-9
Figure 6-5 West Alternative II – Option B 6-10
Figure 6-6 Visualization of East Alternative Bridge 6-14
Figure 6-7 Visualization of East Alternative Bridge – River Perspective 6-15
Figure 6-8 Visualization of West Alternatives Bridge 6-17
Figure 6-9 Visualization of West Alternatives Bridge – River Perspective 6-18
Figure 7-1 Mill Creek Crossing Project Alternatives 7-3
Figure 7-2 Visualization of Bridge Alternative 7-6

Tables

Table 6-1 Summary of Alternatives 6-2
Table 8-1 Pruitt Bridge GCRs and Estimated Costs 8-4

Appendices

Appendix A Historic Resources
Appendix B Correspondence

This page intentionally left blank.

CHAPTER 1 INTRODUCTION

Section 4(f) of the Department of Transportation Act of 1966, as amended (49 United States Code [USC] 303), states that the U.S. Department of Transportation (U.S. DOT) may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site, unless a determination is made that:

1. There is no feasible and prudent avoidance alternative, as defined in 23 Code of Federal Regulations (CFR) 774.17, to the use of land from the property.

2. The action includes all possible planning, as defined in 23 CFR 774.17, to minimize harm to the property resulting from such use.

3. If the Section 4(f) analysis concludes that there is no feasible and prudent avoidance alternative, then the U.S. DOT may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose.

The Buffalo National River (BNR) is a unit within the National Park System owned and administered by the U.S. Department of the Interior, National Park Service (NPS).

The designation of "National River" is conferred by the NPS to rivers of significant national value, culturally and naturally, and the Buffalo River was the first in the nation to receive this designation. National Rivers are managed by the NPS in the same manner and with the same goals as National Parks. The U.S. Department of the Interior – NPS Handbook on Departmental Review of Section 4(f) Evaluations (February 2002) lists lands of the National Park System as being significant as a Section 4(f) resource. The BNR meets the U.S. DOT's and the Federal Highway Administration's (FHWA) criteria of a publically owned park and is thus considered a Section 4(f) property. The BNR has many protected features, qualities, and activities that make it important for recreation. It also contains historic sites that are on or eligible to the National Register of Historic Places (NRHP), and therefore considered stand-alone Section 4(f) properties.

Two separate transportation projects are proposed within the BNR boundary. The proposed Buffalo River Bridge project involves replacing the historic Pruitt Bridge on Highway 7. The proposed Mill Creek Crossing project involves replacing a low water crossing on County Road 213, 0.25 mile east of Highway 7. This Section 4(f) Evaluation (Evaluation) was completed because both projects have the potential for adverse impacts to Section 4(f) properties.

The Arkansas State Highway and Transportation Department (AHTD) and the FHWA evaluated stakeholder input in the process of identifying the alternatives that cause the least overall harm to

Section 4(f) property. This Evaluation was prepared after considering comments received on both the preceding draft Section 4(f) Evaluation and the Environmental Assessment (EA). The Evaluation provides the following:

- Locations and characteristics of Section 4(f) resources in the proposed project areas.
- Descriptions of the impacts of the alternatives to these resources.
- Explanation of why no prudent and feasible avoidance alternatives were identified.
- Locations and characteristics of the historic properties near the proposed projects' area.
- Measures taken to minimize harm.
- Discussions of the alternatives with regard to the least overall harm determination.
- Description of coordination with officials having jurisdiction over Section 4(f) resources in the proposed project areas.
- Conclusions regarding the least overall harm alternative.

This Evaluation provides a final determination on whether feasible and prudent avoidance alternatives exist and incorporates all possible planning to minimize harm to the resources.

CHAPTER 2 PROPOSED PROJECTS

The AHTD, in cooperation with the FHWA, is proposing the following two projects:

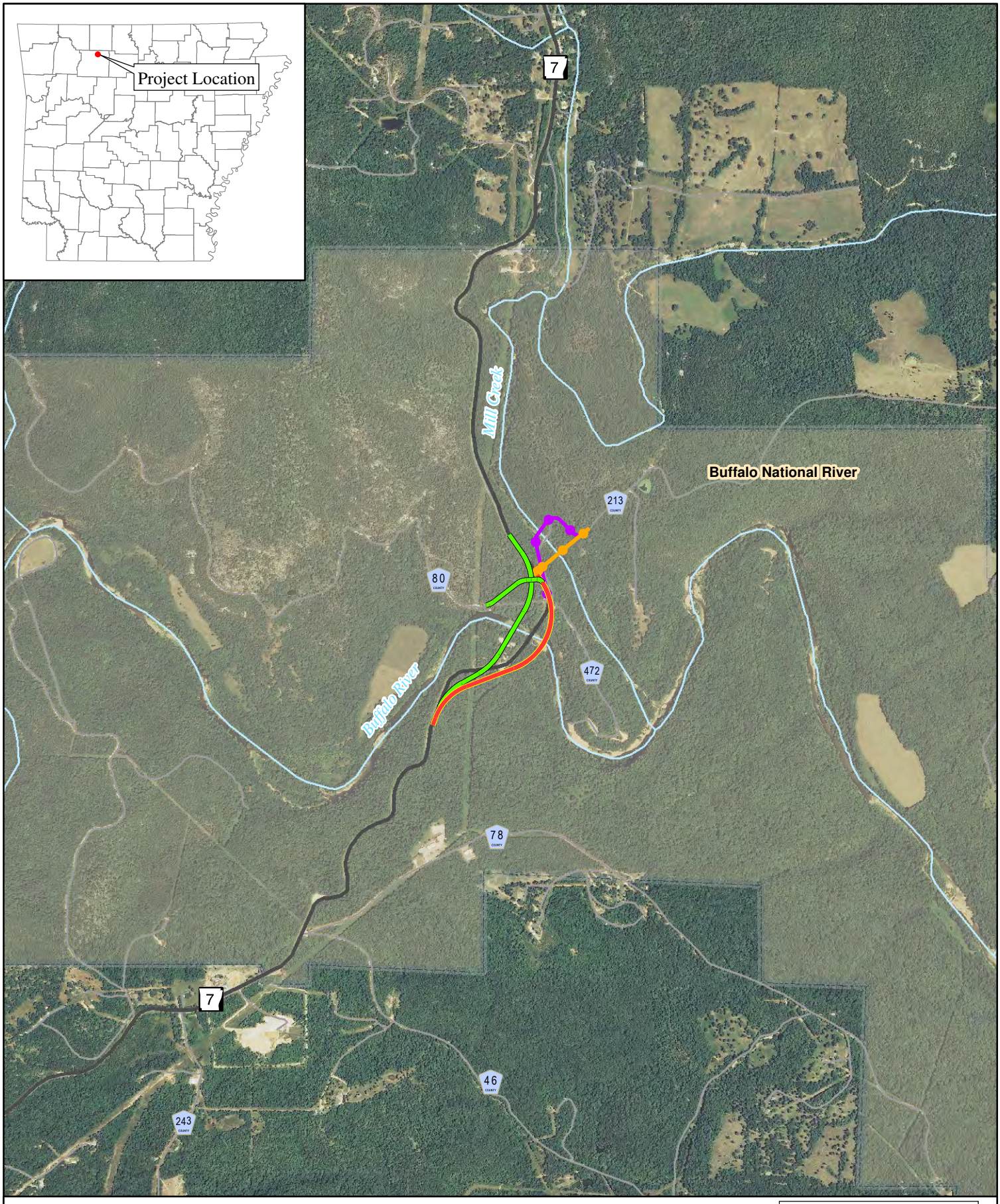
- Replace the existing Highway 7 bridge over the Buffalo River.
- Replace the existing County Road 213 low water crossing over Mill Creek.

The AHTD and the FHWA, the lead Federal agency, are responsible for preparing documentation for these proposed projects, in accordance with federal laws, regulations, policies, and guidelines. The U.S. Department of the Interior, NPS–BNR is a cooperating agency.

As shown in **Figure 2-1**, the two projects are located within 0.25 mile of each other. The confluence of Mill Creek and the Buffalo River occurs 0.6 mile downstream from the existing Highway 7 bridge. The two projects were combined for evaluation due to their proximity and the potential for cumulative impacts.

Through the project area, Highway 7 has two 11-foot wide travel lanes with 3-foot wide shoulders; the bridge has two 10-foot wide travel lanes with no shoulders or pedestrian walkways. The proposed project would replace the bridge and approach roadway with two 12-foot wide travel lanes and 8-foot wide shoulders. The bridge would also have a pedestrian walkway. Twelve-foot wide turn lanes into the Pruitt Day Use Area and Pruitt Access Area would be added.

The gravel roadway approaches to the low water crossing over Mill Creek are 16 feet wide and do not have designated travel lanes or shoulders. The roadway approach is steep with sharp curves. In addition to replacing the low water crossing, the proposed Mill Creek Crossing project would construct two 10-foot travel lanes paved with a chip seal asphalt surface with 4-foot gravel shoulders, while lessening the steepness of the road and straightening the curves. The total length of the project would be either 900 feet or 1,700 feet, depending on where the new crossing is placed.



Jobs 009784 & BR5102
AHTD Environmental GIS - Dudley
March 31, 2014

Figure 2-1
Project Locations
Buffalo River Bridge and
Mill Creek Crossing

2.1 PURPOSE AND NEED FOR THE PROPOSED PROJECTS

The purpose and need for the proposed projects are detailed in the EA for the Buffalo River Bridge and Mill Creek Crossing projects. They are summarized below for ease of reference.

The purpose of the Buffalo River Bridge project is to replace the existing substandard bridge. The project is needed because of the existing bridge's deterioration and its inability to adequately handle existing traffic due to its narrow width.

The purpose of the Mill Creek Crossing project is to replace the existing low water crossing on County Road 213 with a structure that will not be submerged during flood events, and to improve the roadway curvature and grade.

This page intentionally left blank.

CHAPTER 3 LEGAL AND REGULATORY CONTEXT

Important Section 4(f) legal and regulatory considerations are summarized below.

3.1 "USE" UNDER SECTION 4(F)

There are three types of Section 4(f) property uses: permanent, temporary, and constructive.

A "permanent use" (also referred to as a "direct use") occurs when land is permanently incorporated into a transportation project when it has been purchased as new right of way, transferred as new easement, or when sufficient property interests have been otherwise acquired for the purpose of project implementation, such as a permanent easement required for construction.

A "temporary use" occurs when land is temporarily occupied, such as during the construction of a project, and the occupancy is considered adverse in terms of the Section 4(f) preservation purposes.

A "constructive use" occurs when a transportation project does not involve permanently incorporating land from the Section 4(f) property or temporary occupancy, but the proximity effects (e.g., noise, vibration, visual, and property access) of the transportation project are so severe that the activities, features, or attributes that qualify the property for Section 4(f) protection are substantially impaired.

3.2 "FEASIBLE AND PRUDENT" ALTERNATIVES UNDER SECTION 4(F)

The use of a Section 4(f) property for transportation purposes can only be permitted if there is no "feasible and prudent" alternative to such use and the action includes all possible planning to minimize harm to the property from such use. An alternative is not "feasible" if it cannot be built as a matter of sound engineering judgment. An alternative is not "prudent" if:

- It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need.
- It results in unacceptable safety or operational problems.
- After reasonable mitigation, it still causes:
    - Severe social, economic, or environmental impacts
    - Severe disruption to established communities
    - Severe disproportionate impacts to minority or low income populations, or

  - Severe impacts to environmental resources protected under other federal statutes.
- It results in additional construction, maintenance, or operational costs of an extraordinary magnitude.
- It causes other unique problems or unusual factors.
- In involves multiple factors (described above), that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

The "feasible and prudent" standard applies only to avoidance alternatives (the alternative fully avoids any of the "uses" previously described). It does not apply when choosing among alternatives that require a use of a Section 4(f) property.

3.3 "ALL POSSIBLE PLANNING" UNDER SECTION 4(F)

All possible planning means that all reasonable measures identified in a Section 4(f) evaluation to minimize harm or mitigate for adverse impacts and effects must be included in the project. In evaluating the reasonableness of measures to minimize harm, the FHWA will consider the preservation purpose of the statute in conjunction with:

- The views of the official(s) with jurisdiction over the Section 4(f) property(s).
- Whether the cost of the measures is a reasonable public expenditure in light of the adverse impacts of the project on the Section 4(f) property and the benefits of the measures to the property.
- Any impacts or benefits of the measures to communities or environmental resources outside of the Section 4(f) property.

3.4 "LEAST HARM ALTERNATIVE" UNDER SECTION 4(F)

If there is no prudent and feasible alternative that avoids any use of Section 4(f) resources, then the FHWA "may approve only the alternative that causes the least overall harm in light of the statute's preservation purpose." Assessing least harm must consider the relative significance of the impacts on the Section 4(f) resources, mitigation incorporated into the proposed project, and impacts on other important resources that would occur from avoiding or minimizing the impact to a Section 4(f) resource. The identification of the least overall harm alternative is determined by balancing the following factors, which are listed in 23 CFR 774.3(c)(1):

Factor 1 - The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property).

Factor 2 - The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection.

Factor 3 - The relative significance of each Section 4(f) property.

Factor 4 - The views of the official(s) with jurisdiction over each Section 4(f) property.

Factor 5 - The degree to which each alternative meets the purpose and need for the project.

Factor 6 - After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f).

Factor 7 - Substantial differences in costs among the alternatives.

A least harm analysis is provided in Chapter 10 of this Evaluation.

This page intentionally left blank.

CHAPTER 4 BUFFALO RIVER BRIDGE PROJECT SECTION 4(F) RESOURCE DESCRIPTIONS

This chapter provides information on Section 4(f) properties and resources in the Buffalo River Bridge project area.

Figure 4-1 shows the project area and the Section 4(f) resources described in this chapter. It should be noted that the Pruitt Day Use Area and the Pruitt Day Use Area–East boundaries depicted in the figure are approximate.

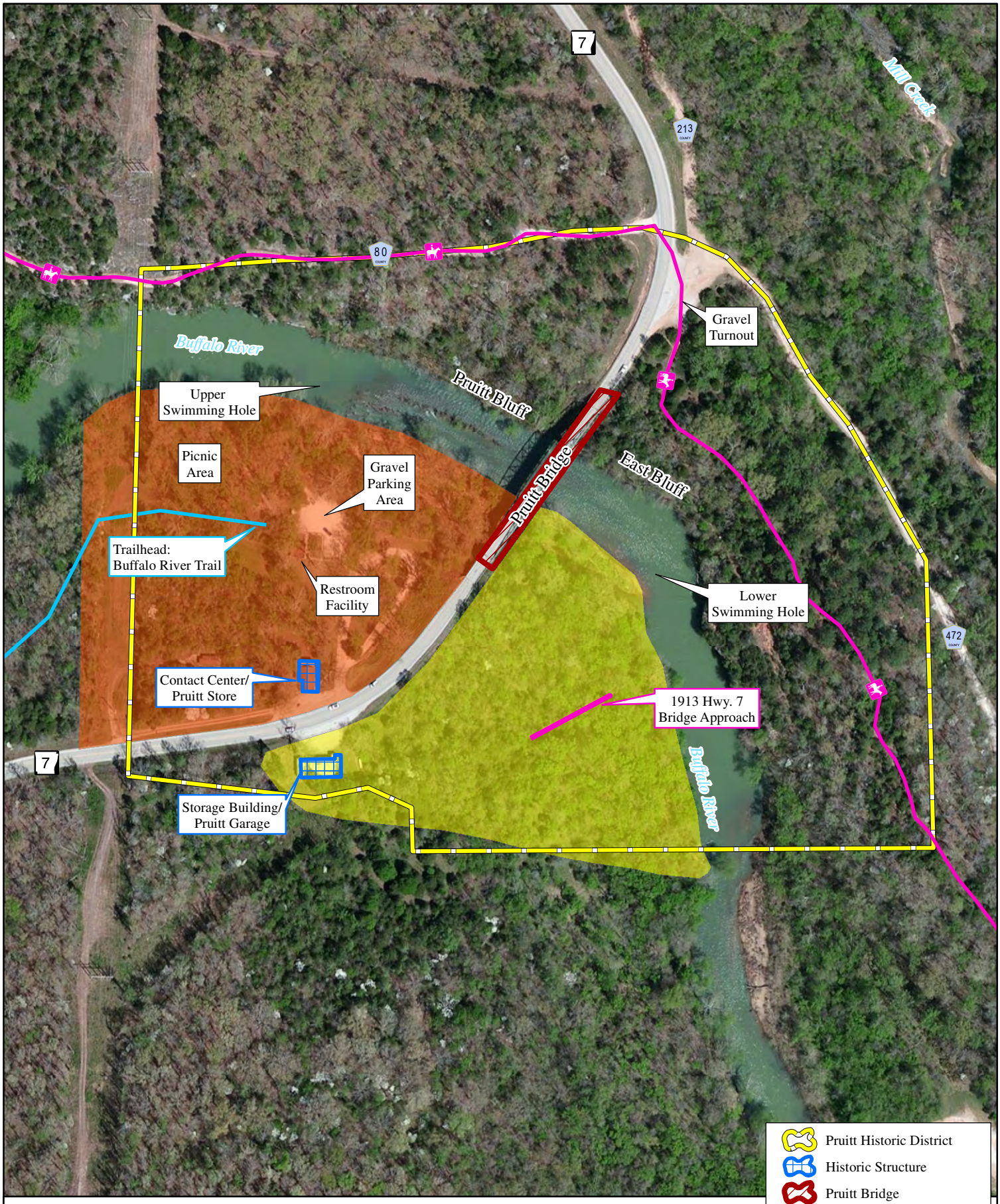
4.1 BACKGROUND

Unlike the term "Section 4(f) property", the term "Section 4(f) resource" does not have a precise definition. The two terms are used interchangeably in Section 4(f) policy and guidance documents. For the purposes of this Evaluation, the term "Section 4(f) property" is used in reference to the status of the BNR as a Section 4(f) property as a publicly owned park and to general Section 4(f) considerations as a whole, such as those described in Chapter 3 of this document. The term "Section 4(f) resource" is used in reference to the activities, features, and attributes within the BNR that qualify the BNR as a Section 4(f) property.

The AHTD reviewed NPS and BNR official management plans, enabling legislation, and statutes to identify the activities, features, and attributes that would be Section 4(f) resources in the BNR. A determination of the activities, features, and attributes of the BNR Section 4(f) property in the Buffalo River Bridge project area resulted in the identification of the following park Section 4(f) resources: the Buffalo River, Recreational Areas, Recreational Trails, and Visual Resources. Historic resources are also present within the BNR.

According to land use classifications in the BNR's 1977 Final Master Plan and the 1981 Pruitt Development Concept Plan, the resources and features within the proposed project vicinity are designated for general outdoor recreation. The general outdoor recreation classification identifies land reserved for visitor accommodations, public beaches, formal campgrounds, two-way roads, and administrative facilities.

The BNR's 1995 Fisheries Management Plan provides an explanation of BNR management zones. An excerpt of the explanation has been included in this Evaluation to illustrate the current complexities and interrelated qualities of areas within the BNR:



N

0 100 200

Feet

Job 009784
AHTD Environmental GIS - Dudley
Map Date: September 15, 2016
Photography Date: Winter 2010

Figure 4-1
Project Area and Section 4(f) Resources
Buffalo River Bridge Project

> The concept of management zones and descriptions of appropriate activities within Buffalo National River has been an evolving and sometimes confusing process. Actual land use was described in a scheme containing six classes: "general outdoor recreation, natural environment, outstanding natural areas, primitive areas, and historic and cultural areas."

The Fisheries Management Plan also summarizes the National Park Service Management Policies outlining new criteria for establishing management zones to identify four primary management zones: natural, cultural, development, and special use. The BNR's General Management Plan update, which has been delayed for several years, is expected to incorporate new, refined management criteria and zones.

The BNR's Final Master Plan (1977) describes visitor uses of the park as " . . . *an on-the-way point of interest for the tourist; the 'ol swimmin' and fishin' hole' for local users; and a destination area for the avid canoeist.*" According to NPS online visitation statistics, a total of 1,093,083 persons visited the BNR in 2012. November, December, and January were the periods of lowest visitation with less than 35,000 persons per month. Visitation peaked in June with nearly 175,000 persons that month. Outdoor recreational activities include: floating the river by raft, canoe, or kayak; fishing; swimming; camping; hiking; horseback riding; hunting; and sightseeing. In addition to the three major highway crossings (Highway 7 at Pruitt, Highway 65 at Tyler Bend, and Highway 14 at Buffalo Point), a number of smaller crossings and 47 access points provide for dispersed entry into the BNR.

4.2 PARK RESOURCES

Section 4(f) park resources identified in the proposed Buffalo River Bridge project area are described below.

4.2.1 BUFFALO RIVER

The Buffalo River is considered one of the country's finest remaining free-flowing rivers. It flows eastward through northwest Arkansas for approximately 150 miles, primarily across Newton and Searcy Counties, although it briefly enters Marion and Baxter Counties before joining the White River.

Established in 1972 by an Act of Congress, the approximately 95,730-acre BNR encompasses a narrow "shoestring" boundary around the river for approximately 135 miles. The remaining 16 miles, including the headwaters, are located within the Ozark National Forest and were protected in 1992 under the Wild and Scenic Rivers Act as a wild river. The Buffalo River is also included on the NPS Nationwide Rivers Inventory (NRI). Additionally, the Buffalo River in its entirety is under special protection by the Arkansas Department of Environmental Quality as a designated Extraordinary Resource Water, with extraordinary recreational and aesthetic values.

The Buffalo River is the central feature and main attraction of the BNR, where a primary visitor activity is floating the river. Water levels fluctuate widely, and visitor use follows seasonal patterns according to temperature and river levels. Peak river use starts in April and ends in August, with the most intensive use upstream of Pruitt occurring in April and May and the most intensive use downstream occurring in June and July. Although recreational river uses by BNR District (e.g., Upper, Middle, and Lower) have not been quantified since 1981, the Kyles Landing to Pruitt section is considered one of the four most widely-used sections of the river. According to online NPS statistics, a total of 151,060 persons were categorized as "Canoeists" in 2014 (NPS, 2015).

The NPS administers the BNR ". . . *for purposes of conserving and interpreting an area containing unique scenic and scientific features, and preserving as a free-flowing stream an important segment of the Buffalo River in Arkansas for the benefit and enjoyment of present and future generations*." The BNR's Final Master Plan (1977) emphasizes the importance of the river as the unifying feature of the park thusly: "*The Buffalo River is recognized as the central element of the whole array of natural and historical features in its setting. It has clean, clear water uniting all elements in philosophical coherence.*" The Final Master Plan provides several management objectives in the interest of serving the purposes stated in the BNR's enabling legislation, including the following:

> The river will be managed to preserve the natural river scene and maintain a free-flowing, non-polluted river, while providing significant recreational opportunities.
>
> The area will be managed for perpetuation of the resources, while providing recreation for visitors in such a manner that the impact on the environment will be minimized.
>
> The focal attraction of visitor use will be water-oriented recreation.
>
> The interpretive theme will emphasize the Buffalo River – its aesthetic effects, recreational aspects, and aquatic ecology; the concept of a free-flowing stream preserved to flow unhampered is also important; finally, there is a kaleidoscope of subthemes related to the forests, animals, rocks, history, and Indian past of the land.

4.2.2 RECREATIONAL AREAS

The area south of the Pruitt Bridge is known as the Pruitt Day Use Area. Official counts of recreationists using the Pruitt Day Use Area vary. The 1981 Pruitt Development Concept Plan estimated the number to be approximately 90,000 per year. A traffic counter located in the Pruitt Day Use Area recorded an average of 66,192 vehicles per year between 2011 and 2013. Additional NPS statistics indicate that the BNR Upper District Contact Center (Contact Center)

is entered by approximately 3,000 to 5,000 persons annually. The entire BNR Upper District was visited by a total of 471,833 persons in 2012.

The Pruitt Day Use Area is situated on about 8 acres and includes the Contact Center, a restroom facility, picnic sites equipped with tables and grills, and a swimming area designated as the Upper Swimming Hole for purposes of this Evaluation. The Buffalo River Trail trailhead is also located in this area. Vehicle access is from the west side of Highway 7 via a gravel road. A gravel parking area is located between the Contact Center and the river bank.

The picnic sites are readily accessible, and the level ground surface allows for an easy walk to river overlooks and to the river itself. These aspects of the Pruitt Day Use Area allow people of varying physical abilities to enjoy the park.

For purposes of this Evaluation, the area east of the Pruitt Day Use Area is designated as the Pruitt Day Use Area–East. The Pruitt Day Use Area–East is situated on about 6 acres and includes the Storage Building, the remains of the 1913 Highway 7 Bridge, and a swimming area designated as the Lower Swimming Hole. No parking areas, picnic units, trailheads, or other developments are located in the Pruitt Day Use Area–East. Visitors typically access the Lower Swimming Hole by walking underneath the bridge from the Pruitt Day Use Area.

4.2.3 RECREATIONAL TRAILS

The two recreational trails within the proposed project area shown on Figure 4-1 and described below.

BUFFALO RIVER TRAIL

The Buffalo River Trail generally follows the Buffalo River for 36 miles from Boxley to the Pruitt Day Use Area. The 8.7 mile Erbie to Pruitt segment is especially popular among hikers. The trailhead is located in the Pruitt Day Use Area, approximately 475 feet west of the Pruitt Bridge; therefore, the Buffalo River Trail does not traverse the Buffalo River Bridge project area.

EQUESTRIAN TRAIL

The Old River Trail, designated for purposes of this Evaluation as the Equestrian Trail, follows the Buffalo River for 24 miles from Ponca to Pruitt. The Pruitt trailhead is located at the Pruitt Access Area, east of Highway 7. The portion of the Equestrian Trail associated with the Buffalo River project follows County Road 80 for 530 feet and crosses Highway 7 at the Gravel Turnout. It then turns southeast and runs parallel to County Road 472 for approximately 1,970 feet before merging with County Road 472 for approximately 3,000 feet to the Pruitt Access Area and the trailhead. The entire Equestrian Trail is shared with hikers, and County Road 80 is used by a low number of vehicles.

4.2.4 VISUAL RESOURCES

The BNR's scenic qualities were an integral component of its designation as the first National River. The BNR's unique scenery is cited in enabling legislation and in the U.S. House of Representatives Committee Report justifying the establishment of the Buffalo National River: "*It is not one single quality, but the combination of its size, its completeness, its wild qualities, and its associated natural, scenic, and historical resources that make the Buffalo worthy of national recognition.*" Additionally, the NPS–BNR is mandated by the NPS Organic Act of 1916 "*. . . to conserve the scenery and the natural and historic objects and the wildlife therein . . .*" for the enjoyment of present and future generations. Furthermore, the NPS Management Policies 2006, the first level of policy guidance within the NPS directives system, states that scenic views and visual resources are considered highly valued associated characteristics that the NPS should strive to protect.

BNR visitors would be the primary viewer/user group affected by the proposed project, and they may view the landscape in a variety of ways. Visitors such as boaters, hikers, and horseback riders may see the landscape from more remote points such as trails and waterfront areas. Visitors such as picnickers and swimmers will see the proposed project area from closer vantage points. Motorists will view the landscape while traveling to destinations within the park, or traveling through the park to other destinations. The visual quality of scenery is an important part of the recreational experience for all categories of visitors, and a wide variety of viewpoints are available along the roadway, river, and trails in the vicinity of the proposed project.

The FHWA Visual Impact Assessment for Highway Projects guidelines and the U.S. Department of the Interior, Bureau of Land Management Visual Resource Management principles and were applied to describe the project area's visual resources and potential vantage points, as presented below.

A viewshed is the portion of a landscape that can be seen from a particular vantage point. A viewshed will change with each different vantage point. The boundaries of a viewshed are determined by the surrounding topography, vegetation, and built environment. The landforms, water, and vegetation contribute to the vividness of a viewshed, and its visual diversity can be defined in terms of form, line, color, and texture. Additionally, views of high visual quality have several of the following six characteristics:

- Topographic relief
- A variety of vegetation
- Rich colors
- Impressive scenery
- Unique natural features
- Unique built features

The Buffalo River Bridge project viewshed is characterized by steep hillsides and bluffs that create long continuous walls along the riverway. This type of landscape is characterized as "enclosed" from a river level vantage. Viewshed elevations range from about 790 feet above mean sea level (msl) at the river to about 1,100 feet above msl at the ridges near Highway 7. The enclosed nature of the landscape transitions to more panoramic vistas when viewed from the ridges and the bluff tops. Moderately panoramic characteristics are present at the river bends from a river level vantage; however, the views generally remain enclosed due to the steep bluffs and river banks.

The texture of the hillsides varies from exposed rock to vegetation to patches of bare ground. A long axial view up and down the river is strengthened by the contrasting nature of the water surface and the sky. The relatively uniform height of the bluffs and ridges provides a "frame" for river-level views.

The north side of the Buffalo River has steeper gradients and the higher bluffs are closer to the river. On the south side, the bluff is set back and a low floodplain area with gravel and sandbars lies adjacent to the river.

The rock and exposed ground present a wide range of colors, from light tans and buffs to deep browns and from light grays to blacks. Vegetation, tree forms, and colors change with the seasons and vary from autumnal colors to spring and summer greens. Due to its exceptional chemical quality, the water is generally a transparent green color.

A 110-foot high limestone and sandstone bluff known as the Pruitt Bluff is situated to the northwest of the Pruitt Bridge. A limestone and sandstone bluff of somewhat lesser vertical relief (designated as the "East Bluff" for purposes of this Evaluation) is situated to the northeast of the Pruitt Bridge. The bluffs are prominent features in views from the south side of the Buffalo River, as well as in views from the river itself. These bluffs are a scenic feature above the Pruitt Day Use Area swimming areas, contributing to the inviting "swimming hole" aesthetic.

The view from both the north and south sides of the roadway and the Pruitt Bridge affords a vantage point for motorists along Highway 7 to appreciate the setting of the river, the bluffs, and the bridge itself. The blending of the historic Pruitt Bridge into its natural setting is a component of the viewshed. Its charm and design contribute to the ambiance and aesthetic value of the roadway.

The Buffalo River Trail offers views of the river and the river bluffs, while the Equestrian Trail offer views of these features and the Pruitt Bridge. Likewise, views of this setting are available to recreational river users in and around the Pruitt Day Use Area and the Pruitt Access Area.

4.3 HISTORIC RESOURCES

Section 4(f) applies to all historic resources that are listed or eligible for inclusion on the NRHP. Figure 4-1 shows the historic resources in the proposed project area.

4.3.1 PRUITT BRIDGE

The Pruitt Bridge was constructed in 1931, and listed on the NRHP in 1990 as part of the Historic Bridges of Arkansas, Multiple Property Nomination. The bridge is a Pennsylvania variant through truss design. It is 375 feet in length, comprised of one 160-foot through truss center span flanked by two 80-foot Warren pony spans. Additionally, a 55-foot girder approach span is located on the south end of the bridge. The Pruitt Bridge is a unique interpretation of the Pennsylvania through truss design, and is the only experimental design produced by the Arkansas Highway Department, now known as the AHTD, for metal truss bridges. It is therefore listed on the NRHP under Criterion C for its architecture. Eighteen years after its' NRHP listing as a Historic Bridge of Arkansas, the Pruitt Bridge was identified as a contributing element of the NRHP-eligible Pruitt Historic District. The Pruitt Bridge is unusual in that it is both a stand-alone NRHP-listed historic resource and is a contributing element of the Pruitt Historic District. The bridge's status as a Pruitt Historic District contributing element is described in the following section.

4.3.2 PRUITT HISTORIC DISTRICT

The Pruitt Historic District is located where Highway 7 crosses the Buffalo River. The Pruitt Historic District's boundary encompasses both banks of the Buffalo River and both sides of Highway 7 at the river crossing. The Pruitt Historic District is NRHP-eligible under Criteria A and C as a significant site within the contexts of Arkansas highway history and architecture and as a rural hamlet associated with tourism in the Ozarks.

Early 20th century auto touring led to the creation of camps specifically built as places for people to stop and rest during their travels. The camps were built to entice auto tourists and to exploit the popularity of local natural areas such as the Buffalo River. The Shady Grove Camp, a tourist destination on the east side of Highway 7 south of the Buffalo River, existed prior to the construction of the 1931 Pruitt Bridge. It was comprised of a store and rental cabins for visitors. From the 1910s through the 1950s, tourists came here to rest, camp, picnic, and swim along the shores of the Buffalo River. The Shady Grove Camp also became popular as a put-in for boaters in addition to its function as an auto touring stop. Most of the original 1913 Highway 7 Bridge was removed following construction of the 1931 Pruitt Bridge, although portions remained on the south side of the river. Cabins were built on the concrete bridge approach of the 1913 Highway 7 Bridge remains in order to expand the campgrounds.

As auto traffic increased, the village of Pruitt expanded from the Shady Grove Camp. The original store was replaced with a new store and post office (the Pruitt Store) on the west side of the highway. A new garage/community center/American Legion Post (the Pruitt Garage) was built in 1955. The Buffalo Motel was built on the northeast quadrant along with a series of vacation cabins to the east of it.

By the time it was acquired by the BNR in the 1970s, Pruitt had expanded to all four quadrants of the Pruitt Bridge and consisted of the Buffalo Motel, the Pruitt Store, the Pruitt Garage, a few homes and cabins, and a campground. Recreational areas had been established on the northeast and southwest banks of the river. Most of the structures were removed after the establishment of the BNR. Only the Pruitt Store and the Pruitt Garage were retained for use by the NPS. The 1913 Highway 7 bridge approach and an associated privy pad remain, along with a segment of the pre-1931 road.

There are currently no signs, placards, or other public exhibits interpreting the Pruitt Historic District or otherwise describing the history of the Pruitt area. The following subsections describe four structures and features determined as contributing elements to the Pruitt Historic District.

Pruitt Store

The Pruitt Store was built in 1941 to replace a previous store and post office constructed in the 1920s. The structure reflects the Ozark style and workmanship relative to its period of construction. The Pruitt Store provided postal and phone service, gasoline, groceries, recreation, and social opportunities to Pruitt area residents and tourists visiting Shady Grove Camp. The Pruitt Store is NRHP-eligible under Criterion A for its association with the establishment and development of Pruitt and early- to mid-century recreational uses of the Buffalo River. The building was saved and converted to the BNR Upper District Contact Center.

Pruitt Garage

The Pruitt Garage is a cinder block building with a flat roof and additions on each end. The building was constructed in 1955 with additions completed in 1959. The Pruitt Garage provided automobile repair and service and served as a community center to Pruitt area residents and tourists visiting Shady Grove Camp. Following construction of the 1959 additions, it also served as an American Legion Post. It is NRHP-eligible under Criterion A for its association with the establishment and development of Pruitt, as well as early- to mid-century recreational uses of the Buffalo River. The Pruitt Garage was saved for use as a BNR Park Resource Management Division storage building.

Highway 7 Bridge Approach

The 1913 Highway 7 Bridge Approach site is located east of the Pruitt Bridge. The site includes a concrete bridge approach that is about 197 feet in length and 13 feet in width. Six foundation

pads of cabins that used to be part of the Shady Grove Camp remain on the concrete bridge approach.

Pruitt Bridge

The Pruitt Bridge was constructed over the Buffalo River to replace the earlier 1913 Highway 7 Bridge. The Pruitt Bridge is NRHP-listed under Criterion A, because its construction increased traffic and tourism, thereby contributing to the growth of Pruitt from the 1930s through the 1960s, as well as under Criterion C for its distinctive engineering.

4.3.3 ARCHEOLOGICAL SITES

None of the archeological sites in the project area qualify as Section 4(f) resources because they do not warrant preservation in place. Phase I and Phase II archeological surveys were conducted. Consistent with 23 CFR 774.13(b)(2), the BNR was consulted and in a letter dated May 5, 2010, agreed with the AHTD's finding that all of the archeological resources are "important chiefly because of what can be learned by data recovery and has minimal value for preservation in place." Furthermore, the BNR and AHTD, in consultation with the SHPO and Tribal officers, agreed that data recovery excavations would be conducted as part of the Section 106 of the National Historic Preservation Act (NHPA) mitigation under a Memorandum of Agreement (MOA). The MOA is included in **Appendix A**. The MOA and Treatment Plan for archeological sites are also discussed in the EA.

.

CHAPTER 5 MILL CREEK CROSSING PROJECT SECTION 4(F) RESOURCE DESCRIPTIONS

The Mill Creek Crossing project is located on the north side of the Buffalo River, 0.25 mile northeast of the Pruitt Bridge. Country Roads 213 and 472 come together at the Gravel Turnout east of Highway 7. County Road 213 leads north from Highway 7 before turning east, while County Road 472 leads southward from Highway 7, where it terminates at the river. This termination area features the Pruitt Landing boat launch, the Equestrian Trail trailhead, and the Mill Creek Trail trailhead. It also provides parking for vehicles, boat trailers, and horse trailers. This area is designated as the Pruitt Access Area for Evaluation discussion purposes.

Statistics for the number of recreationists and their activities in the proposed project area are not available. However, a traffic counter located near the Pruitt Access Area recorded an average of 43,974 vehicles per year on County Road 472 between 2011 and 2013.

5.1 PARK RESOURCES

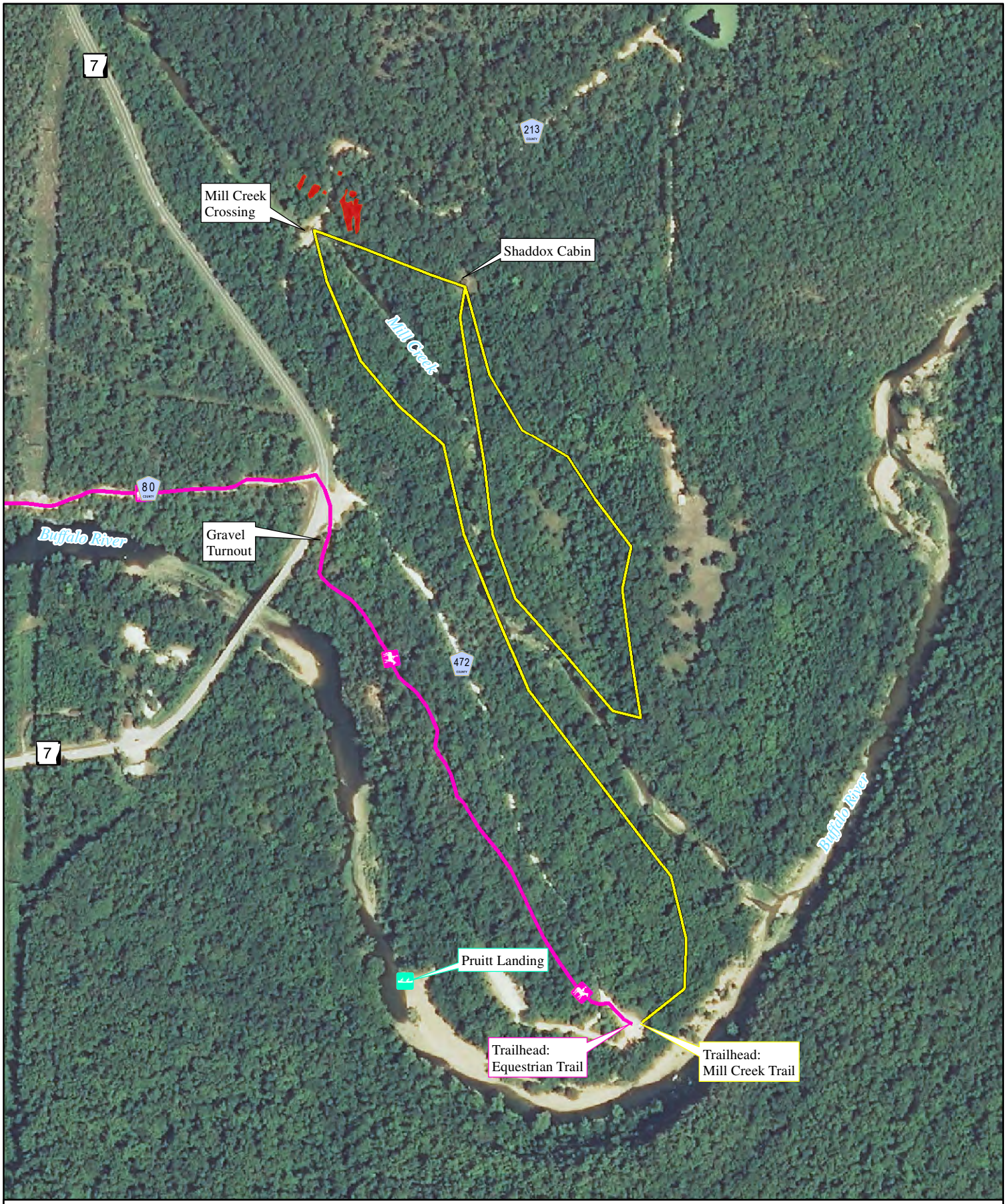
The following activities, features, and attributes of the BNR Section 4(f) property in the Mill Creek Crossing project area were determined as Section 4(f) resources: Mill Creek Trail, Visual Resources, and Historic Resources. The project area and the Section 4(f) resources are shown in **Figure 5-1** and described below.

Mill Creek is a perennial spring-fed stream that flows southerly across Newton County to confluence with the Buffalo River just east of the Pruitt Access Area. Mill Creek comprises over one third of the Buffalo River's flow below its confluence; therefore, Mill Creek's water quality has a substantial effect on the water quality of the Buffalo River.

A spring and a spring run are located in the vicinity of one of the two possible locations identified for the new Mill Creek crossing. The spring run is about 144 feet in length.

5.1.1 MILL CREEK TRAIL

The Mill Creek Trail is a 1.4-mile semi-loop trail that begins at the Pruitt Access Area and generally follows the course of the creek. The trail passes through an old field that has reverted back to a hardwood forest, and continues along the creek until it emerges on County Road 213, where it veers northeast to traverse Mill Creek via the low water crossing. The trail then continues on to the east towards the 19th century Shaddox Homestead, which features the Shaddox Cabin.



N

0 200 400

Feet

Job BR5102
AHTD Environmental GIS - Dudley
Map Date: September 15, 2016
Photography Date: Summer 2013

Figure 5-1
Project Area and Section 4(f) Resources
Mill Creek Crossing Project

Canton Mine
Equestrian Trail
Mill Creek Trail

5.1.2 HISTORIC RESOURCES

The Canton Mine is a series of surface cuts excavated from the late nineteenth century to the mid twentieth century. Excavation began in the 1890s to access lead and zinc deposits. The mine consists of surface cuts and open pits. This area was mined on and off by both individual miners and small mine companies until the early 1940s. The Canton Mine was previously evaluated by the SHPO and determined to be eligible for inclusion on the NRHP under Criteria A for its association with early mining in Arkansas.

5.1.3 VISUAL RESOURCES

The Mill Creek project's viewshed is characterized by steep hillsides, narrow topography, wooded areas, and a shallow, rocky streambed. Viewshed elevations in general range from 783 feet above msl at the low water crossing to about 815 feet above msl at its roadway approaches. The Shaddox Homestead, which includes an open field and the Shaddox Cabin, is situated approximately 240 feet east of Mill Creek and with an elevation approximately 37 feet higher than the low water crossing. Mill Creek's confluence with the Buffalo River is 0.46 mile south of the Shaddox Homestead. Due to distance, elevation, and bends in the streambed, it is not anticipated that any portions of the proposed projects would be visible from the Buffalo River. The low water crossing is about 475 feet northwest of the Shaddox Homestead and vehicles using it are visible from the Shaddox Cabin. County Road 213 passes about 210 feet north of the Shaddox Homestead.

Individuals hiking the Mill Creek Trail and/or visiting the Shaddox Homestead were identified as the primary viewer/user group to be affected by the proposed project; therefore, views from the trail on and adjacent to the Mill Creek low water crossing and from the Shaddox Homestead were considered for this discussion.

Applying the Bureau of Land Management Visual Resource Management principles of visual resource inventory components, the variety class within the proposed project vicinity may be characterized as Class B, or Common. The sensitivity rating would be Level 2, or Average Sensitivity. Vegetative cover is continuous with interspersed patterns of understory, overstory, and ground cover; unique vistas and unusual or outstanding rock forms are not present. Mill Creek's drainage is a riffle-pool complex common to Ozark highlands streams.

This page intentionally left blank.

CHAPTER 6 POTENTIAL USE OF BUFFALO RIVER BRIDGE PROJECT SECTION 4(F) RESOURCES

6.1 INTRODUCTION AND METHODOLOGY

The Buffalo River Bridge project proposes to build a new bridge and approaches to replace the Pruitt Bridge. The bridge will be replaced on new location, and the new approaches will require new roadway alignments. As described in Chapter 8, it is not prudent to replace the bridge on the existing alignment.

Two locations for the new bridge were considered. One location is to the east of the Pruitt Bridge and one location is to the west. Layout variations, or "options", were developed for the west location. These options were developed specifically to avoid Section 4(f) historic resources and resulted in different roadway connectors to the Pruitt Day Use Area. The location and length of the west bridge would remain the same irrespective of the layout option.

The alternatives discussed in this section are termed "build alternatives" to distinguish them from the "no build alternatives" that were excluded from further consideration. Chapter 8 details the "no build alternatives" excluded from further consideration because they were determined to not be feasible or prudent for the project.

As referenced in Chapter 3, Section 4(f) evaluations must consider measures to minimize harm or mitigate adverse impacts; these measures must be developed and analyzed in order to identify which alternative(s) may cause the least harm. For this reason, the measures to minimize harm included in this document are for evaluation purposes and do not indicate commitments. The EA's Finding of No Significant Impact (FONSI) will serve to document all final project commitments.

Constructive uses that could impair the activities, features, or attributes that qualify a property for Section 4(f) protection were also evaluated. Constructive uses are interchangeably referred to as "indirect" or "proximity" uses.

Both direct and indirect uses of Section 4(f) resources must be evaluated for each alternative. Technically, an effect on a Section 4(f) resource is considered a "use," not an impact, but the terms are frequently interchanged. A Section 4(f) evaluation must consider the effects before and after mitigation, consider the severity and location of the use, and determine whether the remainder of the property would continue to serve the same functions as before. A Section 4(f)

evaluation also considers the net impact (use) on the property and surrounding area of all alternatives. The impact of a project's use of a Section 4(f) resource is a function of:

- Size of the use
- Location of the use
- Severity of the use
- Function of the portion used

Some impacts can be quantified, such as the amount of property to be acquired as new easement or the amount of property required from a historic resource. Other impacts, such as visual intrusion, are not easily quantified and instead must be described qualitatively.

As referenced in Chapter 4, different park Section 4(f) resources that qualify the BNR as a Section 4(f) property share activities, attributes, and/or features. For example, the Buffalo River, the Pruitt Day Use Area, and the Equestrian Trail have recreational uses and scenic values. In addition to the Buffalo River's recreational uses and scenic values, the quality of its water also has special values and protections – some of which require managing activities on land.

6.1.1 CHAPTER ORGANIZATION

Section 6.2 of this chapter describes the five build alternatives. The amount of Section 4(f) property to be directly used, either permanently as new easement or temporarily as temporary construction easement, is summarized in **Table 6-1**. The remainder of this chapter provides discussions of potential impacts to the Section 4(f) resources described in Chapter 4. Additionally, the category of "Noise" is included so that potential noise impacts can be evaluated. The categories of "Pruitt Bridge Removal" and "Obliterated Roadway" are included so that anticipated impacts associated with removing the existing bridge and portions of the roadway can be evaluated.

6.2 DESCRIPTION OF ALTERNATIVES AND USES OF SECTION 4(F) RESOURCES

EAST ALTERNATIVE

The East Alternative includes constructing a new bridge 160 feet east (downstream) of the Pruitt Bridge. The land acquired as new easement would be permanently incorporated as a direct use. The temporary construction easement would be within the new easement; therefore, no separate temporary uses would occur.

Figure 6-1 shows the East Alternative layout, including the locations of new permanent easement/temporary construction easement (entirely within permanent easement), new roadway alignments, and retained/obliterated roadway segments. Table 6-1 summarizes this information and includes design details.

TABLE 6-1 SUMMARY OF ALTERNATIVES

East Alternative	West Alternative I Option A	West Alternative I Option B	West Alternative II Option A	West Alternative II Option B
Direct Use Permanent Easement (Acres)				
11.6	10.3	10.3	10.3	10.3
Indirect Use Temporary Easement (Acres)				
None	2	2	2	2
Buildings Removed				
Storage Building	Contact Center & Storage Building	Storage Building	None	Contact Center
Obliterated Roadway / Land Returned to NPS-BNR (Acres)				
0.26 / 0.24	0.94 / 0.66	0.94 / 0.67	0.68 / 0.39	0.68 / 0.39
Length (ft)				
670	772	772	772	772
Number of Bridge Bents (Pilings)				
3	5	5	5	5
Estimated Rock Cut Volume (cy)				
30,507	137,940	137,940	137,940	137,940
Estimated Fill Volume (cy)				
23,766	16,572	16,572	16,572	16,572

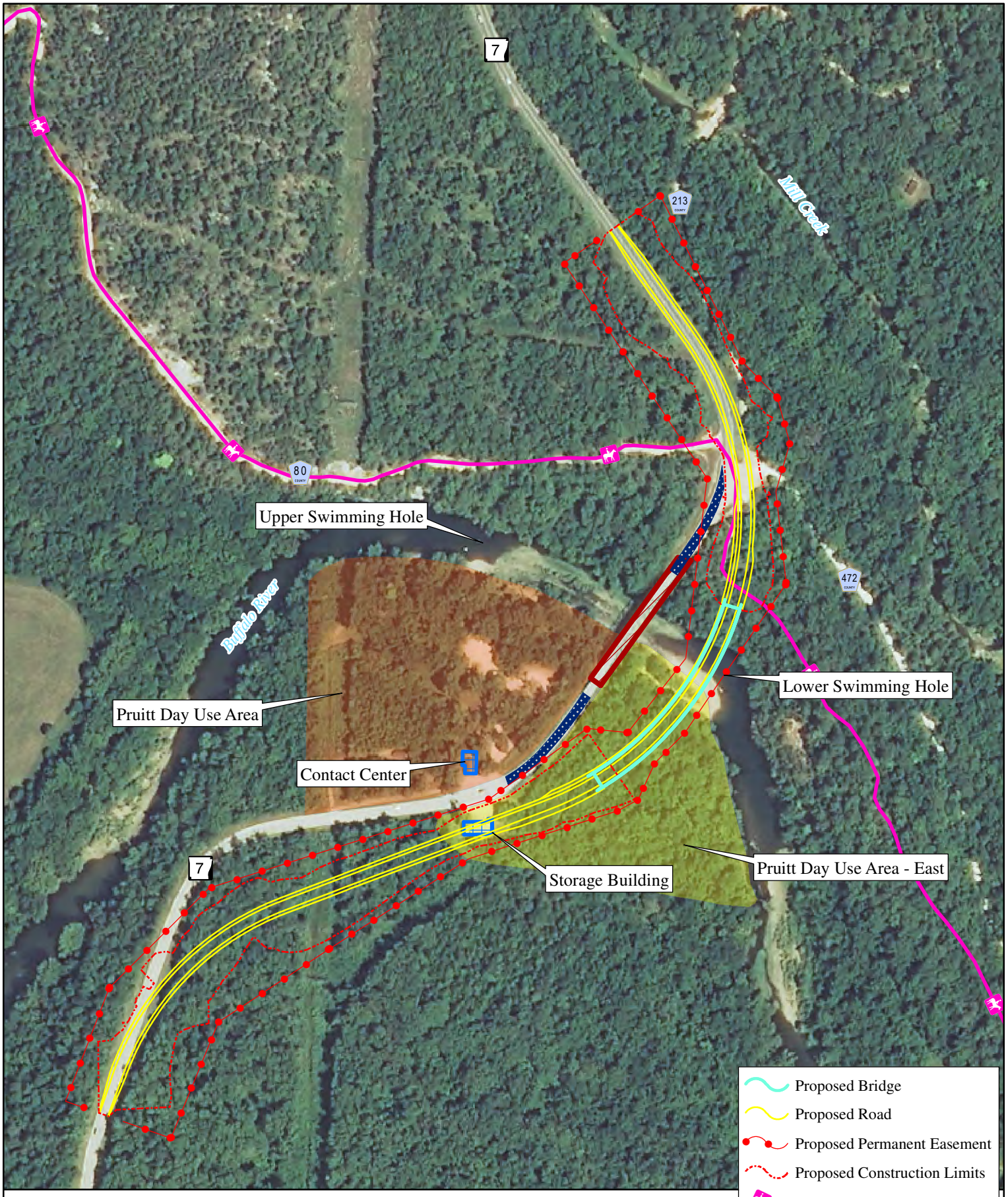


Figure 6-1
East Alternative
Buffalo River Bridge Project

WEST ALTERNATIVE I – OPTION A (CONTACT CENTER AND STORAGE BUILDING REMOVED)

West Alternative I – Option A includes constructing a new bridge 200 feet west (upstream) of the Pruitt Bridge. The land acquired as new easement would be permanently incorporated as a direct use. The land designated as temporary construction easement would constitute a temporary use.

New connections for County Road 80 and County Road 213 are also required. The new connections are required because the approach and roadway alignment of the West Alternatives would render the existing connections obsolete.

Figure 6-2 shows the West Alternative I – Option A layout, including the locations of new permanent easement, temporary construction easements, new roadway alignments, and retained/obliterated roadway segments. Table 6-1 summarizes this information and includes design details.

WEST ALTERNATIVE I – OPTION B (CONTACT CENTER RETAINED – STORAGE BUILDING REMOVED)

West Alternative I - Option B is similar to West Alternative I – Option A with the following differences: the Storage Building would be removed and the Contact Center would remain in place. Retaining the Contact Center would require constructing a retaining wall. Because the BNR has indicated that NPS safety standards would preclude the entry of personnel or visitors into the Contact Center under this alternative, a constructive use of the Contact Center would be presumed, even if it is not physically incorporated into the project.

Figure 6-3 shows the West Alternative I – Option B layout, including the locations of new easement, temporary construction easements, new roadway alignments, and retained/obliterated roadway segments. Table 6-1 summarizes this information and includes design details.

WEST ALTERNATIVE II – OPTION A (NO BUILDINGS REMOVED)

West Alternative II – Option A is similar to West Alternative I – Options A and B with the following differences: both the Contact Center and the Storage Building would remain in place. A retaining wall would be needed to avoid the Contact Center, and the south roadway approach would incorporate an additional bridge (an "overpass") 165 feet in length. The overpass would be needed to allow the connector to the Pruitt Day Use Area to pass under Highway 7. A portion of existing Highway 7 would be left in place to serve as the Pruitt Day Use Area connector. A constructive use of the Contact Center would be presumed.

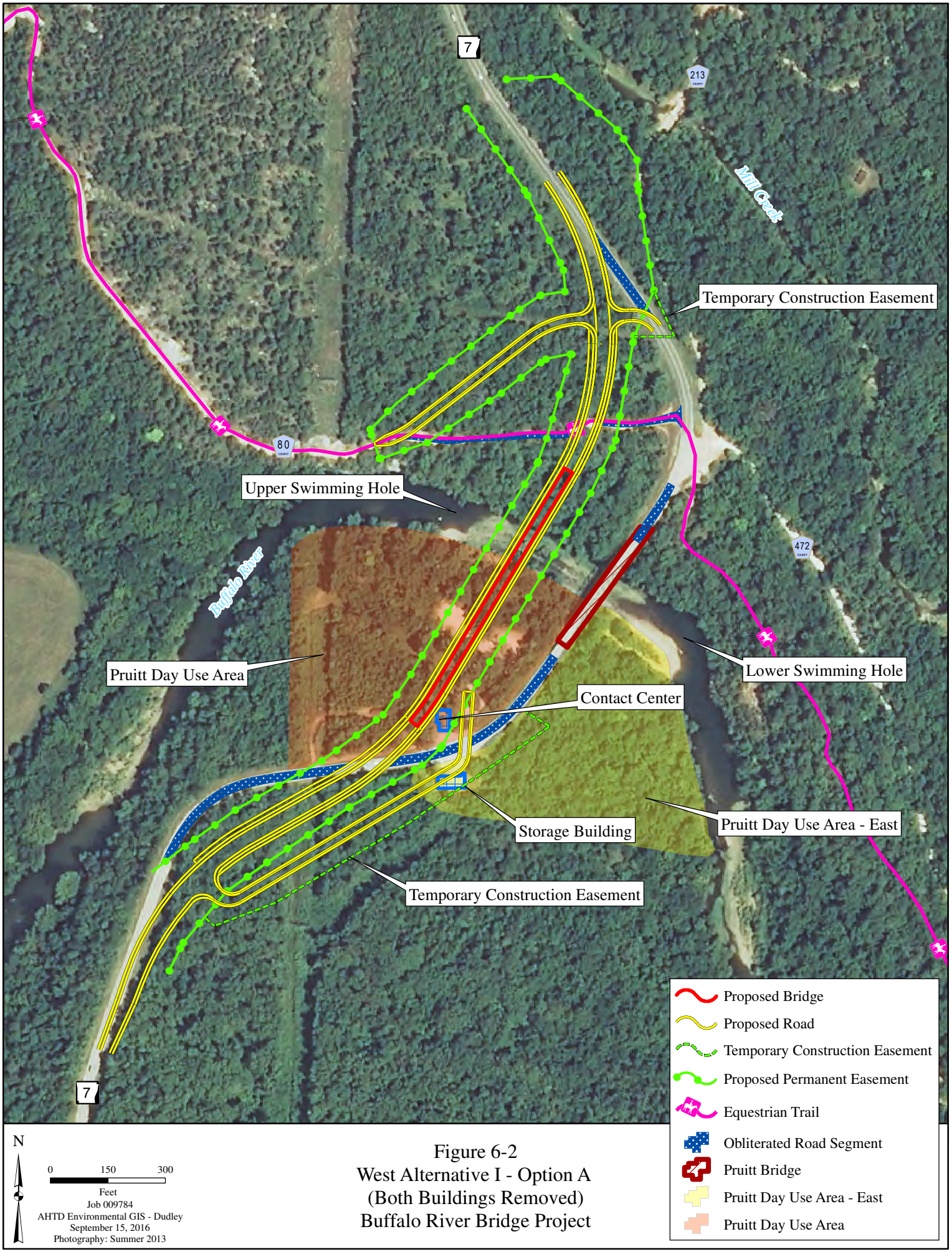
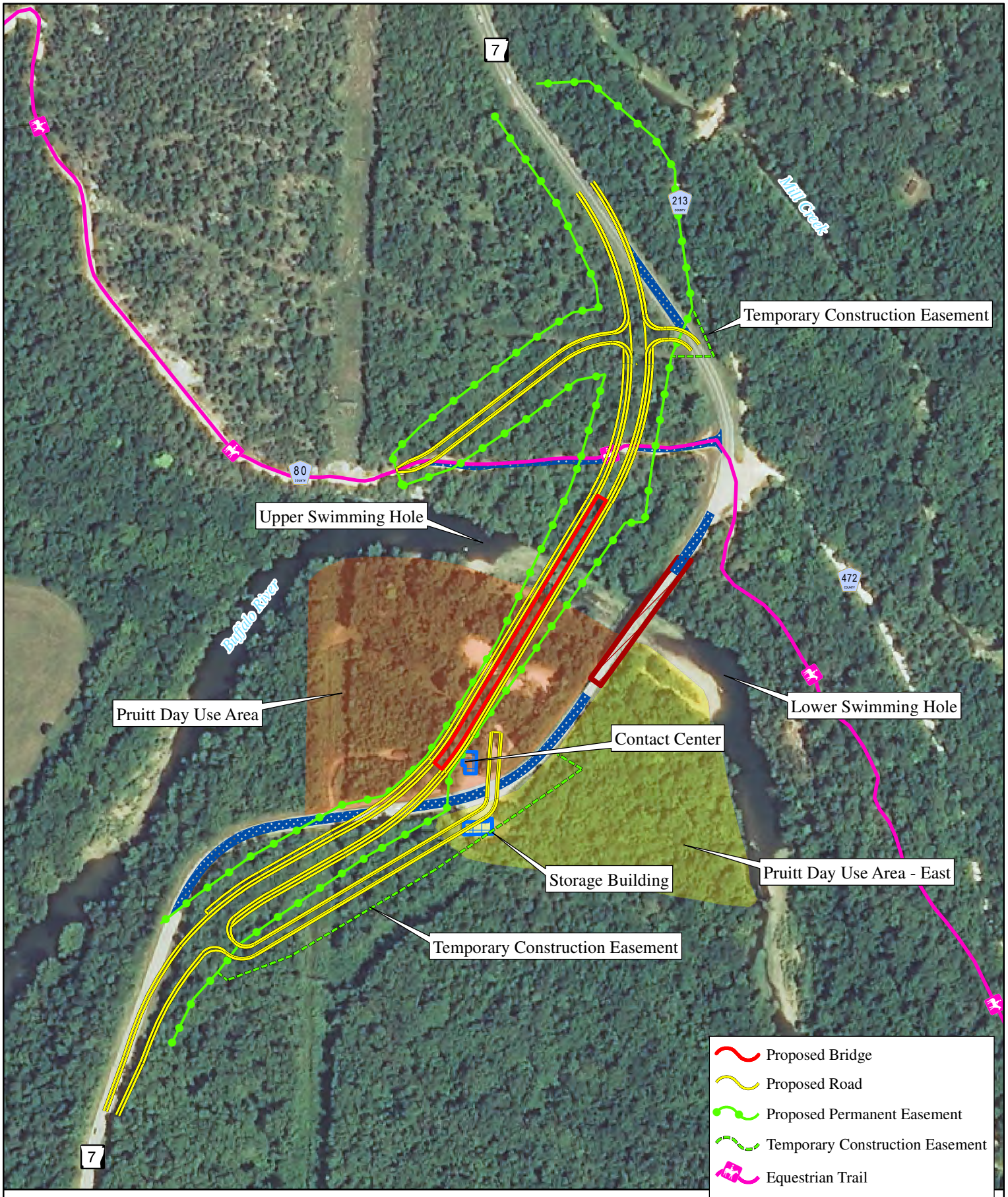


Figure 6-2
West Alternative I - Option A
(Both Buildings Removed)
Buffalo River Bridge Project



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

September 15, 2016

Photography: Summer 2013

Figure 6-3
West Alternative I - Option B
(Storage Building Removed)
Buffalo River Bridge Project

Figure 6-4 shows the West Alternative II – Option A layout, including the locations of new easement, temporary construction easements, new roadway alignments, and retained/removed roadway segments. Table 6-1 summarizes this information and includes design details.

WEST ALTERNATIVE II – OPTION B (CONTACT CENTER REMOVED – STORAGE BUILDING RETAINED)

West Alternative II – Option B is similar to West Alternative II – Option A with the following difference: the Contact Center would be displaced.

Figure 6-5 shows the West Alternative II – Option B layout, including the locations of new easement, temporary construction easements, new roadway alignments, and retained/obliterated roadway segments. Table 6-1 summarizes this information and includes design details.

6.3 PARK RESOURCES IMPACTS

This section describes impacts to Park Resources under the build alternatives. Beneficial recreational mitigation measures common to all of the alternatives include the provision of a walkway on the new bridge, allowing pedestrians to safely cross the Buffalo River and access hiking trails on both sides of the river. Pruitt Bridge removal impacts, which would occur regardless of which build alternative was implemented, are described in section 6.5.

6.3.1 RECREATION

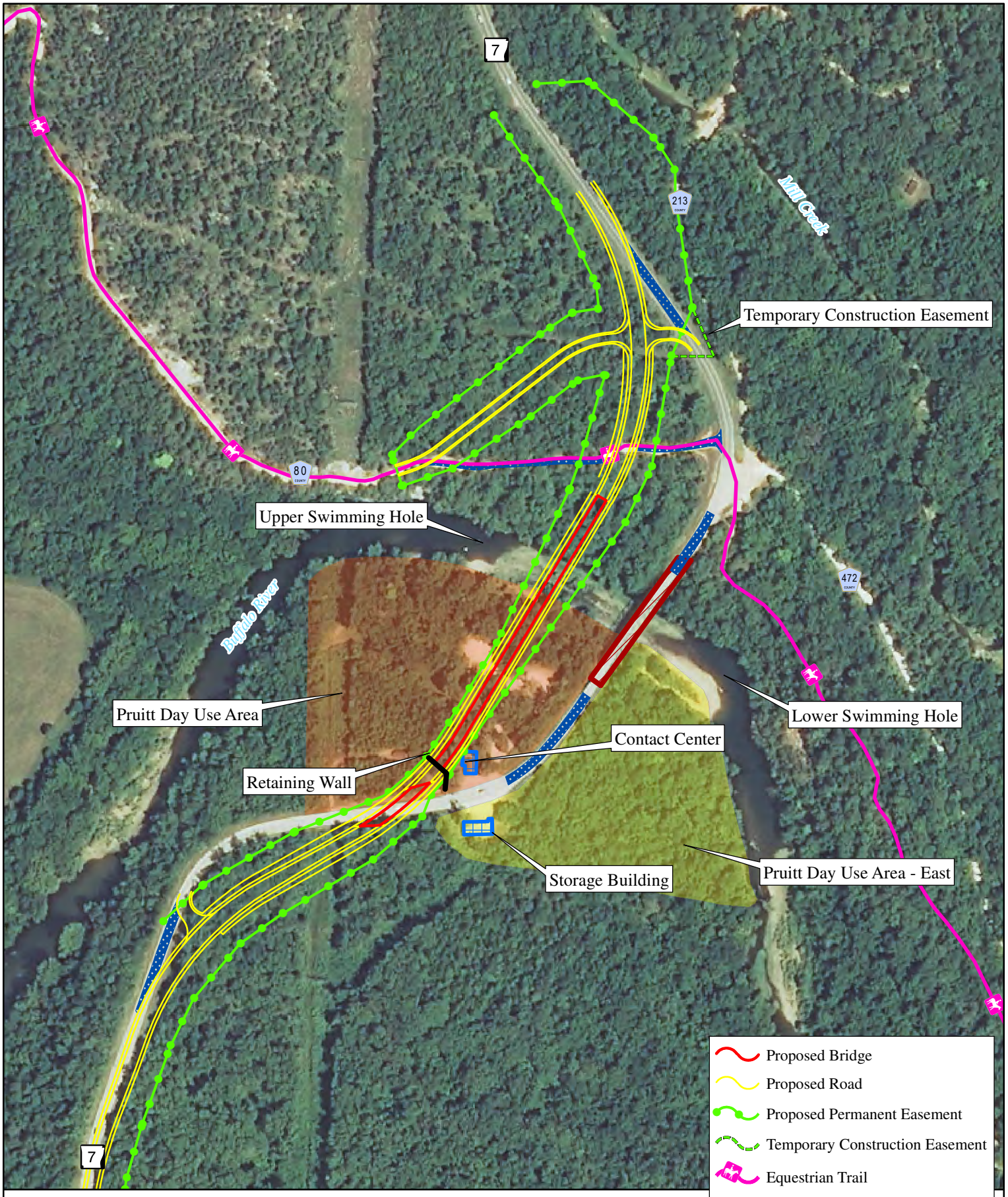
EAST ALTERNATIVE

The existing Equestrian Trail would be re-routed under the new bridge to provide a safe crossing for trail users. It is anticipated that trail re-routing outside of the existing easement would not be included in this project.

The East Alternative would pass west of the Lower Swimming Hole. The bridge's proximity would increase the visibility of the bridge for swimmers in this area, potentially interfering with recreational values. Any shading provided by the bridge would be permanent, and may either enhance or decrease recreational values for swimmers, depending on individual preferences.

Re-routing the Equestrian Trail under the new bridge would improve safety for Equestrian Trail users at the Highway 7 crossing point, resulting in a permanent benefit.

Temporary impacts to river users would occur during construction of the new bridge and removal of the existing bridge. These impacts would be minimized through the use of signage, flagging, and other safety measures.



N

0 150 300

Feet

Job 009784

AHTD Environmental GIS - Dudley

September 15, 2016

Photography: Summer 2013

Figure 6-4
West Alternative II - Option A
(No Buildings Removed)
Buffalo River Bridge Project

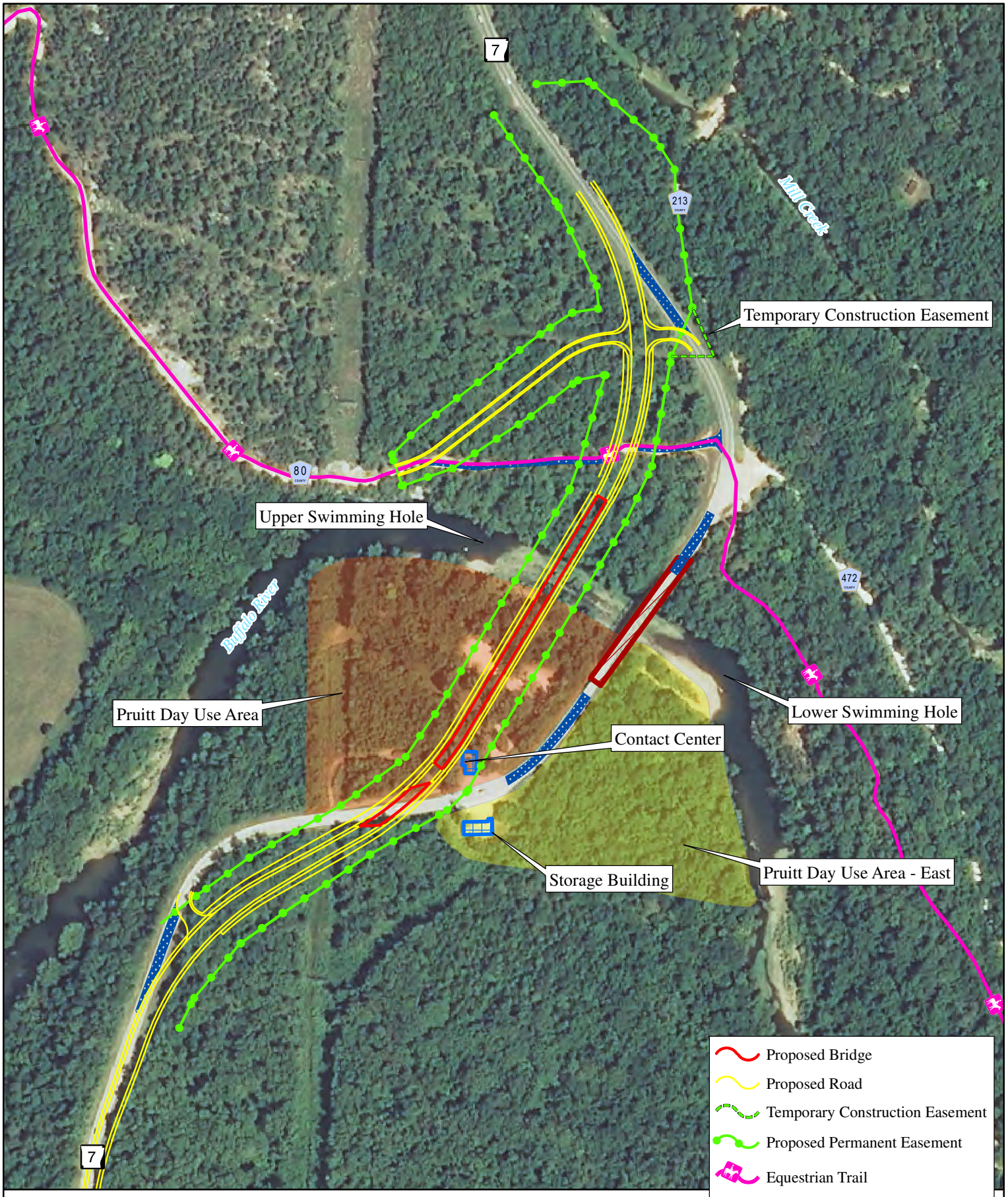


Figure 6-5
West Alternative II - Option B
(Contact Center Removed)
Buffalo River Bridge Project

Temporary impacts to recreational uses would include closing portions of the Pruitt Day Use area during construction and bridge removal.

Mitigation measures during the temporary use of recreational areas would include providing temporary detours and ensuring that a temporary parking area is maintained.

Scenic values and recreational values are related. Any adverse effects the East Alternative would have on scenic values would potentially interfere with recreationists' enjoyment of these values, as discussed in section 6.3.2 of this chapter.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

The Pruitt Day Use Area includes several public amenities and receives more visitors than does the Pruitt Day Use Area–East. The West Alternatives bridge would pass over a large portion of the Pruitt Day Use Area and its amenities; therefore, recreational activities could be affected, but not precluded, by the presence of the bridge and the bridge bents.

The location of the bridge near a portion of the Upper Swimming Hole would increase the visibility of the bridge for swimmers in this area, potentially interfering with recreational values. Any shading provided by the bridge would be permanent, and would either enhance or decrease recreational values for swimmers, depending on individual preferences.

The existing Equestrian Trail traverses Highway 7 from the County Road 80 termination point to the Gravel Turnout. Because the new approach and roadway alignment for all of the West Alternative options would render the existing County Road connections obsolete, the Equestrian Trail would need to be re-routed to pass under the new bridge. Re-routing would require the construction of a new trail segment. Land incorporated into the new trail would be a permanent use; however, the impact of this use may be considered beneficial since it eliminates the need for users to cross Highway 7 traffic and is therefore a safety improvement.

Temporary impacts to river users, including swimmers, would be the same as those previously described for the East Alternative.

Temporary impacts to recreational uses would include the closure of the Pruitt Day Use Area and the Equestrian Trail for periods of time during construction and bridge removal. Mitigation measures during the temporary use of these areas would be the same as those previously described for the East Alternative.

Scenic values and recreational values are related. Any adverse effects the West Alternatives may have on scenic values would potentially interfere with recreationists' enjoyment of these values, as discussed below.

6.3.2 VISUAL RESOURCES

EAST ALTERNATIVE

Situated approximately 150 feet east of the existing bridge, the East Alternative bridge would be routed more than 450 feet east of the Pruitt Bluff, a unique natural feature. The north roadway approach alignment roughly approximates the existing north roadway approach alignment.

The proposed bridge would be 295 feet longer and the bridge ends would be an average of 11 feet higher than the Pruitt Bridge. The proposed bridge would also have three bents (i.e., pilings), one more than the Pruitt Bridge. The maximum rock cut height would measure approximately 10 feet in height and occur along the roadway north of the bridge, with the total volume of cut estimated at 30,507 cubic yards (cy). Approximately 23,766 cy of fill would be required, generally in the vicinity of Pruitt Day Use Area–East.

The impact thresholds for different vantage points and viewers are described below.

The location of the proposed bridge directly west of the Lower Swimming Hole and the East Bluff would increase its visual intrusiveness for recreationists in this area.

The location of the proposed bridge further away from the Pruitt Day Use Area, the Upper Swimming Hole, and the prominent Pruitt Bluff would decrease its visual intrusiveness for recreationists in these areas. The fill in the Pruitt Day Use Area–East would present visual intrusiveness for Pruitt Day Use Area and Pruitt Day Use Area–East visitors. Compared to existing fill (Pruitt Bridge approach), this visual intrusiveness would be lessened for Pruitt Day Use Area visitors and increased for Pruitt Day Use Area–East visitors.

Relative to the existing bridge elevation, the greater elevation of the proposed bridge and the north approach would enhance the panoramic aspects of the view from the roadway – a potentially beneficial impact for motorists.

For Equestrian Trail users crossing Highway 7 and for motorists, the rock cuts on the north approach would be visually intrusive.

The proposed bridge would have a lower structural profile and be set at a higher elevation than the existing bridge. For recreationists along the river and in the Pruitt Day Use Area, this combination of aspects would enhance the axial view up and down the river by lifting a manmade feature out of the enclosed natural view – a potentially beneficial impact.

The location of the bridge directly west of the Lower Swimming Hole and the East Bluff would increase the visibility of the bridge for swimmers in this area, potentially interfering with recreational values. The north bridge approach would avoid encroaching on the Pruitt Bluff.

Mitigation measures would include: incorporating context sensitive design and bridge building materials and colors; replanting fill and cleared areas with native vegetation; replanting trees beyond the clear zones; incorporating blasting techniques to achieve naturalistic surfacing of cut rock faces; and using native sandstone with the same coloration as stone found in the project vicinity to cap riprap. Where possible, riprap would be stacked in place. If necessary, rock staining products would be applied to riprap and excavated rock cuts to match the color and texture of the bedrock geology and to achieve a natural, weathered appearance.

Temporary adverse impacts to views during construction would be mitigated, when possible, using methods such as staging equipment and materials away from view points and using existing topography, vegetation, or other elements to provide visual barriers.

Figure 6-6 shows how the completed project might look from the ridge on the south side of the Buffalo River, while **Figure 6-7** shows the perspective of an upstream boater approaching the completed project.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

The West Alternatives would pass over the Pruitt Day Use Area, where public amenities, accessible river vantage points, and the Upper Swimming Hole are located. Situated approximately 275 feet west of the existing bridge location, the West Alternatives would pass just east of the Pruitt Bluff.

The proposed bridge would be 397 feet longer than the Pruitt Bridge. The bridge ends would be an average of 22 feet higher than the Pruitt Bridge. The proposed bridge would have five bents, two more than the Pruitt Bridge.

The maximum rock cut height would occur along the roadway north of the bridge and measure approximately 20 to 25 feet, with the total volume of cut estimated at 137,940 cy. The total estimated volume of fill would be 16,572 cy, with the largest area of fill generally required in the vicinity of the Pruitt Day Use Area.

The impact thresholds for different vantage points and viewers are described below.

The location of the bridge closer to the Upper Swimming Hole would increase its visual intrusiveness for recreationists in this area

The adjacency of the West Alternatives' north approach to the Pruitt Bluff would encroach on a unique natural feature. The north approach rock cuts would create visual intrusions to motorists, Equestrian Trail users, and Pruitt Day Use Area visitors.

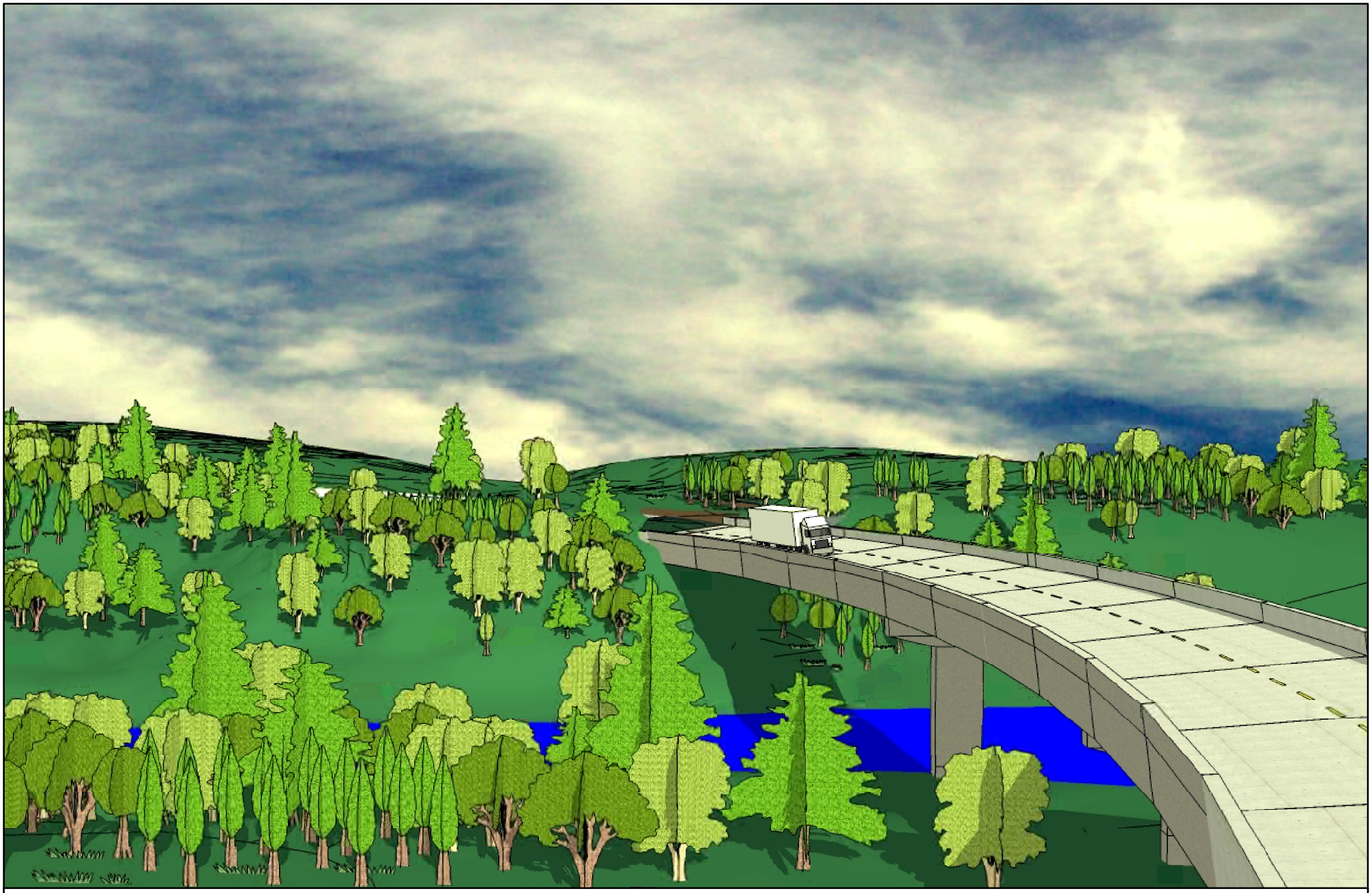


Figure 6-6
Visualization of East Alternative
Buffalo River Bridge Project

Job 009784
AHTD Environmental GIS - Dudley
April 7, 2014



Figure 6-7
Visualization of East Alternative
River Perspective
Buffalo River Bridge Project

Job 009784
AHTD Environmental GIS - Dudley
January 22, 2014

Pruitt Day Use Area visitors would potentially experience adverse visual intrusion effects due to the proximity of the bridge to this area's amenities, including the picnic units. Passive users such as picnickers may be particularly sensitive to such visual intrusion effects because they have more time to concentrate on visual aspects than persons engaged in more active pursuits. The bridge would also pass within approximately 200 feet of and be partially visible from the Buffalo River Trail trailhead during leaf-off periods.

Relative to the elevations on both sides of the existing bridge, the greater elevation of the West Alternatives bridge would enhance the panoramic aspects of the view from the roadway, potentially a beneficial impact for motorists.

The proposed bridge would have a lower structural profile and be set at a higher elevation than the existing bridge. The combination of these aspects of the proposed bridge would enhance the axial view up and down the river by lifting a manmade feature out of the enclosed natural view – a potentially beneficial impact.

The West Alternative bridge bents would introduce additional manmade, vertical elements in the Pruitt Day Use Area. The fill area in the Pruitt Day Use area would also be visually intrusive.

Temporary adverse impacts to views during construction would be mitigated as described for East Alternative.

Figure 6-8 shows how the completed project might look from the ridge on the south side of the Buffalo River, while **Figure 6-9** shows a view from the Pruitt Day Use Area river bank.

6.3.3 BUFFALO RIVER/WATER QUALITY

EAST ALTERNATIVE

The East Alternative bridge would present approximately 0.76 acre of impervious surface area, an increase of 0.59 acre in comparison to the existing bridge. No direct permanent uses are expected. Temporary adverse impacts during construction would be minimized by adherence to water quality protection requirements – including erosion and sedimentation controls – and monitoring the effectiveness of the controls on a daily basis during construction.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

The West Alternatives bridge would present approximately 0.87 acre of impervious surface area, an increase of 0.70 acre in comparison to the existing bridge. No direct permanent uses are expected. Temporary adverse impact minimization measures would be the same as described for the East Alternative.

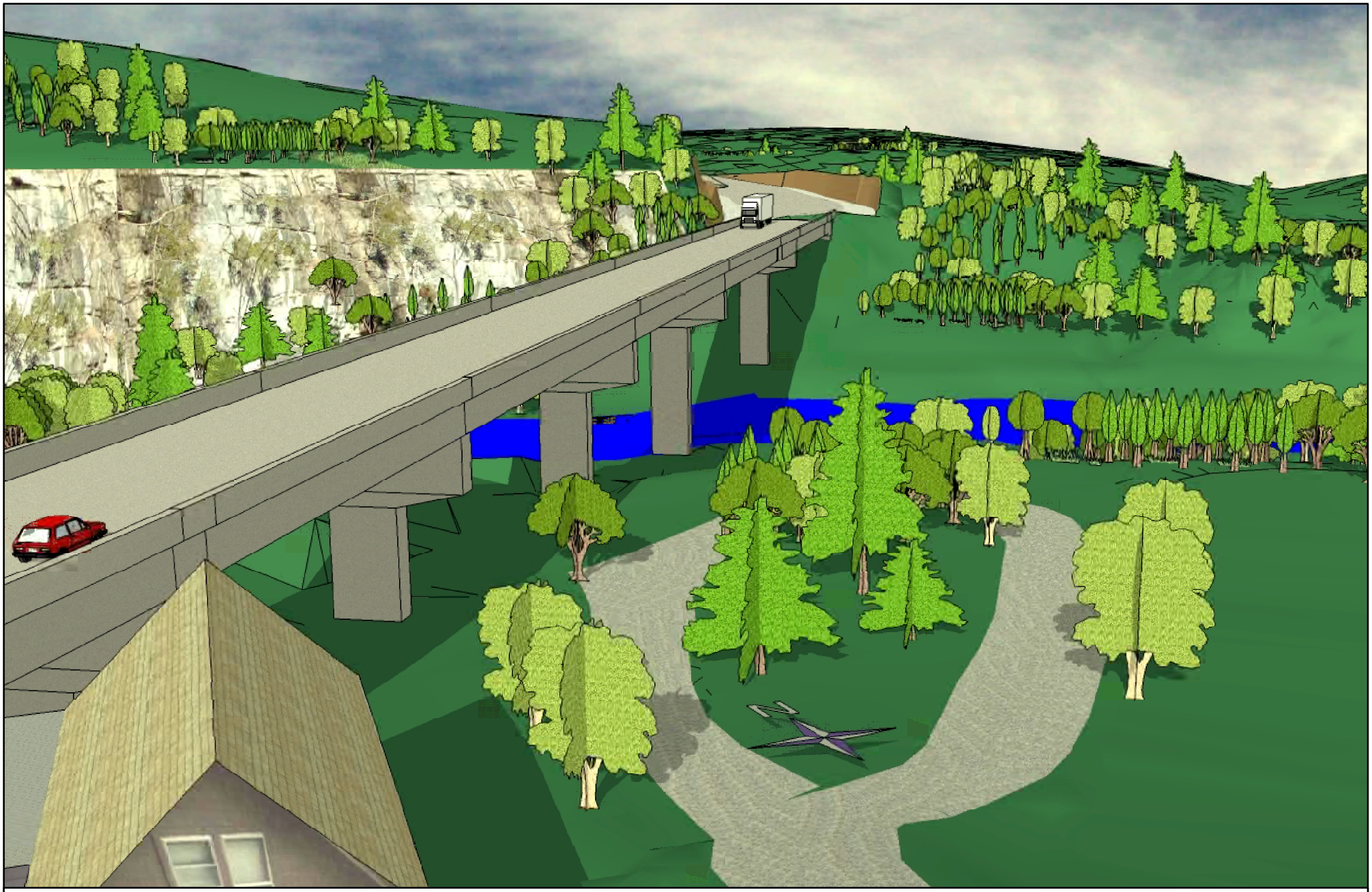


Figure 6-8
Visualization of West Alternatives I & II
Buffalo River Bridge Project

Job 009784
AHTD Environmental GIS - Dudley
April 7, 2014



Figure 6-9
Visualization of West Alternatives I & II
River Perspective
Buffalo River Bridge Project

Job 009784
AHTD Environmental GIS - Dudley
April 2, 2015

6.3.4 NOISE

A noise study was completed for the Buffalo River Bridge project to predict traffic-related noise level increases. The study included identifying areas with the highest likelihood of being affected by any sound level increases, obtaining ambient sound level measurements, and using the FHWA Traffic Noise Model (TNM 2.5) to calculate potential sound level increases.

The FHWA developed land use activity categories and associated Noise Abatement Criteria (NAC) to determine the compatibility of highway noise levels with various land uses. Traffic noise impacts occur when predicted traffic noise levels either approach or exceed the FHWA NAC or substantially exceed the existing noise levels. Encompassing "picnic areas", "recreation areas", and "Section 4(f) sites", the project area's NAC is 67 decibels, A-weighted, abbreviated as dB(A).

The noise study results and technical report are included in the EA and summarized below. Additional traffic-related noise concerns are addressed in sections 6.5 and 9.1.1.

EAST ALTERNATIVE

The TNM 2.5 modeled future noise levels were between 47.6 and 57.2 dB(A) and the modeled future noise level changes over the existing levels were -6.4 to 3.4 dB(A). This would represent an overall minor increase and would not approach or exceed the project area's NAC of 67 dB(A). Adverse noise impacts would therefore not occur.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

The TNM 2.5 modeled future noise levels were between 45.5 and 55 dB(A) and the modeled future noise level changes over the existing levels were -8.3 to 5 dB(A). This would represent an overall minor increase and would not approach or exceed the project area's NAC of 67 dB(A). Adverse noise impacts would therefore not occur.

6.4 HISTORIC RESOURCES IMPACTS

EAST ALTERNATIVE

The East Alternative would displace the Storage Building.

Displacing the Storage Building would constitute both a direct use and an adverse effect on a contributing element of the NRHP-eligible Pruitt Historic District. In coordination with the NPS-BNR and Section 106 consulting parties, specific mitigation measures and commitments are fully documented in the final Section 106 MOA. Mitigation measures include documenting structures and features prior to removal and creating a brochure with a Quick Response (QR) Code linked to a video to provide visitors with information about the historic significance of the site. A separate MOA for the Pruitt Bridge is discussed in section 6.5.

WEST ALTERNATIVES I AND II (ALL OPTIONS)

With the exception of West Alternate II – Option A, the West Alternatives would displace both the Contact Center and/or the Storage Building, depending on the alternative option.

Displacing the Contact Center and/or the Storage Building would constitute both a direct use and an adverse effect on contributing elements of the NRHP-eligible Pruitt Historic District. Specific mitigation commitments would be fully documented in the Section 106 MOA. Potential mitigation measures may include documenting the structures and features prior to removal and providing visitors with information about the historic significance of the buildings and the Pruitt Historic District.

6.5 PRUITT BRIDGE REMOVAL IMPACTS

All of the alternatives involve removing the Pruitt Bridge. Options for removing the Pruitt Bridge include:

- Dismantling the superstructure in sections and lifting the pieces out with a crane.
- Blasting the bridge and allowing debris to fall in the river, then removing the debris.

A description of potential impacts associated with the Pruitt Bridge removal is provided below.

RECREATIONAL

Removing the Pruitt Bridge embankment would add a small amount of land (less than 1 acre) to the Pruitt Day Use Area, comprising a positive permanent benefit.

Temporary construction impacts and mitigation measures during bridge and embankment removal activities would be the same as those described for the build alternatives.

VISUAL

The free-flowing aspect of the river could be enhanced by removing the existing bridge embankment, as could the natural connection of visual patterns and elements along the river's course. The panoramic characteristics from a river level vantage may also be increased. These results would be considered a positive benefit. Conversely, the removal of the Pruitt Bridge, a unique built feature that is iconic of the area, could be considered an adverse effect, depending on viewer preferences.

WATER QUALITY

If the superstructure is dismantled in sections and lifted onto trucks using a large crane, a 30-foot temporary work road all the way across the channel would be required. If the bridge is blasted and the center span dropped into the river, a 20-foot wide temporary work road would be used to access the bents and bridge pieces for removal. The 20-foot wide temporary work road would not need to completely span the river.

The removal of the existing bridge would increase sedimentation resulting from demolition, removal of the pier footings, and the placement and removal of the work road. Any impacts due to removal of the existing bridge would likely be temporary. Erosion control Best Management Practices (BMPs) would be used throughout the process to minimize sedimentation.

The bridge and embankment removal activities would constitute a temporary use. Their removal may also constitute a permanent benefit.

NOISE

No permanent uses are anticipated. Mitigation measures for temporary impacts would be the same as those described for the build alternatives.

Temporary noise impacts would occur during bridge and embankment removal activities. Noise mitigation measures would be the same as those described for the build alternatives.

HISTORIC RESOURCES

A Section 106 MOA for the Pruitt Bridge has been completed. The MOA's mitigation measures include: updating the existing Historic American Engineering Record (HAER) history (AR-23) for the Pruitt Bridge; laser scanning the bridge to create a digital 3-dimensional model for the AHTD website; designing a brochure that includes a QR Code linked to a video providing visitors with information about the engineering and construction methodology; placing the brochure in a covered brochure case on a building in the Pruitt Day Use Area in the Tyler Bend Visitor's Center brochure case; providing Newton County with a mural of the bridge for display at the Newton County Courthouse in Jasper; and installing an historical marker in AHTD right-of-way as close as possible to the Pruitt Bridge original site describing its historical significance and displaying a picture of the bridge.

6.6 OBLITERATED ROADWAY IMPACTS

All of the alternatives require the AHTD to obliterate specific segments of existing roadway. The following actions would occur where existing easement and roadway would no longer be needed and thus obliterated: the asphalt would be removed; the land would be recontoured to its natural grade; and native vegetation would be planted. Ownership of this property would be

assumed by the U.S. Department of the Interior and become a part of the BNR. Table 6-1 summarizes the total acreage of obliterated roadway associated with each alternative and the total acreage of land for which the BNR would assume ownership. Obliterated roadway locations are also indicated on the figures provided for each alternative. A Special Provision would be prepared to address the obliterated roadway restoration process.

The roadway obliteration impacts would constitute both a temporary use and a permanent beneficial use.

CHAPTER 7 POTENTIAL USE OF MILL CREEK CROSSING PROJECT SECTION 4(F) RESOURCES

7.1 INTRODUCTION AND METHODOLOGY

The Mill Creek Crossing project proposes to replace the existing low water crossing with either a bridge or a box culvert. The low water crossing will be replaced on new location, and the new approaches will require new alignments. As described in Chapter 8, the low water crossing could not be replaced on existing alignment.

The improved roadway for both alternatives would include two 10-foot chip seal travel lanes with 4-foot gravel shoulders.

The methodology used for evaluating the potential use of Mill Creek Crossing project Section 4(f) resources was the same as for evaluating the potential use of Buffalo River Bridge Section 4(f) resources.

7.1.1 CHAPTER ORGANIZATION

Section 7.2 of this chapter describes the two build alternatives. The amount of Section 4(f) property to be directly used, either permanently as new easement or temporarily as temporary construction easement, is included in the alternative descriptions. The remainder of this chapter provides discussions of potential impacts to the Section 4(f) resources described in Chapter 5. Additionally, the categories of Low Water Crossing Removal and Obliterated Roadway Removal are included so that anticipated impacts associated with removing the existing low water crossing and portions of the roadway can be evaluated.

7.2 DESCRIPTION OF ALTERNATIVES AND USES OF SECTION 4(F) RESOURCES

BRIDGE ALTERNATIVE

The Bridge Alternative would include constructing a new bridge approximately 250 feet in length and approximately 250 feet southeast (downstream) of the existing low water structure. The total length of the project would be 900 feet. The new easement is estimated at 2.5 acres. The land acquired as new easement would be incorporated as a permanent use. The estimated 1.6 acre designated as temporary construction easement would constitute a temporary use.

A portion of the Mill Creek Trail would need to be rerouted to use the new bridge for crossing Mill Creek.

BOX CULVERT ALTERNATIVE

The Box Culvert Alternative would include constructing a box culvert approximately 60 feet in length and approximately 120 feet northwest (upstream) of the existing low water crossing. The box culvert would be comprised of five bottomless openings, each 12 feet high and 10 feet wide, with a headwall and wingwalls on both ends. The total length of the project would be 1,700 feet. The new easement is estimated at 3.3 acres. The land acquired as new easement would be incorporated as a permanent use.

A portion of the Mill Creek Trail would need to be rerouted to use the new roadway alignment and box culvert for crossing Mill Creek.

Figure 7-1 shows the proposed project routes, including the locations of new easement, temporary construction easements, new roadway alignments, and retained/obliterated roadway segments for both alternatives.

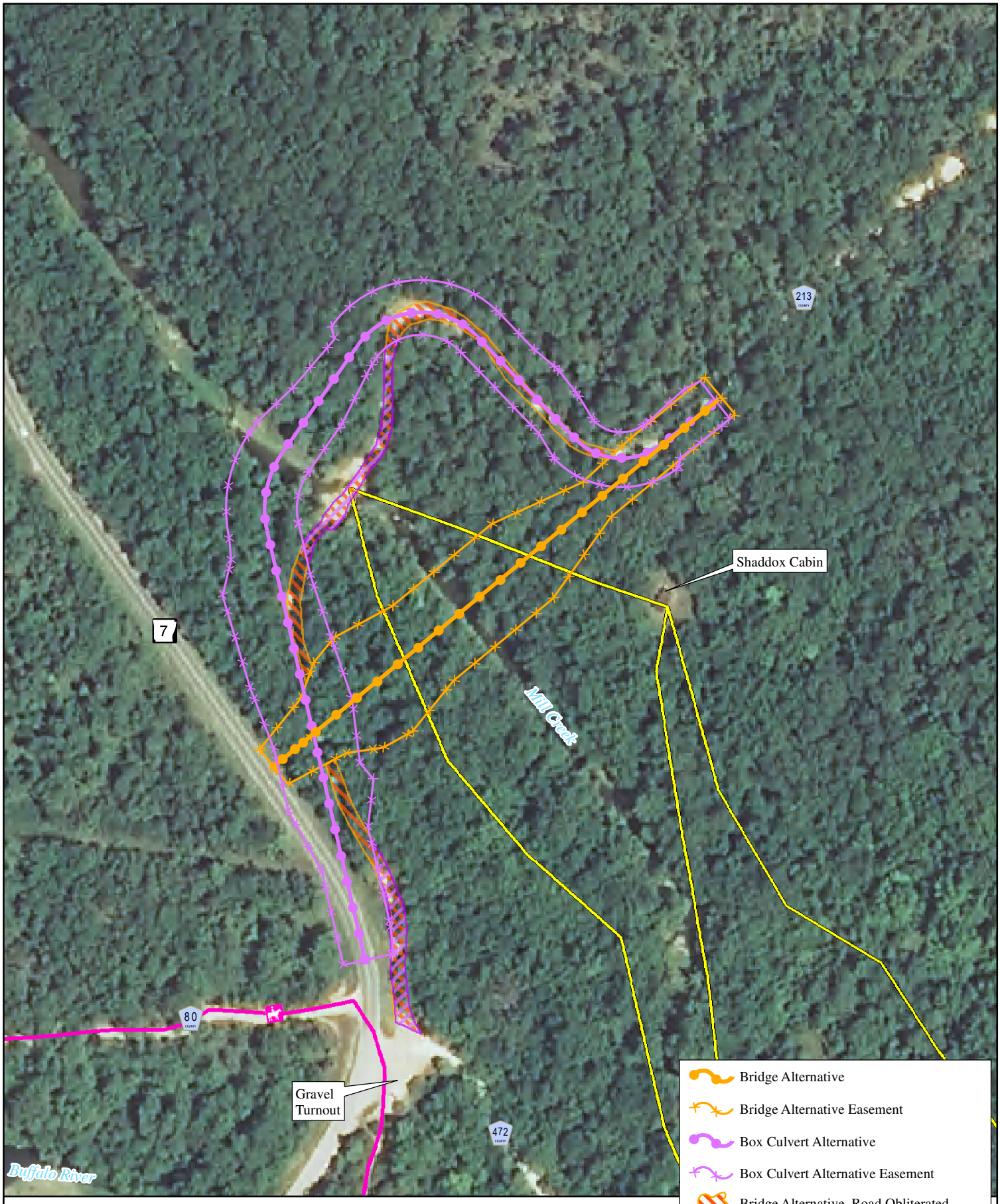
7.3 PARK RESOURCES IMPACTS

7.3.1 RECREATION

BRIDGE ALTERNATIVE

About 350 feet of the Mill Creek Trail would need to be re-routed to use the new bridge for crossing Mill Creek, resulting in a slightly shorter trail. The new trail segment would be a permanent use. The impact of this use may be considered beneficial because hikers are not currently able to cross Mill Creek when the existing low water crossing is flooded. Alternatively, the impact may be considered adverse because it would shorten the existing trail, require the re-routed trail portion to gain an elevation of approximately 20 to 30 feet so that hikers could access the bridge, and introduce a manmade element substantially larger than the existing low water crossing into the overall trail setting. The perception of alterations to the Mill Creek Trail as either beneficial or adverse would vary depending on the preferences of individual recreationists.

Temporary impacts to recreational uses would include the closure of portions of the Mill Creek Trail during construction. Mitigation measures during the temporary closure would include providing a temporary detour.



N

0 100 200

Feet

Job BR5102

AHTD Environmental GIS - Dudley

Map Date: September 15, 2016

Figure 7-1
Proposed Alternatives
Mill Creek Crossing Project

Photography Date: Summer 2013

BOX CULVERT ALTERNATIVE

About 450 feet of the Mill Creek Trail would need to be re-routed to use the new roadway alignment and box culvert for crossing Mill Creek; a portion of this would involve the construction of a trail extension. The new trail segment would be a permanent use.

The impact of this use may be considered beneficial because hikers are not currently able to cross Mill Creek when the existing low water crossing is flooded.

Alternatively, the impact may be considered adverse because it would lengthen the existing trail. The perception of alterations to the Mill Creek Trail as either beneficial or adverse would vary depending on the preferences of individual recreationists.

Temporary impacts to recreational uses include the closure of portions of the Mill Creek Trail during construction. Mitigation measures during the temporary closure would include providing a temporary detour.

7.3.2 HISTORIC RESOURCES

BRIDGE ALTERNATIVE

Historic resources associated with this alternative have not been identified.

BOX CULVERT ALTERNATIVE

This alternative would adversely impact the Canton Mine. Specific mitigation measures would be detailed in a Section 106 MOA.

7.3.3 VISUAL

BRIDGE ALTERNATIVE

Vehicles passing over the low water crossing and driving on County Road 213 are currently visible from the Shaddox Cabin and other Homestead vantage points. This alternative would place the bridge approximately 250 feet closer to the Shaddox Cabin. Combined with the new bridge's substantially higher elevation and scale in comparison to the existing low water crossing, adverse visual intrusion effects would occur. It is unlikely that the new bridge would be visible from the Buffalo River, which is 0.46 mile downstream from the project location.

Hikers passing over the bridge would be afforded more panoramic views of Mill Creek and the surrounding area than are currently available, and portions of the Shaddox Homestead may be visible. It is possible that these new panoramic and historic feature views would be considered beneficial, depending upon individual preferences.

It is also possible that the visibility and scale of the bridge at various points along the Mill Creek Trail and from the Shaddox Cabin would be considered adverse. The perception of alterations to the viewshed as either beneficial or adverse would vary depending on individual viewers. **Figure 7-2** provides a visualization of the proposed bridge from a Mill Creek Trail perspective.

Mitigation measures would include: incorporating context sensitive design and bridge building materials and colors; replanting fill and cleared areas with native vegetation and wildflowers; planting native trees beyond the clear zones; and using native sandstone to cap riprap. Riprap would be stacked in place where possible. If necessary, rock staining products would be applied to riprap and excavated rock cuts to match the color and texture of the bedrock geology and to achieve a natural, weathered appearance.

The scale of construction for the bridge alternative would be larger than that for the box culvert alternative. Additionally, larger equipment (e.g., cranes) and construction support elements (e.g., crane pads) would also be required.

This alternative would place the new crossing approximately 250 feet closer to Shaddox Cabin than the existing low water crossing. Adverse visual intrusion effects are possible. Hikers passing over the new crossing would be afforded views of Mill Creek similar to those currently available.

Temporary adverse impacts to the viewshed during construction would be mitigated, when possible, using methods such as staging equipment and materials away from view points and using existing topography, vegetation, or other elements to provide visual barriers.

BOX CULVERT ALTERNATIVE

This alternative would place the new crossing approximately 120 feet further away from the Shaddox Cabin than the existing low water crossing and no adverse visual intrusion effects are anticipated. Hikers passing over the new crossing would be afforded views of Mill Creek similar to those currently available.

Temporary adverse impacts to the viewshed during construction would be mitigated, when possible, by methods such as staging equipment and materials away from view points and using existing topography, vegetation, or other elements to provide visual barriers.



Figure 7-2
Visualization of Bridge Alternative
Mill Creek Trail Perspective
Mill Creek Crossing Project

Job BR5102
AHTD Environmental GIS - Dudley
January 22, 2014

7.4 MILL CREEK LOW WATER CROSSING REMOVAL IMPACTS

Both alternatives involve removing the Mill Creek low water crossing. The gravel load in the streambed behind the low water crossing would be allowed to naturally redistribute.

The removal of the low water crossing would temporarily increase sedimentation during construction. These impacts would extend downstream through Mill Creek and into the Buffalo River. Additionally, the stream morphology within the project area will likely change, both upstream and downstream, as the substrate particles redistribute following the removal of the structure. This change in stream morphology may be considered a positive benefit.

7.5 OBLITERATED ROADWAY IMPACTS

Both of the alternatives would require the AHTD to obliterate segments of County Road 213. The Bridge Alternative would involve the obliteration of 0.62 acre of roadway, and the Box Culvert Alternative would involve the obliteration of 0.27 acre of roadway. Where existing highway easement and roadway would be obliterated as a result of the proposed project, the following actions would occur: the roadway would be removed; the land would be recontoured to its natural grade; and native vegetation would be replanted. Ownership of this property would be assumed by the U.S. Department of the Interior and incorporated into the BNR. The obliterated roadway locations are indicated on the Figures provided for each alternative. A Special Provision would be prepared to address the obliterated roadway restoration process.

The obliterated roadway impacts would constitute a temporary use.

This page intentionally left blank.

CHAPTER 8 AVOIDANCE ALTERNATIVES

Avoiding Section 4(f) resources was an important consideration in designing and screening the Buffalo River Bridge and the Mill Creek Crossing project alternatives. The FHWA cannot approve the use of a Section 4(f) property if a feasible and prudent avoidance alternative is available. A feasible and prudent avoidance alternative is one that avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. An alternative is not feasible if it cannot be built as a matter of sound engineering judgement. Several factors can determine whether or not an alternative is prudent. For example, an alternative is not prudent if it: compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need; results in unacceptable safety or operational problems; or causes severe impacts even after reasonable mitigation.

Other than the No Build and BNR Avoidance alternatives, complete avoidance alternatives do not exist for these projects because they are located entirely on property protected by Section 4(f). Partial avoidance alternatives were therefore developed to minimize impacts to Section 4(f) resources. Partial avoidance alternatives included replacing or rehabilitating the bridge at its existing location, historic site avoidance, and replacing the low water crossing at its existing location.

This Chapter considers whether the avoidance alternatives are feasible and prudent, as defined in 23 CFR 774.17.

8.1 NO BUILD ALTERNATIVES

The No Build alternatives would leave the Pruitt Bridge and the Mill Creek low water crossing and approaches as they exist, with no reconstruction, repairs, or other improvements undertaken. The No Build alternative for the Buffalo River Bridge project would not alleviate the existing bridge's substandard conditions and roadway alignment curvature. The No Build alternative would not resolve the Mill Creek low water crossing flooding problems or eliminate County Road 213's sharp curves and steep grades.

Although the No Build alternatives would completely avoid Section 4(f) resources, they are not prudent. The Pruitt Bridge would continue to deteriorate resulting in increasing maintenance costs and it would remain functionally obsolete. The Mill Creek low water crossing would continue to periodically flood and the roadway safety hazards would not be remedied.

8.2 BNR AVOIDANCE ALTERNATIVES

Both projects are located completely within the boundaries of the BNR, a unit in the National Park System and a Section 4(f) property in its entirety. Avoidance of BNR property was considered very early in the project development process by identifying a route that did not require any Section 4(f) property. No preliminary engineering designs or other construction plans were developed for this theoretical route which would be over 40 miles in length. The new route's length and distance from the Buffalo River Bridge and Mill Creek Crossing would compromise the projects to the degree that is unreasonable given the purpose and need. For this reason, no feasible or prudent new location alternatives that completely avoid Section 4(f) property can be developed. Partial avoidance alternatives are discussed in the following sections.

8.3 PRUITT BRIDGE REPLACEMENT ON EXISTING LOCATION

The topography of the existing location of the Pruitt Bridge prevents installing a temporary bridge to allow traffic to continue crossing the river while the new bridge is constructed. A temporary bridge would need to be placed very close to the existing bridge in order to avoid the same impacts to Section 4(f) resources as the build alternatives. This proximity would not provide sufficient space for construction equipment (e.g., overhead cranes) to operate, or for construction activities (e.g., blasting, pile driving) to be safely conducted.

Replacing the bridge on existing location without a temporary bridge would require diverting all traffic on Highway 7 around the project area. The current trip length from the City of Jasper (south of the Buffalo River) to the City of Harrison (north of the Buffalo River) on Highway 7 is a distance of approximately 19 miles. Diverting traffic from Jasper to Harrison on highways to the east would result in a trip length of approximately 33 miles, while the trip from Jasper to Harrison on highways to the west would be a distance of approximately 40 miles. Highway 7 is an important arterial for maintaining the continued mobility of the public and efficient flow of services through the region. Highway 7 is also valuable for tourism as a scenic byway.

For the reasons described above, replacing the bridge on existing alignment was found to not be feasible and prudent.

8.4 PRUITT BRIDGE REHABILITATION

The FHWA's National Bridge Inventory (NBI) criteria are used to characterize the existing conditions of bridges compared to as-built conditions. According to these criteria, a bridge is considered structurally deficient ". . . if significant load-carrying elements are found to be in poor or worse condition due to deterioration and/or damage . . ." (FHWA 2010).

The NBI's general condition ratings (GCRs) are used to numerically rate each of a bridge's key elements: substructure, deck, and superstructure. The GCRs take into account the materials used in the bridge, as well as the physical condition of the key elements. A bridge is classified as structurally deficient if the substructure, deck, or superstructure receives a GCR of 4 or below. A GCR of 3 has been assigned to the Pruitt Bridge's superstructure; therefore, the bridge is structurally deficient. The bridge undergoes NBI inspections on a regular basis, with the most recent occurring in September, 2016.

A bridge is considered functionally obsolete if its geometric characteristics – such as the width and number of lanes, roadway approach alignments, and clearances – do not meet current design standards or traffic demands. The Pruitt Bridge does not meet current standards and is functionally obsolete. It was not designed to handle current traffic volumes or the size and weight of modern motor vehicles including logging trucks and other large vehicles. The bridge system lacks redundancy, meaning the failure of any one main structural member could cause the bridge to collapse.

If a bridge is both structurally deficient and functionally obsolete, structural deficiencies take precedence in the NBI. A bridge that is both structurally deficient and functionally obsolete is therefore classified as structurally deficient in the NBI. Accordingly, the Pruitt Bridge is classified solely as structurally deficient and warrants corrective action irrespective of its functional obsolescence.

Bridges deteriorate as they age. Maintenance and repair of the Pruitt Bridge have been repeatedly performed to delay deterioration in some components, and to restore others. The Pruitt Bridge is over 80 years old, and has exceeded its 50-year theoretical design life by over 30 years. Maintenance and repair operations would therefore become increasingly necessary and grow in complexity and expense as bridge components continue to deteriorate over time. Rehabilitation would inevitably be required since maintenance and repair cannot sustain the bridge indefinitely.

Bridge rehabilitation projects completely, or nearly completely, restore structural integrity and include work necessary to correct major safety defects. Examples of bridge rehabilitation include: partially or completely replacing decks; replacing superstructure; and strengthening. Ways of bringing the bridge up to current standards (e.g., functional improvements) would have to be considered as part of any rehabilitation project.

Substantial engineering resources for design are typically required for bridge rehabilitation and/or functional improvement projects. Lengthy construction schedules and considerable costs are also associated with rehabilitation/functional improvement projects (FHWA 2011). As previously described in section 8.3, the topography of the existing location prevents installing a

temporary work road. Without a temporary work road, Highway 7 traffic would need to be rerouted during construction.

Maintenance/repair and rehabilitation costs were considered as factors for determining both feasibility and prudence. **Table 8-1** summarizes the Pruitt Bridge's 2015 GCRs and associated maintenance/repair and rehabilitation costs. The *Preventative Maintenance Program for Bridges* report (Kentucky Transportation Center 2015) and professional engineering judgement was used to estimate maintenance/repair and rehabilitation expenditures. The superstructure is the only element with a GCR warranting rehabilitation as a commonly employed feasible action. However, rehabilitating the superstructure without also rehabilitating the substructure is not technically feasible since the existing substructure would not provide adequate support. The cost of rehabilitating the substructure in conjunction with the superstructure has therefore been included in the total cost for superstructure rehabilitation shown in the table. It should be noted that superstructure/substructure rehabilitation alone would not sufficiently address functional improvements.

TABLE 8-1 PRUITT BRIDGE GCRs AND ESTIMATED COSTS

General Condition Rating	Description	Commonly Employed Feasible Action	Approx. Square Feet / Cost	Total Cost
Substructure (Abutments, Bents, Foundations)				
6 - Satisfactory	Structural elements show minor deterioration.	Preventive Maintenance and/or Repairs	4,624 / $38	$175,712*
Deck (Driving Surface)				
5 - Fair	All primary structural elements are sound but may have some minor section loss, cracking, spalling, or scour.	Preventive Maintenance and/or Repairs	7,422 / $72	$534,384*
Superstructure (Bridge Deck, Steel Beams, Trusses)				
3 - Serious	Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	Rehabilitation	7,422 / $510 + $500,000 to $750,000 (substructure fixed cost)	$3,785,522** + $500,000 to $750,000 = $4,285,522 to $4,535,522

* Annual Cost **One-Time Cost

A cost estimate for reusing the existing truss as part of a couplet (a pair of adjacent one-way, one-lane bridges) to expand existing bridge capacity was completed in 2005. Although couplet construction was never considered as an alternative, the cost estimate was prepared for the Historic Bridge Committee. This estimate was updated in 2015, and is summarized below for rehabilitation/functional improvement cost example purposes. Salvaging and widening the existing truss to accommodate a clear road width of 24 feet would require replacing the approach span. Existing bents would also need to be widened, and caps and columns repaired. A new one-way, one-lane bridge would be constructed, requiring new roadway as a tie-in to existing alignment. The total estimated cost of these measures is approximately $5 million. It should be noted that couplet construction would not correct all structural deficiencies.

According to the FHWA's Bridges & Structures website, structurally deficient bridge rehabilitation costs are estimated to equal approximately 68 percent of bridge replacements costs (FHWA 2015). Applying this equation to the estimated replacement costs for the proposed alternatives (provided in section 10.5), Pruitt Bridge rehabilitation costs would range from $5.4 to $6.6 million. Although rehabilitation would extend its theoretical design life by an indeterminate number of years, it could not approach the longevity of a replacement bridge. The anticipated service life for newly constructed bridges is 75 years or more (FHWA 2011).

Rehabilitation of the Pruitt Bridge presents unacceptable safety, maintenance, expense, and operational problems for the traveling public. This alternative is not prudent because it would compromise the project to the degree that is unreasonable given the project's purpose and need. It is also not feasible as a matter of sound engineering judgement.

8.5 HISTORIC SITE AVOIDANCE ALTERNATIVE

Avoidance of all known historic sites in the project area was considered very early during project development by identifying a route outside the immediate Highway 7 corridor. This approximately 1.6-mile route would involve constructing a new road within the BNR and a new 1,600-foot bridge. The NPS–BNR concurred that the Historic Site Avoidance Alternative would not be prudent because it would increase the potential for direct impacts to BNR resources by routing traffic away from established recreational facilities.

8.6 LOW WATER CROSSING REPLACEMENT ON EXISTING LOCATION

Replacing the Mill Creek low water crossing on its existing location was considered. If the new low water crossing were constructed on existing location, the steep grade and curves of the existing roadway and approaches to the low water crossing would need safety improvements. Improving the grade and reducing the curves would require very large quantities of fill and excavation. Construction activities associated with improvements on existing location would

therefore last longer and cause greater impacts than the build alternatives. The remaining overall footprint of the roadway and approaches would also be larger and cause greater impacts compared to either of the build alternatives. For these reasons, replacement on the existing location is not prudent.

Based on the above analysis, there are no feasible and prudent avoidance alternatives to the use of Section 4(f) property.

CHAPTER 9 MEASURES TO MINIMIZE HARM

Avoiding and minimizing impacts to Section 4(f) resources has been integral to identifying, developing, and selecting the Buffalo River Bridge and Mill Creek Crossing alternatives. The findings of this Evaluation are important in answering the question of which reasonable alternative has the least overall harm. As outlined in the previous chapter, no reasonable alternatives that can meet the project's purpose and need and avoid all Section 4(f) resources have been identified. However, a variety of alternatives, options, and provisions can help to avoid at least some of the Section 4(f) resources and minimize impacts to others.

This Evaluation carries all reasonable measures forward for consideration. These measures will be refined as coordination with the NPS–BNR continues through final engineering and design.

All reasonable minimization measures will be incorporated into project design or mitigation commitments. In conjunction with the FONSI, Special Provisions will be developed and implemented by AHTD and its contractors to ensure that mitigation measures are fully implemented.

Chapters 6 and 8 of the EA provide additional detail on the measures under consideration described below. Section 106 MOAs developed for the proposed project are provided in Appendix A of this Evaluation. These MOAs include mitigation measures.

9.1 MINIMIZING HARM TO BUFFALO RIVER BRIDGE PROJECT RESOURCES

Measures to minimize harm to Section 4(f) resources associated with the Buffalo River Bridge project would be implemented. As previously noted, all of the alternatives involve removing the Pruitt Bridge.

In addition to the minimization efforts referenced in Chapter 6 and described below, other mitigation measures for impacts associated with the Buffalo River Bridge project may be identified during consultation with the NPS–BNR, the U.S. Fish and Wildlife Service, and the U.S. Army Corps of Engineers.

The FHWA may employ mitigation measures other than design modifications to enhance remaining land. In general, replacement of land and/or facilities may be a reasonable public expenditure for mitigation of project impacts.

9.1.1 PARK RESOURCES

RECREATION

The East Alternative avoids the Pruitt Day Use Area, where the Contact Center, restroom, picnic units, parking, accessible river vantage points, Upper Swimming Hole, and Buffalo River Trail trailhead are located. This potentially minimizes adverse recreational and/or visual intrusion impacts to Pruitt Day Use Area visitors.

The West Alternatives avoid the Pruitt Day Use Area-East, where the Lower Swimming Hole is located. This potentially minimizes adverse recreational and/or visual intrusion impacts to Lower Swimming Hole visitors.

Depending on visitor preference, shading created by both the East Alternative and the West Alternatives' bridges near or over swimming areas may enhance recreational values for swimmers, partially mitigating the visual intrusion caused by either of the bridge locations.

Recreational mitigation measures include the provision of a walkway on the new Buffalo River Bridge, allowing pedestrians to safely cross and access hiking trails on both sides of the river. The desirability of having a safe pedestrian river crossing at Pruitt has been cited in BNR planning and development documents, and this mitigation measure would result in a permanent benefit.

Temporary impacts to river uses during construction would be minimized through the use of signage and flagging. Temporary impacts to other recreational uses would be minimized through the temporary closure of portions of the Pruitt Day Use area during construction activities. Mitigation measures during the temporary use of recreational areas include preparing detour plans, providing temporary detours, installing overhead protection in the vicinity of bridge construction, and ensuring that a temporary parking area is maintained. Special Provisions would be prepared to address temporary closure and detour plans.

BUFFALO RIVER/WATER QUALITY

The AHTD and its contractors would comply with all requirements of the Clean Water Act (CWA), as amended, during construction. These requirements include Section 401, Water Quality Certification; Section 402, National Pollutant Discharge Elimination (NPDES) Permit; and Section 404, Permits for Dredged or Fill Material. The NPDES Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would include all specifications and BMPs needed for control of erosion and sedimentation.

All of the above actions would be included in Special Provisions designed to minimize potential construction-related impacts to the water quality. Training for construction personnel would be

included in the Special Provisions. Monitoring would be performed during construction to ensure adherence to the Special Provisions. A previous survey did not find freshwater mussel beds in the footprint of the project area. A survey may be taken within 1 year prior to construction to ensure that no mussels have moved into the area, and a post-construction survey would be conducted to determine if additional measures need to be taken.

VISUAL

Visual intrusion mitigation measures associated with the East Alternative bridge include avoidance of the distinctive Pruitt Bluff. In comparison to the West Alternatives, the East Alternative bridge would be 100 feet shorter and the bridge end elevations would be lower.

Many mitigation measures have been identified. The bridge bents were modified to be located as far away from the river bed as feasible. Cleared and fill areas would be replanted with native vegetation and wildflowers; native trees would be planted beyond the clear zones; and the composition of revegetated areas would be consistent with the form, line, and texture of the surrounding undisturbed landscape. Natural streamside conditions would be restored or enhanced in the riparian corridor. Blasting techniques to achieve naturalistic surfacing of cut rock faces would be incorporated. Stable rock outcrops found during the excavation of cut slopes would be retained as natural-appearing rock outcrops where feasible. Native sandstone would be used to cap riprap and will be stacked in place where possible. If needed, the use of finishing techniques to oxidize cut rock surfaces in order to match the color and texture of the bedrock geology would be considered.

Natural colors and treatment patterns would be considered, as would building materials and techniques such as weathered steel and rock-patterned, stained concrete. Construction activities under any of the build alternatives would involve the use of heavy equipment, cranes, crane pads, scaffolding, stockpiles of materials, and other visual signs of construction. These temporary visual changes would be mitigated, when possible, by methods such as: taking advantage of existing topography, vegetation, and other elements to provide visual barriers for stockpiles and staging areas; and using existing roads and disturbed areas to the maximum extent feasible to avoid additional surface disturbance. All construction- or detour-related equipment or structures would remain in place for the shortest duration possible. Equipment removal or structure dismantling would take place as soon as possible after opening the new bridge to traffic. These considerations would reduce temporary visual impacts to the minimum possible.

Nighttime construction activities would involve the use of lighting equipment, which could cause glare. To reduce lighting glare, AHTD would require contractors to direct lighting only onto the immediate area under construction and use shielding on all light sources.

NOISE

The noise-reducing construction materials and methods would be incorporated into the design and construction phase.

Construction activities would include earthwork, excavation, bridge construction, milling and overlay, painting, and other activities associated with road construction. Construction equipment and machinery would include those typically used in road construction, such as earth movers, bulldozers, cranes, and large vehicles. Project construction is expected to last from 18 to 24 months. Construction of the proposed project would cause temporary noise impacts associated with the operation of construction equipment during site clearing, earthwork/grading, foundation preparation, and base preparations. Construction equipment operations can vary from intermittent to fairly continuous, with multiple pieces of equipment operating concurrently. Mitigation measures for temporary noise impacts anticipated during construction activities would include:

- Using properly designed and maintained equipment (e.g., ensuring construction equipment engines are equipped with adequate mufflers, intake silencers, and engine closures).
- Minimizing idling equipment and machinery engines.
- Setting construction start and stop times to avoid noise disruptions, as appropriate.

Additionally, conservation measures to protect special status bat species will include the cessation of construction work 1 hour prior to sunset and 1 hour prior to sunrise from March 15 through November 30 to avoid disturbing their foraging.

9.1.2 HISTORIC RESOURCES

With the exception of West Alternative II – Option A, all of the build alternatives involve displacing either the Pruitt Store (Contact Center), the Pruitt Garage (Storage Building), or both. All of the build alternatives are the result of design modifications intended to minimize the impact to historic and cultural resources.

The use of a retaining wall to avoid displacing the Pruitt Store under the West Alternative I – Option B (Storage Building Removed) and West Alternative II – Option A (No Structures Removed) alternatives would be a possible minimization measure.

In coordination with the NPS–BNR and Section 106 consulting parties, specific mitigation measures were developed and documented in the Section 106 MOA for the Pruitt Historic District. Mitigation measures include documenting structures and features prior to removal and creating a brochure with a QR Code linked to a short video to provide visitors with information

about the historic significance of the site. The brochure would be placed in a new brochure case in the Pruitt Day Use Area and in the existing brochure case at the Tyler Bend Visitor's Center.

9.1.3 PRUITT BRIDGE REMOVAL

RECREATIONAL AND VISUAL RESOURCES

Somewhat less than 1 acre would be added to the Pruitt Day Use Area upon removal of the Pruitt Bridge embankment. This addition of this land to the Pruitt Day Use Area may be considered a permanent beneficial use.

The free-flowing aspect of the river would potentially be enhanced by removing the existing bridge embankment, as would the natural connection of visual patterns and elements along the river's course. The panoramic characteristics from a river level vantage may also be increased.

Temporary impacts to recreational uses during bridge and embankment removal activities would be the same as though those described for the build alternatives, as will the mitigation measures.

BUFFALO RIVER WATER QUALITY

Pruitt Bridge and embankment removal operations, including the construction and subsequent removal of temporary work roads, would temporarily increase sedimentation. Mitigation measures would be the same as those described for the build alternatives.

NOISE

Noise mitigation measures during bridge and embankment removal operations would be the same as those described for the build alternatives.

HISTORIC RESOURCES

Mitigation measures addressed in the final MOA for the Pruitt Bridge include: photographic documentation; updating the existing (HAER) history, including the original design plans; designing a brochure that includes pictures and the bridge's historic significance and a QR code linked to a short video on the engineering and construction methods used; placing the brochure in a covered brochure case on a building in the Pruitt Day Use Area in the Tyler Bend Visitor's Center brochure case; laser scans; a digital 3-dimensional model for the AHTD Historic Bridge Program webpage; placing an approximately 4 foot by 6 foot wall mural of the bridge in the Newton County Courthouse; and installing an historical marker describing its historical significance and displaying a picture of the bridge in AHTD right-of-way as close as possible to the Pruitt Bridge original site.

9.1.4 OBLITERATED ROADWAY

Special Provisions would be prepared to address obliterating roadway segments. The process includes removing asphalt, decompacting the roadbed, and recontouring to natural topography. Topsoil set aside during the construction of the new roadway would be used to amend soil following the roadbed decompaction process, although other appropriate soil amendment materials would be determined during consultation with the NPS–BNR. The top 3 inches of topsoil from offsite borrow areas would be removed to reduce the potential for exotic plant species, and 6 inches of topsoil would be placed over the reclaimed areas.

Natural environmental factors such as topography and landform features, bedrock type and composition, and hydraulic conductivity would be considered during the recontouring process. Erosion and sedimentation controls would also be employed to reduce surface and channel erosion. The rapid establishment of native vegetation would be a priority during the roadway removal process, both to protect against erosion and maintain infiltration capacity. Because the roadway restoration process may create conditions conducive to weed invasion, the revegetation process would be carefully monitored.

9.2 MINIMIZING HARM TO MILL CREEK CROSSING PROJECT SECTION 4(F) RESOURCES

This section describes measures to minimize harm to Section 4(f) resources associated with the Mill Creek Crossing project. As previously noted, all of the alternatives involve removing the low water crossing.

In addition to the minimization efforts referenced in Chapter 7 of this Evaluation and described below, other mitigation measures for impacts associated with the Mill Creek Crossing project may be identified during consultation with the NPS–BNR, Newton County officials, and other consulting parties.

9.2.1 PARK RESOURCES

RECREATION

A portion of the Mill Creek Trail would need to be re-routed to use the new roadway alignment and either the new bridge or box culvert for crossing Mill Creek. The trail may be either shortened or lengthened, depending on the alternative and trail rerouting design. A new trail segment may be considered a beneficial permanent use because it would allow the trail to be used more frequently during periods of high water. Conversely, any alterations to the existing Mill Creek Trail may be perceived as adverse impacts.

Mitigation measures for any permanent adverse impacts would include ensuring that rerouted trail portions meet NPS–BNR trail design specifications. Existing soils would be used where

they are capable of sustaining the anticipated use level. If native soil is determined to be unable to support anticipated foot traffic, tread-surfacing material that blends with the natural environment would be used. The enhancement of the interpretative potential of the Mill Creek Trail would also be considered.

Temporary impacts to the trail during construction would be minimized by providing temporary detours.

HISTORIC

A site-specific treatment plan for the Canton Mine would be prepared if the Box Culvert alternative were recommended as the Preferred Alternative.

VISUAL

Mitigation for any permanent adverse impacts to visual resources would include replanting fill and cleared areas with native vegetation and planting native trees outside of the cleared areas. The replanting composition would be consistent with the form, line, and texture of the surrounding undisturbed landscape. Natural streamside conditions would be restored or enhanced.

Natural colors and treatment patterns and techniques such as weathered steel and rock-patterned, stained concrete would be used. Native sandstone would be used to cap riprap and would be stacked in place where possible. If needed, finishing techniques to oxidize cut rock surfaces in order to match the color and texture of the bedrock geology would be used.

9.2.2 LOW WATER CROSSING REMOVAL

The low water crossing is comprised of a concrete slab measuring 109 feet in length and 11.5 feet in width. Mill Creek flows under the concrete slab via an opening that is 11 feet in width and 2 feet in depth. Three overflow relief pipes, each 2 feet in diameter, are incorporated into the west side of the concrete slab.

The gravel load associated with the low water crossing would be allowed to naturally redistribute.

It is likely that the natural hydrology of Mill Creek has been altered by the existing low water crossing. Such alterations may have included a widening and deepening of the channel upstream and the aggradation of sediments upstream. Other alterations may have included increased erosion downstream, and the creation of a barrier to aquatic organism passage. For these reasons, the removal of the low water crossing may be considered a permanent beneficial impact.

Temporary impacts may include an increase of sedimentation during removal. The AHTD and its contractors would comply with all CWA requirements during construction, including Section 402, NPDES Permit. The NPDES Permit requires the preparation and implementation of a SWPPP. The SWPPP would include all specifications and BMPs needed for control of erosion and sedimentation. Special Provisions would be prepared to minimize potential construction-related impacts to water quality.

9.2.3 OBLITERATED ROADWAY

A Special Provision would be prepared to address the obliterated roadway restoration process. The process includes removing gravel and recontouring the areas to natural topography. The recontoured areas would then be replanted with native vegetation.

The roadway obliteration impacts constitute a temporary use.

CHAPTER 10 LEAST OVERALL HARM ANALYSIS

As discussed in Chapter 8, no prudent and feasible avoidance alternative exists that would avoid using any Section 4(f) property and resources. In circumstances like this, the FHWA is required to identify which build alternative causes the least overall harm. Regulations in 23 CFR 774.3(c) provide seven factors to assess and balance when determining the alternative that would cause the least overall harm. This chapter addresses these factors and provides the basis for determining the alternative that causes the least overall harm.

10.1 FACTORS 1 AND 2 – ABILITY TO MITIGATE ADVERSE IMPACTS AND RELATIVE SEVERITY OF REMAINING HARM

This section combines a discussion of the first two factors, which are the mitigation measures for impacts to Section 4(f) resources and the relative severity of any remaining harm to Section 4(f) resources after mitigation. Factor 1 is intended to ensure that preference is not given to any one alternative by over-mitigating adverse impacts to 4(f) resources while under-mitigating adverse impacts for other alternatives. Factor 2 is intended to identify where and to what degree mitigation measures would not entirely compensate for harm. Chapters 4 and 5 categorized and described the Section 4(f) resources for the Buffalo River Bridge and Mill Creek Crossing projects, respectively. Chapters 6 and 7 described impacts to the Buffalo River Bridge and Mill Creek Crossing Section 4(f) resources, respectively. Chapter 9 detailed all mitigation measures being considered for the alternatives.

BUFFALO RIVER BRIDGE PROJECT

Discussion

The Buffalo River Bridge project Section 4(f) resources are as follows:

Park Resources – Buffalo River, Recreational Resources, Recreational Trails, Visual Resources
Historic Resources – Pruitt Historic District and Pruitt Bridge

All of the alternatives would include similar mitigation measures for adverse impact impacts to Park Resources. Remaining harm would be associated with the differences between proximity to recreational areas and the scale (e.g., bridge size, rock cut quantities) of the proposed alternatives.

In comparison to the West Alternatives, the East Alternative would be situated further away from the Pruitt Day Use Area public amenities and established recreational activities. The East Alternative would therefore cause less harm to Recreational Resources.

In comparison to the West Alternatives, the East Alternative would construct a shorter, less elevated bridge with fewer bents. The East Alternative would also require smaller rock cut areas and be located further away from Pruitt Bluff. All of these aspects indicate that remaining harm to Visual Resources would be less under the East Alternative. Smaller rock cut areas would also reduce the possibilities of encountering cave or karst features, thus posing less potential harm to the Buffalo River resource.

The measures to mitigate adverse impacts to Historic Resources are the same for all of the alternatives. All of the alternatives would involve removing the Pruitt Bridge, a stand-alone Historic Resource and a contributing element to the Pruitt Historic District. With the exception of West Alternative II – Option A (which would leave both the Contact Center and the Storage Building in place), all of the West Alternatives would also involve the removal of at least one Pruitt Historic District contributing element in addition to the Pruitt Bridge. The East Alternative would also involve removing one additional Pruitt Historic District contributing element (the Storage Building). West Alternative I – Option B would involve removing two additional contributing elements (the Contact Center and the Storage Building).

Conclusion

For Park Resources, the East Alternative would have less remaining harm to Section 4(f) resources after mitigation than the West Alternatives. For Historic Resources, there would be no difference between the East Alternative and two of the West Alternatives in terms of remaining harm to Section 4(f) resources. West Alternative I – Option A could have the most remaining harm because it would involve removing the greatest number of Pruitt Historic District contributing elements and West Alternative II – Option A could have the least remaining harm because it would involve removing the fewest contributing elements.

MILL CREEK CROSSING PROJECT

Discussion

The Mill Creek Crossing project Section 4(f) resources are as follows:

Park Resources – Mill Creek Trail, Visual Resources
Historic Resource – Canton Mine

All of the alternatives would include mitigation measures for adverse impact impacts to Park Resources. In comparison to the Bridge Alternative, the structure proposed under the Box Culvert Alternative would have a lower profile and therefore cause somewhat less harm to

Visual Resources. The Box Culvert Alternative would have a major impact on a Historic Resource, whereas the Bridge Alternative is not associated with any Historic Resources.

Conclusion

For Park Resources, the Box Culvert Alternative would have somewhat less remaining harm to Section 4(f) resources after mitigation than the Bridge Alternative. For Historic Resources, the Bridge Alternative would have less remaining harm to Section 4(f) resources than the Box Culvert Alternative.

10.2 FACTOR 3 – RELATIVE SIGNIFICANCE OF EACH SECTION 4(F) PROPERTY AND FACTOR 4 – VIEWS OF OFFICIALS WITH JURISDICTION OVER SECTION 4(F) PROPERTY

Factor 3 is intended to evaluate affected Section 4(f) resources on a comparative basis. This factor is intended to help assess whether certain resources are of greater significance than others. This analysis is necessarily qualitative and requires comparing unlike resources and their relative value to the public.

Factor 4 ensures that the views of Officials with Jurisdiction over Section 4(f) property and resources are incorporated. The NPS–BNR is the Official with Jurisdiction for Park Resources as delegated by the Secretary of the Interior. As the entity charged with protecting historic resources in Arkansas under the NHPA, the SHPO has jurisdiction over the Historic Resources in the project area.

Factors 3 and 4 were considered together so that least harm comparisons between the alternatives could be made.

BUFFALO RIVER BRIDGE PROJECT

Discussion

The NPS–BNR has stated their view that Park Resources are relatively more significant than Historic Resources from a Section 4(f) perspective. The NPS–BNR also expressed the general view that natural resources are more important to them for protection than cultural resources, and that the Buffalo River is the most important resource for protection. In November 2015, the NPS–BNR provided a letter to the AHTD stating their view that the East Alternative was the environmentally preferred alternative.

In addition to the views expressed by the NPS–BNR, the relative significance of Park Resources summarized below is based on BNR management plans and statutes, resource activities and attributes, and perceived values to the public.

Park Resources

Buffalo River: As the primary purpose for the BNR's establishment and as stated by the NPS–BNR, the Buffalo River is its most significant 4(f) resource.

Recreational Areas and *Recreational Trails*: The entire Pruitt Area was initially developed around the existing access and activities and continues to be managed for recreational purposes. The Pruitt Day Use Area provides public amenities such as picnic units, restrooms, recreational trail access, and river access. The developed amenities are all located west of Highway 7, although a swimming hole east of Highway 7 is also frequented by swimmers. Based on total acreage, public amenities, number of visitors, and NPS–BNR input, the Pruitt Day Use Area west of Highway 7 would be considered relatively more significant than the Pruitt Day Use Area–East.

The NPS–BNR provided the following view related to Recreational Resources:

- The entire Pruitt Day Use Area would likely be inaccessible to visitors for periods of time during construction of any of the West Alternatives, whereas only portions of the Pruitt Day Use Area would likely be inaccessible to visitors for periods of time during East Alternative construction.

Visual Resources: As an integral component of the other Park Resources, the relative overall significance of Visual Resources would generally correspond with the relative significance of the Park Resources. The NPS–BNR also expressed the following views:

- The East Alternative proposed fill in the Pruitt Day Use Area–East would likely not present as much visual intrusiveness for the Pruitt Day Use Area compared to the existing highway fill.
- Under any of the West Alternatives, Pruitt Day Use Area visitors would likely experience adverse visual intrusion because the bridge would dominate the landscape in the area.

Historic Resources

The NPS–BNR has stated their view that Historic Resources are relatively less significant than Park Resources from a Section 4(f) perspective.

The AHTD Cultural Resources staff identified Historic Resources in the project area and the SHPO has concurred with cultural resource reports. The SHPO has concurred with the finding of effect for the Pruitt Bridge and the Pruitt Historic District in the area of potential effects. The Section 106 MOAs have identified mitigation measures. The AHTD, FHWA, and NPS–BNR have concurred that the commitments in two separate MOAs (one for the Pruitt Historic District and one for the Pruitt Bridge) will adequately mitigate for adverse effects to historic resources.

The AHTD Cultural Resources staff determined the relative significance of Historic Resources as summarized below.

Pruitt Historic District: The Pruitt Historic District is comprised of the following contributing four elements: 1913 Highway 7 Bridge Concrete Approach; Contact Center; Storage Building; and Pruitt Bridge (discussed separately below). The Contact Center is relatively more significant than the other elements due to its long history of continued use as the Pruitt Store and its current adaptive use. The 1913 Highway 7 Bridge Concrete Approach is relatively more significant than the Storage Building because of its association with the historic Shady Grove Camp and as the only camp feature still visible. The Storage Building (former Pruitt Garage) is relatively the least significant because it is the newest and least structurally unique of the elements.

Pruitt Bridge: The Pruitt Bridge was listed on the NRHP in 1990 as part of the Historic Bridges of Arkansas, Multiple Property Nomination and not because of its association with the Pruitt Historic District. However, the Pruitt Bridge was also identified in 2008 as a contributing element of the Pruitt Historic District. Although the Pruitt Bridge contributed to the growth of the village of Pruitt, it is different from the other contributing elements because it was not a direct component of the village itself (e.g., the Pruitt Store) or the Shady Grove Camp (e.g., the 1913 Highway Bridge Concrete Approach, upon which cabins had been constructed). For these reasons, the Pruitt Bridge *as a District contributing element* is of relatively less significance than the contributing elements described above.

Conclusion

Based on the above discussion, the East Alternative would cause the least harm with respect to Factors 3 and 4.

MILL CREEK CROSSING PROJECT

As described above for the Buffalo River Bridge project, the NPS–BNR stated their view that Park Resources are relatively more significant than Historic Resources from a Section 4(f) perspective. The NPS–BNR also expressed the general view that natural resources are more important to them for protection than cultural resources. In November 2015, the NPS–BNR provided a letter to the AHTD stating their view that the Bridge Alternative was the environmentally preferred alternative.

Discussion

Park Resources

Mill Creek Trail: The Mill Creek Trail is the Mill Creek Crossing project's relatively most significant Section 4(f) resource as the designated recreational feature in this area.

Visual Resources: Visual Resources are integral to Mill Creek Trail's recreational values.

Historic Resource

Canton Mine: The Canton Mine is the only and therefore most significant Historic Resource in the project area and would be impacted by the Box Culvert Alternative.

Conclusion

Based on the above discussion, the Bridge Alternative would cause the least harm with respect to Factors 3 and 4.

10.3 FACTOR 5 – DEGREE TO WHICH EACH ALTERNATIVE MEETS THE PURPOSE OF AND NEED FOR THE PROJECTS

There are no differences in the degree to which each alternative meets the Purpose and Need for both projects.

10.4 FACTOR 6 – AFTER REASONABLE MITIGATION, THE MAGNITUDE OF ANY ADVERSE IMPACTS TO PROPERTIES NOT PROTECTED BY SECTION 4(F)

The magnitude of any adverse impacts to properties that are not protected by Section 4(f) for each project are summarized below. However, the projects and all properties impacted are located entirely within the boundaries of the BNR, which is a National Park and significant recreational resource and managed as such; therefore, all properties involved are protected by Section 4(f) to some extent.

BUFFALO RIVER BRIDGE PROJECT

Archeological sites that are not protected as Section 4(f) resources would be impacted by the East Alternative. Additional Phase II and Phase III work and data recovery would be required as mitigation if the East Alternative is identified as the Preferred Alternative.

MILL CREEK CROSSING PROJECT

An archeological site that is not protected as a Section 4(f) resource is partially located within the Bridge Alternative construction footprint. Additional testing would be required as mitigation.

10.5 FACTOR 7 – SUBSTANTIAL DIFFERENCES IN COSTS AMONG THE ALTERNATIVES

The differences in construction costs among alternatives for each project are summarized below.

BUFFALO RIVER BRIDGE PROJECT

The East Alternative is the least expensive alternative, with an estimated total cost of $7.9 million. The least expensive of the West Alternatives is West Alternative I – Option B, with an estimated cost of $9.3 million. The most expensive alternative is West Alternative II – Option A, with an estimated total cost of $9.8 million. None of the West Alternative options vary by more than 10 percent.

MILL CREEK CROSSING PROJECT

The Box Culvert Alternative is the least expensive alternative, with an estimated total cost of $1.8 million. The estimated total cost of the Bridge Alternative is $1.9 million.

This page intentionally left blank.

CHAPTER 11 COORDINATION

The Buffalo River Bridge and the Mill Creek Crossing projects have a long history, and substantial coordination with the agencies with jurisdiction has occurred throughout the history of the project. For a more complete discussion, refer to Chapter 9 in the Buffalo River Bridge and Mill Creek Crossing EA.

Consultation and coordination measures specifically related to the preparation of this Evaluation included:

- Obtaining NPS and BNR management documents
- Preparing the Preliminary Draft and subsequent Draft Section 4(f) Evaluation
- Incorporating BNR preliminary draft and subsequent draft Section 4(f) Evaluation review comments
- Meeting with the BNR to discuss their views on the relative significance of Section 4(f) resources and other Section 4(f) elements
- Incorporating BNR views and statements in the least overall harm analysis
- Holding a Location and Design Public Hearing to solicit public comment
- Finalizing the Section 4(f) Evaluation
- Receiving the BNR's final approval of the Evaluation

Appendix B includes copies of correspondence related to the coordination process.

This page intentionally left blank.

CHAPTER 12 CONCLUSIONS

The range of alternatives includes options that can avoid one or more 4(f) resources, and a variety of measures have been evaluated that could further minimize harm to 4(f) resources. The net impacts of the measures and their reasonableness have been evaluated.

The East Alternative appears to present the least overall harm to Section 4(f) resources for the Buffalo River Project, based on the findings of this Evaluation and the EA. Based on the same factors, the Bridge Alternative appears to present the least overall harm for the Mill Creek Crossing Project. The East Alternative and the Bridge Alternative are therefore the Preferred Alternatives.

A variety of mitigation measures for Historic Resources were developed in coordination with the NPS–BNR and Section 106 consulting parties. MOAs have been completed in compliance with Section 106 of the NHPA. As the projects progress into final design, the AHTD will continue to consider ways to further reduce impacts on Section 4(f) resources and include all possible planning to minimize harm.

This page intentionally left blank.

CHAPTER 13 REFERENCES

Bureau of Land Management, U.S. Department of the Interior. (1984, April). Manual 8400 – Visual Resource Management.

Buffalo National River. (2006). Terrestrial Habitat Management Plan Environmental Assessment.

Buffalo National River and National Park Service, Southwest Regional Office, U.S. Department of the Interior. (1982, October). Proposal/Environmental Assessment - River Use Management Plan.

Federal Highway Administration, U.S. Department of Transportation. (1987). Guidance for Preparing and Processing Environmental and Section 4(f) Documents. FHWA Technical Advisory T 6640.8A.

Federal Highway Administration, U.S. Department of Transportation. (2011). Bridge Preservation Guide: Maintaining a State of Good Repair Using Cost Effective Investment Strategies. FHWA Publication No. FHWA-HIF-11042.

Federal Highway Administration, U.S. Department of Transportation. (Undated). Visual Impact Assessment for Highway Projects. FHWA Publication No. FHWA-HI-88-054.

Kentucky Transportation Center, College of Engineering, University of Kentucky (2015). Preventive Maintenance Program for Bridges. Research Report KTC-15-07/SPR11-424-1F.

Maner, M., & Mott, D. (1991, November). Mill Creek Survey.

National Park Service, Denver Service Center, U.S. Department of the Interior. (1981, March). Development Concept Plan – Pruitt, Buffalo National River, Arkansas.

National Park Service, Denver Service Center, U.S. Department of the Interior. (1986). Road System Evaluation, Buffalo National River, Arkansas.

National Park Service, U.S. Department of the Interior. (1985). Trail Plan – Buffalo National River, Arkansas.

National Park Service, U.S. Department of the Interior. (2004, February). Water Resources Management Plan – Buffalo National River, Arkansas.

National Park Service, U.S. Department of the Interior. (Undated). Wilderness and Backcountry Management Plan – Buffalo National River, Arkansas.

National Park Service, U.S. Department of the Interior. (1977, February). Final Master Plan – Buffalo National River, Arkansas.

National Park Service, U.S. Department of the Interior. (1995). Fishery Management Plan – Buffalo National River.

National Park Service, U.S. Department of the Interior website: https://irma.nps.gov/Stats/SSRSReports/Park. Accessed 2015.

APPENDIX A

HISTORIC RESOURCES

This page intentionally left blank.

MEMORANDUM OF AGREEMENT

AMONG THE
FEDERAL HIGHWAY ADMINISTRATION, THE
ARKANSAS STATE HISTORIC PRESERVATION OFFICER, THE
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT,
AND THE NATIONAL PARK SERIVICE BUFFALO NATIONAL RIVER
REGARDING

AHTD JOB NUMBER 009784
BUFFALO RIVER STR. & APPS. (PRUITT) (S)
HIGHWAY 7, NEWTON COUNTY, ARKANSAS
PRUITT HISTORIC DISTRICT

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and the transportation needs in north Arkansas; and

WHEREAS, the FHWA and AHTD in cooperation with the United States Department of Interior-National Park Service and the United States Army Corps of Engineers recommended through the findings in the Environmental Assessment and Section 4(f) evaluations the East Alternative for AHTD Job 009784 as the least overall harm alternative; and

WHEREAS, the FHWA has determined that AHTD Job 009784 will have an effect on properties eligible for inclusion to the National Register of Historic Places (NRHP) as part of the Pruitt Historic District in consultation with the Arkansas State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 F); and

WHEREAS, the old Buffalo River Bridge (AHTD Number 01689) is property listed on the NRHP and is included as part of the Pruitt Historic District and will be demolished for construction of a new bridge at its current location; and the mitigation for the old Buffalo River Bridge will be handled under a separate Memorandum of Agreement (MOA); and

WHEREAS, during the cultural resources survey of the area of potential effects (APE), two bluff shelter sites (3NW1308 and 3NW1309) were determined potentially eligible for inclusion to the NRHP with Phase II testing and would need data recovery mitigation, and the mitigation and treatment plan for these two sites (3NW1308 and 3NW1309) will be handled under a separate Memorandum of Agreement (MOA); and

WHEREAS, the Pruitt Historic District was defined by the National Park Service Buffalo National River, (BNR) in consultation with Arkansas SHPO over the properties submitted in a Request for Technical Assistance (RTA) in August 2007 that included two standing structures (the Pruitt Garage and the Pruitt General Store & Post Office) as eligible for inclusion to the NRHP with the old Buffalo River Bridge subsequently considered to be a contributing element to the Pruitt Historic District; and

WHEREAS, during the initial cultural resources survey of the APE for the East Alternative, two archeological sites (3NW499 and 3NW1110) were determined not eligible for the NRHP; and

WHEREAS, SHPO determined that sites 3NW1110 and 3NW1311 were not eligible under Criterion D but remained undetermined in their eligibility to the NRHP until they could be evaluated under Criteria A, B, and C as part of a contributing element to the Pruitt Historic District; and

WHEREAS, an Addendum to the RTA was submitted to SHPO in May 2014 to assess the eligibility of the 1913 Highway 7 Bridge Concrete Approach (included as part of Site 3NW1110) under other criteria and was determined as eligible for inclusion to the NRHP under Criterion A and possibly Criterion C as part of a contributing element to the Pruitt Historic District; and

WHEREAS, an Addendum to the cultural resources survey report was submitted to SHPO in September 2016 for evaluation of Site 3NW1311 under other criteria, and SHPO determined that this site was not considered a contributing element to the Pruitt Historic District and was determined not eligible for inclusion to the NRHP; and

WHEREAS, AHTD redesigned Job 009784 to avoid the 1913 Highway 7 Bridge Concrete Approach (included as part of Site 3NW1110), so it will no longer be impacted by this undertaking; and

WHEREAS, the FHWA, in consultation with the SHPO and the BNR, have determined that this undertaking will have an adverse effect on two properties (the Pruitt Garage and Pruitt General Store & Post Office) considered eligible for inclusion to the NRHP as part of the Pruitt Historic District, and in accordance with 36 Code of Federal Regulations (CFR) Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), must address this effect; and

WHEREAS, the 1913 Highway 7 Bridge Concrete Approach will not be impacted but is still a contributing element to the Pruitt Historic District, and therefore will be included in the documentation as part of the mitigation process; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this Memorandum of Agreement (MOA); and

NOW THEREFORE, the FHWA and SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of this undertaking on the historic properties.

STIPULATIONS

The FHWA, through the AHTD, will ensure that the following stipulations are carried out.

I. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTIES: (Pruitt Historic District)

1. The FWHA will produce architectural documentation for the Pruitt Garage, Pruitt General Store & Post Office, and the 1913 Highway 7 Bridge Concrete Approach that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 CFR 44716 and follow the AHPP 2009 *Survey Procedures Manual: Guidelines for Historic and Architectural Surveys in Arkansas*. The Arkansas Historic Preservation Program (AHPP) Arkansas Architectural Resources Form and associated photography meet these standards.

2. Documentation will include properly labeled and archived digital color photographs.

3. FHWA ensures the creation of a pamphlet or brochure containing the Pruitt Historic District history and photographs for public distribution by the Buffalo National River at the Tyler Bend Visitor's Center.

4. A Quick Response (QR) Code linked to a video of the Pruitt Historic District shall be included on the pamphlet/brochure.

5. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

6. The FHWA shall ensure that adequate time and funding are provided in order to carry out all aspects of the required mitigation.

II. HUMAN REMAINS

Native American human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the project, all activity in the vicinity of the discovery shall cease. All human remains determined to be Native American will be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

III. DURATION

This MOA will remain in effect for a period not to exceed ten years from the date of ratification or until the proposed construction is complete. It may be extended by agreement of all the signatories.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic preservation activities in this MOA are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (48 CFR 44739).

V. ARCHEOLOGICAL FIELDWORK AND REPORT STANDARDS

All archeological field work and report writing shall follow the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 CFR 44716-39) and *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010).

VI. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR Part 800.13, if cultural material is discovered during implementation of the project, the FHWA shall ensure that all construction activities cease in the area of the discovery and the consulting parties are notified. The FHWA and the SHPO shall determine if the discovery is eligible for inclusion in the National Register of Historic Places. If so, the FHWA and the AHTD will develop a treatment plan for historic properties which shall be reviewed and

approved by the SHPO. Disputes arising from such review shall be resolved in accordance with Stipulation VII.

VII. DISPUTE RESOLUTION

Should the SHPO or any consulting party object within thirty (30) calendar days to any findings, proposed actions or determinations made pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, it shall request further comments from the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800.7. Any Council comment provided in response to such a request shall be taken into account by the FHWA in accordance with 36 CFR 800.7 with reference only to the subject of the dispute; the FHWA responsibility to carry out all actions under this MOA that are not subject to dispute shall remain unchanged.

VIII. MONITORING

The consulting parties or one or more parties in cooperation may monitor the undertaking and stipulations carried out pursuant to this MOA.

IX. AMENDING THE MEMORANDUM OF AGREEMENT

Should any of the signatories to this MOA believe that the terms of this MOA are not being met or cannot be met, that party shall immediately notify the other signatories and request consultation to amend this MOA in accordance with 36 CFR Part 800. The process to amend this MOA shall be conducted in a manner similar to that leading to the execution of this MOA.

X. TERMINATING THE MEMORANDUM OF AGREEMENT

Any signatory to this MOA may terminate it by providing thirty (30) calendar days notice to the other parties provided that the parties shall consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

XI. FAILURE TO CARRY OUT THE MEMORANDUM OF AGREEMENT

In the event the FHWA does not carry out the terms of the MOA, the FHWA shall comply with 36 CFR Part 800.4 through Part 800.6 with regard to the undertaking covered by this MOA.

XII. FULFILLMENT OF SECTION 106 RESPONSIBILITIES

Execution and implementation of this MOA evidences that the FHWA has afforded the ACHP a reasonable opportunity to comment pursuant to 36 CFR Part 800 on the proposed replacement of the National Register listed old Buffalo River Bridge in Newton County, Arkansas and its effect on the Pruitt Historic District, and the FHWA has taken into account the effect of the undertaking on the historic district.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

_____ _____

Mr. Angel L. Correa Date
Arkansas Division Administrator

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Stacy Hurst — 3-2-17

Ms. Stacy Hurst — Date
Arkansas State Historic Preservation Officer

Signatory

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett

Mr. Scott E. Bennett, P.E.
Director of Highways and Transportation

4-10-2017
Date

Signatory

NATIONAL PARK SERVICE BUFFALO NATIONAL RIVER

Kevin A. Cheri

Mr. Kevin Cheri
Superintendent

4/4/2017

Date

MEMORANDUM OF AGREEMENT

AMONG THE FEDERAL HIGHWAY ADMINISTRATION, THE ARKANSAS STATE HISTORIC PRESERVATION OFFICER, THE BUFFALO NATIONAL RIVER, AND THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT REGARDING AHTD JOB NUMBER 009784 BUFFALO RIVER BRIDGE STRUCTURES & APPROACHES (PRUITT) HIGHWAY 7, NEWTON COUNTY, ARKANSAS AHTD BRIDGE NUMBER 01689

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and the transportation needs in north Arkansas; and the old Buffalo River Bridge (AHTD Number 01689) will be demolished for construction of a new bridge at its current location; and

WHEREAS, the old Buffalo River Bridge is property listed on the National Register of Historic Places (NRHP); and

WHEREAS, through the environmental process the Federal Highway Administration (FHWA) has determined that no feasible and prudent alternative to the demolition of the old Buffalo River Bridge exists; and

WHEREAS, the FHWA has determined that this undertaking will have an adverse effect on a property listed on the NRHP and in accordance with 36 Code of Federal Regulations (CFR) Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), must address this effect; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this Memorandum of Agreement (MOA); and

NOW THEREFORE, the FHWA and the State Historic Preservation Officer (SHPO) agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of this undertaking on the historic property.

STIPULATIONS

The FHWA, through the AHTD, will ensure that the following stipulations are carried out.

I. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTY: (old Buffalo River Bridge)

1. The FWHA will update the existing Historic American Engineering Record (HAER) history (AR-23) for the old Buffalo River Bridge. This history was produced during the 1988 HAER project during which only a limited number of historic bridges were documented to Level I, with most project bridges limited to Level III documentation. The old Buffalo River Bridge was documented at Level III during this project with limited historic information and photographs. The updated history will include more detailed information for the bridge, as one of a limited number of experimental bridge types designed and constructed by the AHTD, as well as its relationship to early Arkansas transportation history. This documentation will meet the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 FR 44716 and the National Park Service's *Historic American Engineering Record Guidelines for Historical Reports (2008, updated 2015)* shall be followed in producing the historic documentation.

2. Copies of the original design plans for the bridge, which were not included in the original submission to the National Park Service (NPS), will be included with the updated HAER history for the bridge.

3. The updated documentation will be curated at the Arkansas Historic Preservation Program (AHPP), the AHTD, the Arkansas State Archives, the Arkansas State Library, and the Torreyson Library at the University of Central Arkansas.

4. The old Buffalo River Bridge will be laser scanned and a digital 3-dimensional model of the bridge will be created and housed in the Historic Bridge Program Section of the AHTD website.

5. A historical marker, that contains a picture and a description of the history and significance of the bridge, will be created and placed in AHTD right-of-way as close as possible to the old Buffalo River Bridge site.

6. A short video (approximately 5 minutes) will be created including the engineering and construction methodology of the old Buffalo River Bridge. A Quick Response (QR) code will link to the video housed on the AHTD web site under the Historic Bridge Program Section.

7. A brochure will be designed and placed in a covered brochure case on a building in the Pruitt day use area and in the Tyler Bend Visitor's Center

existing brochure case. The brochure will include pictures and a history of the bridge and its significance to the Pruitt Historic District. The QR code (mentioned in Stipulation 6) will be printed on the brochures allowing the public to view the video from a smart phone or other personal electronic device.

8. A mural (approximately 4 foot by 6 foot) of the bridge will be given to Newton County to be displayed in the Newton County Courthouse in Jasper, AR.

9. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

10. The FHWA shall ensure that adequate time and funding are provided in order to carry out all aspects of the required mitigation.

II. HUMAN REMAINS

Native American human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the project, all activity in the vicinity of the discovery shall cease. All human remains determined to be Native American will be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

III. DURATION

This MOA will remain in effect for a period not to exceed ten years from the date of ratification or until the proposed construction is complete. It may be extended by agreement of all the signatories.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic preservation activities to this MOA are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (36 CFR Part 61; 48 FR 44716, 62 FR 33708).

V. ARCHEOLOGICAL FIELDWORK AND REPORT STANDARDS

All archeological field work and report writing shall follow the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (36 CFR Part 61; 48 FR 44716, 62 FR 33708) and *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010).

VI. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR Part 800.13, if cultural material is discovered during implementation of the project, the FHWA shall ensure that all construction activities cease in the area of the discovery and the consulting parties are notified. The FHWA and the SHPO shall determine if the discovery is eligible for inclusion in the National Register of Historic Places. If so, the FHWA and the AHTD will develop a treatment plan for historic properties which shall be reviewed and approved by the SHPO. Disputes arising from such review shall be resolved in accordance with Stipulation VII.

VII. DISPUTE RESOLUTION

Should the SHPO or any consulting party object within thirty (30) calendar days to any findings, proposed actions or determinations made pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, it shall request further comments from the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800.7. Any Council comment provided in response to such a request shall be taken into account by the FHWA in accordance with 36 CFR 800.7 with reference only to the subject of the dispute; the FHWA responsibility to carry out all actions under this MOA that are not subject to dispute shall remain unchanged.

VIII. MONITORING

The consulting parties or one or more parties in cooperation may monitor the undertaking and stipulations carried out pursuant to this MOA.

IX. AMENDING THE MEMORANDUM OF AGREEMENT

Should any of the signatories to this MOA believe that the terms of this MOA are not being met or cannot be met, that party shall immediately notify the other signatories and request consultation to amend this MOA in accordance with 36 CFR Part 800. The process to amend this MOA shall be conducted in a manner similar to that leading to the execution of this MOA.

X. TERMINATING THE MEMORANDUM OF AGREEMENT

Any signatory to this MOA may terminate it by providing thirty (30) calendar days notice to the other parties provided that the parties shall consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

XI. FAILURE TO CARRY OUT THE MEMORANDUM OF AGREEMENT

In the event the FHWA does not carry out the terms of the MOA, the FHWA shall comply with 36 CFR Part 800.4 through Part 800.6 with regard to the undertaking covered by this MOA.

XII. FULFILLMENT OF SECTION 106 RESPONSIBILITIES

Execution and implementation of this MOA evidences that the FHWA has afforded the ACHP a reasonable opportunity to comment pursuant to 36 CFR Part 800 on the proposed replacement of the National Register listed old Buffalo River Bridge in Newton County, Arkansas and its effect on the historic property, and the FHWA has taken into account the effect of the undertaking on the historic property.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

_____ _____

Mr. Angel L. Correa — Date

Arkansas Division Administrator

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Ms. Stacy Hurst
Arkansas State Historic Preservation Officer

3-2-17
Date

Signatory

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett

Mr. Scott E. Bennett, P.E.
Director of Highways and Transportation

4-10-2017
Date

KBS MEB

Signatory

BUFFALO NATIONAL RIVER, NATIONAL PARK SERVICE

Kevin A. Cheri

Mr. Kevin Cheri
Superintendent

4/4/2017
Date

MEMORANDUM OF AGREEMENT
AMONG THE
THE FEDERAL HIGHWAY ADMINISTRATION, THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT, THE NATIONAL PARK SERVICE BUFFALO NATIONAL RIVER, THE ARKANSAS STATE HISTORIC PRESERVATION OFFICER, AND THE BUFFALO RIVER TRIBES REGARDING

AHTD JOB NUMBER 009784
BUFFALO RIVER STR. & APPRS. (PRUITT) (S)
HIGHWAY 7, NEWTON COUNTY, ARKANSAS
SITES 3NW1308 AND 3NW1309

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and better serve the transportation needs in north Arkansas; and

WHEREAS, the FHWA has determined that AHTD Job 009784 will have an effect on the Pruitt Bridge Bluff Shelter #1 (3NW1308) and the Pruitt Bridge Bluff Shelter #2 (3NW1309), which are eligible for inclusion in the National Register of Historic Places, and has consulted with the Arkansas State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 F); and

WHEREAS the FHWA and the SHPO have determined that 3NW1308 and 3NW1309 are eligible under Criterion D (research potential) and that the successful implementation and completion of Appendix A of the attached Treatment Plan will resolve the adverse effect finding through data recovery; and,

WHEREAS, through implementation of this Memorandum of Agreement (MOA) and Treatment Plan, the FHWA intends to meet its responsibilities, pursuant to Section 101(d)(6)(B) of the NHPA, to consult with Indian tribes that attach religious and cultural significance to historic properties; and,

WHEREAS**,** because of its role and responsibilities as project partner with FHWA, FHWA has invited AHTD, the National Park Service (NPS) Buffalo National River, and consulting Native American Tribes to sign this MOA as an Invited Signatory; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this MOA;

NOW, THEREFORE, the FHWA, AHTD, the NPS Buffalo National River, the Arkansas SHPO, and the Buffalo River Tribes, including the Caddo Nation, Cherokee Nation of Oklahoma, United Keetoowah Band of Cherokee Indians, Osage Nation, and Quapaw Tribe of Oklahoma, agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the stated historic properties.

STIPULATIONS

1. Mitigation of Adverse Effects

a. The FHWA and AHTD will ensure that the selected archeological contractor implements all provisions, stipulations, techniques, methods, analyses, interpretation, and documentation called for in this MOA and the attached Treatment Plan (Appendix A).

b. The FHWA and AHTD will ensure that the entirety of the site(s) boundaries and GPS coordinates shall be determined and recorded. Statements regarding the potential significance of any site remnants not removed during data recovery will be included in the final report and added to the site files to ensure that any future projects that may affect the sites can be properly addressed. Sensitive locational data that would divulge the specific location of the sites or any remaining features will not be included in the final report but will be made available only to those parties specified below in Stipulation 5.

2. Preservation Standards

a. The FHWA and AHTD, in consultation with the SHPO, will ensure that all artifact collections (prehistoric ceramic and lithic, and historic artifacts) and their supporting documentation are curated by the National Park Service. If necessary, any human remains or grave goods may be curated together along with the site collections at the selected curation facility until an acceptable reburial site can be determined. All collections and documents will meet the Curation Standards set forth in 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections. Human remains and funerary objects or other items from sacred contexts may be exempt from such standards per NAGPRA.

3. Professional Qualification Standards

a. The FHWA and AHTD will ensure that all stages of the field investigation, laboratory work, analysis, and report preparation comply with the Secretary of the Interior's *"Standards and Guidelines for Archeology and Historic Preservation" (48FR44716)* and those standards set forth in *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010). In addition, both the Principal Investigator and any supervising archeologists will meet the professional qualification requirements for certification in the Register of Professional Archaeologists and follow the *Code of Conduct* and *Standards for Research and Performance*.

4. Discovery of Human Remains

a. Native American human remains may occur within 3NW1308 and 3NW1309. If they are discovered, the FHWA, the AHTD, and their archaeological contractor shall follow the procedures outlines below:

1) All Native American human remains will be treated in accordance Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

5. Report Preparation and Schedule

a. The FHWA and AHTD will ensure that regular bi-weekly progress reports will be submitted by the archeological consultant by e-mail or formal letter. The progress reports and copies of the draft and final reports will be provided to the signatories. One month after the end of the archeological investigations, the contractor will submit to AHTD a management summary for SHPO to review and make comments on within 30 days. The draft technical data recovery report will be submitted within 12 months after the completion of fieldwork.

b. Two months will be allowed for review purposes and incorporation of comments, then a copy of the final data recovery report will be sent to the FHWA, the SHPO, and the Buffalo River Tribes who have been consulted with on the project.

c. Precise location data will only be provided to the FHWA, the AHTD, the SHPO, the Arkansas Archeological Survey, the NPS Buffalo National River, and the consulting Tribes, in a separate attachment to the report and shall otherwise be withheld from disclosure pursuant to Section 304 of the NHPA, Executive Order 13007 and other applicable authorities.

6. Dispute Resolution

Should any signatory or concurring party object to any actions proposed pursuant to this MOA, the FHWA and AHTD shall consult with the objecting party to resolve the objection. If the FHWA and AHTD determine that the objection cannot be resolved, the FHWA and AHTD shall request comments of the ACHP pursuant to 36 CFR Section 800.7. The FHWA's and AHTD's responsibility to carry out all actions under this MOA that are not the subject of the dispute will remain unchanged.

7. Amendment of MOA

The signatories may request that this MOA be amended, whereupon they will consult to consider such an amendment. Any such amendments shall be developed and executed in the same manner as the original MOA.

8. Duration of MOA

This agreement shall be null and void if its terms are not carried out within five (5) years from the date of its execution, unless signatories agree in writing to an extension for carrying out its terms.

9. Termination of MOA

The FHWA, AHTD or SHPO may terminate this MOA, provided that the party proposing the termination notifies the other signatory and consulting parties in writing within a thirty (30) calendar days' notice. In the event of termination, the FHWA and AHTD shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

10. Failure to Carry Out the MOA

In the event AHTD or FHWA do not carry out the terms of this MOA, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

11. Fulfillment of Section 106 Responsibilities

Execution of this Memorandum of Agreement and Treatment Plan and implementation of its terms with regard to the resolution of adverse effects on archeological sites 3NW1308 and 3NW1309 evidences that the FHWA and AHTD have fulfilled their Section 106 responsibilities under the National Historic Preservation Act of 1966, as amended.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Mr. Angel L. Correa Arkansas Division Administrator	Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Stacy Hurst — 3-2-17

Ms. Stacy Hurst — Date

Arkansas State Historic Preservation Officer

Signatory

ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett

Mr. Scott E. Bennett, P. E.
Director of Highways and Transportation

4-10-2017
Date

APPENDIX A:

PROPOSED TREATMENT PLAN FOR SITES 3NW1308 AND 3NW1309

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
JOB NO. 009784
BUFFALO RIVER STRUCTURE & APPROACHES (PRUITT) (HWY 7)

Prepared by:

Eric Albertson and C. Andrew Buchner
Panamerican Consultants, Inc.
91 South Tillman St.
Memphis, TN 38111
901-454-4733

Prepared for:

Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203

Revised February 02, 2017

TABLE OF CONTENTS

INTRODUCTION 1
TREATMENT PLAN 1
WHY DATA RECOVERY? 2
ASSESSMENT OF EFFECT 2
BACKGROUND 2
Location and Setting *2*
Previous Archaeological Investigations *2*
DATA RECOVERY PLAN 4
Task 1–Permitting and Pre-field Tasks *4*
Task 2–Fieldwork *4*
Special Safety Concerns/Accident Prevention Measures 5
Positioning, Mapping, and Horizontal/Vertical Control 5
Hand Excavations 5
Features 7
Documentation 7
Human Remains 8
Geological Assessment 8
Close of Excavations/Backfilling 8
Task 3—Artifact Analysis & Curation *9*
General Laboratory Procedures 9
Lithic Analysis 9
Lithic Diagnostics 11
Lithic Raw Material Analysis 12
Prehistoric Ceramic Analysis 12
Special Samples 12
Curation 13
Task 4—Reporting *13*
AAS Site Survey Update Forms 13
Management Summary 13
Technical Report 13
Key Panamerican Personnel *13*
C.A. Buchner 14
Eric Albertson 14
Andrew Saatkamp 14
Karla Oesch 15
Sub-Consultants *15*
Faunal Analyst 15
Archeo-botanical Analyst 15
Shell Analyst 15
Project Geologist 16
Radiocarbon and AMS Dating 16
PROPOSED SCHEDULE 16
REFERENCES CITED 17

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

James Lee Edwards, Governor
Absentee Shawnee Tribe
2025 S. Gordon Cooper Drive
Shawnee, OK 74801-9381

Dear Governor Edwards:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Absentee Shawnee Tribe regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Absentee Shawnee Tribe.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Glenna J. Wallace, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Wallace:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Eastern Shawnee Tribe of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Eastern Shawnee Tribe of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

includes two 20th century standing structures and several historic sites that appear to date to the late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Robin Dushane

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Glenna J. Wallace, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Wallace:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Eastern Shawnee Tribe of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Eastern Shawnee Tribe of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

includes two 20th century standing structures and several historic sites that appear to date to the late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Robin Dushane

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Ron Sparkman, Tribal Chairman
The Shawnee Tribe
29 S Hwy 69A
Miami, OK 74354

Dear Mr. Sparkman:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Shawnee Tribe regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Shawnee Tribe.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

Celebrating 50 Years
1956 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Larue Parker, Chairwoman
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Ms. Parker:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Caddo Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Caddo Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Mr. Robert Cast

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Chad Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, Oklahoma 74465

Dear Mr. Smith:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Cherokee Nation of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Cherokee Nation of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

George G. Wickliffe, Chief
United Keetoowah Band of the Cherokee Indian Nation
P.O. Box 746
Tahlequah, OK 74465-746

Dear Mr. Wickliffe:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the United Keetoowah Band of the Cherokee Indian Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the United Keetoowah Band of the Cherokee Indian Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

includes two 20th century standing structures and several historic sites that appear to date to the late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

Jim Gray, Chief
Osage Nation
627 Grandview
Pawhuska OK 74056

Dear Mr. Gray:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Osage Nation regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Osage Nation.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Dr. Andrea Hunter





700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

December 3, 2008

Refer To:
AHTD Jobs 009784, 090213
and 090169
Newton County
HDA-AR

John Berrey, Chairperson
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74056

Dear Mr. Berrey:

This letter is written in order to initiate consultation between the Federal Highway Administration, Arkansas Division Office and the Quapaw Tribe of Oklahoma regarding a series of contiguous federal-aid highway projects that may potentially affect ancestral lands or properties that may be of religious or cultural significance to the Quapaw Tribe of Oklahoma.

The Arkansas Highway and Transportation Department (AHTD) plans to improve about 2.1 miles of existing State Highway 7 north of Jasper in Newton County (Figure 1). The project will involve adding passing lanes along parts of the existing route, alleviating several sharp curves and building a new bridge across the Buffalo River at Pruitt. Most of the project will be constructed on or directly adjacent to the existing roadway but there are two alternative river crossings currently being studied (see Figure 1). About 1.4 miles of the project area is within the Buffalo National River (see Figure 1). To date, a survey of existing site records regarding previously recorded archeological sites has been conducted and a reconnaissance - level pedestrian survey including limited shovel testing of most of the project area has been completed. Four sites with Native American components were identified within or near the project area and could be affected by the project. Two of these (3NW499 and 3NW671) were previously recorded and consist of lithic scatters. The pedestrian survey resulted in the discovery or two previously unrecorded bluff shelters (AHTD temporary site numbers 009784-1 and 009784-2). Other resources identified in the area are historic and appear to date well after Indian Removal. They include the existing Highway 7 Bridge, the Pruitt Historic District which includes two 20th century standing structures and several historic sites that appear to date to the

Celebrating 50 Years 1956 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

late 19th or 20th centuries. Currently, a draft Environmental Assessment is being prepared to determine the most feasible location to bridge the river.

In an effort to determine project impacts to sites identified and to identify the existence of any unknown archeological resources that may be present, the AHTD is planning to conduct a Phase I cultural resources survey of the project area as soon as the bridge crossing has been selected. This will include a pedestrian survey of the entire project area including surface examination, shovel testing and possibly backhoe trenching in settings where buried sites may be present. A Phase I report containing the results of the survey and management recommendations will be prepared for Section 106 review.

Please review this information and notify us of any constraints or concerns that you may have regarding this undertaking. We would greatly appreciate your input regarding not only this project but also sites or properties in the immediate area that might be of cultural or religious significance to your Tribe. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Specialist

cc: Ms. Carrie Wilson

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. Earl J. Barbry, Sr.
Tribal Chairman
Tunica-Biloxi Indians of Louisiana, Inc.
P.O.Box 331
Marksville, LA 71351

Dear Mr. Barbry:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure





U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. Gary McAdams
President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear Mr. Mc Adams;

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50th 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Chad Smith, Principal Chief
Cherokee Nation of Oklahoma
P.O. Box 948
Tahlequah, Oklahoma 74465

Dear Mr. Smith:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Dr. Andrea Hunter
Tribal Historic Preservation Officer
The Osage Nation
P.O. Box 779
Pawhuska, OK 74056

Dear Dr. Hunter:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure





U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. Robert Cast
Tribal Historic Preservation Officer
Caddo Nation
P.O. Box 487
Binger, Oklahoma 73009

Dear Mr. Cast:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Glenna J. Wallace, Chief
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Wallace:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

George G. Wickliffe, Chief
United Keetoowah Band of the Cherokee Indian Nation
P.O. Box 746
Tahlequah, OK 74465-746

Dear Mr. Wickliffe:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

James Lee Edwards, Governor
Absentee Shawnee Tribe
2025 S. Gordon Cooper Drive
Shawnee, OK 74801 -9381

Dear Governor Edwards:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years
1956 50 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

U.S Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Ron Sparkman, Tribal Chairman
The Shawnee Tribe
29 S Hwy 69A
Miami, OK 74354.

Dear Mr. Sparkman:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County.* A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department
of Transportation
Federal Highway Administration
Arkansas Division

700 West Capitol Avenue
Room 3130
Little Rock, AR 72201-3298

April 10, 2010

Refer To:
AHTD Jobs 009784,0902 1 3
and 0901 69
Newton County
HDA-AR

Mr. John Berrey, Chairperson
Quapaw Tribe of Oklahoma
P.O. Box 765
Quapaw, OK 74056

Dear Mr. Berrey:

As part of continuing consultation regarding the noted project, we have included for your review, a copy of the draft report entitled A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge, and Approaches on State Highway 7 at Pruitt, Newton County. A copy of the report has been forwarded to the State Historic Preservation Officer for concurrent review. The report has been previously reviewed by Buffalo National River archeologist Dr. Caven Clark (see enclosed comment letter). Please let us know if you have any comments or concerns and give me a call (501-324-6430) if you have any questions or need additional information.

Sincerely,

Randal Looney
Environmental Specialist

Enclosure
Cc: Ms. Carrie Wilson

Celebrating 50 Years 1956 50 2006 Eisenhower Interstate System

BUCKLE UP AMERICA

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298
501-324-5625
Fax: 501-324-6423
arkansas.fhwa@dot.gov

May 17, 2011

In Reply Refer To:
AHTD Job 090169
Jasper – Buffalo River
(Passing Lanes) (Hwy. 7)
And
AHTD Job 090213
Co. Rd. 46 – Buffalo River
(Safety Imprvs.) (Hwy. 7)
Newton County

Abseentee Shawnee
Mr. James Lee Edwards
Govenor
2025 South Gordon Cooper Dr.
Shawnee, OK 74801-9381

Dear Mr. Edwards:

The Federal Highway Administration (FHWA), through the Arkansas State Highway and Transportation Department (AHTD), is preparing an Environmental Assessment (EA) and Section 4(f) Evaluation for the referenced projects. These projects propose improvements to sections of Highway 7. A portion of the projects' area is within the Buffalo National River (BNR) in Newton County, Arkansas. The U.S. Department of the Interior, National Park Service; and Federal Highway Administration are cooperating agencies for this project.

The projects begin approximately 1.8 miles south of the Buffalo River and end approximately 0.3 miles south of the river. The total length of the combined projects is 1.5 miles. Alternatives considered will include improvements along the existing highway and the No-Action Alternative. The projects will include a north and south bound passing lane along part of the route with roadway realignment and grade improvements. The improvements would require the conversion of 11 acres of vegetated land within the boundary of BNR to State of Arkansas Highway 7 right of way, including land within 115 feet of the Buffalo River Trail. Large rock cut areas, fill areas including rip-rap, and removal of vegetation will be required for construction of these projects.

Additional projects planned in the project area include a new crossing of the Buffalo River at Highway 7 and a crossing of Mill Creek at County Road 213. While the cumulative impacts of all the projects will be considered in this EA, the final analysis of the Buffalo River and Mill Creek

crossing projects will be presented in a future EA. A map is enclosed that shows the location and extent of each project.

Please identify any constraints or significant concerns that should be considered during the assessment of impacts associated with the proposed projects. Your assistance in identifying any design or location issues is solicited. Examples of these are unique environmental features or environmentally sensitive areas, socio-economic issues, and permits or approvals that should be obtained prior to construction of the projects. Your comments and any supporting documentation you may wish to provide would be helpful to project planners in the timely identification of potential adverse impacts.

If additional information is needed, please contact Don Nichols of AHTD at (501) 569-2281. All comments and information should be sent to the FHWA at the address above.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure
c: Department of the Interior
National Park Service
Buffalo National River

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave., Room 3130
Little Rock, AR 72201-3298
501-324-5625
Fax: 501-324-6423
arkansas.fhwa@dot.gov

June 16, 2011

In Reply Refer To:
AHTD Job Numbers 090169 &
090213, Hwy. 7 Passing Lanes
& Safety Impvts.
HDA-AR

Robin Dushane
Cultural Preservation Director
Eastern Shawnee Tribe of Oklahoma
P.O. Box 350
Seneca, MO 64865

Dear Ms. Dushane:

Per your request, enclosed is the report entitled *Cultural Resources Survey of Proposed AHTD Jobs 090169 Highway 7 Passing Lanes; 090213 Highway 7 Safety Improvements; and 009784 Buffalo River Bridge and Approaches on State Highway 7 at Pruitt, Newton County.* The Arkansas SHPO has approved the recommendations in the report that no cultural resources will be adversely affected by the proposed undertakings for jobs 090169 and 090213 (the passing lanes and safety improvements portions on Highway 7) and that no further archeological work is needed. More archeological work is recommended for job 009784 (the bridge replacement over the Buffalo River on Highway 7). The AHTD has separated the jobs and is proceeding with the safety improvements and passing lanes projects cleared by SHPO. An addendum report for additional work for job 009784 will be submitted when a preferred alternative is chosen for the project and the archeological work is completed. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Dr. Andrea A. Hunter
Tribal Historic Preservation Officer
The Osage Nation
Post Office Box 779
Pawhuska, Oklahoma 74056

Dear Dr. Hunter:

As part of continuing consultation we have enclosed for your review the *Memorandum of Agreement for the Pruitt Historic District* for the above noted job. It has now been approved by SHPO. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Kim Penrod
Acting Tribal Historic Preservation Officer
Caddo Nation
Post Office Box 487
Binger, Oklahoma 73009

Dear Ms. Harris:

As part of continuing consultation we have enclosed for your review the *Memorandum of Agreement for the Pruitt Historic District* for the above noted job. It has now been approved by SHPO. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Mr. Eric Oosahwee-Voss
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians
Post Office Box 1245
Tahlequah, OK 74465

Dear Mr. Oosahwee-Voss:

As part of continuing consultation we have enclosed for your review the *Memorandum of Agreement for the Pruitt Historic District* for the above noted job. It has now been approved by SHPO. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Sheila Bird
Tribal Historic Preservation Officer
Cherokee Nation of Oklahoma
Post Office Box 948
Tahlequah, OK 74465

Dear Ms. Bird:

As part of continuing consultation we have enclosed for your review the *Memorandum of Agreement for the Pruitt Historic District* for the above noted job. It has now been approved by SHPO. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Mr. Everett Bandy
Tribal Historic Preservation Officer
Quapaw Tribe of Oklahoma
Post Office Box 765
Quapaw, Oklahoma 74363-0765

Dear Mr. Bandy:

As part of continuing consultation we have enclosed for your review the *Memorandum of Agreement for the Pruitt Historic District* for the above noted job. It has now been approved by SHPO. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Dr. Andrea A. Hunter
Tribal Historic Preservation Officer
The Osage Nation
Post Office Box 779
Pawhuska, Oklahoma 74056

Dear Dr. Hunter:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Principal Chief Geoffrey M. Standing Bear should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Kim Penrod
Acting Tribal Historic Preservation Officer
Caddo Nation
Post Office Box 487
Binger, Oklahoma 73009

Dear Ms. Harris:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Chairperson Tamara Francis-Fourkiller should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Mr. Eric Oosahwee-Voss
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians
Post Office Box 1245
Tahlequah, OK 74465

Dear Mr. Oosahwee-Voss:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Chief Joe Bunch should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Sheila Bird
Tribal Historic Preservation Officer
Cherokee Nation of Oklahoma
Post Office Box 948
Tahlequah, OK 74465

Dear Ms. Bird:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Principal Chief Bill John Baker should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

February 21, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Robin Dushane
Tribal Historic Preservation Officer
Quapaw Tribe of Oklahoma
Post Office Box 350
Seneca, MO 64865

Dear Ms. Dushane;

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Chief Glenna Wallace should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

January 23, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Mr. Everett Bandy
Tribal Historic Preservation Officer
Quapaw Tribe of Oklahoma
Post Office Box 765
Quapaw, Oklahoma 74363-0765

Dear Mr. Bandy:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Tribal Chairman John Berrey should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

February 21, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Mr. Joseph Blanchard
Tribal Historic Preservation Officer
Absentee Shawnee Tribe
2025 S. Gordon Cooper Dr.
Shawnee, OK 74801-9381

Dear Mr. Blanchard:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Governor Edwina Butler-Wolfe should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

February 21, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Kim Jumper
Tribal Historic Preservation Officer
The Shawnee Tribe of Oklahoma
29 S. Hwy. 69A
Miami, OK 74354

Dear Ms. Jumper:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, Chief Ron Sparkman should sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

February 21, 2017

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Ms. Terri Parton
Wichita and Affiliated Tribes
Post Office Box 729
Anadarko, Oklahoma 73005

Dear Ms. Parton:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, please sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

February 21, 2017

700 West Capitol Ave
Suite 3130
Little Rock AR 72201
(501) 324-6430

In Reply Refer To:
AHTD Job No. 009784
Buffalo River Str. & Apprs. (Pruitt) (S)
Newton County, Arkansas
HDA-AR

Mr. Joey Barbry, Jr.
Tribal Historic Preservation Officer
Tunica-Biloxi Indians of Louisiana, Inc.
Post Office Box 331
Marksville, LA 71351

Dear Mr. Barbry:

As part of continuing consultation we have enclosed for your review and signature the *Memorandum of Agreement and Proposed Treatment Plan for Sites 3NW1308 and 3NW109* for the above noted job. SHPO approval has been obtained. If these documents are acceptable, please sign and return the appropriate signature page. If you have any questions or need additional information, please contact me at (501) 324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

APPENDIX B

CORRESPONDENCE

This page intentionally left blank.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

INTEROFFICE MEMORANDUM

April 15, 2013

TO: Master Files

FROM: Mary Pearson, Environmental Analyst I, Environmental Division

SUBJECT: AHTD Job Number 009784 and BR5102
FAP Numbers STPR 0019(10) and BRN-0051(15)
Buffalo River Br. & Apprs. (Pruitt) (Hwy. 7) and Mill Creek Strs. & Apprs.
Newton County
NPS Coordination Meeting, Buffalo National River

A coordination meeting was held on site with Buffalo National River (BNR) representatives on March 15, 2013. A list of meeting attendees is attached. The meeting addressed the subject proposed highway projects and the status of the Environmental Assessment (EA) submitted to the BNR in February 2013 for AHTD Job Numbers 090169 (Passing Lanes) and 090213 (Safety Improvements).

The AHTD distributed a meeting agenda and a copy of the BNR Comment Letter (dated May 21, 2009) for the Draft EA for Job Numbers 090169, 090213, and 009784 (Buffalo River Bridge). The AHTD presented a summary of the history of project development from 2002 to the present.

The AHTD reiterated that the Passing Lanes and Safety Improvements projects were jointly evaluated for the February 2013 EA. The AHTD noted that the Mill Creek project had not been included in the 2009 Draft EA due to its status as a Newton County project; however, the Mill Creek and the Buffalo River Bridge projects will be jointly evaluated in the Buffalo River Bridge/Mill Creek EA to be prepared in 2013.

In response to the AHTD's query regarding the status of the Passing Lanes and Safety Improvements EA submitted to the BNR in February 2013, the BNR indicated that the EA had been forwarded to the NPS Regional Office for review. The BNR and the AHTD concurred that a Passing Lanes and Safety Improvements EA public hearing will be offered.

Mill Creek Project

The AHTD and the BNR discussed design and location alternatives for the Mill Creek project, which includes improving County Road 213 and installing a new Mill Creek crossing to eliminate use of the existing low water structure. The new crossing would be either a bridge or a box culvert. The AHTD indicated that the Mill Creek plans and designs are in very preliminary stages.

The AHTD and the BNR discussed several Mill Creek project considerations, including the existing spring run, bat cave, and other ecological concerns. The AHTD noted that context sensitive design options to minimize potential ecological impacts will be considered in the Buffalo River Bridge/Mill Creek EA. The AHTD also noted that the preferred Mill Creek alternative design could be influenced by Newton County budget limitations. Additionally, the need to determine if the existing gravel bed load behind the low water crossing was discussed.

It was established that limited geotechnical work for the Mill Creek project has been performed; however, the completion of the geotechnical work is indeterminate. The possibility of relocating the Pruitt Bridge to Mill Creek was discussed; however, the BNR and the AHTD concurred that relocation was not a viable option due to Newton County's declination to take possession of the Pruitt Bridge because of cost and maintenance concerns.

Buffalo River Bridge Project

The AHTD and the BNR discussed the Buffalo River Bridge project topics that had been included in the May 2009 BNR Comment Letter. Brief summaries of the project topic discussions are provided below.

Status of Existing Pruitt Bridge. The BNR expressed the preference to remove the Pruitt Bridge. The BNR concurred with the AHTD that retention of the Pruitt Bridge would therefore not be considered as an alternative in the Buffalo River Bridge / Mill Creek EA.

Biological Assessment Issues. The AHTD indicated that an assessment of the Buffalo River's pending designation as critical habitat for the rabbitsfoot mussel will be included in the Buffalo River Bridge/Mill Creek EA. A clarification of which bats are present in the project areas during the spring and summer months will also be included in the EA.

Rip Rap and Ditch Linings. The BNR described elements of the Hasty Bridge replacement project as examples of what should be avoided for the Buffalo River Bridge project (e.g., large areas of local limestone used as rip rap creating distracting visual effects). The AHTD noted the difficulties of obtaining weathered rock for use as rip rap and/or ditch linings. The possibility of inter-planting rip rap with native species such as trumpet creeper was discussed, as were the moisture requirements for inter-plantings. The AHTD also noted that the potential exposure of bedrock in the Buffalo River Bridge project could eliminate the need for ditch linings.

Noise Impacts. The AHTD described preparations to conduct an additional noise assessment, and indicated that the expertise of a noise assessment contractor would be used if necessary. At the request of the FHWA, the BNR provided the name of a BNR Point of Contact to assist with the selection of noise assessment locations. The AHTD indicated that results obtained from noise assessments completed for various new bridge projects will be reviewed to assist with the completion of the additional noise assessment for the Buffalo River Bridge / Mill Creek EA.

Utilities. In response to a BNR inquiry, the AHTD indicated that it is unlikely that a regional water line would be associated with the proposed Buffalo River Bridge/Mill Creek project.

Sight Distances/Equestrian Trail. The AHTD and the BNR concurred that it should be possible to route the Equestrian Trail underneath either of the proposed Buffalo River West Alternatives. Options such as constructing a partial bench and regrading portions along the bluff line were discussed, as was the need to determine the grade of potential routes. The AHTD and the BNR concurred that the BNR would be the lead agency for determining the Equestrian Trail design. The BNR's role in the design and construction of the Equestrian Trail route outside of the existing/proposed right of way would reduce the size of the Buffalo River Bridge project construction footprint. The need to address any Equestrian Trail considerations related to the Mill Creek project was identified. The BNR requested that Equestrian Trail considerations be addressed in the Buffalo River Bridge/Mill Creek EA.

Archeological Resources. The AHTD and the BNR discussed the need for any additional archeological field work. It was concluded that no additional work will be required for the Buffalo River Bridge/Mill Creek EA.

Historic District and Structures. The BNR stated that recent discussions between the BNR and the SHPO resulted in concurrence that the Contact Center and the Storage Building (identified in the 2009 Draft EA as Structure A - Pruitt Information Station and Structure B - Storage Building) could be taken with proper documentation. The AHTD and the BNR discussed the design alternatives, which would require the removal of either Structure A or B. One of the design alternatives would preserve Structure A via the use of a retaining wall. The BNR indicated that this option (identified in the 2009 Draft EA as the "Buffalo River West Alternative") was not viable due to safety concerns presented by the close proximity of bridge traffic to visitors. The BNR also described the operations and maintenance costs associated with both structures. The AHTD informed the BNR that they will be required to provide written justification for the removal of Structures A and B, including the fact that the NPS policies would not allow the public to enter Structure A under the Buffalo River West Alternative. The AHTD also described the FHWA's legal process for conducting Section 4(f) reviews.

NPS Contact Center. The BNR requested that the Buffalo River Bridge/Mill Creek EA specifically address the loss of Structure A (current Contact Center). The BNR expressed the preference to have Structures A and B replaced by a new Contact Center that would include a storage area. The BNR also informed the AHTD that the previously-discussed (circa 2007) Interagency Visitor Center was no longer an option and expressed the preference for any new construction to occur within an existing footprint. The AHTD and the BNR discussed location options for the new Contact Center. The BNR stated that they would be responsible for preparing environmental documentation required for the construction of the new Contact Center, including the installation of utilities. The potential funding mechanisms for construction of the new Contact Center were also discussed. The BNR agreed to provide additional information regarding potential construction costs.

Additional Discussions and Information. The BNR expressed the preference to reduce current and future footprints to reduce maintenance and operations costs. The BNR indicated acceptance of the proposed relocation of the County Road 80 reconnection. The BNR requested that the Buffalo River Bridge/Mill Creek EA incorporate proposals for recontouring and replanting all areas where existing roadways and bridge structures would be removed.

The BNR provided the AHTD with a copy of the USGS Digital Elevation Model created for the BNR basin. These files will be provided to the AHTD GIS Section to assist with mapping.

Action Items. The AHTD and the FHWA, in coordination with the BNR, will proceed with the Section 4(f) process to address the removal of Structures A and B. The AHTD will initiate the additional noise assessment in coordination with the BNR Point of Contact. The AHTD will determine the extent of geotechnical work already performed for the Mill Creek project and identify an estimated completion date.

The AHTD and the BNR will coordinate on developing proposals for the Equestrian Trail, including providing the BNR with the proposed location(s) of bents and using GPS to mark points along potential trail routes. The AHTD will contact the BNR regarding the next public information meeting.

The BNR will provide the AHTD with cost estimates for the construction of the new Contact Center. The BNR will contact the NPS Regional Office regarding the Passing Lanes and Safety Improvements EA review schedule and provide the AHTD with an approximate review completion date, if possible.

DN:MP:fc

Attachment

Attachment

NPS Coordination Meeting Attendees
AHTD Job Numbers 009784 and BR5102 Mill Creek Strs. & Apprs.
Buffalo River Br. & Apprs. (Pruitt) (Hwy. 7)
Newton County

Name	Department
Randal Looney	FHWA
Cordell Lyons	FHWA
Dean McKnight	NPS, Buffalo National River
Caven Clark	NPS, Buffalo National River
Bill Osterhaus	NPS, Buffalo National River
Karen Bradford	NPS, Buffalo National River
Chuck Bitting	NPS, Buffalo National River
Kevin Cheri	NPS, Buffalo National River
Lynn Malbrough	AHTD, Environmental Division
Brenda Price	AHTD, Environmental Division
John Fleming	AHTD, Environmental Division
Don Nichols	AHTD, Environmental Division
Mary Pearson	AHTD, Environmental Division

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

June 26, 2014

Mr. Kevin Cheri
Superintendent
Buffalo National River, NPS
402 North Walnut Street, Suite 136
Harrison, Arkansas 72601

RE: Proposed Projects
AHTD Job 009784 – Buffalo River Bridge & Apprs.
AHTD Job BR5102 – Mill Creek Str. & Apprs.

Dear Mr. Cheri:

Enclosed please find three paper copies and three digital copies of the Preliminary Draft Environmental Assessment (EA) and the Preliminary Draft Section 4(f) Evaluation for the referenced projects.

The EA was prepared to be compatible with the National Park Service's (NPS) EA guidelines. Impact topics presented in the EA may need to be added, removed, or updated using more current Buffalo National River (BNR) information. In order to complete the EA's cumulative impact analysis, we will also require the BNR's input regarding current and future Park projects and appropriate resource boundaries.

The Section 4(f) Evaluation was prepared after a review of NPS and BNR official management plans, enabling legislation, and statutes to identify Section 4(f) activities, features, and attributes within the BNR. The document is intended to be used as a starting point for consultation with the NPS-BNR regarding Section 4(f) resources within the proposed project areas.

We appreciate the time and effort required by you and your staff for review of these preliminary drafts, and we would like to schedule a meeting to discuss the findings of the BNR's review of these documents and to address any outstanding issues.

Please contact Mary Pearson at (501) 569-2644 if additional information or copies are needed.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

Enclosures

JF:MP:fc

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136

IN REPLY REFER TO:
1.B (BUFF)

September 9, 2014

Scott E. Bennett, Director
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203

Dear Mr. Bennett:

My staff has reviewed the Draft Environmental Assessment and Draft Section 4(f) evaluation for Buffalo River Bridge and Approaches and Mill Creek Structure and Approaches (HHTD Job #s 009784 and BR5102), (FAP #s BRN-0051(13) and BRN-0051(15). We found these documents to be a marked improvement over previous documents and would like to commend your staff on their thorough approach and attention to detail. We would like to provide these specific comments to clarify areas which appear ambiguous, partially fulfill our role as Cooperating Agency, and to fix minor typographical and grammatical errors. Thank you for the opportunity to review the document, and for your continued support for Buffalo National River.

Preliminary Draft EA for Buffalo River Bridge and Approaches and Mill Creek Structure and Approaches, Newton County, Arkansas

Your staff has done a good job of presenting the alternatives and their environmental implications. My staff has reviewed the document and we offer these comments and proposed edits.

In Section 3.3 Laws, Regulations, and Policies, the Buffalo National River establishing act, Public Law 92-237, 1972, should be added.

In Section 4.1.2 Mill Creek Crossing Project, first sentence should be re-written to say "…;a new structure would not be built…."

In Section 4.2.1 Buffalo River Bridge Project, fourth paragraph, the build alternatives for the bridge are described as 2 twelve foot travel lanes + 2 eight foot shoulders + 2 five foot walkways. This comes out to 50' width. The bridge is described as 57 feet wide in the alternatives. Is this additional 7 feet taken up in parapet walls? If so, how many walls are anticipated? Will there be parapet walls separating the walkways from the shoulders? How about parapet walls on the outside of the walkways? More clarification on this would be helpful for the public during their review.

Figure 4-2 shows the proposed ROW on the south side of the river as very wide, even up to the river's edge. It would appear this ROW was drawn based upon a bridge approach that is of fill. The design calls for two abutments and two bents under the bridge as shown in Figure 6-5. It is unclear to us why the wide ROW exists. Are we missing something?

Section 4.2.2 Mill Creek Crossing Project, Alternate I – Bridge does not indicate whether or not the abutments for the bridge would be within the floodplain, or whether there would be any bents under the bridge. This should be clarified for the document and should probably include plan, profile, and cross section drawings of the proposed structure.

Section 4.2.2 Mill Creek Crossing Project, Alternate II – Box Culvert says the structure would be approximately 60 feet in length and composed of six bottomless barrels, each measuring 12 feet high by 12 feet wide. 12' x 6 = 72 feet and this does not even take into account the wall thickness of the barrels. This should be clarified for the document and should probably include plan, profile, and cross section drawings of the proposed structure.

Figure 4-9 shows a Temporary Construction Easement of approximately 1.5 acres. We were unable to determine the need for this when reviewing the document.

Section 5.2 Cave and Karst Resources. The second sentence should probably be changed to say "Its karst features are the result of two basic mechanisms: 1) mildly acidic rainfall acting on soluble carbonate bedrock such as limestone and dolomite and 2) dissolution by groundwater flow through the carbonate bedrock."

Section 5.2 Cave and Karst Resources. The second paragraph, second sentence needs to say "The heavily fissured Carlton Fault also lies in close proximity to the project study area and has probably contributed greatly to the formation of karst features."

Section 5.2 Cave and Karst Resources. Third paragraph, third sentence. Change the sentence to read 'Due to the complex nature of karst features, water entering this "underground plumbing" can **rapidly** travel far from its point of origin and re-appear in a spring or seep.'

Section 5.2 Cave and Karst Resources. Third paragraph, last sentence. There are actually closed depressions indicative of sinkholes within the ROW for the box culvert project. They are associated with the Canton Mine property which was active prior to 1890 and directly within the project footprint. The spring also seems to be associated with these workings. Our experience with other underground mining operations that operated in this area of the Ozarks during the 19th and 20th century is that ore appears to have been emplaced in close proximity to karst or paleo-karst features. This certainly seems to be the case with the Canton Mine, though we are unable to access any cave passages.

Section 5.2 Cave and Karst Resources. Fourth paragraph. Please be more discreet with the location of Pruitt Cave. It would not be difficult for someone to deduce the approximate location of this cave by reading the EA. Pruitt Cave is considered significant under the Federal Cave Resource Protection Act and is biologically sensitive because of its use by the endangered gray bat.

Section 5.3 Vegetation. River cane is *Arundinaria gigantea*. MS Word must have changed the species name for you.

Section 5.4.1 Special Status Species. Endangered Species. Third Paragraph. Please be more discreet with the location of Pruitt Cave.

Table 5-1 Species of Special Concern

The Ozark Big-Eared Bat is *Corynorhinus townsendii ingens*

The Ouachita kidneyshell mussel is *Ptychobranchus occidentalis*

Section 5.5 Water Quality. Fourth paragraph. Add roads to the list of sediment loading and nutrient enrichment sources. As you know, gravel roads are a major, if not the major, source of sediment reaching streams in the Ozarks.

Section 5.5 Water Quality. Ninth paragraph. In addition to water quality data for the spring, it may be necessary to conduct some dye tracing. It seems likely that this spring is connected to Flatrock Creek and may actually be connected to Pruitt Cave. Such a sub-surface connection would indicate potential increased impacts to Pruitt Cave should the box culvert be built.

Section 5.6 Wild and Scenic Rivers. Fourth paragraph. This paragraph mentions Section 4 of PL 92-237. The piece of the law quoted is actually from the preamble of the law. Section 4 of the law is nearly identical to Section 7a of the Wild and Scenic Rivers Act (Public Law 90-542).

Section 5.7 Cultural Resources. We require HABS/HAER level documentation, with ground based LiDAR if possible, for all affected structures, including the 1913 bridge approach. We are not in favor of retaining walls near the historic structures as they are ugly and will be an adverse effect. Should the eastern alternative be selected for the Buffalo River bridge, the bluff shelters should have full data recovery.

5.7.2.1 Historic Resources. The Canton Mine should be added as an historic resource. The mine is mentioned in a couple of historic reports on mining in this area (Branner, 1900) (McKnight, 1935).

6.2.2 Mill Creek Crossing Project Effects. Alternate II – Box Culvert. Need to consider the Canton Mine as both an historic feature and as a karst feature. Severe impacts to the mine and potentially severe impacts from the mine to the road are possible under this alternative.

6.4.1 Buffalo River Bridge Project Effects. East Alternate II. Special Status Species. Third paragraph. The volume for the rock cut does not match the volume reported in 6.2.1, paragraph 1. Is it the larger or smaller of the two?

Section 6.4.2 Mill Creek Crossing Project Effects. Alternate II – Box Culvert. Second paragraph. There is a statement in here that potential impacts to undiscovered cave or karst dwelling species would be minimal because the fill area would reduce infiltration. Infiltration of organic matter is

actually very important for karst species which exist in a food-poor environment. We feel it is very likely that this section of the project is underlain by karst at a shallow depth and the effects would be moderate, adverse, and long term.

Section 6.5.1 Buffalo River Bridge Project Effects. It should be noted that there will be an increase in the hardened surface under all of the alternatives that may increase stormwater runoff to the creek and river. These runoff issues will be long term.

Section 6.5.2 Mill Creek Crossing Project Effects. Alternate 1. The document should say something about the benefits to the stream from removal of the existing low water crossing and approaches. This would have a moderate long term beneficial impact.

Section 6.5.2 Mill Creek Crossing Project Effects. Alternate II. We feel that because of the permanent loss of stream functions and values there would be moderate long term impacts to surface waters.

Section 6.6 Wild and Scenic Rivers. This is a pretty good discussion of the topic. We still have to do a Determination of Effect, but should probably wait to see what the preferred alternative is.

Section 6.7 Cultural Resources. We are unsure why the approach span of the 1913 bridge is in danger without the retaining wall. The drawings for the East Bridge show the east side of the southern terminus of the new bridge to be about 65 feet northwest of the south end of the 1913 bridge approach, and the two bridges run more or less parallel to the northeast. Since the span begins at this point, why is a retaining wall necessary, and wouldn't a retaining wall be an impact upon the floodplain as it must be retaining fill material?

6.8 Visual Resources. This section did a reasonable job of describing the visual impacts of the new bridge, though the model for the new bridges appears to be considerably more narrow than those proposed in the EA. There are no shoulders or walkways shown, these nearly double the width of the bridge, and will likely change the artist renderings significantly. These should be re-done to show the wider bridge.

There was one minor typographical error noted in the next to last paragraph of this section. The word "could" was inexplicably included in the second sentence.

6.9 Noise. If the new bridge will result in a concomitant increase in truck traffic on route 7, and the wider bridge deck will increase the amplification of the traffic, the noise impacts may have to be refigured.

Chapter 7 Cumulative Impacts. Will roadway improvements on Route 7 to improve efficiency and safety of commercial traffic, mainly large trucks, result in cumulative adverse impacts to the Buffalo River? One can easily imagine a scenario where increased truck traffic would result in increased accidents on the winding and steep portions of the highway. Increased accidents have the potential to adversely impact water quality and vegetation mainly as well as the slow paced recreational nature of Route 7 and the Buffalo National River.

Chapter 8 Environmental Commitments. As stated in the draft, these will have to be fleshed out once we establish a preferred alternative.

Chapter 9. Public and Agency Involvement. A good summary of the involvement.

Chapter 10. Summary. This section is fine at this time. The tables associated are good. Make sure the cut and fill numbers are the correct ones. Table 10.2 may change because of the historic mine associated with the box culvert alternative.

Draft Section 4(f) Evaluation

We need to hold an additional meeting with your staff to fill out sections of Chapter 10

Section 3.2. "Use" Under Section 4(f). It appears that permanent use and direct use are the same thing. This was a bit confusing when reading the first couple of paragraphs.

Section 4.2.1 Buffalo River. Buffalo National River and Arkansas Game and Fish Commission are currently conducting a survey of boat use on the river in connection with a creel survey. The results of this survey are not likely to be available in time to update this section.

Section 5.1 Park Resources. The first paragraph indicates no historic resources were identified related to the Mill Creek crossing. The Canton Mine has never been evaluated for its significance, but is very close to the existing crossing and partially within the footprint of the box culvert alternative.

6.3.1 Recreation East Alternate II. The Pruitt Day Use area would probably only have to be partially shut down during the construction of this alternative.

6.3.1 Recreation West Alternates I and II (All Options). It is likely that the entire Pruitt Day Use area would have to be shut down during the construction of this alternative, at least for short periods of time as the access would be directly under the bridge.

6.3.2 Visual Resources. East Alternate II. It seems unlikely that the fill in the Pruitt Day Use Area-East would present as much visual intrusiveness for the Pruitt Day Use Area as the existing highway fill does.

6.3.2 Visual Resources. East Alternate II. The mitigation measures certainly should be employed if possible and feasible to get the structure to blend in with the surroundings as much as possible.

6.3.2 Visual Resources. West Alternates I and II (All Options). It seems likely that Pruitt Day Use Area visitors would experience adverse visual intrusion from this bridge. It will dominate the landscape in this area.

6.3.2 Visual Resources. The artist's renderings of the proposed bridges don't show the actual proposed width of the bridge designs. Because the bridges will actually be quite a bit wider than

shown, it is likely the visual impacts or "direct uses" will be greater than discussed in the document.

6.3.3 Buffalo River/Water Quality. East Alternate II. It appears that the design for the East Alternate II bridge will actually present approximately 0.87 acres of impervious surface. The approaches including shoulders and turning lanes will add considerably more impervious surface to the project. These should be included in the document so logical comparisons can be made.

6.3.3 Buffalo River/Water Quality. West Alternates I and II (All Options). It appears that the design for the West Alternate I and II bridges will actually present approximately 1.01 acres of impervious surface. The approaches including shoulders, turning lanes and additional access roads will add considerably more impervious surface to the project. These should be included in the document so logical comparisons can be made.

Figure 6-9. The second bend does not appear to be shown going all the way down to the ground, giving the potential for a false impression of the actual visual impact of this alternative.

6.4 Historic Resources Impacts. East Alternate II. We still question the need for a retaining wall as it appears the ROW for this bridge was drawn wrong. Since retaining walls are usually retaining fill material, we consider a retaining wall to be an intrusion on the floodplain, reducing the floodplain storage potential in this area. Is this necessary?

9.1.1 Park Resources. Visual. Night sky resources are very important to NPS managers from both the perspective of humans attempting to escape from an environment dominated by artificial light, and the perspective of wildlife which have nocturnal habits. We would request that ALL direct lighting onto the construction area be shielded to protect these important resources.

Chapter 10. Much work remains on this chapter. Perhaps a small conference of NPS, AHTD, and FWHA staff could complete much of this in a single meeting.

We work forward to working with your staff to complete these important projects.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

Preliminary Draft EA and Section 4(f) Evaluation
Meeting Summary

Meeting attended by:	**AHTD:** Mitchell Archer; Stacy Burge; John Fleming; Steve Lawrence; Don Nichols; Mary Pearson; Brenda Price; Robert Scoggin; **BNR:** Melissa Baier; Chuck Bitting; Karen Bradford; K. Cheri; Caven Clark; Laura Miller; Bill Osterhaus; **FHWA:** Randal Looney	
Date:	October 29, 2014	
Time:	11:00 am – 12:45 pm	
Facilitators:	**Chuck Bitting (BNR) and Mary Pearson (AHTD)**	
Agenda Topic #5*: Alternate I – Bridge potential floodplain impacts		**Responsible Agency**
Notes: Discussed need for Mill Creek floodplain determinations and hydraulic considerations under Bridge alternative.		
Action Items: Revise EA to include floodplain impacts.		AHTD (MP w/Special Studies [SS])
Agenda Topic #18*: Chapter 5 Water Quality		
Notes: Dye tracing determined that Flatrock Creek and spring are connected; impacts to the spring could cause Pruitt Cave backflooding and impact bats.		AHTD (MP w/SS)
Action Items: Revise EA to include spring impact / Pruitt Cave and bat impacts under Box Culvert alternative.		AHTD (MP w/SS)
Agenda Topic #22*: Canton Mine as historic and karst feature; impacts from mine to road		
Notes: Discussed concern regarding potential karst features associated with mine causing road subsidence.		ATHD (MP w/SS)
Action Items: Revise EA to include potential karst issue; borings could be made if necessary.		AHTD (MP w/SS) Materials Division (if needed)
Agenda Topic #28*: Chapter 6 Wild & Scenic Rivers		
Notes: Discussed Determination of Effect (DoE) to be completed by BNR upon preferred alternative identification and timeframe for DoE completion.		
Action Items: BNR to provide DoE schedule information; EA revision to include sentence about need for DoE.		BNR (CB) AHTD (MP)
Agenda Topic #32*: Noise		
Notes: Discussed Technical Noise Report; no further action necessary.		
Action Items: None		

Agenda Topic #33*: Increased truck traffic cumulative impacts	
Notes: Discussed cumulative impact concerns regarding potentially increased truck traffic and safety concerns.	
Action Items: Revise EA to include updated traffic volume information, if available; incorporate changes to present and future BNR projects, if determined and provided.	AHTD (MP w/Trans. Planning & Policy) BNR (CB)
Additional Topic 1: Possible reuse of Pruitt Bridge at Mill Creek	
Notes: Discussed history of proposals to move Pruitt Bridge to Mill Creek and most recent developments. Inclusion of life cycle maintenance costs should be incorporated.	
Action Items: Develop costs for potential reuse of Pruitt Bridge over Mill Creek to compare with building costs of new bridge over Mill Creek. Cost estimates will be provided to Newton County to determine if reuse of the Pruitt Bridge is preferable to constructing a new bridge. Information from Heavy Bridge Maintenance and possibly District 9 should be incorporated in EA.	AHTD (Cultural Resources [CR] w/MP) (Heavy Bridge Maintenance; District 9)
Additional Topic 2: MOAs	
Notes: Discussed Final (signed) MOA for Pruitt Bridge Removal. Discussed under what circumstances the BNR needs to be a signatory agency on MOAs. Determination that the BNR does not need to be a signatory agency on the Bridge Removal MOA, but requested to be one on the future Pruitt Historic District MOA. BNR expressed readiness to assist with future work (bridge documentation, marker, historic interpretation).	
Action Items: AHTD will write a letter to SHPO requesting a change to the Bridge Removal MOA to substitute a historic marker for the previously described information kiosk. Impact mitigation under the future Pruitt Historic District MOA will include historic interpretation, including Pruitt Bridge information. A kiosk or similar public display may be developed. BNR will be included as a signatory agency on the Historic District MOA.	AHTD (CR w/SHPO) BNR assisting
Additional Agenda Topic 3: Bluff Shelters	
Notes: Discussed status of laser scan, survey results to be used to evaluate a bluff shelter avoidance option for East Alternate II. Further coordination needed regarding bluff shelters (preservation in place or data recovery). BNR would agree to preservation in place.	
Action Items: Complete survey (including laser scanning) and use information to: 1) evaluate avoidance design; 2) determine if non-avoidance design would cause vibration or other adverse impacts; 3) conduct analysis and incorporate in EA, including potential to bury the shelters or conduct data recovery.	AHTD (Surveys, Bridge & Rdwy, CR w/SHPO, MP)
Additional Agenda Topic 4: Tribal Consultation	
Notes: Discussed need to ensure that tribal consultation is continued prior to finalizing; BNR will provide input.	
Action Items: Continue tribal consultation, noting bluff shelter issues.	FHWA (with CR) BNR (CC) assisting

Agenda Topics #4 & 5:** Construction impacts on recreation	
Notes: Discussed length and duration of Pruitt Day Use area/river use closures; concurrence that impacts would be greater under West Alternates. Discussed how bridge will be removed, as yet undetermined. Noted preferred months of July/August, when river levels are lowest. BNR will assist with planning and implementing closures, as needed.	
Action Items: Determine how bridge will be removed; condition to be added to contracts specifying bridge removal and closure impact minimization. Revise EA to incorporate additional information, including District 9 input on constructability issues, impacts, and closures.	AHTD (lead) BNR (assist)
Agenda Topic #6 through 8:** Visual Resources	
Notes: Discussed visual intrusion and impacts of alternatives; clarified that the least harm analysis will take into consideration the BNR's statements regarding visual impact differences between the Alternatives.	
Action Items: Include BNRs views in completing least harm analysis; incorporate context sensitive design in plans.	AHTD
Agenda Topic #15:** Views of BNR regarding resources and relative significance	
Notes: Discussed how the document presented resources and management zones; BNR in concurrence. Discussed need to receive written determinations from the BNR outlining the relative significance of resources in project area.	BNR (provide) AHTD (incorporate)
Action Items: BNR will provide relative significance statements for inclusion in least harm analysis. The need for an additional conference to complete the least harm analysis to be mutually decided at a future date.	BNR (provide) AHTD (incorporate)

*Agenda topic numbers are cross-referenced to Response List for EA

**Agenda topic numbers are cross-referenced to Response List for Section 4(f) Evaluation

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

May 6, 2015

Mr. Kevin Cheri
Superintendent
Buffalo National River, NPS
402 North Walnut Street, Suite 136
Harrison, Arkansas 72601

Re: Proposed Projects
AHTD Job 009784 – Buffalo River Bridge & Apprs.
AHTD Job BR5102 – Mill Creek Str. & Apprs.

Dear Mr. Cheri:

We would like to thank the Buffalo National River for your participation and contributions during the April 6, 2015 Section 4(f) evaluation meeting to discuss the referenced projects. A copy of the meeting summary is enclosed for your review, comment, and if acceptable, concurrence.

We are currently completing the Draft Environmental Assessment and Draft Section 4(f) Evaluation. Upon completion, we will provide you with copies of the documents so that you can review them concurrently with the Federal Highway Administration.

We appreciate your continuing cooperation in the development and review of these projects. Please contact Mary Pearson at (501) 569-2644 if additional information or copies are needed.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

Enclosure

JF:MP:fc

Action Items:
The Draft Section 4(f) Evaluation will be revised to include BNR views.

Agenda Topic #5: Factor 6 – After Reasonable Mitigation, the Magnitude of Any Adverse Impacts to Properties Not Protected by Section 4(f) (see Attach. 2)

Notes:
Discussed if any properties or resources not protected by Section 4(f) exist in the project areas. None were identified.

Action Items:
None

Agenda Topic #6: Bluff Shelter Avoidance Alternatives (see Attach. 3)

Notes:
Discussed the four bluff shelter avoidance alternatives; concurrence was reached that all four alternatives have been adequately considered and can be dismissed from additional study. Data recovery was the preferred mitigation if the bluff shelters will be impacted by the Preferred Alternative.

Action Items:
Bluff shelter avoidance alternatives analysis will be included in a cultural resource appendix restricted from public dissemination to reduce public knowledge of the sites' locations.

Additional Topic: Meeting Summary

Notes:
The Meeting Summary will be prepared and BNR review and concurrence requested. The BNR's subsequent concurrence of the Meeting Summary will suffice as a written statement of the BNR's views of the relative significance of Section 4(f) resources.

Action Items:
AHTD will provide the Meeting Summary; BNR will review and provide written concurrence.

Additional Topic: Mill Creek Trail Modifications

Notes:
The BNR has modified the Mill Creek Trail to exclude the Shaddox Cemetery spur.

Action Items: Both the Draft EA and Section 4(f) Evaluation figures will be revised to reflect this change.

Additional Topic: Preferred Alternative

Notes:
The Buffalo River Bridge Project East Alternate II and Mill Creek Crossing Project Alternate I – Bridge have been tentatively identified as the Preferred Alternatives in order to incorporate that information into the documentation.

Action Items: Both the Draft EA and Section 4(f) Evaluation will be revised to reflect identification of the Preferred Alternative.

ATTACH. 1

PROPOSED MEETING AGENDA – SECTION 4(F) LEAST OVERALL HARM ANALYSIS

MEETING INFORMATION

Objective: Discuss BNR views on the relative significance of resources so the Draft Section 4(f) Evaluation least overall harm analysis can be completed.

Date: 04/06/15 ***Location:*** BNR HQ - Harrison
Time: 10:00 AM ***Meeting Type:*** Consultation
Called By: AHTD
Attendees: AHTD – D. Nichols, M. Pearson, B. Price; FHWA - R. Looney; BNR - C. Bitting, K.Cheri, other BNR staff as needed.

PREPARATION FOR MEETING

The Draft Section 4(f) Evaluation provides:

- Chapter 3 – legal and regulatory context for planning mitigation measures and determining the least harm alternative
- Chapters 4 and 5 – resource categories for the Buffalo River Bridge and Mill Creek Crossing projects
- Chapter 10 – the framework for discussing the least overall harm factors

Attachment 1 provides bluff shelter avoidance alternative descriptions and a figure.

AGENDA ITEMS

Item/Facilitator

1. Section 4(f) Evaluation Least Overall Harm Analysis Consultation / M. Pearson
2. Bluff Shelter Avoidance Alternatives Discussion / M. Pearson

OTHER NOTES OR INFORMATION

Hard copies of the Draft Section 4(f) Evaluation will be available at the meeting

Attach. 2

Section 4(F) Least Overall Harm Analysis Discussion Points

1. Section 4(f) Resource Categories

Chapters 4 and 5 provide the rationale for categorizing Section 4(f) resources as follows:

Buffalo River Bridge Project
Park Resources: Buffalo River, Recreational Resources, Recreational Trails, Visual Resources
Historic Resources: Pruitt Bridge, Pruitt Historic District

Mill Creek Crossing Project
Park Resources: Mill Creek Trail, Visual Resources
Historic Resource: Canton Mine

Notes: Section 4(f) considers the activities, features, and attributes qualifying land as a Section 4(f) property within a project area. Public activities (e.g., recreation) and how areas are specifically managed and intended to be used are closely considered. The evaluation process recognizes the potential for competing/conflicting interests and an intended outcome is to determine which alternative causes the **least overall harm** in light of all of the available information – including mitigation measures.

2. Section 10.1 Factors 1 and 2 – Ability to Mitigate Adverse Impacts and Relative Severity of Remaining Harm

Discussion: Following mitigation, what adverse impacts would remain and to what degree?

3. Section 10.2 Factor 3 – Relative Significance of Each Section 4(f) Resource

Discussion: This section could be combined with Factor 4 – Views of Officials with Jurisdiction over Section 4(f) Property.

4. Section 10.3 Factor 4 – Views of Officials with Jurisdiction over Section 4(f) Property

Discussion: The information currently included in the document will be updated to incorporate consultation results.

5. Section 10.5 Factor 6 – After Reasonable Mitigation, the Magnitude of Any Adverse Impacts to Properties Not Protected by Section 4(f)

Discussion: Do any properties or resources not protected by Section 4(f) exist in the project areas?

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO

1.A.2

November 24, 2015

Scott E. Bennett
Director
Arkansas State Highway and Transportation Department
Post Office Box 2261
Little Rock, Arkansas 72203-2261

Dear Director Bennett:

My staff met with members of your Environmental Division on April 6, 2015 to discuss the Draft 4(f) Least Overall Harm Analysis for AHTD Jobs 009784 and BR5102, the Buffalo River bridge replacement at Pruitt and the Mill Creek crossing. AHTD provided a summary of the meeting. We concur with the meeting summary, and believe the Buffalo River Bridge Project, East Alternate II and the Mill Creek Crossing Project, Alternate I are the Preferred Alternatives for the Environmental Assessment.

I thank you and your staff for your continued excellent work on this project, and for your continued support for Buffalo National River. Please feel free to contact Natural Resource Program Manager Chuck Bitting at 870/365-2762 or chuck_bitting@nps.gov with any questions regarding our concurrence.

Sincerely,

Kevin G. Cheri
Superintendent

RECEIVED
NOV 30 2015
DEPUTY DIRECTOR AND
CHIEF OPERATING OFFICER

RECEIVED
AHTD
DEC 15 2015
ENVIRONMENTAL
DIVISION

United States Department of the Interior
NATIONAL PARK SERVICE
Buffalo National River
402 N. Walnut, Suite 136
Harrison, AR 72601

IN REPLY REFER TO:
1.B

October 2, 2015

Scott E. Bennett, Director
Arkansas Highway and Transportation Department
P.O. Box 2261
Little Rock, Arkansas 72203

Dear Mr. Bennett:

My staff has reviewed the Draft Environmental Assessment for Buffalo River Bridge and Approaches and Mill Creek Structure and Approaches (AHTD Job #s 009784 and BR5102), (FAP #s BRN-0051 and BRN-0015). We submit the following comments:

Page 3-5, East Alternative: The first sentence describes a bridge 670 feet in length and 57 feet wide. If we understand it correctly, the bridge will have two 12-foot travel lanes, two 8-foot shoulders, and one or two pedestrian walkways. We assume there is a 1-foot-wide centerline between the travel lanes, but none between the travel lanes and shoulders. If our assumptions are correct, the area of the bridge from shoulder to shoulder should be 41 feet wide. The addition of a 6-foot pedestrian walkway and a 2-foot barrier brings the width to 49 feet. With the addition of a 2-foot barrier on either side of the bridge, the total width is 53 feet. This does not result in the 57 foot width stated in the document.

Page 3-6, West Alternative 1: The first sentence describes a bridge 58 feet wide. See above comments.

Figure 3-8 shows a wide easement under the bridge structure, much wider than the roadway on either end. Is this because of fill? The maps should show the fill limits to help us make more informed decisions.

Page 4-3: We looked at the USGS report (Neely, 1985) on the December 1982 flood and the 100 and 500 year floodplains. The 100 year flood elevation is approximately 802 feet and the 500 year flood elevation is approximately 807.5 feet. This should help the designers of the bridges and approaches.

Page 4-8 first paragraph, last sentence: The sentence should end resources or values.

Page 5-4, second to last paragraph: This paragraph describes a "small unnamed spring" in the proposed right of way for the box culvert. This spring is known to us as "Boiling Spring." In a dye trace in 1998 Ozark Underground Laboratory determined that this spring was a resurgence point for Flat Rock Creek (Aley and Aley, 2000).

Page 5-12, Section 5.4.1.2, Second Paragraph: The Buffalo River in this area is Critical Habitat for the Rabbitsfoot Mussel.

Page 5-17, Section 5.5, last sentence of last paragraph alludes to 60 additional water quality monitoring stations. We assume this means the stations for special projects such as dye tracing, and the E. coli sampling stations responding to specific bacterial threats, as well as stations used by the Heartland Network Inventory and Monitoring Program. Specific references, if available, would be useful.

Figure 5-3: This map shows a permanent easement on the south side of the Buffalo River for the East Alternative that appears to represent fill material, and encompasses the 1913 bridge approach. Figure 6-5 shows the bridge bents in this area. The two maps seem to be representing different design styles, one using large amounts of fill on the south side, the other flying over this with a deck elevated by bents. Please check these two maps and ensure the permanent rights of way are correct.

Page 5-36, First paragraph. There is no St. Joe Limestone visible on the "East Bluff." This bluff is entirely in the Ordovician-age Everton formation.

Page 5-40, Table 5-2: The ambient sound measurements were for very short time periods and do not appear to be designed to capture the full range of sounds experienced. The first two sites were sampled on a Tuesday for 45 minutes each. The third and fourth sites were sampled on a Thursday for 45 minutes and 32 minutes respectively. We also question impacts of noise on wildlife and perhaps fish. Is the use of dB(A) appropriate for the range of species which inhabit this area?

Page 6-2, Section 6.1: Shouldn't we consider the impacts from the offsite borrow and waste areas? Is the Special Provision the normal way to consider these?

Page 6-2 under "Moderate" heading. Replace the word "could" with "would" to be consistent.

Page 6-46, Table 6-5: Under the West Alternatives row, in the Impact column, it appears from the text on the previous page the Pruitt Day Use Area would have Adverse Moderate to Major Long Term Impacts, not Negligible as shown in the table.

Page 7-3: We have at least one FONSI (HTLN EPMT EA) to send to AHTD.

Page 7-10, last paragraph: It seems like commercial drivers and recreational drivers would experience long-term minor to major adverse cumulative impacts from the project. It is unclear to us why the impacts differ for recreational and commercial drivers and commuters.

Page 8-1, Section 8.2: NPS as well as USFWS must be notified in the case of an incidental cave discovery.

Page 8-3, Section 8.7: Shouldn't this be HABS-HAER documentation rather than HAER documentation?

REFERENCES

Aley, T. and Aley C., 2000. Inventory and Delineation of Karst Features, Buffalo National River, Arkansas. Report on Phase 2 Investigations and Final Project Report. October, 2000. Pages 48 and 49.

Neely, B. P., 1985. The Flood of December 1982 and the 100- and 500-Year Flood on the Buffalo River, Arkansas. U.S. Geological Survey. Water-Resources Investigations Report 85-4192.

We commend your staff on the preparation of this Draft Environmental Assessment. We thank you for the opportunity to review the document and for your continued support for Buffalo National River. Please feel free to contact Natural Resource Program Manager Chuck Bitting at 870/365-2762 or chuck_bitting@nps.gov with any questions regarding our comments.

Sincerely,

Kevin G. Cheri

Kevin G. Cheri
Superintendent

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Scott E. Bennett
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

May 24, 2017

Mr. Kevin Cheri
Superintendent
Buffalo National River, NPS
402 North Walnut Street, Suite 136
Harrison, Arkansas 72601

Dear Mr. Cheri:

We would like to thank the Buffalo National River (BNR) for your participation and contributions during the Section 4(f) process. A draft of the final Section 4(f) Evaluation (Evaluation) was submitted to the BNR in September 2016. The BNR provided review comments in a letter dated November 29, 2016.

The Department is providing the enclosed responses to the BNR's comments. The final Section 4(f) Evaluation has been revised (Revised Evaluation) in response to the comments and it is been included for your information. Please provide your concurrence on this final 4(f) Evaluation at your earliest convenience.

We appreciate your ongoing cooperation in finalizing this project. If additional information is needed, please contact Mary Pearson at (501) 569-2644.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

Enclosures

JF:MP:fc

Comments and Responses to BNR letter dated November 29, 2016

Comment 4.1.¶4: The BNR acronym in the first half of the first sentence shows as BRN.

Response: The Revised Evaluation corrects the acronym.

Comment 4.3.3¶1: Please cite Tribal Consultation efforts, such as letters or other documentation, in support of the decision regarding preservation in place of Archeological Sites.

Response: The Revised Evaluation includes updated cultural resources information, including copies of Tribal Consultation efforts. Memorandums of Agreement and Tribal Consultation correspondence have been included in a separate Historic Resources appendix.

Comment 5.1.3¶3: This last sentence leaves the paragraph in suspense. Is there something more regarding the meanderings and flow characteristics common to Ozark highlands streams which would indicate the value of Mill Creek? It is worth noting that Mill Creek is a spring-fed perennial stream, which is actually not all that common in this portion of the national river. This spring-fed perennial condition provides habitat for important species and may be a reasonably good thermal refugium for cool-water species in the summer.

Response: The sentence was edited in the Revised Evaluation to reflect that Mill Creek has a common Ozark Highlands riffle-pool type drainage. This section focuses on visual resources. Water quality, habitat, and important species are discussed in other sections of the Evaluation. Please refer to the Environmental Assessment (EA) (approved in February 2016) for a detailed analysis of potential Mill Creek water quality impacts.

Comment 6.1¶6: "Such as" is used twice in the second sentence.

Response: The Revised Evaluation corrects the sentence.

Comment 6.3.1¶1: The current Equestrian Trail crossing is approximately 28 feet wide according to the data on travel lanes and shoulders. The proposed crossing under the East Alternative would be approximately 52 feet wide when considering the shoulders, wider travel lanes, and turn lane, an increase of 186%. Would the increases in sight distances from the north and south be equal or greater than 186% of the current sight distances?

Response: The Revised Evaluation states that the Equestrian Trail will be re-routed under the north end of the bridge. Since the re-routing will eliminate the need for a road crossing, site distance references have been removed.

Comment 6.3.2¶5 and ¶10: Concerning the placement of fill on the southern approach in the East Alternative, we hope that the fill will be complementary to the aesthetic conditions in this area and will be placed such that it does not detract from, but potentially enhances the aesthetic values. We hope that a landscape architect with experience designing fill structures in historic districts will be incorporated in the planning and design team to avoid a similar situation to the aesthetically displeasing stark white rip-rap slopes in the Hwy. 7 passing lanes project to the south of the BNR boundary. We support context sensitive design to reduce adverse visual impacts to the visitors to BNR.

Response: The Revised Evaluation states that fill areas would be re-vegetated with native grasses and wildflowers within the roadway clear zones, and native trees would be planted beyond the roadway clear zones. Rip-rap areas would be capped with sandstone in shades of tans and browns to blend in with local rock colors.

Comment 6.3.4: There is no mention in this section regarding temporary noise impacts from blasting, construction equipment, etc. Is this something that should be covered in this section?

Response: Temporary noise impacts are described in Section 6.5 and Section 9.1.1 of the Evaluation. The Revised Evaluation clarifies distinctions between traffic noise modeling results and temporary noise impacts associated with demolition and construction activities.

Comment 7.3.3¶1: The scale of the bridge alternative would be much larger than the existing crossing as stated in this paragraph, but it should also be noted that the scale of the bridge, which would likely be visible from the Shaddox Cabin most of the year would also overpower the tiny cabin in comparison.

Response: Comment noted.

Comment 7.3.3¶4: Same comments as for Section 6.3.2¶5 and ¶10 apply here.

Response: The proposed bridge structure will include features such as a rock pattern on the concrete areas, weathering steel, an open parapet rail, and a pedestrian walkway. Although the color of the concrete has to yet been determined, the weathering steel will be brown. The open parapet rail will afford motorists with views of the river. The pedestrian walkway will provide recreationists with panoramic views of the river and bluffs.

Comment 7.3.3¶6: It appears this is a mistake, the bridge alternative would move the Mill Creek crossing approximately 250 feet closer to the Shaddox Cabin as stated in 7.3.3¶1, and as depicted in Figure 7-1. This paragraph states “the new crossing would be approximately 120 feet further away from the Shaddox Cabin”.

Response: The Revised Evaluation indicates the bridge would be closer to the Shaddox cabin.

Comment 7.3.3¶7 and ¶8: These two paragraphs are almost identical, the first deals with minimization and the second deals with mitigation. Could the not be combined into a single paragraph?

Response: The Revised Evaluation omits paragraph 8.

Comment 7.4¶2: Remove the second "removal" from the first sentence.

Response: The Revised Evaluation omits the second "removal".

Comment 8.1¶1: In the second sentence, replace "substandard Pruitt Bridge conditions" with "substandard conditions".

Response: The Revised Evaluation removes "Pruitt Bridge" from the sentence.

Comment 8.2: In the fourth sentence, replace "Buffalo River Bridge and Mill Creek crossing that it would compromise . . . " with "Buffalo River Bridge and Mill Creek Crossing would compromise . . ."

Response: The Revised Evaluation removes "that it".

Comment 9.1.1¶3: The increased sight distance for equestrian users is cited as potential mitigation. Do the facts bear out this statement? What about other mitigation measures such as signs, skid resistant surfaces, etc. for equestrian users? Is there any potential to design the bridge with a box culvert or some other passage under the roadway on the north side of the river? This would provide a permanent route for the equestrian trail, and would also be desirable for hikers. It would also be desirable for mountain bikers if this recreational activity is authorized for this area in the future. In addition, it would provide an increase in safety for motorists, regardless of the recreational user group involved.

Response: The Revised Evaluation states that the Equestrian Trail will be re-routed to pass under the north end of the bridge. Sight distance references have therefore been removed.

Comment 9.1.3: Historic Resources paragraph: There are two periods after the first sentence, as if a sentence has been removed.

Response: The Revised Evaluation omits the redundant period.

Comment 9: Throughout this chapter "would" and "could" are used to describe how to minimize and mitigate impacts to 4(f) resources. "Would" implies that a particular minimization/mitigation action will take place. "Could" implies that those particular actions may take place, but there is no guarantee. Considering the significance of the Buffalo Nation River as America's first National River, is seems reasonable to review this chapter and replace as many of the "could statements" with "would" statements as can feasibly be used.

Response: This chapter was updated in the Revised Evaluation to reflect the most recent information available related to the mitigation being proposed with this project. The Finding of No Significant Impact will provide all final mitigation commitments made for this project.

Comment 9.2: Throughout the document, the discussion of the potential impacts to 4(f) resources do not seem to discuss any impacts to the spring located near the existing low water crossing of Mill Creek. As many Species of Greatest Conservation Need (SGCN) are suspected of being strongly associated with spring habitats, more discussion of this natural feature may be necessary.

Response: The Evaluation did not identify the spring as a specific 4(f) resource. Please refer to the EA for a detailed analysis of potential Mill Creek water quality impacts.

Comment 10.1: Mill Creek Crossing: Perhaps the spring should be added to the Park Resources Section and the Shaddox Cabin to the Historic Resources section. According to the descriptive paragraph, the bridge would not impact historic resources, but earlier in the document there is a discussion of the impacts of the bridge upon the visual resources of the Shaddox Cabin, and a statement that all historic resources associated with the Bridge alternative have not been established. This may affect the conclusions of this section.

Response: Park Resources were detailed in Chapter 4 of the preliminary draft final Section 4(f) Evaluation. Chapter 4's definitions and determinations of the activities, features, and attributes of BNR Section 4(f) resources were agreed upon in a subsequent BNR and AHTD meeting. The meeting minutes are included in Appendix B of the Evaluation. The spring is integral to Mill Creek and therefore considered in the Evaluation's Mill Creek Trail recreational and visual resource analyses. As stated in Section 7.3.2, historic resources associated with the Bridge Alternative *have not been identified* (italics added for emphasis). The Shaddox Cabin was determined as ineligible for the National Register of Historic Places and does not meet Section 4(f) historic resource criteria. However, the cabin is considered in the Evaluation's analyses as a both a feature of the Mill Creek Trail recreational resource and as a visual resource.

Comment Appendix A: There is no Tribal THPO or Arkansas SHPO correspondence attached. This must be rectified to support the conclusions.

Response: Memorandums of Agreement and Tribal Consultation correspondence have been included in a separate Historic Resources appendix.

U.S. Department of Transportation
Federal Highway Administration

Arkansas Division

700 W. Capitol Ave
Room 3130
Little Rock, AR 72201-3298
501-324-5625(Office)
501-324-6423(Fax)

February 6, 2018

Mr. Scott Bennett, Director
Arkansas Department of Transportation
P.O. Box 2261
Little Rock, Arkansas 72203-2261

Subject: Buffalo River Bridge & APPRS. & Mill Creek STR> & APPRS.
Newton County, ARDOT Job Numbers 009784 & BR5102

Dear Mr. Bennett:

As requested in Mr. John Fleming's letter of February 1, 2018, we have determined that this project will have no significant impact on the environment.

The (FONSI) is based on the results of the environmental assessment (EA). The EA has been independently evaluated and determined to adequately and accurately discuss environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required. You may proceed to final design. If you have any questions or would like to discuss, please contact me at 501-324-6430.

Sincerely,

Randal Looney
Environmental Coordinator

Enclosure

FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT
BUFFALO RIVER BRIDGE & APPRS.
AND
MILL CREEK STR. & APPRS.
FAP NUMBERS BRN-0051(13) AND BRO-0051(15)
JOB NUMBERS 009784 AND BR5102
NEWTON COUNTY, ARKANSAS

The Arkansas Department of Transportation (ARDOT) has completed assessing the Buffalo River Bridge and Mill Creek Crossing projects proposed within the boundaries of the Buffalo National River, a park unit of the National Park Service (NPS-BNR). Upon consideration of the Environmental Assessment (EA), public, agency, and organization comments, and other considerations, the Federal Highway Administration (FHWA) has determined that the Preferred Alternatives will have no significant impacts on the human or natural environment. Pursuant to 23 CFR §771(a), the FHWA hereby issues this Finding of No Significant Impact (FONSI). Figure 1 shows the East Alternative as the Preferred Alternative for the Buffalo River Bridge project, and Figure 2 shows the Bridge Alternative as the Preferred Alternative for the Mill Creek Crossing project.

This FONSI is based on the FHWA's independent evaluation of the EA and Section 4(f) Evaluation. The information contained in these documents has been determined to adequately and accurately discuss the purpose and need, environmental issues, and impacts of the proposed projects and appropriate mitigation measures. The EA also provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required.

Purpose and Need

The purpose of the Buffalo River Bridge project is to replace the substandard Pruitt Bridge. The project is needed because of the existing bridge's deterioration and inability to adequately handle existing traffic due to its narrow width.

The purpose of the Mill Creek Crossing project is to replace the existing low water crossing on County Road 213 with a structure that will not be submerged during flood events, and to improve the roadway curvature and grade. The project is needed to provide a reliable passage over Mill Creek.

The data contained in the EA supports the need for the projects, given both existing conditions and those projected for the year 2035.

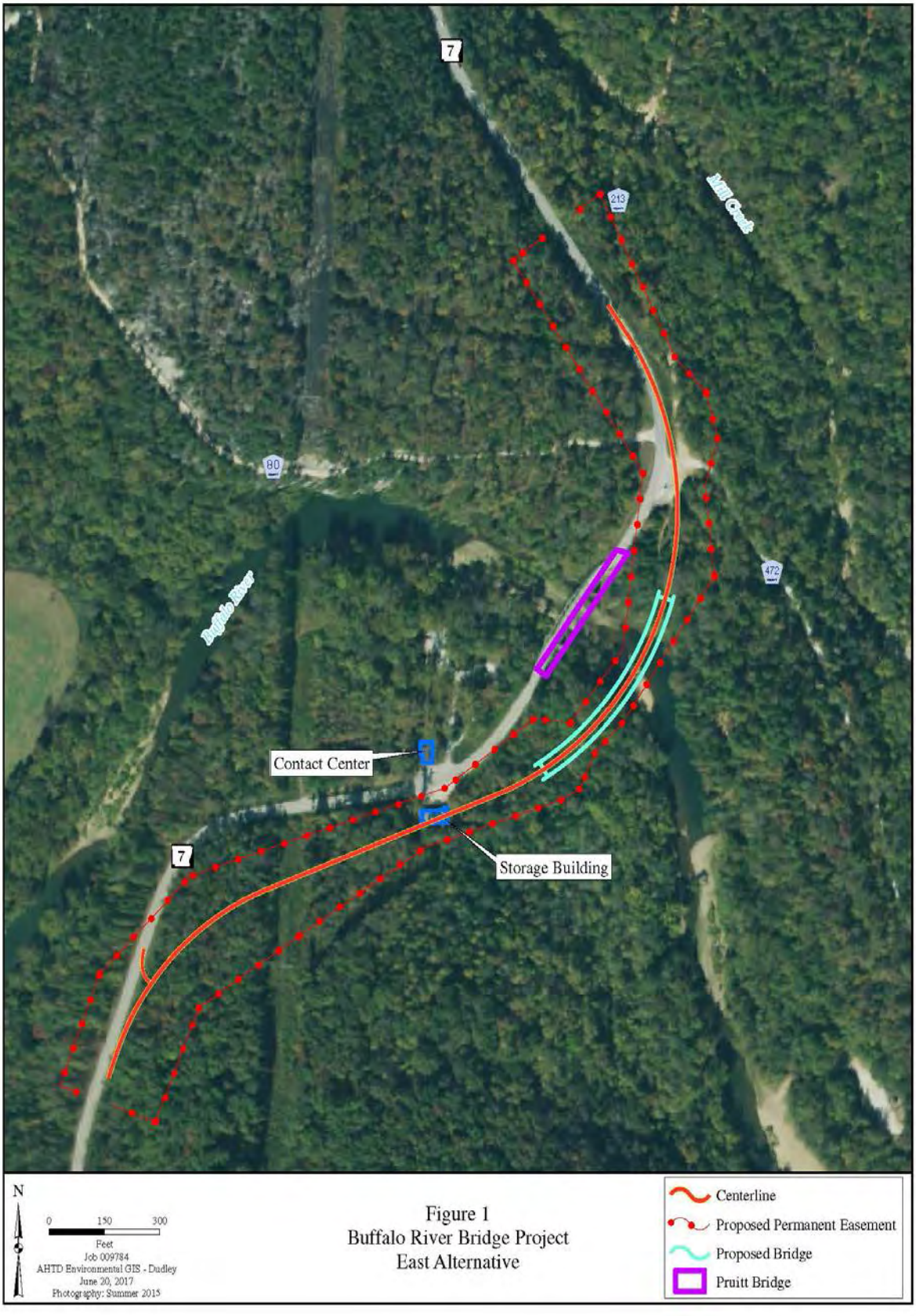


Figure 1
Buffalo River Bridge Project
East Alternative


7
213
Mill Creek
213
80
472
7
Buffalo River
N
0
100
200
Feet
Job BR5102
AHTD Environmental GIS - Dudley
June 20, 2017
Photography: Summer 2015
Figure 2
Mill Creek Crossing Project
Bridge Alternative
Centerline
Proposed Permanent Easement

Project History

The NPS-BNR has been a cooperating agency for the Buffalo River Bridge project since October 2002. The Buffalo River Bridge project was initially addressed in conjunction with the Highway 7 Passing Lanes project (Job 090169), and development of alternatives began in 2002.

The NPS-BNR subsequently expressed concerns about the safety of a segment of Highway 7 between the end point of the Passing Lanes project and the start point of the proposed Buffalo River Bridge project. The ARDOT responded to these concerns by programming the Safety Improvements project (Job 090213) in March 2006.

The NPS-BNR requested in July 2004 that the Buffalo River Bridge project be included in an EA in conjunction with the Passing Lanes project. Following the programming of the Safety Improvements project in 2006, the NPS-BNR requested that all three of the projects be included in one EA.

The Mill Creek Crossing project was initiated in 2006 by Newton County officials as a state-aid project. In 2007, the NPS-BNR subsequently requested that the Mill Creek project be included in the EA.

The ARDOT completed the Draft EA for the four projects in April 2009. The ARDOT subsequently proposed to expedite the Passing Lanes and Safety Improvements projects as separate projects with logical termini and independent utility. In March 2011, the NPS-BNR concurred with the proposal to first address the Passing Lanes and Safety Improvements projects in one EA, with the Buffalo River Bridge and Mill Creek Crossing projects to be addressed in a subsequent EA. This proposal was confirmed by September 2011 and the EA for the Passing Lanes and Safety Improvements projects was prepared. The FONSI for the Passing Lanes and Safety Improvement projects was approved in June 2013.

The Buffalo River Bridge and Mill Creek Crossing Draft EA process resumed in March 2013. The final EA incorporated the NPS-BNR's Draft EA review comments and was approved by the FHWA in February 2016.

A Section 4(f) Evaluation for the Buffalo River Bridge and Mill Creek Crossing projects was prepared to determine which alternative presented the least overall harm to Section 4(f) resources. The process to prepare the Draft Section 4(f) Evaluation started in May 2013. The Section 4(f) Evaluation was completed in June 2017 after incorporating NPS-BNR comments and upon their approval as officials with jurisdiction. The final Section 4(f) Evaluation concluded that the East Alternative presents the least overall harm for the Buffalo River Bridge project, and the Bridge Alternative presents the least overall harm for the Mill Creek Crossing project.

In addition to the No Build Alternative, the EA and the Section 4(f) Evaluation evaluated five build alternatives for the Buffalo River Bridge project. All of the build alternatives involved replacing the National Register of Historic Places (NRHP)-listed Pruitt Bridge on new location.

The Pruitt Bridge was offered for use by any government agency or other party willing to accept title for it and with the financial ability to continue maintenance. Bridge marketing letters were distributed in 2003, 2010, and 2013. Various entities, including Newton County and the NPS-BNR, initially expressed interest in accepting title to the Pruitt Bridge for reuse or relocation during this time period. Newton County elected to decline title to the Pruitt Bridge in 2010. The NPS-BNR ultimately requested the demolition or removal of the Pruitt Bridge in 2013. The Pruitt Bridge will be removed following construction of the new bridge.

The advantages of the Preferred Alternative for the Buffalo River Bridge project in comparison with the other alternatives include:

- The design includes a shorter bridge and less rock excavation, resulting in a smaller construction footprint and lower cost. Additionally, fewer bents are required.
- Potential impacts to resources are generally less than for the other alternatives. The specific resources that would have substantially less impacts include: geology, topography, soils, caves, karst, vegetation, and visual resources.
- Public comments indicated a preference for the East Alternative, and the NPS-BNR also expressed a preference for the East Alternative.

In addition to the No Build Alternative, the EA and the Section 4(f) Evaluation evaluated a Bridge Alternative and a Box Culvert Alternative for the Mill Creek Crossing project. Both of the alternatives involve replacing the low water crossing on new location and include widening the roadway approaches and adding shoulders. Additionally, the curvature and grade of the roadway will be improved to meet current safety standards. The low water crossing will be removed once the new crossing can be used.

The advantages of the Preferred Alternative for the Mill Creek Crossing project in comparison with the Box Culvert Alternative include:

- Requires less new easement and rock excavation.
- Public comments indicated a preference for the Bridge Alternative, and the NPS-BNR also expressed a preference for the Bridge Alternative.

A Location and Design Public Hearing (LDPH) was held in Jasper on April 21, 2016. The comments received during the LDPH process are summarized in the LDPH Disposition of Comments (Appendix 1). On August 22, 2016, the Interdisciplinary Staff identified the East Alternative as the Preferred Alternative for the Buffalo River Bridge project and Bridge Alternative as the Preferred Alternative for the Mill Creek Crossing project. The Preferred Alternatives were identified based on information provided in the EA and the Section 4(f), public comments, and coordination with the NPS-BNR.

Design Modifications

Buffalo River Bridge Project

The Buffalo River Bridge Preferred Alternative design was modified following the LDPH. Modifications include the following:

- Lengthening the bridge from 670 feet to 702 feet.
- Additional 2.2 acres of permanent construction easement and 1.0 acre of temporary construction easement.
- Equestrian Trail rerouted to pass under the bridge instead of crossing Highway 7.

Lengthening the bridge and providing Equestrian Trail accommodations increased the total rock cut volume from approximately 30,500 cubic yards to 38,900 cubic yards.

Mill Creek Crossing Project

The Mill Creek Crossing Preferred Alternative design was modified following the LDPH. Modifications include the following:

- Lengthening the bridge from 250 feet to 302 feet.
- Increasing the total project length by 100 additional feet.
- Additional 1.5 acre of permanent construction easement.

Potential Impacts and Mitigation

Buffalo River Bridge Project

1) The FHWA, in consultation with the State Historic Preservation Officer (SHPO) and in coordination with the NPS-BNR, has determined the project would have an adverse effect on the NRHP-listed Pruitt Bridge. Specific mitigation measures and commitments are fully documented in the final Section 106 Memorandum of Agreement (MOA) for the Pruitt Bridge and summarized below:

- Updating the Historic American Engineering Record history, including the original design plans.
- Designing a brochure that includes pictures, an explanation of the bridge's historic significance, and a Quick Response (QR) code linked to a short video on the engineering and methods used to construct the bridge.

- Placing the brochure in a new, covered brochure case in the Pruitt Day Use Area and in the Tyler Bend Visitor's Center.
- Laser scans and a digital 3-dimensional model made available on the ARDOT Historic Bridge Program webpage.
- Placing an approximately 4-foot by 6-foot wall mural of the bridge in the Newton County Courthouse.
- Installing an historical marker describing the Pruitt Bridge's historical significance and displaying a picture of the bridge in ARDOT easement as close as possible to its original site.

2) The FHWA, in consultation with the SHPO and in coordination with the NPS-BNR, has determined the project would have an adverse effect on the Storage Building, a contributing element to the NRHP-eligible Pruitt Historic District. Specific mitigation measures and commitments are fully documented in the final Section 106 MOA for the Pruitt Historic District and are summarized below:

- Documenting the Storage Building and other features prior to removal.
- Creating a brochure with a QR Code linked to a short video to provide visitors with information about the historic significance of the site.
- Placing the brochure in a new brochure case in the Pruitt Day Use Area and in the existing brochure case at the Tyler Bend Visitor's Center.

The Pruitt Bridge and Pruitt Historic District MOAs are included in Appendix 2.

3) The FHWA, in consultation with the SHPO and Tribal officers and in coordination with the NPS-BNR, has determined the project would have an adverse effect on two archeological sites. Specific mitigation measures include data recovery excavations. These measures are fully documented in the final Section 106 MOA and the Treatment Plan for these archeological sites. Commitments are summarized in the MOA (see Appendix 2).

4) As defined by Section 4(f) of the *Department of Transportation Act of 1966*, as amended, the project will have the following impacts:

- Direct use of 13.8 acres as permanent easement.
- Removing the Pruitt Bridge, with mitigation as outlined in the MOA.
- Removing the Storage Building, with mitigation as outlined in the MOA.
- Rerouting the Equestrian Trail to pass under the new Highway 7 bridge, thereby increasing safety.

5) Pursuant to Section 7(c) of the *Endangered Species Act of 1973*, the project area was evaluated for the potential occurrence of threatened and endangered species along with special status species. Seven threatened or endangered species are listed as potentially affected by the proposed project by the official species list obtained June 28, 2017.

Those species include the Rabbitsfoot Mussel (*Quadrula cylindrica cylindrica*), Snuffbox Mussel (*Epioblasma triquetra*), Ozark cavefish (*Amblyopsis rosae*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), northern long-eared bat (*Myotis septentrionalis*), Indiana bat (*Myotis sodalis*), and gray bat (*Myotis grisescens*). The Ozark cavefish is only know to occur in nine caves in Benton County within Arkansas. Based on the lack of available habitat in the project area and the distance to known populations, it has been determined that the project will have no effect on this species.

Through informal consultation with the US Fish and Wildlife Service (USFWS) (see Appendix 3), it was determined that the project may affect, but is not likely to adversely affect, the Rabbitsfoot Mussel or its critical habitat, Snuffbox Mussel, Ozark big-eared, Indiana bat, or gray bat with the implementation of the mitigation measures listed below. A may affect determination was made for the northern long-eared bat; however, there are no effects beyond those previously disclosed in the Service's programmatic biological opinion for the final 4(d) rule dated January 5, 2016. Any take that may occur incidental to this project is not prohibited under the final 4(d) rule (50 CFR§ 17.40(o)). This project is consistent with the description of the proposed action in the programmatic biological opinion, and the 4(d) rule does not prohibit incidental take of the northern long-eared bat that may occur as a result of this project. Therefore, the programmatic biological opinion satisfies the "action agency" responsibilities under ESA section 7(a)(2) relative to the northern long-eared bat for this project.

Conservation measures to protect bat species include:

- Construction activities will cease 1 hour prior to sunset and 1 hour prior to sunrise from March 15 through November 14 to avoid disturbing their foraging.
- Blasting operations will not be permitted between March 15 and November 30 to avoid disturbing their hibernations.
- The clearing of trees will also be prohibited during the active season of Indiana and northern long-eared bats, currently March 15 through November 14.
- Sediment and Erosion control Best Management Practices (BMPs) will be implemented in accordance with the projects Stormwater Pollution Prevention Plan.
- The storage of petroleum or other material storage within flood zones will be prohibited, and quantities of stored petroleum and other chemical projects may be limited at all construction staging sites.

Conservation measures to protect aquatic species include:

- Sediment and Erosion control BMPs will be implemented in accordance with the project’s Stormwater Pollution Prevention Plan.
- The storage of petroleum or other material storage within flood zones will be prohibited, and quantities of stored petroleum and other chemicals may be limited at all construction staging sites.

All of the above actions will be included in Special Provisions designed to minimize potential construction-related impacts to the threatened and endangered species and their habitats. Monitoring will be performed during construction to ensure adherence to the Special Provisions.

Mill Creek Crossing Project

1) As defined by Section 4(f) of the *Department of Transportation Act of 1966,* as amended, the project will require direct use of 4 acres as permanent easement and temporary use of 1.6 acres as temporary construction easement.

2) The FHWA, in consultation with the SHPO and Tribal officers and in coordination with the NPS-BNR, has determined the project would have an adverse effect on an archeological site. Specific mitigation measures include data recovery excavations. These measures are fully documented in the final Section 106 MOA for the archeological site. Commitments are summarized in the MOA (see Appendix 2).

3) The impact and mitigation measures for threatened, endangered, and special status species previously described for the Buffalo River Bridge project are applicable to the Mill Creek Crossing project, with the exception of the effects determination for the northern long-eared bat. Due to its proximity to Pruitt Cave, a hibernaculum for the species, the project did not qualify for the 4(d) rule or the accompanying programmatic biological opinion. With the incorporation of the above conservation measures it was determined that the project may affect, but was unlikely to adversely affect, the northern long-eared bat.

Resources Not Impacted

1) The projects will not impact special floodplain hazard areas; however, floodplain crossings will occur. Adjacent land should not be impacted nor have a greater flood risk than existed before construction. None of the encroachments will constitute a significant floodplain encroachment or a significant risk to property and life.

2) *Executive Order 11990* requires the avoidance of adverse wetlands impacts where possible. Wetlands do not occur in or near the project study area; therefore, there are no impacts.

3) In accordance with 23 CFR §772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise,* a study was conducted using the FHWA Traffic Noise Model to assess potential noise impacts associated with the Buffalo River Bridge project. Although an overall future noise level increase was predicted, it would not approach or exceed the project area's Noise Abatement Criteria. Adverse noise impacts would therefore not occur. Noise impacts were not assessed separately for the Mill Creek

Crossing project due to its distance from the Pruitt Day Use Area and predicted low traffic volumes and speed.

4) The projects are located in an area designated as in attainment for transportation pollutants. Therefore, the conformity procedures of the *Clean Air Act* (CAA), as amended, do not apply. Section 118 of the CAA requires park units to meet all federal, state, and local air pollution standards. The majority of the BNR, including the project study areas, is designated as a Class II air quality area under the CAA. The Class II designation sets the maximum allowable increase in concentrations of pollutants over baseline concentrations of sulfur dioxide and particulate matter. Based on air quality analyses of similar transportation projects, it is anticipated that vehicle-generated levels will remain well below national and state standards and that the Class II air quality designation for the BNR will not be affected.

5) Although soils characteristic of prime farmland and farmland of statewide importance are present in the project study area, this land is not available for farming because it is within the boundaries of the NPS-BNR. There are therefore no prime farmland or farmland of statewide importance impacts.

6) The projects were developed in accordance with the *Civil Rights Act of 1964*, as amended, and *Executive Order 12898* on Environmental Justice. The projects would not have any adverse or disproportionate impacts on minority, low-income, elderly, or disabled populations. No person was discriminated against or denied the opportunity to comment on the proposed project alternatives.

Additional Environmental Commitments

1) The ARDOT and its contractors will comply with all requirements of the *Clean Water Act*, as amended, during construction. These requirements include Section 401, Water Quality Certification; Section 402, National Pollutant Discharge Elimination (NPDES) Permit; and Section 404, Permits for Dredged or Fill Material. The NPDES Permit requires the preparation and implementation of a Stormwater Pollution Prevention Plan. The plan would include all specifications and BMPs needed to control erosion and sedimentation.

2) The design measures to minimize floodplain impacts include (1) avoiding longitudinal floodplain encroachments, (2) sufficient bridging and/or drainage structures to minimize adverse effects from backwater, (3) sufficient bridging and/or drainage structures to minimize increases in velocity, (4) minimizing channel alterations, (5) adequate and timely erosion control to minimize erosion and sedimentation and (6) using ARDOT's Standard Specifications for controlling work in and around streams to minimize adverse water quality impacts. The final project designs will be reviewed to confirm that the designs are adequate and that potential risk to life and property are minimized.

3) Lead-based paint or other hazardous constituents (e.g., chromium) are potentially present on the Pruitt Bridge. Asbestos-containing materials are potentially present in the Storage Building. Sampling will be conducted on the Pruitt Bridge and Storage Building prior to removal or demolition activities. If warranted, plans will be developed for paint and/or asbestos removal prior to demolition. Work will be conducted in conformance with the Arkansas Department of Environmental Quality (ADEQ), Environmental Protection Agency, and Occupational Safety and Health Administration regulations.

4) The ARDOT's response protocol will be followed if hazardous waste, illegal dumps, or USTs are identified or uncovered during construction. The ARDOT will determine the type, size, and extent of the contamination and appropriate containment, remediation, and disposal methods in consultation with the ADEQ.

5) In the event construction operations encounter indications of cave discovery, work will immediately be discontinued in the area, access denied, and the area secured to prevent unauthorized entry. The NPS-BNR and USFWS will be contacted for the proper procedures for examining the cave and determining usage by any listed species. A Special Provision will be prepared to address potential cave discoveries.

6) Vegetation within the easements will be preserved to the extent possible. Permanent seeding consisting of native grasses, forbs, and wildflowers will begin as early as feasible to re-establish ground cover. The ARDOT will develop a revegetation plan in consultation with the NPS-BNR to ensure that guidelines are followed and to prevent the spread of invasive plant species. Native trees will be replanted in the former right of way areas to be returned to the NPS-BNR. Post-construction surveys will be conducted. A Special Provision including measures to minimize disturbances to undisturbed forest areas and special areas such as the riparian corridor will be prepared.

7) Blast plans will be developed to the extent practicable so that cut faces will blend with surrounding natural features of the landscape (e.g., rock outcrops and terrain slopes). Plantings in fill and clear areas will be consistent with the form, line, and texture of the surrounding undisturbed landscape. Natural streamside conditions will be restored or enhanced. Natural colors and treatment patterns and techniques such as weathered steel and rock-patterned, stained concrete will be used. Native sandstone will be used to cap riprap. Where appropriate, compost and/or mulch will be placed over sandstone-capped riprap to facilitate the growth of vegetation. Special Provisions addressing blasting and other visual impact mitigation measures will be prepared.

Based upon the EA and Section 4(f) Evaluation findings, the Disposition of Public Comments for the LDPH, and additional information included in this document, the FHWA concludes that no additional environmental documentation is required for this project.

2/6/2018

Randal J. Looney
Environmental Specialist
FHWA, Arkansas Division Office

Date

APPENDIX 1

LOCATION AND DESIGN PUBLIC HEARING DISPOSITION OF COMMENTS

This page intentionally left blank.

Job 009784
Buffalo River Br. & Apprs. (Pruitt) (S)
Route 7 Section 18
Job BR5102
Mill Creek Str. & Apprs. (S)
Newton County
Public Hearing Comments Disposition

An Open Forum Location and Design Public Hearing for this project was held at the Newton Co. Senior Center, 100 E. Clark St., in Jasper, Arkansas on Thursday, April 21, 2016, from 4:00 P.M. to 7:00 P.M. The proposed design alternatives were displayed on aerial photographs depicting design features on an approximate scale of 1":100'. Representatives of various AHTD Divisions and AHTD District 9 were present to explain the proposed design and to answer questions. Copies of the Environmental Assessment and other general project information were available.

The AHTD received 32 comment forms during the public comment period following the meeting. Check boxes on the comment form allowed respondents to express preferences for the project alternatives. The preference totals are as follows:

Buffalo River Bridge

- East Alternative 20
- West I – Option A 2
- West I – Option B 3
- West II - Option A 0
- West II – Option B 1
- No Action 1

Mill Creek Crossing

- Bridge Alternative 20
- Box Culvert Alternative 6
- No Action 2

In addition to the comment forms, the AHTD received a petition with 300 signatures, 19 emails, and two letters during the public comment period following the hearing. The petition stated a preference for the Buffalo River Bridge East Alternative; however; it did not state a preference for any of the Mill Creek Crossing alternatives. One email stated a preference for the Buffalo River Bridge East Alternative and the Mill Creek Crossing Box Culvert Alternative.

Major comments concerned the horse trail crossing (307) and retaining the existing bridge in place (325). As detailed in the Pruitt Bridge Memorandum of Agreement, no entity was willing to take possession of the Buffalo River Bridge for its preservation at its current location or to reuse at another location.

Summaries of these comments and responses thereto follow:

COMMENT: James Cook selected his preference for the box culvert for Mill Creek and the East Alternative for the Buffalo River Bridge. In addition, he commented that he would like to see a bridge that is not an "eyesore" like the bridge at Hasty and Ponca. He states that a "sand colored structure with a visual of the Buffalo River would improve the scenic Highway 7 drive."

Job 009784
Buffalo River Br. & Apprs. (Pruitt) (S)
Route 7 Section 18
Job BR5102
Mill Creek Str. & Apprs. (S)
Newton County
Public Hearing Comments Disposition

RESPONSE: The proposed bridge structure will most likely include features such as a rock pattern on the concrete areas, weathering steel, a more open type of parapet rail, and a pedestrian walkway. The color of the rock patterned concrete is still to be decided. The weathering steel will be brown. The more open parapet rail will allow car passengers to see through the rails to have a better view of the river. The pedestrian walkway will allow pedestrians to access the bridge safely while getting an excellent view of the river. These proposed features will help to blend the structure into the existing landscape providing a more aesthetic view and profile along the watershed.

COMMENT: Patricia Cook selected her preference for the box culvert for Mill Creek and the East Alternative for the Buffalo River Bridge. In addition, she commented that she would like a bridge which gives a scenic view of the Buffalo River from Highway 7.

RESPONSE: The proposed bridge structure will most likely include a more open type parapet rail which will allow car passengers to see through the rails to have a better view of the river. The proposed bridge structure will also have a pedestrian walkway which will allow pedestrians to access the bridge safely while getting an excellent view of the river.

COMMENT: Connie Burks stated she is unsure of her preference for Mill Creek until she understands AHTD's role in the county bridge project, but she is very sure that the County should be allowed to optimally maintain the present bridge until the new project is completed. For the Buffalo River Bridge Alternative, she marked that she "probably" prefers the East Alternative. Ms. Burks says that the Little Rock Democrat Gazette and the Harrison Daily Times stated that bids would be received in August 2017 and construction would begin after that to be completed in 2018, but she says that local AHTD personnel stated that bidding would be in August 2016. She wants clarification for which date is correct. She also states that "AHTD and FHA agents have confirmed" to her "that a specific hearing for the old bridge must take place, apart from the location and design hearing of April 21, 2016, to be lawful." She wants to be notified in writing of that hearing's time and location. Ms. Burks states "Comments, letters and document promises of AHTD and FHA to Newton County 2003-4 must be honored/fulfilled and the old bridge given to Newton County for complete ownership and development as a pedestrian/cyclist crossing or whatever they choose."

RESPONSE: AHTD's role in the county bridge project is to help the County, both with funding and expertise, replace a bridge. As stated on the AHTD website under State Aid Division: By authority of Act 445 of 1973, this division administers the State Aid County Road Program in cooperation with the counties. Division personnel determine eligibility of projects and furnish administrative and engineering assistance to counties. Federal-Aid Highway Funds, Federal-Aid Bridge Replacement Funds, and State Aid Road Funds are matched by local funds to construct much needed county road improvements. The Mill Creek Bridge belongs to the County and it is the County's responsibility to continue to maintain the existing bridge until it is replaced. This

project is currently scheduled to be let in August 2017. Reference is made to the aforementioned Appendix A that specifically addresses the details of the matter of the removal of the existing bridge upon project completion. All legal requirements for removing the historic bridge are being followed. An additional hearing will not be taking place specifically about the removal of the historic bridge; this is not a requirement of removing the historic bridge. Newton County has informed AHTD that they do not want to keep the existing bridge.

COMMENT: Nadean Houghton selected her preference for the East Alternative for the Buffalo River Bridge. She also expressed her concern about the horse trail crossing safety issue. She is concerned about increasing the speed from 35 mph to 55 mph making the crossing more dangerous.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. Also, the posted speed limit for the highway in this area is currently 55 mph not 35 mph. The 35 mph signs being referred to are the yellow warning signs from the curves at either end of the existing bridge. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Tommy & Wanda Graham stated that either a box culvert or bridge for improving the Mill Creek crossing would be a great improvement and stated that none of the alternates for the Buffalo River Bridge would be safe for horseback riders. They expressed concern that there is no inclusion for a safe crossing for horseback riders in the project. They stated that this trail is one of the most widely used horseback riding trails, especially during periods of high water because it is one of the only trails that does not have a river crossing. They would prefer the horseback crossing to cross under the highway. They state that with the project increasing the speed limit from 35 mph to 55 mph the crossing will be more dangerous than the existing conditions.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. Also, the posted speed limit for the highway in this area is currently 55 mph not 35 mph. The 35 mph signs being referred to are the yellow warning signs from the curves at either end of the existing bridge. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Arlus Trice and Pat Williams expressed their concerns by letters about the horse trail crossing safety issue. They are concerned the trail crossing will be more dangerous in the

future due to the wider lanes and increased speeds. No alternate preferences were offered for improving the Mill Creek or Buffalo River crossings.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Newton County Justice of the Peace, Shannon Willis, District 1, expresses his "dissatisfaction with the long and unwarranted delays with which these very needful projects have been treated" and because of the "dangerously narrow" existing Buffalo River Bridge, he believes that the project should move forward with "haste with great attention to safety." He also states that documentation from AHTD has convinced him that there was a 20 year upgrade done to the bridge for vehicular traffic that was completed in 2008 that will make the bridge structurally safe until 2028. Therefore, he said "at this time there is no cause for alarm to be sounded as that the current bridge is unsafe for crossing, only that caution needs to be exercised in the meeting of large vehicles on the bridge." He requests that signs be installed near the approaches to the bridge warning motorists of large vehicles of the possibility of "exchanging of mirrors" and "possibly giving first clearance or single passage rights to school buses for the added protection of our school children." He requests to be provided the document of easement from the Department of Interior pertaining to the proposed new bridge to cross the Buffalo River on federally held territory and requests that this new crossing be constructed on an unlimited easement, "absolutely not like the limited easement pertaining to the U.S. 65 bridge crossing the Buffalo River near Marshall." He states that the current Mill Creek low water bridge needs to be optimally maintained until the new project is complete. He states that he reserves the right to submit his official choice of options before the May 6th ending comment period, and he says "noting that the options presented are not lawfully complete until an option is presented that allows for the preservation of the old national historically registered bridge." He insists that there be a public meeting and public hearing "for the benefit and inclusion of the entire county to assess the socio-economic, environmental and other impacts of the future treatment of the old bridge, and therefore also make a clear distinction that the timing and/or choice of treatment of the old bridge shall not affect the immediate going forward of the construction of a new bridge." He requests that copies of all comments from the public hearing be sent to him, and he reminds all state and federal agencies of their responsibility to keep Newton County Quorum Court informed of proceedings and projects in the County. No alternate preferences were offered for improving the Mill Creek or Buffalo River crossings.

RESPONSE: AHTD has not done a 20 year upgrade to the bridge, just routine maintenance. The Mill Creek bridge maintenance falls under the County's jurisdiction until the job is let to contract

and the Contractor takes over the site. Reference is made to the aforementioned Appendix A that specifically addresses the details of the matter of the removal of the existing bridge upon project completion. All legal requirements for removing the historic bridge are being followed. An additional hearing will not be taking place specifically about the removal of the historic bridge; this is not a requirement of removing the historic bridge.

COMMENT: Evelyn Mills selected her preference for the box culvert for Mill Creek and the East Alternative for the Buffalo River Bridge. She thinks a box culvert crossing under the highway for the trail to go through would be a good solution for the trail crossing. She thinks the horses sharing the county roads with the traffic hauling the canoes is dangerous and that the NPS should enlarge the parking area for the horse trailers.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses. The horse trail issues of the horse trail sharing the county road and the parking being expanded are outside the scope of this project.

COMMENT: Elaine Appel expressed concern about the horse trail crossing safety issue. No alternate preferences were offered for improving the Mill Creek or Buffalo River crossings.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Glenda Wallace selected her preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. She also stated that both bridges are needed.

RESPONSE: Comment noted.

COMMENT: Billy Wallace selected his preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. He stated that high flow periods at the current Mill Creek low water crossing leaves approximately 20-25 households stranded for long periods. He does not think the box culvert alternate for Mill Creek is a good option because of how “big” Mill Creek can get. He also states that the old bridge across Mill Creek is in critical condition.

Job 009784
Buffalo River Br. & Apprs. (Pruitt) (S)
Route 7 Section 18
Job BR5102
Mill Creek Str. & Apprs. (S)
Newton County
Public Hearing Comments Disposition

RESPONSE: Both proposed alternates for Mill Creek, the box culvert and the bridge, are designed for the same size storm. They would perform equally well when compared to each other.

COMMENT: Joe Williams selected his preference for "No Action" for Mill Creek and the East Alternative for the Buffalo River Bridge. He questioned AHTD's involvement on county roads instead of replacing the Highway 7 bridges across Mill Creek and Harp Creek.

RESPONSE: AHTD's role in the county bridge project is to help the County, both with funding and expertise, replace a bridge. As stated on the AHTD website under State Aid Division: By authority of Act 445 of 1973, this division administers the State Aid County Road Program in cooperation with the counties. Division personnel determine eligibility of projects and furnish administrative and engineering assistance to counties. Federal-Aid Highway Funds, Federal-Aid Bridge Replacement Funds, and State Aid Road Funds are matched by local funds to construct much needed county road improvements. The funding being used on this county road is specifically set-aside for county roads and cannot be used on highways.

COMMENT: Katherine Nance says she wants a pretty bridge not like at Hasty and Ponca. She also requested that the center line rumble stripe be removed. She also asks what will happen to the old Walton house which is now the BNR Contact Center. No alternate preferences were offered for improving the Mill Creek or Buffalo River crossings.

RESPONSE: The proposed bridge structure will most likely include features such as a rock pattern on the concrete areas, weathering steel, a more open type of parapet rail, and a pedestrian walkway. The color of the rock patterned concrete is still to be decided. The weathering steel will be brown. The more open parapet rail will allow car passengers to see through the rails to have a better view of the river. The pedestrian walkway will allow pedestrians to access the bridge safely while getting an excellent view of the river. These proposed features will help to blend the structure into the existing landscape providing a more aesthetic view and profile along the watershed. The center line rumble stripe is a safety feature to alert drivers to the fact that they are about to cross the double yellow line when they drive on it. This is to help reduce head-on crashes and road departure crashes. The BNR Contact Center will not be impacted by the East Alternative. West Alternative I Option A and West Alternative II Option B would remove the BNR Contact Center. West Alternative I Option B and West Alternative II Option A would attempt to reduce impacts to the BNR Contact Center and retain it if possible.

COMMENT: Gerry Hemmer, Gilmer B. Jeane Jr., and Kimberly Cole selected preferences for the box culvert for Mill Creek and the East Alternative for the Buffalo River Bridge.

RESPONSE: Comments noted.

Job 009784
Buffalo River Br. & Apprs. (Pruitt) (S)
Route 7 Section 18
Job BR5102
Mill Creek Str. & Apprs. (S)
Newton County
Public Hearing Comments Disposition

COMMENT: Tammy Casey selected her preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. She states that the East Alternative is her preferred because it would have the least amount of impact on traffic during construction and allows the traditional swimming hole to be preserved.

RESPONSE: Comment noted.

COMMENT: Dorvin Poyner selected his preference for the bridge for Mill Creek and the West Alternative II Option B for the Buffalo River Bridge. He states that he chose the West Alternative II Option B because it removes some of the curves that cause wrecks and make it difficult for the semi-trucks. He also states that he chose the bridge for the county road because it would be stronger for the truck traffic.

RESPONSE: Comment noted.

COMMENT: Susanne Long selected her preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. She states that the East Alternative seems less intrusive and is shorter and therefore safer. She likes the idea of a pedestrian walk for people who like to stay and observe the view. She states that the bridge alternative seems better than the box because it would last longer.

RESPONSE: Comment noted.

COMMENT: L. Jean Brasel selected her preference for the bridge for Mill Creek and the West Alternative I Option B for the Buffalo River Bridge.

RESPONSE: Comment noted.

COMMENT: Bill Hemmer selected his preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. He would like the Pruitt recreational area saved.

RESPONSE: Comment noted.

COMMENT: Ronald Wrisinger selected his preference for the bridge for Mill Creek and the West Alternative II Option B for the Buffalo River Bridge.

RESPONSE: Comment noted.

COMMENT: Jeff L. Middleton selected his preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. He stated the East Alternative would have the least visual impact on the day use area. He requests that the project be done quickly.

RESPONSE: Comment noted.

COMMENT: Kevin Middleton selected his preference for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge. He requests that the project be done quickly.

RESPONSE: Comment noted.

COMMENT: Rhonda Teter selected her preference for the box culvert for Mill Creek and "No Action" for the Buffalo River Bridge. She stated that a new bridge is way overdue and that the existing bridge is dangerous. *The selection of "No Action" may have been a mistake; she may have thought she was marking a different alternative.*

RESPONSE: Comment noted.

COMMENT: Clinton Daniris and Jerry Lee selected preferences for the bridge for Mill Creek and the East Alternative for the Buffalo River Bridge.

RESPONSE: Comment noted.

COMMENT: Clinton Taylor selected his preference for the bridge for Mill Creek and the West Alternative I Option A for the Buffalo River Bridge.

RESPONSE: Comment noted.

COMMENT: Virginia Booth selected her preference for the East Alternative for the Buffalo River Bridge. For the Mill Creek crossing, she said "no" to the bridge alternative and said she was unsure of the "No Action" and box culvert alternatives. She stated that new bridges over Harp Creek and Mill Creek at Dogpatch are needed too. She chose the East Alternative because it is the least expensive option, there would be less gravel excavated, and there would be fewer impacts to the day use area. She wishes to preserve the carved stairs and jump off area at the swimming hole. She hopes the new bridge will provide an incredible view.

RESPONSE: New bridges for Harp Creek and Mill Creek at Dogpatch are outside the scope of this project. The carved stairs and jump off area should not be affected by the current proposals. The proposed bridge structure will most likely include a more open type of parapet rail and a pedestrian walkway. The more open parapet rail will allow car passengers to see through the rails to have a better view of the river. The pedestrian walkway will allow pedestrians to access the bridge safely while getting an excellent view of the river.

Job 009784
Buffalo River Br. & Apprs. (Pruitt) (S)
Route 7 Section 18
Job BR5102
Mill Creek Str. & Apprs. (S)
Newton County
Public Hearing Comments Disposition

COMMENT: Mary Bausch selected her preference for the bridge for Mill Creek and the least expensive and least invasive alternative for the Buffalo River Bridge. She would like to keep the old bridge as a foot bridge because she wants to stop and walk across to take pictures but can't.

RESPONSE: Reference is made to the aforementioned Appendix A that specifically addresses the details of the matter of the removal of the existing bridge upon project completion. However, the proposals for the new bridge all include a pedestrian walkway on the side of the bridge that would be separated from vehicular traffic by a concrete barrier wall.

COMMENT: Jerri Todd selected his preference for the East Alternative for the Buffalo River Bridge. He stated he would like for the existing bridge to remain in place for safer foot traffic and as a tourist attraction. No selection was made for the Mill Creek crossing.

RESPONSE: Reference is made to the aforementioned Appendix A that specifically addresses the details of the matter of the removal of the existing bridge upon project completion. However, the proposals for the new bridge all include a pedestrian walkway on the side of the bridge that would be separated from vehicular traffic by a concrete barrier wall.

COMMENT: Carl L. Smith and Annie Holmes selected preferences for the West Alternative I Option B for the Buffalo River Bridge. They would like the western alignment to be shifted to the west to remove a curve and reduce impacts to houses. No selection was made for the Mill Creek crossing.

RESPONSE: If the western alignment was moved further to the west, the already large cut section would become unreasonably large and have huge impacts on the forest and bluffs. This would also be cost prohibitive.

COMMENT: Peggy Thompson selected her preference for "No Action" for Mill Creek and the East Alternative for the Buffalo River Bridge. She expressed concern about the horse trail crossing safety issue. She would like the horse trail to cross under the bridge or through a box culvert instead of using an at-grade crossing.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Kerry Taylor selected his preference for the bridge alternative for Mill Creek and the East Alternative for the Buffalo River Bridge. He chose the East Alternative to minimize

impacts to the day use area and the natural surroundings. He expressed concern about the horse trail crossing safety issue and suggested crossing the trail through a box culvert.

RESPONSE: Comments about the day use area and natural surroundings noted. The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improve over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Mary Dees expressed concern via e-mail about the importance of the horse trail. No selections were made for the Mill Creek or the Buffalo River alternatives.

RESPONSE: The horse trail is being considered during the design phase of the project.

COMMENT: Sybil Craig, Linda Aulds, Michael McGee, Kathy Petree, Larkin Floyd, Pam Floyd, Beth Gierman, and Bev Roberts expressed concern via e-mails about the horse trail crossing safety issue. They are concerned about increasing the speed from 35 mph to 55 mph. No selections were made for the Mill Creek or the Buffalo River alternatives.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. Also, the posted speed limit for the highway in this area is currently 55 mph not 35 mph. The 35 mph signs being referred to are the yellow warning signs from the curves at either end of the existing bridge. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

COMMENT: Ted Spears, John A. Brown, Sharon Miller, Nancy Deisch, Peter Deisch, Susan House, and April Herrin expressed concern via e-mails about the horse trail crossing safety issue. No selections were made for the Mill Creek or the Buffalo River alternatives.

RESPONSE: The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses.

Job 009784
Buffalo River Br. & Apprs. (Pruitt) (S)
Route 7 Section 18
Job BR5102
Mill Creek Str. & Apprs. (S)
Newton County
Public Hearing Comments Disposition

COMMENT: Newton County Justice of the Peace, Shannon Willis, District 1 submitted A Resolution of Intent to Submit Public Comment for the Public Hearing filed in the Office of the Circuit Clerk Newton County Arkansas.

RESPONSE: Comment noted and is addressed above from the previous letter from Mr. Willis.

COMMENT: A petition consisting of 25 sheets with 300 signatures was submitted. The petition states that the new bridge should be constructed as soon as possible on the East Alternative. It also states that there should be a public hearing held specifically for the purpose of determining the future of the existing bridge and that everyone on the list wishes to be informed of the date for the public hearing. The petition asks that the horseback riders be accommodated by constructing a box culvert for them to use for crossing the highway. The petitions states that the older bridge and all that pertains to it be transferred to county ownership as possible after the new bridge is completed for use as a pedestrian park and bicycle crossing.

RESPONSE: Comment noted about preferred East Alternative. Reference is made to the aforementioned Pruitt Bridge Memorandum of Agreement that specifically addresses the details of the matter of the removal of the existing bridge upon project completion. All legal requirements for removing the historic bridge are being followed. An additional hearing will not be taking place specifically about the removal of the historic bridge; this is not a requirement of removing the historic bridge. The horse trail is being considered during the design phase of the project. It is being evaluated if it is feasible to cross the horses under the bridges instead of crossing the highway at-grade. However, if the horses continue to cross the highway at-grade as they do now, the sight distance of the crossing will be improved over the existing conditions. The crash data was evaluated in the area of the trail crossing from 2010 to present, and in that time period, there were not any accidents involving horses. Newton County has informed AHTD that they do not want to keep the existing bridge.

This page intentionally left blank.

APPENDIX 2

FINAL SECTION 106 MEMORANDUMS OF AGREEMENT

This page intentionally left blank.

ARKANSAS STATE HIGHWAY
AND
TRANSPORTATION DEPARTMENT

Scott E. Bennett, P. E.
Director
Telephone (501) 569-2000
Voice/TTY 711

P.O. Box 2261
Little Rock, Arkansas 72203-2261
Telefax (501) 569-2400
www.arkansashighways.com

June 8, 2017

Ms. Stacy Hurst
Arkansas Historic Preservation Program
1100 North Street
Little Rock, Arkansas 72201

RE: AHTD Job Number 009784
Buffalo River Str. & Apprs. (Pruitt)
Newton County

Dear Ms. Hurst:

Enclosed are the signed Memorandum of Agreements for the Pruitt Historic District, Pruitt Bridge (No. 01689) and Bluff Shelters sites (3NW1308, 3NW1309 and Treatment Plan) in Newton County. If you have any questions or require additional information, please contact Diana Wilks of my staff at (501) 569-2283.

Sincerely,

John Fleming

John Fleming
Division Head
Environmental Division

Enclosure
Memorandum of Agreements

JF:DW:ym

MEMORANDUM OF AGREEMENT

AMONG THE
FEDERAL HIGHWAY ADMINISTRATION, THE
ARKANSAS STATE HISTORIC PRESERVATION OFFICER, THE BUFFALO NATIONAL RIVER, AND THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
REGARDING
AHTD JOB NUMBER 009784
BUFFALO RIVER BRIDGE STRUCTURES & APPROACHES (PRUITT)
HIGHWAY 7, NEWTON COUNTY, ARKANSAS
AHTD BRIDGE NUMBER 01689

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and the transportation needs in north Arkansas; and the old Buffalo River Bridge (AHTD Number 01689) will be demolished for construction of a new bridge at its current location; and

WHEREAS, the old Buffalo River Bridge is property listed on the National Register of Historic Places (NRHP); and

WHEREAS, through the environmental process the Federal Highway Administration (FHWA) has determined that no feasible and prudent alternative to the demolition of the old Buffalo River Bridge exists; and

WHEREAS, the FHWA has determined that this undertaking will have an adverse effect on a property listed on the NRHP and in accordance with 36 Code of Federal Regulations (CFR) Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), must address this effect; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this Memorandum of Agreement (MOA); and

NOW THEREFORE, the FHWA and the State Historic Preservation Officer (SHPO) agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of this undertaking on the historic property.

STIPULATIONS

The FHWA, through the AHTD, will ensure that the following stipulations are carried out.

I. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTY: (old Buffalo River Bridge)

1. The FWHA will update the existing Historic American Engineering Record (HAER) history (AR-23) for the old Buffalo River Bridge. This history was produced during the 1988 HAER project during which only a limited number of historic bridges were documented to Level I, with most project bridges limited to Level III documentation. The old Buffalo River Bridge was documented at Level III during this project with limited historic information and photographs. The updated history will include more detailed information for the bridge, as one of a limited number of experimental bridge types designed and constructed by the AHTD, as well as its relationship to early Arkansas transportation history. This documentation will meet the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 FR 44716 and the National Park Service's *Historic American Engineering Record Guidelines for Historical Reports (2008, updated 2015)* shall be followed in producing the historic documentation.

2. Copies of the original design plans for the bridge, which were not included in the original submission to the National Park Service (NPS), will be included with the updated HAER history for the bridge.

3. The updated documentation will be curated at the Arkansas Historic Preservation Program (AHPP), the AHTD, the Arkansas State Archives, the Arkansas State Library, and the Torreyson Library at the University of Central Arkansas.

4. The old Buffalo River Bridge will be laser scanned and a digital 3-dimensional model of the bridge will be created and housed in the Historic Bridge Program Section of the AHTD website.

5. A historical marker, that contains a picture and a description of the history and significance of the bridge, will be created and placed in AHTD right-of-way as close as possible to the old Buffalo River Bridge site.

6. A short video (approximately 5 minutes) will be created including the engineering and construction methodology of the old Buffalo River Bridge. A Quick Response (QR) code will link to the video housed on the AHTD web site under the Historic Bridge Program Section.

7. A brochure will be designed and placed in a covered brochure case on a building in the Pruitt day use area and in the Tyler Bend Visitor's Center

existing brochure case. The brochure will include pictures and a history of the bridge and its significance to the Pruitt Historic District. The QR code (mentioned in Stipulation 6) will be printed on the brochures allowing the public to view the video from a smart phone or other personal electronic device.

8. A mural (approximately 4 foot by 6 foot) of the bridge will be given to Newton County to be displayed in the Newton County Courthouse in Jasper, AR.

9. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

10. The FHWA shall ensure that adequate time and funding are provided in order to carry out all aspects of the required mitigation.

II. HUMAN REMAINS

Native American human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the project, all activity in the vicinity of the discovery shall cease. All human remains determined to be Native American will be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

III. DURATION

This MOA will remain in effect for a period not to exceed ten years from the date of ratification or until the proposed construction is complete. It may be extended by agreement of all the signatories.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic preservation activities to this MOA are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (36 CFR Part 61; 48 FR 44716, 62 FR 33708).

V. ARCHEOLOGICAL FIELDWORK AND REPORT STANDARDS

All archeological field work and report writing shall follow the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (36 CFR Part 61; 48 FR 44716, 62 FR 33708) and *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010).

VI. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR Part 800.13, if cultural material is discovered during implementation of the project, the FHWA shall ensure that all construction activities cease in the area of the discovery and the consulting parties are notified. The FHWA and the SHPO shall determine if the discovery is eligible for inclusion in the National Register of Historic Places. If so, the FHWA and the AHTD will develop a treatment plan for historic properties which shall be reviewed and approved by the SHPO. Disputes arising from such review shall be resolved in accordance with Stipulation VII.

VII. DISPUTE RESOLUTION

Should the SHPO or any consulting party object within thirty (30) calendar days to any findings, proposed actions or determinations made pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, it shall request further comments from the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800.7. Any Council comment provided in response to such a request shall be taken into account by the FHWA in accordance with 36 CFR 800.7 with reference only to the subject of the dispute; the FHWA responsibility to carry out all actions under this MOA that are not subject to dispute shall remain unchanged.

VIII. MONITORING

The consulting parties or one or more parties in cooperation may monitor the undertaking and stipulations carried out pursuant to this MOA.

IX. AMENDING THE MEMORANDUM OF AGREEMENT

Should any of the signatories to this MOA believe that the terms of this MOA are not being met or cannot be met, that party shall immediately notify the other signatories and request consultation to amend this MOA in accordance with 36 CFR Part 800. The process to amend this MOA shall be conducted in a manner similar to that leading to the execution of this MOA.

X. TERMINATING THE MEMORANDUM OF AGREEMENT

Any signatory to this MOA may terminate it by providing thirty (30) calendar days notice to the other parties provided that the parties shall consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

XI. FAILURE TO CARRY OUT THE MEMORANDUM OF AGREEMENT

In the event the FHWA does not carry out the terms of the MOA, the FHWA shall comply with 36 CFR Part 800.4 through Part 800.6 with regard to the undertaking covered by this MOA.

XII. FULFILLMENT OF SECTION 106 RESPONSIBILITIES

Execution and implementation of this MOA evidences that the FHWA has afforded the ACHP a reasonable opportunity to comment pursuant to 36 CFR Part 800 on the proposed replacement of the National Register listed old Buffalo River Bridge in Newton County, Arkansas and its effect on the historic property, and the FHWA has taken into account the effect of the undertaking on the historic property.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Mr. Angel L. Correa
Arkansas Division Administrator

6/1/2017
Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Ms. Stacy Hurst
Arkansas State Historic Preservation Officer

3-2-17
Date

Signatory

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett

Mr. Scott E. Bennett, P.E.
Director of Highways and Transportation

4-10-2017
Date

KBS MEB

Signatory

BUFFALO NATIONAL RIVER, NATIONAL PARK SERVICE

Kevin A. Cheri

Mr. Kevin Cheri
Superintendent

4/4/2017
Date

MEMORANDUM OF AGREEMENT

AMONG THE
FEDERAL HIGHWAY ADMINISTRATION, THE
ARKANSAS STATE HISTORIC PRESERVATION OFFICER, THE
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT,
AND THE NATIONAL PARK SERIVICE BUFFALO NATIONAL RIVER
REGARDING

AHTD JOB NUMBER 009784
BUFFALO RIVER STR. & APPS. (PRUITT) (S)
HIGHWAY 7, NEWTON COUNTY, ARKANSAS
PRUITT HISTORIC DISTRICT

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and the transportation needs in north Arkansas; and

WHEREAS, the FHWA and AHTD in cooperation with the United States Department of Interior-National Park Service and the United States Army Corps of Engineers recommended through the findings in the Environmental Assessment and Section 4(f) evaluations the East Alternative for AHTD Job 009784 as the least overall harm alternative; and

WHEREAS, the FHWA has determined that AHTD Job 009784 will have an effect on properties eligible for inclusion to the National Register of Historic Places (NRHP) as part of the Pruitt Historic District in consultation with the Arkansas State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800 regulations implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 F); and

WHEREAS, the old Buffalo River Bridge (AHTD Number 01689) is property listed on the NRHP and is included as part of the Pruitt Historic District and will be demolished for construction of a new bridge at its current location; and the mitigation for the old Buffalo River Bridge will be handled under a separate Memorandum of Agreement (MOA); and

WHEREAS, during the cultural resources survey of the area of potential effects (APE), two bluff shelter sites (3NW1308 and 3NW1309) were determined potentially eligible for inclusion to the NRHP with Phase II testing and would need data recovery mitigation, and the mitigation and treatment plan for these two sites (3NW1308 and 3NW1309) will be handled under a separate Memorandum of Agreement (MOA); and

WHEREAS, the Pruitt Historic District was defined by the National Park Service Buffalo National River, (BNR) in consultation with Arkansas SHPO over the properties submitted in a Request for Technical Assistance (RTA) in August 2007 that included two standing structures (the Pruitt Garage and the Pruitt General Store & Post Office) as eligible for inclusion to the NRHP with the old Buffalo River Bridge subsequently considered to be a contributing element to the Pruitt Historic District; and

WHEREAS, during the initial cultural resources survey of the APE for the East Alternative, two archeological sites (3NW499 and 3NW1110) were determined not eligible for the NRHP; and

WHEREAS, SHPO determined that sites 3NW1110 and 3NW1311 were not eligible under Criterion D but remained undetermined in their eligibility to the NRHP until they could be evaluated under Criteria A, B, and C as part of a contributing element to the Pruitt Historic District; and

WHEREAS, an Addendum to the RTA was submitted to SHPO in May 2014 to assess the eligibility of the 1913 Highway 7 Bridge Concrete Approach (included as part of Site 3NW1110) under other criteria and was determined as eligible for inclusion to the NRHP under Criterion A and possibly Criterion C as part of a contributing element to the Pruitt Historic District; and

WHEREAS, an Addendum to the cultural resources survey report was submitted to SHPO in September 2016 for evaluation of Site 3NW1311 under other criteria, and SHPO determined that this site was not considered a contributing element to the Pruitt Historic District and was determined not eligible for inclusion to the NRHP; and

WHEREAS, AHTD redesigned Job 009784 to avoid the 1913 Highway 7 Bridge Concrete Approach (included as part of Site 3NW1110), so it will no longer be impacted by this undertaking; and

WHEREAS, the FHWA, in consultation with the SHPO and the BNR, have determined that this undertaking will have an adverse effect on two properties (the Pruitt Garage and Pruitt General Store & Post Office) considered eligible for inclusion to the NRHP as part of the Pruitt Historic District, and in accordance with 36 Code of Federal Regulations (CFR) Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470f), must address this effect; and

WHEREAS, the 1913 Highway 7 Bridge Concrete Approach will not be impacted but is still a contributing element to the Pruitt Historic District, and therefore will be included in the documentation as part of the mitigation process; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this Memorandum of Agreement (MOA); and

NOW THEREFORE, the FHWA and SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of this undertaking on the historic properties.

STIPULATIONS

The FHWA, through the AHTD, will ensure that the following stipulations are carried out.

I. MITIGATION OF ADVERSE EFFECT TO THE HISTORIC PROPERTIES: (Pruitt Historic District)

1. The FWHA will produce architectural documentation for the Pruitt Garage, Pruitt General Store & Post Office, and the 1913 Highway 7 Bridge Concrete Approach that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* set forth in 48 CFR 44716 and follow the AHPP 2009 *Survey Procedures Manual: Guidelines for Historic and Architectural Surveys in Arkansas*. The Arkansas Historic Preservation Program (AHPP) Arkansas Architectural Resources Form and associated photography meet these standards.

2. Documentation will include properly labeled and archived digital color photographs.

3. FHWA ensures the creation of a pamphlet or brochure containing the Pruitt Historic District history and photographs for public distribution by the Buffalo National River at the Tyler Bend Visitor's Center.

4. A Quick Response (QR) Code linked to a video of the Pruitt Historic District shall be included on the pamphlet/brochure.

5. No construction will be undertaken on the historic property until all fieldwork portions of the required mitigation have been completed.

6. The FHWA shall ensure that adequate time and funding are provided in order to carry out all aspects of the required mitigation.

II. HUMAN REMAINS

Native American human remains are not expected to be discovered on this undertaking; however, if they are encountered during implementation of the project, all activity in the vicinity of the discovery shall cease. All human remains determined to be Native American will be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

III. DURATION

This MOA will remain in effect for a period not to exceed ten years from the date of ratification or until the proposed construction is complete. It may be extended by agreement of all the signatories.

IV. PROFESSIONAL QUALIFICATIONS STANDARDS

The FHWA shall ensure that all archeological investigations and other historic preservation activities in this MOA are carried out by, or under the direct supervision of, a person or persons meeting the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (48 CFR 44739).

V. ARCHEOLOGICAL FIELDWORK AND REPORT STANDARDS

All archeological field work and report writing shall follow the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 CFR 44716-39) and *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010).

VI. POST-REVIEW DISCOVERY SITUATIONS

Pursuant to 36 CFR Part 800.13, if cultural material is discovered during implementation of the project, the FHWA shall ensure that all construction activities cease in the area of the discovery and the consulting parties are notified. The FHWA and the SHPO shall determine if the discovery is eligible for inclusion in the National Register of Historic Places. If so, the FHWA and the AHTD will develop a treatment plan for historic properties which shall be reviewed and

approved by the SHPO. Disputes arising from such review shall be resolved in accordance with Stipulation VII.

VII. DISPUTE RESOLUTION

Should the SHPO or any consulting party object within thirty (30) calendar days to any findings, proposed actions or determinations made pursuant to this MOA, the FHWA shall consult with the objecting party to resolve the objection. If the FHWA determines that the objection cannot be resolved, it shall request further comments from the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800.7. Any Council comment provided in response to such a request shall be taken into account by the FHWA in accordance with 36 CFR 800.7 with reference only to the subject of the dispute; the FHWA responsibility to carry out all actions under this MOA that are not subject to dispute shall remain unchanged.

VIII. MONITORING

The consulting parties or one or more parties in cooperation may monitor the undertaking and stipulations carried out pursuant to this MOA.

IX. AMENDING THE MEMORANDUM OF AGREEMENT

Should any of the signatories to this MOA believe that the terms of this MOA are not being met or cannot be met, that party shall immediately notify the other signatories and request consultation to amend this MOA in accordance with 36 CFR Part 800. The process to amend this MOA shall be conducted in a manner similar to that leading to the execution of this MOA.

X. TERMINATING THE MEMORANDUM OF AGREEMENT

Any signatory to this MOA may terminate it by providing thirty (30) calendar days notice to the other parties provided that the parties shall consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

XI. FAILURE TO CARRY OUT THE MEMORANDUM OF AGREEMENT

In the event the FHWA does not carry out the terms of the MOA, the FHWA shall comply with 36 CFR Part 800.4 through Part 800.6 with regard to the undertaking covered by this MOA.

XII. FULFILLMENT OF SECTION 106 RESPONSIBILITIES

Execution and implementation of this MOA evidences that the FHWA has afforded the ACHP a reasonable opportunity to comment pursuant to 36 CFR Part 800 on the proposed replacement of the National Register listed old Buffalo River Bridge in Newton County, Arkansas and its effect on the Pruitt Historic District, and the FHWA has taken into account the effect of the undertaking on the historic district.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Mr. Angel L. Correa
Arkansas Division Administrator

6/1/2017
Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Stacy Hurst — 3-2-17

Ms. Stacy Hurst — Date
Arkansas State Historic Preservation Officer

Signatory

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett

Mr. Scott E. Bennett, P.E.
Director of Highways and Transportation

4-10-2017
Date

Signatory

NATIONAL PARK SERVICE BUFFALO NATIONAL RIVER

Kevin A. Cheri

Mr. Kevin Cheri
Superintendent

4/4/2017

Date

MEMORANDUM OF AGREEMENT
AMONG THE
THE FEDERAL HIGHWAY ADMINISTRATION, THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT, THE NATIONAL PARK SERVICE BUFFALO NATIONAL RIVER, THE ARKANSAS STATE HISTORIC PRESERVATION OFFICER, AND THE BUFFALO RIVER TRIBES REGARDING

AHTD JOB NUMBER 009784
BUFFALO RIVER STR. & APPRS. (PRUITT) (S)
HIGHWAY 7, NEWTON COUNTY, ARKANSAS
SITES 3NW1308 AND 3NW1309

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas State Highway and Transportation Department (AHTD) wish to construct a new bridge across the Buffalo River on Highway 7 in Newton County, Arkansas, to improve safety and better serve the transportation needs in north Arkansas; and

WHEREAS, the FHWA has determined that AHTD Job 009784 will have an effect on the Pruitt Bridge Bluff Shelter #1 (3NW1308) and the Pruitt Bridge Bluff Shelter #2 (3NW1309), which are eligible for inclusion in the National Register of Historic Places, and has consulted with the Arkansas State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 F); and

WHEREAS the FHWA and the SHPO have determined that 3NW1308 and 3NW1309 are eligible under Criterion D (research potential) and that the successful implementation and completion of Appendix A of the attached Treatment Plan will resolve the adverse effect finding through data recovery; and,

WHEREAS, through implementation of this Memorandum of Agreement (MOA) and Treatment Plan, the FHWA intends to meet its responsibilities, pursuant to Section 101(d)(6)(B) of the NHPA, to consult with Indian tribes that attach religious and cultural significance to historic properties; and,

WHEREAS**,** because of its role and responsibilities as project partner with FHWA, FHWA has invited AHTD, the National Park Service (NPS) Buffalo National River, and consulting Native American Tribes to sign this MOA as an Invited Signatory; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this MOA;

NOW, THEREFORE, the FHWA, AHTD, the NPS Buffalo National River, the Arkansas SHPO, and the Buffalo River Tribes, including the Caddo Nation, Cherokee Nation of Oklahoma, United Keetoowah Band of Cherokee Indians, Osage Nation, and Quapaw Tribe of Oklahoma, agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on the stated historic properties.

STIPULATIONS

1. Mitigation of Adverse Effects

a. The FHWA and AHTD will ensure that the selected archeological contractor implements all provisions, stipulations, techniques, methods, analyses, interpretation, and documentation called for in this MOA and the attached Treatment Plan (Appendix A).

b. The FHWA and AHTD will ensure that the entirety of the site(s) boundaries and GPS coordinates shall be determined and recorded. Statements regarding the potential significance of any site remnants not removed during data recovery will be included in the final report and added to the site files to ensure that any future projects that may affect the sites can be properly addressed. Sensitive locational data that would divulge the specific location of the sites or any remaining features will not be included in the final report but will be made available only to those parties specified below in Stipulation 5.

2. Preservation Standards

a. The FHWA and AHTD, in consultation with the SHPO, will ensure that all artifact collections (prehistoric ceramic and lithic, and historic artifacts) and their supporting documentation are curated by the National Park Service. If necessary, any human remains or grave goods may be curated together along with the site collections at the selected curation facility until an acceptable reburial site can be determined. All collections and documents will meet the Curation Standards set forth in 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections. Human remains and funerary objects or other items from sacred contexts may be exempt from such standards per NAGPRA.

3. Professional Qualification Standards

a. The FHWA and AHTD will ensure that all stages of the field investigation, laboratory work, analysis, and report preparation comply with the Secretary of the Interior's *"Standards and Guidelines for Archeology and Historic Preservation" (48FR44716)* and those standards set forth in *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010). In addition, both the Principal Investigator and any supervising archeologists will meet the professional qualification requirements for certification in the Register of Professional Archaeologists and follow the *Code of Conduct* and *Standards for Research and Performance*.

4. Discovery of Human Remains

a. Native American human remains may occur within 3NW1308 and 3NW1309. If they are discovered, the FHWA, the AHTD, and their archaeological contractor shall follow the procedures outlines below:

1) All Native American human remains will be treated in accordance Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

5. Report Preparation and Schedule

a. The FHWA and AHTD will ensure that regular bi-weekly progress reports will be submitted by the archeological consultant by e-mail or formal letter. The progress reports and copies of the draft and final reports will be provided to the signatories. One month after the end of the archeological investigations, the contractor will submit to AHTD a management summary for SHPO to review and make comments on within 30 days. The draft technical data recovery report will be submitted within 12 months after the completion of fieldwork.

b. Two months will be allowed for review purposes and incorporation of comments, then a copy of the final data recovery report will be sent to the FHWA, the SHPO, and the Buffalo River Tribes who have been consulted with on the project.

c. Precise location data will only be provided to the FHWA, the AHTD, the SHPO, the Arkansas Archeological Survey, the NPS Buffalo National River, and the consulting Tribes, in a separate attachment to the report and shall otherwise be withheld from disclosure pursuant to Section 304 of the NHPA, Executive Order 13007 and other applicable authorities.

6. Dispute Resolution

Should any signatory or concurring party object to any actions proposed pursuant to this MOA, the FHWA and AHTD shall consult with the objecting party to resolve the objection. If the FHWA and AHTD determine that the objection cannot be resolved, the FHWA and AHTD shall request comments of the ACHP pursuant to 36 CFR Section 800.7. The FHWA's and AHTD's responsibility to carry out all actions under this MOA that are not the subject of the dispute will remain unchanged.

7. Amendment of MOA

The signatories may request that this MOA be amended, whereupon they will consult to consider such an amendment. Any such amendments shall be developed and executed in the same manner as the original MOA.

8. Duration of MOA

This agreement shall be null and void if its terms are not carried out within five (5) years from the date of its execution, unless signatories agree in writing to an extension for carrying out its terms.

9. Termination of MOA

The FHWA, AHTD or SHPO may terminate this MOA, provided that the party proposing the termination notifies the other signatory and consulting parties in writing within a thirty (30) calendar days' notice. In the event of termination, the FHWA and AHTD shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

10. Failure to Carry Out the MOA

In the event AHTD or FHWA do not carry out the terms of this MOA, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

11. Fulfillment of Section 106 Responsibilities

Execution of this Memorandum of Agreement and Treatment Plan and implementation of its terms with regard to the resolution of adverse effects on archeological sites 3NW1308 and 3NW1309 evidences that the FHWA and AHTD have fulfilled their Section 106 responsibilities under the National Historic Preservation Act of 1966, as amended.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Mr. Angel L. Correa
Arkansas Division Administrator

6/1/2017
Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Stacy Hurst — 3-2-17

Ms. Stacy Hurst — Date

Arkansas State Historic Preservation Officer

Signatory

ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett — 4-10-2017

Mr. Scott E. Bennett, P. E. — Date

Director of Highways and Transportation

Signatory

NATIONAL PARK SERVICE, BUFFALO NATIONAL RIVER

Kevin A. Cheri
Mr. Kevin Cheri
Superintendent

4/4/2017
Date

Invited Signatory

CADDO NATION

Phil Cross

~~Ms. Kim Penrod~~
Acting Tribal Historic Preservation Officer

3/30/17
Date

PHIL CROSS
ACTING TRIBAL HISTORIC
PRESERVATION OFFICER

Invited Signatory

CHEROKEE NATION OF OKLAHOMA

Ms. Sheila Bird
Tribal Historic Preservation Officer

Date

Invited Signatory

UNITED KEETOOWAH CHEROKEE OF OKLAHOMA

Mr. Eric Oosahwee-Voss Tribal Historic Preservation Officer	Date

Invited Signatory

THE OSAGE NATION

Dr. Andrea Hunter, Tribal Historic Preservation Officer	Date

Invited Signatory

QUAPAW TRIBE OF OKLAHOMA (THE O-GAH-PAH)

Mr. Everett Bandy Tribal Historic Preservation Office	Date

Invited Signatory

ABSENTEE SHAWNEE TRIBE

Mr. Leonard Longhorn
Tribal Historic Preservation Officer

Date

Invited Signatory

EASTERN SHAWNEE TRIBE OF OKLAHOMA

Ms. Robin Dushane Tribal Historic Preservation Office	Date

Invited Signatory

SHAWNEE TRIBES OF OKLAHOMA

Ms. Kim Jumper Tribal Historic Preservation Officer	Date

Invited Signatory

TUNICA-BILOXI TRIBE OF LOUISIANA, INC.

Mr. Marshall Pierite Tribal Chairman	Date

Invited Signatory

WICHITA & AFFILIATED TRIBES

Mr. Gary McAdams
Cultural Director

Date

APPENDIX A:

PROPOSED TREATMENT PLAN FOR SITES 3NW1308 AND 3NW1309

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
JOB NO. 009784
BUFFALO RIVER STRUCTURE & APPROACHES (PRUITT) (HWY 7)

Prepared by:

Eric Albertson and C. Andrew Buchner
Panamerican Consultants, Inc.
91 South Tillman St.
Memphis, TN 38111
901-454-4733

Prepared for:

Arkansas State Highway and Transportation Department
P.O. Box 2261
Little Rock, AR 72203

Revised February 02, 2017

TABLE OF CONTENTS

INTRODUCTION 1
TREATMENT PLAN 1
WHY DATA RECOVERY? 2
ASSESSMENT OF EFFECT 2
BACKGROUND 2
Location and Setting *2*
Previous Archaeological Investigations *2*
DATA RECOVERY PLAN 4
Task 1–Permitting and Pre-field Tasks *4*
Task 2–Fieldwork *4*
Special Safety Concerns/Accident Prevention Measures 5
Positioning, Mapping, and Horizontal/Vertical Control 5
Hand Excavations 5
Features 7
Documentation 7
Human Remains 8
Geological Assessment 8
Close of Excavations/Backfilling 8
Task 3—Artifact Analysis & Curation *9*
General Laboratory Procedures 9
Lithic Analysis 9
Lithic Diagnostics 11
Lithic Raw Material Analysis 12
Prehistoric Ceramic Analysis 12
Special Samples 12
Curation 13
Task 4—Reporting *13*
AAS Site Survey Update Forms 13
Management Summary 13
Technical Report 13
Key Panamerican Personnel *13*
C.A. Buchner 14
Eric Albertson 14
Andrew Saatkamp 14
Karla Oesch 15
Sub-Consultants *15*
Faunal Analyst 15
Archeo-botanical Analyst 15
Shell Analyst 15
Project Geologist 16
Radiocarbon and AMS Dating 16
PROPOSED SCHEDULE 16
REFERENCES CITED 17

INTRODUCTION

Panamerican Consultants, Inc. (Panamerican) is pleased to submit this treatment plan to the Arkansas State Highway and Transportation Department (AHTD) to mitigate the adverse effects the construction of the proposed new Highway 7 bridge over the Buffalo River and associated approaches in Newton County, Arkansas will potentially have on National Register of Historic Places (NRHP) eligible archaeological sites 3NW1308 and 3NW1309.

Rock shelter sites 3NW1308 and 3NW1309 were initially identified and underwent limited archaeological testing by AHTD archaeologists in 2010 (Branam and Scoggin 2010). The latter investigations revealed that both sites contained intact archaeological deposits and are relatively undisturbed. A late prehistoric Mississippian occupation was confirmed via the recovery of shell-tempered ceramics at Site 3NW1308. A temporally similar occupation is thought to have occurred at 3NW1309. An intact cultural feature was also identified at 3NW1308 and the potential for additional buried cultural deposits was indicated at both sites (Branam and Scoggin 2010).

The *State Plan for the Conservation of Archeological Resources in Arkansas* (Davis, ed. 1982, revised 2010) outlines a number of research priorities. Sites 3NW1308 and 3NW1309 fall within the NW Study unit of the *State Plan*, in which Raab et al. (2010:18) note a research priority on:

> Undisturbed dry rock shelters, [a] rarity in the Ozarks as a result of their attraction to vandals and relic collectors, should…be excavated to recover perishable remains not well preserved at other types of sites.

Sites 3NW1308 and 3NW1309 meet these research priority criteria to the letter. Because of their dry, intact deposits they have the potential to contain highly perishable archaeo-botanical remains. As such, they have the ability to contribute significant data regarding a number of Mississippian subsistence based research themes including:

- Chronological development of indigenous vs. tropical cultigens in the Ozarks
- Effects of cultigens on the human populations during the late prehistoric stage in the Ozarks

More generally, additional investigations at Sites 3NW1308 and 3NW1309 may contribute significant information regarding the following broad themes:

- Chronology
- Site Structure
- Technology
- Trade
- Diet
- Bioarchaeology
- Social Structure

TREATMENT PLAN

Sites 3NW1308 and 3NW1309 are National Register of Historic Places (NRHP) eligible archaeological sites located within the footprint of the proposed Highway 7 bridge over the Buffalo River and associated approaches. The data recovery project proposed herein is an archaeological mitigation that is designed to result in a determination of "no adverse effect" for the undertaking.

The mitigation of an adverse effect on an archeological site determined eligible for inclusion in the National Register can be accomplished through one or more of the following actions: avoidance of impact, preservation or protection in place with legal covenants if possible, site burial in some cases, or data recovery (see management and treatment sections of the *State Plan*).

WHY DATA RECOVERY?

The mitigation option generally recommended first is avoidance of impact. However in the case of Sites 3NW1308 and 3NW1309, preservation in place is not a viable option because the bridge must span the rock shelter locations.

Data recovery is another appropriate means of mitigation of adverse effect for archeological properties. Through data recovery, the information contained in the site that gives it its significance is removed prior to project construction and the project, therefore, will not have an adverse effect on the significant site. Its significance is no longer in the ground; it is in the records and collections being curated. At a minimum, the data recovery should include the excavation of a representative sample of features and deposits in that portion of the site that will be impacted or destroyed by the proposed undertaking.

ASSESSMENT OF EFFECT

AHTD engineers have stated that 3NW1308 and 3NW1309 could be adversely affected during blasting associated with construction of the Highway 7 bridge over the Buffalo River and associated approaches. Vibrations associated with blasting activity have the potential to collapse either or both rock shelters, and thus possibly destroy one or both of them. In other words, engineers cannot guarantee that the shelters will not be disturbed during the bridge construction.

BACKGROUND

LOCATION AND SETTING

Sites 3NW1308 and 3NW1309 are located in northern Newton County near the community of Pruitt. The sites lie along the edge of the Springfield Plateau in the Ozarks Region of northwest Arkansas (Figure 1). The sites are found at the interface of the Mississippian-aged Boone formation forming the plateau and the Ordovician aged St. Peter Sandstone and Everton Formation that flank the Buffalo River Valley (Haley 1993). The area is typical of the Springfield Plateau with rolling hills separated by steeply sloped valleys.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Sites 3NW1308 and 3NW1309 were initially identified as prehistoric rock shelter sites during a 2010 survey by AHTD archaeologists. The two sites are located along the north side of the Buffalo River along the same rock outcrop. They are separated by a distance of only 15 m, with 3NW1308 to the east and 3NW1309 to the west (Branam and Scoggin 2010). Site 3NW1308 was the larger of the two and measured 6 m deep and 5 m wide at its mouth. Clearance between the floor and the roof of the shelter was approximately 2 m at the mouth. Site 3NW1309 measured 4 m deep and 4 m wide with a maximum height of only 1 m (Arkansas Archeological Survey (AAS)-Site Survey Form[s]).

During the 2010 investigations “observations of the shelter floors, drip lines and adjacent talus slopes revealed clear evidence of human occupation in 3NW1308” (Branam and Scoggin 2010:56). This evidence included the presence of prehistoric lithic debitage, shell and bone, and darkened soils.

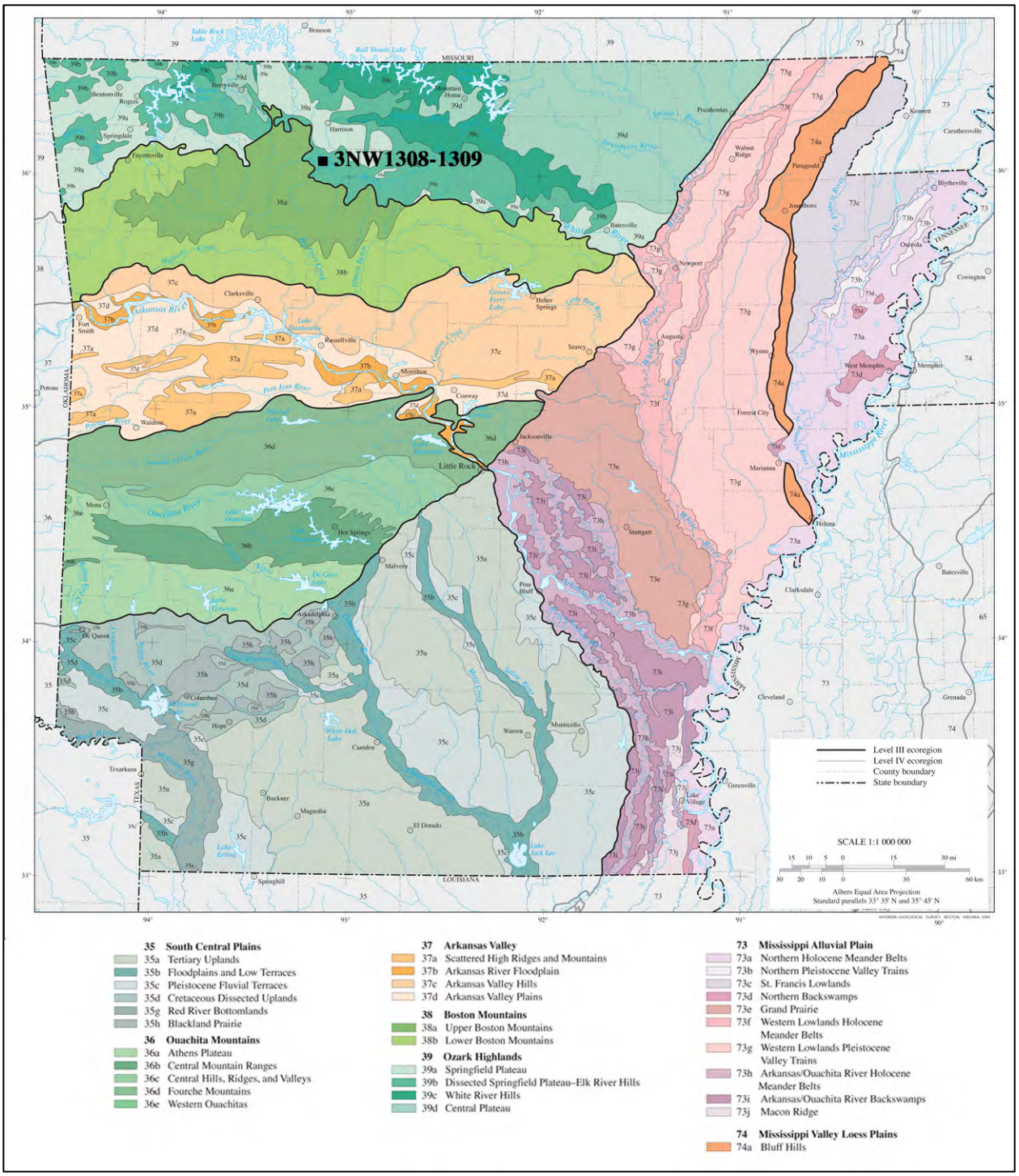


Figure 1. Location of Sites 3NW1308 and 3NW1309 shown on ecoregions of Arkansas map.

Following their initial identification, a limited testing plan was formulated to assess both sites' NRHP eligibility status. The methodology employed for this testing included the excavation of a 1 × 1 m test unit near the drip line at 3NW1308 and a 50 × 50 cm control column excavated near the drip line at 3NW1309 (Branam and Scoggin 2010:56).

Excavation of the test unit in 3NW1308 revealed a prehistoric cultural deposit extending from the surface to a depth of approximately 45 cmbs. The unit produced a total of 150 artifacts including debitage, chipped stone tools, shell-tempered (Late Prehistoric-Mississippian) pottery, faunal and malacological (i.e., shell) remains, and charcoal (Branam and Scoggin 2010:Table 3). Prehistoric ceramics were recovered in the upper 20 cm of the unit. The heaviest recovery was recorded between 10 and 20 cmbs. The top of a prehistoric feature, interpreted as a likely hearth, was encountered at a depth of 23 cmbs in the corner of the unit. The feature was left pedestalled and was not excavated. Sandstone rock was encountered at a depth of approximately 45 cmbs. Thought to be ceiling fall, attempts were made to remove the sandstone layer using a small hand pick. Approximately 25 cm of sandstone was removed in this manner without penetrating it. Excavation of the rock was subsequently abandoned. The probability of more deeply buried deposits in the shelter was noted by AHTD archaeologists (Branam and Scoggin 2010:58).

The control column excavated in 3NW1309 revealed a prehistoric cultural deposit extending from the surface to a depth of 30 cmbs. A total of 41 artifacts were recovered from the column including prehistoric debitage, faunal and malacological remains, and charcoal (Branam and Scoggin 2010:Table 4). No diagnostic artifacts were recovered from the column although Branam and Scoggin (2010:61) noted that lithic artifacts at 3NW1309 were manufactured from the same raw materials as observed in nearby 3NW1308 and that "the shallow deposits likely date to the same period". Excavation in the 3NW1309 column was terminated at 30 cmbs when limestone was encountered. Branam and Scoggin (2010:61) noted that the limestone was possibly bedrock although suggested "It is possible that this is also a ceiling fall and there are deeply buried cultural deposits under the limestone slab".

Both 3NW1308 and 3NW1309 were recommended potentially eligible for the NRHP following their identification and limited testing (Branam and Scoggin 2010:63-64). This recommendation was based on a number of factors including: the relatively undisturbed nature of the deposits at both sites, an increasing rarity amongst Ozark rock shelters due to looting; the presence of a buried, cultural feature at 3NW1308; and the potential for deeply buried cultural deposits at both sites.

DATA RECOVERY PLAN

The plan proposed below is based on a review of the previous investigations at the two sites (Branam and Scoggin 2010), our past experience, and on a conversation with Bob Scoggin, AHPP Section 106 Program Manager.

TASK 1–PERMITTING AND PRE-FIELD TASKS

Upon notice to proceed and prior to the initiation of fieldwork, Panamerican will submit a "Permit for Archeological Investigations" application to the United States Department of Interior to conduct archaeological work on Department of the Interior lands (Buffalo National River) and Indian lands under the authority of the Archaeological Resources Protection Act (ARPA) of 1979. Panamerican will conform to all standard and special permit conditions contained within the issued ARPA Permit.

TASK 2–FIELDWORK

The primary goal of Task 2 is the removal of most, if not all, of the currently known site deposits contained within each of the two rock shelters (3NW1308 and 3NW1309). This stage of excavation will seek to remove deposits from the existing rock shelter floor surfaces to rock strata identified during testing (Branam and Scoggin 2010) between 30 and 45 cmbs using the excavation strategies outlined below. Excavation below the rock strata will be conducted (if necessary) during Fieldwork Stage B described in detail in the following section(s).

Special Safety Concerns/Accident Prevention Measures

Panamerican will comply with safety standards for Phase III archaeological assessments as specified by the AHTD and OSHA. The 3NW1308 and 3NW1309 topographical setting presents additional safety concerns concerning extreme slopes and abrupt, significant (approximately 40 ft.) elevation changes. For that reason, all crew members working below the ridge top (i.e. in and around the rock shelters themselves) will be outfitted with and required to wear fall protection kits consisting of full body harnesses, lifelines with shock packs, and extension lanyards. Individual fall protection devices will be anchored either to trees at the top of the ridge or via a constructed secure anchor position (if necessary). Additionally, crews working below the ridge top will be required to wear work and rescue helmets to protect them further, particularly when working within the rock shelters themselves which have limited overhead clearance.

Positioning, Mapping, and Horizontal/Vertical Control

Archaeological mitigation investigations will begin with the establishment of a metric site grid. Two temporary datums will be established along the ridge top above Sites 3NW1308 and 3NW1309. The datums exact positions will be determined (UTM WGS84 or other coordinate system) using an X90-OPUS static GPS receiver with sub-centimeter accuracy. A Topcon GTS-226 total station tied into the temporary datum positions will then be used to create a topographical map of each rock shelter and its immediate environs. The total station also yields centimeter accuracy. The total station will also be used to establish additional temporary datums at the mouth of each of the two rock shelters. The overhead clearance within the shelters themselves is too low to easily accommodate internal mapping using the total station. Measurements within the shelters will be made using taped readings for both horizontal and vertical control from the temporary datums established outside.

Hand Excavations

Due primarily to their topographical setting, archaeological mitigation of Sites 3NW1308 and 3NW1309 will be accomplished via hand excavations alone.

Initially, a 1 × 1 m grid of units will be laid out within each shelter. Given the reported shelter sizes, we estimate that this will require approximately 18 units within 3NW1308 and nine units within 3NW1309 (Figure 2). Note that given the irregular nature of the walls within each shelter, some of the units will likely not be a full 1 × 1 m in size. At least two units within 3NW1309 will be reduced to 1 × 0.5 m in size.

The proposed sample sizes are as follows:

- 3NW1308—18 units inside the shelter (estimated to be a 76.3 percent sample of the interior floor)
- 3NW1309—9 units inside the shelter (estimated to be a 71.4 percent sample interior floor)

Additional units will be excavated on the exterior of the shelters, beyond the drip line (see Figure 2). Based on the mouth widths of the shelters, Two 1 x 1 m test units at 3NW1308 and one 1 x 0.5 m test unit at 3NW1309 will be excavated. The latter units will sample potential site deposits outside of and along the drip line.

Note that the location of these proposed units may changed during the data recovery based on the nature of the recovery (i.e. to fully expose identified features, etc.).

Each unit will be assigned a consecutive number by site and excavated using the following methods. As overhead space is confined in both shelters, the use of conventional archaeological

tools such as shovels will likely not be practical. Thus, it is anticipated that most excavation will be conducted using trowels and short-handled tools. Excavated soils will be collected in dust pans and transferred to 5-gal. buckets for removal to the screening area (see below).

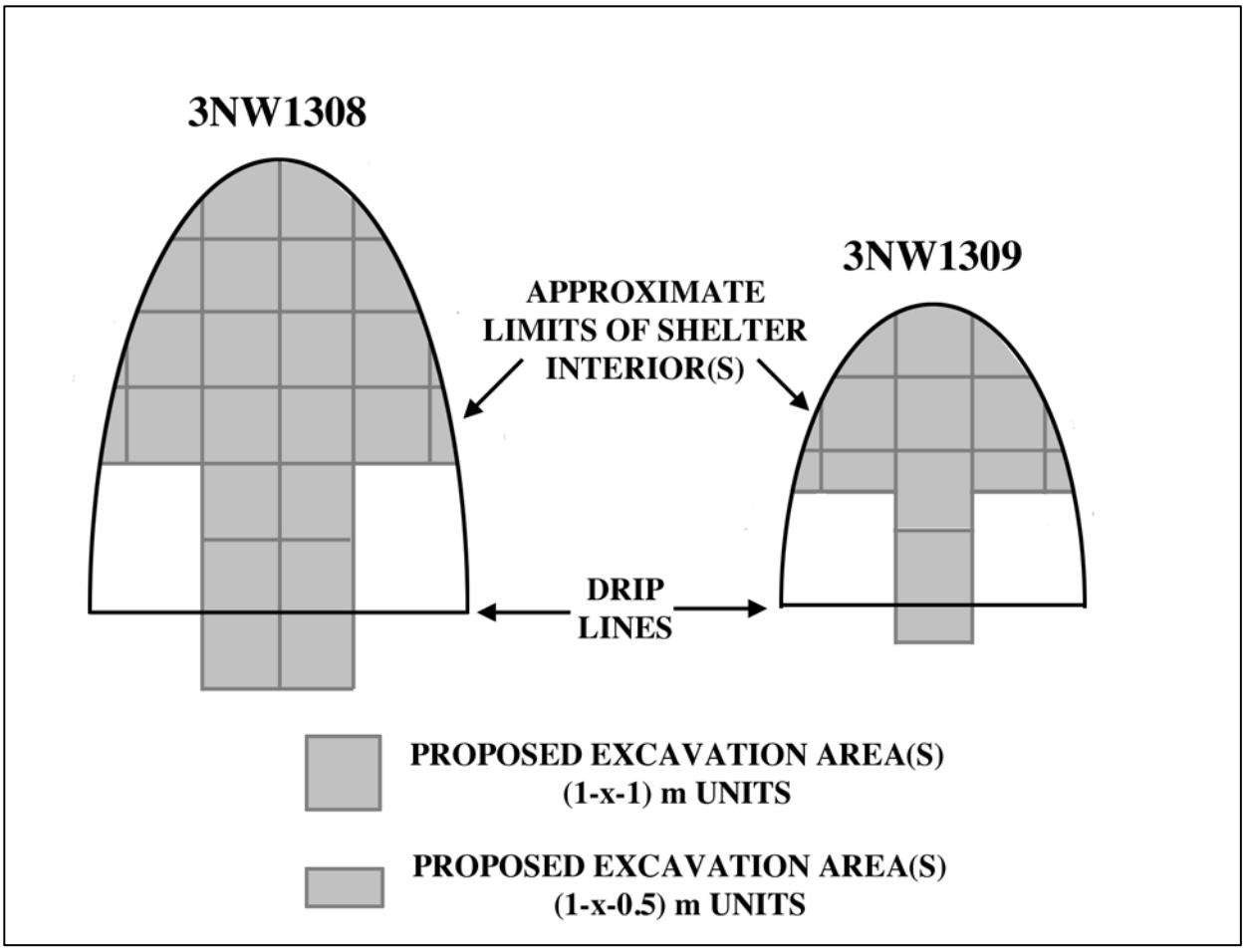


Figure 2. Proposed excavation grids at 3NW1308 and 3NW1309.

Excavation will proceed in arbitrary 10 cm levels, until solid rock or sterile deposits are encountered. Based on previous research (Branam and Scoggin 2010), the expected maximum depth of excavation required at Site 3NW1308 is 45 cmbs and 30 cmbs at Site 3NW1309. We propose to dry screen 90 percent of the unit-level fill through standard 0.25 in. hardware cloth. All recovered materials will be separately bagged by site, unit, and level.

A 10 × 10 × 10 cm soil sample will be removed from each unit/level, and retained for water screening off-site. This sample will be water screened through window mesh (1/16 in. mesh) in an effort to recover micro-debitage, very small faunal remains, archaeo-botanical remains, etc.

The topography at the location of these two sites also presents some difficulty regarding on site screening. The ground surface outside of each shelter is too sloped and narrow to allow for screening at the rock shelters. Therefore we propose to establish dry screening stations on the more level ridge above the shelters. Excavated sediments will be loaded into 5 gal. buckets and physically hauled up to the ridge using a system to be determined in the field. Screening will take place over large tarps or plastic sheeting. This will allow for the complete removal of spoil during the backfilling process (see below).

Formal excavations will be documented through use of standardized unit/level forms, plan and profile drawings, and digital photography. Sediments will be described in terms of textural class and Munsell color value.

Features

Features and/or artifact concentrations that are exposed in hand excavations will be mapped, excavated, and documented using standardized forms. Documentation will include plan and profile drawings and digital photography (pre and post-excavation).

Initially all features will be assigned a unique feature number, and their basic size, shape, matrix characteristics, and position within the site grid will be recorded. Following the initial documentation, all pits, hearths, and artifact concentrations will be excavated as follows. Features will first be cross-sectioned (i.e. bisected). Cross-sectioning will provide information on feature shape and fill, as well as initial information on the integrity of material cultural remains present. Following documentation of the profile, the second half of the feature will be excavated.

All fill removed from each feature will be retained as a soil sample and transported to Panamerican's Memphis laboratory facility for processing via flotation. The laboratory facility houses two flotation barrels that yield one heavy fraction (1/16-in. in size) captured in the tank and two light fractions that are captured in external nested geologic sieves (1.4 mm and 0.335 mm in size). Carbonized floral remains and faunal remains recovered from features will be analyzed by an outside consultant. Note that C^{14} samples may be collected directly from features during excavation and prior to flotation. The samples will be analyzed by the appropriate outside consultant prior to submission for radiometric dating.

If well-preserved basketry, woven artifacts, or other fragile dry perishable artifacts are encountered, they will be treated as features. Rather than being bisected, such items will be pedestaled and removed via undercut. The recovery of such items will focus on keeping the articles intact.

Portions of a single feature were identified during the limited testing conducted by AHTD at Site 3NW1308. A corner of the feature was exposed at 23 cmbs but was not excavated by AHTD archaeologists. It was interpreted as a probable hearth and was left pedestalled. It will be re-exposed and excavated during the archaeological mitigation of the site.

Documentation

Standardized forms will be used to record information regarding the excavated units and features. The standardized forms used to record features provide adequate space for additional particularistic comments by the excavators. Basic metric and location data are recorded, as is recovery methodology, fill Munsell color and textural class, associated bag numbers, etc. All features are assigned a mid-point coordinate value (location within the site grid) and are placed on a master site plan view map. Scale plan and profile sketches are prepared as a part of the feature recording procedure.

Photos will be taken in sufficient quantities to record significant data and information for units and features. All photographs will be recorded in a dedicated photographic log. The photo logs and photographs of all significant data will become part of the permanent project records and will be included with curation material.

Additional in field project documentation will include, but not be limited to the following type of records: (1) daily field notes of key project personnel (i.e., Field Director) that note general findings, excavation placement reasoning, and other key observations; (2) completion of various

task oriented forms such as, shovel test records, unit-level forms, bag list, feature forms, feature log, and photographic logs; in addition to (3) various "in-house" paperwork, employee timesheets, expense reports, etc.

Human Remains

Previous archaeological work at Sites 3NW1308 and 3NW1309 has not documented the presence of human remains, burial furniture, and/or other sacred items at the two rock shelters. However, such remains and artifacts have been documented in other Ozark rock shelters. If such remains or artifacts are encountered during excavations at either 3NW1308 or 3NW1309, they will be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the National Park Service, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

Geological Assessment

At the completion of the hand excavations, a professional geologist will conduct a geological assessment of the rock shelters. The goal of this assessment will be to attempt to determine if there are any cultural deposits below the exposed rock in the floor of the units. Previously, during archaeological test excavations at Site 3NW1308, AHTD archaeologists noted:

> At about 45 cmbs, sandstone was encountered throughout the unit. This sandstone is likely the result of a ceiling fall in the shelter. After trying to use a small metal hand-pick to break through the sandstone, the attempt was aborted after about 25 cm due to time constraints. There are potentially (and probably) more deeply buried deposits under this sandstone layer [Branam and Scoggin 2010:58].

A similar situation was noted in test excavations at Site 3NW1309, where Branam and Scoggin (2010:61) observed:

> A level of limestone (possibly bedrock) was hit about 30 cmbs. It is possible that this is also a ceiling fall and there are deeply buried cultural deposits under the limestone slab.

We propose that the geological assessment will include boring into the rock floor exposed in the hand excavations to test for the presence of archaeological deposits under the floor. This should allow the geologist to determine if indeed the rock floor is ceiling fall, or bedrock. The project geologist recommends the use of a gas powered rock drill that he has successfully used to bore through limestone in the past. The rock drill produces a bore approximately 1 in. in diameter, and can reach to a depth of 2 m. The rock drill is lawn mower sized, and is lubricated by water (5 gal. of water can will be sufficient).

Following the conclusion of the geological assessment, AHTD will be provided with the preliminary findings and a decision will be made on whether additional archaeological excavations are necessary. Any additional fieldwork would be funded by a supplemental agreement (i.e. contract modification).

Close of Excavations/Backfilling

At the close of excavations, backfilling of excavated sediments will likely be required by the NPS for each of the sites investigated. The shelter floors will be restored as closely as possible to their original condition.

Backfilling will be accomplished in essentially reverse order of excavation. Spoil from the screening area(s) on the ridge top will be loaded into 5-gal. buckets, and lowered to the

excavation areas/rock shelters. Spoil will then be placed back into the floor of the rock shelters via the buckets.

TASK 3—ARTIFACT ANALYSIS & CURATION

General Laboratory Procedures

All recovered artifacts and soil samples will be transported to our lab in Memphis where they will be systematically cleaned and analyzed, inventories made, and then prepared for curation. Artifacts from Sites 3NW1308 and 3NW1309 will be analyzed by Ms. Karla Osech, the Memphis Laboratory Director, under the supervision of both the Project Manager (Buchner) and Principal Investigator (Albertson). The recovered assemblages will be treated in a manner consistent with the *State Plan* (2010).

General laboratory procedures begin with an inventory of all materials collected. The recovered material is then cleaned (chemically, physically, or otherwise conserved), separated into material class (lithic, ceramics, metal, glass), and allowed to dry on trays or other suitable receptacles. Once stabilized, the material is re-bagged or packaged and labeled with its original field information to wait cataloging.

All material will be cataloged using a system agreeable to the AHTD and the University of Arkansas Collection Facility (UACF). Ms. Osech is highly familiar with the UACF curation analysis and procedures. This system will allow for the cataloging of artifacts, separated first by gross analytical classes and then by individual or lot number. Codes are provided for such categories as provenience, type, dimensions, weight, and count. Forms are provided for recording necessary information, and field samples can also be inventoried with this system.

Analysis of the material begins as soon as the coded information is available, with summary tables or frequency charts generated to provide data on diagnostic and other pertinent material recovered. This procedure provides ready access to information on such topics as temporal and spatial patterning, thus facilitating site interpretation and guiding, in part, the remaining fieldwork. All material is tabulated by various categories, including individual site, intrasite provenience, cultural period, and analytical class.

The overall goal of any analysis is to provide the data by which the hypothesis or research topics identified can be addressed. Typological analyses concentrate on the classification of the material according to cultural affiliation and chronological period. Analyses of the faunal and botanical remains focus on identification to the lowest taxon possible, ecological origin (upland, coastal, marine), and processing techniques. Specialized studies of the material (for example, microwear analysis and raw material analysis) are considered to be additional tasks.

Following analysis, all artifactual material is bagged in zip-lock or airtight polyethylene plastic bags and packed in acid-free cardboard boxes by site, intrasite provenience, sample type, and analytical class. Bags and boxes are labeled with all pertinent information to ensure provenience control and accessibility for further study and curation. The material will be permanently curated at the UACF.

Lithic Analysis

The bulk of the recovery at the two rock shelters will likely consist of prehistoric lithic artifacts. Panamerican's standard chipped-stone analysis is based on the sorting scheme of Sullivan and Rozen (1985; Rozen and Sullivan 1989a, 1989b). The Sullivan and Rozen (1985) sorting method was formulated specifically for the constraints (time and money) of contract archaeology and has been proven to be of general utility in Arkansas Phase III assemblages for over a decade (Buchner et al. 2003). Additional commentary regarding the value of interpretative results

derived from this scheme has been presented (Amick and Mauldin 1989; Ensor and Roemer 1989; Rozen and Sullivan 1989a, 1989b).

Under this system, all lithic artifacts are considered within either of two major categories: chipped-stone artifacts or other stone items. Other stone items are sorted into intuitive categories (such as various types of ground stone tools and hammerstones) and described intuitively without the use of a formal hierarchical system. Chipped-stone artifacts typically dominate the local lithic assemblages, and the typology employed in sorting this material is described below.

All lithic items are organized into two initial sorting categories according to the presence or absence of positive percussion features (Figure 3). Chipped-stone artifacts without positive percussion features are considered under the broad term "cores," while chipped-stone artifacts with positive percussion features are considered debitage. All cores, or items that exhibit flake scars, can then be subdivided into more traditional subcategories: projectile point/knives (PP/Ks), bifaces, and other (traditional) cores. The remaining debitage is initially subdivided by the presence or absence of retouch. Like cores, retouched debitage may be further subdivided into more traditional assumed functional or morphological categories. The identification and classification of retouched pieces can be problematic, given the gradation from formal to expedient "use wear" type retouch. In this analysis polished debitage (i.e. hoe chips) are considered under the retouched pieces category.

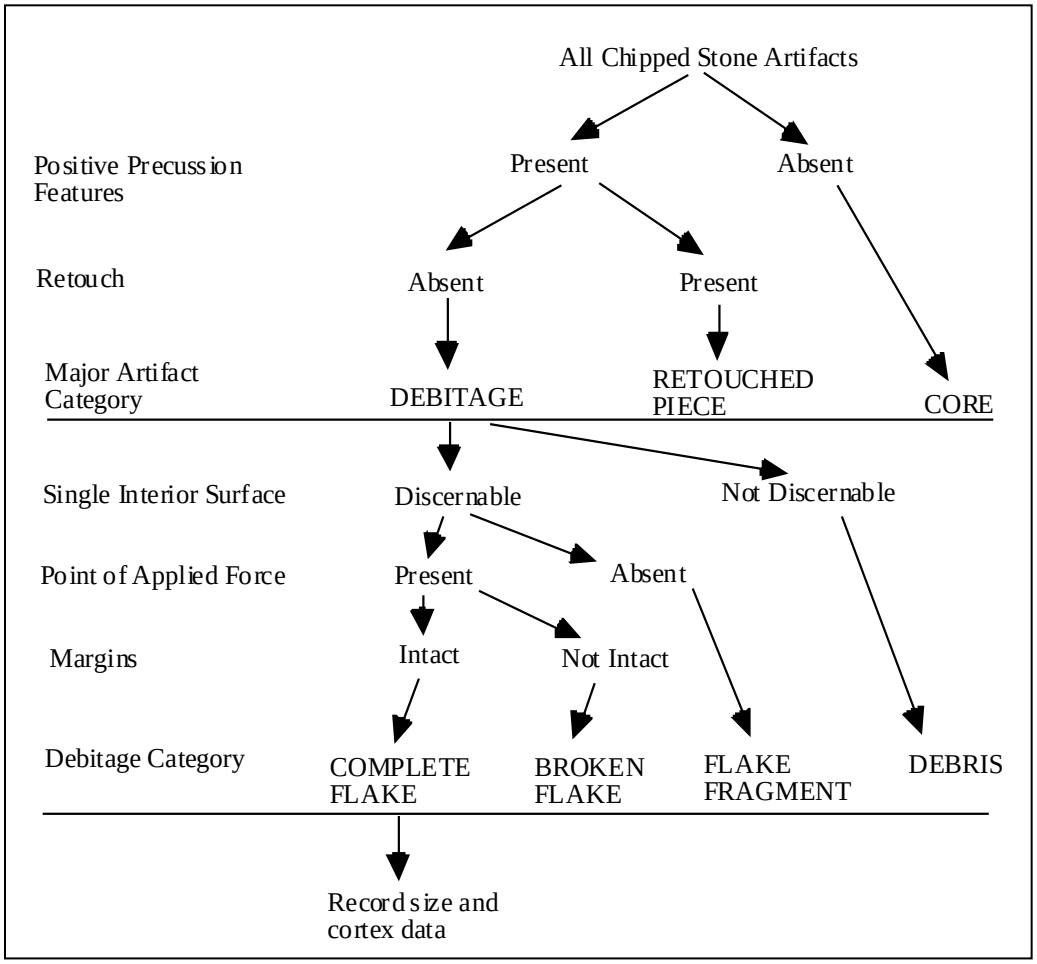


Figure 3. Panamerican's standard technological attribute key that will be used to identify major chipped-stone and debitage categories (after Sullivan and Rozen 1985).

The classification of the debitage is where the scheme varies the most from traditional approaches. The four morphologically defined categories of debitage are outlined in the diagram below. Pieces without observable interior faces are considered "debris," which is similar to "chipping shatter" of traditional approaches. Pieces of debitage with observable interior faces but lacking bulbs of percussion are considered "flake fragments." Fragments with both observable interior faces and bulbs of percussion are considered either "complete flakes," if the margins are intact, or "broken flakes," if the lateral margins are not intact.

To further qualify the debitage, all complete flakes will be subjected to one final analysis: size and cortex grading. This information will be recorded in the master artifact inventory. All complete flakes will be size sorted into one of three size grades (but larger size grades can be added if necessary):

- Size grade 1 = 0.25–0.50 in.
- Size grade 2 = 0.50–1.00 in.
- Size grade 3 = >1.00 in.

Cortex grading is designed to assess the percent of cortex that remains on the dorsal surface of a complete flake. All complete flakes will be size sorted into one of four cortex grades:

- Cortex grade 1 = no cortex present
- Cortex grade 2 = 1–33 percent cortex
- Cortex grade 3 = 34–66 percent cortex
- Cortex grade 4 = 67–100 percent cortex

Lithic Diagnostics

Every attempt will be made to type, or at least chronologically place, both formal and informal stone tools that are temporally sensitive. We rely on standard text references including, but not limited to Bell (1958, 1960), Justice (1987), Perino (1968, 1971), Ray (2016), and Sandstrom and Ray (2004), to type PP/Ks in the Arkansas Ozarks. A description of each formal and informal stone tool type/category is provided in each report, and complete metric and provenience data for all PP/K specimens are most typically presented in tabular form. Selected specimens are illustrated in artifact plates included with report of findings.

Non-diagnostic bifaces, cores, and retouched pieces will be described and tabulated, and typed as possible. The descriptive data on these will include metric attributes (length, width, and thickness measurements, as well as mass) and a raw material assessment. A sample of these items will be illustrated.

As noted above, other non-chipped-stone artifacts such as mano, metates, pitted cobbles, and hammerstones will be typed and described. The descriptive date will include metric attributes (length, width, and thickness measurements, as well as mass) and a raw material assessment. A sample of these items will be illustrated.

Fire-cracked rock (FCR) is typically defined as any type of non-chipped-stone that has been fractured from exposure to heat. House and Smith (1975:75-80) conducted experiments in the replication of FCR recovered from archaeological sites in the Cache River basin of eastern Arkansas, and proposed that this artifact type has four archaeological attributes: (1) lack of percussion features; (2) exhibit irregular, fractured surfaces; (3) discoloration tending toward red and black; and (4) pot-lid features are occasionally present. FCR occurs in a large number of archaeological contexts, and as a result it is a non-diagnostic artifact category. Functionally, FCR is typically considered to be a by-product of cooking techniques that involve the use of

heated rocks. This can involve direct and indirect cooking methods, such as earth ovens or stone boiling.

Lithic Raw Material Analysis

All non-debitage stone artifacts will be examined for raw material type. A sample of the debitage may also be analyzed; the sample will be derived from the complete flake population. Initially, raw material sorting categories will be created that reflect the type of material (i.e., novaculite, chert, sandstone, etc.) in combination with other characteristics including luster, matrix structure, cortex characteristic, and color. Colors will be assigned per the rock color chart. Once sorting categories are established, then an attempt will be made to identify the geological source, principally using Ray's (2007) *Ozarks Chipped-Stone Resources*.

Prehistoric Ceramic Analysis

A number of shell tempered, prehistoric ceramic artifacts were recovered at Site 3NW1308 during archaeological testing (cf. Branam and Scoggin 2010). The recovery of additional prehistoric ceramic artifacts during the mitigation of the latter, or both sites, is expected. Prehistoric ceramic analysis will concentrate on documentation of the following attributes: paste/temper; core, interior, and exterior color; surface treatment; vessel section; and thickness. Prehistoric ceramic artifacts will be assigned to the regional typological set where possible.

Special Samples

Previous excavations at 3NW1308 and 3NW1309 have documented the presence of several artifact categories requiring specialized analyses. These categories include faunal remains, carbonized archaeo-botanical remains, and malacological (i.e., shell) remains.

Faunal Analysis

All recovered faunal remains will be analyzed by a professional faunal analyst. Emphasis will be placed on analysis of materials from contexts that can best be assigned to specific chronological, cultural, or functional categories. The faunal analysis will focus on identification to the lowest taxon possible and reporting will include tabular summaries of recovered remains, minimum number of individuals (MNI) counts, and discussions of findings including what environmental zones are represented. Panamerican proposes to employ Susan L. Scott for faunal analyses.

Archaeo-botanical Analysis

Analyses of recovered botanical remains will also focus on identification to the lowest taxon possible and ecological origin. Recovery of these materials by fine screen and flotation will provide classes of material relevant to the study of diet, subsistence, and economy of the former inhabitants of these sites, as well as change of subsistence strategies and the quality of the diet and environment. Work products resulting from archaeo-botanical analyses will include tabular summaries of recovered floral remains and discussions of findings including what environmental zones are represented. Panamerican proposes to employ Dr. Natalie Mueller for specialized archaeo-botanical analyses.

Shell Analysis

Test excavations at both Site 3NW1308 and 3NW1309 yielded remains of freshwater shells. For this reason Panamerican will employ Dr. Evan Peacock for specialized analyses of recovered shell remains. Data gathered and reporting for these remains will be similar to the faunal and archaeo-botanical analyses discussed above.

Radiocarbon Samples

Radiocarbon samples will be collected from intact contexts, preferably with diagnostic artifacts. Collected C^{14} samples will be submitted to, and processed via AMS by Beta Analytic, Inc. Note that the carbon samples will be analyzed by the project's archaeo-botanist (Lopinot, see above) prior to submission to the radiocarbon lab. This will allow for taxa and possibly species identification prior to their destruction and can aid in sample selection by identifying specimens with "old wood" problems.

Curation

The artifact assemblage and records set generated by the archaeological mitigation of Sites 3NW1308 and 3NW1309 will be temporarily housed at Panamerican's Memphis laboratory until the final report is submitted.

All artifacts and project records will be the property of the National Park Service, Buffalo National River and will be permanently curated at the park. The assemblage and records—including computer files—will be prepared for curation by Panamerican using the Interior Collections Management System (ICMS) accession and cataloging system. Panamerican will arrange for transporting or shipping the curation materials to the Buffalo National River following submission of the final report.

TASK 4—REPORTING

AAS Site Survey Update Forms

Updated AAS archaeological site forms will be submitted for Sites 3NW1308 and 3NW1309.

Management Summary

A Management Summary will be submitted with 30 calendar days of the completion of the field investigations (Task 2). The Management Summary will summarize the field efforts using text, tables, and maps.

Technical Report

The results of the investigations will be detailed in a technical report, similar to our past submissions to the AHTD and the Arkansas SHPO. All excavated areas will be shown on the appropriate maps within the reports. The draft (and final) reports will contain sufficient information and documentation to comply with Section 106 of the National Historic Preservation Act, the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716-39) as well as the standards and guidelines set forth in *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis, ed. 1982, revised 2010). More generally, the draft and final reports will be well-illustrated, scientifically sound, stand-alone documents detailing all aspects of the project, from background information, to field work, artifact analysis, and conclusions.

KEY PANAMERICAN PERSONNEL

The most senior and experienced archeologists at our Memphis office will be dedicated to directing mitigation excavations at Sites 3NW1308 and 3NW1309. The proposed leadership team has successfully completed several large-scale Phase III investigations in the Arkansas Ozarks. The key Panamerican staff that will be assigned to these field investigations are outlined in the bulleted list below. These individuals will be responsible for the validity and accuracy of the data that is collected and presented.

- C. Andrew Buchner, RPA will serve as Project Manager
- Eric Albertson, RPA will serve as Principal Investigator-Field Director
- Andrew Saatkamp, RPA will serve as Assistant Field Director

Importantly, the above key Panamerican personnel proposed for this project meet the Secretary of the Interior's Professional Qualification Standards for Archeology, and are all certified by and listed on the Register of Professional Archeologists (RPA) (see http://www.rpanet.org/).

C.A. Buchner

C. Andrew Buchner has 27 years experience as a cultural resource management (CRM) archeologist, is an owner/partner in Panamerican Consultants, Inc., and currently manages the company's Memphis office. His degrees include an M.A. (1989) in Anthropology from the University of Memphis, and a B.A. (1984) in Anthropology/Sociology from Westminster College, Fulton, Missouri. A native Arkansan (Little Rock Catholic High Class of 1980), he is certified by the Register of Professional Archeologists (RPA ID# 12420), and is a member of various professional organizations including the Society for American Archeology, the Southeastern Archeological Conference, the Caddo Conference, the Society for Historical Archeology, and the Society for Industrial Archeology. Additionally, he is a Life Member of the Arkansas Archeological Society. "Drew" has participated in dozens of projects in rural and urban contexts within Arkansas for clients including AHTD, the Corps of Engineers, the National Park Service, the Ouachita National Forest, Arkansas Parks, and Arkansas Game & Fish Commission, as well as various engineering firms. Mr. Buchner has written over 600 technical reports (including at least 216 reports in the AMASDA database), and is published in various peer-reviewed journals including two monographs in the Arkansas Archeological Survey's Research Series: *Mississippian Transitions at John's Lake* (Research Series No. 60) and *Excavations at the Howe Pottery a Late Nineteenth-Century Kiln in Benton, Arkansas* (Research Series No. 66).

Eric Albertson

Eric Albertson has been an employee of Panamerican full-time since 1997 and has 19 years experience as a Field Director or Principal Investigator, in addition to prior museum and field tech experience. His degrees include an M.A. (1997) in Anthropology from the University of Memphis, and a B.A. (1993) in Philosophy from the University of Memphis. He is certified by the Register of Professional Archeologists (RPA ID# 15095), and is a member of various professional organizations including the Southeastern Archeological Conference, the Caddo Conference, the Midwest Archeological Conference, and the Mid-South Association of Professional Anthropologists. Additionally, he is a member of various state archeological societies, including being an active member of the Arkansas Archeological Society. He has served as Field Director and/or Principal Investigator for numerous excavation projects, including the 2011 data recovery excavations at two sites on the Shady Lake Recreation Area Ouachita National Forest for the FHWA and at the Historic Keeton Farmstead (3PP1316) for AHTD. During his career he has authored or co-authored over 200 contract reports, and is a contributing author in the Arkansas Archeological Survey Research Series 60 Monograph *Mississippian Transitions at John's Lake*.

Andrew Saatkamp

Andrew Saatkamp has 20 years of experience as a CRM archaeologist. His degrees include an M.A. (1994) in Anthropology from the University of Memphis and a B.A. (1989) in Anthropology from the University of Tennessee, Knoxville. Mr. Saatkamp is certified by the Register of Professional Archaeologists (RPA ID# 15459), and he is a member the Society for American Archaeology. Since joining Panamerican in 1994, Mr. Saatkamp has served as a Field Director for numerous survey projects in the southeastern United States, including numerous Phase I cultural resources projects in Arkansas. During his career, Mr. Saatkamp has authored or

co-authored more than 200 contract reports. Mr. Saatkamp possesses various ancillary and computer skills, including GIS manipulation and analysis.

Karla Oesch

Ms. Karla Oesch has nine years experience in the cultural resource management (CRM) field, and currently manages the Panamerican's Memphis laboratory and artifact collections. Her degrees include an M.S. (2016) in Earth Sciences/Archaeology from the University of Memphis, and a B.A. (2008) from the University of Alabama in 2008. She initially joined Panamerican in 2007, and since 2010 has served as the Laboratory Director of the Memphis office. While working for Panamerican, she has conducted artifact analysis of prehistoric and historic materials from both large and small-scale projects throughout Arkansas, and the elsewhere in the Southeast. She is a contributing author for over 100 CRM reports documenting Phase I, II, and III investigations. Karla is certified by the Register of Professional Archaeologist (RPA), and is currently a member of the Southeastern Archaeological Conference and the Society for American Archaeology. Additionally, Ms. Oesch is also very adept at creating graphic designs such as logos and marketing materials, and has prepared archaeology themed posters for conference presentations.

SUB-CONSULTANTS

Faunal Analyst

Ms. Susan Scott Jackson received her B.A. in Anthropology and Biology from the University of Alabama at Birmingham in 1976. She has completed graduate-level course work in Anthropology, Archeology, and Zooarcheology at various institutions including Tulane University, the University of Michigan, and the University of Florida. She also holds a Batchelor's of Science in nursing from Southern Mississippi University. Ms. Jackson has conducted zooarcheological research for studies conducted in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, Nebraska, New Mexico, Ohio, Texas, and other locations abroad (Comoro Islands, Virgin Islands, India). Since 1985, she authored 13 articles and contributed chapters in various scholarly journals and books. Ms. Jackson has collaborated with Panamerican numerous times in the past, including on analysis of faunal remains from Caddo and Historic contexts at the Foster Site (3LA27) on the Red River, and from the Historic Keeton farmstead (3PP1316) on Arkansas Hwy. 124.

Archeo-botanical Analyst

Dr. Natalie Mueller of the Department of Anthropology, Washington University in St. Louis, will serve as the project's archaeo-botanical sub-consultant. Natalie is an archaeologist and paleoethnobotanist specializing in the history of ecology of North American and the origins of food production. She utilizes a combination of morphometrics, ancient DNA, field ecology, and experimental gardens to study plant domestication and agricultural communities of practice. Her past research has investigated the co-evolution between humans and plants, social institutions related to food production and security, and iconographic representations of ideology and gender. Dr. Mueller has six years of experience in both fieldwork and instruction and has conducted a number of excavations both in North American and abroad dating from the Paleoindian period to the 18th century.

Shell Analyst

Dr. Evan Peacock, North American Archaeologist-Associate Professor of Anthropology at the Cobb Institute of Archaeology (Mississippi State University), will serve as the project's shell analysis sub-consultant. Evan is a well-known specialist in Southeastern paleoecology and paleo-environmental modeling, and his 1999 doctoral research at the University Sheffield UK focused on freshwater mussels in the southeastern United States as indicators of human impact on the prehistoric landscape. Dr. Peacock has collaborated with Panamerican numerous times in

REFERENCES CITED

Amick, D.S., and R.P. Mauldin
1989 Comments on Sullivan and Rozen's "Debitage Analysis and Archaeological Interpretation." *American Antiquity* 54(1):166-168.

Bell, R.E.
1958 *A Guide to the Identification of Certain American Indian Projectile Points.* Special Bulletin No. 1. Oklahoma Anthropological Society, Norman.

1960 *A Guide to the Identification of Certain American Indian Projectile Points.* Special Bulletin No. 2. Oklahoma Anthropological Society, Norman.

Branam, C. and R.W. Scoggin
2010 *A Cultural Resources Survey of Proposed Arkansas Highway and Transportation Department Jobs 09169 Highway 7 Passing Lanes; 09213 Highway 7 Safety Improvements; 009784 Buffalo River Bridge and Approaches on State Highway 7 at Pruitt, Newton County.* Arkansas Highway and Transportation Department-Environmental Division. Report submitted to Arkansas SHPO.

Buchner, C.A., E.S. Albertson, N.H. Lopinot, L.A. Thomas, E. Breitburg, and J.V. Ward
2003 *Mississippian Transitions at John's Lake.* Arkansas Archeological Survey Research Series 60.

Davis, H. (editor)
1982 *A State Plan for the Conservation of Archeological Resources in Arkansas.* 2nd revised edition. AAS Research Series No. 21. Arkansas Archeological Survey, Fayetteville. Revised 2010.

Ensor, H.B., and E. Roemer, Jr.
1989 Comments on Sullivan and Rozen's "Debitage Analysis and Archaeological Interpretation." *American Antiquity* 54(1):175–178.

Haley, R.B.
1993 Geologic Map of Arkansas. U.S. Geological Survey, Denver.

House, J.H., and J.W. Smith
1975 Experiments in Replication of Fire-Cracked Rock. In *The Cache River Archaeological Project*, assemble by M.B. Schiffer and J.H. House. Research Series No. 8, Arkansas Archeological Survey, Fayetteville.

Justice, N.D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States*. Indiana University Press, Bloomington.

Perino, G.
1968 *Guide to the Identification of Certain American Indian Projectile Points.* Special Bulletin No. 3, Oklahoma Anthropological Society.

1971 *Guide to the Identification of Certain American Indian Projectile Points.* Special Bulletin No. 4, Oklahoma Anthropological Society.

Raab, L.M., G. Fritz, D. Wolfman, R.H. Ray, and G. Sabo III
1982 The Arkansas Ozarks. In *A State Plan for the conservation of archeological resources in Arkansas*, pp. NW1-24, edited by Hester Davis. Arkansas Archeological Survey Research Series No. 21.

Ray, J.
2007 *Ozarks Chipped-Stone Resources: A Guide to the Identification, Distribution, and Prehistoric Use of Cherts and Other Siliceous Raw Materials.* Missouri Archaeological Society Special Publications No. 8. Springfield, Missouri.

2016 *Projectile Point Types in Missouri and Portions of Adjacent States.* Missouri Archaeological Society, Missouri State University, Springfield.

Rozen, K.C., and A.P. Sullivan III
1989a Measurement, Method, and Meaning in Lithic Analysis: Problems with Amick and Mauldin's Middle Range Approach. *American Antiquity* 54(1):169–174.

1989b The Nature of Lithic Reduction and Lithic Analysis: Stage Typologies Revisited. *American Antiquity* 54(1):179–184.

Sandstrom, C.B., and J.H. Ray
2004 *A Point Identification Guide for Southwest Missouri.* Ozarks Chapter of the Missouri Archaeological Society, Springfield.

Sullivan, A.P., III, and K.C. Rozen
1985 Debitage Analysis and Archaeological Interpretation. *American Antiquity* 50:755–779.

MEMORANDUM OF AGREEMENT
AMONG THE
THE FEDERAL HIGHWAY ADMINISTRATION, THE ARKANSAS DEPARTMENT OF TRANSPORTATION, THE NATIONAL PARK SERVICE BUFFALO NATIONAL RIVER, THE ARKANSAS STATE HISTORIC PRESERVATION OFFICER, AND THE BUFFALO RIVER TRIBES
REGARDING
ARDOT JOB NUMBER BR5102
MILL CREEK STR. & APPRS. (S)
NEWTON COUNTY, ARKANSAS
SITE 3NW687

WHEREAS, the Federal Highway Administration (FHWA) and the Arkansas Department of Transportation (ARDOT) wish to construct a new bridge across Mill Creek from Highway 7 to Newton County Road 213 in Newton County, Arkansas within the National Park Service (NPS) Buffalo National River, to improve safety and better serve the transportation needs in north Arkansas; and

WHEREAS, the FHWA has determined that ARDOT (formerly the Arkansas Highway and Transportation Department) Job BR5102 will have an effect on the Shaddox Cabin Site (3NW687) and has consulted with the Arkansas State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470 F); and

WHEREAS, the FHWA and the SHPO have determined that the Shaddox Cabin structure is ineligible for inclusion to the National Register of Historic Places (NRHP) and the multi--component site 3NW687 remains undetermined outside of the proposed right-of-way (ROW) hereafter defined as the Area of Potential Effect (APE); and

WHEREAS, the FHWA and SHPO have determined that the prehistoric component of the site within the APE is undetermined and requires Phase II testing; and

WHEREAS, FHWA, ARDOT, and SHPO agree that the implementation and completion of Phase II testing will resolve the issue of determining the eligibility of the prehistoric component of the site within the APE; and

WHEREAS, through implementation of this Memorandum of Agreement (MOA), the FHWA intends to meet its responsibilities, pursuant to Section 101(d)(6)(B) of the NHPA, to consult with Indian tribes that attach religious and cultural significance to historic properties; and

WHEREAS**,** because of its role and responsibilities as project partner, FHWA has invited consulting Native American Tribes to sign this MOA as an Invited Signatory; and

WHEREAS, the definitions set forth in 36 CFR Part 800 are applicable throughout this MOA;

NOW, THEREFORE, the FHWA, ARDOT, the NPS Buffalo National River, the Arkansas SHPO, and the Tribes, including the Caddo Nation, Cherokee Nation of Oklahoma, United Keetoowah Band of Cherokee Indians, Osage Nation, and Quapaw Tribe of Oklahoma, agree that the undertaking shall be implemented in accordance with the following stipulations in order to determine the eligibility on the stated site 3NW687 through Phase II testing.

STIPULATIONS

1. Phase II Testing

a. The FHWA will ensure the implementation of all provisions, stipulations, techniques, methods, analyses, interpretation, and documentation called for in this MOA.

b. Two 1 meter x 1 meter units will be arbitrarily placed north and south of the previously excavated unit, within the APE. The units will be excavated in 10cm levels until solid rock or sterile deposits are encountered, with an expected maximum depth of 70 cmbs. Unit-level fill will be dry screened through 0.25 inch mesh hardware cloth. Sediments will be described in terms of textural class and Munsell color value. All recovered materials will be separately bagged by unit and level. Formal excavations will be documented through use of field notes, plan and profile drawings, and digital photography.

c. The FHWA will ensure that the entirety of the site(s) boundaries and GPS coordinates shall be determined and recorded. Sensitive locational data that would divulge the specific location of the site or any additional features outside of the APE will not be included in the final report but will be made available only to those parties specified below in Stipulation 5.

2. Preservation Standards

a. The FHWA, in consultation with the SHPO, will ensure that all artifact collections (prehistoric ceramics and lithic and historic artifacts) and their supporting documentation are curated by the NPS. If necessary, any human remains or grave goods may be curated together along with the site collections at the selected curation facility until an acceptable reburial site can be determined. All collections and documents will meet the Curation Standards set forth in 36 CFR Part 79, Curation of Federally-Owned and Administered Archeological Collections. Human remains and funerary objects or other items from sacred contexts may be exempt from such standards per Native American Graves Protection and Repatriation Act (NAGPRA).

3. Professional Qualification Standards

a. The FHWA will ensure that all stages of the field investigation, laboratory work, analysis, and report preparation comply with the Secretary of the Interior's "*Standards and Guidelines for Archeology and Historic Preservation"* (48 FR 44716*)* and those standards set forth in *A State Plan for the Conservation of Archeological Resources in Arkansas* (Davis and Early 2010). In addition, the Principal Investigator and any supervising archeologists will meet the appropriate qualifications set forth in the Secretary of the Interior's professional qualification standards (36 CFR Part 61; 48 FR 44716; 62 FR 33708).

4. Discovery of Human Remains

a. Native American human remains may occur within 3NW687. If they are discovered, the FHWA shall follow the procedures outlined below:

1) All Native American human remains will be treated in accordance with the NAGPRA. Procedures for the treatment of any such encountered remains and/or artifacts will follow the NAGPRA action plan prepared for this study by the NPS, Buffalo National River and comply with the Archaeological Resources Protection Act (ARPA) permit issued in advance of this study.

5. Report Preparation and Schedule

a. The FHWA will ensure that a progress report will be submitted by e-mail or formal letter after the completion of fieldwork. The progress report and copies of the draft and final reports will be provided to the signatories. The draft technical Phase II addendum report will be submitted within 6 months after the completion of fieldwork.

b. Two months will be allowed for review purposes and incorporation of comments, then a copy of the final Phase II addendum report will be sent to the signatories.

c. Precise location data will only be provided to the FHWA, the ARDOT, the SHPO, the Arkansas Archeological Survey, the NPS Buffalo National River, and the consulting Tribes, in a separate attachment to the report and shall otherwise be withheld from disclosure pursuant to Section 304 of the NHPA, Executive Order 13007 and other applicable authorities.

6. Dispute Resolution

Should any signatory or concurring party object to any actions proposed pursuant to this MOA, the FHWA and ARDOT shall consult with the objecting party to resolve the objection. If the FHWA and ARDOT determine that the objection cannot be resolved, the FHWA and ARDOT shall request comments of the Advisory Council on Historic Preservation pursuant to 36 CFR Section 800.7. The FHWA's and ARDOT's responsibility to carry out all actions under this MOA that are not the subject of the dispute will remain unchanged.

7. Amendment of MOA

The signatories may request that this MOA be amended, whereupon they will consult to consider such an amendment. Any such amendments shall be developed and executed in the same manner as the original MOA.

8. Duration of MOA

This agreement shall be null and void if its terms are not carried out within five (5) years from the date of its execution, unless signatories agree in writing to an extension for carrying out its terms.

9. Termination of MOA

The FHWA, ARDOT, or SHPO may terminate this MOA, provided that the party proposing the termination notifies the other signatory and consulting parties in writing within a thirty

(30) calendar days' notice. In the event of termination, the FHWA and ARDOT shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

10. Failure to Carry Out the MOA

In the event the FHWA does not carry out the terms of this MOA, the FHWA shall comply with 36 CFR Part 800.4 through 800.6 with regard to the undertaking covered by this MOA.

11. Fulfillment of Section 106 Responsibilities

Execution of this MOA and implementation of its terms, with regard to the Phase II testing and the NRHP eligibility determination on archeological site 3NW687, evidences that the FHWA and ARDOT have continued their Section 106 responsibilities under the National Historic Preservation Act of 1966, as amended.

Signatory

FEDERAL HIGHWAY ADMINISTRATION

Mr. Angel L. Correa
Arkansas Division Administrator

1/30/2018
Date

Signatory

ARKANSAS STATE HISTORIC PRESERVATION OFFICER

Ms. Stacy Hurst
Arkansas State Historic Preservation Officer

1-15-17
Date

Signatory

ARKANSAS DEPARTMENT OF TRANSPORTATION

Scott E. Bennett, P. E.
Director

1-26-2018
Date

Signatory

NATIONAL PARK SERVICE, BUFFALO NATIONAL RIVER

Ms. Laura A. Miller
Deputy Superintendent/Acting Superintendent

1/10/2018
Date

Invited Signatory

CADDO NATION

_____ _____

Mr. Phil Cross Date

Acting Tribal Historic Preservation Officer

Invited Signatory

CHEROKEE NATION OF OKLAHOMA

_____ _____

Ms. Elizabeth Toombs — Date

Tribal Historic Preservation Officer

Invited Signatory

UNITED KEETOOWAH CHEROKEE OF OKLAHOMA

_____ _____

Ms. Karen Pritchett Date
Interim Tribal Historic Preservation Officer

Invited Signatory

THE OSAGE NATION

_____ _____

Dr. Andrea Hunter, Date
Tribal Historic Preservation Officer

Invited Signatory

QUAPAW TRIBE OF OKLAHOMA (THE O-GAH-PAH)

_____ _____

Mr. Everett Bandy
Tribal Historic Preservation Office

Date

APPENDIX 3

US FISH AND WILDLIFE SERVICE CORRESPONDENCE

This page intentionally left blank.

IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arkansas Ecological Service Field Office
110 South Amity Road, Suite 300
Conway, Arkansas 72032

October 5, 2017

Mr. John Fleming
c/o Josh Seagraves
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, Arkansas 72209

Consultation Code: 04ER1000-2018-I-0005

Dear Mr. Fleming,

The U.S. Fish and Wildlife Service (Service) has reviewed your assessment and determinations for Arkansas Department of Transportation (ARDOT) Project Number 009784 (Buffalo River Br. & Apprs.), Arkansas Highway 7 Bridge crossing the Buffalo River at Pruitt, Newton County, Arkansas. The project was described and assessed as follows (abbreviated):

> The Arkansas Department of Transportation (ARDOT) plans to construct a 214 m (702 ft) bridge on new location approximately 61 m (200 ft) southeast of the existing Arkansas Highway 7 Bridge crossing the Buffalo River at Pruitt, Newton County, Arkansas. The new bridge will consist of two 3.6 m (12 ft) lanes, two 2.4 m (8 ft) shoulders, and a five foot walkway on the west side. The Project location is within lands administered by the National Park Service (NPS) as the Buffalo National River (BNR).
>
> The Buffalo River Bridge project was initially addressed in conjunction with the Highway 7 Passing Lanes project (ARDOT Job 090169), and alternative development began in 2002. The NPS BNR subsequently expressed concerns about the safety of a segment of Highway 7 between the end point of the Passing Lanes project and the start point of the proposed Buffalo River Bridge project. The ARDOT responded to these concerns by programming the Safety Improvements project (ARDOT Job 090213) in March 2006. Subsequently, the ARDOT proposed to expedite the Passing Lanes and Safety Improvements projects as separate projects with logical termini and independent utility.
>
> The remainder of the project will consist of the demolition of the 1931 bridge and the removal of approximately two acres of roadway, the planting of the former rights-of-way in native bottomland hardwood trees, and rehabilitation of a Nation Park Service (NPS) access road.
>
> Seven threatened or endangered species are listed as potentially affected by the proposed project by the official species list obtained June 28, 2017. Those

species include the Rabbitsfoot (*Quadrula cylindrica cylindrica*), Snuffbox Mussel (*Epioblasma triquetra*), Ozark Cavefish (*Amblyopsis rosae*), Ozark Big-eared Bat (*Corynorhinus townsendii ingens*), Northern Long-eared Bat (*Myotis septentrionalis*), Indiana Bat (*Myotis sodalis*), and Gray Bat (*Myotis grisescens*).

The Ozark Cavefish is only know to occur in nine caves in Benton County within Arkansas (USFWS 2011). Based on the lack of available habitat in the project area and the distance to known populations, it has been determined that the project will have no effect on this species. The Northern Long-eared Bat was listed as threatened on April 2, 2015, throughout its entire range. A section 4(d) rule exempting the take of Northern Long-eared Bats under certain conditions was finalized on January 16, 2016. This project appears to qualify for the 4(d) rule (see attached streamlined consultation form) and therefore will not be further assessed.

Due to the distance to the nearest known populations of Ozark cavefish (>80 km) from this project, it was determined that the project will have no effect on this species since these distances are well outside of our action area.

Historic surveys up and downstream of the project area identified Rabbitsfoot, and Snuffbox individuals (downstream); however, no living (or shell material of) Rabbitsfoot or Snuffbox were collected during sampling of the action area on August 26, 2016, with standard USFWS approved survey methodologies. Therefore, because these species were not detected within the action area, a "may affect, not likely to adversely affect" determination has been made for these species.

Ozark Big-eared Bats are probably well outside of the project area, while Indiana, Northern Long-eared, and Gray Bats may well be in the area. Conservation measures have been proposed making any negative effects to bat species discountable. Therefore, a "may affect, not likely to adversely affect" determination has been made for these species. A Northern Long-eared Bat 4(d) rule streamlined consultation form is attached.

It is concluded that given the percentage of critical habitat in the action area (0.008% of the total, and 0.161% of the unit), the temporary nature of the construction activities, and the minimal or discountable affects anticipated to each of the primary constituent elements of the physical and biological features of the critical habitat, that the project may affect, but is not likely to adversely affect critical habitat for the Rabbitsfoot Mussel.

Based on the location of this action, the minimal forested habitat being affected, the distance to known species locations and hibernacula, and application of standard sediment and erosion controls, the Service agrees with your assessment and concurs with your determinations for Ozark Big-eared Bat, Snuffbox, and Rabbitsfoot. No further consultation regarding these species is necessary at this time.

The Service agrees that Indiana and Gray Bats may well be found foraging in the area; however, with the inclusion of conservation measures that have been proposed, any negative effects to bat species from this action are rendered discountable. This considers also the location of this action, the minimal forested habitat being affected, the distance to other, more populated known species locations and hibernacula, and the application of standard sediment and erosion controls. Therefore, the Service concurs with your "may affect, not likely to adversely affect" determination for these species. No further consultation regarding this species is necessary at this time.

The Service also concurs with the determination related to critical habitat for Rabbitsfoot. The small amount of habitat being affected, the temporary nature of the construction activities, and the minimal or discountable affects anticipated to each of the primary constituent elements of the physical and biological features of the critical habitat support the determination.

Furthermore, the Service has reviewed your determination that the proposed action will not result in any prohibited incidental take for Northern Long-eared Bat. This project may affect the Northern Long-eared Bat; however, there are no effects beyond those previously disclosed in the Service's programmatic biological opinion for the final 4(d) rule dated January 5, 2016. Any take that may occur incidental to this project is not prohibited under the final 4(d) rule (50 CFR §17.40(o)). This project is consistent with the description of the proposed action in the programmatic biological opinion, and the 4(d) rule does not prohibit incidental take of the Northern Long-eared Bat that may occur as a result of this project. Therefore, the programmatic biological opinion satisfies the "action agency" responsibilities under ESA section 7(a)(2) relative to the Northern Long-eared Bat for this project.

Please keep in mind that you must report any departures from the plans submitted, results of any surveys conducted, or any dead, injured, or sick Northern Long-eared Bats that are found to this office. If this project is not completed within one year of this letter, you must update your determination and resubmit the required information.

Additionally, due to the limited size of the area being cleared, proximity to the existing right-of-way, minimal adjacent habitat being disturbed, minimal ground disturbance, and distance to known species locations, the Service has no concerns or recommendations to provide as further technical assistance related to this action for any other species identified for this area. No further action is required at this time.

For further assistance or if you have any questions, please contact Lindsey Lewis at (501) 513-4489 or lindsey_lewis@fws.gov.

Sincerely,

Melvin L. Tobin
Field Supervisor

IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arkansas Ecological Service Field Office
110 South Amity Road, Suite 300
Conway, Arkansas 72032

October 5, 2017

Mr. John Fleming
c/o Josh Seagraves
Arkansas Department of Transportation
10324 Interstate 30
Little Rock, Arkansas 72209

Consultation Code: 04ER1000-2018-I-0006

Dear Mr. Fleming,

The U.S. Fish and Wildlife Service (Service) has reviewed your assessment and determinations for Arkansas Department of Transportation (ARDOT) Project Number BR5102 (Mill Creek Strs. & Apprs.), Newton County, Arkansas. The project was described and assessed as follows (abbreviated):

> The Arkansas Department of Transportation (ARDOT) plans to construct a bridge on new location approximately 300' southeast of the existing county road low water crossing of Mill Creek Newton County, Arkansas. The new bridge will consist of two 10' lanes and two four foot shoulders. The Project location is within lands administered by the National Park Service (NPS) as the Buffalo National River.
>
> Seven threatened or endangered species are listed as potentially affected by the proposed project by the USFWS IPaC website. Those species include the Rabbitsfoot (*Quadrula cylindrica cylindrica*), Snuffbox Mussel (*Epioblasma triquetra*), Ozark Cavefish (*Amblyopsis rosae*), Ozark Big-eared Bat (*Corynorhinus townsendii ingens*), Northern Long-eared Bat (*Myotis septentrionalis*), Indiana Bat (*Myotis sodalis*), and Gray Bat (*Myotis grisescens*)
>
> The Ozark Cavefish is only know to occur in nine caves in Benton County within Arkansas. Based on the lack of available habitat in the project area and the distance to known populations, it has been determined that the project will have no effect on this species. The Northern Long-eared Bat was listed as threatened on 2 April 2015 throughout its entire range. A section 4(d) rule exempting the take of Northern Long-eared Bats under certain conditions was finalized on January 16, 2016. This project is within the vicinity of Flea Cave and does not appear to qualify for the 4(d) rule.

Due to the distance to the nearest known populations of Ozark Cavefish (>80 km) from this project, it was determined that the project will have no effect on this species since these distances are well outside of our action area.

Historic surveys downstream of the project area identified Rabbitsfoot and Snuffbox individuals (downstream); however, no habitat exists for these species due to stream size. Therefore, because these species were not detected within the action area, a "may affect, not likely to adversely affect" determination has been made for these species.

Ozark Big-eared Bats are probably well outside of the project area, while Indiana, Northern Long-eared, and Gray Bats may well be in the area, conservation measures have been proposed making any negative effects to bat species discountable. Therefore, a "may affect, not likely to adversely affect" determination has been made for these species.

ARDOT proposes time of day and time of year restrictions as conservation measures to minimize potential effects for listed bat species. The clearing of trees will be prohibited during the active season of Indiana and Northern Long-eared Bats, currently defined as March 15 through November 14 in Arkansas. During this active season, work will cease between 1 hour prior to sunset and 1 hour prior to sunrise. Additionally, blasting operations will not be permitted between November 30 and March 15 to avoid disturbing their hibernations.

The final project will consist of the clearing of 1.5 hectares (3.7 acres) of new right-of-way, the construction of a new bridge, the obliteration of 0.2 hectare (0.6 acre) of old roadway segments, and the planting of the former rights-of-way in native hardwood trees.

Based on the location of this action, the minimal forested habitat being affected, the distance to known species locations and hibernacula, and application of standard sediment and erosion controls, the Service agrees with your assessment and concurs with your determinations for Ozark Big-eared Bat, Snuffbox, and Rabbitsfoot. No further consultation regarding these species is necessary at this time.

The Service agrees that Indiana, Northern Long-eared, and Gray Bats may well be found foraging in the area; however, with the inclusion of conservation measures that have been proposed, any negative effects to bat species from this action are rendered discountable. This considers also the location of this action, the minimal forested habitat being affected, the distance to other, more populated known species locations and hibernacula, and the application of standard sediment and erosion controls. Therefore, the Service concurs with your "may affect, not likely to adversely affect" determination for these species. No further consultation regarding this species is necessary at this time.

For further assistance or if you have any questions, please contact Lindsey Lewis at (501) 513-4489 or lindsey_lewis@fws.gov.

Sincerely,

Melvin L. Tobin
Field Supervisor

This page intentionally left blank.

DEPARTMENT OF THE ARMY
LITTLE ROCK DISTRICT, CORPS OF ENGINEERS
POST OFFICE BOX 867
LITTLE ROCK, ARKANSAS 72203-0867
www.swl.usace.army.mil

April 19, 2018

Regulatory Division

NATIONWIDE PERMIT NO. **SWL 2007-00423-1**

Mr. John Fleming
Division Head, Environmental Division
Arkansas Department of Transportation
PO Box 2261
Little Rock, Arkansas 72203-2261

Dear Mr. Fleming:

Please refer to your application dated February 9, 2018, concerning Department of the Army permit requirements pursuant to Section 404 of the Clean Water Act (33 U.S. Code 1344). You requested authorization for the placement of dredged and fill material in waters of the United States associated with replacing a functionally obsolete bridge, over the Buffalo River, on Highway 7 in Newton County. The existing 375-foot-long by 20-foot-wide bridge will be replaced with a three-span 702-foot-long by 49-foot-wide continuous composite w-beam superstructure on concrete bents with spread footings approximately 200 feet downstream of the existing structure. Four temporary work roads will be required for the project and will temporarily place approximately 4,631 cubic yards of fill below the ordinary high water mark of the Buffalo River. Work roads "C" and "D" shall only be in place long enough to facilitate girder erection from Bent 3 to Bent 5 and will be removed immediately following completion of this phase of construction. The remaining work roads will be removed in their entirety and the area returned to pre-construction contours upon completion of the project. The project is located in the Buffalo River, in section 7, T. 16 N., R. 20 W., Newton County, Arkansas. A vicinity map, project location map, and drawings are enclosed.

The proposed activity is authorized by Department of the Army Nationwide Permit (NWP) No. **14** (copy enclosed), subject to the following:

a.) You must obtain an individual Section 401 water quality certification (WQC) or a waiver from the state certifying agency. If WQC or a waiver is issued, you must provide a copy to this office, and you must then comply with any WQC conditions. To obtain a state WQC or waiver, you should contact Ms. Lazendra Hairston of the Arkansas Department of Environmental Quality by telephone at (501) 682-0946, by email at hairstonl@adeq.state.ar.us or at the following address:

Arkansas Department of Environmental Quality
ATTN: Water Division
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

b.) The proposed activity must meet all conditions of the NWP and the following added **special conditions**. You should become familiar with the conditions and maintain a copy of the permit at the worksite for ready reference. If changes are proposed in the design or location of the facilities, you should submit revised plans to this office for approval before construction of the change begins.

Special Conditions:

1. Should any cave openings be exposed during excavation activities authorized by this permit, you shall stop work immediately and contact the Little Rock District Corps of Engineers Regulatory Division. The Corps of Engineers will initiate the Federal and state coordination necessary to determine if threatened or endangered species are present. You shall make all practical and reasonable efforts to protect the site from further damage. These efforts should include, but are not limited to, the construction of a ring levee with silt fence and straw bales as soon as possible around the opening to reduce silt-laden runoff from entering the opening.

2. You shall use extreme caution during the construction phase in the vicinity of the Buffalo River. The Buffalo River is known to be inhabited by the Rabbitsfoot Mussel *(Quadrula cylindrica cylindrica),* and the Snuffbox Mussel *(Epioblasma triquetra).* You shall make all efforts to minimize impacts to these species by employing Best Management Practices. No stream crossings should occur within 1,000 feet of any known mussel bed or previously reported mussel location. If a mussel bed is encountered during a crossing, you shall cease all activities immediately and contact the Little Rock District Corps of Engineers Regulatory Branch for further consultation.

3. The clearing of suitable habitat trees and/or snags (typically greater than 3 inches in diameter at breast height that have exfoliating bark, cracks, crevices, and/or hollows) within a 150-foot radius of a known occupied maternity roost tree associated with this project must be conducted outside of the Northern Long-eared Bat (*Myotis septentrionalis*), and Indiana Bat *(Myotis sodalis)* active season, currently between March 15th and November 14th. Should a maternity roost tree be discovered in the project area, you shall stop work immediately and contact the Little Rock District Corps of Engineers Regulatory Division. The Corps of Engineers will initiate the Federal and state coordination necessary for standard section 7 consultation. You shall make all practical and reasonable efforts to protect the site from further damage.

Please refer to NWP General Condition No. 12, which stipulates that appropriate erosion and siltation controls be used during construction and all exposed soil be permanently stabilized. Erosion control measures must be implemented during and after construction of the proposed project to comply with this permit condition.

In order to fully comply with the conditions of the NWP, you must submit the enclosed compliance certification within 30 days of completion of the project. This is required pursuant to NWP General Condition No. 30 of the permit.

This permit action is based upon a Corps of Engineers determination that the subject work is within the jurisdiction of the Department of the Army regulatory program. You may contact the Little Rock District Regulatory Division if you wish to discuss your options for appealing this determination.

The NWP determination will be valid until March 18, 2022. If NWP No. 14 is modified, suspended, or revoked during this period, your project may not be authorized unless you have begun or are under contract to begin the project. If work has started or the work is under contract, you would then have twelve (12) months to complete the work.

The authorization of this work by a NWP does not relieve you of complying with other applicable local, state, and Federal laws, nor does it grant any property rights or exclusive privileges.

Your cooperation in the Regulatory Program is appreciated. If you have any questions about this permit or any of its provisions, please contact me at (501) 340-1372 and refer to Permit No. **SWL 2007-00423-1, ArDOT – Buffalo River Bridge – Highway 7.**

Please submit your comments or suggestions on our Customer Service Survey: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

Sincerely,

Gerald Dickson
Environmental Protection Specialist

Enclosures

cc:
Arkansas Department of Environmental Quality, Ms. Lazendra Hairston
Buffalo National River, National Park Service, Mr. Chuck Bitting
US Fish and Wildlife Service, Mr. Lindsey Lewis
Mr. Johnny McLean, ArDOT Program Manager
Ch, Regulatory Enf

Nationwide Permit No. 14

Linear Transportation Projects. Activities required for crossings of waters of the United States associated with the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 32.) (Sections 10 and 404)

Note 1: For linear transportation projects crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Linear transportation projects must comply with 33 CFR 330.6(d).

Note 2: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under section 404(f) of the Clean Water Act (see 33 CFR 323.4).

Note 3: For NWP 14 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, “District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case- specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization.

Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre- construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.
(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.
(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. Tribal Rights. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.
(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.
(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non- Federal applicant of the Corps' determination within 45 days of receipt of a complete pre- construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin

work until the Corps has provided notification that the proposed activity will have "no effect" on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.
(d) Authorization of an activity by an NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.
(e) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.
(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.
(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.
(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.
(d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.
(e) Prospective permittees should be aware that section 110k of the NHPA (54
U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal

lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.
(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.
(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:
(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).
(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.
(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.
(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).
(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.
(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.
(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.
(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).
(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.
(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).
(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.
(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).
(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is

provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.
(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.
(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

(Transferee)

_____

(Date)

_____

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:
(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;
(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and
(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre- construction notification (PCN)

as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:
(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).
(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:
(1) Name, address and telephone numbers of the prospective permittee;
(2) Location of the proposed activity;
(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;
(4) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);
(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;
(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.
(7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;
(8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;
(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and
(10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.
(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.
(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre- construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.
(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.
(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.
(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision

In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2-acre.

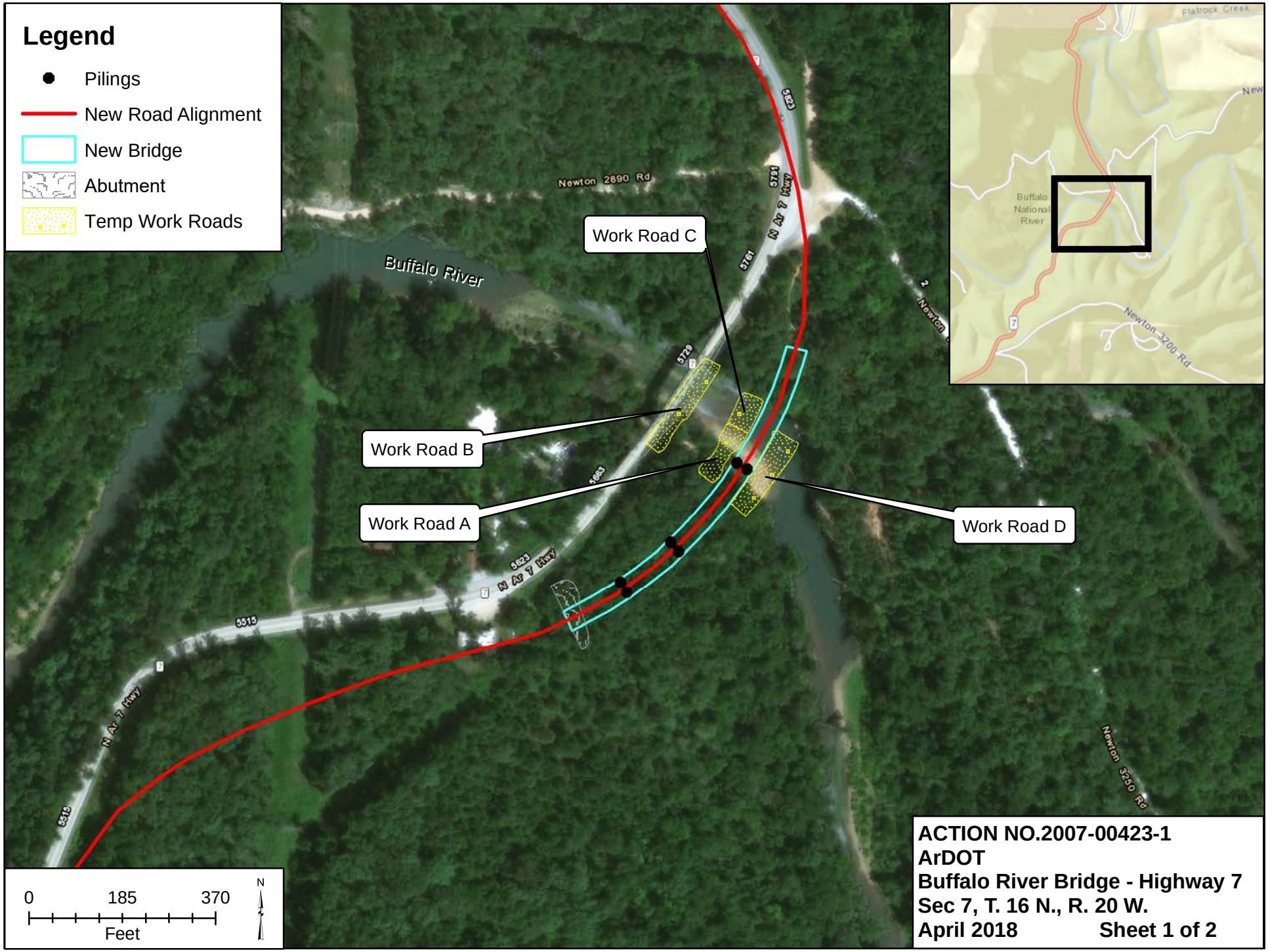
1. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site- specific environmental concerns.

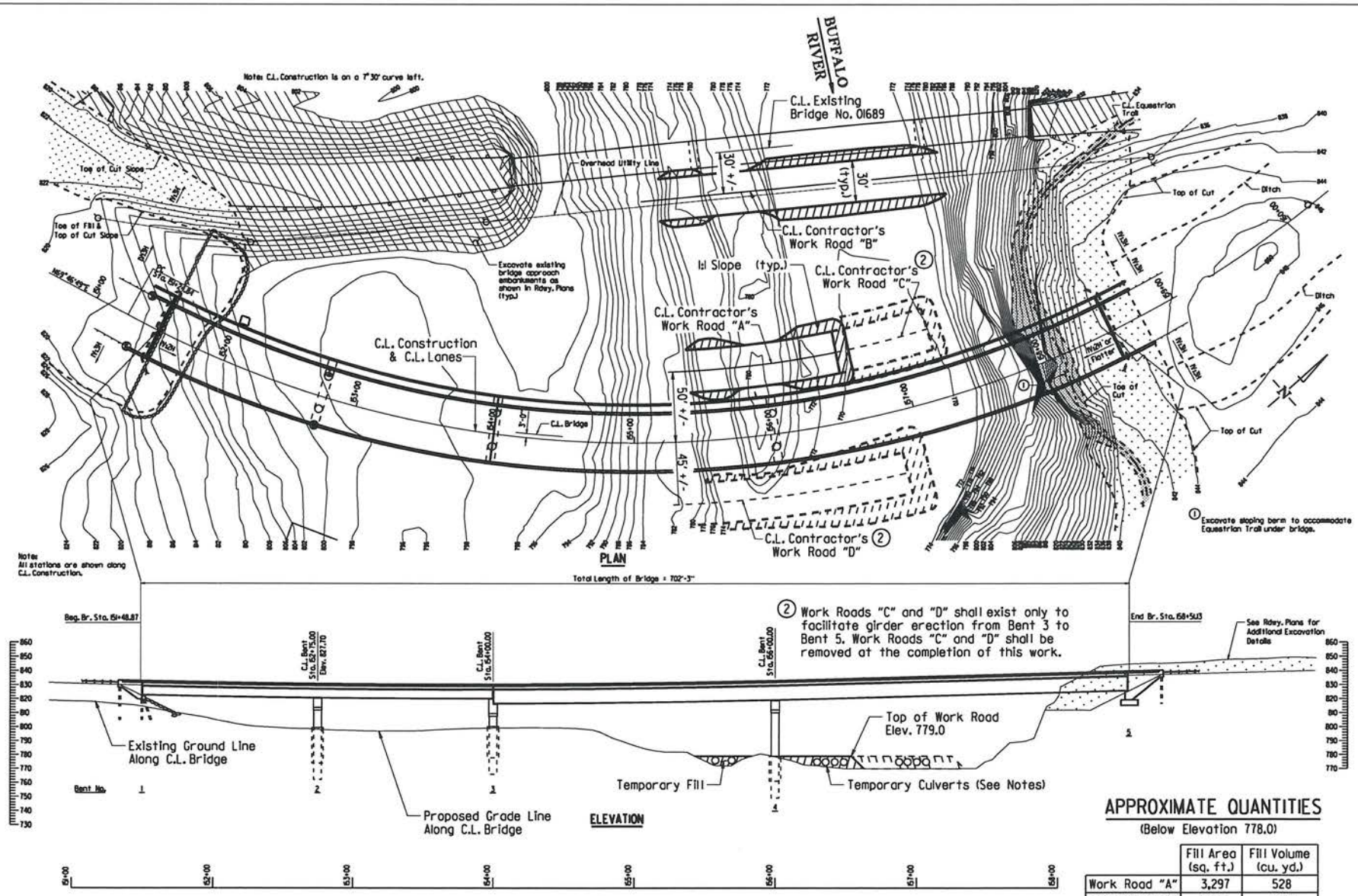
2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31)


Legend
Pilings
New Road Alignment
New Bridge
Abutment
Temp Work Roads
Work Road C
Work Road B
Work Road A
Work Road D
Buffalo River
Newton 2890 Rd
N Ar 7 Hwy
5729
5731
5161
5623
5515
5513
1663
Newton 3250 Rd
Flatrock Creek
Buffalo National River
Newton 3200 Rd
0
185
370
Feet
N
ACTION NO.2007-00423-1
ArDOT
Buffalo River Bridge - Highway 7
Sec 7, T. 16 N., R. 20 W.
April 2018
Sheet 1 of 2



APPROXIMATE QUANTITIES

(Below Elevation 778.0)

	Fill Area (sq. ft.)	Fill Volume (cu. yd.)
Work Road "A"	3,297	528
Work Road "B"	6,854	1,271
② Work Road "C"	3,170	805
② Work Road "D"	7,780	2,027

NOTES

The Contractor may submit an alternative work road plan for approval by the Engineer showing details of and describing the proposed modifications. A primary objective of any proposed modifications should be to minimize the reduction of waterway opening in the floodplain. The top of the alternative work road(s) shall not exceed the elevation shown. A determination will be made by the Engineer within ten (10) business days concerning the necessity or practicability of the request. A modification of the Section 404 Permit and additional review time by the Corps of Engineers may be required if the alternative work road(s) increases the volume of temporary fill that has been permitted for the project. The contract time will not be extended for the time required to consider or approve any alternate work road(s) submittals.

Any additional work or expenses incurred preparing, submitting, or completing the alternate work road plan shall be at no additional cost to the Department. See Section 110.05(c) in the Standard Specifications for additional information. The Contractor is responsible for maintenance of the work road(s) during the contract period.

The temporary fill to construct the work roads shown has been permitted to facilitate construction of the project. Contractor shall determine and provide temporary culverts of a size and number that will be sufficient to maintain lo stream flows and assist passage of aquatic wildlife.

ACTION NO.2007-00423-1
ArDOT
Buffalo River Bridge - Highway 7
Sec 7, T. 16 N., R 20 W.
April 2018 **Sheet 2 of 2**

PERMITTEE COMPLIANCE CERTIFICATION

PERMIT NO.: SWL 2007-00423-1 **NWP/S NO.:** 14

PERMITTEE NAME: ArDOT

DATE OF ISSUANCE: April 19, 2018

PROJECT MANAGER: Gerald Dickson

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US Army Corps of Engineers, Little Rock
ATTENTION: CESWL-RD
PO Box 867
Little Rock, Arkansas 72203-0867

Please note that your permitted activity is subject to a compliance inspection by a US Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

DATE WORK COMPLETED: _____

_____ _____

SIGNATURE OF PERMITTEE **DATE**