



Latitude:36.17090, Longitude:-94.42922

Route:412 Section:01 Log:8.19

Arnold Road ID:4x412x1xB, Arnold Log mile:5.494

District 09, Benton County

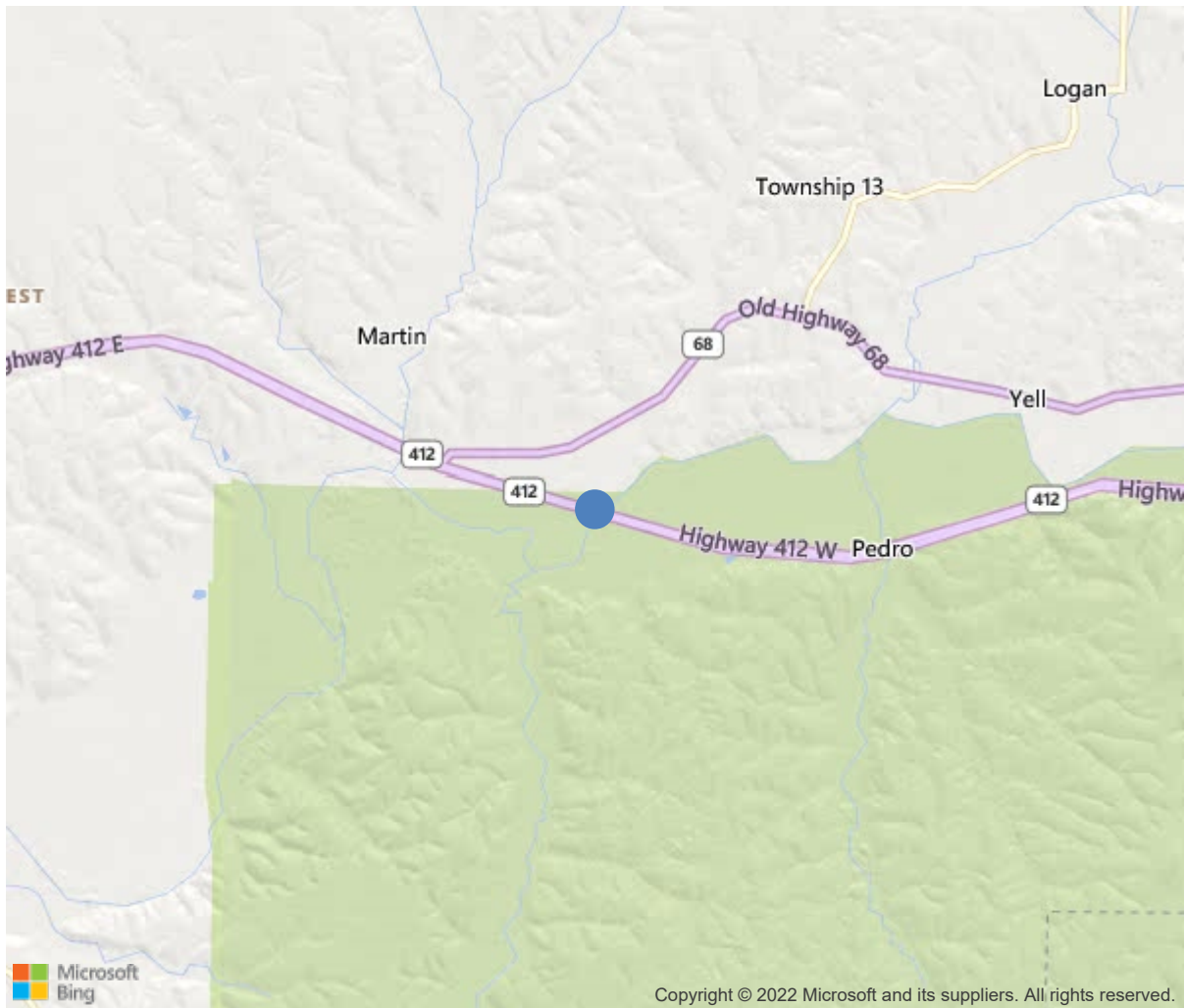
Owner: 1-State Highway Agency



Bridge #A6476(Routine, Underwater type 2)
US 412 Benton 2 over Illinois River/West Crsg
Location: Benton Co8.19 MI W OK LN

Team Lead: Nathan Rowland **Inspection Date:** June 15, 2021

Benton Co8.19 MI W OK LN



36.17090, -94.42922

Inspection Direction :



Bridge #A6476(Routine, Underwater type 2)

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Location: Benton Co8.19 MI W OK LN

Team Lead: Nathan Rowland Inspection Date: June 15, 2021

IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	A6476
(5) Inventory Route	412
(2) Highway Agency District	09
(3) County Code	7-Benton County, Arkansas
(4) Place Code	0
(6) Features Intersected	Illinois River/West Crsg
(7) Facility Carried	US 412 Benton 2
(9) Location	Benton Co8.19 MI W OK LN
(11) Mile Point	8.19 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000412010
(16) Latitude	36.1709
(17) Longitude	-94.42922
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	42
Material	4-Steel continuous
Type	2-Stringer/Multi-beam or girder
(44) Approach Structure Type	00
Material	0-Other
Type	0-Other
(45) No. of Spans in Main Unit	20
(46) No. of Approach Spans	0
(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	1-Epoxy Coated Reinforcing
AGE AND SERVICE	
(27) Year Built	1995
(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	10000
(30) Year of ADT	2018
(109) Truck ADT	1 %
(19) Bypass, Detour Length	1 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	120 ft
(49) Structure Length	1379 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	40 ft
(52) Deck Width Out to Out	42.8 ft
(32) Approach Roadway Width (W/Shoulders)	40 ft
(33) Bridge Median	0-No median
(34) Skew	28 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	41.3 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	1
(26) Functional Class	2-Rural Principal Arterial - Oth
(100) Defense Highway	0-The inventory route is not a S
(101) Parallel Structure	L-The left structure of parallel
(102) Direction of Traffic	1 - way traffic
(103) Temporary Structure	
(105) Federal Lands Highways	0-N/A
(110) Designated National Network	1-The inventory route is part of the
(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	7
(59) Superstructure	7
(60) Substructure	7
(61) Channel & Channel Protection	6
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	6-MS 18+Mod / HS 20+Mod
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	52
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	20
Rating	31
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	7
(68) Deck Geometry	7
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	9
(72) Approach Roadway Alignment	8
(36A) Bridge Railings	1-Inspected feature meets currently a
(36B) Transitions	1-Inspected feature meets currently a
(36C) Approach Guardrail	1-Inspected feature meets currently a
(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	11987
(115) Year of Future ADT	2028

INSPECTIONS *			
(90) Inspection Date			06/2021
(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.			



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Location: Benton Co8.19 MI W OK LN

Team Lead: Nathan Rowland, Inspection Date: June 15, 2021

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	55040	43569	11428	43	0
1080	Delamination/Spall/Patched Area	SF	1	0	1	0	0
1120	Efflorescence/Rust Staining	SF	18	0	15	3	0
1130	Cracking (RC and Other)	SF	436	0	396	40	0
1190	Abrasion/Wear (PSC/RC)	SF	11016	0	11016	0	0
(12)							
06/15/2021 WNR & DBM:							
-The left and right hand lanes have minor abrasion in the wheel path. The tire wearing surface is no longer present in the wheel path and random milled areas.							
-The deck has sealable cracking in all spans.							
-The deck has longitudinal cracking in the outside lane over bent #2.							
-The deck overhangs have transverse cracking with efflorescence.							
-The left overhang at bent #6 has an area of mapcracking with efflorescence approximately 2' long.							
-The outside lane in span #10 has a softball sized spall with no exposed reinforcing steel.							
-The outside lane over bent #3 has large areas of transverse and mapcracking.							
107	Steel Open Girder/Beam	LF	6820	6803	17	0	0
1000	Corrosion	LF	3	0	3	0	0
1020	Connection	LF	14	0	14	0	0
(107)							
06/15/2021 WNR & DBM:							
-Span #1, Girder #1 has abnormal weathering with flaking rust to undersurface of bottom flange the majority of length of Girder.							
-Superstructure splice plate connections have loose bolts in several locations:							
-Span #8 Girder #3 has 2 loose bolts. girder #5 has 1 loose bolt.							
-Span #9 Girders #1 and #4 have 1 loose bolt. Girder #5 has 2 loose Span #9 Girders #1 and #2 have 1 loose bolt.							
-Span #11 Girders #2 and #3 have 1 loose bolt.							
-Span #12 Girder #3 has one loose bolt.							
-Span #15 Girder #4 has 2 loose bolts.							
-Span #16 Girder #4 has one loose bolt.							
-Span #19 Girder #1 has 2 loose bolts.							
-Span #20 Girder #4, has 1 loose bolt.							
205	Reinforced Concrete Column	EA	19	16	0	3	0
1080	Delamination/Spall/Patched Area	EA	3	0	0	3	0
(205)							
06/15/2021 WNR & DBM:							
-Bent #2 column has several diagonal cracks visible on both sides of column that range in width from hairline to wide.							
-Bent #3 column has 7 softball sized spalls with no exposed reinforcing steel in the ahead side that appear to be from bullet impacts.							
-Bent #4 column has three moderate sized spalls with no exposed reinforcing steel in the ahead side that appear to be from bullet impacts.							
215	Reinforced Concrete Abutment	LF	134	99	35	0	0



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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
1080	Delamination/Spall/Patched Area	LF	2	0	2	0	0
1130	Cracking (RC and Other)	LF	33	0	33	0	0
(215)	06/15/2021 WNR & DBM: -The top of abutment backwalls have transverse cracking on approximately 2' spacing visible from the driving surface. -The top of East abutment backwall has a spall approximately 2' long near centerline.						
234	Reinforced Concrete Pier Cap	LF	855	770	85	0	0
1080	Delamination/Spall/Patched Area	LF	2	0	2	0	0
1130	Cracking (RC and Other)	LF	83	0	83	0	0
(234)	06/15/2021 WNR & DBM: -Bent caps have short duration hairline vertical cracks at step downs and other random locations. -Bent #14 cap in span #14 has shallow softball sized spall with no exposed reinforcing steel on left side. -Bent #15 cap has a 6" diameter shallow spall that does not expose reinforcing steel on the behind side.						
300	Strip Seal Expansion Joint	LF	282	178	80	24	0
2310	Leakage	LF	24	0	0	24	0
2350	Debris Impaction	LF	80	0	80	0	0
(300)	06/15/2021 WNR & DBM: The strip seal compression joint seals have debris impaction on the shoulders at every expansion joint location.						
310	Elastomeric Bearing	EA	125	122	3	0	0
1000	Corrosion	EA	3	0	3	0	0
515	Steel Protective Coating	SF	250	250	0	0	0
(310)	06/15/2021 WNR & DBM: -Numerous anchor bolts are leaning out of plumb. -Span #13 bearing #1 over bent #12 has abnormal corrosion with flaking rust due to leaking expansion joint. -Span #9, bearing #1 over bent #8 has corrosion with flaking rust due to leaking expansion joint.						
321	Reinforced Concrete Approach Slab	SF	1944	1621	288	35	0
1130	Cracking (RC and Other)	SF	35	0	0	35	0
1190	Abrasion/Wear (PSC/RC)	SF	288	0	288	0	0
(321)	06/15/2021 WNR & DBM: -The West approach slab has a wide full length longitudinal crack in the left lane.						
331	Reinforced Concrete Bridge Railing	LF	2758	2136	479	105	38

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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
1080	Delamination/Spall/Patched Area	LF	0	0	0	0	0
1120	Efflorescence/Rust Staining	LF	114	0	63	51	0
1130	Cracking (RC and Other)	LF	508	0	416	54	38
(331)							
06/15/2021 WNR & DBM:							
-Bridge railing has vertical cracking at sawn joints, delaminated areas and areas of map cracking with efflorescence.							



Inventory looking east



Downstream view.



Upstream view



Spalling in the top of abutment #2 breastwall.



General view of deck.



Spall in the left lane in span #8 no steel exposed



Spall in the left lane in span #8 no steel exposed.



Pourable joint material has been displaced in multiple locations.



Typical longitudinal cracking in span #3 over bent #2.



View of abutment #1 expansion joint.



Cracking in the west approach slab.



Cracking in pier #2 ahead side still exists.



Elastomeric bearing #1 in span #13 over bent #12 is skewed out of plum.



Bolts still loose as of this inspection.



Inventory looking East.



Bent #8 debris in expansion joint.



View of parapet right.



Span #20 girder #4 loose bolt in splice plate.



Abutment #1 joint



Abutment #2 cracking and spalling.



Typical longitudinal cracking.



Elevation looking north



General view of undersurface.



Span #9 softball sized spall.



Span #11 Girders #2 loose bolt



View of parapet left.



Typical cracking in parapet wall.



East side of upstream channel has bank erosion.



Bent #2 Vertical and diagonal cracking in pier.



Span #19 Girder #2 has 2 loose bolts.



Previously documented bolts are still loose.



General view of channel below structure.



General view of deck.



Bent #4 expansion joint debris.



Typical hairline cracking in the tops of pier caps.



Abutment #2 expansion joint material debris impaction.



Wearing in wheel path.



Bent #5 has a tree lodged against Pier.



Pourable joint material for construction joints has been displaced.

Maintenance Needs

Date Reported: 06/13/2017

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Superstructure - The ends of girders have abnormal weathering with flaking rust in locations due to leaking expansion joints.

Remarks



Span #13, end of Girder #1 over bent #12 has an area of corrosion approximately 4' long due to leaking expansion joint.



Span #1, Girder #2 at abutment #1-Corrosion due to leaking expansion joint.

Date Reported: 06/14/2011

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Deck -

The strip seal compression joint seals have heavy debris impaction.

Abutment #1 strip seal expansion joint is torn in locations allowing water to leak onto superstructure promoting corrosion.

The sawn construction joint sealant material is missing in numerous locations throughout.

Remarks



Bent #8 debris in expansion joint.



Missing joint sealant.



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Bent #4 expansion joint debris.



Abutment #1 joint



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Pourable joint material for construction joints has been displaced.



Abutment 1-Debris impaction.

Date Reported: 06/14/2011

Priority: D- Routine

Type of Work: Repair

Status: Monitor

Component:

Deficiency Description

Superstructure - Superstructure splice plate connections have loose bolts in several locations.

Span #8 Girder #3 has 2 loose bolts. girder #5 has 1 loose bolt.

Span #9 Girders #1 and #4 have 1 loose bolt. Girder #5 has 2 loose Span #9 Girders #1 and #2 have 1 loose bolt.

Span #11 Girders #2 and #3 have 1 loose bolt.

Span #12 Girder #3 has one loose bolt.

Span #15 Girder #4 has 2 loose bolts.

Span #16 Girder #4 has one loose bolt.

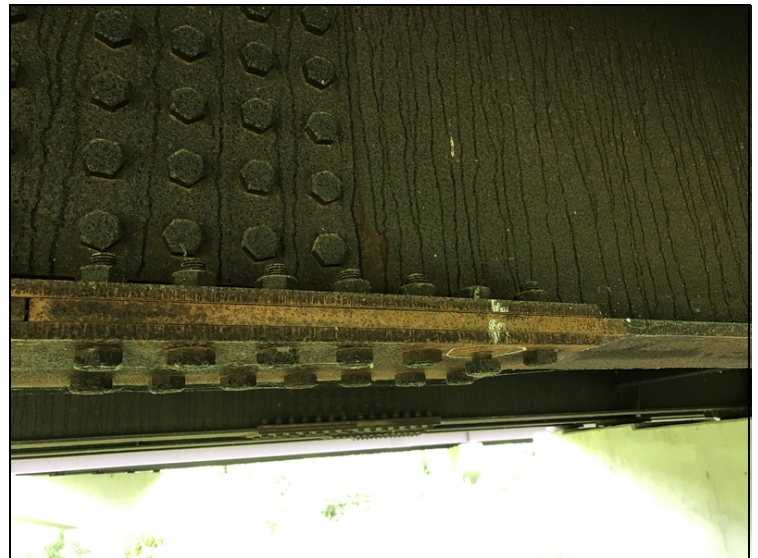
Span #19 Girder #2 has 2 loose bolts.

Span #20 Girder #4, has 1 loose bolt.

Remarks



Span #17, Girder #2-Loose splice plate connection bolts.



Span #11 Girders #2 loose bolt



Span #19 Girder #2 has 2 loose bolts.



Span #20 girder #4 loose bolt in splice plate.



Previously documented bolts are still loose.



Span #11, Girder #2-Loose splice connection bolt.



Span #20, Girder #4 has loose splice connection bolt.

Date Reported: 06/14/2011
Priority: D- Routine
Type of Work: Repair
Status: Assigned
Component:

Deficiency Description

Deck / West approach slab - The deck has sealable cracking in all spans. The outside lane in span #3 is worst case with areas of wide transverse, longitudinal and mapcracking.
The West approach slab has a wide full length longitudinal crack in the left lane.

Remarks



West approach slab-Wide longitudinal cracking.



Span #3-Cracking.



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Longitudinal cracking over bent #2.



Typical longitudinal cracking.

Date Reported: 06/25/2013
Priority: D- Routine
Type of Work: Clean
Status: Monitor
Component:

Deficiency Description

Channel -
Bent #5 has a tree lodged against Column.

Remarks



Bent #5-Tree lodged against bent.



Bent #5 has a tree lodged against Pier.

Date Reported: 06/07/2017

Priority: D- Routine

Type of Work: None

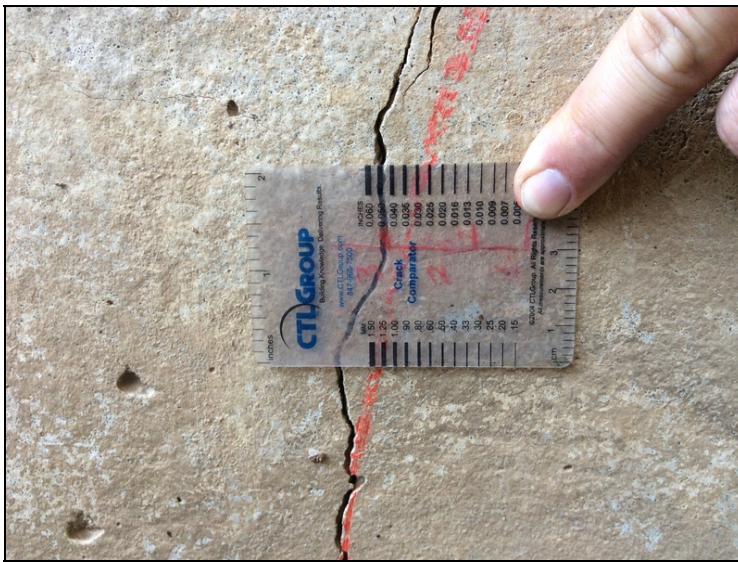
Status: Monitor

Component:

Deficiency Description

Substructure - Bent #2 column has several diagonal cracks visible on both sides of column that propagate from base of column. Cracks extend up the column approximately 10' in length and range in width from hairline to wide.

Remarks



Bent #2-Diagonal cracking in column.



Bent #2-Diagonal cracking in column.



Bent #2 Vertical and diagonal cracking in pier.

Date Reported: 06/13/2017
Priority: D- Routine
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Concrete bridge railing - The concrete bridge railing has areas of mapcracking that sound delaminated in areas when sounded.

Remarks



Span 9 parapet wall left typical cracking.



Span #20, left bridge railing-Cracking.



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Typical cracking in parapet wall.

Date Reported: 06/16/2021
Priority: B - Pressing; 6 month completion goal
Type of Work: Clean
Status: Open
Component: Channel

Deficiency Description

Heavy vegetation:
-Large vegetation has begun impacting the inspection process.

Remarks



Large vegetation.



Heavy vegetation is impacting inspection equipment during normal inspection operations.



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Inspection Comments

06/15/2021 WNR & DBM: Routine inspection conducted this date. See element notes for documentation.
Logged West to East.