Thomas Buford Pugh Memorial Bridge Replacement Project

Finding of No Significant Impact

October 2, 2013

Fayette and Raleigh Counties, West Virginia

Federal Project BR-0041 (059)E
State Project S210-41-0.01

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

United States Department of Transportation, Federal Highway Administration
And
West Virginia Department of Transportation, Division of Highways

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For the

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The Federal Highway Administration (FHWA) has determined that this project will have no significant impact on the human and natural environments and that the "Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges" and "Programmatic Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvement with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges" can be applied to this project to satisfy requirements of Section 4(f) of the Department of Transportation Act of 1966 (49 USC Section 303 and 23 CFR Part 774). These findings are based on the *Thomas Buford Pugh Memorial Bridge Replacement Project Environmental Assessment and Programmatic Section 4(f) Evaluation*, dated February 7, 2007. The Environmental Assessment (EA) and Section 4(f) evaluation were independently evaluated by FHWA and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. The EA and Section 4(f) analysis provide sufficient evidence for determining that an Environmental Impact Statement is not required.

Jason E Workman

Date: 10/7/13

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1.0 Project Summary

The West Virginia Department of Transportation, Division of Highways (WVDOH), in cooperation with the Federal Highway Administration (FHWA), has conducted engineering and environmental studies concerning the replacement of the Thomas Buford Pugh Memorial Bridge (TBPM Bridge) in Fayette and Raleigh counties, West Virginia. Studies have evaluated the various possibilities for improving safety by providing a bridge that is structurally sound and meets current WVDOH design standards, and considers the sensitivity of the New River.

As detailed in the Environmental Assessment (EA), approved by FHWA on February 7, 2007, careful consideration of potential environmental impacts led to selection of an alternative that avoids, minimizes and mitigates for environmental impacts, all of which will fall below a level of significance. Environmental impacts associated with the project were considered not significant because engineering refinements applied to the preferred alternative and mitigation measures developed in consultation with resources agencies minimized the impacts; therefore, preparation of an EIS is not required. Further, FHWA has coordinated with resource agencies throughout the project and is committed to continuing this consultation as final design and construction of the new bridge proceed. FHWA has addressed agency concerns, responded to comments and prepared additional studies as requested to further evaluate the impact of the project on environmental resources. Finally, FHWA has shared project information with the public and provided them with an opportunity to comment at key project milestones.

This section of the document includes discussion about the purpose and need for the project, information regarding the development of the project and initial engineering and environmental studies, a description of activities that have occurred since the completion of the EA in 2007, detailed information about the selected alternative and the engineering refinements designed to minimize impacts, as well as a discussion of the current condition of the bridge.

1.1 Project Purpose and Need

The project area is located in Fayette and Raleigh Counties and is within the New River Gorge National River (NRGNR) **(Figure 1 - Project Vicinity Map and Figure 2 – Project Area Map)**, which is publicly owned and managed by the National Park Service (NPS) within the U.S. Department of the Interior. The TBPM Bridge carries WV Route 41 over the New River near the town of Prince, WV.

The existing bridge was constructed in 1931 and consists of seven spans: four simple steel I-beams, and three simple steel through trusses. The TBPM Bridge has been determined eligible for listing in the National Register of Historic Places (NRHP). The bridge is located in a curved section of roadway, and both approach spans are curved. The current overall length of the bridge structure is 734 feet and the roadway width is 20 feet. Two portland cement piers supporting the existing structure are located within the channel of the New River. The bridge has no sidewalks and is used as a two-lane structure with a posted restriction of 3 tons. The current ADT is 970 VPD (year 2012). Use of the structure includes residential, mail, commercial, emergency and incidental bus traffic.

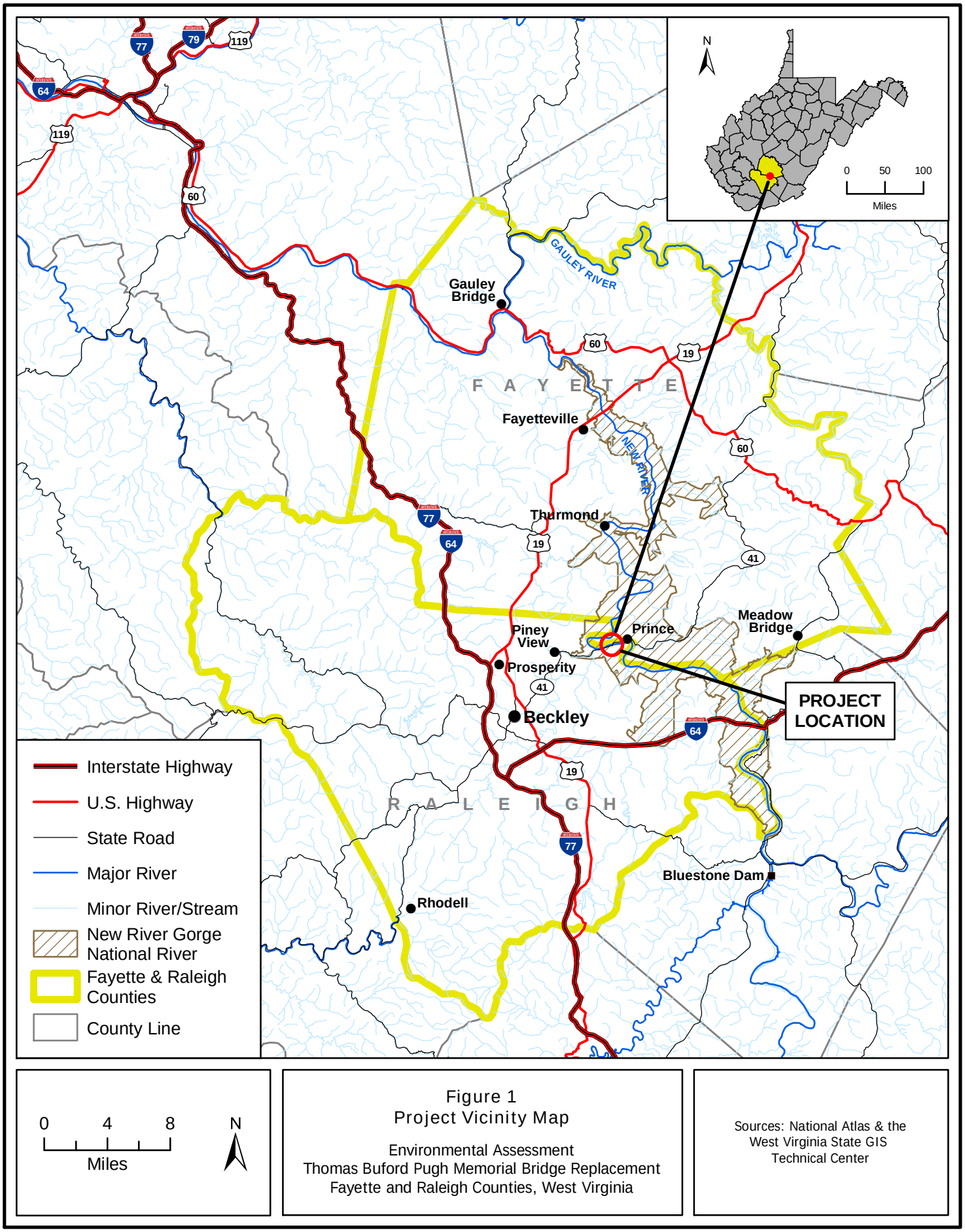

Figure 1
Project Vicinity Map

Environmental Assessment
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

Sources: National Atlas & the West Virginia State GIS Technical Center

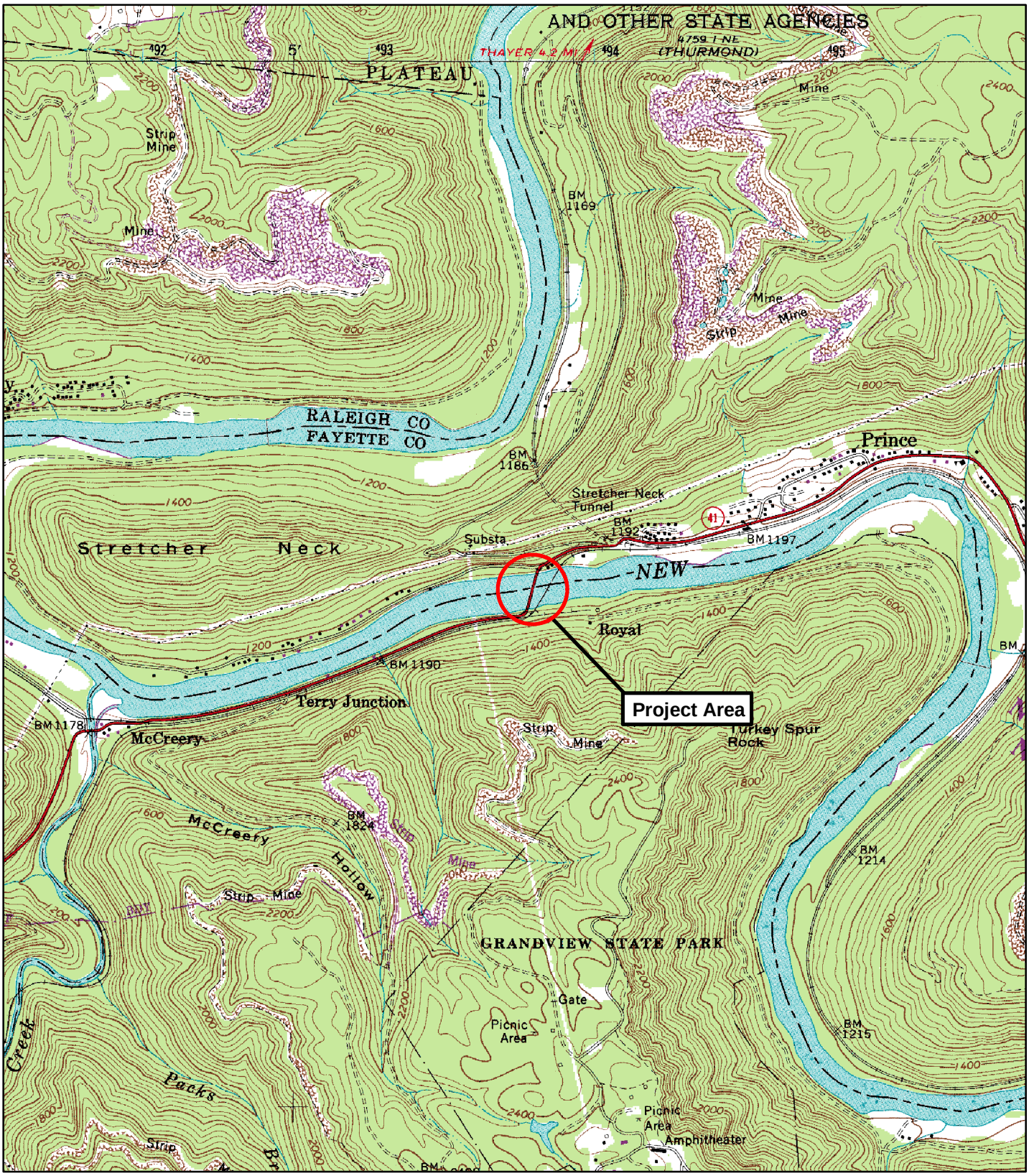

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Figure 2
Project Area Map

Environmental Assessment
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

Sources: Prince & Thurmond, WV
USGS 7.5 Minute Quadrangles

The primary purpose of the project is to develop an alternative that will provide a bridge that meets the current WVDOH design standards and addresses the safety issues associated with the condition of the existing structure. Because the project is located within the New River Gorge National River, development of alternatives also will include a recreational lane to accommodate cyclists and pedestrians and will use innovative approaches to accommodate the sensitive nature of the New River and its aquatic habitat. The primary need within the project area is the safety issue associated with an existing bridge that is functionally obsolete, and has major substructure and superstructure deficiencies.

The August 2001 bridge inspection determined the existing structure to be functionally obsolete and structurally deficient. Without replacement, the bridge will continue to deteriorate and would likely result in closure due to the condition of the bridge. If the bridge were closed, traffic will have to use a 60-mile detour.

1.2 Project Background

A bridge replacement study was prepared in November 2001 to determine the most suitable location for the replacement of the bridge. In 2004 a feasibility study was conducted to identify environmental constraints associated with the alternatives outlined in the bridge replacement study. A span arrangement study was also completed in 2004 to further develop the alternatives outlined in the bridge replacement study, as well as present several span arrangement options.

Upon completion of the feasibility study, a resource agency meeting was held in May 2004 to present the findings of the feasibility study and options for replacing the bridge. Resource agencies with jurisdiction by law or special expertise concerning resources in the project area were invited to attend the meeting. The NPS attended the meeting, however, several resource agencies were unable to attend and meeting information was subsequently provided for their review. A second agency meeting was held in November 2004 to discuss the alternatives to be carried forward in the EA. Based on discussions in the November 2004 meeting, an alignment study was conducted to evaluate in more detail the various alternatives that have been presented throughout the history of the project, including the rehabilitation option and the replacement option. The alternatives presented in the Alignment Study Report, completed in April 2005, were evaluated in the EA.

Development of the EA involved coordination with local, state, and federal agencies, and the public. On February 7, 2007, the FHWA approved the EA and Programmatic Section 4(f) Evaluation [EA/4(f)] for the Thomas Buford Pugh Memorial Bridge Replacement Project and the EA/4(f) document was made available for public and agency review. The EA/4(f) availability was advertised through press releases, and public notices distributed to the local citizens in the study area and display advertisements in project area newspapers. Copies of the EA/4(f) were distributed to federal, state, and local agencies, public officials, libraries, the WVDOH in Charleston, WV, the WVDOH District 9 Engineer in Lewisburg, WV, and the WVDOH District 10 Engineer in Princeton, WV. Comments were requested concerning the EA/4(f) from the public and agencies. The deadline for the receipt of comments was April 30, 2007.

Bound copies of the EA were made available for review at local libraries and at the March 20, 2007 public workshop meeting. Bound copies of the EA were delivered or sent to the following agencies or individuals:

- U.S. Army Corps of Engineers, Huntington District
- U.S. Environmental Protection Agency, Region 3, Philadelphia, PA
- U.S. Department of the Interior, Fish and Wildlife Service, West Virginia Field Office
- U.S. Department of the Interior, Office of Environmental Policy, Washington, DC
- U.S. Department of the Interior, National Park Service, New River Gorge National River
- U.S. Department of Agriculture, Natural Resources Conservation Service, Morgantown, West Virginia
- West Virginia Division of Natural Resources, Elkins, West Virginia
- West Virginia Division of Natural Resources, Charleston, West Virginia
- West Virginia Department of Environmental Protection, Office of Air Quality
- West Virginia Department of Environmental Protection, Water Resources Section
- West Virginia Division of Tourism, Charleston, West Virginia
- West Virginia Division of Culture and History, State Historic Preservation Office for Historic Preservation
- West Virginia Division of Highways, District 9

1.3 Project Activities Since Completion of the EA/4(f)

Since the completion of the EA in 2007, FHWA and WVDOH have continued to coordinate with resource agencies and the public to develop ways to minimize environmental impacts, refine engineering design details and provide updated information about the status of the project and condition of the existing bridge, which has continued to deteriorate. Public meetings were held in March 2007 and February 2012 to provide an opportunity for members of the public to share their comments and concerns about the project. A meeting with selected local stakeholders was held in November 2011. Between 2008 and 2013, WVDOH continued consultation with resource agencies to refine mitigation measures for the New River aquatic habitat and mussel populations and for the historic bridge. Also during this period, supplemental environmental and engineering studies were undertaken to address resource agency concerns regarding potential impacts to the New River and its aquatic habitat. A Draft FONSI was prepared in May 2012 and copies were provided to resource agencies for review.

Project activities that have occurred since the completion of the EA/4(f) are summarized below:

Informational Public Workshop – EA Public Meeting

A workshop public meeting was held on Tuesday March 20, 2007 at the Stanaford Elementary School in Beckley, WV. The public meeting provided the public with the opportunity to provide views, opinions, and information on the proposed project and EA/4(f) document. This information would be considered by FHWA before their issuance of a finding that documents the final decision on the Selected Alternative in compliance with the National Environmental Policy Act (NEPA).

A total of five people attended the meeting, including three NPS staff members, one SHPO staff member and a representative from the Fayette County Board of Education (BOE). One written comment was received from the BOE noting that Fayette County schools use the bridge three to four times per week and stating their preference for constructing a new bridge and keeping the existing bridge open during construction. No other public comments were received.

Resource Agency Comments on the Environmental Assessment

The EA/4(f) comments were reviewed and substantive issues/comments were highlighted and noted for further consideration and response. A summary of comments received from the resource agencies and responses was prepared by the WVDOH and FHWA. Comment letters were received from the following agencies:

- U.S. Department of the Interior, National Park Service (May 8, 2007)
- U.S. Department of the Interior, U.S. Fish and Wildlife Service (May 11, 2007)
- West Virginia Department of Natural Resources (April 25, 2007)
- U.S. Army Corps of Engineers (May 22, 2007)
- U.S. Environmental Protection Agency (May 8, 2007)

Copies of these comment letters and responses are included in **Appendix A**.

Selected Local Stakeholders Meeting

WVDOH and FHWA held a meeting with selected local stakeholders, including emergency responders and rail line operators, on November 30, 2011, at the Amtrak station in Prince. Attendees included WV Delegate Margaret Staggers, representatives from the NPS, CSX, Amtrak, and various members of Raleigh and Fayette County 911, fire departments, and ambulance companies. The purpose of the meeting was to inform the stakeholders about the current status of the existing bridge and the weight and height restrictions that had been placed on the structure in September 2011.

The group discussed contingency plans to transport patients across the bridge and other essential services, as well as the possible future placement of a large portable water supply to be placed in Fayette County should the bridge require closure in the future.

WVDOH and FHWA provided an update on the ongoing design and environmental studies for the TBPM Bridge replacement project. A general consensus was reached that a closure was the best outcome in order to construct a replacement bridge.

Informational Public Meeting

An Informational Public Meeting was held at the Amtrak Station in Prince on February 15, 2012. The purpose of the meeting was to inform the public about the status of the project and to request their comments on the two options for addressing the safety issues associated with the condition of the current TBPM Bridge. Taking into consideration the safety of the bridge for the traveling public and the project constraints, the two options presented at the meeting included:

- Option 1 – Rebuild the existing bridge in its current location, which would close the bridge to traffic for 6-8 months during construction. This alternative will require a 60-mile detour on existing state routes and US routes. Building on the existing location and closing the bridge to traffic will expedite the total construction time, which is anticipated to be 2 years. The estimated cost for this option is $6.5 million.

- Option 2 – Build the new bridge downstream of the existing bridge, which would allow traffic to be maintained on the existing bridge during construction. The total construction time is anticipated to be 3 years. The estimated cost for this option is $10.5 million.

Because the bridge is located within the New River Gorge National River, development of a bicycle path and pedestrian shoulder will be considered as part of the bridge replacement project. Two proposed detour routes that could be implemented if the bridge were to be closed also were presented at the meeting.

Approximately 260 people attended the Informational Public Meeting. Written comments were received from 94 people; comments were submitted at the February 15 meeting or were sent to WVDOH through US mail or email. The comment period extended from February 15 through March 15, 2012. Copies of the handout and sign-in sheet from the meeting, as well as copies of the comment forms received by WVDOH are included in **Appendix B**. The comment forms are organized by specific issue/comment where appropriate.

The majority of the respondents (62%) expressed support for constructing a new bridge, with approximately 40% of this group specifically citing their preference for Option 2. Six commenters noted their support for Option 1. Almost half of the respondents (45%) requested that the bridge remain open to traffic during construction of a new bridge. Respondents cited several concerns related to potential closure of the bridge, including significant time delays (31%) that would affect travel for work, family, medical, church and general activities; the effect on emergency response time (14%); and financial hardship (29%) as a result of the lengthy detour and increasing fuel costs. Six commenters requested that either a pedestrian/bike path be included on the new bridge or that the old bridge be converted for pedestrian/bike use. Other comments related to improving general safety, fixing curves at the entry/exit to the bridge, repairing secondary roads, suggestions for temporary bridges/access in the event of a bridge closure, a request

to provide advanced warning to local residents if the bridge is closed, and mention of the upcoming Boy Scout Jamboree in the area in 2013.

Following review of the public comments, WVDOH prepared a flyer stating that they had decided to proceed with Option #2, which consists of building a new bridge downstream from the existing bridge and maintaining traffic on the existing bridge during construction. The flyer mailed to those who provided comments. A copy of the flyer is included at the end of the public comment forms in **Appendix B**.

Resource Agency Comments on the Revised Draft FONSI

In May 2012, the Revised Draft FONSI for the Thomas Buford Pugh Memorial Bridge Replacement Project was sent to seven (7) agencies for their review and comment. The FONSI addressed comments received on the EA/4(f) document and included updated information since circulation of the EA/4(f) in 2007. The deadline for the receipt of comments was July 23, 2012.

Agency comments on the Revised Draft FONSI were reviewed and substantive issues/comments were highlighted and noted for further consideration and response. A summary of comments received from the resource agencies and responses was prepared by the WVDOH and FHWA. Comment letters were received from the following agencies:

- West Virginia Department of Natural Resources (July 3, 2012)
- West Virginia Division of Culture and History (July 12, 2012)
- U.S. Environmental Protection Agency (July 23, 2012)
- U.S. Department of the Interior, National Park Service (August 9, 2012)

Copies of the transmittal letter, distribution list and the comment letters and responses are included in **Appendix C**.

Mitigation Coordination

WVDOH coordinated with WVDNR and NPS to refine the previously established mitigation measures for the New River and its aquatic habitat and to develop a plan for treating the freshwater mussel population that will be affected by the bridge replacement project. As detailed in the discussion of the selected bridge replacement alternate below and in Section 4.0 of this FONSI, the causeway design was refined to minimize impacts to the river and aquatic habitat and post-construction surveys will be undertaken to assess and document changes to the channel and the mussel population. Further, the mitigation will include collection and relocation of mussels in the direct impact area, monitoring of the relocated mussels and financial compensation to WVDNR for their use in natural resource restoration projects and to fund labor and materials for the mussel relocation project. In their letter dated June 4, 2013, the USFWS concurred with the mussel relocation plan.

Coordination among WVDOH, WVSHPO and NPS also has been undertaken to refine the previously established mitigation measures for the NRHP-listed TBPM Bridge. This consultation included decisions regarding aesthetic details, such as the proposed cut stone architectural treatments and the railing design and finish, and discussions related to the proposed interpretive markers, or waysides. Two waysides will be developed by NPS and installed by the contractor; one will be located on the bridge and the other will be located where the trail intersects the bridge.

Additional Engineering and Environmental Analysis

Since approval of the EA/4(f) document in 2007, the WVDOH and FHWA initiated additional environmental studies, engineering analyses and design reports/plans. These additional studies and analyses were conducted in support of the proposed bridge replacement project and to prepare responses to agency comments on the EA/4(f) that reflect current project information and engineering design. The results of these additional environmental studies and engineering analyses and design are presented in the following reports:

1. *Proposal for Sediment Analysis of the Thomas Buford Pugh Bridge* (April 16, 2008). This white paper was developed by WVDOH, KCI and TRC to address concerns raised by the resource agencies concerning the impacts of the proposed bridge replacement on the New River and its habitat. The agencies requested that an analysis of the New River be performed to evaluate potential changes in hydraulics, scouring, aggregation and degradation of the river channel bed during and after the construction of the temporary causeway and the placement of permanent piers in the stream. The white paper proposed the use of the United States Army Corps of Engineers Hydrologic Engineering Center River Analysis Software (HEC-RAS) version 4.0 to guide the design and construction of the selected alternate to avoid destabilizing the freshwater Unionid mussel habitat. The study provided a method to analyze whether new pier locations, construction of a causeway and removal of existing bridge piers would cause significant changes in stream geology and result in a loss of habitat value in the New River.

2. *Options Studied Report, Thomas Buford Pugh Bridge* (December 29, 2009). This report was prepared by TRC to concisely summarize all options studied to date. The report is a compilation of several studies completed at various phases of the development of the project and provided descriptions and cost estimates for 16 bridge options, including rehabilitation; studied 7 causeway options and 2 alternative cofferdam options; and summarized miscellaneous investigations including possible erection and demolition procedures and a sediment transport analysis using the methods outlined in the April 2008 report discussed above. . The report presented an initial analysis of causeway alignments and options and cofferdam options to identify which would have least impact to river and habitat, noting that a common causeway using gabion baskets would have the smallest footprint and thus least impact to the riverbed.

3. *Temporary Bridge Bypass Study* (April 21, 2011). This study completed by TRC involved investigating the feasibility of using a temporary by-pass bridge to facilitate rehabilitation of the bridge by providing a single-lane temporary panel bridge. The study also included a review and an update of the bridge rehabilitation costs developed in 2004. The report noted that a temporary panel bridge providing a single lane detour during rehabilitation of the existing bridge could be constructed downstream of the existing bridge; however, the temporary bridge would require placing two piers in the river. The study provided information to consider whether rehabilitating the bridge would be a prudent and feasible option and concluded that the estimated costs of rehabilitating the bridge and providing access across river at this location is nearly two times the cost of building a new bridge slightly downstream.

4. *Shear Stress Analysis of the New River Report* (May 17, 2011). This report was prepared by TRC to present the results of the shear stress analysis of the New River in the vicinity of the bridge. The report also provided information on the impacts of raising temporary bridges above the 10-year water surface elevation, the impacts of leaving the existing piers following replacement of the bridge, and utilizing a temporary bridge bypass if the structure is rehabilitated. The report concluded that for the replacement option, the elevated causeway had less impact to shear stress; for the rehab option, the temporary bridge and cofferdams would create shear stress similar to raised causeway. The study helped to further refine and develop a causeway option that reduces impact to river and habitat.

5. *Shear Stress Analysis Summary* (August 15, 2011). This document was prepared by TRC to summarize the shear stress analysis for three causeway options that could be used for the bridge replacement option and two temporary bridge/cofferdam options that could be used for the bridge rehabilitation option. This summary concluded that Causeway Alternate B2 does not have the large shear stress peaks that Alternates A and B have, and that the temporary bridge results in the lowest increase in shear stress across the channel. This report further reinforced conclusions from analysis undertaken in May and recommended that Causeway Alternate B2 should be developed further for the bridge replacement alternate.

6. *Temporary Work Platform, Shear Stress Analysis and Update Project Costs Summary* (August 30, 2011). This summary was prepared by TRC to provide modified shear stress analysis for the gabion basket causeway option, design a temporary work platform, calculate river shear stress values for the platform and compare it to gabion basket causeway option, update the cost estimate for the selected alternate, and create a comparative cost estimate table of the proposed build option and the rehabilitation option.

7. *New River Substrate Characterization Technical Memorandum Report* (October 31, 2011). This report was prepared by KCI to describe the methods used to describe the existing channel, bed materials and active processes, and the results of these studies. The report also provided recommendations for the modeling effort of the river's

sediment supply and load. The report noted that the dominant controls in the river channel appear to be geologic in nature and that the channel is wide enough where debris blockages are unlikely to snag and cause reach level changes. The study further noted the riverbed appears to be a stable framework of cobble and boulder that does not actively transport sediment. This information helped to guide and interpret the shear stress analysis for the various bridge replacement and rehabilitation options.

8. *Mussel Survey of the New River* (October 31, 2011). This survey was conducted by Dinkins Biological Consulting to provide more precise information regarding the density and distribution of freshwater mussels in the vicinity of the existing TBPM Bridge and location of the new alignment. The goal of the survey was to collect mussel population data and map existing mussel beds within the direct and indirect impact zones. The 2010 survey confirmed the presence of the mussel bed found in 2004 and noted that the highest density mussel area was found along the right descending bank between the railroad bridge and the TBPM Bridge. The survey provided information about the type and distribution of mussels so that causeway and bridge designs could be refined to avoid or minimize impacts to mussels.

Copies of the eight reports listed above were distributed to the WV DNR and USFWS for their information; NPS, USACOE and USEPA did not request copies of the reports.

At the request of WVDOH, two additional engineering studies were prepared to further refine design details for the bridge and causeway:

9. *Additional Bridge Study: New Superstructure on Existing Piers, Update of Preferred Alternate Based on Revised Typical Section* (January 23, 2012). This study was conducted by TRC to evaluate whether the existing piers could be utilized to support the superstructure of the new bridge. Based on available information, TRC was able to estimate the bearing pressure at the spread footings and perform a cursory stability analysis of these piers. It was found that the existing river piers for the TBPM Bridge appear to be stable for the load assumptions considered in the analysis; however geotechnical analysis, including core borings, would be required to ensure adequate bearing capacity. As part of this study, TRC also prepared a cost estimate for placing a new superstructure on the existing river piers, revised the typical section of the preferred option to include the recreational lane and updated the cost estimate for the previously submitted preferred option. The study provided information to determine whether the existing piers can be used to support the new bridge so that new piers would not need to be constructed in the New River.

10. *Gabion Basket vs. Temporary Work Platform Study* (March 15, 2013). This study was conducted by TRC to evaluate construction and hydraulic impacts on the river from two causeway alternatives and associated cofferdams. The study noted that elevated platforms are a more expensive and complicated system, and compared with the gabion basket islands, the platforms would have 30% larger temporary impacts, higher permanent impacts from placement of the tower footings and higher shear stress values. The study considered various construction details and causeway

configurations and recommended gabion basket islands since they would have less impact on the New River and aquatic habitat than the elevated platforms.

A compact disc with copies of the 10 reports listed above is included as **Appendix D**.

1.4 Current Status and Condition of the Thomas Buford Pugh Memorial Bridge

During a periodic inspection of the bridge on September 28, 2011, it was discovered that a channel beam comprising one half of the vertical member on the downstream side of span #5 was broken. Upon discovery, the District Nine Bridge Engineer and Bridge Repair Crew responded to the site that day. Repair plates were welded in place that evening by the District Nine staff. WVDOH central office was notified of the break and the repairs that were. Plans were put in place to erect barricades on each end of the structure to limit truck traffic, but still allow ambulance traffic to cross the bridge. The bridge posting was lowered from 15 tons to 3 tons by Commissioner's Order dated October 25, 2011. In November 2011, height restrictions were placed at both ends of the bridge to limit large vehicles from using the bridge.

Photograph 1. View of height restricting bar and weight posting at south end of bridge

Since the discovery of the broken vertical at L1U1 in span #5, numerous repairs have been made to various structural components. Work platforms were placed in the three truss spans and left there so emergency repairs could be made at any point. The Bridge Engineer also reviews the verticals periodically between scheduled Interim Inspections. This review has been performed approximately 26 times since the discovery and repair of the broken member.

Photograph 2. View of height and weight posting signs along WV 41 south.

The inspection report for the TBPM Bridge, dated September 30, 2011, rated the structure in critical condition. The substructure was described as in "generally poor condition" with spalling, cracking and efflorescence, and deterioration of expansion filler; the superstructure condition was described as "generally critical" with section loss, broken and separated clip angles, popped rivets, impact damage, rust scale and surface rust. The floor system and lower chord members are deteriorated and the deck is in poor condition; and the railings show moderate impact damage. The report recommends that the bridge be inspected every 3 months to more closely monitor the condition of the truss spans. It was further recommended that with the continuing decline of the structure, it should be replaced.

Bridge Inspection Summary

Review of the bridge inspection reports from late 2011 through early 2013 indicate that inspection teams have not found any additional major structural issues with the truss spans. During this period, bridge inspection teams have examined the upper connections with ladders and climbing and checked the lower connections, lower chords and lower verticals with climbing and walking on and around the bridge. Specific issues and repairs include:

- ***December 2011***: cracked clip angles and a crack in the sway frame attachment to the verticals were noted and repaired; impact damage was noted to the height restriction at one portal.
- ***March 2012***: cracked clip angles and broken stringers were noted and welded; also noted that curbs on both upstream and downstream sides of roadway were broken and misaligned and a portion of the grid deck was pushed up two inches.
- ***July 2012***: cracked clip angles were noted and repaired; loose rivets were repaired or replaced and loose repair plates were re-welded; stringer section loss noted.

- ***September 2012***: no changes to the conditions noted in July 2012 inspection report and no repairs needed; work order submitted to replace narrow bridge sign and replace batteries in flashing hazard lights on each portal
- ***December 2012***: minor and moderate impact damage to upstream bridge rail noted; broken bridge rail support post noted; slightly twisted support posts noted; work order submitted to repair broken bridge rail support post.
- ***March 2013***: no changes to the condition of the superstructure truss spans; broken and missing attachment bolts on steel deck plates noted; section of approach rail unattached; work order submitted to repair attachment bolts and approach rail.

1.5 Summary of Selected Alternative (Option 4a)

The alternative selected for this project is a refined version of the alternative that was presented in the EA as the Preferred Alternative Option 4a (**Figure 3 – Selected Alternative**). Impact analysis determined that the five build options evaluated in the EA will have similar minimal impacts; however the Build Option with the least overall impact is Option 4a. Additionally, Option 4a has the lowest cost estimate. Therefore Option 4a is the selected alternative for the TBPM Bridge Replacement Project.

Option 4a and its associated causeway option have been refined to address resource agency concerns about impacts to the New River and its aquatic habitat, as well as to incorporate mitigation measures related to historic and recreational resources. A rehabilitation option also was further investigated as a possible alternative that would not require putting a causeway or equipment in the river. Studies to evaluate using a temporary bridge bypass and an update of estimated costs to rehabilitate the bridge were undertaken. The results of these studies, which determined that the bridge couldn't be rehabilitated without getting into the water and that costs were higher than building a replacement bridge downstream, combined with the continued deterioration of the bridge made the rehabilitation option not feasible.

Description of Option 4a and Typical Section

Option 4a will replace the existing bridge with a 3-span steel plate girder bridge downstream of the existing bridge with a common causeway. The bridge will have one northbound lane, one southbound lane, two shoulders and a recreational lane on the downstream side separated from traffic with a steel traffic rail and an aluminum bicycle rail. The proposed bridge length is 657 feet. The alignment for the proposed bridge parallels the alignment of the existing TBPM Bridge. The parallel alignments allow for a single/common causeway to be utilized for construction of the proposed bridge and

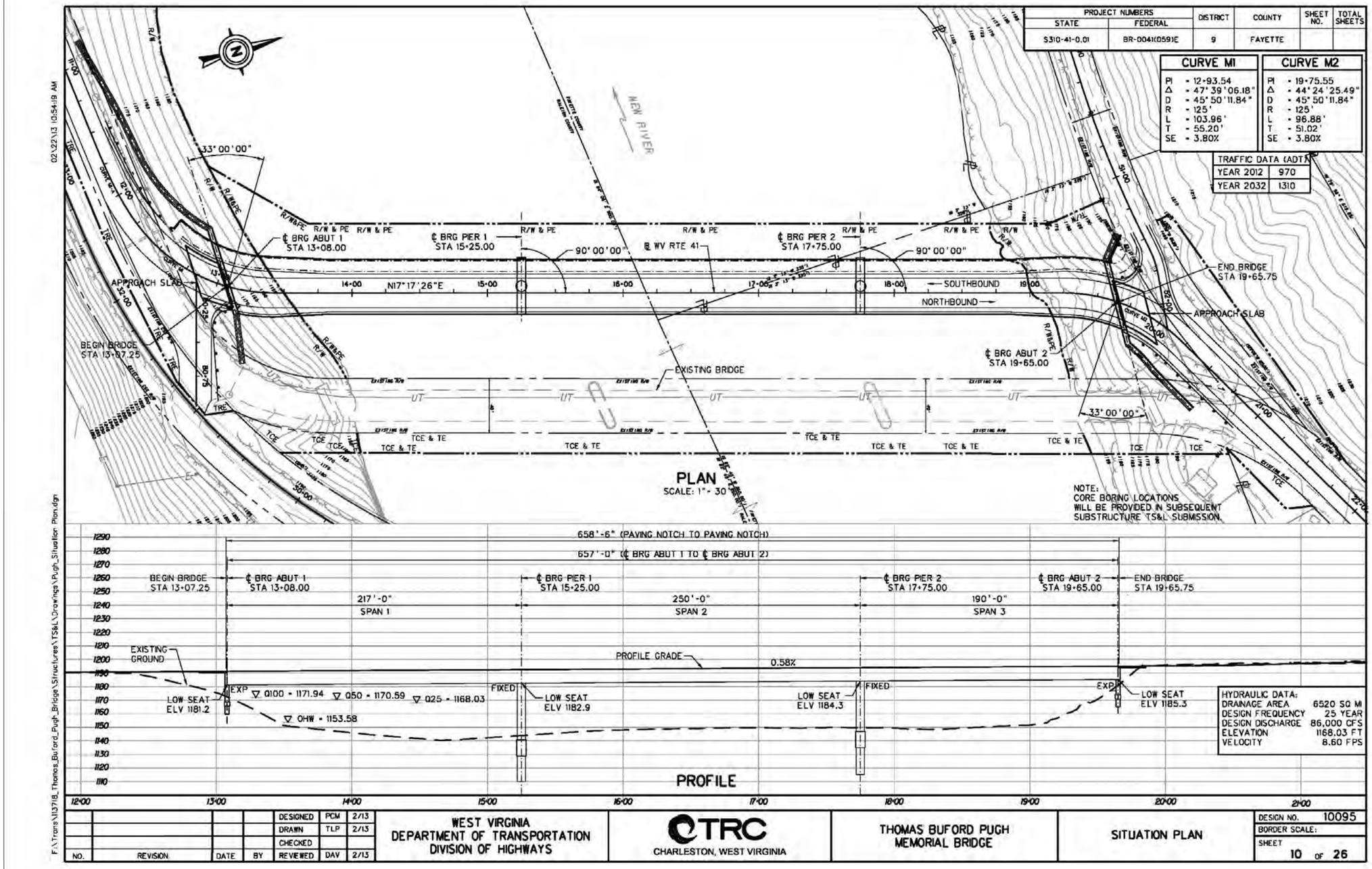


Figure 3
Selected Alternative – Option 4a

demolition of the existing bridge. The proposed bridge will carry an average daily traffic (ADT) of 1310 vehicles per day (VPD) for the year 2032. The design speed is 20 mph.

Option 4a requires two piers that will be placed in the New River. These piers are smaller than the piers of the existing TBPM Bridge structure and therefore will result in no net permanent loss to the stream habitat of the New River. When the existing bridge and piers are removed, an increase in stream habitat will result.

As shown on **Figure 4 – Typical Section**, the bridge will carry two 11 foot lanes, two shoulders and an 8 foot recreational lane. The shoulders are 3 feet wide along the tangent portion of the bridge and transition to 5 feet wide at the bridge ends. A steel traffic rail will be used on the upstream fascia. A combination of steel traffic rail and aluminum bicycle rail will separate the recreational lane from traffic. An aluminum bicycle rail will be used on the downstream fascia adjacent to the recreational lane.

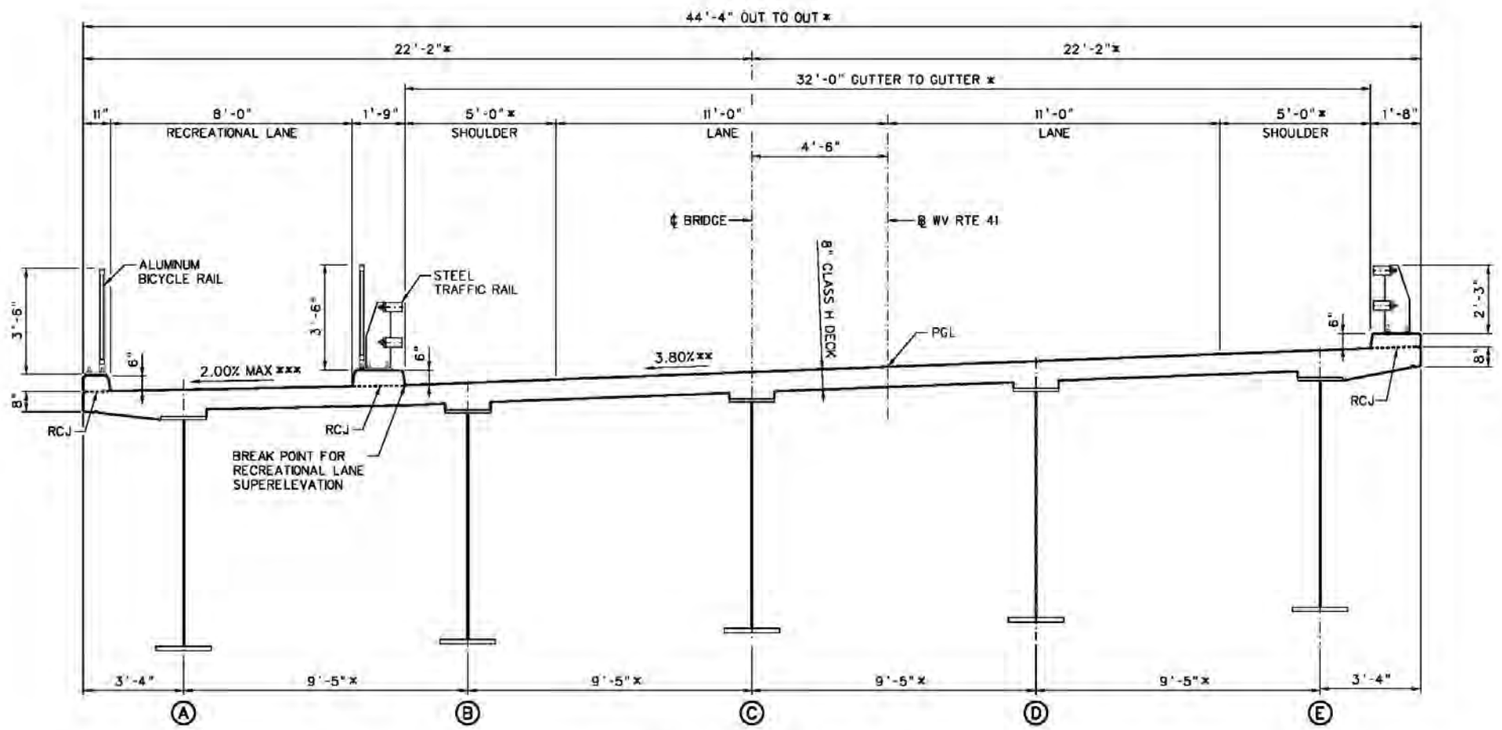
The recreational lane was developed following coordination between the NPS and the Summit Bechtel Family National Scout Reserve in Mount Hope, West Virginia. This feature will serve pedestrians and cyclists and will include one or two interpretive markers, or waysides, that highlight the history and natural features of the area; the second wayside will be located on land at the end of the bridge. The waysides are one of the measures developed by NPS, the WV State Historic Preservation Officer (WVSHPO) and WVDOH to mitigate the removal of the historic bridge. An additional mitigation measure involves incorporating architectural treatments on the bridge, such as cut stone facing pattern wing walls and abutments (**Figure 5 – Rendering**). The architectural treatments, railing type and color have been approved by NPS and the WVSHPO.

Causeway Analysis

The structure requires temporary causeways for the construction of the new bridge as well as for removal of the existing bridge. Option 4a utilizes a common causeway, allowing the new bridge to be constructed and the existing bridge to be removed with fewer impacts to the New River. The common causeway will be built from the northern and southern riverbanks and left in place during construction of the new bridge and demolition of the existing bridge. The existing bridge will remain open to maintain traffic through the area during construction.

After completion of the EA and receipt of resource agency comments in 2007, additional engineering studies were conducted to refine the common causeway design and construction details, with the goal of further minimizing impacts to the aquatic resources and habitat in the New River. The studies included analysis of the river bottom and flow, consideration of various causeway configurations and refinement of bridge alternates.

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL SHEETS
STATE	FEDERAL				
S310-41-0.01	BR-0041(057)	9	FAYETTE		



TYPICAL SECTION
SCALE: ½" = 1'-0"

* SHOULDER WIDTHS FLARE FROM 5'-0" TO 3'-0" AT BRIDGE END TO ACCOMMODATE TURNING RADIUS OF TRUCKS. THEREFORE OUT TO OUT WIDTH VARIES FROM 44'-4" TO 40'-4" AND GIRDER SPACING VARIES FROM 9'-5" TO 8'-5".

** BEGIN BRIDGE REGION IN FULL SUPER AT 3.80%. SUPERELEVATION TRANSITIONS FROM FULL SUPER TO NORMAL CROWN FROM STA 13+22.30 TO STA 14+13.88. SEE SUPERELEVATION TABLES IN ROADWAY DRAWINGS.

*** 2.00% MAX SUPERELEVATION AT RECREATIONAL LANE PER ADA REQUIREMENTS. BREAK POINT LOCATED AT LEFT GUTTERLINE.

NO.	REVISION	DATE	BY

DESIGNED
DRAWN TLP
CHECKED
REVIEWED DAV

WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

TRC
CHARLESTON, WEST VIRGINIA

THOMAS BUFORD PUGH
MEMORIAL BRIDGE

TYPICAL SECTION
BEGIN BRIDGE REGION

DESIGN NO. 10095
BORDER SCALE:
SHEET 20 OF X

07\25\13 10:47:49 AM
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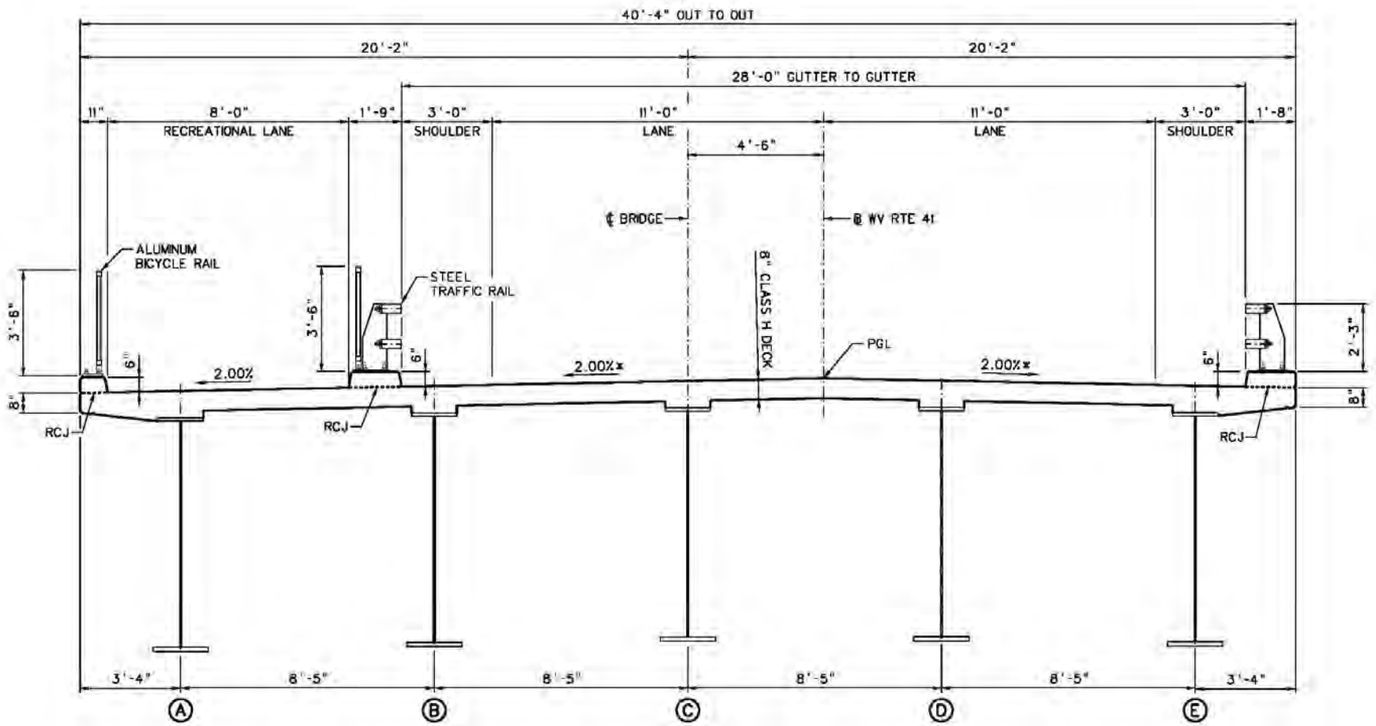
Figure 4a
Typical Section Option 4a – Begin Bridge Region

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL SHEETS
STATE	FEDERAL				
S310-41-0.01	BR-0041(057)	9	FAYETTE		



TYPICAL SECTION
SCALE: ½"= 1'-0"

* NORMAL CROWN FROM STA 14+13.88 TO STA 18+52.94.
SEE SUPERELEVATION TABLES IN ROADWAY DRAWINGS.

NO.	REVISION	DATE	BY

DESIGNED
DRAWN TLP
CHECKED
REVIEWED DAV

WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

TRC
CHARLESTON, WEST VIRGINIA

THOMAS BUFORD PUGH
MEMORIAL BRIDGE

TYPICAL SECTION
TANGENT PORTION

DESIGN NO. 10095
BORDER SCALE:
SHEET 21 OF X

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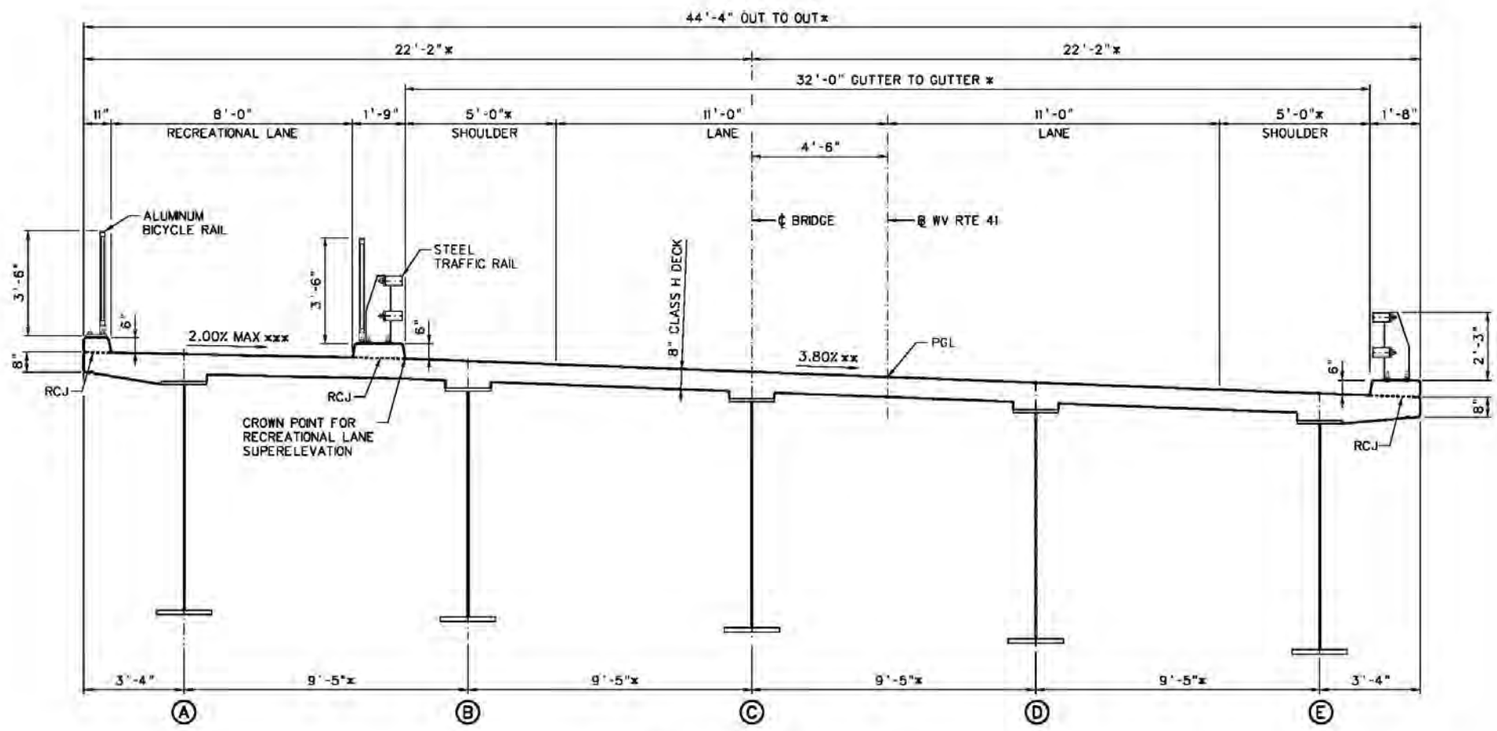
Figure 4b
Typical Section Option 4a – Tangent Portion

PROJECT NUMBERS		DISTRICT	COUNTY	SHEET NO.	TOTAL SHEETS
STATE	FEDERAL				
S310-41-0.01	BR-0041(057)	9	FAYETTE		



TYPICAL SECTION
SCALE: ½" = 1'-0"

* SHOULDER WIDTHS FLARE FROM 5'-0" TO 3'-0" AT BRIDGE END TO ACCOMMODATE TURNING RADIUS OF TRUCKS. THEREFORE OUT TO OUT WIDTH VARIES FROM 44'-4" TO 40'-4" AND GIRDER SPACING VARIES FROM 9'-5" TO 8'-5".

** END BRIDGE REGION IN FULL SUPER AT 3.80%. SUPERELEVATION TRANSITIONS FROM NORMAL CROWN TO FULL SUPER FROM STA 18+52.94 TO STA 19+44.52. SEE SUPERELEVATION TABLES IN ROADWAY DRAWINGS.

*** 2.00% MAX SUPERELEVATION AT RECREATIONAL LANE PER ADA REQUIREMENTS. CROWN POINT LOCATED AT LEFT GUTTERLINE.

NO.	REVISION	DATE	BY

DESIGNED
DRAWN TLP
CHECKED
REVIEWED DAV

WEST VIRGINIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

TRC
CHARLESTON, WEST VIRGINIA

THOMAS BUFORD PUGH
MEMORIAL BRIDGE

TYPICAL SECTION
END BRIDGE REGION

DESIGN NO. 10095
BORDER SCALE:
SHEET 22 OF X

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Figure 4c
Typical Section Option 4a – End Bridge Region

Figure 5
Rendering of Option 4a

Three temporary common causeway options were evaluated:

- Causeway Alternate A – consists of a temporary causeway accessed from the north river bank.
- Causeway Alternate B – consists of a temporary causeway accessed from the north and south river banks, and is open in the middle of the channel.
- Causeway Alternate B2 – consists of a temporary causeway accessed from the north and south river banks open in the middle, with the work platforms elevated above the 10-year water surface elevation.

All three common causeway alternates/options would be constructed using a proprietary panel bridge system, typically used for temporary bridges. This provides temporary construction platforms required to construct the new/proposed bridge and demolish the existing TBPM Bridge trusses. All three temporary construction causeway options (A, B and B2) can be constructed from the river banks or from the existing bridge, thus eliminating the need for equipment in the water of the New River.

Shear Stress Analysis

To determine impacts on the aquatic resources of the New River, a shear stress analysis of the New River was conducted to evaluate the changes (i.e. increase or decrease) in shear stress with the three common causeway options at specific river discharges, 10-, 25-, 50- and 100-year storm events. The results of the shear stress analysis for each common causeway option are summarized below:

- Causeway Alternate A produces a large spike in shear stress in the channel thalweg located near the south river bank. This spike in shear stress in the thalweg increases from roughly 2-psf to 16-psf. The river channel in the thalweg is the deepest portion of the channel cross section and experiences high shear stresses under existing conditions. There is exposed bedrock within the thalweg and large boulders along the south bank and in the adjacent channel area. This temporary bridge for this alternate would be placed above the ordinary high water elevation, below Q10.
- Causeway Alternate B produces a significant increase in shear stress in the middle of the river channel, from roughly 1-psf to 8-psf. Since the middle of the river channel is relatively shallow and experiences low shear stress, Alternate B may adversely impact aquatic habitat in the middle of the channel. This temporary bridge for this alternate would be placed above the ordinary high water elevation, below Q10.
- Causeway Alternate B2 produces elevated shear stresses across the channel from roughly 1-psf to 2-psf, increasing to 3-psf to 4-psf, however this causeway alternate does not have the large shear stress peaks that occur with the other two causeway alternates (A and B). The temporary bridge for this alternate would be placed above the 10-year water surface elevation, above Q10.

Causeway Alternate B2 is the preferred common causeway alternate based on the lower shear stress values.

A *Gabion Basket Island v. Temporary Work Platform Study* (TRC, March 2013) was conducted to evaluate alternatives to construct the common causeway. The evaluation compared constructing gabion basket islands versus building elevated platforms on steel towers. Both options would be accessed with temporary bridges and would be constructed above the 10-year floodplain. In addition, cofferdams will be required to erect the new piers and demolish the existing piers.

The study then evaluated how the two alternatives would affect the flow of the river and how each would impact the physical area on which the causeway will sit. The study concluded that the cofferdams for the elevated platform had a significant effect on shear stress and that the elevated platform would have 30% higher temporary impacts than the gabion basket islands, as well as permanent impacts resulting from the tower footings placed in the river. The elevated platforms also are a more expensive, complicated system. Therefore, the gabion basket island alternative is recommended as the preferred causeway type (**Figure 6 – Gabion Basket Island Common Causeway**).

Option 4a and its associated Causeway Alternate B2 have been designed to minimize impacts to the New River and its aquatic habitat. Unlike a conventional causeway that would wash out either from a high water event or after construction and demolition are complete, the preferred causeway will be designed to not wash out even during a 10-year flood event and will be removed intact at the end of the project.

Bridge Demolition Information

The studies undertaken to develop the bridge and causeway alternates assumed that the existing bridge could be carefully dismantled and removed in sections using a crane to move the pieces so that the old superstructure elements would not fall in the river. However, based on the advanced deterioration of the existing bridge, it is unlikely that the truss sections can be dismantled and removed without them breaking apart and falling into the river as they are moved. Therefore FHWA and WVDOH have acknowledged that the existing bridge will be dropped in the river in a controlled demolition. The truss will then be cut into pieces and picked up using a crane to avoid dragging the bridge pieces along the riverbed. It is anticipated that the truss would be in the water no more than 15 calendar days.

It is estimated that the construction and demolition phases of the project will be completed in two construction seasons. This estimate takes into account weather delays and winter work stoppage.

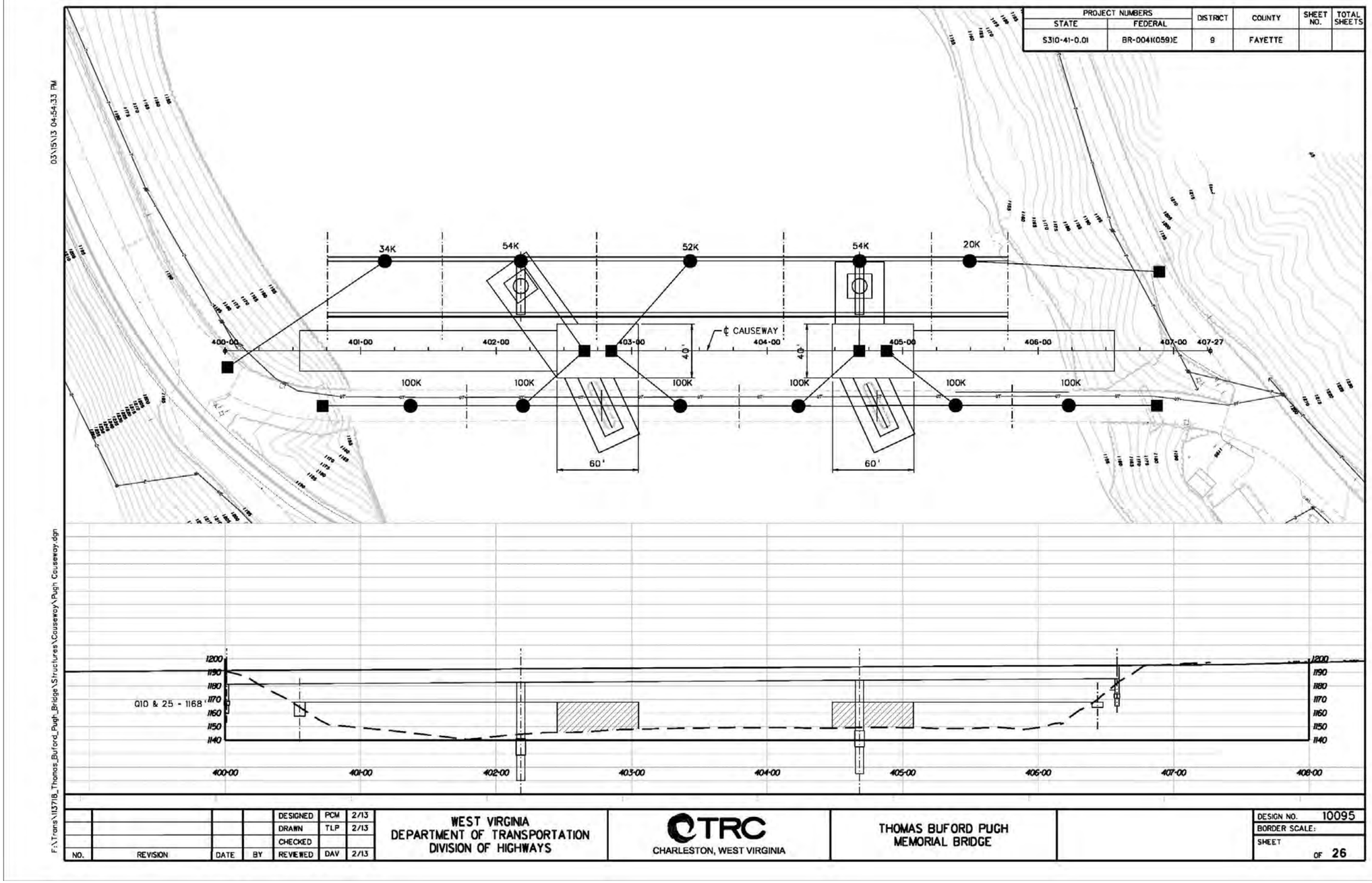

Figure 6
Gabion Basket Islands Causeway – Alternate B2

2.0 Final Section 106 Coordination

As documented in the EA/4(f), the TBPM Bridge is eligible for listing in the NRHP and will be adversely affected by the project. Since publication of the EA/4(f), coordination regarding mitigation for these impacts has been finalized in accordance with Section 106 of the National Historic Preservation Act. FHWA and WVDOH have consulted with the WV SHPO and NPS to obtain input on architectural treatments, railing design and waysides for the new bridge; **Figure 5** shows a rendering of the new bridge that incorporates this input. As specified in the MOA, FHWA and WVDOH will continue to coordinate with the WVDHPO and NPS regarding the historic bridge.

The Memorandum of Agreement (MOA), was approved and signed by the SHPO in July 2012, and signed by WVDOH as a concurring party in April 2013 and NPS as a consulting party in July 2012. A copy of the MOA and associated correspondence is included in **Appendix E** of this document.

The FHWA contacted the Advisory Council on Historic Preservation (ACHP) to inform them about the project and the adverse effects of the project on resources eligible for listing on the NRHP. In a letter dated January 20, 2006, ACHP declined the offer to participate in the Section 106 consultation process. However, pursuant to 36 CFR 800.6(b)(1)(iv), the approved MOA and related documentation will be submitted to ACHP to conclude the Section 106 consultation process.

3.0 Final Section 4(f) Finding

Section 4(f) of the Department of Transportation Act of 1966 (49 USC Section 303 and 23 CFR Part 774) states that FHWA may not approve the use of land from a publicly-owned park or recreation area, a historic site, or a wildlife or waterfowl refuge unless a determination is made that: (i) there is no feasible and prudent alternative to the use of land from the property; and (ii) the action includes all possible planning to minimize harm to the property resulting from such use. For some projects where improvements to existing highways will use minor amounts of property or will replace a historic bridge, one of the Nationwide Programmatic Section 4(f) Evaluations can be applied.

3.1 New River Gorge National River

A Programmatic Section 4(f) Evaluation for the New River Gorge National River was prepared to evaluate the impacts of the proposed project on the park. As documented in the EA, FHWA made the determination that the project meets the conditions required for this Programmatic Evaluation and Approval.

The NPS commented on the Programmatic Section 4(f) Evaluation in their letter dated May 8, 2007. In a meeting with FHWA, WVDOH and NPS held on October 24, 2007, FHWA stated that additional studies and analysis of impacts to the New River would be undertaken. These

additional studies were conducted in 2010, including a mussel survey of the New River, a substrate characterization study, a river shear stress analysis and engineering analysis and design of various causeway alternatives. The Programmatic Section 4(f) Evaluation for the NRGNR was revised to note the completion and results of these studies that proposed methods to further minimize impacts to the park. The updated Programmatic Section 4(f) Evaluation is included in **Appendix F**.

3.2 Thomas Buford Pugh Memorial Bridge

The TBPM Bridge was determined eligible for listing in the National Register of Historic Places. In 1983, FHWA issued a Programmatic Evaluation and Approval that could be applied to projects that were proposing to use an historic bridge if certain conditions applied. A programmatic evaluation supplants the need for an individual evaluation for a project to satisfy Section 4(f) requirements. As documented in the EA, FHWA made the determination that the project meets the conditions required for this Programmatic Evaluation and Approval. A Programmatic Section 4(f) Evaluation for the historic bridge was completed and included with the EA. FHWA approved the Section 4(f) Evaluation when the EA was approved in February 2007.

4.0 Summary of Mitigation and Responsibilities

Table 1 provides a summary of the mitigation commitments planned in association with the TBPM Bridge Replacement Project to minimize impacts. These mitigation measures have been developed through consultation with the appropriate resource agencies.

Table 1: Summary of Mitigation

Resource/Issue	Mitigation Measure
New River Aquatic Habitat & Mussel Populations	• Avoidance & minimization of impacts to aquatic habitat in the New River will be accomplished through the use of a temporary causeway that reduces the disturbance to the river bottom. • The Gabion Basket Island Causeway and temporary bridge will be designed to not wash out even during a 10-year flood event and will be removed intact at the end of the project. • The existing bridge will be dropped in the river in a controlled demolition. The truss will then be cut into pieces and picked up using a crane to avoid dragging the bridge pieces along the riverbed. It is anticipated that the truss would be in the water no more than 15 calendar days. • Construction of in-stream features (i.e. causeway structure and bridge piers) and demolition of the existing TBPM Bridge will be scheduled during non-critical periods of the year to avoid impacting breeding, spawning and nesting activities. • Construction activities will include the use of Best Management

Resource/Issue	Mitigation Measure
	Practices to control sedimentation, turbidity and erosion. • The river bed that is temporarily impacted during construction will be restored as close as is practical to the original condition as soon as construction has been completed. This will include the removal of all temporary causeway infrastructure, temporary cofferdams and other construction debris and materials. • A post-construction substrate survey will be conducted in coordination with the WVDNR. The survey will be conducted within the direct impact area of the channel in order to assess and document changes in the channel substrate condition and composition. This survey will be conducted one year after construction is complete and five years after construction is complete. • A post-construction mussel survey will be conducted in coordination with the WVDNR. The survey will be conducted within the direct impact area of the channel in order to document and ensure that mussels are recolonizing the area that was impacted by construction. This survey will be conducted one year after construction is complete and five years after construction is complete. If it is determined by this survey that recolonization is not occurring the WVDOH will work with the WVDNR and NPS to determine what mitigation may be warranted. • Freshwater mussels that are located in the direct impact area of the construction will be collected in accordance with the current West Virginia Mussel Survey Protocols and will be relocated to suitable habitat. • Approximately 3,000 mussels that are located in the direct impact area of the construction will be taken by the WVDNR to be used in restoration projects on the Monongahela and Ohio River watersheds. • The mussels that are taken by the WVDNR will be monitored as part of the restoration projects. • All disturbed areas including the riparian area will be re-vegetated/seeded with native plant species selected in consultation with the NPS and WVDNR. • The WVDOH will pay the WVDNR $10,000 for their use in natural resource restoration projects. • The WVDOH paid a geneticist to conduct genetic testing on *Actinonaias ligamentina* (mucket) species of mussels to ensure their viability in the restoration projects on the Monongahela and Ohio River Watersheds. • The WVDOH will pay the WVDNR for all labor and materials utilized in their relocation of 3,000 mussels that are obtained under this project.

Resource/Issue	Mitigation Measure
Hazardous Materials	• During construction, heavy equipment will be staged, stored and refueled away from sensitive environmental features. • Any hazardous materials (i.e. fuels, lubricants, cleaners, solvents) will be properly stored and secured away from the New River and other surface water features. • A spill prevention, containment and countermeasure plan will be prepared and on-site for deployment in the event of an accidental release or spill of a hazardous material.
Parks and Recreation Facilities	• Access to NPS facilities and roads will be maintained during construction of the new bridge. • An aid to navigation plan will be prepared and implemented during construction of the new bridge to facilitate safe passage through the construction area by boaters navigating the New River. • Coordinate river activities with rafting companies • Include a recreational lane for pedestrians/cyclists on the new bridge. Separate this lane from vehicular traffic with a steel traffic rail and aluminum bicycle rail.
Construction Impacts - Traffic	• A maintenance of traffic plan will be developed and implemented during construction to assure both motorist and construction worker safety. This plan will be developed using guidelines of FHWA, the American Association of State Highway and Transportation Officials, and WVDOH. • Control of the temporary construction impacts will be governed by the Standard Specifications for Road and Bridge Construction.
Floodplains	• Vegetation disturbed during construction in the 100-year floodplain will be re-vegetated with native plant species in consultation with the NPS and the WVDNR. • Minimize floodplain encroachments to avoid increasing the flood water elevations in the New River. • If surface water elevations increase, a Conditional Letter of Map Revision may be required for the project.
Forestland Terrestrial Habitat	• Minimize the removal of vegetation from the riparian zone and adjacent forestland. • All disturbed areas will be re-vegetated/seeded with native plant species selected in consultation with the NPS and WVDNR.
Historic Properties and Archaeological Sites General	• If unanticipated discoveries are encountered during project implementation, work will be suspended in the area of the discovery until the WVDOH has developed and implemented an appropriate treatment plan in consultation with the WVSHPO pursuant to 36 CFR 800.13(b).

Resource/Issue	Mitigation Measure
Historic Resource - Thomas Buford Pugh Memorial Bridge	• The Thomas Buford Pugh Memorial Bridge will be documented in its present historic setting in accordance with Stipulations I and II in the MOA (Appendix E). • WVDOH will provide copies of the historic documentation package to the Fayette County Libraries, National Park Service and the New River Gorge National River (NRGNR). • WVDOH will provide two historical interpretive markers (waysides) designed by the National Park Service and placed along the sidewalk of the new bridge. The installation will be made part of the construction contract. • A brochure of the TBPM Bridge will be developed and distributed to the NPS and the NRGNR along with a CD version for future use. The WVSHPO will have the opportunity to review and comment on the historic markers and the educational materials. • Architectural treatments similar to the New River Parkway Bridge crossing at Madams Creek, such as cut stone facing pattern wing walls and abutments, will be incorporated into the design of the TBPM Bridge. The WVSHPO and NPS will be given the opportunity to review the proposed bridge design.
Visual Impact	• In general, the bridge is being designed with consideration for the community context and location within the national park. Specifically, the bridge will contain architectural treatments similar to the New River Parkway Bridge crossing at Madams Creek.

5.0 Additional Information

Land and Water Conservation Fund Coordination

Portions of the New River Gorge National River were developed with assistance from the Land and Water Conservation Fund (LWCF), a federal program established in 1964 to conserve open space and help create state and local park and recreation facilities. The LWCF in WV is administered by the West Virginia Department of Commerce, Development Office, who determined that the bridge project is not within any LWCF 6(f)(3) boundary for which the State of West Virginia has assisted or been a sponsor.

The WVDOH has indicated that they plan to abandon the existing right-of-way for the bridge approaches and portions of WV 41 that provide access to the current bridge. Coordination among NPS, FHWA and WVDOH will be undertaken to acquire necessary land for construction of the new bridge and conversion/transfer of land from the existing bridge approaches back to NPS for park use.

Appendix A

Resource Agency Comments on the EA/4(f) and Responses to Comments

Thomas Buford Pugh Memorial Bridge Replacement Project
Fayette and Raleigh Counties, West Virginia
Approved Environmental Assessment and Programmatic Section 4(f) Evaluation
Agency Comment Response Summary

Resource Agency Comments on the EA/4(f) and Responses to Comments

Table of Contents

Introduction

On February 7 2007, the Federal Highway Administration (FHWA) approved the Environmental Assessment and Programmatic Section 4(f) Evaluation [EA/4(f)] for the Thomas Buford Pugh Memorial Bridge Replacement Project and the EA/4(f) document was made available for public and agency review. The EA/4(f) availability was advertised through press releases, and public notices distributed to the local citizens in the study area and display advertisements in project area newspapers. Copies of the EA/4(f) were distributed to federal, state, and local agencies, public officials, libraries, the WVDOH in Charleston, WV, the WVDOH District Nine Engineer in Lewisburg, WV, and the WVDOH District Ten Engineer in Princeton, WV. Comments were requested concerning the EA/4(F) from the public and agencies. The deadline for the receipt of comments was April 30, 2007.

A workshop public meeting was held on Tuesday March 20, 2007 at the Stanaford Elementary School in Beckley, WV. The public meeting provided the public with the opportunity to provide views, opinions, and information on the proposed project and EA/4(f) document. This information would be considered by FHWA before their issuance of a finding that documents the final decision on the Selected Alternative in compliance with the National Environmental Policy Act (NEPA).

A total of five people attended the meeting, including three NPS staff members, one SHPO staff member and a representative from the Fayette County Board of Education (BOE). One written comment was received from the BOE noting that Fayette County schools use the bridge three to four times per week and stating their preference for constructing a new bridge and keeping the existing bridge open during construction. No other public comments were received.

The resource agency comments on the EA/4(f) were reviewed and substantive issues/comments were highlighted and noted for further consideration and response. A summary of comments received from the resource agencies and responses was prepared by the WVDOH and FHWA. Comment letters were received from the following agencies:

- U.S. Department of the Interior, National Park Service (May 8, 2007)
- U.S. Department of the Interior, U.S. Fish and Wildlife Service (May 11, 2007)
- West Virginia Department of Natural Resources (April 25, 2007)
- U.S. Army Corps of Engineers (May 22, 2007)
- U.S. Environmental Protection Agency (May 8, 2007)

After review of the agency comment letters on the EA/4(f), several important/major issues noted by the resource agencies warranted further evaluation and consideration. These included the following issues:

- Impacts to the New River and associated resources, including impacts from causeway construction and new instream piers on aquatic habitat (increased scour, changes in river flow patterns/velocities, sediment transport)

- Impacts to freshwater mussels
- Mitigation discussion too general
- Consideration of additional construction methods (i.e. top down construction, cantilever) and additional bridge designs,
- Adequacy of NEPA documentation and Section 4(f) Evaluation

Since approval of the EA/4(f) document in 2007, the WVDOH and FHWA initiated additional environmental studies, engineering analyses and design reports/plans. These additional studies and analyses were conducted in support of the proposed bridge replacement project and to prepare responses to agency comments on the EA/4(f) that reflect current project information and engineering design. The results of these additional environmental studies and engineering analyses and design are presented in the following reports.

1. Proposal for Sediment Analysis of the Thomas Buford Pugh Bridge, April 16, 2008
2. Options Studied Report, Thomas Buford Pugh Bridge, December 29, 2009
3. Temporary Bridge Bypass Study, April 21, 2011
4. Shear Stress Analysis of the New River Report, May 17, 2011
5. Shear Stress Analysis, August 15, 2011
6. Temporary Work Platform Shear Stress Analysis and Update Project Costs Summary, August 30, 2011
7. New River Substrate Characterization Technical Memorandum Report, October 31, 2011
8. Mussel Survey of the New River, October 31, 2011
9. Additional Bridge Study: New Superstructure on Existing Piers, Update of Preferred Alternate Based on Revised Typical Section, January 23, 2012
10. Gabion Basket vs. Temporary Work Platform Study, March 15, 2013

A brief description of each report is contained in the FONSI and electronic copies of the reports are included on a CD in Appendix D.

Current Status and Condition of the Thomas Buford Pugh Memorial Bridge

During a periodic inspection of the bridge on September 28, 2011, it was discovered that a channel beam comprising one half of the vertical member on the downstream side of span #5 was broken. Upon discovery the District 9 Bridge Engineer and Bridge Repair Crew responded to the site that day. Repair plates were welded in place that evening by the District 9 staff. WVDOH central office was notified of the break and the repairs that were. Plans were put in place to erect barricades on each end of the structure to limit truck traffic but to still be able to allow ambulance traffic to cross the bridge. The bridge posting was lowered from 15 tons to 3 tons by Commissioner's Order dated October 25, 2011. In November 2011, height restrictions were placed at both ends of the bridge to limit large vehicles from using the bridge.

Since the discovery of the broken vertical at L1U1 in span #5, numerous repairs have been made to various structural components. Work platforms were placed in the three truss spans and left there so emergency repairs could be made at any point. The Bridge Engineer also reviews the

verticals periodically between scheduled Interim Inspections. This review has been performed approximately 26 times since the discovery and repair of the broken member.

The inspection report for the TBPM Bridge, dated September 30, 2011, rated the structure in critical condition. The substructure was described as in "generally poor condition" with spalling, cracking and efflorescence, and deterioration of expansion filler; the superstructure condition was described as "generally critical" with section loss, broken and separated clip angles, popped rivets, impact damage, rust scale and surface rust. The floor system and lower chord members are deteriorated and the deck is in poor condition; and the railings show moderate impact damage. The report recommends that the bridge be inspected every 3 months to more closely monitor the condition of the truss spans. It was further recommended that with the continuing decline of the structure, it should be replaced.

Review of the bridge inspection reports from late 2011 through early 2013 indicate that inspection teams have not found any additional major structural issues with the truss spans. During this period, bridge inspection teams have examined the upper connections with ladders and climbing and checked the lower connections, lower chords and lower verticals with climbing and walking on and around the bridge. Repair crews have undertaken minor repairs to bridge elements and conducted regular maintenance.

Response Summary

The following summary provides copies of comment letters that were offered by agencies during the EA/4(f) comment period from March 20, 2007 to April 30, 2007 and during the March 20, 2007 workshop public meeting. The intent of the response summary is to respond to substantive issues raised in each comment received during the course of the public comment period. Substantive issues were defined as those judged to have raised issues of fact, evaluation, interpretation or policy pertaining to the proposed bridge replacement project or to the EA/4(f) document.

In each agency comment letter, portions of the letter/written comments that contain substantive issues have been delineated and numbered. Responses to issues/comments shared by more than one agency are grouped together and specific agency comment numbers that apply to that issue are noted. Portions of responses in bold italic text provide further clarification of previous responses to agency comments. The revised responses draw on the updated information that came out of the additional studies and coordination with agencies between 2008 and 2013.

United States Department of the Interior

RECEIVED
MAY 0 5 2007
ENGINEERING DIVISION
WV DOH

NATIONAL PARK SERVICE
Northeast Region
200 Chestnut Street
Philadelphia, PA 19106-2878

IN REPLY REFER TO:

L7617(NER-RP&C)

MAY 8 2007

Gregory L. Bailey,
Director, Engineering Division
West Virginia Division of Highways
Capitol Complex Building 5
1900 Kanawha Boulevard. East
Charleston, WV 25305

Dear Mr. Bailey:

This letter is in response to your request for comments on "Environmental Assessment and Programmatic Section 4(f) Evaluation, (EA) Thomas Buford Pugh Memorial Bridge Replacement Project, Fayette & Raleigh Counties, West Virginia" by the West Virginia Department of Transportation (WVDOT), Division of Highways (State Project S210-41-0.01 02, Federal Project BR-0041(063)E).

The project to replace the historic Thomas Buford Pugh Bridge on Highway 41 over the New River is located entirely within the boundaries of New River Gorge National River. Congress established New River Gorge National River as a unit of the National Park System to conserve and interpret "outstanding natural, scenic, and historic resources and objects in and around the New River in West Virginia for the benefit and enjoyment of present and future generations." The primary responsibility of the National Park Service (NPS) in managing New River Gorge National River is to protect this nationally significant area unimpaired for future generations, as mandated by the Organic Act of 1916.

In addition to the 1978 designation of New River Gorge National River as a unit of the National Park System, the significance of the New River within the park has been reaffirmed by numerous sources:

- In 1982 the Nationwide Rivers Inventory identified four Outstandingly Remarkable Values (recreation, geology, wildlife and cultural) for the New River (http://www.nps.gov/ncrc/programs/rtca/nri/states/wv.html).
- The U.S. Fish and Wildlife Service (USFWS) classification of the New River as Resource Category 1 in terms of their mitigation policy means that the habitat is unique and irreplaceable on a national basis or in the ecoregion section, and that no loss of habitat or value is permitted.

Chrysandra L. Walter – National Park Service, Page 1

- The State of West Virginia classifies the New River as a "high quality" stream (West Virginia High Quality Streams, Fifth Edition [1986], prepared by the Wildlife Resources Division, Department of Natural Resources).
- The New River is one of only five streams designated as protected streams in the natural streams preservation system created by the West Virginia Natural Streams Preservation Act (WV Code §22-13-5).
- The New River was one of only 14 streams designated as an American Heritage River under Executive Order 13093 (http://www.epa.gov/rivers/).

Clearly the New River, especially that portion within New River Gorge National River, is a unique and special place, and is deserving of the utmost protection.

NPS-1

The National Park Service has consistently supported improvements to infrastructure that are designed and located in such a manner as to cause no harm, short term or long term, to the nationally significant resources of New River Gorge National River. However, the options evaluated in the EA would fail to protect sensitive aquatic, riparian and wetland resources within New River Gorge National River.

The National Park Service is convinced that the preferred alternative (4a; and all other options that would require constructing piers or causeways in the New River) will have significant direct, indirect and cumulative impacts. The impacts associated with the project will affect aquatic, terrestrial, and historical resources, both within and downstream of the project areas.

NPS-2

Based on our review of the literature on similar projects elsewhere, bridge piers are obstructions that fragment and permanently alter aquatic habitats. The impact analysis for the preferred alternative identifies only the loss of aquatic habitat where the pier will occupy the river bottom. There is no analysis of secondary impacts as a result of changes in flow, hydraulics, scouring, deposition, etc., that commonly result when obstacles are placed in flowing water. We expressed concern about the omission of this material in the preliminary EA (Appendix K). The response that appropriate studies will be completed for the U.S. Army Corps of Engineers Clean Water Act section 404 permit process is inadequate and does not meet the National Environmental Policy Act (NEPA) requirement for evaluation and disclosure of direct, indirect and cumulative impacts that may result from implementing any of the alternatives presented in the EA. The

NPS-3

cumulative impact analysis presented in the EA is deficient because it only looks at other projects in the immediate vicinity of the proposed bridge and does not identify any other planned bridge projects, particularly those that would involve using piers. During the public meeting on this project, held on March 20, 2007, the Federal Highway Administration (FHWA) representative discussed their intention of designing three other bridges with piers in the New River within New River Gorge National River. The EA does not discuss any other planned bridge projects nor does it describe and analyze the cumulative impacts of multiple bridge projects that all utilize piers. These omissions mean that it is not possible to determine the level of significance of the impacts and to understand the cumulative impact of piers on this Resource Category 1 river.

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Similarly, the discussion of potential impacts of causeway construction and use on natural resources and recreational river use is inadequate. The brief discussion in Appendix K contains a few pages titled "Causeway Options Discussion." There is no reference to this material in the main body of the EA or in the Table of Contents. Relevant material on preferred causeway design, maintenance, and removal option(s) should be presented in "Alternatives" and discussed and evaluated in "Affected Environment and Environmental Consequences."

NPS-4

Natural ecosystems have a greater resiliency to temporary (pulse) disturbances than to permanent (press) disturbances. Piers represent a press disturbance, while causeways represent a pulse disturbance. Thus, while neither piers nor causeways are desirable, a well constructed temporary causeway that is maintained during construction and removed immediately after construction is completed may be preferable to permanent piers. However, there is no analysis of secondary impacts as a result of changes in flow, hydraulics, scouring, deposition, etc., that commonly result when temporary causeways are placed in flowing water.

NPS-5

Although West Virginia does not have a state endangered species act, or a list of threatened or endangered species, the Natural Heritage Program of the West Virginia Division of Wildlife Resources (WVDNR) does maintain a list of Species of Concern. All of the mussels found in the study area are on this list. The EA notes that rare, threatened or endangered (RTE) species are not present in the project area (Table 2, page 22). However, a brief review of the most current list of West Virginia RTE species (http://www.wvdnr.gov/Wildlife/documents/Animals2007.pdf) contains at least 10 fish species, 10 mussel species, one crayfish species, as well as birds like the bald eagle and reptiles like the eastern river cooter that have been reported from the New River system.

NPS-6

Mussels occur at the project site outside of the mussel bed indicated in the main body of the EA. Note that the mussel survey (Appendix G in the EA) labels this as a "Concentrated Mucket Bed" (Figure 1). Mussels are known to occur on the opposite side of the river at this site, and probably occur all of the way across the river. Further, stream channel and hydrologic shifts, especially those brought about by frequent high water events, can and have shifted the location of mussel beds. A recent survey of mussels in the New River found that some locations labeled as beds in earlier reports contained few mussels, while other areas not previously identified as beds contained relatively high mussel densities (draft report from Dr. Ralph Taylor, Marshall University received by National Park Service). The EA acknowledges that there would be an adverse impact to mussel beds; however, the conclusion that the impact would be minor is not accurate because the EA treats the mussel beds as a static feature. The fact that mussel beds are a dynamic feature that can shift over a relatively short period of time means that the full range of potential adverse impacts have not been adequately considered and disclosed.

NPS-7

Given the range and magnitude of potentially significant impacts that will occur to the nationally significant natural resources of the New River and New River Gorge National River if the preferred alternative becomes reality, it is appropriate to review proposed mitigation for these impacts. On pages 38 and 39, 52 and 53 of the EA, it is particularly disturbing to read the proposed mitigation for aquatic and terrestrial resource impacts are defined in terms such as:

- minimizing impacts associated with the causeway
- development measures to minimize erosion and sedimentation
- implement an approved Erosion and Sediment Control Plan to prevent sediment deposition
- recover rock that may be transported downstream
- remove all rock associated with causeway upon completion of the project
- minimize clearing and grubbing to the extent feasible to preserve wildlife habitat

NPS-7 Cont.

These general statements of intent do not convey any information about potential methodology or the practical limits of each mitigation measure. The National Park Service finds these statements to be somewhat obligatory and without any credibility. There is no mention of the probable need to maintain any causeway, or the likely need to replace any causeway following a sufficiently high discharge event. The mitigation of impacts associated with the proposed project must be clearly defined and measurable. Given that the New River is classified as a Resource Category 1 for mitigation purposes, the lack of specific measures that provide quantifiable results for these proposed "mitigation" efforts is a grievous omission.

NPS-8

The EA mentions mussel relocation as an option for mitigating impacts to these organisms. This is an emerging field with varying success. The EA does not provide any information on the success of prior relocations for the species found in the mussel bed with the study area. This is critical since the U.S. Fish and Wildlife Service has determined that the New River and the mussel beds are a Resource Category 1 in regards to their mitigation policy, and this means that all losses of existing habitat are to be prevented. This concern was mentioned in our comments on the preliminary EA. The Federal Highway Authority (FHWA) and West Virginia Division of Highways (WVDOH) response (Appendix K) that mussel relocation will be coordinated with the U.S. Fish and Wildlife Service (FWS) indicates that no planning has been done for this important issue, or even if the FWS is willing and able to accomplish this task, and thus does not alleviate our concerns.

NPS-9

Land transfer mitigation to achieve the requirements of off-setting the direct loss and function of the river is an uncertain statement that suitable land exists and the quantity and or quality is sufficient to meet the requirements of compensation (Mitigation: page 32). Almost all of the mitigation that is currently proposed by WVDOH is phantom mitigation (Pages 36, 40, 44, 61 and 62). Vague statements of "reduce," "recover," and "minimize" do not convey any information on which to make an analysis of their adequacy much less offer any assurance they are functional and sustainable for the assigned task.

NPS-10

The WVDOH response to NPS comments in support of rehabilitation of the existing historic bridge is disingenuous. WVDOH's rationale for rejecting the option of rehabilitating the existing bridge is that it does not meet the project needs and has potential for higher stream impacts. From the information presented in the Purpose and Need, it appears that the only criterion used was that of meeting the current design standards, which are based entirely on the classification of the road according to the average daily traffic (ADT). Apart from avoiding adverse impacts to aquatic habitat, rehabilitating the historic bridge has value because it

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NPS-10 Cont.

preserves an important cultural resource. The EA clearly describes the deteriorating condition of the existing bridge and it is clear that these constitute safety concerns. However, the EA concludes that rehabilitation would correct many of the safety deficiencies and the reason for rejecting the rehabilitation option is that the bridge would be still be functionally obsolete; again, as defined in the EA, this means only that it would not meet current design standards. The only justification given for the need to meet current design standards is the ADT. No data is presented on how many large vehicles currently use the existing bridge or how often two large vehicles have been unable to pass, resulting in traffic tie-ups. It seems reasonable that in the interests of preserving the historic bridge, the road could be reclassified and other measures added such as vehicle width limits with exceptions for emergency vehicles. The other reason for rejecting the rehabilitation option was higher stream impacts. This is based on constructing a temporary bridge while the historic bridge is being rehabilitated. However, the EA also presented the option of implementing a detour during rehabilitation, which would avoid those stream impacts. Lastly, the EA states that the rehabilitated bridge would require additional repair and replacement of truss members whereas a new bridge would not require repairs for approximately 30 years. However, there is no estimate of how often truss members on the rehabilitated bridge would need to be replaced over that 30 year period, nor what would be involved in replacing a truss member. This makes it impossible to determine whether or not this is a valid argument. Therefore, the rationale for dismissing the rehabilitation option is not adequate.

NPS-11

The citation of reference material in the text of the EA and its presentation in the references (Appendix A) is incomplete and inconsistent, causing confusion as to what is actually being cited. Examples of text citations missing from the references include Barbour et al. 1999 (p 36), Lincoln et al. 1982 (p 38), Cincotta et al. 1999 (p 38), Cope 1868 (p 39), NPS 1994 (p 39), NPS pers. com. 2005 (p 39), U.S. Geological Survey 1982 (p 45), and USFWS 1993 (p 45). A citation for USFWS 2005 (p 34) is not included in Appendix A, while Appendix A includes a reference to USFWS employee Douglas (2005) that is not included in the text. Other references that may be cited one way in the text while being presented differently in the Appendix A include WVDOT 2001 (pp 2, 12), SCS 1975 (pp 41, 42) and U.S. Department of Agriculture (USDA) 1993 (p 45). References noted by title in the text but listed by author in Appendix A include SITE Blauvelt 2005 (p2), Johnson et al. 2003 (p49 – cited by title one place and name-date another), Wood 2001 (p49) and Mahan 2005 (p 51). Also, Mahan 2005 is also cited as Mahan 2004. Only the latest version should be cited. Additional confusion is caused by references with the same author and year of publication are not differentiated from each other (e.g. by the use of a, b, etc.). Examples include SITE Blauvelt 2004 (two references) and KCI Technologies, Inc. 2004 (4 references). For consistency, all web references should have a publication year. This can usually be found as the "last modified" line of the website. Further, since web sites often change, the date each site was accessed for reference needs to be included in Appendix A. References and citations for personal communications should indicate the person, their affiliation, and whether the communication was written (including e-mail) or oral. For example, the citation for "pers. comm., NPS, 2005" (p39) does not indicate which of the many NPS employees provided the information, and whether it was written or oral. Further, this

information is not provided in Appendix A, where the only NPS employee referenced (incorrectly spelled – it should be Stephens) were in 1995 and 2004. Finally, references in Appendix A are not all in a similar format (e.g. author, year, title, and publisher).

NPS-11 Cont.

The inaccurate presentation of citation and reference material was noted in our response to the preliminary EA (Appendix K, comment 2-C). The continued failure to address this concern is troubling. Such lack of attention to important details can have serious detrimental effects when applied to the unique, nationally significant natural resources of New River Gorge National River.

The U. S. Geological Survey is incorrectly reference in Table 2 (p 21) as the U. S. Geological Service.

NPS-12

The WVDOH response to comments 2-E (mussel relocation), 2-F (hydrologic impacts of piers and causeways), and 2-G (mitigation) is especially disturbing. By not providing this information, WVDOH is precluding the possibility of commenting on the appropriateness and adequacy of material that should have been provided. This approach does not allow the evaluation of secondary and cumulative impacts required by NEPA, but rather tries to piecemeal together a project that, as a whole, has significant issues and may have significant impacts. While mitigation is mentioned in the EA (e.g. page 61 for Erosion and Sediment Control, Water Resources), what is provided is not mitigation, but chiefly construction management practices. Note that Table 5 (Summary of RTE; page 48) does not include mussels.

As we have stated on several previous occasions, and reaffirm now for emphasis, the unique and special qualities of the New River and its associated riparian zone within New River Gorge National River are natural resources of national significance. Such irreplaceable high-value resources are deserving of the utmost protection from actions that will cause adverse impacts. For these reasons, the National Park Service does not concur with statements in the EA that Option 4a has "the least overall impact."

NPS-13

The National Park Service is convinced that alternatives that would have the least negative impact on the significant resources of the New River and New River Gorge National River were not adequately considered. The EA did not consider bridge design and construction techniques that can avoid or minimize impacts to a resource as valuable as the New River. There are examples of hinged and tied arch bridges that span greater distances than the Pugh Bridge. There are examples of bridges built across wider spans using progressive construction techniques that build a bridge from one end to the other, both ends to the middle, or "launch" a bridge across the span. Use of such a designs and/or method would not require the placement of piers, instream falsework, or a causeway in the New River.

Even among options noted in the EA, environmentally responsible alternatives were dismissed without proper consideration. For example, Build Option 5 that would not require piers was not carried forward. Relocation of the bridge for this option, similar to that done to generate Build Option 4a, could result in the use of a common causeway for construction and demolition, thus reducing the temporary impacts to the New River. Other options not carried forward include

Build Options 1 and 2. Modifying Build Option 1 or 2 to include a taller truss structure and the use of traffic lights at both ends of the bridge to maintain alternating one-way traffic would eliminate the need to disturb the New River, satisfy safety concerns, maintain the historic nature of the Thomas Buford Pugh Bridge and contribute to the bucolic setting of New River Gorge.

NPS-13 Cont. The fact that alternatives that provide the greatest protection for the significant resources of New River Gorge National River were not considered, or were removed from consideration after cursory review, seems to indicate that lowest cost was the primary measure used to select the preferred alternative. That such alternatives may include design exceptions is a moot point, as design exceptions were included in other parts of the project. Nevertheless, design exceptions and total costs are inconsequential when compared against the protection of nationally significant resources and values occurring within a unit of the National Park System.

NPS-14 After the New River Parkway meeting held April 2, 2007 in conversation with the acting superintendent and staff of New River Gorge National River, the FHWA Division Administrator openly described the Thomas Buford Pugh bridge project as precedent-setting because of the use of piers in the New River, which had been previously eliminated from the New River Parkway bridge. The FHWA Division Administrator stated the intent to reopen the New River Parkway project and redesign the bridge to use piers in the river; further, he stated the intent to use piers in the river for two other upcoming bridge projects at Stone Cliff and Thurmond. Setting precedent is a significance criterion under the Council on Environmental Quality's implementing regulations for NEPA, which triggers the requirement for an Environmental Impact Statement (EIS). Appendix H of the EA contains correspondence from the National Park Service, the U.S. Fish and Wildlife Service and the Environmental Protection Agency, all of whom state that an EIS should be prepared. The National Park Service reiterates that statement here.

NPS-15 The EA includes a Section 4(f) evaluation for this project, which states that this project (the preferred alternative) qualifies for the *Nationwide Programmatic Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvement with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges*. Under FHWA regulations for use of the Nationwide Programmatic Section 4(f), the "officials having jurisdiction over the Section 4(f) lands must agree, in writing, with the assessment of impacts of the proposed project on, and the proposed mitigation for, the Section 4(f) lands"). In order to make the determination that the National Park Service concurs with the assessment of impacts and the proposed mitigations, we suggested in earlier comments that an EIS might be needed. As detailed in this letter, we cannot at this time understand the level of direct, indirect and cumulative impacts, and therefore, cannot agree with your assessment of impacts or mitigations nor can we concur with the use of the Programmatic Section 4(f). Further, we do not concur that there is no prudent and feasible alternative to the use of Section 4(f) lands; i.e., National Park Service lands, and we do not concur that all possible planning to minimize harm has been done.

NPS-16 The National Park Service recommends that an EIS be completed that fully analyzes direct, indirect and cumulative impacts of all build and rehabilitation alternatives, as well as build alternatives that do not require use of piers in the river. In particular, the EIS should fully

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NPS-16 Cont.

analyze the cumulative impacts from all piers that would be placed in the river as a result of redesigning the New River Parkway bridge, the Stone Cliff bridge, the Thurmond bridge and any other planned and foreseeable bridge construction and replacement projects, in accordance with the statement made by the FHWA Division Administrator during the March 20 public meeting.

For information or questions regarding our comments, please contact Deborah Darden, Deputy Superintendent, New River Gorge National River, at (304) 465-6509.

Sincerely,

for Chrysandra L. Walter
Acting Regional Director
Northeast Region

cc:
Associate Director, Natural Resource Stewardship and Science, NPS
Chief, Washington Office Environmental Quality Division, NPS
Associate Regional Director, Planning, Construction & Facility Mgmt, NPS Northeast Region
Associate Regional Director, Resource Stewardship & Science, NPS Northeast Region
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Federal Highway Administration, West Virginia Division
U.S. Fish and Wildlife Service, West Virginia Field Office
Environmental Protection Agency, Region III
U. S. Army Corps of Engineers, Huntingdon District

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

West Virginia Field Office
694 Beverly Pike
Elkins, West Virginia 26241

May 11, 2007

Mr. Gregory L. Bailey, P.E.
Director, Engineering Division
West Virginia Department of Transportation
Division of Highways
State Capitol Complex, Building Five
Charleston, West Virginia 25305

Re: January 2007 Environmental Assessment for Thomas Buford Pugh Bridge Replacement Project in Fayette and Raleigh Counties, West Virginia

Dear Mr. Bailey:

The U.S. Fish and Wildlife Service (Service) has reviewed your January 2007 Environmental Assessment (EA) for the proposed Thomas Buford Pugh Memorial Bridge replacement project in Fayette and Raleigh Counties, West Virginia. The West Virginia Division of Highways (WVDOH) in conjunction with the Federal Highways Administration (FHWA) proposes to replace the existing bridge along State Route 41 over the New River, just west of the Town of Prince in Raleigh and Fayette Counties, West Virginia. The proposed project is located entirely within the boundaries of the New River Gorge National River, which is publicly owned and managed by the U.S. National Park Service (NPS).

According to the EA, the alternative, known as Option 4a, has been selected by WVDOH and FHWA as the preferred alternative for the proposed project. This alternative would consist of the construction of a 3-span steel plate girder bridge on a new alignment downstream of the existing bridge. The new bridge would require two new piers to be placed within the riverbed of the New River. The existing bridge and existing piers would be demolished and removed from the project area. A common causeway constructed of gabion baskets would be utilized by heavy equipment (i.e., large crane) for the construction of the new bridge and the removal of the existing bridge. The proposed project is anticipated to be completed within 1.5 construction seasons.

The following comments are provided pursuant to the National Environmental Policy Act (NEPA) of 1969, and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

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Mr. Gregory L. Bailey, P.E. 2
May 11, 2007

New River Gorge National River

Resources
The New River is stated to be one of the oldest rivers in the Appalachians (Fridley 1950; Grafton and Grafton 1980). It has been speculated that the New River may be 320 million years old, making it the second oldest river in the world, second only to the Nile River in Egypt or to the Finke River in Australia (Mahan 2004). The New River originates at an elevation of 3,800 feet in the Blue Ridge Mountains of North Carolina and flows generally north. It flows 250 miles before it joins the Gauley to form the Kanawha River. The New River within the New River Gorge National River (NRGNR) is approximately 53 miles in length.

One of the outstanding features of NRGNR is the presence of the New River Gorge. The cliffs of the gorge extend for a distance of 20 miles and are primarily composed of perpendicular rock that, at its deepest point, extends 1,292 feet to the valley below. The gorge itself is a nationally significant geologic feature and is only rivaled by the Niagra cliffs in New York (Brooks 1911). The New River Gorge is an erosional feature that is important from geologic, historic, and natural perspectives. Size and topographic relief of the New River Gorge within the NRGNR make it an outstanding, nationally significant natural phenomenon (Lessing 1986).

The NRGNR supports a diverse, nationally significant assemblage of flora (Mahan 2004). The New River Gorge appears to be, floristically, the most diverse river gorge in the central and southern Appalachians (Suiter 1995). The age of the river and its long history have allowed species of plants and wildlife to develop which are endemic (found nowhere else in the world) to the New River drainage (Stauffer et al. 1995).

The expanse of mixed-mesophytic forest in which NRGNR is located is the largest remaining area of midlatitude forest in the world, making it a globally significant resource (Ritters et al. 2000). This continuous span of mixed-deciduous forest, comprised of both oak-hickory and mixed-mesophytic forest types, is one of the largest in the United States (Ritters et al. 2000). The forests in and around NRGNR support diverse populations of neotropical migratory birds and may be the source population for the cerulean warbler (*Dendroica cerulean*), a species that is declining in other parts of its range (Rosenberg et al. 2000).

A variety of habitat types within the New River, including runs, riffles, pools, pool edges, and environments created by submerged snags, support a diversity of fish and other aquatic wildlife (Purvis et al. 2002). Other habitat communities located within and adjacent to the river itself include riverscour flatrock, cold cove forests, floodplain forests, backwater sloughs, riverscour prairies, high floodplain oak forests, shrub wetlands, and herbaceous wetlands. Rare or exemplary communities found within the NRGNR include hemlock forests, Virginia pine forests, forest seeps, cliff communities, Appalachian flatrock communities, and pitch pine woodlands (Vanderhorst 2003).

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Natural riparian areas are some of the most diverse, dynamic, and complex biophysical habitats in the terrestrial environment (Naiman et al. 1993). Ten riparian habitats are known to occur within the NRGNR: mature sycamore, willow, sycamore-willow-birch, stunted sycamore-willow, hemlock/rip-rap, riparian Virginia pine (Appalachian flatrock), rock riprap, boulder, tributary, and developed (Buhlmann et al. 1987). The Appalachian flatrock community type is a globally rare ecological community that is composed of locally rare sedges, cedars, pines, and other plants and is known from only three sites in NRGNR (Buhlmann et al. 1987; Suiter and Evans 1999; Vanderhorst 2001). Several species of rare plants including many that reach their southernmost or northernmost distributional limits were found within wetlands located in the NRGNR (Eye 1981).

Over 60 plant taxa of special concern in West Virginia have been reported from the NRGNR (Suiter and Evans 1999). Rouse and McDonald (1986) and McDonald and Harmon (1989) identified two species of bittercress in the NRGNR, *Cardamine clematitis* and *C. flagellifera*, as globally rare (100 or fewer occurrences worldwide). Both species are southern Appalachian endemics, reach their northern-most limit in West Virginia, and are found in West Virginia only within the NRGNR (Rouse and McDonald 1986; McDonald and Harmon 1989; Pauley et al. 1997).

There are 63 species of mammals known to occur within the NRGNR (NPSpecies 2003). West Virginia Gap Analysis (2003) predicts the NRGNR to contain 54 of the 59 mammalian species known to occur in West Virginia, and 17 of the 22 mammalian species of special concern in West Virginia. These mammals include the Federally-endangered Indiana bat (*Myotis sodalis*) and the Virginia big-eared bat (*Corynorhinus townsendii virginianus*).

Currently, 233 species of birds are known to occur within the NRGNR (NPSpecies 2003). This represents 125 of the 168 species of birds found in West Virginia, and 25 of the 59 bird species identified as state species of special concern (WV GAP 2003). The NRGNR is globally significant in providing critical habitat for neotropical migratory birds (Mahan 2004). Peregrine falcons have been hacked at sites within the New River Gorge. In addition to the peregrine, another rare raptor, the bald eagle (*Haliaeetus leucocephalus*), has been documented within the NRGNR (NPSpecies 2003).

Thirty-eight species of reptiles have been documented within the NRGNR (NPSpecies 2003). Approximately 31 of the 39 species of reptiles of West Virginia are predicted to occur in the NRGNR, and 10 of the 16 reptile species of special concern are predicted to occur in the NRGNR (WV GAP 2003). Continuous forest, abandoned mine portals, and river/stream systems of the NRGNR provide habitat for a diverse, nationally significant assemblage of amphibians (Mahan 2004). The NRGNR contains approximately 37 of the 45 amphibian species known from West Virginia, and 10 of the 11 state species of special concern (WV GAP 2003).

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Hellgrammites (*Megaloptera* sp.) are relatively large aquatic macroinvertebrates that provide food for game fish and bait for anglers, and support a recreational and commercial bait fishery in and around the NRGNR (Nielsen and Orth 1988; Roell and Orth 1985). In the NRGNR, macroinvertebrates such as the hellgrammite are found in stream sediments, under rocks, and clinging to macrophytes (Mahan 2004).

The fish species found in the NRGNR represent 68 of the 167 species known from West Virginia, and 7 of the 68 species of special concern from West Virginia (WV GAP 2003). The New River drainage has a native fish fauna that is distinct from the rest of the Ohio River system (Jenkins and Burkhead 1994). The fauna are composed of relatively few native species with a high proportion of these species being endemic (Lincoln et al. 1982). The high rate of endemism of fish species in the New River drainage is primarily due to the isolation of the New River from neighboring river systems by Kanawha Falls (Sheldon 1988). Seven species of fish are endemic to the New River drainage, and are found nowhere else in the world (Stauffer et al. 1980; Jenkins and Burkhead 1994).

The NRGNR supports one of the most important warm-water fisheries in West Virginia and is one of the most heavily fished areas in the eastern United States (Purvis et al. 2002; Jones and Purvis 2003). The New River within the NRGNR is regionally significant from a recreational perspective. The stretch of river from Hinton to Sandstone Falls is one of the most popular fishing areas in West Virginia (Buhlmann 1990). In 2001, 318,000 state resident and nonresident anglers fished in West Virginia. Among this group of anglers, a total of 102 million dollars was spent on fishing trip-related expenditures and equipment purchases (U.S. DOI 2001). In addition, white water rafting trips through the park support a multi-million dollar a year industry.

Jirka and Neves (1987) identified eight species of mussels in the NRGNR that were predominately found on gravel, cobble, and sometimes sandy substrates. The pocketbook mussel, wavy-rayed lampmussel, elktoe mussel, mapleleaf mussel, mucket pearly mussel, pistolgrip mussel, and the pocketbook mussel have been documented in the NRGNR (Mahan 2004). Although the NRGNR supports abundant mussel fauna, it is relatively low in species diversity primarily due to physical barriers such as the Kanawha Falls (Jirka and Neves 1987).

Legislated Protection of the NRGNR
Recognizing the significant importance of the New River to the public, a number of congressional and presidential legislations were enacted in order to protect this natural resource for the use and enjoyment of future generations.

The NRGNR was established by Public Law 95-625 on November 10, 1978, for "the purpose of conserving and interpreting outstanding natural, scenic, and historic values and objects in and around the New River Gorge and preserving as a free-flowing stream an important segment of the New River in West Virginia for the benefit and enjoyment of present and future generations"

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(Mahan 2004). The authorization of NRGNR directed the NPS to administer, protect, and develop NRGNR in accordance with the Organic Act (39 Stat. 535).

In 1977, the Service and the West Virginia Division of Natural Resources (WVDNR) identified the New River Gorge as a nationally significant and unique wildlife ecosystem. Significant or unique wildlife ecosystems are areas which have wildlife or wildlife habitat values that go beyond local values in the sense that they provide substantial benefits to the public over a wide geographical area or are significantly different from other habitats in the region.

In 1986, the Service designated the NRGNR as Resource Category 1, in accordance with the Service's Mitigation Policy (Federal Register, Volume 46, No. 15, January 23, 1981). According to the Service's Mitigation Policy, the designation criteria for Resource Category 1 is as follows: habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section. The Mitigation Goal for Resource Category 1 is "no loss of existing habitat value".

The State of West Virginia designated the following as a critical resource water under provisions of the Natural Streams Preservation Act: New River from its confluence with the Gauley River to its confluence with the Greenbrier River. The Natural Streams Preservation Act declares that it be the public policy of the State to secure for the citizens of West Virginia of present and future generations the benefits of an enduring resource of free-flowing streams possessing outstanding scenic, recreational, geological, fish and wildlife, botanical, historical, archeological or other scientific or cultural values (WV State Code Article 13). The WVDNR also lists the New River as a High Quality Stream in West Virginia.

In addition, the New River is classified as an American Heritage River by the United States Environmental Protection Agency's (EPA) American Heritage River Initiative. Presidential Executive Order 13061 identifies three objectives for American Heritage Rivers: natural resource and environmental conservation, economic revitalization, and historic and cultural preservation. Section 1(j) and 4(f) of this Executive Order requires Federal agencies to develop policies to ensure their actions will have a positive effect on the natural, historic, economic, and cultural resources of American Heritage River communities. The EPA also considers the New River to be an Aquatic Resource of National Importance.

With the designation of the NRGNR, the New River area is experiencing increasing public visitation. In 1975, the number of NRGNR users was estimated at 50,000 and in 1982, the estimate grew to 100,000. By 1994, the number of public visitors had climbed to over one million per year (NPS 1994a). The public has undoubtedly shown a vested interest in the continued protection of the significant resources of the NRGNR.

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Mr. Gregory L. Bailey, P.E.
May 11, 2007

6

Proposed Bridge Piers

USFWS-1 The preferred alternative (Option 4a) would require two new piers to be placed within the New River. It is the Service's opinion that the placement of piers into the New River would cause a permanent loss of riverine habitat. Under provisions of the Service's Mitigation Policy, compensation for impacts to the New River would be unattainable. Again, the Service emphasizes that Resource Category 1 habitats such as the New River are irreplaceable, and once this resource is impacted it is considered lost in perpetuity.

USFWS-2 According to the EA, approximately 430 square-feet (0.01 acre) of riverbed would be permanently impacted by the footprint of new piers within the New River. This is a calculation of the structure footprint area only, and does not consider the biological components of the New River system. This calculation also does not take into consideration the indirect/secondary and cumulative effects of the placement of additional piers in the New River.

Currently, there are approximately 31 bridge piers located in the New River within the boundaries of the NRGNR. Indirect impacts associated with pier placement in major rivers include increased velocity, scouring of stream bottom habitats and sediments, entrainment and retention of debris on the upstream side of piers, and an increase in surface water elevation. These impacts are not just localized, but can extend considerable distances downstream (Leopold 1994; Arizona Game and Fish Department 2006). How and to what extent these factors will impact the aquatic biological community should be adequately evaluated and addressed in the NEPA document for the proposed project.

WVDOH and FHWA justifies impacting this portion of the New River by stating the following: "These (new) piers would be smaller than the piers of the existing structure and therefore would result in no net loss to the stream habitat." WVDOH and FHWA anticipates upon project completion that: "Overall, permanent impacts associated with Option 4a would result in an increase in aquatic habitat." This increase in aquatic habitat is proposed to be obtained by the removal of the existing bridge piers through the means of cutting the existing piers below the stream bed. The Service does not concur with this justification.

USFWS-3 As a result of the proposed project, the Service anticipates a loss of a *minimum* of 0.01 acre of a Resource Category 1 habitat. Indirect and cumulative impacts to the river are not yet known, but the Service anticipates additional loss of Resource Category 1 habitats as a result of these impacts. Clearly, this loss of Resource Category 1 habitat is unacceptable in terms of the Service's Mitigation Policy.

USFWS-4 Other options which may avoid impacting the New River are top-down bridge construction methods, construction of a cantilever bridge, and any other design method based on the best available science and technology. Top-down construction techniques were employed on the New

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USFWS-4 Cont.

River upstream of the Pugh at the Veterans Bridge in Hinton and the Bellpointe Bridge at the mouth of the Greenbrier River. Since these types of bridges have been constructed over the New River, the same construction methodology should be employed at the proposed project site in order to avoid adverse impacts to the aquatic environment. These types of actions are nationally promoted by the FHWA under their environmental stewardship goals in order to demonstrate that the FHWA are responsible stewards of the environment. Therefore, the best available science and technologies should be utilized when constructing this project in light of the significant resources of the NRGNR.

Proposed Construction/Demolition Causeways

USFWS-5

The EA states that the preferred alternative (Option 4a) would require a common causeway to be placed within the New River in order to construct the new bridge and demolish the existing bridge. FHWA and WVDOH propose to install a gabion basket causeway which will not require in-stream excavation. The gabion baskets would be filled with clean material to prevent fines from being washed into the New River. The EA states that the size of the gabion baskets would allow them to be overtopped, however the exact size of these gabion baskets is not mentioned in the document. The sketch of the gabion baskets provided in Appendix K is not easy to decipher, and the Service is still unsure about the size and location of placement of the proposed gabion baskets in the New River. By utilizing the gabion basket, the FHWA and WVDOH state that temporary impacts to the New River have been reduced by 0.47 acre, from an original impact of 0.99 acre to an adjusted impact of 0.52 acre. It is the Service's opinion that the placement of causeways into the New River would cause a loss of riverine habitat, regardless of the duration and nature of the impacts.

The 404(b)(1) Analysis of the EA states: "The Preferred Alternative will impact the substrate of aquatic ecosystems in the study area. This would result from the direct placement of fill materials necessary for pier placement, scour protection countermeasure construction, the installation of in-river structures such as current deflectors, the use of the riverbed as an access route to the pier locations, and by the temporary exposure to potential erosion and siltation impacts from construction activities." Water will be removed from the New River during concrete pouring. The EA goes on to state: "The movement of construction equipment and implementation of scour protection countermeasures would also result in the direct loss of aquatic organisms, especially to less mobile organisms such as mollusks and other sessile invertebrates." Obviously, scour is expected to occur as a result of the proposed project.

The causeway could modify or affect normal water level fluctuations, resulting in prolonged periods of inundation, exaggerated extremes of high and low water, or a static, nonfluctuating water level. These water level modifications may change salinity patterns, change erosion or sedimentation rates, aggravate water temperature extremes, and upset the nutrient and dissolved oxygen balance of the aquatic ecosystem. During construction the proposed project may lead to

Thomas R. Chapman – U.S. Fish and Wildlife Service, Page 7

the obstruction of water flow, changing the direction or velocity of water flow and circulation or changing the size or dimensions of the New River. Additionally, utilizing the riverbed of the New River during construction operations as an access route for equipment is not acceptable.

USFWS-6

In addition, FHWA and WVDOH should take into consideration the extreme variability of the water level of the New River to fluctuate at any given time, and particularly during certain high flow seasons. The mean discharge for the last ten years, measured at Thurmond, West Virginia, is 8,798 cubic feet per second (cfs). The maximum discharge during this period was 89,400 cfs and the minimum was 808 cfs. Generally the spring and summer are the wettest periods with October and November being the driest months. Flows of this magnitude could conceivably wash out the proposed causeways, especially since the causeways will be in place in the river for over a year.

These impacts cannot be considered temporary based upon expectations and/or assumptions that the aquatic habitat would return to pre-construction conditions after completion of the project. In reality, no one knows how long it will take the aquatic community to positively rebound in response to these changes. However, it is anticipated by the natural resource agencies that the aquatic habitat would return to pre-construction conditions after a period of *several* years.

Mussels

It is widely accepted that the existence and population dynamics of freshwater mussels are indicative of the quality and suitability of the aquatic environment to support a diverse assemblage of fish and macroinvertebrate species. Mussels depend on stable clean course substrate, good flows, high levels of dissolved oxygen, and overall good water quality.

The majority of mussel beds in the NRGNR exist in the upper third of the park (Jirka and Neves 1987). Mussels decrease significantly in abundance below Glade Creek with no living or dead mussels found in the lower eight miles of the river within the NRGNR (Jirka and Neves 1987). In addition, submerged aquatic vegetation is important for the establishment of mussel beds in the NRGNR. It is hypothesized that these submerged aquatic vegetation provide habitat to the fish hosts of the larval mussels (Jirka and Neves 1987). The EA states that: "A small portion of the project area consists of riverine shoreline transitional habitat. This habitat is a sandy and densely vegetated area located along the northern shoreline." This area is the sandbar where a large mussel bed was detected.

Increases in natural or human-induced events could result in increased streambed and bank instability, streambed scouring, erosion, and turbidity, which discourages riparian vegetation, streambed vegetation, and algal growth (Lobb and Orth 1987). Any reduction in macrophytes and the dislodging of clinging macroinvertebrates would reduce the standing stock of macroinvertebrates in the New River, and potentially, have negative impacts on fish productivity (Lobb and Orth 1987). Negative impacts on fish productivity, especially those fish species which

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Mr. Gregory L. Bailey, P.E. 9
May 11, 2007

are hosts for mussel larvae, could result in reduced reproduction and survival rates of mussels. The impacts of the proposed project could alter the existing habitat characteristics so that it no longer maintains the qualities necessary to sustain a viable mussel bed.

Mussel Survey

Pennington and Associates, Inc. and KCI Technologies, Inc. conducted a freshwater mussel survey in the New River on August 24, 2004, within the vicinity of the proposed Thomas Pugh Bridge. The survey was conducted to identify species of mussels that occur in the New River in the vicinity of the bridge including their density and location in the river in relation to the bridge. Five transects were established across the river with one upstream and four downstream of the existing bridge. Transect 2 was located at the approximate proposed bridge replacement alignment just downstream of the existing bridge. The remaining three transects were placed at 100 to 150 feet intervals downstream of Transect 2. A mussel bed was defined by the surveyors as an area with four or more mussels per one square meter. Surveyors found 3 species of freshwater mussels represented by 680 live individuals and 322 relic valves. Species found include the common mucket, purple wartyback, and the spike mussel. Transect 1 alone yielded an average of 32 mussels per square meter. The mussels found along Transect 1 outside of the mussel bed were taken directly behind the piers and large boulders where sand and silt had accumulated in velocity shelters.

USFWS-7

The Service questions the validity of the mussel survey conducted in 2004. Both the WVDNR and the Service consider one mussel per square meter a mussel bed, as opposed to four or more mussels per square meter as conducted in the 2004 survey. Therefore, the defined mussel bed area as described in the 2004 mussel survey report is insufficient at identifying the density of the mussel bed. Additional mussel species not found in the 2004 survey may be detected upon additional survey efforts. A larger mussel density and a more diversified species composition is expected to occur within the vicinity of the project. Given the density of mussels found during 2004 (680 live individuals and 322 relic valves), the mussel bed located within the vicinity of the proposed project is one of the largest mussel concentrations known in West Virginia.

The Service recommends that a proper mussel survey be conducted within the proposed impact area. The Service is available to provide guidance and technical assistance in the development of additional mussel surveys. Preliminary survey designs should be submitted and coordinated with our office and the WVDNR. Results of any mussel surveys, regardless of the findings, should be forwarded to this office and the WVNDR as soon as possible.

The WVDNR has a "no take" policy regarding native freshwater mussels. Under this policy, all native mussels (regardless of concentration amounts) are to be relocated outside the area of direct impact. The EA states: "In an effort to further minimize impacts to mussel bed areas, efforts will be taken to clear mussel beds (temporarily or permanently impacted by the project) of individual mussels and relocate the mussels to suitable habitat prior to any construction activities." The Service does not believe that this measure would effectively minimize impacts to all mussels

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Mr. Gregory L. Bailey, P.E. 10
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USFWS-7 Cont. located within the project area. Due to their small size, it may not be possible to detect smaller sized species of mussels or juvenile mussels during relocation efforts. This would result in an unknown amount of impact to a Category 1 resource.

NEPA

USFWS-8 At this point, several unaddressed impacts remain as a result of the proposed project. For example, the EA did not mention how the existing bridge would be demolished. Because of the sensitivity of the aquatic ecosystem in the NRGNR, the Service recommends that strong netting be employed beneath the existing bridge to ensure that no portions of the existing bridge fall into the New River.

The existing bridge may need to be dismantled in sections and then lifted out of the gorge in order to avoid impacting Resource Category 1 habitats. The EA also failed to mention how the new bridge piers would be anchored into the bedrock of the New River. The Service can only assume that blasting will be required to situate these structures into the riverbed. Blasting the New River streambed would be unacceptable. Additionally, the EA did not mention why causeways are absolutely necessary in order to construct the project. Other construction methodologies may exist which would not include the placement of causeways into the New River.

USFWS-9 One of the major purposes of an EA is to satisfy the NEPA process by providing sufficient information to determine whether an Environmental Impact Statement (EIS) is necessary or whether a project qualifies for a Finding of No Significant Impact. The information provided in the Final EA is not sufficient in determining the level of significance the impacts of the proposed project will have on Resource Category 1 habitats. Therefore, the Service continues to recommend that an EIS be prepared to thoroughly analyze the effects of the project.

This represents the report of the Service on the proposed project. If you have any questions regarding this letter, please contact Melissia Carter of my staff at the letterhead address or phone (304) 636-6586, extension 14.

Sincerely,

Thomas R. Chapman
Field Supervisor

Enclosure

Thomas R. Chapman – U.S. Fish and Wildlife Service, Page 10

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Thomas R. Chapman – U.S. Fish and Wildlife Service, Page 13

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Joe Manchin III
Governor

Frank Jezioro
Director

April 25, 2007

Mr. Gregory L. Bailey, P.E.
WV Department of Transportation
Division of Highways
1900 Kanawha Boulevard, East
Building Five, Room 110
Charleston, WV 25305-0430

Re: Thomas Buford Pugh Memorial Bridge Replacement Project, Environmental Assessment and Programmatic Section 4(f) Evaluation (EA), State Project S210-41-0.01 02, Federal Project BR-0041(063)E, Fayette and Raleigh Counties

Dear Mr. Bailey:

The West Virginia Division of Natural Resources (DNR) has reviewed the referenced document and offers the following comments.

DNR-1 The DNR submitted substantial comments on the Preliminary EA (PEA) for the proposed project in a letter to the West Virginia Division of Highways (DOH) dated February 27, 2006. We are greatly disturbed that the DOH has not acknowledged those comments in the EA. The New River is a water of the state and the conservation of wildlife resources supported within those waters are a DNR responsibility under Chapter § 20-2-1. The majority of our comments were very similar in nature to comments submitted by the Environmental Protection Agency, United States Fish and Wildlife Service and the National Park Service.

DNR-2 As stated in our previous comments, an EA is not the proper level of National Environmental Policy Act (NEPA) documentation for this project. An EA would be an appropriate level of NEPA documentation if no significant impacts were expected. The understood goal of an applicant when submitting an EA is to document and justify a Finding of No Significant Impact (FONSI). Any impact, temporary or permanent, to a Category 1 Resource is significant and concurrence on a FONSI for a project of this magnitude does not follow NEPA guidance.

DNR-3 A consistent comment from the resource agencies, including the DNR, was that the DOH must fully explore options that do not include the construction of a causeway. These comments

Curtis I. Taylor – West Virginia Division of Natural Resources, Page 1

DNR-3 Cont.

were inadequately addressed in the EA. Only those bridge options that were in the original PEA or slight variations were included in the Final EA. All of the currently proposed options except "no-build" and "re-habilitation" include the placement of significant fill into the New River. Simply dismissing the causeway fill as "temporary impacts" is not acceptable for a Category 1 Natural Resource. Transportation projects across the nation (Hanging Rock Viaduct-Colorado, Reedy Creek Bridge-Florida, Linn Cove Viaduct-North Carolina, Clifford Hollow Bridge- Bellpointe, West Virginia) have been completed using "Top-Down Construction" methods to minimize impacts to sensitive aquatic environments. DOH must evaluate top-down construction, cantilever or other innovative construction techniques to eliminate and/or significantly reduce fill in the New River. The common causeway option (preferred option 4a) does not satisfy this requirement.

DNR-4

The EA fails to offer any analysis concerning the impacts of a causeway on the hydraulics, sediment transport and changes in scour that would occur in the vicinity of the causeway and mussel beds. The document simply dismisses potentially devastating impacts to the protected mussel beds as temporary. In March 2006, DOH met with USFWS, WVDEP and DNR to discuss the project. In this meeting, DOH discussed a new causeway design (Engineered Boxes) that would significantly reduce impacts. However, this causeway option was dismissed in the EA. The preferred causeway design is a slight variation of the standard DOH causeway. This is unacceptable for addressing the special needs of Category 1 resources.

DNR-5

We commented on the lack of detail in reporting on the mussel survey in the February 27, 2006 letter. These concerns have not yet been addressed. The consultant identified and delineated the mussel bed using a criterion of four mussels per square meter. The DNR considers one mussel per square meter as definitive for identifying a mussel bed. Thus, the mussel bed may be much larger than depicted on the EA figures.

The closest bridge that could be utilized to cross the New River, if the Thomas Buford Pugh Memorial Bridge would close, is 40 miles away. The DNR recognizes this as a transportation issue that needs to be resolved. The DNR is willing to work in good faith with the DOH and other state and federal agencies in completing the project. A solution that will satisfy the transportation needs of DOH, while fully protecting the irreplaceable resource of the New River, must be agreed upon before the process can proceed.

If you have any questions concerning our comments, please contact Mr. Danny Bennett of my staff. He can be reached at the Elkins Operations Center (304) 637-0245 or by email at dannybennett@wvdnr.gov.

Sincerely,

Curtis I. Taylor, Chief
Wildlife Resources Section

CIT/adk

Curtis I. Taylor – West Virginia Division of Natural Resources, Page 2

HD-DD
JES
5/23/07

DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF:
Operations and Readiness Division
Regulatory Branch
New River-200400761-1
Thomas Buford Pugh Bridge

MAY 22 2007

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MAY 23 2007
Deputy State Hwy. Eng.
Development

RECEIVED
MAY 23 2007
ENGINEERING DIVISION
WV DOH

Mr. James E. Sothen, P.E.
Director, Engineering Division
West Virginia Department of Transportation
Division of Highways
1900 Kanawha Boulevard East
Building Five, Room 110
Charleston, West Virginia 25305-0430

Dear Mr. Sothen:

I refer to the approved Environmental Assessment (EA)/Programmatic 4(f) Evaluation prepared by your consultant, KCI Technologies, Inc., dated January 2007 concerning the proposed Thomas Buford Pugh Bridge over the New River, near Prince, Fayette and Raleigh Counties, West Virginia.

Our office provided comments in a letter dated February 16, 2006 on the draft EA for the above referenced project. To reiterate, we recommended the WVDOH reevaluate the temporary construction methods associated with the proposed project and stated given the level of detail provided, we could not concur the preferred alternative (Option 4a) is the least environmentally damaging practicable alternative. Based on our review of the new information contained in the January 2007 EA, we remain concerned regarding construction methods of the proposed bridge. Further, it appears the full range of practicable alternatives has not been adequately identified and evaluated. Methods such as top down construction and timing and use of multiple causeway designs were not discussed in the EA.

COE-1

In the discussion of Causeway Options located in Appendix K the document states under the Acrow Bridges that:

> "The placement of the islands for construction would be dependant on the contractor chosen for the job, their proposed erection/demolition scheme and the particular crane chosen. This information is directly related to the means and methods of the contractor and the direct extent of the proposed impact to the New River cannot be accurately quantified at this time. Dictating crane locations, thus specifying means and methods, could limit a contractor's ability to bid on the job or increase the cost of the project. Based on the unknown's associated with this causeway option (placement of islands dependent on contractor and their equipment) this option was not further considered."

Mark A. Taylor – U.S. Army Corps of Engineers, Page 1

COE-1 Cont.

Due to the nature of the high quality aquatic resource proposed to be impacted, i.e. New River, and the proximity of mussel beds in the area, the Corps believes the WVDOH should evaluate and specify the means and methods of this project to the greatest extent possible. This would require all temporary construction methods to be evaluated under the above referenced EA.

In addition, discussion of construction methods for actual pier placements was not found in the document. Temporary cofferdams and other methods need to be evaluated for their potential impacts. The New River is classified as an American Heritage River and a Resource Category 1 for its national recognition in recreation and natural resource values. Any work, including temporary work, may have an impact on this national resource.

COE-2

Therefore, the Corps recommends the WVDOH again reevaluate all temporary construction methods, including cofferdams, associated with the proposed project. Given the information currently available, we again can not concur the preferred alternative selected is the least environmentally damaging practicable alternative. Before we can provide final comments and/or concurrence on the selected alternative, you must submit a Section 404 permit application. Upon completion of the Corps review period, we will be able to provide final comments on the selected alternative. We strongly recommend the WVDOH hold pre-application meetings with the resource agencies to resolve any issues before submission of your 404 application. If you have any questions concerning the above, please contact Sarah Workman of the South Regulatory Section at 304-399-5710.

Sincerely,

Mark A. Taylor
Chief, South Regulatory Section

Copies furnished:

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Mark A. Taylor – U.S. Army Corps of Engineers, Page 2

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

May 8, 2007

Gregory L. Bailey, P.E.
Director, Engineering Division
West Virginia Department of Transportation
Division of Highways
State Capitol Complex, Building Five
Charleston, West Virginia 25305

Re: Environmental Assessment for the Thomas Buford Pugh Bridge Replacement Project

Dear Mr. Bailey:

The U.S. Environmental Protection Agency has completed its review of the Environmental Assessment (EA) for the Thomas Buford Pugh Memorial Bridge Replacement Project. The West Virginia Division of Highways (DOH) is proposing to replace the existing bridge with a newly constructed bridge on a new alignment just downstream of the existing bridge. The bridge carries State Route 41 over the New River at Prince, in Fayette and Raleigh Counties, West Virginia. The stated purpose and need of the project is to provide a bridge that meets the current WVDOH design standards and addresses the safety issues associated with the deteriorating condition of the existing structure. EPA has identified several areas of concern with the EA, including a lack of sufficient information on which to evaluate the effects of the proposed project on aquatic resources, inadequate response to EPA's comments on the Preliminary EA, lack of consideration of a full range of alternatives, impacts on rare mussel populations, and a limited discussion of mitigation options for unavoidable impacts.

The New River is regarded as an outstanding natural, scenic, and historic resource. It is one of the oldest Rivers on the North American continent and is geologically valuable. Through a variety of State and Federal legislative and executive actions, the River has been designated as a significant resource, worthy of protection in order to maintain its ecological value and integrity. In 1978 Congress added the New River Gorge National River to the National Park System to conserve the above values and to ensure access for the benefit and enjoyment of present and future generations. In 1982, the Nationwide Rivers Inventory identified four Outstanding Values for the New River, which are recreation, geology, wildlife and cultural amenities. The State of West Virginia has classified the River as a "high quality stream" and it is one of only five streams designated as a protected stream in the natural streams preservation system created by the WV Natural Streams Preservation Act. The U.S. Fish and Wildlife Service has classified the

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River as a Resource Category 1 meaning that the habitat is irreplaceable, and that no loss of habitat or value is permissible in regards to their mitigation policy. The President, under Executive Order 13093, has designated the New River as an American Heritage River, and EPA Region III considers the New River to be an aquatic resource of national importance (ARNI).

EPA-1 In light of the exceptional importance and value placed on the New River and its natural resources, the utmost care and consideration should be taken to avoid and minimize adverse impacts, including temporary impacts, to the maximum extent practicable. EPA believes that all practicable alternatives have not been evaluated, including top down construction, alternative causeway designs which allow for flow through and minimization of downstream sedimentation and scour effects. EPA believes that top down construction or the use of very limited fill in the River is a practicable alternative and is warranted for further consideration and study. The uses of such construction methods are already proven on the New River. Work was performed upstream of the Pugh Bridge at the Veterans Bridge in Hinton and the Bellpointe Bridge at the mouth of the Greenbrier River using this construction methodology. Since the impacted resource is the same (i.e., the New River), efforts to avoid and minimize adverse impacts from the Pugh Bridge replacement alternatives deserve at least equal consideration. As stated in our comments on the Preliminary EA, "considering the sensitivity and value of the New River, we recommend that alternatives without causeways and features in the river be considered. While certain impacts are temporary in nature, they may be significant."

EPA-2 The alternatives that were carried forward are limited in their scope of analysis. There is insufficient information or study on the potential effects of the proposed project to make a determination as to the level of significance this project has on the aquatic resources. There is no discussion of proposed or alternative construction techniques and methodologies. This information, even in a general description, is needed to demonstrate that all avoidance and minimization measures have been considered and employed. More analysis is needed of the alternatives carried forward to ascertain the possible impacts to the mussel resources upstream and downstream of the project location, including the hydrological effects of the new piers, removal of the old piers, and especially the placement of the causeway in the River.

EPA-3 In our comments on the Preliminary EA, we asked that secondary and cumulative impacts be identified for this project and be evaluated. The discussion of these impacts in this document remains inadequate. Also no discussion of compensatory measures that may be used to offset the proposed project's impacts is included in the supplemental information.

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EPA is also concerned with the impacts that this project may cause to high value mussel resources of the New River. The State of West Virginia is one of only a few states that protect all mussel species. The largest diversity of freshwater mussels is found in the continental United States with over 300 different species. The waters of West Virginia are home to 69 of those species. Mussels provide significant ecological and economic benefits. Their existence is indicative of high water quality and stream stability. Mussels live in aquatic habitats that are marked by running water with high oxygen content and a substrate of silt, sand, gravel, or cobble with little sedimentation. "Because freshwater mussels are filter feeders, often dependent on one species of fish for reproduction, and are basically sedentary and quite long lived, they are adversely affected by long-range water quality problems, physical barriers such as dams and locks, and changes in abundance of fish, algae, and other microorganisms." (West Virginia Wildlife Action Plan).

EPA-4 The mussel survey conducted during preparation of the EA identified three different species in the project vicinity: the common mucket (*Actinonaias ligamentina*), the purple wartyback (*Cyclonaias tuberculata*), and the spike (*Elliptio dilatata*). The purple wartyback is listed as a state rare species, even though it was not identified in the EA as such. In the West Virginia Action Plan, it is identified as a species in the greatest need for conservation and is ranked as an S1, meaning there are five or fewer documented occurrences, or very few remaining individuals within the state; extremely rare and critically imperiled. It is possible that additional sensitive species may be present and affected, but were not located during the limited survey conducted in support of the EA. Downstream, approximately 0.5 miles below the project site, the green floater (*Lasmigona subviridis*), a state rare species, was identified and the project location is also within the known range of the pistol grip mussel (*Tritogonia verrucosa*), also a state rare species. Finally, although the survey is just a representative sampling, the population estimates are considered significant by State standards. The EA provides very little analysis on the impacts that the placement of the causeway will have to this significant and highly valuable resource. Stating that the impacts are of a temporary nature does not provide details on the type of impacts or the time frame which the resource will be subject to stress. Without such information, it is difficult to make a determination as to the significance of the impacts or to develop any mitigative efforts to avoid or minimize them.

EPA-5 EPA considers the New River to be an important, unique and highly valuable resource worthy of the utmost protection. Proposed projects on the River should avoid and minimize all adverse impacts to the maximum extent practicable. The commitment to protect the important resources of the New River has been established with other projects in the area, including the bridge replacement projects upstream and the commitment made in the Record of Decision (ROD) for the New River Parkway to avoid placing fill in the River. We recommend that these precedents continue on the Pugh Bridge project and future projects Impacting the New River.

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EPA-6 Thank you for the opportunity to provide comments on the Environmental Assessment for the Thomas Buford Pugh Memorial Bridge Replacement Project. EPA has found that the document lacks sufficient information to determine if significant adverse effects to aquatic resources of the New River are likely to occur. Therefore, EPA continues to recommend that an Environmental Impact Statement (EIS) be prepared to thoroughly analyze the project and its alternatives. EPA remains committed to working with WV DOT and other involved agencies to identify and develop an environmentally acceptable resolution to our concerns, and encourages additional discussions in an effort to clarify and resolve the issues raised in this letter. If you have any questions or comments, please contact Jessica Martinsen at 215-814-5144.

Sincerely,

William J. Hoffman, Associate Director
Office of Environmental Programs

Enclosures

cc: Ed Compton, FHWA
Tom Chapman, FWS
Roger Anderson, WVDNR
Jesse Purvis, NPS
Sarah Workman, COE

TOTAL P.05

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Responses to Agency Comments on the EA/4(f)

Impacts to New River and Associated Resources

General Impacts to aquatic, environmental and cultural resources: NPS-1, DNR-1

As required under NEPA, all of the bridge replacement alternatives were evaluated to meet the project needs, assess temporary/permanent/cumulative environmental impacts and to select/identify a preferred bridge replacement alternative. It is understood that regardless of which alternative is selected there will be impacts to environmental resources, both aquatic & terrestrial, and to historic resources. Temporary impacts to aquatic and terrestrial resources and permanent impact to the historic bridge, will be mitigated as described in the EA. ***Coordination with resource agencies since completion of the EA has resulted in refinements to proposed mitigation measures. The updated Mitigation Summary is included in the FONSI text***.

Impacts on aquatic habitat from bridge piers: NPS-2, USFWS-1, USFWS-5, COE-1, EPA-2

Environmental and engineering studies/analysis commensurate with the level of detail needed to complete the EA were conducted during the preliminary engineering and environmental clearance stage of the project. Detailed H&H studies were not required during this stage in order to design the various bridge replacement alternatives included in the EA. After receiving comments from the resource agencies, the FHWA and WVDOH initiated additional environmental and engineering studies in the project area to evaluate secondary impacts (i.e. changes in river flow, hydraulics, scouring/channel degradation, deposition/channel accretion), associated with construction of the preferred alternative, including use of a construction causeway and temporary bridge.

The additional studies conducted for WVDOH in 2010 and 2011 included a shear Stress Analysis, a New River Substrate Characterization and an updated Mussel Survey of the New River in the vicinity of the Thomas Buford Pugh Memorial Bridge. The substrate characterization included development of a Textural Facies Map that showed the riverbed has a stable framework of cobble and boulder material with uniform distribution of gravel, cobble and boulder. The mussel survey searched for mussels within 17 transects spanning the river and defined the location and shape of the mussel bed along the right descending bank of the existing Thomas Buford Pugh Memorial Bridge; 884 live mussels were located and the presence of the bed was confirmed.

The HEC-RAS model/shear stress analysis showed that there is basically no change in the shear stress in the New River between the existing and proposed condition with the preferred bridge alternative. The proposed new bridge will not generate a significant change in shear stress post-construction. However, the shear stress has the potential to increase at the location of the temporary construction access and/or temporary bridge structures and then experience small decreases in shear stress upstream of the temporary access. The results of these analyses are included in the post EA analysis reports provided to the agencies for review. ***Electronic copies of these reports are included with the FONSI. More detailed discussion of the engineering refinements designed to further minimize impacts to the New River and aquatic habitat is included in the FONSI text.***

Regarding the effects of bridge piers as obstructions that fragment aquatic habitats, the existing piers (Pugh Bridge and the adjacent Norfolk Southern Railroad Bridge) do not appear to have negatively altered or fragmented the aquatic habitat in the study area. They have created areas of backwater/eddies and small pools that add diversity to the aquatic habitats in the New River at this location. The pool/eddy

area on the right descending bank that was created and protected by two instream highway bridge piers was the primary mussel concentration identified during the 2004 and 2010 mussel surveys.

The WVDOH recognizes that there will be temporary impacts associated with the proposed causeway construction and operation. However, it is unclear as to how these impacts will cause a loss of riverine habitat other than temporarily when it is constructed and in use for this project. As stated in the May 11, 2007 USFWS letter, "it is anticipated by the natural resource agencies that the aquatic habitat would return to pre-construction conditions after a period of years." Assuming that this occurs, the impacts associated with the construction access should be temporary without a permanent loss of riverine habitat.

As noted Table 1, in Section 4.0 Summary of Mitigation and Responsibilities of the FONSI, pre- and post-construction activities will be undertaken to mitigate impacts to aquatic habitat. These activities include:

- ***Freshwater mussels that are located in the direct impact area of the construction will be collected in accordance with the current West Virginia Mussel Survey Protocols and will be relocated to suitable habitat.***
- ***Approximately 3,000 mussels that are located in the direct impact area of the construction will be taken by the WVDNR to be used in restoration projects on the Monongahela and Ohio River watersheds.***
- ***The mussels that are taken by the WVDNR will be monitored as part of the restoration projects.***
- ***The WVDOH paid a geneticist to conduct genetic testing on Actinonaias ligamentina (mucket) species of mussels to ensure their viability in the restoration projects on the Monongahela and Ohio River Watersheds.***
- ***A post-construction substrate survey will be undertaken within the direct impact area of the channel in order to assess and document changes in the channel substrate condition and composition. This survey will be conducted one year after construction is complete and five years after construction is complete.***
- ***A post-construction mussel survey will be conducted within the direct impact area of the channel in order to document and ensure that mussels are recolonizing the area that was impacted by construction. This survey will be conducted one year after construction is complete and five years after construction is complete. If it is determined by this survey that recolonization is not occurring the WVDOH will work with the WVDNR and NPS to determine what mitigation may be warranted.***

Cumulative impacts: NPS-3, USFWS-2, EPA-2, EPA-3

WVDOH and FHWA acknowledge that the proposed roadway/bridge projects (Stone Cliff, Thurmond, New River Parkway) noted by the NPS in their letter are separate and distinctive projects. These projects are located at least 8 miles downstream (Stone Cliff and Thurmond) or upstream (New River Parkway) from the Thomas Buford Pugh Memorial Bridge.

It is recognized that each project will have impacts on natural and cultural resources in the immediate vicinity of their respective bridge. It is further assumed that impacts from these projects would be localized and impacts to areas upstream or downstream of the bridges would diminish proportionally to distance from the bridge. Further, it is likely that these projects would not be undertaken simultaneously and therefore, resources and habitats would have time to recover from impacts related to construction and removal of causeways and replacement of bridge piers.

Review of the *General Management Plan/Environmental Impact Statement and Foundation Plan for New River Gorge National River* (NPS 2011) indicates that few NPS projects have been previously undertaken or are currently underway in the study area for the Pugh Bridge replacement project. Under the Preferred Alternative (Alternative 5) of the GMP/EIS, future projects in the area of the Pugh Bridge may include construction of new trails and enhancement of existing ones (Grandview areas); construction of new campgrounds and/or expansion of existing ones (Glade Creek); provision of new river access and campground at Terry Beach; and rehabilitation of the Prince Brothers General Store and restoration of the cultural landscape in the area. ***It is anticipated that replacement of the TBPM Bridge will have a beneficial impact on these proposed projects by providing a safer bridge to access these areas by vehicles, pedestrians and cyclists.***

Engineering analysis of shear stress and HEC-RAS modeling of the reach of the New River in the project area, was conducted by the WVDOH during 2010 and 2011 to assess the potential impacts associated with the new bridge piers, temporary construction access and temporary bridge structures in the New River. The HEC RAS modeling results show that there is basically no change in the shear stress in the New River between the existing and proposed condition with the preferred bridge alternative. The proposed new bridge will not generate a significant change in shear stress post-construction. However, the shear stress has the potential to increase at the location of the temporary construction access and/or temporary bridge structures and then experience small decreases in shear stress upstream of the temporary access. There are no changes noted in the shear stress downstream of the construction area. Refer to the *Shear Stress Analysis of the New River Report* for additional information. ***Electronic copies of these reports are included with the FONSI. More detailed discussion of the engineering refinements designed to further minimize impacts to the New River and aquatic habitat is included in the FONSI text.***

Causeway impacts and secondary impacts: NPS-4, DNR-4, EPA-1, COE-1, EPA-3

Causeway options were included in the *Options Studied Report* (TRC 2009). Although no hydraulic analysis was performed on the causeway options, waterway openings and ability to pass river flows were considered in the investigations. Additional factors considered in the investigation included: causeways designed to overtop or pass the Q_{25}; dimensions related to construction method requirements; anchorage to river bed; and minimize disturbance to stream bed. Three potential causeway options that minimize impacts to the stream include Gabion Baskets, Acrow (temporary) Bridge with Sheet Pile Cells and Acrow Bridge with Gabion Basket Islands; the latter two options would require further study to refine the design.

After completion of the EA and receipt of resource agency comments in 2007, additional engineering studies were conducted to refine the common causeway design and construction details, with the goal of further minimizing impacts to the aquatic resources and habitat in the New River. The studies included analysis of the river bottom and flow, consideration of various causeway configurations and refinement of bridge alternates. To determine impacts on the aquatic resources of the New River, a shear stress analysis of the New River was conducted to evaluate the changes (i.e. increase or decrease) in shear stress with the common causeway options at specific river discharges, 10-, 25-, 50- and 100-year storm events. Option 4a and its associated Causeway Alternate B2 (Gabion Basket Island Common Causeway) have been designed to minimize impacts to the New River and its aquatic habitat. Unlike a conventional causeway that would wash out either from a high water event or after construction and demolition are complete, the preferred causeway will be designed to not wash out even during a 10-year flood event and will be removed intact at the end of the project.

WVDOH, KCI and TRC prepared a proposal (White Paper) for sediment analysis of the Thomas Buford Pugh Bridge in 2008. The White Paper proposed using the HEC-RAS 4.0 method to determine whether stream substrate scour or deposition is occurring under various stream geometries, such as new pier locations, construction causeway structures and removal of existing bridge pier obstructions. This analysis showed that there is basically no change in the shear stress in the New River between the existing and proposed condition with the preferred bridge alternative. The proposed new bridge will not generate a significant change in shear stress post-construction. However, the shear stress has the potential to increase at the location of the temporary construction access and/or temporary bridge structures and then experience small decreases in shear stress upstream of the temporary access. ***Electronic copies of the studies and reports prepared between 2008 and 2013 are included with the FONSI. More detailed discussion of the engineering refinements designed to further minimize impacts to the New River and aquatic habitat is included in the FONSI text.***

It is acknowledged that the placement of a causeway and replacement of piers would impact habitat and stream flow in the vicinity of the existing bridge. Further, it is noted that the river is a dynamic resource that constantly adjusts to changing conditions. As noted in USFWS letter dated May 11, 2007, "it is anticipated by the natural resource agencies that the aquatic habitat would return to pre-construction conditions after a period of several years." ***The mitigation plan developed for the New River and its aquatic habitat includes relocation of mussels in the direct impact area and completion of post-construction studies of the river and habitat.***

Variability of water level: USFWS-6

The WVDOH and FHWA are aware of the extreme variability in stream flow/levels that occur in the New River within the NRGNR. The variability in stream flow, velocities and surface water elevations all were taken into consideration in the design and construction of any temporary construction access or temporary bridge structure for this bridge replacement project. These are conditions that exist on any bridge replacement project and are not unique to this project. It is expected that the New River will exhibit flow/discharge levels that will over top the temporary construction access structure sometime during the construction period for this project. The construction access will be designed to withstand the shear stress and velocities and to remain intact at the higher river flow levels. During periods of high flow, work on the bridge from the construction access structures will stop with equipment and materials moved to higher ground.

Freshwater Mussel Issues/Comments

Mussels/species of concern: NPS-5, EPA-4

The WVDOH coordinated with the USFWS, NPS and WVDNR regarding the presence of any federally listed or state Rare/Threated/Endangered (RTE) species in the project study area. No federally listed species were noted as occurring in the project study area, however, timber cutting restriction may be implemented due to the acreage of clearing required for this project to protect potential endangered bat species. The WVDNR standard for restrictions on timber cutting in the area of endangered species is 17acres. In correspondence from the WVDNR, one state listed mussel, the green floater (*Lasmigona subviridis*), was noted as occurring in the New River approximately 2 miles below the Pugh Bridge study area. None were observed during the mussel survey conducted in 2004. One relict/dead green floater shell was found along the left descending shoreline of the New River near Transect 6A during the 2010 mussel survey conducted for this project. While the state RTE listed species noted in this NPS comment have been reported from the New River, none are federally protected with the exception of the bald eagle. Other than the three mussel species observed during the two mussel surveys, no other state RTE listed species were observed during field surveys and/or studies conducted for this project.

The Purple wartyback mussel is a state RTE listed species that was observed during the August 2004 mussel survey of the New River at the study area. This mussel was inadvertently left off of Table 5 – Summary of RTE Species or Other Species of Special Status (EA P. 48) and in the discussion in Section 8 – RTE Species. It is recognized that this is not a federally listed T/E and is considered by the WVDNR as State Rank S1. It has a global rank of G5 which is "very common and demonstrably secure, though it may be rare in parts of its range, especially at the periphery".

Mussel beds not static/impacts: NPS-6, USFWS-7, DNR-5, EPA-4

Two mussel surveys were conducted for this project, one in 2004 and a second survey in 2010. The purpose of both mussel surveys was to determine the species composition, location and relative density of mussels in the New River within the potential area of effect of the proposed bridge replacement project.

2004 Survey - During the first survey in 2004, over 60-man hours were spent searching an area of over 2,500 square meters along 5 transects for the presence of freshwater mussels in the New River upstream and downstream of the Thomas Buford Pugh Memorial Bridge. The results of the mussel survey are attached to the EA/4(f) in App. G. The occurrence of mussels were noted for each transect and from within the shallows along the right descending river bank. Very few mussels were observed along and within the main channel/thalweg of the river adjacent to the left descending river bank extending to mid-channel. Substrates in this area of channel were not suitable mussel habitat consisting of flat bedrock with scatted medium to large boulders. The only mussels observed in the main channel area were isolated individuals in velocity shelters behind boulders or in cracks in the bedrock. Another factor that may be limiting the number of mussels in the shallows from mid-channel to the left descending bank is that this area is exposed at low flow periods to very little to no water flow during dry periods.

2010 Survey – During the second survey in 2010 a two-diver mussel survey crew (with assistants) spent 6 days surveying the aquatic habitat/substrates of the New River along 17 shore to shore transects. The 17 transects spanned the New River along a 1,200 foot reach of the river channel upstream and downstream of the existing bridge structure and proposed bridge alignment. The mussel survey/transects were located along 7 transects that were evaluated in the HEC-RAS study and 10 additional transects located within the area of direct and indirect impact of the proposed bridge. The results were similar to those reported in the

2004 mussel survey. A concentrated mussel community was observed off of and along the right descending bank, beginning at the existing bridge upstream approximately 350 feet. This mussel concentration was observed during the 2004 survey. It is worth noting that this concentrated mussel community has not changed in aerial extent since the 2004 survey. A less concentrated mussel community was observed along the left descending shoreline from approx. 150 feet upstream to approximately 350 feet downstream of the existing bridge. As noted during the mussel survey conducted in 2004, very few mussels were observed within the main river channel during the 2010 mussel survey. The possible reasons for this low abundance within the river channel are noted above. The results of the 2010 mussel survey are summarized in the Final Mussel Survey of New River Report (DBC, 2011) that was distributed to the resource agencies.

Impacts to the mussel community and aquatic habitat of the New River in the project area will be mitigated by:

- Where possible, direct avoidance of mussel bed (s) and habitats during construction.
- Relocating mussels that are within the direct impact/construction zone. Mussels would be relocated to suitable habitats up and downstream of the area of impact of the project.
- Minimizing the impact of scour and deposition through the design of temporary construction access/causeway structures that don't increase or decrease flow velocities and shear stress.
- Restoration of aquatic habitats in the New River after completion of construction.
- Removal of all temporary construction access structures, debris and materials from the New River.
- Compensate WVDNR for estimated lost mussels.
- Establish a long-term monitoring agreement.

Specific mitigation commitments and measures to mitigate impacts are included in Table 1 in Section 4.0 Summary of Mitigation and Responsibilities of the FONSI.

Additional Clarification is noted herein: Under the Mussel Survey Section, page 9, paragraph 3, there is a statement that "the Service questions the validity of the mussel survey" based on the definition of a mussel bed as four or more mussels per square meter as opposed to the USFWS current definition (reference unknown) as one mussel per square meter. It does not matter which definition is used because with the exception of Transect 1, all individuals collected along each transect were identified and counted. This means that Transect 2 had less than 0.17 individuals per m^2, Transect 3 had less than $0.18/m^2$, Transect 4 had less than $0.08/m^2$ and Transect 5 had less than $0.03/m^2$.

If the USFWS new definition of a mussel bed is used, the mussel bed along the descending right bank still begins at approximately 50 feet from the bank and ends about 150 feet from the descending right bank and still has an average of 33 individuals per m^2. The upstream and downstream boundaries do not change. As stated in the 2004 Mussel Survey Report " a mussel bed was found along the right descending bank beginning approximately 100 feet upstream of the existing railroad bridge, extending out to the nearest pier (~150 feet) and downstream to the shallows just below the existing Hwy 41 bridge". This statement is still correct.

The USFWS also states "a more diversified species composition is expected to occur within the vicinity of the project" implying that the investigators missed rarer species. Over 60 man-hours were spent searching an area of over 2500 m^2 of river bottom. Five SCUBA divers (biologists with many years of experience) worked the transects, four individuals searched by snorkel and with view boxes in the shallows and a malacologist verified all material found. KCI also expected to find more species but just

because we found only 3 species represented by over 1000 shells does not invalidate the study. KCI conducted a similar study two years earlier eight miles downstream at the Stone Cliff Bridge Site on the New River using an almost identical study plan. At that site five mussel species were found. That survey added a new mussel species previously not considered occurring in that particular section of the New River.

A second mussel survey of the New River was conducted for this project by KCI/DBC in 2010 along 17 transects located upstream and downstream of the existing TBPMB. Results similar to the 2004 survey were observed, including the presence of a higher density mussel community along the right descending shoreline at and upstream of the existing bridge. This mussel community was noted by the USFWS, who stated "within the vicinity of the proposed project is one of the largest mussel concentrations known in West Virginia."

An electronic copy (CD) of the 2010 Mussel Survey of the New River Report is included in Appendix D of the FONSI.

Mussel relocation: NPS-8, USFWS-3

Mussel Relocation – It was not the intent of the EA to provide a discussion of the success, or lack of success, of mussel relocations in the U.S. While it is recognized that mussel relocations are an emerging field, the WVDOH must rely upon the USFWS and other state/federal agencies for their guidance, expertise and assistance with this task. The WVDOH has been successfully relocating mussels on other projects within the State of WV under the approval and guidance of the DNR and the USFWS. It may be possible to limit the area of disturbance to the mussel bed, thus considerably reducing the number of mussels requiring relocation. The majority of this mussel bed is located upstream of the area of direct impact for this project. The FHWA and WVDOH will coordinate further with Janet Clayton at the WVDNR and USFWS/NPS biologists regarding possible mussel relocations, the selection of a suitable mussel relocation site (s) in the New River and development of a monitoring program to document the success of the mussel relocations. ***WVDOH has undertaken coordination with WVDNR and USFWS to develop a plan to relocate mussels in the direct impact area and to conduct post-construction studies. Further details of this mitigation can be found in the Mitigation Summary located in the FONSI text.***

Resource Category 1 – The FHWA and WVDOH through the EA process and subsequent environmental and engineering studies and analyses conclude that the construction of the proposed bridge replacement project will not have an adverse impact on habitat value and there will be no significant cumulative impacts on the New River aquatic habitats. This is based on the results of the shear stress analysis that show no significant changes in the shear stress/scour of the new/proposed bridge structure in the New River and that the changes in shear stress/scour associated with the construction access structure are temporary and will return to pre-construction levels after the temporary structure is removed.

It is also noted that while there will be permanent loss of 430 square-feet of riverine habitat by the construction of two new piers, this will be offset by the riverine habitat restored/gained by the removal of the two existing bridge piers. The two new piers will have a smaller footprint, thus covering less area of habitat than the two existing piers.

Mitgation

Non-specific/general mitigation discussion: NPS-7, EPA-3

Mitigation – The assessment of mitigation measures (avoidance, minimization, rectifying, impact reduction, and compensation) is an integral part of the National Environmental Policy Act (NEPA) process. Mitigation measures discussed in the EA are typical measures for highway and bridge replacement projects. Resource specific mitigation commitments and other possible measures to mitigate impacts will be provided in more detail in the decision document. These mitigation measures/commitments will be commensurate to the level of impact for each particular resource. ***Coordination with resource agencies since completion of the EA has resulted in refinements to proposed mitigation measures. The updated Mitigation Summary is included in the FONSI text***.

Land transfer/vague mitigation statements: NPS-9

As stated in the EA/4(f), coordination with WVDOH, FHWA and NPS would be required to determine whether land transfer mitigation would be appropriate and to identify suitable land to replace the approximately one-third acre of land that would be permanently acquired under the preferred option. More specific mitigation measures for impacts to the New River, aquatic resources, floodplains, and water resources will be developed once agreement is reached among resource agencies, WVDOH and FHWA regarding the quantity and quality of impacts on these resources.

Consideration of Other Alternatives and Construction/Demolition Techniques

Rehabilitation of historic bridge: NPS-10

The load capacity and limited vertical and horizontal clearances are factors that have led to classification of the bridge as "functionally obsolete." Based on the analysis presented in the *Options Studied Report* (TRC 2009), the rehabilitation option seeks to increase the load-carrying capacity of the structure to current design standard using repair/strengthening details that preserve as much of the history integrity as possible. It is further noted that while extensive rehabilitation can increase the load capacity of the structure, increasing the width from 20'-3" to the required 28'-0" would be difficult and costly. Widening the truss bridge also would likely affect the historic integrity of the structure.

The 2009 TRC report notes that the rehabilitation option would require either extensive repair or replacement of the approach spans; repair and/or strengthening of the bottom chord, top cord, diagonals and verticals; reconstruction of the portals and sway frames; replacement of the floor system and deck; and rehabilitation of the piers. Three traffic maintenance options were presented in conjunction with the rehabilitation options: implementing a 61-mile detour, which would pose a hardship to the traveling public; building a temporary bridge, which would increase impacts to the stream and natural resources; or using phased construction, which would require temporary closures and lengthen the construction timeline.

It is estimated that costs to maintain the structure could reach $3,750,000, which assumes bi-annual damage assessment and repair costs of $250,000 over 40 years. Further, based on the nature of the proposed repairs and age of the structure, bi-annual inspections (at a minimum) would be required.

A channel beam comprising one half of the vertical member on the downstream side of span #5 was broken. The member was repaired by the District 9 staff on September 28, 2011; however, the bridge

posting was adjusted from 15 tons to 3 tons by Commissioner's Order dated October 25, 2011. In November 2011, height restrictions were placed at both ends of the bridge to limit large vehicles from using the bridge. Since the weight and height restrictions were placed on the bridge, vehicles that exceed the posted limits have been observed using the bridge.

The most recent inspection report for the Pugh Bridge, dated September 30, 2011, rated the structure in critical condition. The substructure was described as in "generally poor condition" with spalling, cracking and efflorescence, and deterioration of expansion filler; the superstructure condition was described as "generally critical" with section loss, broken and separated clip angles, popped rivets, impact damage, rust scale and surface rust. The floor system and lower chord members are deteriorated and the deck is in poor condition; and the railings show moderate impact damage. The report recommended that the bridge be inspected every 3 months to more closely monitor the condition of the truss spans. It was further recommended that with the continuing decline of the structures, it should be replaced.

Since approval of the EA/4(f) document in 2007, the WVDOH and FHWA initiated additional environmental studies, engineering analyses and design reports/plans. These additional studies and analyses were conducted in support of the proposed bridge replacement project and to reflect current project information and engineering design.

Meetings were held in November 2011 and February 2012 to provide an opportunity for members of the public to share their comments and concerns about the project. The November 2011 meeting with selected local stakeholders, including emergency responders, rail line operators, WV Delegate Margaret Staggers, and representatives from the NPS was held to inform the stakeholders about the current status of the existing bridge and the weight and height restrictions that had been placed on the structure in September 2011. The February 2012 public meeting was held to inform the public about the status of the project and to request their comments on the two options for addressing the safety issues associated with the condition of the current TBPM Bridge. The majority of the respondents (62%) expressed support for constructing a new bridge, with approximately 40% of this group specifically citing their preference for building a new bridge downstream of the existing bridge, which would allow traffic to be maintained on the existing bridge during construction.

Inadequate consideration of alternatives: NPS-13, USFWS-4, DNR-3, COE-1, COE-2, EPA-1

Specific construction techniques, such as progressive or "top-down" were not included in the engineering studies for this project. Although this method would not require a placement of a causeway in the river for construction of the new bridge, it is assumed that a causeway would be required for demolition of the existing bridge.

Build Option 5 (Single Span Truss Bridge) was carried forward for detailed study and analysis of this option on natural, cultural and socio-economic resources was included in the Affected Environment and Environmental Consequences section of the EA. Although this option would not require placement of piers in the river, it would require false work in the river to support erection of the truss and two separate causeways – one for construction of the new bridge and one for demolition of the existing bridge. Further, Option 5 would have similar permanent and temporary impacts to natural and cultural resources as other options, and would have the highest cost.

Although Build Options 1 and 2 (Rehabilitation of the Existing Truss Bridge) also do not require placement of piers in the river, the extensive repair work required to increase the load capacity of the structure and the need for frequent maintenance and inspections, along with the high costs, made this

option less favorable. Refer to response regarding rehabilitation of the bridge above for further information and discussion of the current condition of the bridge.

While cost was not the primary measure used to select the preferred alternative, it is considered an important factor in the analysis. The Rehabilitation options and the Single Span Truss option would result in comparable environmental impacts as other alternatives, but would cost over 2.5 times more than the recommended preferred option.

The *Options Studied Report* (TRC 2009) provided additional analysis regarding causeway and cofferdam options that would minimize, to the extent possible, impacts to the river and aquatic resources. ***Subsequent to completion of the EA/4(f), additional engineering studies were conducted to further analyze alternatives that would not require working in the river. Based on the site conditions (steep banks and depth and velocity of the river), it was determined that these alternatives were not feasible. Further, it should be noted that the specific situations and conditions characteristic of the projects at Hinton and Greenbrier noted in USFWS-4 comment are different than those that exist at the Pugh Bridge project area. These are smaller bridges and available alternate crossings were located nearby, so lengthy detours or temporary bridges were not required. Finally, the physical conditions at the Pugh Bridge project area, including steep banks, do not permit top-down construction techniques.***

Demolition of existing bridge and construction of new bridge: USFWS-8, COE-1, EPA-1

Because of the current condition of the existing bridge, it will be demolished. The *Options Studied Report* (TRC 2009) notes that the design consultant conducted a preliminary study to determine a method to dismantle the existing truss without dropping it into the New River. This plan would use two 350 ton cranes, sitting on the north and south causeway, to dismantle the simple truss in two pieces. Further study may be required to provide additional details regarding the demolition of the bridge. It would be physically impossible to use any type of netting to prevent portions of the bridge from falling into the New River during demolition. ***The studies undertaken to develop the bridge and causeway alternates assumed that the existing bridge could be carefully dismantled and removed in sections using a crane to move the pieces so that the old superstructure elements would not fall in the river. However, based on the advanced deterioration of the existing bridge, it is unlikely that the truss sections can be dismantled and removed without them breaking apart and falling into the river as they are moved. Therefore FHWA and WVDOH have acknowledged that the existing bridge will be dropped in the river in a controlled demolition. It is anticipated that the truss would be in the water no more than 15 calendar days. It is estimated that the construction and demolition phases of the project will be completed in two construction seasons. This estimate takes into account weather delays and winter work stoppage.***

Single circular column pier with hammerhead caps are proposed for the Three-Span Plate Girder with Common Causeway Option (Preferred). ***The piers for the new bridge will be anchored into the bedrock by drilling into the river bed. The piers will be founded on single drilled caisson foundations. It is anticipated that blasting will not be required to set the piers.***

Adequacy of NEPA Documentation and Section 4(f) Evaluation

EIS should be prepared: NPS-16, USFWS-9, DNR-2, EPA-6

Based on the assumption that there are no significant impacts and no public controversy, WVDOH and FHWA have determined that preparation of an Environmental Analysis/Programmatic Section 4(f) Evaluation is adequate to analyze the impacts of the proposed Thomas Buford Pugh Bridge Project on natural, cultural and socioeconomic resources under NEPA. The EA studies included consideration of a wide array of alternatives, involving site analysis and development of three alignment alternatives, 10 span arrangement options, and detailed study of 4 alignment options. Additional studies were conducted in 2009-2011 to provide further information and analysis of potential impacts to the river and aquatic resources.

Precedent setting by FHWA: NPS-14, EPA-5

This is a separate and distinctive project from other structure replacements elsewhere on the New River.

The WVDOH and FHWA recognize the importance of the New River particularly for the role it plays in supporting natural and cultural resources, as well as its significance as a scenic and recreational area attracting visitors to enjoy the park and its features.

Do not agree with use of Programmatic Section 4(f) Evaluation: NPS-15

This comment was discussed at the October 24, 2007 Agency Meeting, with follow-up from Ed Compton, FHWA, in an email sent to Deborah Darden, NPS, later that day. In the email, Mr. Compton noted that the additional studies discussed at the meeting would provide information and further analysis of impacts on the existing habitat value of the Category 1 resource. If the results of these investigations conclude that there is no loss of existing habitat value, FHWA would prepare the Programmatic Section 4(f) Evaluation and request that NPS concur in the use of this documentation. ***The Programmatic Section 4(f) Evaluation for the New River Gorge National River has been revised to include discussion of these studies. The revised evaluation is located in Appendix D of the FONSI.***

Additional studies conducted for WVDOH in 2010 and 2011 included a Shear Stress Analysis, a New River Substrate Characterization and an updated Mussel Survey of the New River in the vicinity of the Thomas Buford Pugh Bridge. The substrate characterization included development of a Textural Facies Map that showed the riverbed has a stable framework of cobble and boulder material with uniform distribution of gravel, cobble and boulder. The mussel survey searched for mussels within 17 transects spanning the river and defined the location and shape of the mussel bed along the right descending bank of the existing Thomas Buford Pugh Bridge; 884 live mussels were located and the presence of the bed was confirmed.

This analysis showed that there is basically no change in the shear stress in the New River between the existing and proposed condition with the preferred bridge alternative. The proposed new bridge will not generate a significant change in shear stress post-construction. However, the shear stress has the potential to increase at the location of the temporary construction access and/or temporary bridge structures and then experience small decreases in shear stress upstream of the temporary access.

As outlined in the January 2007 Programmatic Section 4(f) Evaluation for the New River Gorge National River, FHWA and WVDOH believe that the proposed project meets the applicability criteria for a

Nationwide Programmatic Section 4(f) Evaluation for Minor Involvement with Public Parks, Recreation Areas and Wildlife and Waterfowl Refuges. FHWA and WVDOH will continue to coordinate with NPS to reach agreement on the preferred alternative, measures to minimize harm, and mitigation for impacts to the park.

Miscellaneous Comments/Issues

Citation of reference material: NPS-11

Will be reviewed and revised where necessary. The References section (Appendix A of the EA) can be updated to correct citations as noted in NPS letter dated May 8, 2007, as well as to incorporate citations for reports and studies referenced or completed for the project since 2007. Alternatively, an errata sheet can be prepared to address comments on the References.

WVDOH responses to earlier comments: NPS-12, DNR-1

The RTE species listed in Table 5, page 48 of the EA/4(f) are species that were noted through coordination with the USFWS, NPS and WVDNR biologists during preparation of the EA. This is not a list of RTE/species of concern from the WVDNR website. This table does include one mussel taxa (Green Floater, *Lasmigona subviridis*) that is a species of concern in WV. Refer to the response under Freshwater Mussel Issues/Comments above for additional information on RTE species. ***As noted in above responses, WVDOH has undertaken coordination with WVDNR and USFWS to refine the measures to mitigate impacts to the freshwater mussel population in the project area.***

Section 404 Permit: COE-2

A Section 404 permit application will be submitted to the USACOE for this project. As suggested, a pre-application meeting will be scheduled with the COE and other interested parties prior to submittal.

Appendix B

Materials from the February 15, 2012 Informational Workshop Public Meeting and Comments Received from the Public

To Be Added in Final FONSI

Appendix C

Resource Agency Comments on the Revised Draft FONSI and Responses to Comments

Thomas Buford Pugh Memorial Bridge Replacement Project
Fayette and Raleigh Counties, West Virginia
Finding of No Significant Impact
Agency Comment Response Summary
September 13, 2013

Resource Agency Comments on the Revised Draft FONSI and Responses to Comments

Table of Contents

Introduction

In May 2012, the Revised Draft Finding of No Significant Impact (FONSI) for the Thomas Buford Pugh Memorial (TBPM) Bridge Replacement Project was sent to seven (7) agencies for their review and comment (see June 2011 transmittal letters and distribution list at the front of this appendix). The FONSI addressed comments received on the Environmental Assessment and Programmatic Section 4(f) [EA/4(f)] document and included updated information since circulation of the EA/4(f) in 2007. The deadline for the receipt of comments was July 23, 2012.

Agency comments on the Revised Draft FONSI were reviewed and substantive issues/comments were highlighted and noted for further consideration and response. A summary of comments received from the resource agencies and responses were prepared by the WVDOH and FHWA. Comment letters were received from the following agencies:

- West Virginia Department of Natural Resources (July 3, 2012)
- West Virginia Division of Culture and History (July 12, 2012)
- U.S. Environmental Protection Agency (July 23, 2012)
- U.S. Department of the Interior, National Park Service (August 9, 2012)

After review of the agency comment letters on the Revised Draft FONSI, several important/major issues noted by the resource agencies warranted further evaluation and consideration. These included the following issues:

- Impacts to New River and aquatic habitat from causeway construction and new instream piers (increased scour, changes in river flow patterns/velocities, sediment transport)
- Mitigation for environmental resources
- Inadequate responses to agency comments on EA/4(f) document
- Consideration of additional construction methods (i.e. top down construction, cantilever) and additional bridge designs
- Continue consultation with agencies

The following summary provides copies of comment letters that were offered by agencies during the Revised Draft FONSI comment period from June 11, 2012 to July 23, 2012. The intent of the response summary is to respond to substantive issues raised during the course of the agency review and comment period. Substantive issues were defined as those judged to have raised issues of fact, evaluation, interpretation or policy pertaining to the proposed TBPM Bridge replacement project or to the Revised Draft FONSI document.

In each agency comment letter, portions of the letter/written comments that state substantive issues have been delineated and numbered. Responses to issues/comments shared by more than one agency are grouped together and specific agency comment numbers that apply to that issue are noted.

DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
324 Fourth Avenue
South Charleston, West Virginia 25303-1228
Telephone (304) 558-2771
Fax (304) 558-3147
TDD 1-800-354-6087

Earl Ray Tomblin
Governor

Frank Jezioro
Director

July 3, 2012

Mr. Greg Bailey, P.E.
West Virginia Division of Highways
Building 5, Room A-317
1900 Kanawha Boulevard, East
Charleston, WV 25305

RE: Revised Draft Finding of No Significant Impact (RDFONSI) for the Thomas Buford Pugh Memorial Bridge Replacement Project

Dear Mr. Bailey:

The West Virginia Division of Natural Resources (DNR) has reviewed the Revised Draft Finding of No Significant Impact (RDFONSI) for the Thomas Buford Pugh Memorial Bridge Replacement Project and offers the following comments.

The DNR has commented numerous times on this project. We do not dispute that the bridge must be replaced. We have accepted the Division of Highway's (DOH) contention that the only practical alternative is constructing the replacement bridge and demolishing the existing bridge using a common causeway constructed over a surveyed mussel bed. Although we have raised significant concerns with the applicability of the sheer stress analysis used by DOH, we concur that common causeway Alternative B2 should be the least impacting on the aquatic resources.

DNR-1 The proposed causeway will significantly negatively affect the mussel bed. Appendix C response NPS-6 (Page 15-16) addresses comments from the National Park Service and DNR concerning impacts to the known mussel bed. The response states several actions that DOH will take to mitigate impacts. These include mussel relocations, designing the causeway to minimize flow velocities and scour, restoration of the site to pre-project condition, long term monitoring, and compensation for estimated lost mussels. We concur with this mitigation approach. Section 4.0 Summary of

DNR-2 Mitigation and Responsibilities (page-10) does not include long term monitoring or compensation for estimated lost mussels. This section must be revised to accurately reflect DOH's response to agencies' comments referenced above.

Curtis I. Taylor – West Virginia Division of Natural Resources, Page 1

Mr. Greg Bailey, P.E.
Page 2
July 3, 2012

DNR-3 Any impact, temporary or permanent, to a Category 1 Resource is significant. Therefore we believe there are significant impacts associated with this project but will not oppose the construction of the replacement bridge with causeway Alternative B2 provided conceptual mitigation (as expressed in Appendix C and described above) is included in Section 4.0 summary of Mitigation and Responsibilities. If you have any questions regarding our comments please contact Mr. Danny Bennett at the Elkins Operations Center (304)-637-0245 or by e-mail at Danny.A.Bennett@wv.gov.

Sincerely,

Curtis I. Taylor, Chief
Wildlife Resources Section

CIT/dc

Curtis I. Taylor – West Virginia Division of Natural Resources, Page 2

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

July 12, 2012

RECEIVED
JUL 17 2012
ENGINEERING DIVISION
WV DOH

Mr. Gregory Bailey
WVDOH
Building Five, Room 110
Capitol Complex
Charleston, WV 25305

Re: Thomas Buford Pugh Bridge Replacement
State Project: S310-41-0.01; Federal Project: BR-0041(059)E
FR#: 04-637-FA-7

Dear Mr. Bailey:

We have reviewed the Finding of No Significant Impact (FONSI) report submitted for the above referenced project. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

SHPO-1 The FONSI accurately reflects the coordination between our agencies with regards to the impact of this project on cultural resources. The document states that a Memorandum of Agreement will be completed in order to mitigate for the demolition of this National Register eligible resource. The MOA has not been finalized as indicated on Page 8 of the FONSI, however, and there are still outstanding concerns that we

SHPO-2 posed in our November 2011 letter to your agency. Please note in the FONSI document that you will continue to consult with our agency and the National Park Service, addressing the specific concerns that we expressed in our November 2011 letter, in order to execute the final MOA for this project.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Shirley Stewart Burns, Structural Historian, or Lora Lamarre-Demott, Senior Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/SSB/LLD

Susan M. Pierce, West Virginia Division of Culture and History, Page 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

July 23, 2012

Mr. Gregory L. Bailey, P. E.
Director Engineering Division
West Virginia Department of Transportation
Department of Highways
1900 Kanawha Boulevard East,
Building 5, Room 110
Charleston, West Virginia 25305-0430

Re: Thomas Buford Pugh Memorial Bridge Replacement Project Revised Draft Finding of No Significant Impact dated March 18, 2012.

The Environmental Protection Agency (EPA) has received the draft Finding of No Significant Impact (FONSI) for the Thomas Buford Pugh Memorial Bridge Replacement Project (Pugh Bridge) sent by the Department of Highways (DOH) to the Federal and State resource agencies for review prior to finalizing the document. EPA appreciated the DOH offering early review and coordination on the document. As you are aware, EPA provided comment to DOH on the Environmental Assessment (EA) in our letter of May 8, 2007. The Preferred Alternative Option 4a, selected in the draft FONSI is the same alternative presented in the 2007 EA. This option is proposed to be built downstream of the existing bridge and is comprised of three spans measuring 195-feet, 260-feet, and 195-feet for a total length of 650- feet.

EPA-A

In general, the submittal lacks the details needed to justify the finding of no significant impact. A FONSI is issued when environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment. In addition, the responses to EPA comments are not adequate. The DOH reference responses to other agencies' comments and reference reports that EPA did not receive and are not included in the FONSI. We continue to have concerns about impacts to the New River for the reasons stated in our May 8, 2007 comment letter on the EA. EPA suggests that the document will need to include the detail to support a proposed finding on no significant impact; further, the project team should continue to consider ways to avoid and minimize impacts. Specific comments are included as an enclosure to this letter.

EPA-B

Barbara Rudnick – U.S. Environmental Protection Agency, Page 1

Thank you for the opportunity to offer these comments. If you have any questions, please feel free to contact Ms. Barbara Okorn at (215) 814-3330.

Sincerely,

Barbara Rudnick
NEPA Team Leader

Enclosure

Barbara Rudnick – U.S. Environmental Protection Agency, Page 2

Enclosure

EPA Comment 1: The response given is not adequate. The response directs EPA to view the responses to NPS-4 and 13. NPS-4 and NPS 13 refer to the Options Studied and Proposal for Sediment Analysis Reports, which as indicated on Page 2, EPA did not receive. These responses fail to address our comment that alternatives without causeways and features in the river be considered. It also doesn't address our comment regarding the potential for significant impacts to the River. NPS- 13 states that "specific construction techniques, such as progressive or "top down "were not included in the engineering studies....it is assumed that a causeway would be required for demolition of the existing bridge". This gives no indication that any attempt was made to address the comment.

EPA Comment 2: The response fails to address our comment that the alternatives carried forward were limited in scope and there was insufficient information or study on the potential effects of the proposed project to make a determination as to the level of significance this project has on aquatic resources. The response refers us to NPS-2, USFWS-2 and supplemental reports that we did not receive. The response does not address the construction methods and impacts of the causeway, new bridge and the demolition/removal of the old bridge. It also does not identify the timeframes for construction, demolition, and the length of time for each disturbance. It is not clear if there are hazardous materials associated with the existing bridge and if so how they will be handled.

EPA Comment 3: The response to our comment that secondary and cumulative impacts be identified and evaluated and that compensatory measures be included refers us to NPS-3, NPS-4, and NPS-7. These responses do not address the comment.

In addition NPS-7 states that resource specific mitigation commitments and other possible measures will be provided in more detail in the decision document. It is unclear if this refers to Table 1 on Page 10, Summary of Mitigation and Responsibilities. Additional information should be included to explain how some of the bulleted items were developed. For example, a distance of 30 feet upstream and downstream is used. The significance of this number is not clear. Also, it's not clear how the area of direct impacts and area of indirect effects will be established for mussels. In addition to the items listed on Page 10, we recommend that monitoring and adaptive management plans be developed. These plans should include scour, restoration areas, and mussel populations. Details should be provided on how the mitigation of mussel impacts will be carried out and how monitoring will be conducted. Given with the uncertainties of success, additional information should be included to document instances where mussel populations were successfully relocated.

The document also does not identify the actual amount of impacts, both temporary and permanent, to the aquatic environment. It should be noted that the Section 404 permit may require additional avoidance, minimization, and mitigation. Based on the information provided to EPA, it has not been demonstrated that the preferred alternative is the least environmentally damaging alternative.

Barbara Rudnick – U.S. Environmental Protection Agency, Page 3

EPA Comment 4: This response is not adequate since it does not provide any additional information on the details of the impacts to mussel populations and the timeframe of the impacts.

EPA Comment 5: This response does not address our comment that commitments to protect the new river have been established with other projects in the area and should continue with the Pugh Bridge and future projects.

EPA Comment 6: This directs us to NPS-16 which states "based on the assumption that there are no significant impacts… WVDOH and FHWA have determined that preparation of an Environmental Analysis/ Programmatic Section 4(f) Evaluation is adequate…" This response does not address our comment that an EIS should be conducted. The information provided in the FONSI does not justify the statement that there are no significant impacts.

Barbara Rudnick – U.S. Environmental Protection Agency, Page 4

United States Department of the Interior
NATIONAL PARK SERVICE
NEW RIVER GORGE NATIONAL RIVER
GAULEY RIVER NATIONAL RECREATION AREA
BLUESTONE NATIONAL SCENIC RIVER
104 Main Street
P.O. Box 246
Glen Jean, West Virginia 25846

RECEIVED
AUG 1 0 2012
DIVISION
OF V DOH

IN REPLY REFER TO:

August 9, 2012

A3815(NERI)

Mr. Gregory L. Bailey, P.E.
Director, Engineering Section
West Virginia Division of Highways
1900 Kanawha Boulevard East – Building Five – room 110
Charleston, WV 25305-0430

Dear Mr. Bailey:

Please accept these late comments on the Thomas Buford Pugh Memorial Bridge Replacement Project "*Revised* DRAFT Finding of No Significant Impact" (Federal Project BR-0041 (059)E; State Project S210-41-0.01) dated May 18, 2012. The long-lasting effects of the June 29th Derecho, and the extended period without power at our headquarters have caused us to have to put aside even critical projects, like this one, until we could provide for visitor safety and reopen facilities in the three national parks. The National Park Service recognizes the exigent circumstances surrounding the urgent need to replace the Thomas Buford Pugh Memorial Bridge spanning the New River within New River Gorge National River. Condition of this functionally obsolete and structurally deficient bridge has worsened since completion of the 2007 EA, because of a break in part of a vertical structural member first noted in 2011.

We would have gratefully supported the alternative proposed in the February 15, 2012 Informational Meeting, since it used the existing piers, minimized disturbance of the river bed, and would have greatly sped up the process of getting a structurally sound replacement bridge in place. However, we recognize that the community did not support this alternative because it required absolute closure of the bridge for 4 to 6 months.

NPS-1 In order to avoid potentially dangerous conditions to continue at the bridge crossing, and the likely event of harmful conditions to exist for local residents if the crossing is closed during construction, the National Park Service accedes to the Preferred Alternative (4A, including Causeway Alternative B2) as described in the Finding of No Significant Impact for the Thomas Buford Pugh Memorial Bridge Replacement Project. We agree with and support the best management practices and mitigation measures described in the above-named document and the 2007 EA, and agree that it is crucial that they are fully instituted as part of the project.

NPS-2 NPS requests that if additional measures are developed in design or pre-bid meetings, such as the addition of some of the design elements discussed during the Agency Meeting, that they be included in the project. National Park Service asks to be an invited and active participant in the design process, and asks to be present at pre-construction meetings to convey the agency's perspective to the contractor. We also hope that the other resource agencies will be invited to participate at these meetings.

TAKE PRIDE IN AMERICA

Don Striker – National Park Service, Page 1

NPS-3 We note that one stipulation on page 12, "WVDOH will provide $20,000 to the National Park Service for a historical interpretive marker to be designed and installed by the Park Service and placed near the bridge site" is different from the agreement we thought we came to in the Agency Meeting. At that meeting, we talked about designing and installing waysides on the bridge pedestrian walkway itself, similar to those on the Fayette Station Bridge within the park. To accomplish this, we understood that NPS would provide the design, and if you chose, the fabrication, of the waysides, but that the contractor would do the installation. Also, a crucial mitigation, the inclusion of a pedestrian/bike friendly walkway, is not included in the mitigation section. Should it be? We could not find this in the document, and can't tell from the alternative drawing if the walkway is included.

NPS-4

NPS-5 Additionally, we feel that the FONSI was less than fully responsive to the legitimate concerns expressed by the National Park Service and reiterated by the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers and the West Virginia Division of Natural Resources, about the high value, nationally significant, natural resources in New River Gorge National River. The FONSI fails to ensure that the project can be completed without causing harm to the New River ecosystem. I was hoping for a more balanced and complete response to resource agency concerns in Appendix C.

As we agreed in the agency meeting, the National Park Service does not view this project as precedent setting in regards to bridge repair or replacement in New River Gorge National River. The high resource values inherent in the New River Gorge National River are too unique and require continued assessment and collaboration on any future project. For these future projects I hope to see more thorough, coordinated and responsive environmental analysis and a broader range of design and construction options.

If you have any question or comments on the general issues in this letter, please feel free to call or contact Deputy Superintendent Deborah Darden at 304-465-6509. Questions relating to the science or comment responses should be directed to Dr. Jesse Purvis, at 304-465-6513.

Sincerely,

Don Striker
Superintendent

cc:
U.S. Fish and Wildlife Service (694 Beverly Pike, Elkins, WV 26241 – Deborah Carter)
U.S. Environmental Protection Agency (Region III, 1650 Arch Street, Philadelphia, PA – Jessica Martinsen)
U.S. Army Corps of Engineers (Huntington District, 502 Eighth Street, Huntington, WV 25701 – ginger Mullins)
West Virginia Division of Natural Resources (P.O. Box 67, Elkins, WV 26241 – Danny Bennett)

Don Striker – National Park Service, Page 2

Responses to Agency Comments on Revised Draft FONSI

Impacts to New River and Aquatic Habitat – DNR-2, DNR-3, EPA-B, EPA-3

We recognize that there are minor and temporary impacts to aquatic resources in the New River; however, we feel these impacts are not significant and that the mitigation, as proposed, will adequately address impacts from the proposed bridge replacement. *Section 4.0 Summary of Mitigation Responsibilities* in the FONSI has been revised to address FHWA's commitment to monitor and/or compensate for estimated lost mussels.

Since the completion of the EA in 2007, FHWA and WVDOH have continued to coordinate with resource agencies and the public to develop ways to minimize environmental impacts, refine engineering design details and provide updated information about the status of the project and condition of the existing bridge, which has continued to deteriorate. Between 2008 and 2013, additional environmental and engineering studies and reports were conducted to address agency concerns related to project impacts on the New River and its associated resources. These studies evaluated the current conditions of the project area and also considered how construction of the project would impact the river both during and after the new bridge has been built and the existing one removed.

More detailed discussion of the engineering refinements designed to further minimize impacts to the New River and aquatic habitat is included in the FONSI text. Copies of the additional reports are included on a CD as Appendix D to the FONSI.

Option 4a and its associated Causeway Alternate B2 have been designed to minimize impacts to the New River and its aquatic habitat and have been further refined to address resource agency concerns related to impacts to the river and associated resources. Unlike a conventional causeway that would wash out either from a high water event or after construction and demolition are complete, the preferred causeway will be designed to not wash out even during a 10-year flood event and will be removed intact at the end of the project. The amount of area in the river that will be covered by the causeway is approximately 0.25 acres. It is estimated that the construction and demolition phases of the project will be completed in approximately 240 working days, which equates to two construction seasons. This estimate takes into account weather delays and winter work stoppage.

Mitigation for environmental resources – DNR-1, DNR-3, SHPO-1, EPA-3, NPS-1, NPS-3, NPS-4

Coordination with resource agencies since completion of the EA has resulted in refinements to proposed mitigation measures. The updated Mitigation Summary is included in the FONSI text.

WVDOH has undertaken coordination with WVDNR, USFWS and NPS to develop a plan to relocate mussels in the direct impact area and to conduct post-construction studies. Further details of this mitigation can be found in the Mitigation Summary located in the FONSI text. The mitigation plan developed for the New River and its aquatic habitat includes relocation of mussels in the direct impact area and completion of post-construction studies of the river and habitat.

The Historic Resources portion of the *Summary of Mitigation and Responsibilities* section in the FONSI has been revised to reflect the final Memorandum of Agreement (MOA), specifically stipulation V related to design and installation of the interpretive markers. FHWA and WVDOH have consulted with the WV SHPO and NPS to obtain input on architectural treatments, railing design and waysides for the new bridge.

The *Summary of Selected Alternative* section in the FONSI has been revised to note that an eight-foot-wide sidewalk or pedestrian/bike friendly walkway with a protective barrier will be included on the downstream (west) side of the new bridge. The location of the proposed sidewalk also is illustrated on figures showing the Preferred Alternative 4a plan, the typical section, and the rendering in the FONSI.

Inadequate responses to agency comments on EA/4(f) document – EPA-A, EPA-5, EPA-6, NPS-5

Responses to selected comments related to the natural resources in the New River Gorge National River have been updated and revised to address agency concerns and clarify FHWA's position with respect to project impacts and mitigation. The responses have been reorganized and grouped by category (e.g. impacts to New River, or mitigation) so that information pertaining to each specific issue is contained in one place.

The FONSI has been revised to include additional information about the activities that have occurred since completion of the EA in 2007. These activities include completion of additional environmental and engineering studies to collect information and refine alternatives, coordination with the public and resource agencies to discuss impacts and refine mitigation and update responses to agency comments.

In recognition of the importance of the New River and associated resources, the bridge design plans have been refined to incorporate measures that minimize impacts to the river. Additionally, coordination has been undertaken with resource agencies to develop measures to mitigate impacts to natural and cultural resources; these commitments are detailed in Section 4.0 of the FONSI. Previous projects undertaken in the New River area by FHWA and WVDOH have informed the minimization and mitigation decisions for the Thomas Buford Pugh Memorial Bridge project.

FHWA has determined that the impacts to resources do not rise to the level of significant. Engineering refinements applied to the preferred alternative and mitigation measures developed in consultation with resources agencies to minimize the intensity of the impacts; therefore, preparation of an EIS is not required. Further, FHWA has coordinated with resource agencies throughout the project and is committed to continuing this consultation as final design and construction of the new bridge proceed. FHWA has addressed agency concerns, responded to comments and conducted additional studies as requested to further evaluate the impact of the project on environmental resources. Finally, FHWA has shared project information with the public and provided them with an opportunity to comment at key milestones. Public comments indicate that the majority of respondents have expressed support for replacement of the bridge using the preferred alternative.

Consideration of additional construction methods – EPA-1, EPA-2

The preferred alternate has not changed since the submission of the EA in 2007. Effects of the proposed project on aquatic resources were addressed in the EA. Between 2008 and 2013, additional environmental and engineering studies and reports were conducted to address agency concerns related to project impacts on the New River and its associated resources. These studies evaluated the current conditions of the project area and also considered how construction of the project would impact the river both during and after the new bridge has been built and the existing one removed.

More detailed discussion of the engineering refinements designed to further minimize impacts to the New River and aquatic habitat is included in the FONSI text. Copies of the additional reports are included on a CD as Appendix D to the FONSI.

TRC studied multiple bridge types to cross the New River. Included in these studies was a single span truss option that would not require piers to be placed in the river. However, the erection of a 650' single span truss would require temporary supports to be placed in the river. The number of temporary piers and the necessity to place them in the river would have resulted in a greater disturbance to the New River and was not studied further.

TRC also studied the option of floating large, pre-assembled, truss sections down the New River and erecting them into place. However, it was determined that there are numerous exposed boulders and insufficient water depth to accommodate the necessary barges to move truss elements of that size.

The bridges studied require piers, whether permanent or temporary, to be placed in the river. These piers will require foundations to support the weight of the bridge. The preparation of the river bottom for temporary pier footings and/or the installation of a single drilled shaft foundation for the permanent pier options will require causeways to be constructed into the river to provide access for construction equipment to erect either the temporary or permanent pier foundations. The preferred alternate chosen had the least impact to the river.

In addition, the pick weights of individual steel members for the proposed bridge were calculated to determine the size of crane necessary for bridge erection. A proposed demolition scheme for the existing bridge was developed and cranes were likewise sized for this operation. In summary, cranes would require the use of causeways in order to erect the new bridge or dismantle the existing bridge.

It is estimated that two construction seasons will be necessary to construct the new bridge and dismantle the existing. Causeways will be necessary during the pier construction, girder erection and the demolition of the existing bridge. To minimize intrusion into the New River, it is anticipated that the causeways will be constructed prior to pier construction and removed upon completion of the demolition operations. The overall duration of time for the causeways is anticipated to be about 240 working days.

Subsequent to completion of the EA/4(f), additional engineering studies were conducted to further analyze alternatives that would not require working in the river. Based on the site conditions (steep banks and depth and velocity of the river), it was determined that these alternatives were not feasible. Further, it should be noted that the specific situations and conditions characteristic of the projects at Hinton and Greenbrier noted in USFWS-4 comment are different than those that exist at the TBPM Bridge project area. These are smaller bridges and available alternate crossings were located nearby, so lengthy detours or temporary bridges were not required. Finally, the physical conditions at the TBPM Bridge project area, including steep banks, do not permit top-down construction techniques.

The studies undertaken to develop the bridge and causeway alternates assumed that the existing TBPM Bridge could be carefully dismantled and removed in sections using a crane to move the pieces so that the old superstructure elements would not fall in the river. However, based on the advanced deterioration of the existing bridge, it is unlikely that the truss sections can be dismantled and removed without them breaking apart and falling into the river as they are moved. Therefore FHWA and WVDOH have acknowledged that the existing bridge will be dropped in the river in a controlled demolition. It is anticipated that the truss would be in the water no more than 15 calendar days.

It is estimated that the construction and demolition phases of the project will be completed in two construction seasons. This estimate takes into account weather delays and winter work stoppage.

Continue consultation with agencies – SHPO-2, NPS-2

Further, discussion of the *Final Section 106 Coordination* section in the FONSI has been updated to reflect the status of the MOA and coordination with DCH and the National Park Service.

FHWA/DOH will continue to coordinate with NPS (and other parties as appropriate) with regard to design elements and NPS perspective on the project throughout the final design and construction process.

Appendix D

Copies of Additional Engineering and Environmental Analyses, Studies and Reports Completed Between 2008 and 2013

(pdf copies on CD)

List of Additional Engineering and Environmental Analyses, Studies and Reports Completed Between 2008 and 2013

- *Proposal for Sediment Analysis of the Thomas Buford Pugh Bridge*
  WVDOH, KCI Technologies, Inc. and TRC
  April 16, 2008

- *Options Studied Report, Thomas Buford Pugh Bridge*
  TRC
  December 29, 2009

- *Temporary Bridge Bypass Study*
  TRC
  April 21, 2011

- *Shear Stress Analysis of the New River Report*
  TRC
  May 17, 2011

- *Shear Stress Analysis Summary*
  TRC
  August 15, 2011

- *Temporary Work Platform, Shear Stress Analysis and Update Project Costs Summary*
  TRC
  August 30, 2011

- *New River Substrate Characterization Technical Memorandum Report*
  KCI Technologies, Inc.
  October 31, 2011

- *Mussel Survey of the New River*
  Dinkins Biological Consulting
  October 31, 2011

- *Additional Bridge Study: New Superstructure on Existing Piers, Update of Preferred Alternate Based on Revised Typical Section*
  TRC
  January 23, 2012

- *Gabion Basket vs. Temporary Work Platform Study*
  TRC
  March 15, 2013

Appendix E
Section 106 Coordination since the Release of the EA

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

November 29, 2011

Mr. Gregory Bailey
WVDOH
Building Five, Room 110
Capitol Complex
Charleston, WV 25305

Re: Thomas Buford Pugh Bridge Replacement
State Project: S310-41-0.01; Federal Project: BR-0041(059)E
FR#: 04-637-FA-6

Dear Mr. Bailey:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

We are in receipt of the draft Memorandum of Agreement (MOA) for this project. In an October 24, 2011, meeting between your agency and numerous other agencies including this office, it was revealed that the bridge "experienced critical fractures in the major truss members" and, therefore, would need to be demolished rather than retained as a pedestrian bridge. While we are disappointed in the ultimate outcome of this project, which will result in the demolition of this historic resource, we acknowledge the need to move forward with the review process. With regards to that, we offer the following observations regarding the draft MOA.

With regards to Stipulation four, please clarify whether or not the text and design of the brochure will be offered to the National Park Service (NPS) for further printings once the original printings have been exhausted. Stipulation five of the MOA indicates that the new bridge will include "architectural treatments similar to the New River Parkway Bridge crossing at Madams Creek....pending further coordination with NPS and SHPO." It is our understanding that this bridge has not been constructed yet; however, we request that you forward a sketch or drawing of the final appearance of the New River Parkway Bridge since Stipulation five in this MOA references it. We also request that future design plans for the replacement bridge give careful consideration to replacing the Pugh Truss Bridge with another Truss Bridge, or a bridge similar in size and scale to the existing bridge. As this bridge will be within the New River Gorge National River boundaries, we request that the final MOA for this project be forwarded to this

office for signature only after your office has received official comments from the National Park Service. Please forward any comments from the NPS to our office. In addition, please clarify what "pending further coordination with NPS and SHPO" entails. We suggest that Stipulation five be clarified to indicate that the design of the new bridge will be agreed to by the lead agency as well as the NPS and SHPO.

We look forward to receiving the clarifications in the MOA and moving forward with the mitigation of this important historic resource.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Shirley Stewart Burns, Structural Historian, in the Historic Preservation Office at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/SSB

cc: Richard Segars, New River Gorge National River

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways
1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

January 9, 2012

United States Department of the Interior
National Park Service
New River Gorge National River
ATTN: Deborah A. Darden
104 Main Street
P.O. Box 246
Glen Jean, WV 25846

COPY

Dear Ms. Darden:

Thomas Buford Pugh Bridge Replacement
State Project S310-41-0.01
Federal Project: BR-0041(059)E
Fayette & Raleigh Counties

Enclosed for your review and comment is a Memorandum of Agreement (MOA) for the above referenced project. This MOA is pursuant to the determination that the Thomas Buford Pugh Bridge Removal will have an adverse effect to the National Register of Historic Places (NRHP)-eligible bridge. The Advisory Council on Historic Preservation has reviewed the project and has chosen not to participate in the Section 106 process (See attached letter). Also, attached is the latest correspondence from the West Virginia State Historic Preservation Office (November 29, 2011).

An agency meeting was held here at WVDOH on Monday, October 24, 2011 to discuss the project status. During the meeting your agency suggested potential mitigation of treatments to the new bridge similar to the New River Parkway Bridge crossing Madams Creek near Hinton (See attached plan sheet). Trail compatibility of the new bridge was also requested in view of the Boy Scout facilities and use. Also, it was requested to provide a marker documenting the existing historic bridge.

The existing bridge will not be able to be used as a pedestrian bridge due to the deteriorating condition of the bridge. Prior to the October 24, 2011 agency meeting the bridge experienced critical fractures in the major truss members resulting in the WVDOH lowering the bridge posting to 3 tons plus the installation of vertical height restriction of 9' as shown in the attached photos.

Should you have any questions, please contact Sondra Mullins of our Environmental Section at 304-558-9487.

Very truly yours,

Gregory L. Bailey, P.E.
Director
Engineering Division

By: Ben L Hark

Ben L. Hark
Environmental Section Head

GLB:Hk
Enclosure
CC: DDE(SM)

U.S. Department
of Transportation

Federal Highway
Administration

West Virginia Division

Geary Plaza, Suite 200
700 Washington Street, East
Charleston, West Virginia 25301
(304) 347-5928

January 26, 2006

IN REPLY REFER TO:
Federal Project BR-0041(059)E
State Project S210-41-0.01
Thomas Burford Pugh Bridge
Fayette and Raleigh Counties

Gregory L. Bailey, P.E.
Director – Engineering Division
West Virginia Division of Highways
Charleston, West Virginia 25305

Dear Mr. Bailey:

Enclosed please find a copy of a January 20, 2006 letter from the Advisory Council on Historic Preservation indicating they will not enter into the consultation on the above referenced project. Should you have any questions regarding the enclosed information, please contact me at (304) 347-5268 or via e-mail at Henry.Compton@fhwa.dot.gov.

Sincerely yours,

Henry E. Compton, P.E.
Planning & Environment Team Leader

Enclosures

Preserving America's Heritage

A	I	Init		A	I	Init	
			Div Administrator				Admin Coordin/Sec
			Asst Div Admin				Admin Coordinator
			Operations Mgt Eng				Financial Specialist
			Financial Manager				AE-1 Design
			Trans Planning Eng				AE-2 Const Mgt Eng
		✓	Structures Eng				AE-3 Materials
	✓		Planning/Envir				Asst Structures Eng
			Safety Eng				IT Specialist
			Res/Tr Eng				Library
			Trans Specialist				
File #							
File Name (Scan)							

January 20, 2006

Mr. Henry E. Compton, P.E.
Planning & Environment Team Leader
Federal Highway Administration
Geary Plaza, Suite 200
700 Washington Street, East
Charleston, WV 25301

REF: Proposed Replacement of Thomas Burford Pugh Bridge
Fayette and Raleigh Counties, West Virginia

Dear Mr. Compton:

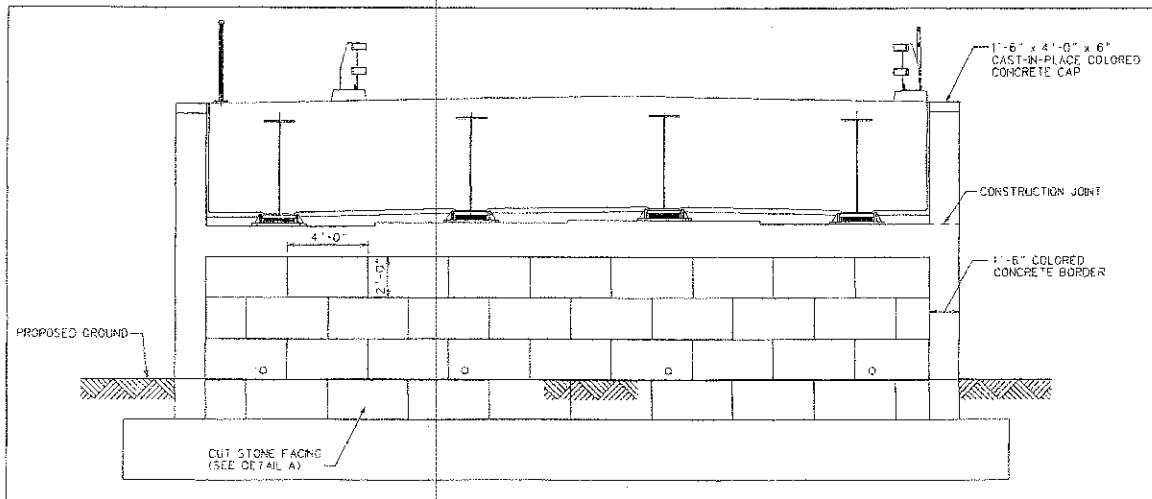
On January 4, 2006, the ACHP received your notification and supporting documentation regarding the adverse effects of the referenced project on properties listed on and eligible for listing on the National Register of Historic Places. Based upon the information you provided, we do not believe that our participation in consultation to resolve adverse effects is needed. However, should circumstances change and you determine that our participation is required, please notify us. Pursuant to 36 CFR 800.6(b)(iv), you will need to file the final Memorandum of Agreement and related documentation at the conclusion of the consultation process. The filing of the Agreement with us is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions or require further assistance, please contact Carol Legard, FHWA Liaison, at 202-606-8505.

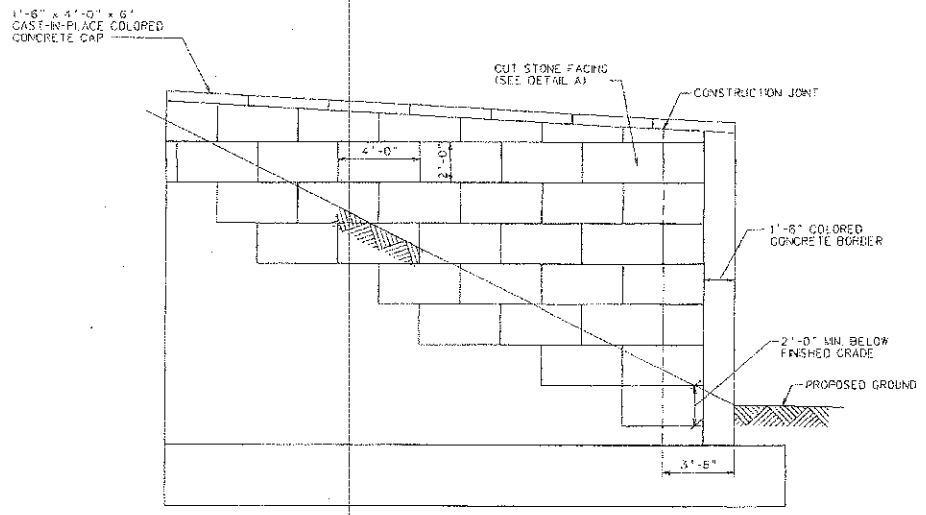
Sincerely,

Raymond V. Wallace

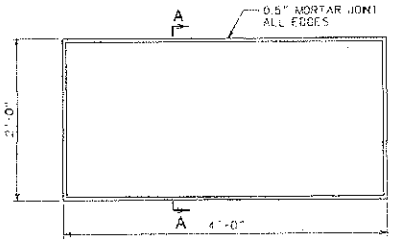
Raymond V. Wallace
Historic Preservation Technician
Office of Federal Agency Programs



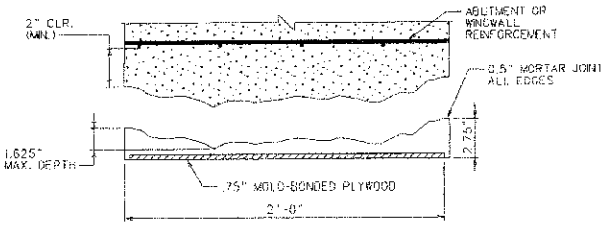
ABUTMENT ELEVATION - ARCHITECTURAL TREATMENT



WINGWALL ELEVATION - ARCHITECTURAL TREATMENT



DETAIL A



SECTION A-A

NOTES:

THE ARCHITECTURAL TREATMENT SHALL RESEMBLE A CUT STONE FACING PATTERN REPRESENTING WEST VIRGINIA AGED SANDSTONE AS MANUFACTURED BY FITZGERALD FORMLINERS OR APPROVED EQUIVALENT.

REVISED NUMBER	SHEET NUMBER	REASON	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WV COUNTY ROUTE 26
OVER MADAM CREEK
SUMMERS/RALEIGH COUNTIES, WV

ABUTMENT ARCHITECTURAL DETAILS

DESIGNED TER	6/8/10
DRAWN APH	6/8/10
CHECKED MRB	6/8/10
CHECKED TER	6/8/10

MODJESKI and MASTERS
Experience you can build on.

DWG. 26 OF 66
BRIDGE NO. 10934


11/15/2011

11/15/2011

SOUTH
41
BRIDGE
WEIGHT
LIMIT
3
TONS
NEXT
2
MILES
41

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

July 12, 2012

Mr. Gregory Bailey
WVDOH
Building Five, Room 110
Capitol Complex
Charleston, WV 25305

Re: Thomas Buford Pugh Bridge Replacement
State Project: S310-41-0.01; Federal Project: BR-0041(059)E
FR#: 04-637-FA-7

Dear Mr. Bailey:

We have reviewed the Finding of No Significant Impact (FONSI) report submitted for the above referenced project. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

The FONSI accurately reflects the coordination between our agencies with regards to the impact of this project on cultural resources. The document states that a Memorandum of Agreement will be completed in order to mitigate for the demolition of this National Register eligible resource. The MOA has not been finalized as indicated on Page 8 of the FONSI, however, and there are still outstanding concerns that we posed in our November 2011 letter to your agency. Please note in the FONSI document that you will continue to consult with our agency and the National Park Service, addressing the specific concerns that we expressed in our November 2011 letter, in order to execute the final MOA for this project.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Shirley Stewart Burns, Structural Historian, or Lora Lamarre-Demott, Senior Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/SSB/LLD

COPY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

August 7, 2012

Ms. Susan Pierce, Deputy State
Historic Preservation Officer
Division of Culture and History
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305

Dear Ms. Pierce:

Thomas Buford Pugh Bridge Replacement
State Project S310-41-0.01
Federal Project: BR-0041(059)E
Fayette & Raleigh Counties

In reference to your November 29, 2011 letter the WVDOH has continued coordination with the National Park Service (NPS). An agency meeting was held here at WVDOH on Thursday, May 24, 2012 with the NPS to discuss the project status. During the meeting the NPS suggested potential mitigation treatments to the new bridge. The WVDOH stated that we would submit a rendering of the new bridge to the NPS for approval (See attached rendering). Trail compatibility of the new bridge was requested and will be provided along the sidewalk of the new bridge along with historic markers. All information on the markers will be approved by the NPS and your office. The NPS signed the Memorandum of Agreement (MOA) on July 26, 2012 (See attachment).

Enclosed for your signature is the (MOA) for the above referenced project. This MOA is pursuant to your determination that the Thomas Buford Pugh Bridge Removal will have an adverse effect to the National Register of Historic Places (NRHP)-eligible bridge. The Advisory Council on Historic Preservation has reviewed the project and has chosen not to participate in the Section 106 process (See attached letter).

The WVDOH will continue coordination with your agency and the NPS as the mitigation items are developed.

Should you have any questions, please contact Sondra Mullins of our Environmental Section at 304-558-9487.

Very truly yours,

Greg Bailey, P.E.
Director
Engineering Division

By: Ben L Hark

Ben L. Hark
Environmental Section Head

Enclosure
CC: DDE(SM)

United States Department of the Interior

NATIONAL PARK SERVICE

NEW RIVER GORGE NATIONAL RIVER
GAULEY RIVER NATIONAL RECREATION AREA
BLUESTONE NATIONAL SCENIC RIVER
104 Main Street
P.O. Box 246
Glen Jean, West Virginia 25846

IN REPLY REFER TO:

August 9, 2012

A3815(NERI)

Mr. Gregory L. Bailey, P.E.
Director, Engineering Section
West Virginia Division of Highways
1900 Kanawha Boulevard East – Building Five – room 110
Charleston, WV 25305-0430

Dear Mr. Bailey:

Please accept these late comments on the Thomas Buford Pugh Memorial Bridge Replacement Project "*Revised* DRAFT Finding of No Significant Impact" (Federal Project BR-0041 (059)E; State Project S210-41-0.01) dated May 18, 2012. The long-lasting effects of the June 29th Derecho, and the extended period without power at our headquarters have caused us to have to put aside even critical projects, like this one, until we could provide for visitor safety and reopen facilities in the three national parks. The National Park Service recognizes the exigent circumstances surrounding the urgent need to replace the Thomas Buford Pugh Memorial Bridge spanning the New River within New River Gorge National River. Condition of this functionally obsolete and structurally deficient bridge has worsened since completion of the 2007 EA, because of a break in part of a vertical structural member first noted in 2011.

We would have gratefully supported the alternative proposed in the February 15, 2012 Informational Meeting, since it used the existing piers, minimized disturbance of the river bed, and would have greatly sped up the process of getting a structurally sound replacement bridge in place. However, we recognize that the community did not support this alternative because it required absolute closure of the bridge for 4 to 6 months.

In order to avoid potentially dangerous conditions to continue at the bridge crossing, and the likely event of harmful conditions to exist for local residents if the crossing is closed during construction, the National Park Service accedes to the Preferred Alternative (4A, including Causeway Alternative B2) as described in the Finding of No Significant Impact for the Thomas Buford Pugh Memorial Bridge Replacement Project. We agree with and support the best management practices and mitigation measures described in the above-named document and the 2007 EA, and agree that it is crucial that they are fully instituted as part of the project. NPS requests that if additional measures are developed in design or pre-bid meetings, such as the addition of some of the design elements discussed during the Agency Meeting, that they be included in the project. National Park Service asks to be an invited and active participant in the design process, and asks to be present at pre-construction meetings to convey the agency's perspective to the contractor. We also hope that the other resource agencies will be invited to participate at these meetings.

We note that one stipulation on page 12, "WVDOH will provide $20,000 to the National Park Service for a historical interpretive marker to be designed and installed by the Park Service and placed near the bridge site" is different from the agreement we thought we came to in the Agency Meeting. At that meeting, we talked about designing and installing waysides on the bridge pedestrian walkway itself, similar to those on the Fayette Station Bridge within the park. To accomplish this, we understood that NPS would provide the design, and if you chose, the fabrication, of the waysides, but that the contractor would do the installation. Also, a crucial mitigation, the inclusion of a pedestrian/bike friendly walkway, is not included in the mitigation section. Should it be? We could not find this in the document, and can't tell from the alternative drawing if the walkway is included.

Additionally, we feel that the FONSI was less than fully responsive to the legitimate concerns expressed by the National Park Service and reiterated by the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers and the West Virginia Division of Natural Resources, about the high value, nationally significant, natural resources in New River Gorge National River. The FONSI fails to ensure that the project can be completed without causing harm to the New River ecosystem. I was hoping for a more balanced and complete response to resource agency concerns in Appendix C.

As we agreed in the agency meeting, the National Park Service does not view this project as precedent setting in regards to bridge repair or replacement in New River Gorge National River. The high resource values inherent in the New River Gorge National River are too unique and require continued assessment and collaboration on any future project. For these future projects I hope to see more thorough, coordinated and responsive environmental analysis and a broader range of design and construction options.

If you have any question or comments on the general issues in this letter, please feel free to call or contact Deputy Superintendent Deborah Darden at 304-465-6509. Questions relating to the science or comment responses should be directed to Dr. Jesse Purvis, at 304-465-6513.

Sincerely,

Don Striker
Superintendent

cc:
U.S. Fish and Wildlife Service (694 Beverly Pike, Elkins, WV 26241 – Deborah Carter)
U.S. Environmental Protection Agency (Region III, 1650 Arch Street, Philadelphia, PA – Jessica Martinsen)
U.S. Army Corps of Engineers (Huntington District, 502 Eighth Street, Huntington, WV 25701 – ginger Mullins)
West Virginia Division of Natural Resources (P.O. Box 67, Elkins, WV 26241 – Danny Bennett)

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

August 30, 2012

Mr. Gregory Bailey
WVDOH
Building Five, Room 110
Capitol Complex
Charleston, WV 25305

Re: Thomas Buford Pugh Bridge Replacement
State Project: S310-41-0.01; Federal Project: BR-0041(059)E
FR#: 04-637-FA-8

Dear Mr. Bailey:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

Architectural Resources
Enclosed please find the signed Memorandum of Agreement (MOA) for the Thomas Buford Pugh Bridge replacement project. Stipulation four has been clarified, as we requested, to ensure that a CD-R of the brochure will be given to the National Park Service and the New River Gorge National River for future use once the initial printing of the brochure has been exhausted. According to Stipulation five, you will continue to consult with this agency and the NPS regarding architectural treatments for the new bridge. We are amenable to this, and again suggest that your agency consider replacing this beautiful, eligible truss bridge that has been a part of this landscape for more than 80 years with a truss bridge. Demolition of this bridge is a significant loss to our transportation history, and it is our opinion that the replacement of this bridge with a truss bridge is reasonable and appropriate. We thank you in advance for giving every consideration to this request. We look forward to continuing consultation and to reviewing the information that will complete the Section 106 process.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Shirley Stewart Burns, Structural Historian, in the Historic Preservation Office at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/SSB

cc: Richard Segars, New River Gorge National River

Enclosure

MEMORANDUM OF AGREEMENT
BY AND AMONG
THE FEDERAL HIGHWAY ADMINISTRATION,
THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER, AND THE
WEST VIRGINIA DIVISION OF HIGHWAYS

REGARDING IMPLEMENTATION OF THE THOMAS BUFORD PUGH BRIDGE REPLACEMENT PROJECT
STATE PROJECT #S310-41-0.01
FEDERAL PROJECT #BR-0041(059)E
FAYETTE COUNTY, WEST VIRGINIA
JULY 2012

WHEREAS, the Federal Highway Administration (FHWA), in cooperation with the West Virginia Division of Highways (WVDOH), proposes to replace the Thomas Buford Pugh Bridge, which spans the New River in Fayette County, hereinafter referred to as the Project. The improvements involve the construction of a new bridge; and

WHEREAS, the FHWA has determined that the Project will have an adverse effect upon the Thomas Buford Pugh Bridge, a property eligible for the National Register of Historic Places (NRHP);and

WHEREAS, the FHWA has consulted with the West Virginia State Historic Preservation Officer (WVSHPO) pursuant to 36 CFR Part 800 Implementing Section 106 of the National Historic Preservation Act; (16 U.S.C., 470f); and

WHEREAS, the FHWA has determined that the Project will not effect archaeological properties; and

WHEREAS, in accordance with 36 CFR 800.6 (a) (1), the FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR 800.6 (a) (1) (iii);

NOW, THEREFORE, the FHWA, the WVSHPO, and the WVDOH, agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS

The FHWA shall ensure that the following stipulations are carried out:

Thomas Buford Pugh Bridge

I. The Thomas Buford Pugh Bridge will be documented in its present historic setting. The documentation package will include 5"x7" black and white digital prints in

accordance with the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion of March 2005. Also, the documentation will be sent to the Fayette County Libraries, National Park Service, and the New River Gorge National River.

II. A brief history of the structure will be included along with a fully completed West Virginia Historic Property Inventory form and copies of plan sheets and drawings of the bridge from WVDOH bridge files if available.

III. The WVDOH will provide two historical interpretive markers designed by the National Park Service and placed along the sidewalk of the new bridge. The installation will be made part of the construction contract. The WVSHPO will have an opportunity to review and comment on the historic markers.

IV. A brochure of the Thomas Buford Pugh Bridge will be developed and distributed to the National Park Service and the New River Gorge National River along with a CD version for future use. The WVSHPO will be given the opportunity to review all educational materials developed for this stipulation.

V. Architectural treatments such as cut stone facing pattern wingwalls and abutments will be incorporated for the Thomas Buford Pugh Bridge, pending further coordination with the NPS and SHPO.

VI. Duration

This MOA will expire if its stipulations are not carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, the FHWA shall either (a) execute a MOA pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. Prior to such time, FHWA may consult with other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation X. below. FHWA shall notify the signatories as to the course of action it will pursue.

VII. Post-Review Discoveries

If any unanticipated discoveries of historic properties or archaeological sites, including human burial sites and/or skeletal remains, are encountered during the implementation of this undertaking, work shall be suspended in the area of the discovery until the

WVDOH has developed and implemented an appropriate treatment plan in consultation with the WVSHPO pursuant to 800.13 (b).

VIII. Monitoring and Reporting

Each year following the execution of this MOA until it expires or is terminated, FHWA shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in FHWA's efforts to carry out the terms of this MOA.

VIV. Dispute Resolution

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with such party to resolve the objection. If FHWA determines that such objection cannot be resolved, FHWA will:

A. Forward all documentation relevant to the dispute, including the FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

X. Amendments

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XI. Termination

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories. Once the MOA is terminated, and prior to work continuing on the undertaking, FHWA must either (a) execute a MOA pursuant to 36 CFR 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. FHWA shall notify the signatories as to the course of action it will pursue.

EXECUTION of the Memorandum of Agreement by the FHWA, WVSHPO, the WVDOH and the Council, and implementation of its terms evidence that the FHWA has afforded the Council an opportunity to comment on the Thomas Buford Pugh Bridge project and its effects on historic properties, and that the FHWA has taken into account the effects of the undertaking on the historic property.

Thomas Buford Pugh Bridge Replacement

Memorandum of Agreement

Signatories Page

APPROVED:

Jason E Workman — 10/7/13

Federal Highway Administration — Date

Susan M Pierce — 8/31/12

West Virginia Deputy State Historic Preservation Officer — Date

CONCUR:

Paul A. Mattox, J — 4/17/13

West Virginia Division of Highways — Date

Thomas Buford Pugh Bridge Replacement

Memorandum of Agreement

Signatories Page

CONSULTING PARTY:

Deborah A. Darden

National Park Service,
New River Gorge National River

7/26/2012

Date

United States Department of the Interior
NATIONAL PARK SERVICE
NEW RIVER GORGE NATIONAL RIVER
GAULEY RIVER NATIONAL RECREATION AREA
BLUESTONE NATIONAL SCENIC RIVER
104 Main Street
P.O. Box 246
Glen Jean, West Virginia 25846

IN REPLY REFER TO:

June 7, 2013

A3815(NERI)

Sondra L. Mullins
Historic Services Unit Leader
WV Department of Highways
State Capital Complex Building 5, Room
1900 Kanawha Boulevard East
Charleston, WV 25303

Dear Ms. Mullins:

Thank you for the opportunity to comment on the railing design and finish for the Thomas Buford Pugh Bridge. This new bridge is crucial to the community and to the NPS, and we appreciate the speed with which you are developing the final design.

You asked us to comment on the railing design and finish. We like the railing design you have selected very much, and we believe the openness of the design is exactly what NPS had requested for this new bridge. We like the coated finish, and prefer the green color. We believe it will recall the historic color of the original Thomas Buford Pugh Bridge, as well as reflect the other historic bridges in the area. I have enclosed a briefing sheet on typical waysides used by NPS, for your consideration as you locate both the wayside on the bridge and the wayside where the trail will intersect with the bridge on shore.

Thank you again for the opportunity to comment, and please feel free to contact me or Deputy Superintendent Debbie Darden (Deborah_darden@nps.gov or 304-465-6509) if you have any further questions.

Sincerely,

Deborah A. Darden

for Patricia Kicklighter
Superintendent

Enclosure

Typical Waysides used by the National Park Service

The first three photos are typical wayside configurations. The horizontal panels are typically 36" wide x 24" high and are mounted at a height of about 36". They can be pedestal mounted or attached to railings. They are also designed to meet accessibility guidelines. The vertical wayside panels are typically 36" wide x 48" high. These are the typical configurations of waysides used by NPS; however, they can be custom manufactured to meet specific requirements. NPS waysides are typically painted aluminum or sometimes weathering steel. The panels can be made from fiberglass or porcelain coated metal.

The photos below show typical installations. A viewing area at least 5' deep or greater for accessibility is desirable and benches are many time appropriate.

Proposed Thomas Buford Pugh Memorial Bridge
WV41, FAYETTE COUNTY

Alternate 3
Dark Green Painted Rail

Appendix F

Revised Programmatic Section 4(f) Evaluation for the New River Gorge National River

Programmatic Section 4(f) Evaluation
New River Gorge National River

Thomas Buford Pugh Memorial Bridge Replacement Project (WV 41), Fayette and Raleigh Counties, West Virginia

Federal Project Number BR-0041 (059)E
WVDOH Project Number S210-41-0.01

Prepared by:

KCI Technologies, Inc.
5001 Louise Drive, Suite 201
Mechanicsburg, PA 17055

Prepared for:

West Virginia Department of Transportation
Division of Highways
Charleston, West Virginia

January 2007
Updated August 2013

INTRODUCTION

The West Virginia Department of Transportation, Division of Highways (WVDOH), in cooperation with the Federal Highway Administration (FHWA), is proposing to replace the Thomas Buford Pugh Memorial Bridge (Pugh Bridge) over the New River, Raleigh and Fayette Counties, West Virginia (Figure 1, Attachment A). An Environmental Assessment (EA) for the project, which details the potential impacts of the prudent and feasible alternatives for the proposed improvements on natural, socioeconomic and cultural resources, has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended.

The purpose of this document is to comply with the requirements of Section 4(f) of the U.S. Department of Transportation (DOT) Act of 1966, amended and codified in 49 U.S.C. Section 303, and Section 18(a) of the Federal-Aid Highway Act of 1968, 23 U.S.C. 138. This Programmatic Section 4(f) Evaluation documents that there is no prudent and feasible alternative to the use of the New River Gorge National River (NRGNR), a publicly owned park, to replace the existing Pugh Bridge. All planning to minimize harm has been considered.

This project meets the *Nationwide Programmatic Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvement with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges*:

- The park is located adjacent to the existing highway;
- Less than 1 percent of the property will be acquired (less than 1 acre from 70,000 acres);
- The project's proximity impacts will not impair the intended use of the property; and
- FHWA and WVDOH are coordinating with the National Park Service (NPS) regarding the assessment of impact and mitigation for the use of the park

This Programmatic Section 4(f) Evaluation has been revised to provide updated information regarding the current condition of the Pugh Bridge and a description of additional engineering studies that were conducted between 2008 and 2013 to further minimize impacts to the New River and its aquatic habitat. Information related to additional mitigation efforts also is included in this evaluation.

A. DESCRIPTION OF THE PROPOSED PROJECT

WVDOH proposes to replace the existing Pugh Bridge on West Virginia Route 41 (WV 41) over the New River in Raleigh and Fayette Counties (Figure 2, Attachment A). The Build alternatives that were considered consisted of replacement of the bridge either on its existing alignment or slightly downstream of the existing bridge.

The on-line structure would replace the existing bridge on its current alignment. This option would require construction of a causeway and a temporary bridge downstream of the existing structure.

The downstream structure would cross the New River at a 30-degree angle to the river with a 31-foot clear width. The bridge and approach roadways would need to be widened in the curves at both ends. The existing bridge would remain open to maintain traffic until completion of construction of the new structure. A common causeway would be required.

The bridge replacement options are designed to carry two 11-foot wide lanes (northbound and southbound) with a 3-foot wide shoulders that transition to 5 feet wide at the bridge ends. The design also includes n 8-foot wide recreational lane on the downstream side that will be separated by a steel traffic rail and aluminum bicycle rail. The bridge length varies from 650 feet to 670 feet. The design speed is 20 mph. Design criteria for each bridge span arrangement conform to American Association of State Highway and Transportation Officials (AASHTO) and WVDOH specifications.

B. PROJECT PURPOSE AND NEED

The purpose of the project is to develop an alternative that will provide a bridge that meets the current WVDOH design standards and addresses the safety issues associated with the condition of the existing structure. Since the project is within a National Park, development of alternatives included a recreational lane for pedestrians and cyclists. The design and study of alternatives has focused on those that meet the current design standards and address the safety issues, to provide a safer roadway for vehicular traffic as well as bicycle and pedestrian traffic.

The need within the project area is to resolve the safety issue associated with an existing bridge that is functionally obsolete, and has major substructure and superstructure deficiencies. The physical and structural deficiencies identified by WVDOH have resulted in the need to develop replacement or repair alternatives for the existing bridge.

Eventually, the continued deterioration of the bridge would likely result in the closure of the structure due to unsafe conditions. If the bridge were closed, traffic would have to be detoured. The shortest detour route would require vehicles to travel approximately 61 miles, which was considered unacceptable by WVDOH. Additionally, the existing bridge was determined to be functionally obsolete, with a clear width of only 20 feet, which does not meet current design standards of 28 feet. As a result of a need for a safer structure, WVDOH considered development of a structure that satisfies WVDOH safety standards and provides safe access for motorists a necessity.

Current Condition of TBPM Bridge

During a periodic inspection of the bridge on September 28, 2011, it was discovered that a channel beam comprising one half of the vertical member on the downstream

side of span #5 was broken; repairs were made to the bridge that day. The bridge posting was lowered from 15 tons to 3 tons by Commissioner's Order dated October 25, 2011. In November 2011, height restrictions were placed at both ends of the bridge to limit large vehicles from using the bridge.

The inspection report for the TBPM Bridge, dated September 30, 2011, rated the structure in critical condition. The substructure was described as in "generally poor condition" with spalling, cracking and efflorescence, and deterioration of expansion filler; the superstructure condition was described as "generally critical" with section loss, broken and separated clip angles, popped rivets, impact damage, rust scale and surface rust. The floor system and lower chord members are deteriorated and the deck is in poor condition; and the railings show moderate impact damage. It was further recommended that with the continuing decline of the structure, it should be replaced.

The bridge has been put on a 3-month inspection cycle to more closely monitor the condition of the truss spans. Review of the bridge inspection reports from late 2011 through early 2013 indicate that inspection teams have not found any additional major structural issues with the truss spans. Since the discovery of the broken vertical at L1U1 in span #5, numerous repairs have been made to various structural components and the bridge has continued to undergo regular maintenance.

C. IDENTIFICATION AND DESCRIPTION OF THE SECTION 4(f) RESOURCE

The New River Gorge National River, a U.S. National Park Service (NPS) property, covers over 70,000 acres of land along the New River between Hinton and Fayetteville (Figure 3, Attachment A). The park provides numerous recreation opportunities for visitors to the park including bicycling, fishing, hiking, climbing, primitive camping, hunting, and horseback riding. The New River is recognized for its recreation, cultural, aquatic and scenic resource values at a state and national level. The New River is among one of the oldest rivers on the continent. Visitors to the national park take advantage of the scenic views of the wooded river gorge, which is dominated by deciduous forest.

D. ALTERNATIVES ANALYSIS

This section summarizes the alternatives and design options considered for the Pugh Bridge replacement. Preliminary engineering studies and development of project alternatives are outlined in the EA analysis, and avoidance and minimization measures have been considered in the design of each alternative. This alternatives analysis has been conducted in accordance with the Nationwide Section 4(f) Programmatic Agreement as described above.

1. No Build Alternative

The New River Gorge National River (NRGNR) includes 70,000 acres and extends 53 miles along the New River, thus limiting options to replace the bridge outside of the park.

The No-Build Alternative is included as an avoidance alternative and as a baseline for evaluation of the impacts for the build alternatives. Since the No Build Alternative would not impact any Section 4(f) resource, it is considered a Total Avoidance Alternative. However, the No Build Alternative would not meet the needs of the project, as it would not correct the structural deficiencies and the safety hazards of the existing bridge. Due to the deteriorating condition of the existing structure, the No-Build Alternative would eventually result in the permanent closure of the bridge. Additionally, there is no practical detour route. The shortest detour would use several US and WV routes and cover approximately 61 miles. The No Build Alternative would fail to address the structural and safety deficiencies and would not meet the project needs and therefore is not considered a prudent and feasible alternative.

2. Improve the Existing Structure Without Using the NRGNR

Rehabilitation strategies were evaluated to increase the load carrying capacity of the existing bridge structure to current bridge standards. These strategies utilize repair and strengthening details that preserve the historic integrity of the existing structure to the maximum extent possible. The repair and rehabilitation engineering details and costs are based upon bridge inspection and rating evaluation reports prepared by the WVDOH.

Lengthy and extensive repairs would be required to rehabilitate the bridge to meet current design standards and extend the service life of the 73-year old structure. Rehabilitation of the existing structure would require semi-annual inspections of the superstructure and substructure. Rehabilitation would be required for the superstructure and substructures of the approach spans and the bridge trusses. The approach span structures are structurally and functionally deficient and the current condition of the abutments is poor.

The *Bridge Replacement Study* (November 2001) noted the load capacity and limited vertical and horizontal clearances of the existing bridge are features that deem this structure to be “functionally obsolete”. The current structure has a clear width of 20 feet, which does not meet current WVDOH design standards of 28 feet. Therefore, the structure was determined functionally obsolete. As a result, rehabilitation or repair of the existing bridge would not meet the project’s safety needs.

There are several concerns that will still exist for a rehabilitated bridge. Widening the existing bridge to current design standards cannot reasonably be accomplished if the existing structure is to be salvaged. Even after rehabilitation, the structure will still be considered functionally obsolete as a result of its narrow width. Therefore, physical constraints may render this bridge non-functional as a two-lane facility. Specifically, it is unlikely that RVs, school buses and delivery trucks could safely pass by one another on the structure.

With the proposed rehabilitation option, the end product will be a rehabilitated 73-year old bridge structure that remains structurally obsolete due to the restricted roadway width.

Because of the geometric deficiencies outlined above, the rehabilitation alternative would not meet the project needs and was not considered prudent and feasible.

Since approval of the EA/4(f) document in 2007, the WVDOH and FHWA initiated additional environmental studies, engineering analyses and design reports/plans. These additional studies and analyses were conducted in support of the proposed bridge replacement project and to prepare responses to agency comments on the EA/4(f) that reflect current project information and engineering design.

TRC prepared an *Options Studied Report, Thomas Buford Pugh Bridge* in December 2009 to summarize all of the options that had been studied to that point, which included a more detailed analysis of the rehabilitation option. A *Temporary Bridge Bypass Study* conducted by TRC in April 2011 investigated the feasibility of using a temporary bypass bridge to facilitate rehabilitation and also included an update of bridge rehabilitation costs. The results of these studies confirmed that rehabilitation would be costly and would not meet the project needs. Further, as a result of the discovery of the broken bridge member in September 2011 and continuing deterioration of the TPBM Bridge, it has been decided that rehabilitation of the existing bridge is not considered prudent and feasible.

3. Construct a Bridge in a New Location Without Using the NRGNR

As noted above, the New River Gorge National River includes 70,000 acres and extends 53 miles along the New River, thus limiting options to replace the bridge outside of the park. A bridge constructed outside of the park would be farther away from the project area than either of the 2 closest existing crossings at US 19 and US 64.

The project evaluated numerous build alternatives to replace the bridge either on its exiting alignment or slightly downstream of the exiting bridge (Figure 4, Attachment A). Four prudent and feasible build alternatives were carried forward for detailed study. Other build alternatives would require acquisition of larger amounts of property from the NRGNR and would have higher impacts to the New River through construction of an additional causeway or temporary bridge or additional piers in the river.

Subsequent to completion of the EA/4(f), additional engineering studies were conducted to further analyze alternatives that would not require working in the river. Based on the site conditions (steep banks and depth and velocity of the river), it was determined that these alternatives were not feasible. The physical conditions at the TBPM Bridge project area, including steep banks, do not permit top-down construction techniques.

Preliminary alternatives with high costs and high impacts to the river and park were determined not to be prudent and feasible.

Further information about the additional engineering studies is included in the FONSI and electronic copies of the reports are included as Appendix X of the FONSI.

E. MEASURES TO MINIMIZE HARM

For all of the build alternatives, land from the New River Gorge National River that would be used by the project consists primarily of forested area and does not contain areas of active recreation.

Shifts/Design Modifications to Avoid or Minimize Use of Section 4(f) Resources

Because the project is located within the New River Gorge National River, the alternatives were designed to minimize potential impacts to the resources. The park extends 53 miles along the river, thus limiting options to replace the bridge outside of the national park. The Build Alternatives were designed to minimize impacts to the NPS-owned parkland.

Option 4a, the preferred alternative, would replace the bridge immediately downstream of the existing bridge and would only require placing two piers in the river to support the three-span bridge (Figure 5, Attachment A). These piers would be smaller than the two piers supporting the existing bridge. Thus, with the removal of the existing piers there would be no net loss of habitat in the New River. This option would require construction of only one causeway, which would be used for both construction of the new bridge and demolition of the existing bridge. This option would use the lowest amount of land from the NRGNR than the other build alternatives.

Additional engineering studies were conducted to refine the common causeway design and construction details, with the goal of further minimizing impacts to the aquatic resources and habitat in the New River. The studies included analysis of the river bottom and flow, consideration of various causeway configurations and refinement of bridge alternates. The preferred common causeway alternate (B2) would produce lower shear stress values and includes a temporary bridge placed above the 10-year water surface elevation.

Option 4a and its associated Causeway Alternate B2 have been designed to minimize impacts to the New River and its aquatic habitat. Unlike a conventional causeway that would wash out either from a high water event or after construction and demolition are complete, the preferred causeway will not wash out even during a 10-year flood event and can be removed intact at the end of the project.

Measures to Minimize Harm to Section 4(f) Resources

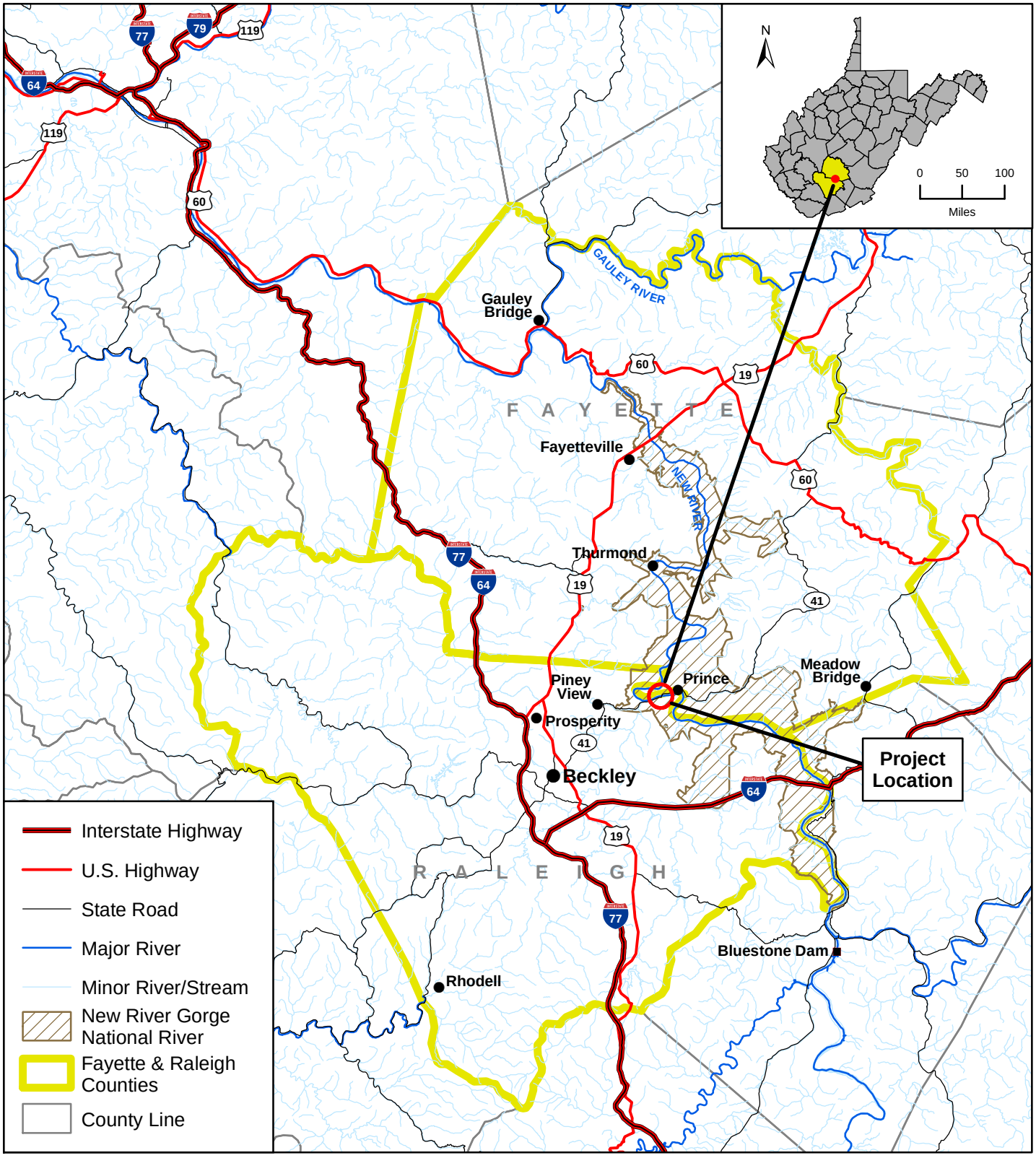
Although the bridge replacement project will use a small portion of the public park (less than 1%), no prudent and feasible alternative completely avoids the Section 4(f) property. Mitigation measures to minimize harm to the Section 4(f) resource that cannot be avoided would include coordination among WVDOH, FHWA, and NPS to determine an appropriate property to be acquired for NPS holdings as compensation for unavoidable impacts. In addition, WVDOH has undertaken coordination with WVDNR and USFWS to develop a plan to relocate mussels in the direct impact area and to

conduct post-construction studies. Additionally, FHWA and WVDOH have consulted with the West Virginia State Historic Preservation Officer and NPS to develop architectural treatments and compatible paint colors so that the new bridge complements the park setting. Further details of this mitigation can be found in the Mitigation Summary located in the FONSI text.

Since Option 4a meets the project need to improve safety in the project area and requires less property from the New River Gorge National River than the other Options, Option 4a appears to result in the least harm to the Section 4(f) resource and is the preferred alternative.

ATTACHMENT A

FIGURES



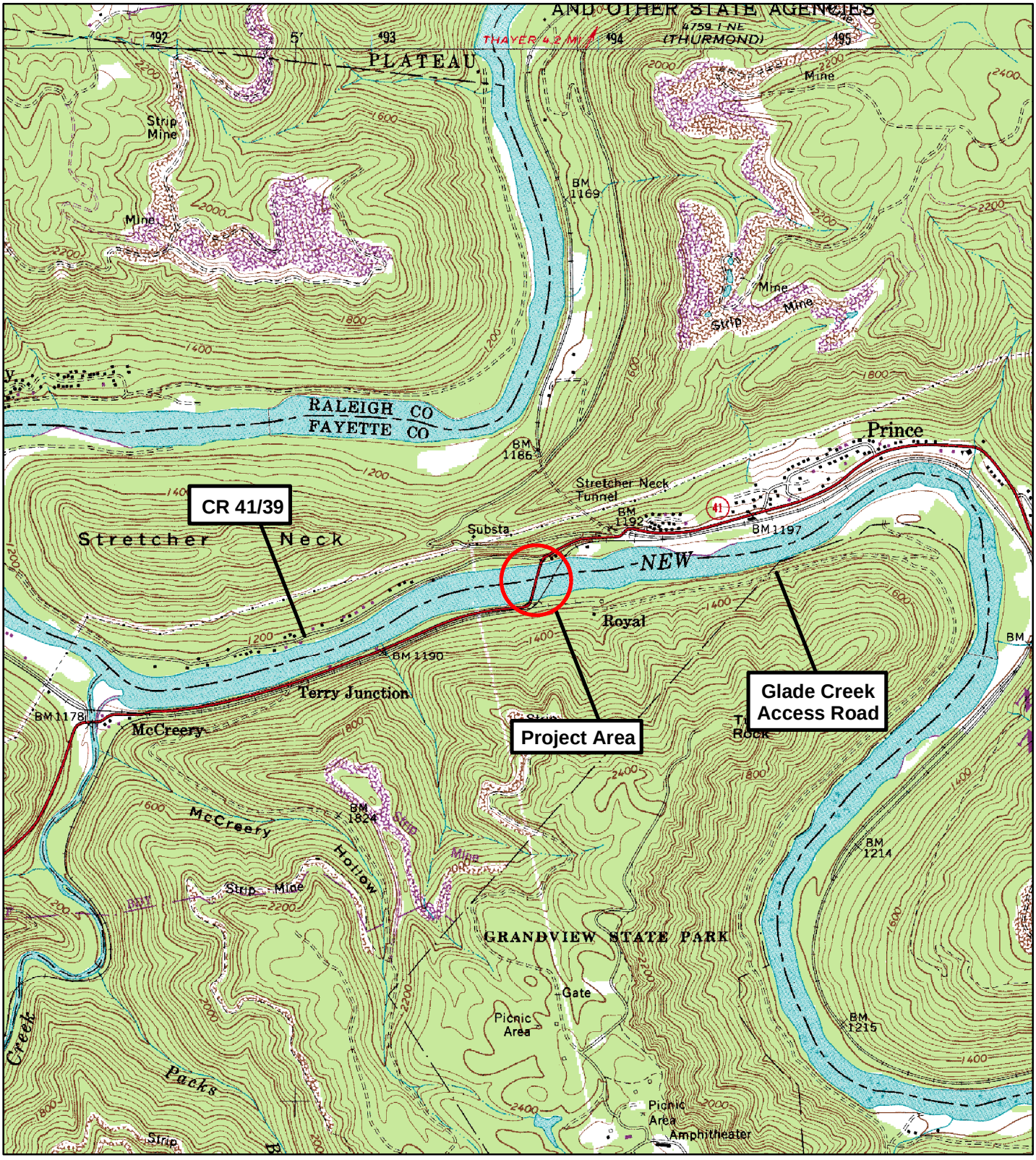
0 4 8
Miles

N

Figure 1
Project Vicinity Map

Section 4(f) Evaluation
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

Sources: National Atlas & the West Virginia State GIS Technical Center



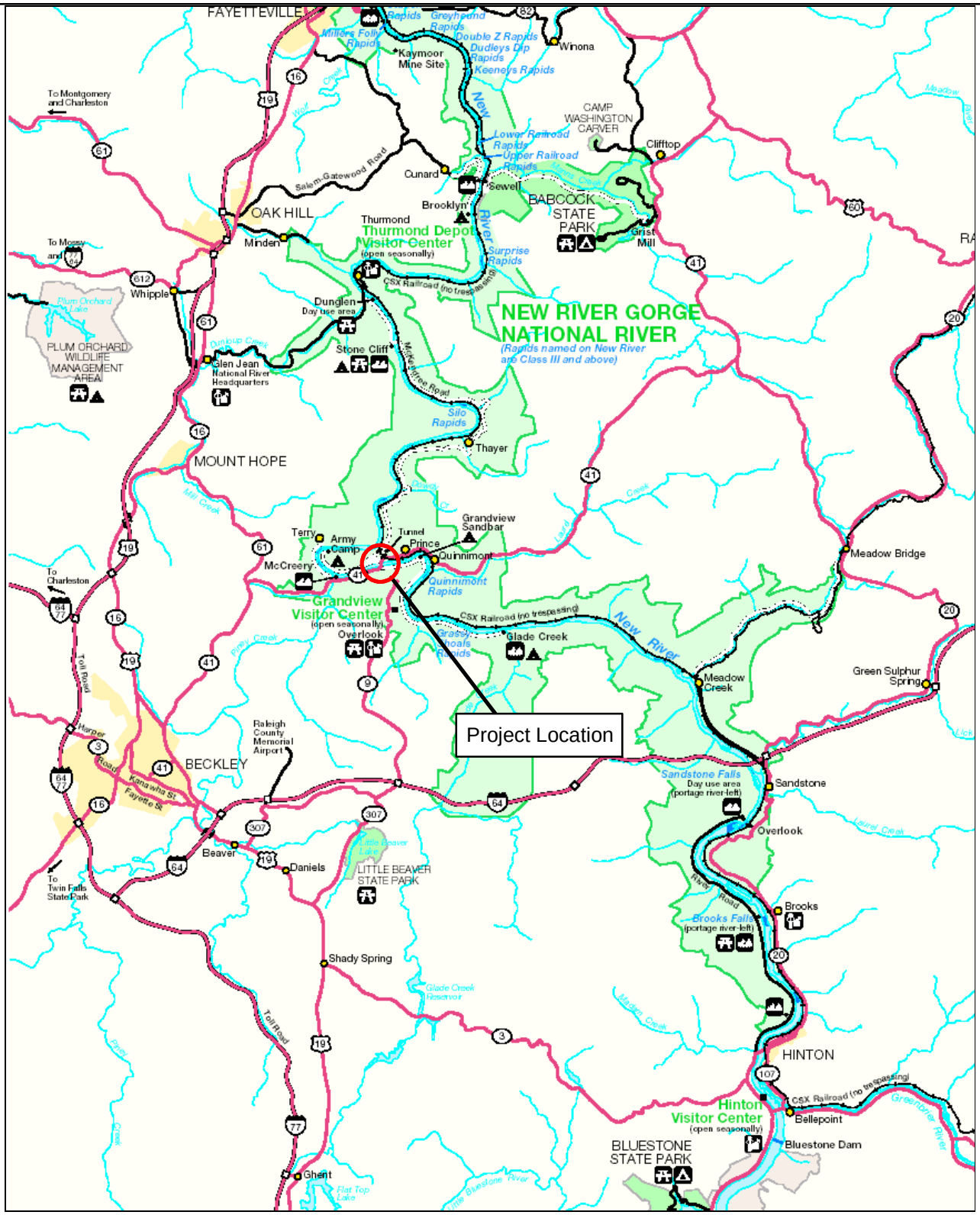
0 1,000 2,000
Feet

N

Figure 2
Project Area Map

Section 4(f) Evaluation
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

Sources: Prince & Thurmond, WV
USGS 7.5 Minute Quadrangles



Map not to scale

N

Figure 3
National Park Service Map

Section 4(f) Evaluation
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

Source: U.S. Department of the Interior, National Park Service, New River Gorge Guide (2001)

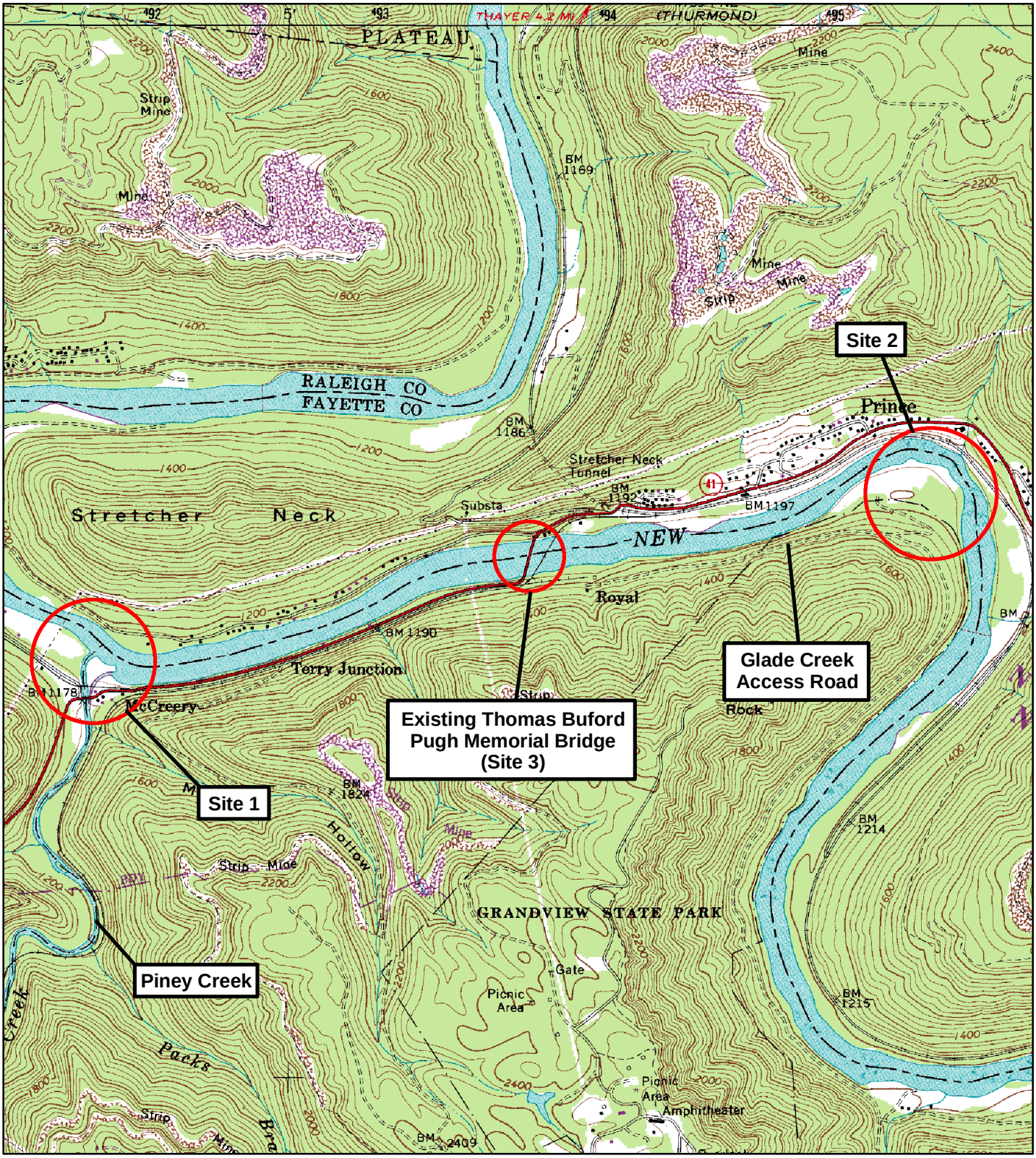


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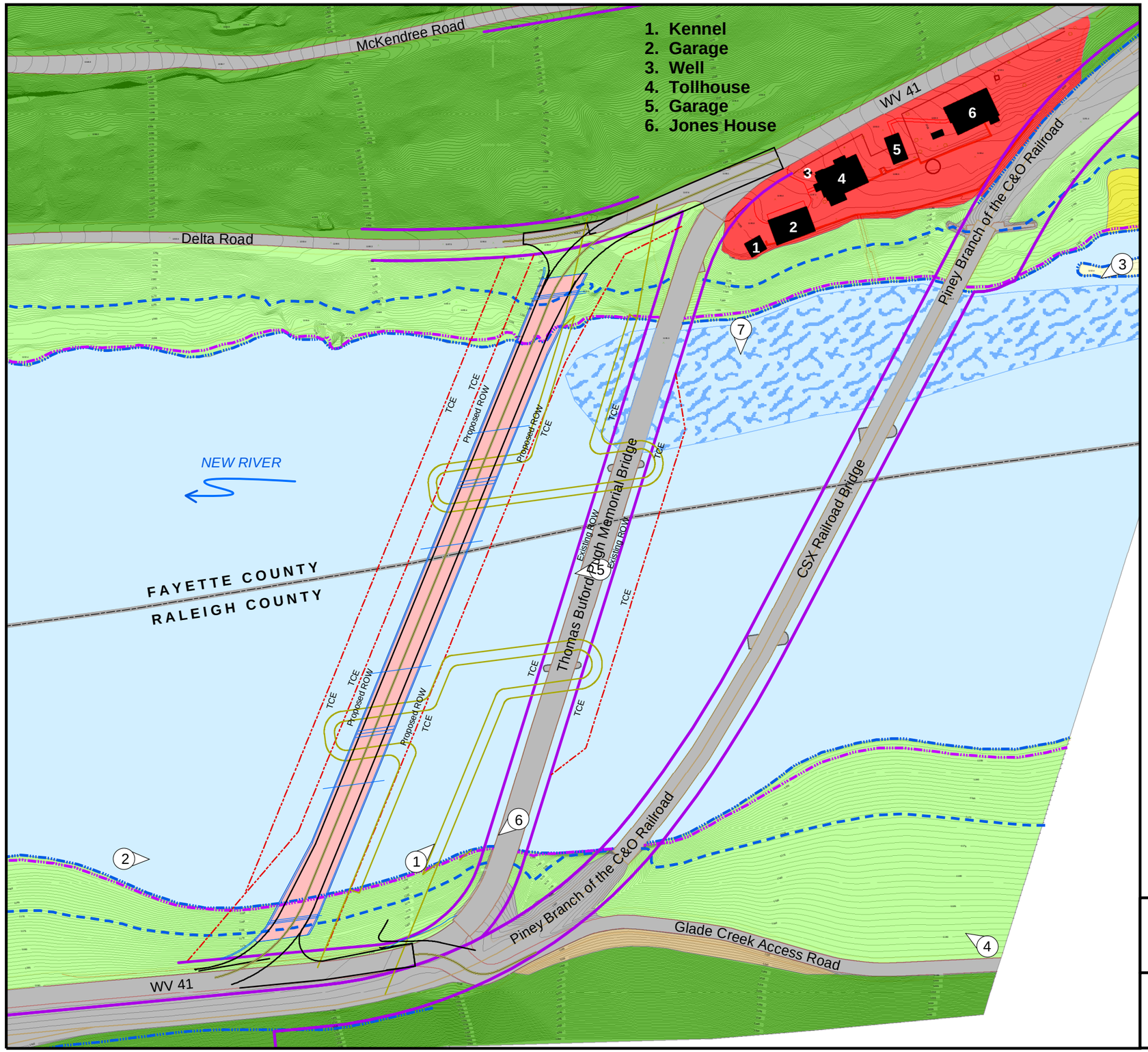
Figure 4
Bridge Replacement Study
Potential Sites Map

Section 4(f) Evaluation
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

Sources: Prince & Thurmond, WV
USGS 7.5 Minute Quadrangles



LEGEND

- Mixed Deciduous Upland Forest
- Mixed Deciduous Riparian Forest
- Transitional Shoreline Riverine
- Herbaceous Land
- Sandbar
- Riverine Habitat (New River)
- Residential Land
- Transportation Land
- Structures
- Mussel Bed
- County
- Proposed Bridge
- Option 4a
- Proposed Centerline
- Proposed Roadway
- Option 4a Causeway
- Temporary Construction Easement / Proposed Right-of-Way
- Existing Right-of-Way
- Edge of Water
- 100-Year FEMA Floodplain
- Ordinary High Water Mark
- 1 Photo Locations

N

0 100 200

Feet

1 inch equals 100 feet

Note: A majority of the project area is in federal ownership as part of the United States National Park Service Department of the Interior's New River Gorge National River. Residential and transportation land, as approximately delineated, are not part of National Park Service land.

Figure **5**
Environmental Resources Associated with Option 4a

Section 4(f) Evaluation
Thomas Buford Pugh Memorial Bridge Replacement
Fayette and Raleigh Counties, West Virginia

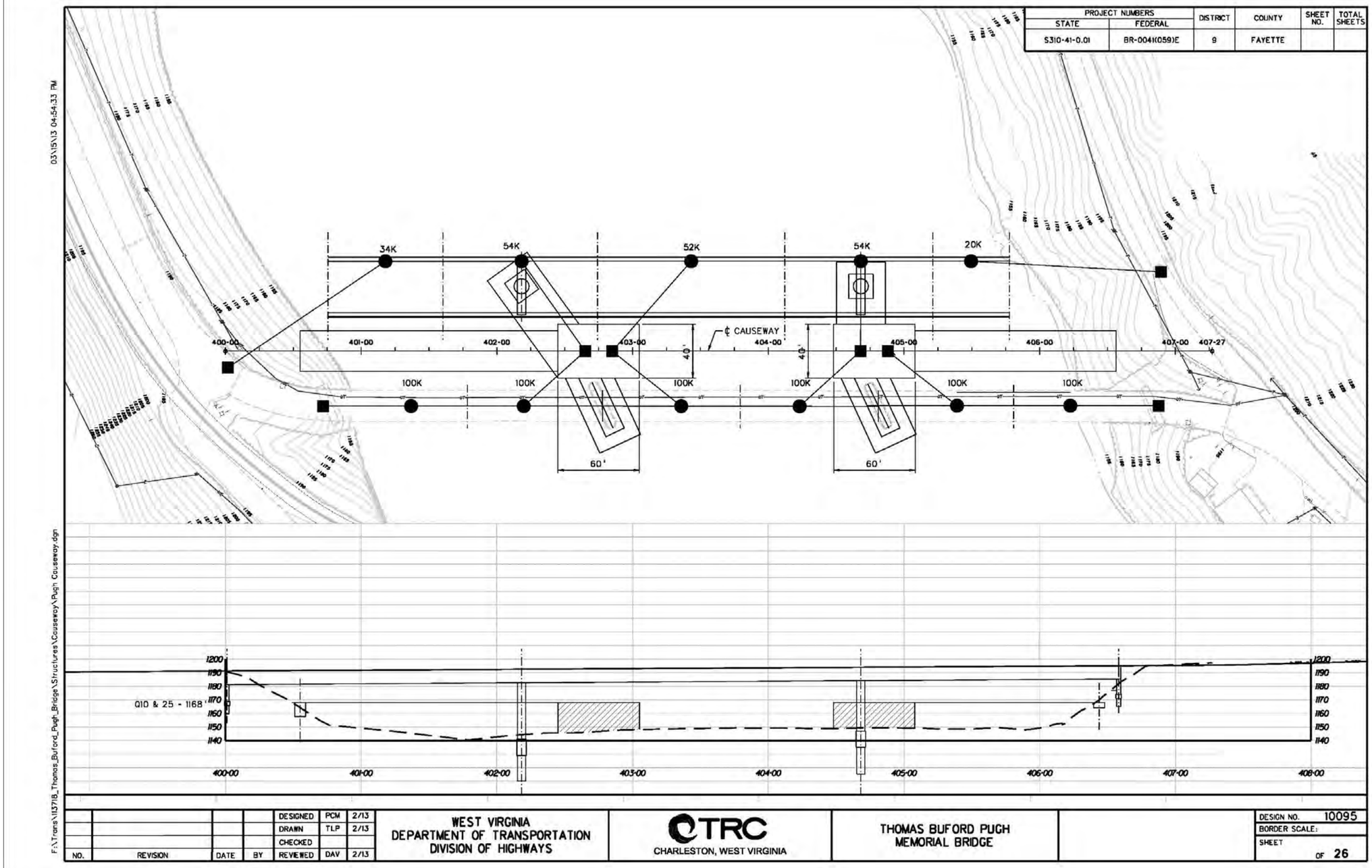


Figure 6
Gabion Basket Islands Causeway – Alternate B2