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

Joe Manchin III
Governor

April 2, 2009

MEMORANDUM

TO: DD

FROM: DDC

SUBJECT: State Project S214-50-20.03 00
Federal Project BR-0050(231)D
Pleasant Dale Bridge Replacement Study
Hampshire County

The Design Study Unit of the Initial Design Section (DDC) has completed a Design Study Report for the Pleasant Dale Bridge Replacement, and has chosen a preferred alternative for construction – Alternative # 3. A copy of the report is attached for your reference. If you have any questions, please contact Feras Tolaymat (304-558-9713), Unit Leader, Initial Design Section.

FT

Attachments

cc: DDC (FT)

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

Joe Manchin III
Governor

December 18, 2008

MEMORANDUM

TO: DD

FROM: DDC

SUBJECT: State Project S214-50-20.03
Federal Project BR-0050(231)D
Pleasant Dale Bridge Replacement Study
Hampshire County

The Design Study Unit of the Initial Design Section (DDC) has completed a Draft Study Report for the Pleasant Dale Bridge Replacement. A copy of the report is attached for your review and comment.

Given the weather uncertainty during winter, this project will not include a field/office review. Please provide comments regarding our evaluation of alternatives and recommended alternative to be constructed to this office. A response from each addressee is requested by January 29, 2009. You may send your comments via email to Harry.A.Bradley@wv.gov.

We look forward to your participation and input with regard to this project. If you have any questions, please contact Harry Bradley (304-558-9726) or Feras Tolaymat (304-558-9713) Unit Leader of the Design Study Unit.

HB:fl

Attachments

cc: DDC(HB, FT), DDM(AS), DDR(Road, Util.), DDI(Br., Geo.), DDT(Perm.), DDE, DT-Design, DR-Est., D5-E/M, D5-R/W, D5-Bridge, HD

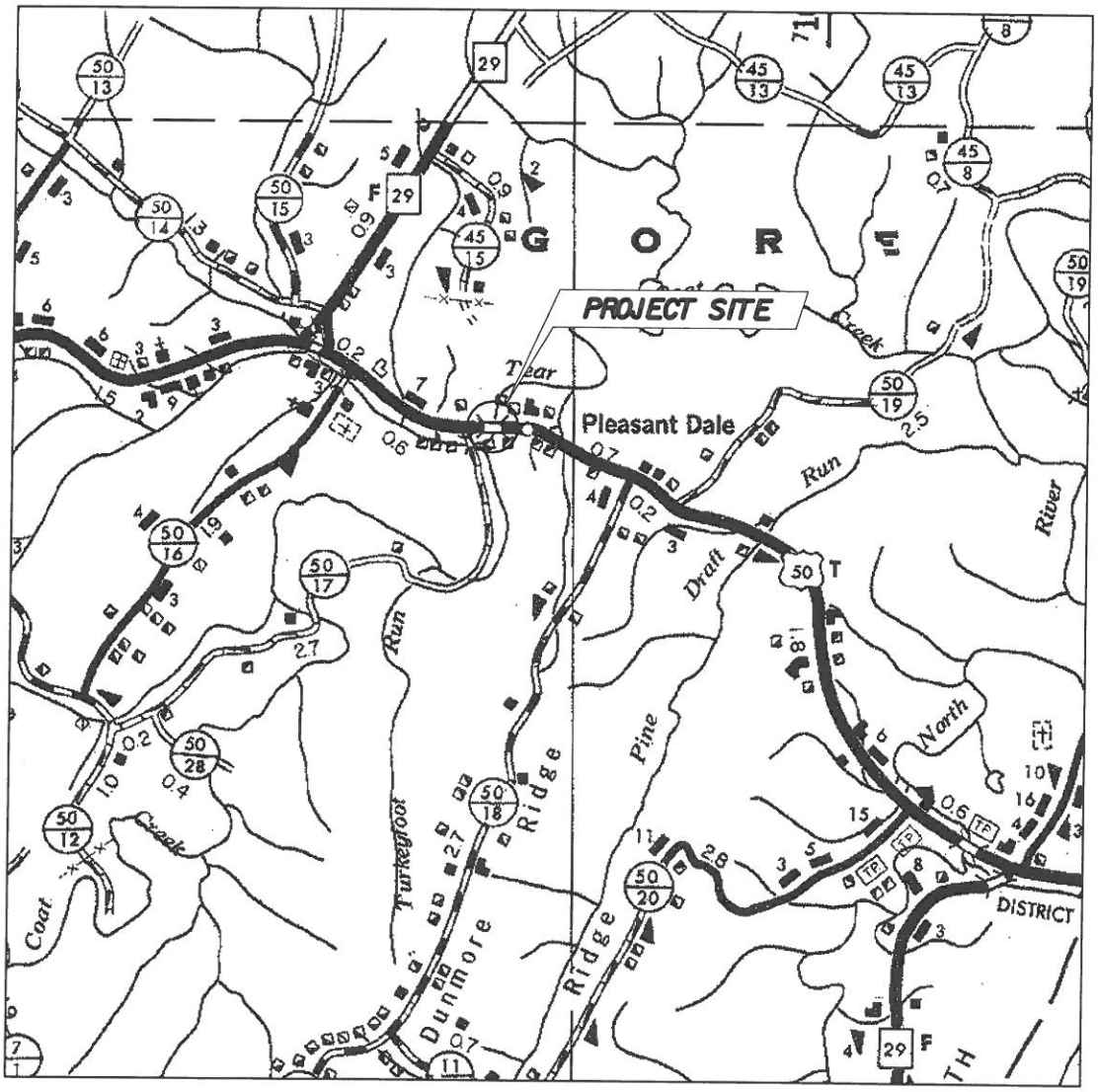
BRIDGE REPLACEMENT STUDY

PLEASANT DALE BRIDGE

STATE PROJECT NO. S214-50-20.03

FEDERAL PROJECT NO. BR-0050(231)D

HAMPSHIRE COUNTY



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

ENGINEERING DIVISION

OCTOBER 2008

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LOCATION MAP

PLEASANT DALE BRIDGE
STATE PROJECT NO. S214-50-20.03
FEDERAL PROJECT NO. BR-0050(231)D
HAMPSHIRE COUNTY

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
ENGINEERING DIVISION

PROJECT SUMMARY

The Initial Design Section (DDC) conducted a study to evaluate and determine the most suitable and economical location for the replacement of the existing Pleasant Dale Bridge in Hampshire County. The Pleasant Dale Bridge was constructed in 1956 by R.B. Gay Company of Roanoke, Virginia, and has a rating of 12.8. The bridge carries United States Route 50 over Tear Coat Creek, and is located 0.11 miles east of County Route 50/17. United States Route 50 is functionally classified as a Minor Arterial (Rural) with a posted speed limit of 55 mph. Traffic consists of all vehicle types including trucks, school buses, and mail carriers. A manual traffic count indicates the 2006 Average Daily Traffic (ADT) to be 5,900 Vehicles per Day (VPD) with a 2026 projected design ADT of 8,300 VPD.

The study was conducted utilizing information obtained from an initial field visit, the latest bridge inspection report, and information gathered from various other sources. Major factors taken into consideration were engineering and construction cost, alignment geometry, safety to all users of the facility, right-of-way acquisitions, constructability issues, and environmental impacts.

Because this is a project utilizing bridge replacement funding, the focus and evaluation of this project centered solely on the most suitable location to accommodate replacement.

The existing structure consists of three continuous rolled steel wide flange beam (CSWB) containing four stringers per span, having an overall length of 170 feet 0 inches. Spans #1 and #3 have lengths of 50 feet 0 inches with span #2 having a length of 65 feet 0 inches.

As of the date of this study was prepared, this project was programmed as a deck replacement. Based on the information collected and evaluated, it is recommended that a total bridge replacement be performed in lieu of deck replacement. Superstructure replacement was considered but not recommended, because by the time this bridge to be replaced the substructure will be 58 years old, and the rating of 12.8 would be lower. According to the latest Bridge Inspection Report, dated October 9, 2007, the deck is rated poor and there is a measurable loss in the steel member at each abutment. Active corrosion is found in the beams below the deck construction joints, and there is a measurable loss in section of the steel members at each abutment. It is our

recommendation to replace the bridge at its current location utilizing old US 50 and a temporary bridge downstream from the current structure to maintain traffic during construction. It is also recommended to widen the bridge clear width to 32 feet. Adequate sight distance exists east and west of the bridge.

Alternative No. 3 maintains the most suitable roadway alignment geometry situated within the limits of this project for vehicles operating along this portion of US 50.

Based on the evaluations of all the alternatives studied, it is the recommendation of the Initial Design Section to accept Alternative No. 3 as the preferred alignment. The following table provides a comparison of alternatives.

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Recommended	No	No	Yes	No	No
Construction Cost	$4,064,000	$4,077,000	$3,695,000	$4,009,000	$3,819,000
Prel. Engr. Cost	$360,000	$345,000	$340,000	$340,000	$340,000
RW / Utilities Cost	$300,000	$80,000	$80,000	$90,000	$220,000
Total Cost	$4,724,000	$4,502,000	$4,115,000	$4,439,000	$4,379,000
Location	In-Place	In-Place	In-Place	In-Place	In-Place
Detour Bridge	None	None	Old US 50	Downstream	Upstream
Acquisition	TCE and RW	TCE and RW	TCE and RW	TCE and RW	TCE and RW

TCE (Temporary Construction Easement) and RW (Right of Way)

EXISTING CONDITIONS[1]

Existing Bridge

The existing bridge was built in 1956 and has a sufficiency rating of 12.8. The structure is a three span with continuous rolled wide flange steel beam (CSWB). The bridge is supported at each end by reinforced concrete stub abutment, and two full height column reinforced concrete piers with a cantilever cap. The piers are supported by

[1] See Figure 1

concrete footers erected on hard grey sandstone. The bridge deck is a 7 inches thick reinforced concrete deck with an additional 3 inch Hot Laid Bituminous Concrete (HLBC) wearing surface. The overall length of the bridge is 170 feet 0 inches. The overall deck width is 32 feet 2 3/8 inches (out to out). The deck width measures 28 feet 0 inches curb to curb.

Existing Roadway Geometry

The existing structure is located on US 50 and intersects with CR 50/17 approximately 550 feet from the western abutment. The bridge crosses Tear Coat Creek. The structure is located in a tangent section of roadway and is not skewed. The current alignment is good, and the sight distance for US 50 at the existing bridge appears to be adequate.

The west approach is a shale fill which averages 25 feet high, the east approach is situated on a natural embankment exiting through a roadway cut. A concrete gutter is running along the eastern approach on both sides. The roadway width of both the eastern and western approaches is 24 feet 0 inches with 4 feet 0 inches gravel shoulders.

Old US 50 consists of 20 feet paved roadway with minimum shoulders in good conditions. According to District Five Right of Way Agent, the Highway Department still own old US 50 right of way.

Tear Coat Creek

The FEMA Flood Insurance Rate Map No. 54027C 0290 C for Hampshire County, dated November 7, 2002, indicates that the area surrounding the site is in zone "A". No detailed hydraulic study was performed. Bearwallow Creek is a tributary which enters Tear Coat Creek approximately 500 feet upstream from the existing bridge.

According to the U.S. Geological Survey for Potomac River Basin, the drainage area for Tear Coat Creek at the mouth of Bearwallow Creek is 31.71 square mile.

Existing Properties and Utilities

The existing bridge is located in a rural area of Hampshire County. There are two residential dwellings located along the western approach of the bridge. There are utility poles with overhead line along US 50 on the downstream side of the existing structure.

DESIGN CRITERIA AND GUIDELINES

United States Route 50 is classified as Minor Arterial (Rural) with an average daily traffic of 5,900 vehicles in 2006. The project falls within a mountainous terrain because sidehill excavations and deep fills were observed in the general area of the project site.

Design Criteria Description	Design Criteria As per DD-601
Terrain Type	Mountainous
Roadway Classification	Minor Arterial (Rural)
Design Speed	40 mph (Exhibit 6-1)
Maximum Grade	8% (Exhibit 7-2)
Minimum Roadway Width	24 feet (Exhibit 7-3)
Minimum Shoulder Width	8 feet (Exhibit 7-3)
Minimum Stopping Sight Distance	305 feet (Exhibit 7-1)
Minimum Radii for Design Speed	444 feet (Exhibit 3-27) DD-603
Clear width of Bridges	The same as roadway width, DD-601

There are currently no sidewalks on the existing structure. Due to the absence of other bicycle traffic generators, such as employment centers, colleges, parks, etc.[2], and the high volume of traffic utilizing US 50 at this section of roadway, there is no indication for the need to accommodate bicycle or foot traffic at this time.

GEOTECHNICAL OVERVIEW

The West Virginia Department of Environmental Protection Interactive Mapping was researched to detect any Geotechnical Hazards that existed within the proposed project limits. No Geotechnical hazards are listed within the limits of the proposed

[2] See AASHTO (guide for the development of bicycle facilities)

construction. No landslides exist within any of the proposed alternatives for project construction.

Based on the Geologic mapping of the area the bedrock in the area consists of Devonian Age beds that consist of the Hampshire Formation. The Hampshire Formation consists of non marine shale and fine micaceous sandstones mostly red to brownish gray including siltstone sandstone and conglomerates. The Sideling Hill Syncline trends toward the northeast close to the project location at Pleasant Dale.

ENVIRONMENTAL OVERVIEW

The following overview was submitted by the Environmental Section "No mussel survey or Fish and Wildlife consultation will be required. Alternative # 3 is the preferred alternative with the new bridge being replaced at the existing location with a temporary detour on old US 50. Since additional right of way may be required, Archaeology will have to take a look. Since the bridge is over 50 years old, History will also need to take a look at the project."

DESIGN ALTERNATIVES

Five alternatives were evaluated for this project. The first two alternatives are very similar, they both proposes using staged construction method, and keeping one lane open to traffic all the time utilizing traffic signal, and they differ in which lane to be replaced first. The third alternative proposes placing the new bridge at the existing bridge, while utilizing the old US 50 roadway and a new temporary bridge over Tear Coat Creek to maintain traffic during construction. The fourth alternative proposes placing the new bridge at the existing location, while utilizing the temporary roadway and bridge downstream of the existing bridge to maintain traffic during construction. The fifth alternative proposes placing the new bridge at the existing location, while utilizing the temporary roadway and bridge upstream of the existing bridge to maintain traffic during construction. The last alternative is a No-Build alternative.

It is proposed that the approaches will have two (2) 12-foot lanes and 8-foot paved shoulders[3].

Design Criteria Description	Design Criteria	Design Exception
Design Speed	55 mph	No
Roadway width	24 feet	No
Shoulder Width	4 feet	No
Bridge Clear Width	32 feet	No

a) Alternative No.1

Alternative No.1[4] consists of replacing the existing bridge utilizing one lane-at-a-time construction while maintaining traffic on the other lane. Maintenance of traffic case D5A or D5B should be utilized for the lane closure. The proposed centerline will be shifted approximately 5 feet downstream. The new three spans bridge would be approximately 180 feet in length with a 32-foot clear width. Approximately 1,300 feet of approach work would be necessary, approximately 400 feet west and 900 feet east of the proposed bridge respectively.

It is anticipated that a causeway will be required to allow construction access.

Right-of-way involvement would be moderate because some fill will be needed along the western approach and some cut will be required along the eastern approach. It may include permanent right-of-way takes for the construction of a wider bridge and to transition the proposed centerline shift, and temporary construction easement to accommodate the construction access. Three billboard will be required and possibly a single home along the eastern approach. Utility relocations are anticipated to be minimal, possibly affecting only the power line.

Estimated cost for Alternative No.1 is as follows:

Bridge	$ 1,654,100
Roadway	$ 1,029,100
E&C (19%)	$ 509,800

[3] See figure 2
[4] See Figures 2, and 3.

Total Construction	$3,193,000
Future Value[5]	$4,064,000
Preliminary Engineering	$ 360,000
ROW/ Utilities	$ 300,000
Total	$4,724,000

b) Alternative No.2

Alternative No.2[6] , which is similar to Alternative 1, but the proposed centerline will be shifted about 5 feet upstream. It consists of replacing the existing bridge utilizing one lane-at-a-time construction while maintaining traffic on the other lane. Maintenance of traffic case D5A or D5B should be utilized for the lane closure. The new three spans bridge would be approximately 180 feet in length with a 32-foot clear width. Approximately 1,050 feet of approach work would be necessary, approximately 400 feet west and 650 feet east of the proposed bridge respectively.

It is anticipated that a causeway will be required to allow construction access.

Right-of-way involvement would be moderate because some fill will be needed along the western approach and some cut will be required along the eastern approach. It will include permanent right-of-way takes to construct a wider bridge and to transition the proposed centerline shift, and temporary construction easement to accommodate the construction access. No dwellings or structures will be required for this alternative. Utility relocations are anticipated to be minimal, possibly affecting only power line.

Estimated cost for Alternative No.2 is as follows:

Bridge	$ 1,654,100
Roadway	$ 1,037,700
E&C (19%)	$ 511,500
Total Construction	$3,203,300
Future Value [5]	$4,077,000
Preliminary Engineering	$ 345,000
ROW/ Utilities	$ 80,000

[5] Note: Future value of construction cost using compound interest { FV=PV (1+i)^n} has been calculated from the estimate date of October, 2008 to construction period midpoint of spring 2014, using inflation rate of 5%.

[6] See Figure 2 and 4

Total	$4,502,000

c) Alternative No.3

Alternative No.3[7] consists of replacing the existing bridge at the same location and utilizing a temporary bridge and old US 50 to maintain traffic during construction. The new three spans bridge would be approximately 180 feet in length with a 32-foot clear width. Approximately 200 feet of approach work would be necessary with 100 feet east and west of the proposed bridge. A temporary bridge will be about 80 feet long having a minimum clear width of 24 feet. The total length of the temporary detour is about 2,400 feet with a minimum typical section of 24 feet having two (2) 10-foot lanes and 2-foot shoulders. As of the summer of 2008, old US 50 is in good condition, some shoulders and ditches cleaning are required. The most western 200 feet of the detour needs to be paved. The recommended minimum design speed for the detour is 30 mph.

It is anticipated that a causeway will be required to allow construction access.

Right-of-way involvement would be minimal. It may include permanent right-of-way to construct a wider bridge. A block storage building is encroaching on old US 50 right of way. The removal of this building is needed to reconstruct the proposed detour. Utility relocations are anticipated to be minimal, possibly affecting only the power line.

Estimated cost for Alternative No.3 is as follows:

Bridge	$1,409,000
Roadway	$ 622,400
Detour	$ 338,100
E&C (19%)	$ 450,200
Total Construction	$2,818,700
Future Value [5]	$3,695,000
Preliminary Engineering	$ 340,000
ROW/ Utilities	$ 80,000
Total	$4,115,000

[7] See Figures 2, 5 and 6.

d) Alternative No.4

Alternative No.4[8] consists of replacing the existing bridge at the same location and utilizing a temporary bridge about 40 feet downstream of the existing bridge to maintain traffic. The new three spans bridge would be approximately 180 feet in length with a 32-foot clear width. Approximately 200 feet of approach work would be necessary, approximately 100 feet east and west of the proposed bridge. A temporary bridge will be about 120 feet long having a minimum clear width of 24 feet. The total length of the temporary detour is approximately 800 feet having a minimum typical section of two (2) 10-foot lanes and 2-foot shoulders. The recommended minimum design speed for the detour is 35 mph.

It is anticipated that a causeway will be required to allow construction access.

Right-of-way involvement would be minimal. It may include permanent right-of-way takes to construct a wider bridge and temporary construction easement for the temporary detour. A billboard east of the existing bridge needs to be relocated. Utility relocations are anticipated to be minimal, possibly affecting only the power line.

Estimated cost for Alternative No.4 is as follows:

Bridge	$1,409,000
Roadway	$ 603,400
Detour	$ 634,200
E&C (19%)	$ 502,900
Total Construction	$3,149,500
Future Value [5]	$4,009,000
Preliminary Engineering	$ 340,000
ROW/ Utilities	$ 90,000
Total	$4,439,000

e) Alternative No.5

Alternative No.5[9] consists of replacing the existing bridge at the same location and utilizing a temporary bridge about 40 feet upstream of the existing bridge to maintain traffic. The new three spans bridge would be approximately 180 feet in length with a 32-foot clear width. Approximately 200 feet of approach work would be necessary, approximately 100 feet east and west of the proposed bridge. A temporary bridge will be

[8] See Figures 2, 7 and 8.
[9] See Figures 2, 9 and 10.

about 120 feet long having a minimum clear width of 24 feet. The total length of the temporary detour is approximately 850 feet having a minimum typical section of two (2) 10-foot lanes and 2-foot shoulders. The recommended minimum design speed for the detour is 35 mph.

It is anticipated that a causeway will be required to allow construction access.

Right-of-way involvement would be minimal. It may include permanent right-of-way takes to construct a wider bridge and temporary construction easement for the temporary detour. Utility relocations are anticipated to be minimal, possibly affecting only the power line.

Estimated cost for Alternative No.5 is as follows:

Bridge	$1,409,000
Roadway	$ 568,700
Detour	$ 544,200
E&C (19%)	$ 482,200
Total Construction	$3,001,100
Future Value [5]	$3,819,000
Preliminary Engineering	$ 340,000
ROW/ Utilities	$ 220,000
Total	$4,379,000

f) No-Build Alternative

Due to the deteriorating condition of the existing structure, the No-Build Alternative would eventually result in the permanent closure of the bridge to traffic, resulting in 32.4 mile detour via WV 29, CR 53 and CR 7. Due to the high ADT on US 50, it is our recommendation that no adequate route is available for motorists.

A No-Build is not a prudent alternative; thus, no further discussion is warranted.

CONCLUSION / RECOMMENDATION

Alternative No. 3 had the lowest construction cost and the least impact on properties surrounding the bridge site. It is the Initial Design Section's recommendation to construct Alternative No. 3 which proposes constructing a new bridge at its current location at a total cost of 4,115,000.00 dollars.

APPENDIX "A"

Estimated Cost for Alternative # 1

ROADWAY	Actual	Rounded
Clearing and Grubbing	$ 80,000.00	$ 80,000.00
Earthwork	$ 70,500.00	$ 70,500.00
HMA Wearing & Base	$ 142,974.00	$ 143,000.00
Aggregate (Base & Sh)	$ 81,530.86	$ 81,500.00
Subgrade	$ 42,611.11	$ 42,600.00
Drainage	$ 30,000.00	$ 30,000.00
M.O.T.	$ 174,300.00	$ 174,300.00
Erosion Control	$ 30,000.00	$ 30,000.00
Approach Slab	$ 37,600.00	$ 37,600.00
All Other Items	$ 211,721.62	$ 211,700.00
Mobilization	$ 127,766.88	$ 127,800.00
Total Roadway Construction	$ 1,029,004.47	$ 1,029,000.00

BRIDGE		
DESCRIPTION	TOTAL	#VALUE!
DISMANTLING STRUCTURE	$ 50,000.00	$ 50,000.00
STR. EX	$ 30,213.00	$ 30,200.00
SEL. MAT'L BACKFILL	$ 6,542.85	$ 6,500.00
SLOPE PROTECTION	$ 74,600.00	$ 74,600.00
CL B CONCRETE	$ 325,170.90	$ 325,200.00
CL K CONCRETE	$ 25,238.36	$ 25,200.00
CL H CONCRETE	$ 174,534.24	$ 174,500.00
REINF STL BAR	$ 154,873.88	$ 154,900.00
EP REINF STL BAR	$ 59,851.22	$ 59,900.00
STL SUPER	$ 276,207.36	$ 276,200.00
STL BEARING PILES	$ 48,001.50	$ 48,000.00
STAGED CONSTRUCTION	$ 428,831.66	$ 428,800.00
Total Bridge Construction	$ 1,654,064.97	$ 1,654,100.00

Estimated Cost

	Actual	Rounded
Bridge	$ 1,654,100.00	$ 1,654,100.00
Roadway	$ 1,029,004.47	$ 1,029,100.00
E&C (19%)	$ 509,789.85	$ 509,800.00
	$ 3,192,894.32	$ 3,193,000.00
Future V alue	$4,063,693.97	$4,064,000.00
Pre Engineering	$ 360,000.00	$ 360,000.00
R/W utilities	$ 300,000.00	$ 300,000.00
Total	$4,723,693.97	$4,724,000.00

Estimated Cost for Alternative # 2

ROADWAY		Actual		Rounded
Clearing and Grubbing	$	65,000.00	$	65,000.00
Earthwork	$	159,500.00	$	159,500.00
HMA Wearing & Base	$	115,479.00	$	115,500.00
Aggregate (Base & Sh)	$	65,851.85	$	65,900.00
Subgrade	$	34,416.67	$	34,400.00
Drainage	$	30,000.00	$	30,000.00
M.O.T.	$	169,800.00	$	169,800.00
Erosion Control	$	30,000.00	$	30,000.00
Approach Slab	$	37,600.00	$	37,600.00
All Other Items	$	201,842.46	$	201,800.00
Mobilization	$	128,179.50	$	128,200.00
Total Roadway Construction	$	1,037,669.48	$	1,037,700.00

BRIDGE				
DESCRIPTION	TOTAL			#VALUE!
DISMANTLING STRUCTURE	$	50,000.00	$	50,000.00
STR. EX	$	30,213.00	$	30,200.00
SEL. MAT'L BACKFILL	$	6,542.85	$	6,500.00
SLOPE PROTECTION	$	74,600.00	$	74,600.00
CL B CONCRETE	$	325,170.90	$	325,200.00
CL K CONCRETE	$	25,238.36	$	25,200.00
CL H CONCRETE	$	174,534.24	$	174,500.00
REINF STL BAR	$	154,873.88	$	154,900.00
EP REINF STL BAR	$	59,851.22	$	59,900.00
STL SUPER	$	276,207.36	$	276,200.00
STL BEARING PILES	$	48,001.50	$	48,000.00
STAGED CONSTRUCTION	$	428,831.66	$	428,800.00
Total Bridge Construction	$	1,654,064.97	$	1,654,100.00

	Estimated Cost			
		Actual		Rounded
Bridge	$	1,654,100.00	$	1,654,100.00
Roadway	$	1,037,669.48	$	1,037,700.00
E&C (19%)	$	511,436.20	$	511,500.00
	$	3,203,205.68	$	3,203,300.00
Future V alue		$4,076,817.55		$4,077,000.00
Pre Engineering	$	345,000.00	$	345,000.00
R/W utilities	$	80,000.00	$	80,000.00
Total		$4,501,817.55		$4,502,000.00

Estimated Cost for Alternative # 3

ROADWAY		Actual		Rounded
Clearing and Grubbing	$	40,000.00	$	40,000.00
Earthwork	$	17,500.00	$	17,500.00
HMA Wearing & Base	$	21,996.00	$	22,000.00
Aggregate (Base & Sh)	$	12,543.21	$	12,500.00
Subgrade	$	6,555.56	$	6,600.00
Drainage	$	42,000.00	$	42,000.00
M.O.T.	$	56,300.00	$	56,300.00
Erosion Control	$	40,000.00	$	40,000.00
Approach Slab	$	37,600.00	$	37,600.00
All Other Items	$	235,023.33	$	235,000.00
Detour	$	338,071.47	$	338,100.00
Mobilization	$	112,829.48	$	112,800.00
Total Roadway Construction	$	960,419.04	$	960,400.00
BRIDGE				
DISMANTLING STRUCTURE	$	50,000.00	$	50,000.00
STR. EX	$	30,213.00	$	30,300.00
SEL. MAT'L BACKFILL	$	6,542.85	$	6,500.00
SLOPE PROTECTION	$	74,600.00	$	74,600.00
CL B CONCRETE	$	325,170.90	$	325,200.00
CL K CONCRETE	$	25,238.36	$	25,200.00
CL H CONCRETE	$	174,534.24	$	174,500.00
REINF STL BAR	$	154,873.88	$	154,900.00
EP REINF STL BAR	$	59,851.22	$	59,900.00
STL SUPER	$	276,207.36	$	276,200.00
STL BEARING PILES	$	48,001.50	$	48,000.00
STAGED CONSTRUCTION	$	183,785.00	$	183,800.00
Total Bridge Construction	$	1,409,018.31	$	1,409,000.00

Estimated Cost

	Actual		Rounded
Bridge	$ 1,409,000.00	$	1,409,000.00
Roadway	$ 960,419.04	$	960,500.00
E&C (19%)	$ 450,189.62	$	450,200.00
	$ 2,819,608.65	$	2,819,700.00
Future V alue	$3,694,586.94		$3,695,000.00
Pre Engineering	$ 340,000.00	$	340,000.00
R/W utilities	$ 80,000.00	$	80,000.00
Total	$4,114,586.94		$4,115,000.00

Estimated Cost for Alternative # 4

ROADWAY		Actual		Rounded
Clearing and Grubbing	$	60,000.00	$	60,000.00
Earthwork	$	42,500.00	$	42,500.00
HMA Wearing & Base	$	21,996.00	$	22,000.00
Aggregate (Base & Sh)	$	12,543.21	$	12,500.00
Subgrade	$	6,555.56	$	6,600.00
Drainage	$	30,000.00	$	30,000.00
M.O.T.	$	56,300.00	$	56,300.00
Erosion Control	$	50,000.00	$	50,000.00
Approach Slab	$	37,600.00	$	37,600.00
All Other Items	$	159,823.33	$	159,800.00
Detour	$	634,177.72	$	634,200.00
Mobilization	$	126,024.79	$	126,000.00
Total Roadway Construction	$	1,237,520.60	$	1,237,500.00

BRIDGE				
DISMANTLING STRUCTURE	$	50,000.00	$	50,000.00
STR. EX	$	30,213.00	$	30,300.00
SEL. MAT'L BACKFILL	$	6,542.85	$	6,500.00
SLOPE PROTECTION	$	74,600.00	$	74,600.00
CL B CONCRETE	$	325,170.90	$	325,200.00
CL K CONCRETE	$	25,238.36	$	25,200.00
CL H CONCRETE	$	174,534.24	$	174,500.00
REINF STL BAR	$	154,873.88	$	154,900.00
EP REINF STL BAR	$	59,851.22	$	59,900.00
STL SUPER	$	276,207.36	$	276,200.00
STL BEARING PILES	$	48,001.50	$	48,000.00
STAGED CONSTRUCTION	$	183,785.00	$	183,800.00
Total Bridge Construction	$	1,409,018.31	$	1,409,000.00

Estimated Cost

		Actual		Rounded
Bridge	$	1,409,000.00	$	1,409,000.00
Roadway	$	1,237,520.60	$	1,237,600.00
E&C (19%)	$	502,838.91	$	502,900.00
	$	3,149,359.52	$	3,149,500.00
Future V alue		$4,008,285.90		$4,009,000.00
Pre Engineering	$	340,000.00	$	340,000.00
R/W utilities	$	90,000.00	$	90,000.00
Total		$4,438,285.90		$4,439,000.00

Estimated Cost for Alternative # 5

ROADWAY		Actual		Rounded
Clearing and Grubbing	$	60,000.00	$	60,000.00
Earthwork	$	17,500.00	$	17,500.00
HMA Wearing & Base	$	21,996.00	$	22,000.00
Aggregate (Base & Sh)	$	12,543.21	$	12,500.00
Subgrade	$	6,555.56	$	6,600.00
Drainage	$	30,000.00	$	30,000.00
M.O.T.	$	56,300.00	$	56,300.00
Erosion Control	$	50,000.00	$	50,000.00
Approach Slab	$	37,600.00	$	37,600.00
All Other Items	$	156,073.33	$	156,100.00
Detour	$	544,176.01	$	544,200.00
Mobilization	$	120,087.20	$	120,100.00
Total Roadway Construction	$	1,112,831.30	$	1,112,900.00

BRIDGE				
DISMANTLING STRUCTURE	$	50,000.00	$	50,000.00
STR. EX	$	30,213.00	$	30,300.00
SEL. MAT'L BACKFILL	$	6,542.85	$	6,500.00
SLOPE PROTECTION	$	74,600.00	$	74,600.00
CL B CONCRETE	$	325,170.90	$	325,200.00
CL K CONCRETE	$	25,238.36	$	25,200.00
CL H CONCRETE	$	174,534.24	$	174,500.00
REINF STL BAR	$	154,873.88	$	154,900.00
EP REINF STL BAR	$	59,851.22	$	59,900.00
STL SUPER	$	276,207.36	$	276,200.00
STL BEARING PILES	$	48,001.50	$	48,000.00
STAGED CONSTRUCTION	$	183,785.00	$	183,800.00
Total Bridge Construction	$	1,409,018.31	$	1,409,000.00

Estimated Cost

	Actual		Rounded
Bridge	$ 1,409,000.00	$	1,409,000.00
Roadway	$ 1,112,831.30	$	1,112,900.00
E&C (19%)	$ 479,147.95	$	479,200.00
	$ 3,000,979.25	$	3,001,100.00
Future V alue	$3,819,437.81		$3,819,000.00
Pre Engineering	$ 340,000.00	$	340,000.00
R/W utilities	$ 220,000.00	$	220,000.00
Total	$4,379,437.81		$4,379,000.00

APPENDIX "B"

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

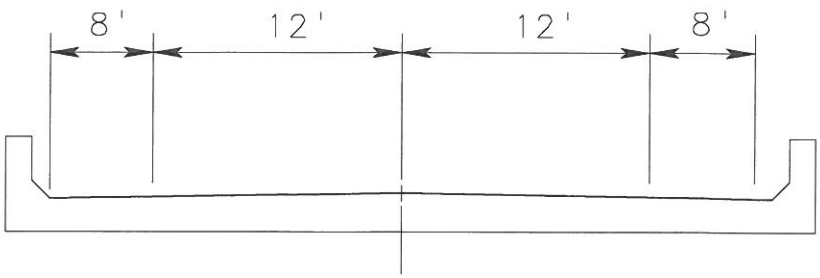
FIGURE 1

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

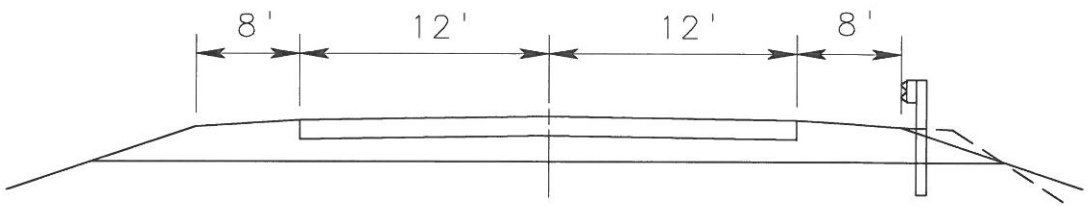
EXISTING CONDITIONS

J04C23C03-PLAN e

18-DEC-2008 13:52



PROPOSED BRIDGE



ROADWAY TYPICAL SECTION

FIGURE 2

ROADWAY FUNCTION CLASSIFICATION RURAL MINOR ARTERIAL DESIGN EXCEPTION NEEDED NO	A.D.T. (2006) 5,900	BRIDGE REPLACEMENT STUDY PLEASENTDALE BRIDGE STATE PROJECT NO. S214-50-20.03 FEDERAL PROJECT NO. BR-0050(231)D HAMPSHIRE COUNTY THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS ENGINEERING DIVISION
SUFFICIENCY RATE. 12.8 INVENTORY NO. 14A051	(2026) 8,300	

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

MAP 30 PARCEL 44

MAP 26 PARCEL 15

MAP 26 PARCEL 16

MAP 30 PARCEL 35

MAP 26 PARCEL 14

MAP 26 PARCEL 14

MAP 26 PARCEL 72

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

FIGURE 3

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE # 1

J04C23C03-PLAN #

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

MAP 26 PARCEL 15

MAP 26 PARCEL 16

MAP 30 PARCEL 35

MAP 26 PARCEL 14

14.1

MAP 26 PARCEL 14

MAP 26 PARCEL 72

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

FIGURE 4

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE 2

J04C23C03-PLAN e

Public Roads Dist.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

MAP 29 PARCEL 11

MAP 29 PARCEL 11.1

MAP 26 PARCEL 14

MAP 29 PARCEL 141

MAP 2 PARCEL 14

MAP 26 PARCEL 143

MAP 26 PARCEL 72

FIGURE 3

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE • 3

J04C23C03-PLAN •

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

MAP 30 PARCEL 44

MAP 26 PARCEL 15

MAP 26 PARCEL 16

MAP 30 PARCEL 35

MAP 30 PARCEL 44.2

MAP 30 PARCEL 76

MAP 26 PARCEL 72

FIGURE 6

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE # 3

J04C23C03-PLAN a

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

MAP 30 PARCEL 44

MAP 26 PARCEL 15

MAP 26 PARCEL 16

MAP 30 PARCEL 35

MAP 26 PARCEL 14

EL 141

MAP 26 PARCEL 14

MAP 26 PARCEL 72

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

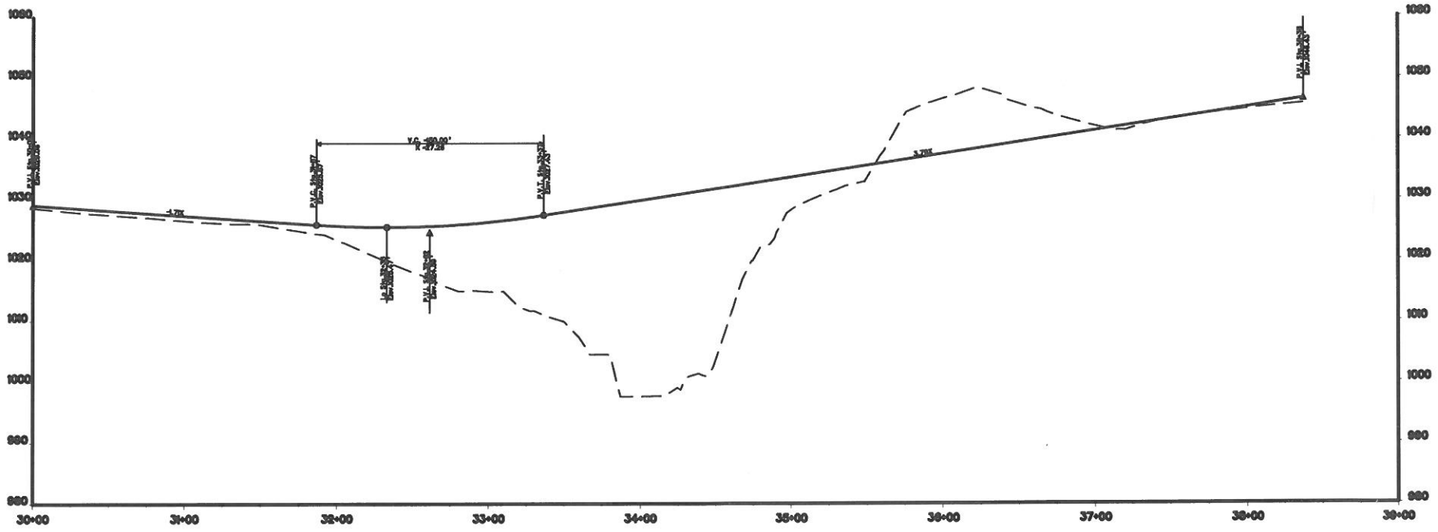
FIGURE 7

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE • 4

J04C23C03-PLAN e

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			



SCALE : 0 50 ft.

FIGURE 8

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE # 4

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

J04C23C03-PLAN e

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			

MAP 26 PARCEL 15

MAP 26 PARCEL 16

MAP 30 PARCEL 35

MAP 26 PARCEL 14

L 14.1

MAP 26 PARCEL 14

MAP 26 PARCEL 72

SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

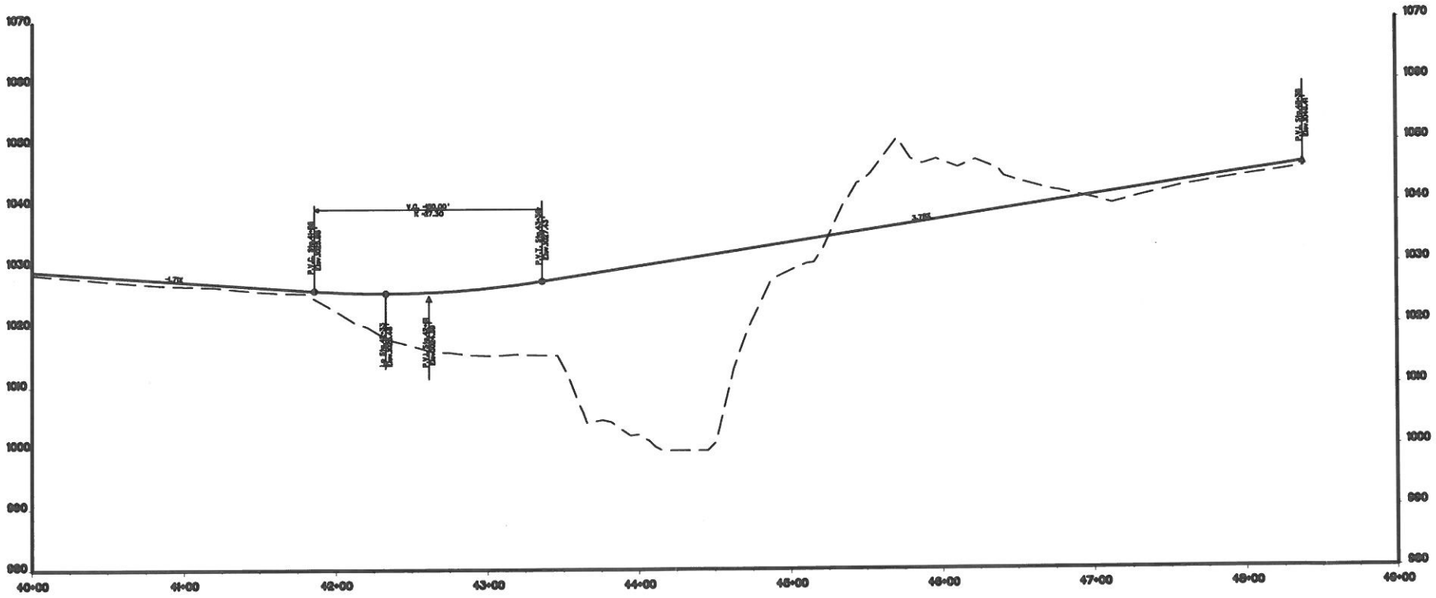
FIGURE 9

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE • 5

J04C23C03-PLAN e

Public Roads Div.	State Dist. No.	State Project No.	Federal Project No.	Fiscal Year	County	Sheet No.	Total Sheets
W. V.				200			



SCALE : 0 50 ft.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY

FIGURE 10

THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

ALTERNATIVE • 5

J04C23C03-PLAN e

APPENDIX "C"

Western Approach

Eastern Approach

Looking upstream

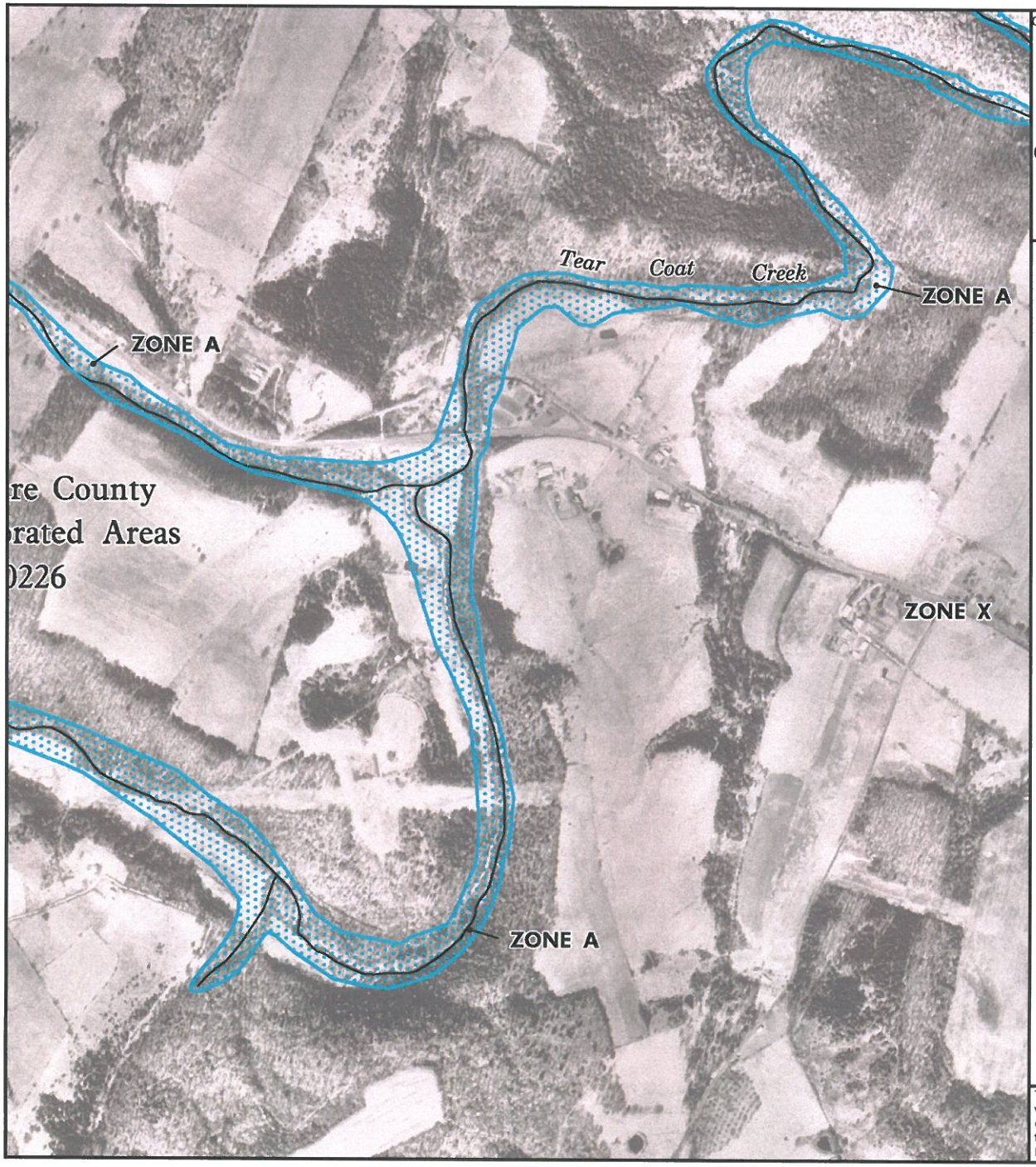
Looking downstream

Garage building on old US 50

Detour for Alternative No. 2 (Old US 50)

US 50 and Old US 50 intersection

Detour location for Alternative No. 4



onal Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

00 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0290 C

FIRM

FLOOD INSURANCE RATE MAP

HAMPSHIRE COUNTY,
WEST VIRGINIA
AND INCORPORATED AREAS

PANEL 290 OF 530

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HAMPSHIRE COUNTY	540226	0290	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
54027C0290C

EFFECTIVE DATE
NOVEMBER 7, 2002

Federal Emergency Management Agency