

ENVIRONMENTAL ASSESSMENT

UPPER GASSAWAY BRIDGE PROJECT
BRAXTON COUNTY, WV



WEST VIRGINIA DEPARTMENT

OF TRANSPORTATION

DIVISION OF HIGHWAYS
State Project S304-4-17.86 00
Federal Project STP-0004(054)D



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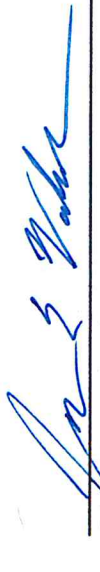
ENVIRONMENTAL ASSESSMENT

Submitted pursuant to 42 USC 4332(2)(c) by the U.S. Department of Transportation, Federal Highway Administration and
West Virginia Department of Transportation - Division of Highways

8-8-18
DATE OF APPROVAL


FOR WEST VIRGINIA DIVISION OF HIGHWAYS

8-16-18
DATE OF APPROVAL


FOR FEDERAL HIGHWAY ADMINISTRATION

The following persons may be contacted for additional information concerning this document

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Comments on this Environmental Assessment are due by October 9, 2018, and should be sent to:

Mr. RJ Scites, P.E.
Director, Engineering Division
West Virginia Division of Highways
1334 Smith Street
Charleston, WV 25301

PUBLIC COMMENT PERIOD

The Public Information Meeting workshop for this project will be held at the Gassaway Community Room at 416 Elk Street in Gassaway, WV on September 6, 2018, from 4:00 to 7:00 PM. Comments on the project will also be accepted at the Public Meeting.

The public comment period for the document ends 30 days after the September 6, 2018 Public Informational Meeting. Written comments on this document can be submitted **by October 9, 2018** through the engineering project website

<https://transportation.wv.gov/highways/engineering/comment/Pages/default.aspx> or by mail to the following address:

Mr. Raymond J. Scites
Director, Engineering Division, WVDOH
West Virginia Division of Highways
1334 Smith Street
Charleston, WV 25301

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1.0 INTRODUCTION

The West Virginia Department of Transportation's (WVDOT) Division of Highways (WVDOH), in cooperation with the Federal Highway Administration (FHWA), proposes to replace the Upper Gassaway Bridge (UGB) crossing of the Elk River in the Town of Gassaway, Braxton County, West Virginia (WV). The two-lane bridge provides a vital river crossing along WV Route 4 for local residents and commercial traffic, as part of the main thoroughfare of the Town of Gassaway. The most recent traffic study (2015) shows the average daily traffic (ADT) as 4,913 vehicles with a 20-year projected ADT of 5,258 vehicles.

The current structure was built in 1935 by the Works Progress Administration and the State Road Commission, using the existing piers of the original 1916 bridge and adding a new reinforced concrete abutment to the north. The existing substructure is in poor condition, after a recent inspection in 2016, the bridge was classified as structurally deficient, with a sufficiency rating of 38.3, out of 100. The UGB structure also has restrictive weight limit uses for trucks and buses.

Three build alternatives, one renovation alternative, and a no-build alternative were considered through the Environmental Assessment process. The predominant comparison features for the alternative alignments include:

- safety (during and after construction)
- costs
- stream hydrology and hydraulics
- right-of-way acquisitions
- utilities
- constructability
- proposed impacts to the surrounding natural, cultural, and social environment.

The considered alternatives are described further in Section 3.0.



Aerial overview of Upper Gassaway Bridge crossing the Elk River, along WV-4 route

2.0 PROJECT PURPOSE AND NEED

2.1 Project Purpose

The purpose of the project is to provide a safe and structurally sufficient crossing of the Elk River in the Town of Gassaway, Braxton County, West Virginia, in order to effectively serve the transportation needs of first responders (fire, ambulance, police) and local and through traffic. In addition, the crossing must meet current design standards for vertical clearance, lane width, and weigh limits, among other design criteria.

2.1.1 Local Economy

Continued deterioration of the UGB would result in its permanent closure and necessitate detours. This closure would cause economic hardship to the local and regional residents and businesses, and would isolate the majority of Gassaway's population from the town's grocery and hardware stores. A potential one-way detour route for traffic would utilize WV-4 and I-79 for approximately 23 miles (approximately 31 minutes). Monetary costs for use of the detour for one vehicle per day (roundtrip) based on the USDOT mileage rate of \$0.54/mile is roughly \$25.00, and would cost approximately \$124,000 per day for the estimated 5,000 vehicles that use the crossing. If only 25% of the vehicles use the official detour, costs for users would be over \$11 million for one year.

The UGB is located near two tourist attractions, the Braxton County Monster Chair #1 (Chair) and the Elk River Water Trail Dairy Queen Access Point (Access).

- The Chair is a 10-foot tall chair made in the likeness of the legendary Flatwoods Monster (1952), located behind the Gassaway Dairy Queen, a local favorite restaurant. The Braxton County Convention and Visitor's Bureau began the "Free Braxxie" program in 2015, where visitors are encouraged to have their photographs taken at all five Chairs to obtain a "Free Braxxie" sticker. Each Chair is unique and placed in an incorporated town near an established tourist attraction or high traffic business.
- The Access is a boat slide located upstream of the UGB, with a parking lot and information sign behind the Gassaway Dairy Queen. It provides an access point to the Elk River Water Trail, which starts near the Sutton Dam and continues through Braxton, Clay, and Kanawha Counties.



Existing Upper Gassaway Bridge facing northeast. 2/2/2016



Elk River Water Trail Dairy Queen Access Point 2/8/17

Each year, the Elk River Canoe and Kayak Float is held in Braxton County, and the Access is the second point of exit for the event route. Shuttle service and parking at the adjacent Access lot and the Church of Christ lot in Gassaway are used for this event.

If the UGB were closed, these tourist attractions would most likely see a decrease in visitors, which in turn would affect the local businesses. A closure may also deter locals who frequent the businesses near the UGB, due to difficult access and detour costs. Local businesses could additionally see a rise in delivery costs stemming from the additional fuel costs associated with the long detour.

2.2 Project Need

The need for the project is due to the functionally obsolete and structurally deficient condition of the existing UGB over the Elk River in Gassaway WV, which does not meet current state and federal design standards. The existing UGB superstructure and substructure are in poor condition. The 2016 bridge inspection classified the bridge as structurally deficient, with a sufficiency rating of 38.3. Vertical clearance is 14 foot 5 inches, limiting use by some vehicles. Lane width does not meet current design standards for modern bridges, and there are no shoulders present. The inadequate lane width and restricted vertical clearance render the bridge functionally obsolete. The bridge has restricted weight limits (two-axle trucks at 16 tons to five-axle trucks at 23 tons) and posted restrictions for buses and trucks to cross one at a time.

2.2.1 Safe and Effective Travel

The deficiencies associated with the UGB were identified within the August 2016 inspection report stating: “the bridge is structurally deficient, the engineering design is considered functionally obsolete based on bridge travel lane width (no safety shoulders), and the height of the portal strut and bracing (14-foot 5-inch vertical clearance) limits some vehicles’ use of the structure.” Many areas with section loss of 10 to 25 percent were noted throughout the structure, with total section loss in places. Due to structural decay, the bridge has lower weight limits (two-axle trucks at 16 tons to five-axle trucks at 23 tons) and posted restrictions for buses and trucks to cross one at a time. The report also mentions the bridge’s importance as a main



*Existing Upper Gassaway Bridge
facing east. 2/2/2016*

route through the Town of Gassaway for residents and businesses. The most recent traffic study (2015) shows the average daily traffic (ADT) as 4,913 vehicles with a 20-year projected ADT of 5,258 vehicles.

Continued deterioration would result in closure of the UGB and necessitate detours. Permanent closure of the UGB would cause economic hardship to the residents and businesses in the Town of Gassaway and the surrounding area. A potential one-way detour route for traffic would utilize WV-4 and I-79 for approximately 23 miles (approximately 31 minutes). Monetary costs for use of the detour for one vehicle per day (roundtrip) based on the USDOT mileage rate of \$0.54/mile is approximately \$25.00, and would cost approximately \$124,000 per day for the approximate 5,000 vehicles that use the crossing. If only 25% of the vehicles use the official detour, costs for users would be over \$11 million for one year.

Unofficial detours may use South State Street from WV-4 and follow the Elk River for 1.3 miles (6 minutes) from the UGB to Perry Street, west of downtown Gassaway; however, South State Street is in disrepair and prone to flooding events. Additional constraints include the low clearance, railroad underpass of South State Street. Trucks, buses, and emergency vehicles cannot navigate safely through this underpass.

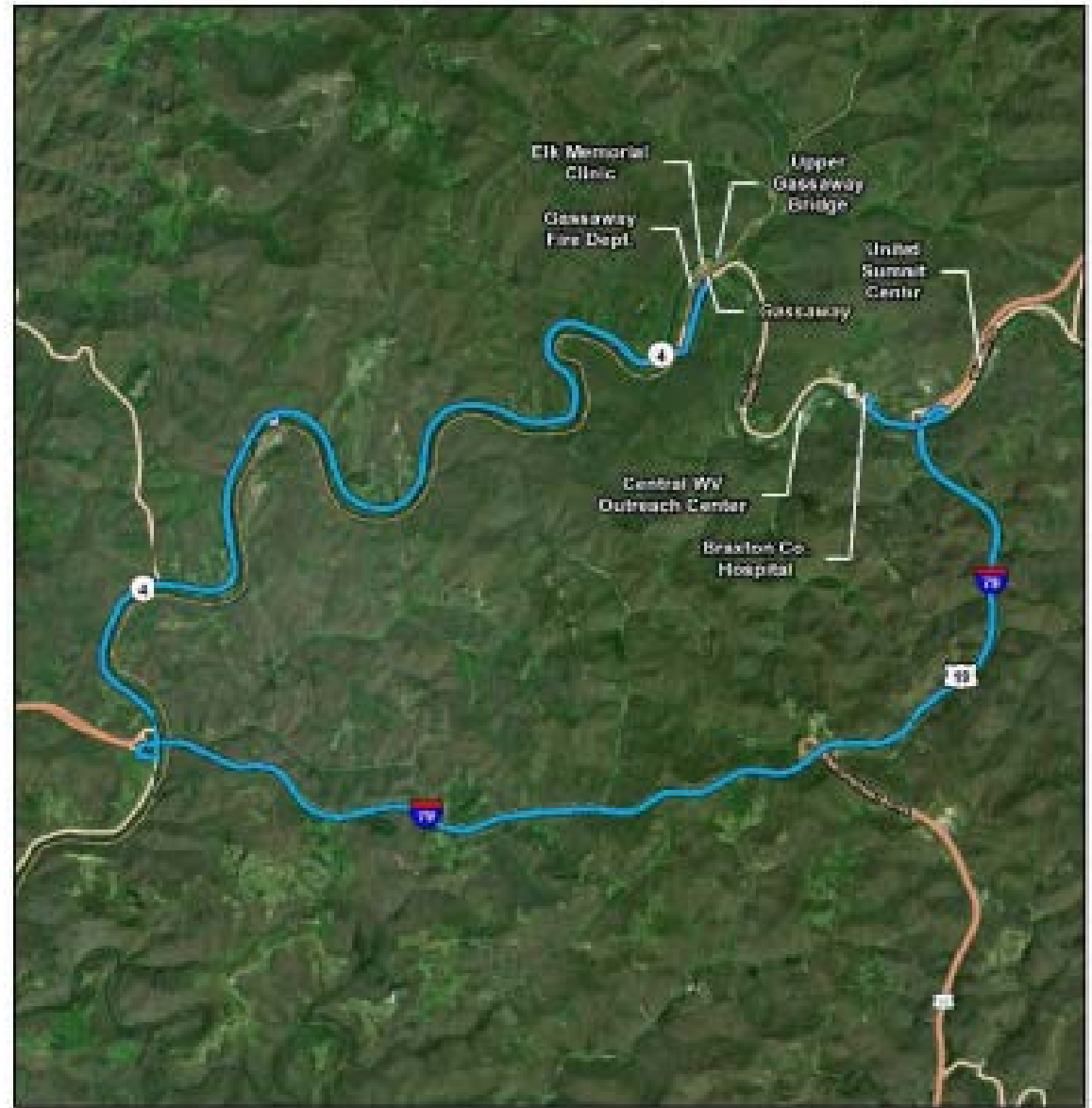


*Railroad underpass on South State Street, facing northwest.
01/31/2016*

2.2.2 Public and Emergency Services

The Upper Gassaway Bridge is part of the main route for Gassaway public services such as Braxton County School busses and the United States Postal delivery. Permanent detours for bus and delivery routes could cause unfavorable changes to schedules and costs.

The local emergency services for the Town of Gassaway include the Gassaway Fire Department, located on the western side of the UGB; the Braxton County Memorial Hospital, located on the eastern side of the UGB; and the Sutton Police Department, located on the eastern side of the UGB in the town of Sutton. A permanent detour could add approximately 20 to 30 minutes to the typical emergency response time as well as additional costs for emergency transport. There are also needed community services that could be difficult for locals to access with a permanent bridge closure, including the Central WV Outreach Center, the Elk Memorial Clinic, the Braxton Community Coalition, the United Summit Center, the Braxton County Fellowship Home, and the Braxton County Health Department.



Detour from town to local hospital for bridge closure.

3.0 ALTERNATIVES

GAI Consultants (GAI) conducted a study to evaluate and determine the most suitable design for the replacement or rebuild of the existing bridge (Appendix A). All design alternatives recommend a typical 35-foot wide section of two 12-foot lanes, two 3-foot shoulders, and a 5-foot sidewalk. Environmental impacts and mitigation measures associated with the engineering design were considered for each alternative. The environmental impacts were generally similar across the alternatives, except for acquisitions, see Section 5.0. The following summaries detail the alternative alignments and no-build option, and Table 3.1 compares the four build options.

3.1 Alternative 1

Alternative 1 proposes to replace the existing bridge at its current location and install a temporary bridge detour approximately 25 feet downstream of its current location, to accommodate traffic during construction. Right-of-way acquisitions and temporary easements would directly affect four landowners. The intersections for six roads, a total of 2,000 square feet of the Gassaway Church of Christ parking lot, and stair access for the Gassaway Volunteer Fire Department Myers Pump Station #1 would need to be reconstructed to intersect the new alignment. Utility relocations would include four utility poles carrying overhead electric, telephone, and cable wires; a sanitary manhole; and possibly a natural gas pipeline. Estimated total costs are \$4,299,500.

3.2 Alternative 2

Alternative 2 proposes to place a new bridge approximately 20 feet upstream of the existing bridge, while using the existing bridge to maintain traffic during construction. Right-of-way acquisitions and temporary easements would directly affect eight landowners. One residential and two commercial buildings would need to be removed, and the intersections for six roads and the parking lot entrance for the Gassaway Church of Christ would need to be reconstructed to intersect the new alignment. Utility relocations would include five utility poles carrying overhead electric, telephone, and cable wires, and a sanitary sewer and manhole. Estimated total costs are \$3,363,900.

3.3 Alternative 3

Alternative 3 proposes to place a new bridge approximately 15 feet downstream of the existing bridge, while using the existing bridge to maintain traffic during construction. Right-of-way acquisitions and temporary easements would directly affect five landowners. Two commercial buildings would need to be removed, and the intersections for eight roads and the parking lot entrance for the Gassaway Church of Christ would need to be reconstructed to intersect the new alignment. The Gassaway Church of Christ property would permanently lose 2,000 square feet of parking lot space.

Utility relocations would include five utility poles carrying overhead electric, telephone, and cable wires; a sanitary manhole; and possibly a natural gas pipeline. Estimated total costs are \$3,207,100.

3.4 Alternative 4

Alternative 4 proposes to renovate the existing bridge and install a temporary bridge detour approximately 25 feet downstream of its current location, to accommodate traffic during construction. Right-of-way acquisitions and temporary easements would directly affect five landowners. One commercial building would need to be removed, and the intersections for six roads and stair access for the Gassaway Volunteer Fire Department Myers Pump Station #1 would need to be reconstructed to intersect the new alignment. The Gassaway Church of Christ property would permanently lose 2,000 square feet of parking lot space. Utility relocations would include four utility poles carrying overhead electric, telephone, and cable wires; a sanitary manhole; and possibly a natural gas pipeline. The existing Gassaway Bridge was originally designed for an H-15 loading, and any rehabilitation can only restore the structure to the original design loading. Therefore, after renovation, the bridge would still be load posted. Additionally, rehabilitation would not address the fact that the bridge is functionally obsolete, and the travel lane widths and heights would restrict the types of vehicles that can cross the structure. Rehabilitation also would only have half the life of a new structure; instead of a new structure being needed in 75+ years, a new structure would be needed in 35 to 40 years instead. Estimated costs for Alternative 4 are \$4,399,900.

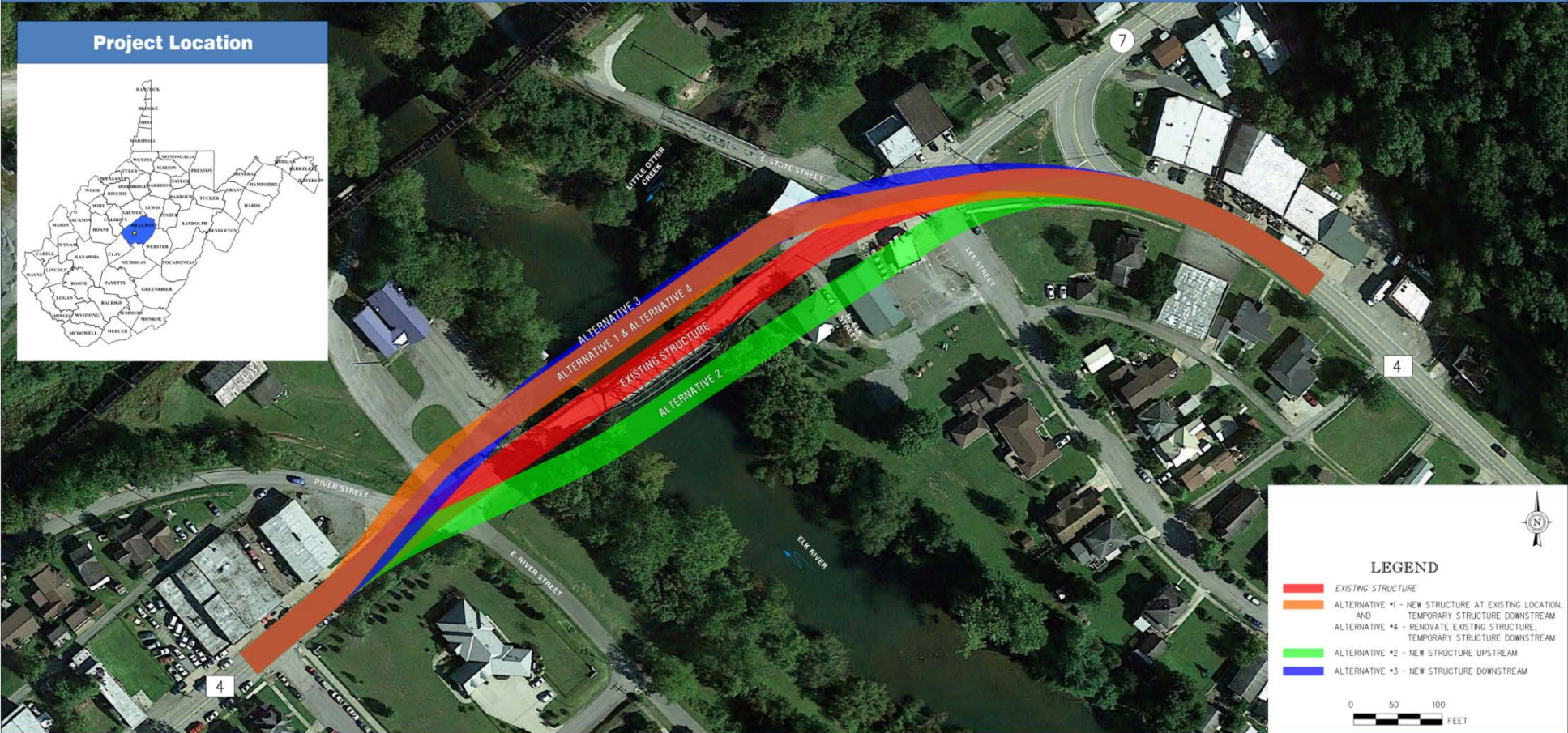
3.5 Alternative 5

Alternative 5 proposes a No-Build alternative, which would result in nothing being done to repair or replace the bridge. This would result in continued deterioration of the structure and eventual permanent closure to traffic. A twenty-three mile long detour would need to be used by the travelling public after closure of the bridge, at an annual cost of \$11 million to travelers, or \$825 million over 75 years.

3.6 Preferred Alternative

Alternative 3 is the preferred alternative based on the information collected, evaluated, and presented. Major factors taken into consideration for the alternative were safety, cost, right-of-way acquisitions, constructability, and environmental, utility, and hydraulic impacts. The alternatives comparisons are included on Table 3.1.

BUILD ALTERNATIVES



Upper Gassaway Bridge
February 2017

**Table 3.1
Build Alternatives Comparison¹**

	1	2	3	4
Alternative Description	New Structure at Existing Location. Temporary Bridge Downstream	New Upstream Structure	New Downstream Structure	Renovate Existing Structure
Roadway Length (ft)	150	1300	1220	150
Bridge Length (ft)	325	325	325	336.6
Total Length (ft)	475	1625	1545	480.5
Maintenance of Traffic	Temporary Bridge	Existing Bridge	Existing Bridge	Temporary Bridge
Temporary Detour Length (ft)	930	N/A	N/A	930
Estimated No. of Parcels Impacted	4	8	5	5
Estimated No. of Buildings Impacted	1	3	2	1
Bridge Clear Width (ft) -New Bridge -(Temporary Bridge)	35 (35)	35 (N/A)	35 (N/A)	Existing (35)
Design Exception and Reason	Design Speed – Posted Speed (25 mph) is below minimum required (50 mph)	Design Speed – Posted Speed (25 mph) is below minimum required (50 mph)	Design Speed – Posted Speed (25 mph) is below minimum required (50 mph) Substandard K Value – South State Street	Design Speed – Posted Speed (25 mph) is below minimum required (50 mph)
Hydraulic Impact	No Increase Anticipated	No Increase Anticipated	No Increase Anticipated	Increase Anticipated Due to Pier Encasement
Temporary Impact to Waterway for Access (sqft)	10,000	6,500	8,500	7,500

¹ Information provided by GAI Consultants in the Upper Gassaway Bridge Replacement Study report, dated October 2017 (Appendix A).

**Table 3.1
Build Alternatives Comparison¹**

	1	2	3	4
Temporary Impact to Waterway to Drop Truss (sqft)	2,500	2,800	2,300	0
Total Temporary Impact to Waterway (sqft)	12,500	9,000	10,500	7,500
Permanent Impact to Waterway (sqft)	40	40	40	720
2017 Construction Cost (Construction Year)	\$3,950,700	\$2,901,900	\$2,858,300	\$4,051,100
Utility Relocation Cost	\$63,800	\$7,000	\$63,800	\$63,800
Right-of-Way Cost	\$285,000	\$455,000	\$285,000	\$205,000
Design Concerns	-Temporary Bridge -Utility Impacts -Business Impact -ROW Impacts	-Utility Impacts -Business Impacts -Additional curvature to approaches -Reduced sight distance -ROW impacts -Requires earth retaining structure	-Utility Impacts -Business Impacts -Additional curvature to approaches -Design exception for South State Street -ROW impacts	-Temporary Bridge -Utility Impacts -Business Impact -Fracture Critical Members -Temporary bridge required for steel repairs -Advanced age of bridge components -Load posting required

4.0 ENVIRONMENTAL INVESTIGATION

4.1 Wetland and Stream Delineation

A biologist from Civil & Environmental Consultants, Inc., (CEC) conducted a wetland and stream delineation within the proposed project area during a site visit on September 13, 2017. Wetlands were delineated in accordance with the U.S. Army Corps of Engineers (USACE) 1987 Corps of Engineers *Wetlands Delineation Manual*, supplemented by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*, 2012. Streams were identified and classified by the presence of defined bed and banks, ordinary high water marks, stream flow, substrate characteristics, and the presence or absence of benthic macroinvertebrates and fish.

CEC identified no wetlands and two streams, the Elk River and Little Otter Creek, within the project study area. The Wetland and Stream Delineation Report provides detailed information of the field assessment and mapping (Appendix B).

4.1.1 Wetlands

No wetlands were present within the project area, during the investigation; therefore, wetland impacts are not anticipated. Two Upland Test Sites were examined at the Elk River banks.

4.1.2 Streams

The proposed project will require one crossing within an approximately 200-foot-wide construction right-of-way (ROW), including new construction and demolition, and will result in 10,500 square feet of temporary impacts and 40 square feet of permanent impacts to waterways (Tables 3.1 and 4.1, Appendix B-Figures 1-3). The delineated area of the Elk River was located within the segment reach of Buffalo Creek (RM 56.3) and Sutton Dam (RM 102.5). Water uses of streams in West Virginia are defined under WV Code of State Regulations (CSR) Title 47, Series 2, Requirements Governing Water Quality Standards (WV CSR §47-2-6). The Elk River is designated for Water Use Categories B (Propagation and Maintenance of Fish and Other Aquatic Life), C (Water Contact Recreation), D (Agriculture and Wildlife), and E (Water Supply Industrial, Water Transport, Cooling and Power).

The Elk River is designated by WV's Antidegradation Policy (CSR §47-2-4) as a Tier 1 stream in order to provide basic protection and to mandate that the existing water uses and the levels of water quality necessary to protect the existing uses are maintained and protected. The Elk River has a Total Maximum Daily Load (TMDL) established for fecal coliform and iron, as listed in the 2014 WV Integrated Water Quality Monitoring and Assessment Report.²

² 2014 WV Integrated Water Quality Monitoring and Assessment Report accessed (2017) through the WVDEP's Water Quality and Impaired Streams webpage at http://dep.wv.gov/WWE/watershed/IR/Pages/303d_305b.aspx

Little Otter Creek is a perennial stream that converges with the Elk River, downstream of the existing bridge. A short segment of Little Otter Creek is located within the wetland and stream delineation area but is not anticipated to be within the project impact area.

Stream Name	WV Stream Designations*	Stream Type	ROW Width (linear feet)	TOB Width (linear feet)	Temporary/ Permanent Impacts (square feet)	Method of Installation/ Crossing	Coordinates	Drainage Area (square miles)	Permits Required
Elk River (WVKE)	Tier 1/ Categories B, C, D, & E	Perennial	200	180	10,500/ 40	Bridge Replacement and Demolition	80° 17' 11.88" W, 40° 29' 59.09" N	564	CWA 401, 402, 404

* West Virginia designated uses per WV CSR §47-2-6: Public Water Supply (Category A), Warm Water Fisheries (Category B1), Trout Waters (Category B2), Wetlands (Category B4), Water Contact Recreation (Category C), Agriculture and Wildlife (Category D), and Water Supply Industrial, Water Transport, Cooling and Power (Category E), as listed in most recent WVDEP CWA305(b)/303(d) Integrated Water Quality Monitoring and Assessment Report and assumed to be present unless otherwise known by WVDEP consultation or public notice. Unlisted unnamed tributaries are listed by their assessed receiving waters.

In accordance with WV Antidegradation Policy (CSR §47-2-4). Tier 1 - basic protection; Tier 2 - High Quality and Trout Stocking Waters; Tier 3 - outstanding national resource waters and wild trout streams.

In West Virginia, stocked streams listed by WVDNR at <http://www.mapwv.gov/huntfish/> or <http://www.wvdnr.gov/Fishing/Stocking/DailyStock.shtm>, as stream sections that sustain year round wild trout (B2) populations without annual stocking, as listed by the WVDNR or WVDEP.

Streams listed in the West Virginia High Quality Streams, Fifth Edition, prepared by the WVDNR (2001).

4.2 Species of Special Concern

During early project planning stages in 2015, Ecological Specialists, Inc. (ESI) performed a Phase I freshwater mussel survey on the behalf of the WVDOH in the proposed project area. Eleven species of mussels were collected during the survey, including one federally endangered species, clubshell (*Pleurobema clava*).

On February 7, 2017, WVDOH sent National Environmental Policy Act (NEPA) scoping letters to the West Virginia Department of Natural Resources (WVDNR), the West Virginia Department of Environmental Protection (WVDEP), and the U. S. Fish and Wildlife Service (USFWS) to request database reviews to identify known and likely occurrences of federal and state protected species and their designated critical habitats, federal candidate species, and state special concern and rare species within the vicinity of the proposed UGB project area. Outside of the federally listed mussel species located in the Elk River, no other species of concern were listed within the project area.

On February 16, 2017, USFWS requested formal consultation concerning the federally listed clubshell (*Pleurobema clava*), rayed bean (*Villosa fabalis*), and snuffbox (*Epioblasma triquetra*) freshwater mussels, in reference to the 2015 mussel survey and environmental reviews of the project area. The

WVDOH and FHWA are working with the USFWS to prepare avoidance guidelines and other measures to be followed before and during the project construction activities, according to 50 CFR §402.02 and 50 CFR §402.12. The associated correspondence and reports are enclosed in Appendix C.

4.3 Cultural Resources

On February 7, 2017, a letter was sent to the Deputy State Historic Preservation Officer (SHPO) and the Preservation Alliance of West Virginia (PAWV) to request a Section 106 review for the proposed UGB project, in order to identify known and likely historic and archaeological resources within the project site and the immediate vicinity. On March 3, 2017, SHPO responded that, although the UGB was not eligible for the National Register of Historic Places, there may be potential impacts to the Gassaway Commercial Historic District (BX-0015-0006), located southwest of the bridge. The agency also requested an appropriate level of identification studies concerning Archeological Resources.

According to state and federal guidelines, WVDOH also conducted tribal coordination with the WV listed tribes. Two responses were returned, one from the Delaware Nation and the other from the Catawba Nation. Both responses requested the WVDOH to keep them up to date on progress of the project and to notify them immediately if Native American artifacts or human remains are located during ground disturbance. These responses are included in Appendix D.

CEC submitted a Phase I Archaeological Survey report in June 2017, which resulted in Archeological Resources (AR) concurrence and clearance by the SHPO issued on July 25, 2017. CEC submitted a History/Architecture report to the SHPO in July 2017. An “assessment of effect” was requested in a September 25th letter from the SHPO, in order to determine the potential impact to the Gassaway Commercial Historic District (BX-0015-0006).

On January 22, 2018, CEC submitted a Finding of Effect report to WVDOH, which indicated that the Gassaway Commercial Historic District did not meet the criteria of “adverse effect” for Section 4(f) compliance requirements, as defined by 36 CFR § 800.5(a)(1) and 36 CFR § 800.5(c)(2). The report outlined direct impacts to the historic district involving roadway repaving (0.085 acre), curb and gutter, and sidewalk improvements (0.015 acre). None of the improvements compromises the contributing elements to the historic district, and the removal of the UGB will be an indirect impact on the historic district. The SHPO returned concurrence on April 9, 2018 “*that the proposed project will have no adverse effect to any resources or districts listed on or eligible for the National Register of Historic Places*”.

4.3.1 Section 4(f) Resources

Section 4(f) of the US Department of Transportation Act of 1966 (23 CFR 774; 49 USC 303(c)) permits the use of land from a publicly-owned park, recreation area, wildlife or waterfowl refuge, or land of a historic site of national, state or local significance (as determined by federal, state and local officials having jurisdiction over such resources), only if there is no prudent and feasible alternative to the use of such land and if the action includes all possible measures to minimize harm in accordance with the FHWA Section 4(f) regulations. Since the project will improve curbs, gutters and sidewalks (non-contributing elements to the historic district) lying within a historic district and the project will not use other lands within the historic

district that are considered contributing to historic significance, there is no direct use of the historic district for purposes of Section 4(f). With respect to constructive use, the Section 106 consultation with the SHPO resulted in a determination of "*no historic properties affected or no adverse effect to any resources*", there is then no Section 4(f) constructive use of the district.

4.4 Environmental Hazards

In reference to a June 1, 2017, Hazardous Substance Site Summary Letter, CEC performed a Phase I Environmental Site Assessment (ESA) in the UGB project area. The assessment included historical records mapping several underground storage tanks on several properties within the project boundaries.

On October 9, 2017, CEC sent WVDOH a Report of Findings for a Limited Phase II ESA related to soil impacts from potential remnant underground storage tanks in the proposed project area. The conclusion of the report stated that impacts were minimal and remediation was not required to meet the Residential Direct Contact Standard, under the West Virginia Voluntary Remediation Program. Due to the investigation parameters, CEC recommends that WVDOH require contractors to have contingency plans in place to handle impacted soil and groundwater that may be encountered during construction. The ESA documents are enclosed in Appendix E.

5.0 ENVIRONMENTAL EFFECTS AND MITIGATION

5.1 Environmental Effects

The key factors in the development of project alternatives and the selection of the preferred alternative are impacts to the:

- Floodplain
- Residential and commercial properties
- Gassaway Commercial Historic District
- Federally listed endangered mussel species

5.1.1 Floodplain

Federal guidelines require the use of available National Flood Insurance Program maps to determine and evaluate the effect the proposed action may have on the 100-year floodplains and the risk of flooding. Upon review of the Digital Flood Insurance Rate Map for Braxton County, portions of the town of Gassaway are located within the FEMA 100-year floodplain of the Elk River and tributaries. Any alternative carried forward will not increase the 100-year elevation. GAI conducted a preliminary hydrology and hydraulic analysis and included the report in their Bridge Replacement Study Report, see Appendix A. FEMA was notified by WVDOH on February 7, 2017, of the initiated NEPA studies for the project (Appendix F).

5.1.2 Residential and Commercial Properties

WVDOH prefers to avoid relocating residences and businesses, which could have an adverse effect on a small community. The preferred alternative is anticipated to impact five parcels, with two displacements and minor ROW acquisitions for three other properties that will improve intersections and driveways.



Project area overview using the FEMA Flood Map Service Center mapping tool

5.1.3 Gassaway Commercial Historic District

The Gassaway Commercial Historic District (BX-0015-0006) is a linear area along Elk Street, west of the Upper Gassaway Bridge. It includes a collection of commercial buildings dating from 1905 to 1940, which represent Gassaway's historical development as a railroad town. The construction ROW for the bridge replacement includes improvements to the existing roadways and intersections connecting to the bridge crossing. As detailed in Section 4.3, improvements to Elk Street as part of the bridge replacement project will have "no adverse effect" on the Gassaway Commercial Historic District, according to FHWA effect finding.

5.1.4 Federally Listed Endangered Mussel Species

Threatened and endangered wildlife and plant species are protected under *Section 7* of the Federal *Endangered Species Act* of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). In West Virginia, there is no state threatened and endangered species legislation; therefore, the species listed as either threatened or endangered in West Virginia are those listed by the USFWS as federally threatened and endangered species.

In 2015, a mussel survey conducted in the Elk River, at the Upper Gassaway Bridge crossing, resulted in the collection of a federally endangered species, *Pleurobema clava* (clubshell). In response to a NEPA scoping letter from the WVDOH, the USFWS requested formal consultation for *P. clava* as well as *Villosa fabalis* (rayed bean) and *Epioblasma triquetra* (snuffbox), which have the potential to be within the project area. The FHWA and WVDOH will consult with USFWS to prepare the avoidance guidelines and other measures to be used before and during construction activities.

5.2 Environmental Impacts of the No Build and Preferred Alternatives

Consistent with the National Environmental Policy Act (NEPA), projects using federal-aid funds and/or requiring Federal Highway Administration (FHWA) approval actions must be evaluated for the potential impacts on the human environment. The No Build Alternative and the Preferred Alternative have been evaluated for impacts to social, economic, and environmental resources for the project area. Table 5.1 provides a summary of impacts, with direct and indirect effects described as applicable.³

³ Per Code of Federal Regulations (CFR), direct effects are caused by the action and occur at the same time and place, and indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. 40 CFR §1508.8

Table 5.1 Environmental Impacts				
Resource	Context	No Build Alternative	Preferred Alternative	Mitigation No. in Table 5.2
Land Use	The project area follows WV-4 across the Elk River over the existing bridge, with commercial and residential properties within and surrounding the project area.	No direct impact, but will indirectly impact the roadway, when the bridge is closed in the future and the approaches are blocked from transportation use.	Direct impact to five properties within the project area. Improved access to residential and commercial properties by replacing the bridge, widening the roadway, and improving the nearby intersections.	See Right-of-Way
Transportation Resources	The existing bridge consists of two traffic lanes within 24 feet, curb to curb, and a 5-foot sidewalk. Vertical clearance is 14 feet 5 inches, and the speed limit is 25 mph. The bridge's structural deficiency rating (poor condition) has initiated a weight limit restriction for trucks and buses to cross one at a time.	Direct impact of current weight limit restrictions for larger vehicles. Indirect impact to transportation, when the bridge closes in the future for safety reasons and traffic will utilize an estimated 23-mile detour, including emergency and school vehicles.	Traffic will be maintained through construction activities on the existing bridge. Improved transportation access and safety, after bridge replacement.	1
Right-of-Way (ROW)	There are commercial and residential properties on both sides of the bridge approach that are within the project area.	No Impact.	ROW acquisitions and temporary easements will directly impact five landowners. Two commercial properties will be razed. Eight road intersections and one parking lot entrance will be reconstructed. The Gassaway Church of Christ will permanently lose approximately 2,000 square feet of parking lot.	2
Floodways and Floodplains	According to the Federal Emergency Management Agency (FEMA) maps, the project lies within the floodplain of the Elk River designated as Zone AE, which are areas with determined base flood elevations. Because of the potential for flooding in the project area, a preliminary hydraulic/hydrologic analysis was conducted.	No Impact.	No Impact. The river crossing is not anticipated to have increased flood elevation during or after project construction activities.	3

Table 5.1 Environmental Impacts				
Resource	Context	No Build Alternative	Preferred Alternative	Mitigation No. in Table 5.2
Water Quality	The project crosses the Elk River, which is a 172-mile tributary to the Kanawha River that drains an area of 565 square miles. The Elk River has a TMDL established for fecal coliform and iron.	No Impact.	Temporary impacts to sedimentation in the Elk River during construction and demolition activities. No substantial impacts anticipated.	4
Wetlands/Waters of the U.S.	A wetland and stream delineation was performed in the vicinity of the existing bridge. The Elk River is the only water resource within the proposed project area, with the confluence of Little Otter Creek adjacent to the project area. No wetlands were found in the area.	No Impact.	Temporary impacts to 10,500 square feet of waterway, and permanent impacts to 40 square feet of waterway, during construction and demolition for the proposed project.	5
Fish and Wildlife	The project area includes a short segment of the Elk River and existing utility and transportation ROW. The WVDNR and USFWS were consulted for a project area review, and the agencies responded with potential impacts to mussel species.	No direct impact but may indirectly impact the river habitat, such as fish breeding and mussel beds, when the bridge eventually falls into the river.	See Water Quality and Wetlands/Waters of the U.S.	6
Threatened and Endangered Species	One federally listed endangered species, <i>Pleurobema clava</i> , was found in the project area, in addition to several other species. A biological assessment and coordination document were prepared by WVDOH for 11 mussel species. Formal consultation with the USFWS is ongoing and will be completed before final review of the project by FHWA.	No direct impact but may indirectly impact the river habitat for a federally endangered species, when the bridge deteriorates and eventually falls into the river.	See Water Quality, Fish and Wildlife, and Wetlands/Waters of the U.S.	7

Table 5.1 Environmental Impacts				
Resource	Context	No Build Alternative	Preferred Alternative	Mitigation No. in Table 5.2
Historic and Archaeological Resources	<p>A Phase I Archaeological Survey Report and a Finding of Effect Report were submitted. SHPO determined that the existing bridge is not eligible as a historic structure and that the Gassaway Commercial Historic District will not be adversely affected by the proposed project.</p> <p>The Delaware and Catawba Nations requested to be updated on the project’s progress and to be notified if Native American artifacts or if human remains were located during ground disturbance. See correspondence in Appendix D and the Section 4(f) information below.</p>	No Impact.	No Impact.	8
Socioeconomics	The Braxton County Memorial Hospital, the Health Department, and the nearest interstate system are located to the east of the project area. Braxton County schools, police and fire departments, and US Postal Service offices are located to the east and west of the project area.	No direct impact but may indirectly impact the community, once the bridge is closed for safety reasons. Extended travel around the closed bridge may hinder social and economic activities and emergency services.	<p>No Impact.</p> <p>Improved access to residential, commercial, and public-use properties within and near the proposed project area, after project completion.</p>	N/A
Environmental Justice	Effects to the measured population in the project area are unlikely; however, there is a potential influence to the population adjacent to the project area with consideration to transportation and health services for low income or special needs individuals. WVDOH is providing multiple opportunities for public review and comment.	No direct impact but may indirectly impact the community, once the bridge is closed for safety reasons. Extended travel around the closed bridge may jeopardize health services and economic opportunities for low-income residents.	<p>No Impact.</p> <p>Improved access to residential, commercial, and public-use properties within and near the proposed project area, after project completion.</p>	N/A
Parks and Recreational Resources	There are no designated parks in the project area. According to the WVDNR Fishing Map, there is an angler access site, including a concrete boat slide and amenities, approximately 180 feet upstream of the existing bridge, and the Elk River is labeled as a Water Trail.	No direct impact but may indirectly impact the river when the bridge deteriorates and eventually falls, creating a hazard to the recreational users of the river and the pedestrians that may use the bridge after closure.	<p>Temporary impacts to river access during construction and demolition activities.</p> <p>Improved access to nearby public-use properties, after project completion.</p>	9

Table 5.1 Environmental Impacts				
Resource	Context	No Build Alternative	Preferred Alternative	Mitigation No. in Table 5.2
Noise	Upon design review by WVDOH, the project was determined to be Type III; therefore, a noise analysis is not required.	No Impact.	No Impact.	10
Air Quality ⁴	Braxton County is considered unclassifiable/attainment for NAAQS.	No Impact.	No Impact.	N/A
Hazardous Materials and Utilities	A Limited Phase II ESA concluded that no remediation is required for the proposed project. Utility relocations are anticipated, within the WVDOH ROW, to include five utility poles for electric and communication lines, a sanitation manhole, and existing natural gas lines.	No Impact.	No impact anticipated from hazardous materials. Direct impact to move existing utilities within WVDOH ROW, during construction.	11
Cumulative Impacts ⁵	For each resource experiencing impacts from the proposed project, a cumulative effects area was considered for impacts within the study area. (Appendix G)	Indirect impacts when the bridge deteriorates and eventually falls. See Land Use, Transportation Resources, Fish and Wildlife, Threatened and Endangered Species, Socioeconomics, Environmental Justice, Parks and Recreational Resources, Noise, and Visual Resources and Aesthetics.	Direct impacts to some properties within the project area. See Right-of-Way. Temporary impacts to 10,500 square feet of waterway, and permanent impacts to 40 square feet of waterway, during construction and demolition for the proposed project. See Wetlands/Waters of the U.S. and Threatened and Endangered Species. Improved access to residential, commercial, and public-use properties within and near the proposed project area, after project completion.	12

⁴ NEPA regulations apply the National Air Quality Standards (NAAQS) for the seven criteria pollutants of the Federal Clean Air Act (CAA) and its subsequent amendments to federal projects. The seven criteria pollutants include Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, two forms of Particle Pollution, and Sulfur Dioxide. (23 CFR § 771).

⁵ Cumulative impact is “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR §1508.7).

**Table 5.1
Environmental Impacts**

Resource	Context	No Build Alternative	Preferred Alternative	Mitigation No. in Table 5.2
Section 6(f) ⁶	There are no properties in the project area that were purchased using the L&WCF.	No Impact.	No Impact.	N/A
Section 4(f) ⁷	The project will have “No Adverse Effect” on the Gassaway Commercial Historic District. No right-of-way (ROW) will be required from the Gassaway Commercial Historic District. Roadway paving (0.085 acres), curb and gutter improvements and sidewalk upgrades (0.015 acres) within the Gassaway Commercial Historic District will occur. None of these improvements compromises the contributing elements to the historic district. (Appendix D)	No Impact.	No Impact.	N/A

⁶ In accordance with Federal regulations, projects require coordination with the National Park Service for impacts to land acquired using the Federal Land and Water Conservation Fund (L&WCF). 36 CFR § 59.3

⁷ Section 4(f) of the Department of Transportation Act of 1966 provides protections to significant publicly owned public parks, recreation areas, wildlife and waterfowl refuges, and significant historic sites. 49 USC § 303, 23 CFR § 774.

5.3 Mitigation

Table 5.2 summarizes the impacts and information containing the procedure and implementation of mitigation plans.

Table 5.2 Mitigation					
Mitigation No.	Mitigation Category	Impact	Mitigation Commitment from Source Documentation	Responsible Branch	Timing/Phase for Mitigation Implementation
1	Transportation Resources	Use of existing bridge for traffic detour and possible temporary disruptions during construction.	<p>A traffic plan will be implemented during construction for motorist and worker safety. The plan will be developed per guidelines from FHWA, WVDOH, and American Association of State Highway and Transportation Officials.</p> <p>Current restrictions for lane use and weight limits on the existing bridge will be imposed during construction of the replacement bridge.</p>	Contractor	Prior to and during construction
2	Right-of-Way	Acquisitions and temporary easements would directly affect five landowners. Two commercial buildings would need to be removed, and the intersections for eight roads and one parking lot entrance would need to be reconstructed to intersect the new alignment. The Gassaway Church of Christ property would have a permanent impact, losing 2,000 square feet of parking lot space. Utility relocations would include five utility poles carrying overhead electric, telephone, and cable wires; a sanitary manhole; and possibly a natural gas pipeline.	<p>Acquisition and relocation will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended.</p> <p>Information on WVDOH ROW acquisition included in ROW Pamphlet.⁸</p>	WVDOT ROW Division	Prior to and during construction
3	Floodplain	The Elk River is located within a FEMA mapped 100-year floodplain.	No stockpiled or waste material will be stored or disposed of within the floodplain.	Contractor	Prior to and during construction

⁸ WVDOH *Right of Way Pamphlet* "A Guide for Property Owners and Tenants." <http://transportation.wv.gov/highways/right-of-way/Documents/Right%20of%20Way%20Acquisition%20Pamphlet.pdf>

Table 5.2 Mitigation					
Mitigation No.	Mitigation Category	Impact	Mitigation Commitment from Source Documentation	Responsible Branch	Timing/Phase for Mitigation Implementation
4	Water Quality	Temporary effects from construction activities.	<p>The bridge piers and causeways for construction are designed to avoid and minimize direct and indirect impacts to the river. Best Management Practices (BMPs) for erosion and sediment controls will be implemented by the Contractor, after approval by USFWS.</p> <p>Demolition of the old bridge will involve procedures to minimize impacts to the Elk River.</p>	Contractor and WVDOT	Prior to and during construction
5	Waters of the U.S.	Temporary impacts to 8,500 square feet and permanent impacts to 40 square feet of waterway during construction of replacement bridge. Temporary impacts to 2,300 square feet of waterway during demolition of existing bridge.	Mitigation for the temporary and permanent impacts will be resolved in coordination with the US Corps of Engineers as part of the Clean Water Act permitting process.	WVDOT	Prior to construction
6	Fish and Wildlife	Disturbance to the Elk River could harm aquatic species and their habitat.	Disturbance below the ordinary high water mark will take place outside of the fish-spawning period (April 1-June30) to avoid impact. Mitigation for waters of the U.S. and threatened and endangered species will also reduce impacts to fish and wildlife.	Contractor and WVDOT	Prior to, during, and after construction
7	Threatened and Endangered Species	Disturbance of Elk River bed (mussel habitat), during construction of new bridge and demolition of old bridge.	Mussel salvage will occur between May 1 and October 1, before construction, to ensure relocated mussels become established at the relocation site prior to cold weather. Additional conservation measures may be incorporated during the consultation process. Mitigation for water quality, waters of the U.S., and fish and wildlife will also reduce impact to mussel habitat.	Contractor and WVDOT	Prior to, during, and after construction

Table 5.2 Mitigation					
Mitigation No.	Mitigation Category	Impact	Mitigation Commitment from Source Documentation	Responsible Branch	Timing/Phase for Mitigation Implementation
8	Archaeological Resources	No impacts are anticipated; however, contingency plans are in place for unexpected impacts. The Delaware Nation and the Catawba Nation are to be notified if Native American discoveries occur during ground disturbance.	In the event that historical or cultural resources are located or impacted during construction, work will be suspended in the vicinity until the WVDOT has consulted with SHPO and developed a management plan.	Contractor and WVDOT	Prior to and during construction
9	Parks and Recreation	Temporary disturbance of Elk River may affect recreation, including the annual Braxton County Elk River Canoe and Kayak Float, which uses the Gassaway river access for the second point of exit on the event route. Shuttle service and parking at the adjacent river access lot and the Gassaway Church of Christ parking lot are used for this event.	Access to Elk River may be limited during construction and demolition. Signage will be used in the project area to notify visitors. Arrangements will be made to accommodate the parking and transportation for the annual river event.	Contractor and WVDOT	Prior to, during, and after construction
10	Noise	No permanent impact. Temporary impact possible during construction.	Control of construction noise will be governed by WVDOT’s Standard Specifications for Road and Bridge Construction.	Contractor and WVDOT	During construction
11	Hazardous Materials and Utilities	No impacts are anticipated; however, contingency plans are in place for unexpected impacts. Five utility poles for electric and communication lines, a sanitation manhole, and existing natural gas lines will be relocated.	If encountered during construction, hazardous materials will be managed according to applicable federal and state laws, ordinances, and regulations. Proper worker and environmental safety protocols will be followed.	Contractor and WVDOT	During construction
12	Cumulative Impacts	For each resource experiencing impacts from the proposed project, a cumulative effects area was considered for impacts within the study area.	See “Right-of-Way,” “Waters of the U.S.,” and “Threatened and Endangered Species”	WVDOT	Prior to, during, and after construction

6.0 AGENCIES AND PUBLIC COORDINATION

6.1 Additional Clearances

The project requires the following clearances before construction:

- Completion of a Formal Consultation with USFWS prior to finalizing the environmental decision document. USFWS will be providing a written Biological Opinion and incidental take statement for the project, and
- Authorization from WVDNR for the salvage and relocation of listed and non-listed mussels, to reduce impact during project construction.

6.2 Required Permits

The project requires the following permits before construction:

- Clean Water Act (CWA) Section 404 Permit from the U.S. Corps of Engineers,
- CWA Section 401 Certification from the WV Department of Environmental Protection, and
- National Pollutant Discharge Elimination System (CWA Section 402) Permit from the WV Department of Environmental Protection.

6.3 Public Outreach

An Informational Workshop Public Meeting was held on March 13, 2017, at the Gassaway Community Room in Gassaway, WV. An informational flyer, project area maps, and engineering design plans, including all five alternatives, were provided for public view and comments. Comment forms were submitted in person and online through April 13, 2017. Thirty-five individuals signed the attendance sheet at the meeting, and 17 comment forms were received by WVDOH. The meeting summary can be found in Appendix H.

Coordination and consultation will be included in the final design and construction processes, as appropriate. A public informational meeting will be held on September 6, 2018. The public comment period will run until October 9, 2018.

6.4 Distribution of Environmental Assessment

Prior to the public meeting, a copy of this Environmental Assessment will be mailed to the agencies listed.

6.4.1 Federal Agencies

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Natural Resources Conservation Service
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Mary Ann Tierney
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Federal Emergency Management Agency
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Mike Hatten
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Tribal Historic Preservation Officer
The Delaware Nation
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6.4.2 West Virginia Agencies

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District Engineer, District Six
West Virginia Department of Transportation
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6.4.3 Regional Agencies, Senators, and Delegates

Senator Douglas E. Facemire
PO Box 215
Sutton, WV 26601

Senator Mike Romano
128 South 2nd Street
Clarksburg, WV 26301

Delegate Brent Boggs
151 Park Street
Gassaway, WV 26624

APPENDIX A

BRIDGE REPLACEMENT STUDY

APPENDIX B

WETLAND AND STREAM DELINEATION REPORT

APPENDIX C

SPECIES OF SPECIAL CONCERN DOCUMENTS

APPENDIX D

CULTURAL RESOURCES DOCUMENTS

APPENDIX E

ENVIRONMENTAL HAZARDS DOCUMENTS

APPENDIX F

FEMA AGENCY LETTER

APPENDIX G

CUMULATIVE IMPACT SUMMARY

APPENDIX H

PUBLIC MEETING SUMMARY REPORT