



Latitude:36.06785, Longitude:-92.57755

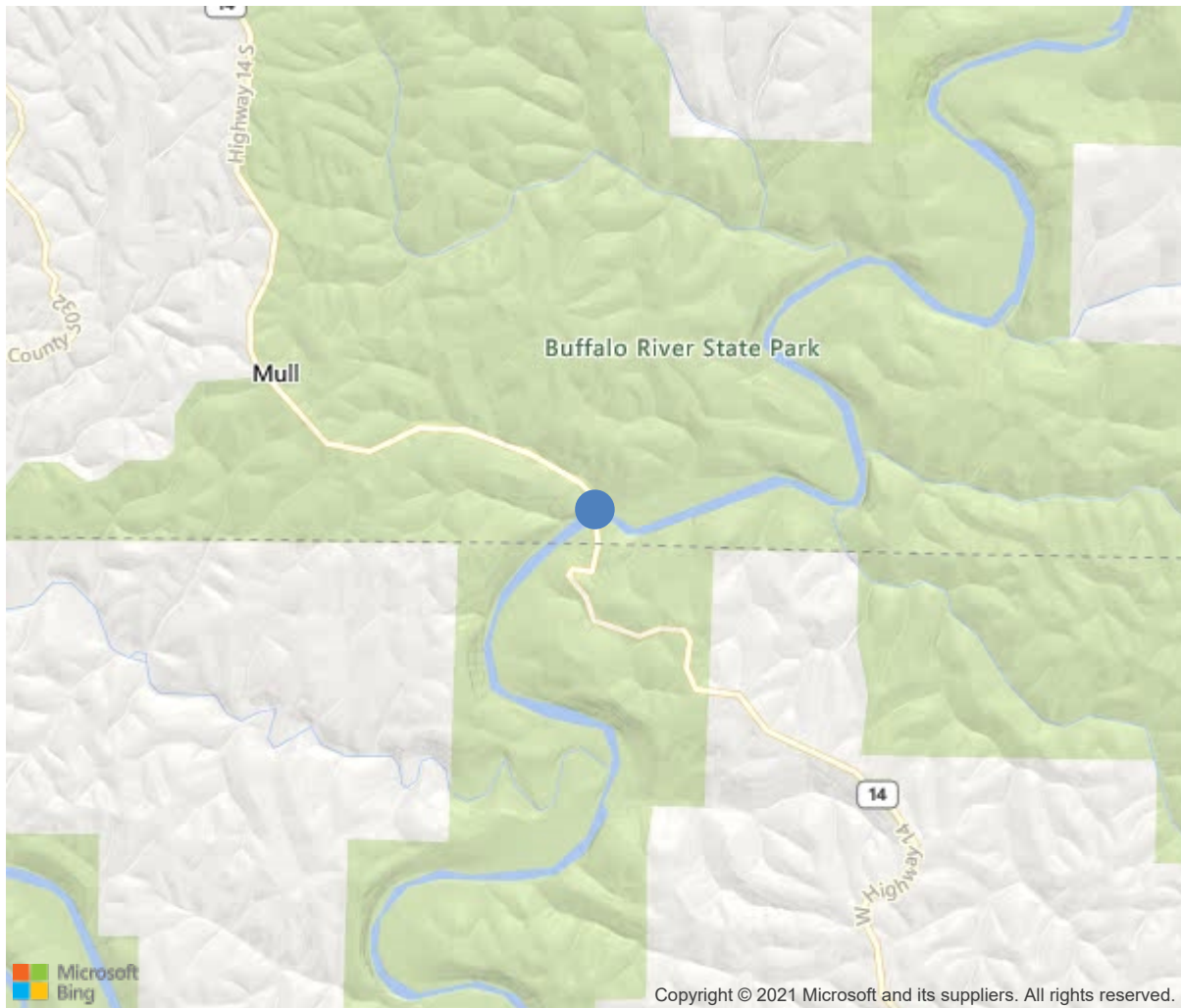
Route:14 Section:03 Log:15.787

Arnold Road ID:45x14x3xA, Arnold Log mile:15.73

District 09, Marion County

Owner: 1-State Highway Agency

15.79 MI S JCT US 62



36.06785, -92.57755



Bridge #01743(Routine)

SH 14 Marion over BUFFALO RIVER

Location: 15.79 MI S JCT US 62

Team Lead: Benjamin Smith Inspection Date: October 14, 2020

IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	01743
(5) Inventory Route	14
(2) Highway Agency District	09
(3) County Code	89-Marion County, Arkansas
(4) Place Code	0
(6) Features Intersected	BUFFALO RIVER
(7) Facility Carried	SH 14 Marion
(9) Location	15.79 MI S JCT US 62
(11) Mile Point	15.787 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000014030
(16) Latitude	36.06785
(17) Longitude	-92.57755
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	32
Material	3-Steel
Type	2-Stringer/Multi-beam or girder
(44) Approach Structure Type	32
Material	3-Steel
Type	2-Stringer/Multi-beam or girder
(45) No. of Spans in Main Unit	4
(46) No. of Approach Spans	5
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	1-Monolithic Concrete (concurrently placed
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	1958
(106) Year Reconstructed	0
(42) Type of Service	15
On	1-Highway
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	822
(30) Year of ADT	2018
(109) Truck ADT	1 %
(19) Bypass, Detour Length	28 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	80 ft
(49) Structure Length	572 ft
(50) Curb or Sidewalk Width	
Left	1 ft
Right	1 ft
(51) Bridge Roadway Width Curb to Curb	24 ft
(52) Deck Width Out to Out	28.6 ft
(32) Approach Roadway Width (W/Shoulders)	24 ft
(33) Bridge Median	0-No median
(34) Skew	0 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	24 ft
(53) Min Vert Clear Over Bridge Rdwy	99.99 ft
(54) Min Vert Underclear	0 ft
Ref:	
(55) Min Lat Underclear RT	99.9 ft
Ref:	
(56) Min Lat Underclear LT	0 ft
NAVIGATION DATA	
(38) Navigation Control	0-No navigation control on water
(111) Pier Protection	1-Navigation protection not requ
(39) Navigation Vertical Clearance	0 ft
(116) Vert-Lift Bridge Nav Min Vert Clear	0 ft
(40) Navigation Horizontal Clearance	0 ft

CLASSIFICATION	
(112) NBIS Bridge Length	Y
(104) Highway System	0
(26) Functional Class	6-Rural Minor Arterial
(100) Defense Highway	0-The inventory route is not a S
(101) Parallel Structure	N-No parallel structure exists.
(102) Direction of Traffic	2 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll-
(21) Maintain	1-State Highway Agency
(22) Owner	1-State Highway Agency
(37) Historical Significance	5-Bridge is not eligible for the NRHP
CONDITION	
(58) Deck	5
(59) Superstructure	5
(60) Substructure	6
(61) Channel & Channel Protection	6
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	2-M 13.5 / H 15
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	40
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	4
Rating	24
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	5
(68) Deck Geometry	4
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	8
(72) Approach Roadway Alignment	6
(36A) Bridge Railings	0-Inspected feature does not meet cur
(36B) Transitions	0-Inspected feature does not meet cur
(36C) Approach Guardrail	0-Inspected feature does not meet cur
(36D) Approach Guardrail Ends	1-Inspected feature meets currently a
(113) Scour Critical Bridges	8-Bridge foundations determined to be
PROPOSED IMPROVEMENTS	
(75) Type of Work	
(76) Length of Structure Improvement	0 ft
(94) Bridge Improvement Cost	\$ 0
(95) Roadway Improvement Cost	\$ 0
(96) Total Project Cost	\$ 0
(97) Year of Improvement Cost Estimate	
(114) Future ADT	1000
(115) Year of Future ADT	2028

INSPECTIONS *			
(90) Inspection Date			10/2020
(91) Frequency			24 Months
(92) Critical Feature Inspection	Done	Freq. (Mon)	Date
A: Fracture Critical Detail	No		
B: Underwater Inspection	No		
C: Other Special Inspection	No		
* The inspection date and frequency information in this box contains the current NBI date and frequency information. Please refer to the report header for the date this inspection was conducted.			

Team Lead: Benjamin Smith, **Inspection Date:** October 14, 2020

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Team Lead: Benjamin Smith, **Inspection Date:** October 14, 2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
107	Steel Open Girder/Beam	LF	1600	1062	350	188	0
1000	Corrosion	LF	538	0	350	188	0
515	Steel Protective Coating	SF	21450	16488	0	4905	57
3440	Effectiveness (Steel Protective Coatings)	SF	4962	0	0	4905	57
(107)							
5 beam painted steel system. The paintable beam surface is 33" tall by 11.5" wide flange. The protective coating includes the diaphragms. The beams in spans #1-4 have a 3/4" cover plate on the bottom flange that is tapered and welded at the ends. Paint cracking was noted at some locations.							
The paint system is still very effective in all spans with minor pin point rusting on the bottom flanges with corrosion on the top flange in some locations due to deck leaching. The beam ends have moderate corrosion for 1'-2' due to leaking from the assembly joints. The beams have areas of cs3 corrosion under the deck drains and joints.							
The beams have cs3 corrosion in the upper portions of the webs next to the deck haunch with section loss up to 3/16" in many locations.							
Span #1- Beam #3 has 1/8" deep pitting in the lower web for 1' at the end of the beam, this area has been needle scaled and repainted with no active corrosion.							
Span #5- beam #3 has a 2" rust hole in the extreme upper portion of the web at the end of the beam. Beam #2 has corrosion at the lower portion of the web at the end of the beam with 1/4" remaining section of the original 1/2" thickness for 4".							
Span #8- beam #5 has 1/8" deep pitting for 1' on the lower web at the end of the span.							
202	Steel Column	EA	20	0	10	10	0
1000	Corrosion	EA	20	0	10	10	0
515	Steel Protective Coating	SF	1399	883	330	60	126
3440	Effectiveness (Steel Protective Coatings)	SF	516	0	330	60	126
(202)							
The Steel piles of bent #4 have active corrosion with minor section loss at the ground line where they have been unearthed due to erosion. The most notable area is pile #4 which has heavy flaking rust with near knife edged section loss at ground level for 1' . 4 steel piles of steel bent #1 have minor section loss at the ground line. repairs were made to the areas of section loss at the top of steel piles adjacent to the cap. all steel piles have varying degrees of corrosion and areas of general rusting.							
205	Reinforced Concrete Column	EA	8	0	0	8	0
1080	Delamination/Spall/Patched Area	EA	4	0	0	4	0
1090	Exposed Rebar	EA	4	0	0	4	0
(205)							
Bent #4 columns-							
Column #1- has small delaminated areas in the upper portion of the column, with vertical hairline cracking on the interior face.							
Column #2- has a 6" spall with exposed rebar in the upper portion of the column.							
Bent #3 columns-							
Column #1- has vertical cracking with a large delaminated area in the upper portion of column on the ahead and back face.							
Column #2- has 1' of spalling on the ahead side approximately 25' up from the channel and vertical hairline cracking at the top on the span #3 side.							

Team Lead: Benjamin Smith, **Inspection Date:** October 14, 2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
<p>Bent #2 columns-</p> <p>Column #1- has 2 areas of shallow exposed rebar on the span #2 face with vertical cracking on the span #3 face.</p> <p>Column #2- has approximately 5' of vertical cracking in the upper portion of the column with 2 areas of shallow exposed rebar in the span #2 side.</p> <p>The bent #2 footings are exposed with 24" of vertical face exposed at the 2020 inspection.</p> <p>Bent #1 columns-</p> <p>Column #1- has vertical cracking with a large delaminated area in the upper portion of the column.</p> <p>Column #2- has 1' of spalling with exposed rebar approximately 10' up from the channel.</p>							
210	Reinforced Concrete Pier Wall	LF	80	62	13	5	0
1080	Delamination/Spall/Patched Area	LF	2	0	0	2	0
1090	Exposed Rebar	LF	3	0	0	3	0
1130	Cracking (RC and Other)	LF	13	0	13	0	0
(210)							
The pier walls consist of 20' of web wall between the columns of piers #1-4.							
Pier wall #1- has 1' of exposed rebar on the span #1 side, with 5' of diagonal cracking in the upper corners.							
Pier wall #2- has 2' of exposed rebar on the span #2 side, with 3' of diagonal cracking in the upper left corner.							
Pier wall #3- has 5' of diagonal cracking in the upper corners with 2' of cs3 delamination.							
Pier wall #4- no deficiencies noted.							
215	Reinforced Concrete Abutment	LF	32	21	10	1	0
1090	Exposed Rebar	LF	1	0	0	1	0
1130	Cracking (RC and Other)	LF	10	0	10	0	0
(215)							
Abutment #1- has 7' total of vertical hairline cracks, 4 in the back wall and 6 in the bridge seat, some cracks occupy the same footage. The abutment is built on a bluff face.							
Abutment #2- has 3 vertical hairline cracks, 1 in the back wall and 2 in the bridge seat. The vertical face of the bridge seat has a shallow exposed rebar under bay #1. The embankment has no rip rap.							
220	Reinforced Concrete Pile Cap/Footing	LF	16	16	0	0	0
(220)							
The footings are exposed at both columns of pier 2. The footings are cast in solid rock.							
234	Reinforced Concrete Pier Cap	LF	103	31	33	39	0
1080	Delamination/Spall/Patched Area	LF	42	0	5	37	0
1090	Exposed Rebar	LF	2	0	0	2	0
1130	Cracking (RC and Other)	LF	28	0	28	0	0
(234)							
Pier 1 cap- has 2 vertical hairline cracks and the right cap end has a horizontal hairline crack for 1'.							

Team Lead: Benjamin Smith, **Inspection Date:** October 14, 2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
<p>Concrete pier caps #8, 6, 5 have delaminated areas on the ahead and back faces.</p> <p>Pier 3 cap- has horizontal cracking on the right end with horizontal delamination on the span 4 side. The cap has spalling with rebar exposed at left end pier #3.</p> <p>Pier #4 cap- the ahead side under bearing has spall with anchor bolt exposed. The cap has spalling on the left and right ends with 13' of delamination on the span 4 side.</p> <p>Steel Bent #5 cap has a delaminated area on the behind face under beam #4 that is approximately 3' longitudinal horizontal cracking in the top and bottom of the cap. The left cap end has a 1' spall with rebar exposed.</p> <p>Steel Bent #6 cap has a delaminated area approximately 7' long along the top of cap on the right ahead face of cap and an area of horizontal cracking approximately 3' long. The behind face of cap has a delaminated area along the top of cap approximately 4' long under beam #2. Bent caps have areas of failing repairs that sound delaminated when sounded.</p> <p>Steel Bent 7 cap has approximately 4' of delamination under beams #3 and 4 on the ahead face.</p> <p>Steel bent 7 cap has horizontal cracking along the top of cap on the behind face under beams #2, 3 and 4 with a 1' delamination on the right cap end.</p> <p>Steel bent cap 8- has a spall with 2' of rebar exposed on the span 9 side. The right cap end has 1' of delamination.</p>							
305	Assembly Joint without Seal	LF	240	226	0	14	0
2370	Metal Deterioration or Damage	LF	14	0	0	14	0
(305)							
The road iron at bent #6 is loose for 14' in the right and left lanes and is making noise under traffic. The joint seals are leaking and causing corrosion to beam ends and bearing devices.							
311	Movable Bearing	EA	45	0	15	30	0
1000	Corrosion	EA	45	0	15	30	0
515	Steel Protective Coating	SF	45	0	0	0	45
3440	Effectiveness (Steel Protective Coatings)	SF	45	0	0	0	45
(311)							
Movable bearings have a failed paint system with general corrosion and areas of flaking rust.							
Span #1 movable bearings- all 5 have cs3 corrosion with section loss.							
Span #2- The movable bearings #2-4 have heavy corrosion with section loss. Bearings #1,5 are tilted the other bearings are not.							
Span #5- bearing #2 over bent #5 has shifted approximately 1-1/4" out of position. (this condition has been repaired by the bridge crew)							
Bearing #4- has shifted slightly out of position. Starting at bent #4- movable bearings have cs3 corrosion with pack rust and are not functioning as intended.							
Bent #3 and #4 bearings- The movable bearing at steel bents #3 and 4 have cs3 corrosion and are expanded / contracted in different directions. Bearing #2 and #4 are contracted and bearings #1 and 5 are expanded. Bearing #3 is in the neutral position. Bearing 4 has section loss, the corrosion has been needle scaled.							
Steel bent #5 movable bearings- have general corrosion with pack rust at the rockers.							
313	Fixed Bearing	EA	45	0	23	22	0
1000	Corrosion	EA	44	0	23	21	0
2240	Loss of Bearing Area	EA	1	0	0	1	0
515	Steel Protective Coating	SF	45	0	0	0	45
3440	Effectiveness (Steel Protective Coatings)	SF	45	0	0	0	45
(313)							

Team Lead: Benjamin Smith, **Inspection Date:** October 14, 2020

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Approach view in direction of log mile.



Abutment #2 bearing condition.



Section loss on movable bearing #4 over steel bent #4.



Repaired scour area around steel bent #4 is still holding at the 2020 inspection.



Pier #4 bearing condition. Showing corrosion that has been needle scaled and section loss.



Movable bearing #2 condition over pier #3. Typical also of bearings #3,4 at the same location.



Beam end condition at the end of span #2.



Exposed footings at the pier #2 columns.



Cover plate detail.



Bearing 5 tilt at the end of span #1.



Beam end and bearing corrosion at the end of span #1.



Typical view of the undersurface.



Typical view of the paint condition.



Abutment #1 bearing corrosion. Typical except bearing #4.



Typical spalling and delamination in the deck near the patched areas.



Downstream channel view.



Upstream channel view.



General view of the driving surface.



Maintenance Needs

Date Reported: 12/11/2012

Priority: D- Routine

Type of Work: Repair

Status: Assigned

Component:

Deficiency Description

The Pier #4 cap is spalled under the #5 bearing exposing anchor bolts with a 2.5" loss of bearing.

Remarks



Spalling with a 2.5" loss of bearing area under fixed bearing #5 over pier #4.



Bridge #01743(Routine)
SH 14 Marion over BUFFALO RIVER
Location: 15.79 MI S JCT US 62

Team Lead: Benjamin Smith **Inspection Date:** October 14, 2020

Date Reported: 12/11/2012

Priority: D- Routine

Type of Work: None

Status: Assigned

Component:

Deficiency Description

The left end of the pier #3 cap is spalled with rebar exposed.

Remarks

Date Reported: 10/26/2016
Priority: B - Pressing; 6 month completion goal
Type of Work: Repair
Status: Monitor
Component:

Deficiency Description

Moveable bearings at bent #5 -

The moveable bearings at bent #5 have heavy pack rust that appears to be restricting movement and causing the bearings to shift out of their intended position. The most notable case is bearing #2 of span #5 over bent #5 which has shifted approximately 1-1/4" out of position.

Remarks

It was noted during the routine inspection that this areas has been repaired.



Bent #5, bearing #2-Out of position.

Date Reported: 11/01/2016
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Bearings -

Fixed and moveable bearings have active corrosion with heavy pack rust throughout. Heavy pack rust in the pinned connections and between the rockers and masonry plates is preventing the bearings from expanding and contracting as designed. The moveable bearings over bents #3 and 4 have some bearings that are expanded and some that appear to be contracted indicating that the bearings are "frozen" due to extreme pack rust and are not functioning as intended.

Remarks



Corrosion to moveable bearings.



Corrosion to moveable bearings.

Team Lead: Benjamin Smith **Inspection Date:** October 14, 2020

Date Reported: 11/03/2016
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component:

Deficiency Description

Sliding plate expansion joint assembly at bent # 6 -
Approximately 14' of the sliding plate assembly at bent # 6 has loose anchorage and is noisy when impacted by traffic.

Remarks

It was noted during the routine inspection that this joint has been replaced by the bridge crew.



Date Reported: 11/03/2016
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component:

Deficiency Description

Superstructure -

Beam #3 has a 2" rust hole in the extreme upper portion of the web at the end of span #5.

The beams have flaking rust and measurable section loss to the beam ends and to the top flanges where the deck drains and deck joints discharge water onto the beams and in other random locations. The webs of beams have active corrosion with measurable section loss adjacent to the deck haunches.

Remarks



Corrosion to beam ends and bearing devices.



2" rust hole in the upper portion of the web at the end of beam #3 in span #5.

Date Reported: 11/03/2016
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Bent # 5 steel piling -

The lower portion of bent #5 steel piling has corrosion with significant section loss to the flanges and moderate pitting with heavy flaking rust to the webs where the piling has been exposed due to erosion from previous high water events. The most notable case is pile #4 which has near knife edged section loss to the flange at ground level for 1'.

Remarks



General view of erosion to bent #5 piling.



Bent #5, pile #4-Section loss.



Bridge #01743(Routine)
SH 14 Marion over BUFFALO RIVER
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Team Lead: Benjamin Smith **Inspection Date:** October 14, 2020

Inspection Comments

Structure is logged from North to South and is accessible with a snooperscope.

No bat activity noted.