



Bridge #B6478(Routine, Underwater type 2)

Benton US 412 over ILLINOIS RIVER

Location: 11.64 MI E OF OKLAHOMA LN

Team Lead: Nathan Rowland **Inspection Date:** June 16, 2021



Latitude:36.17202, Longitude:-94.36971

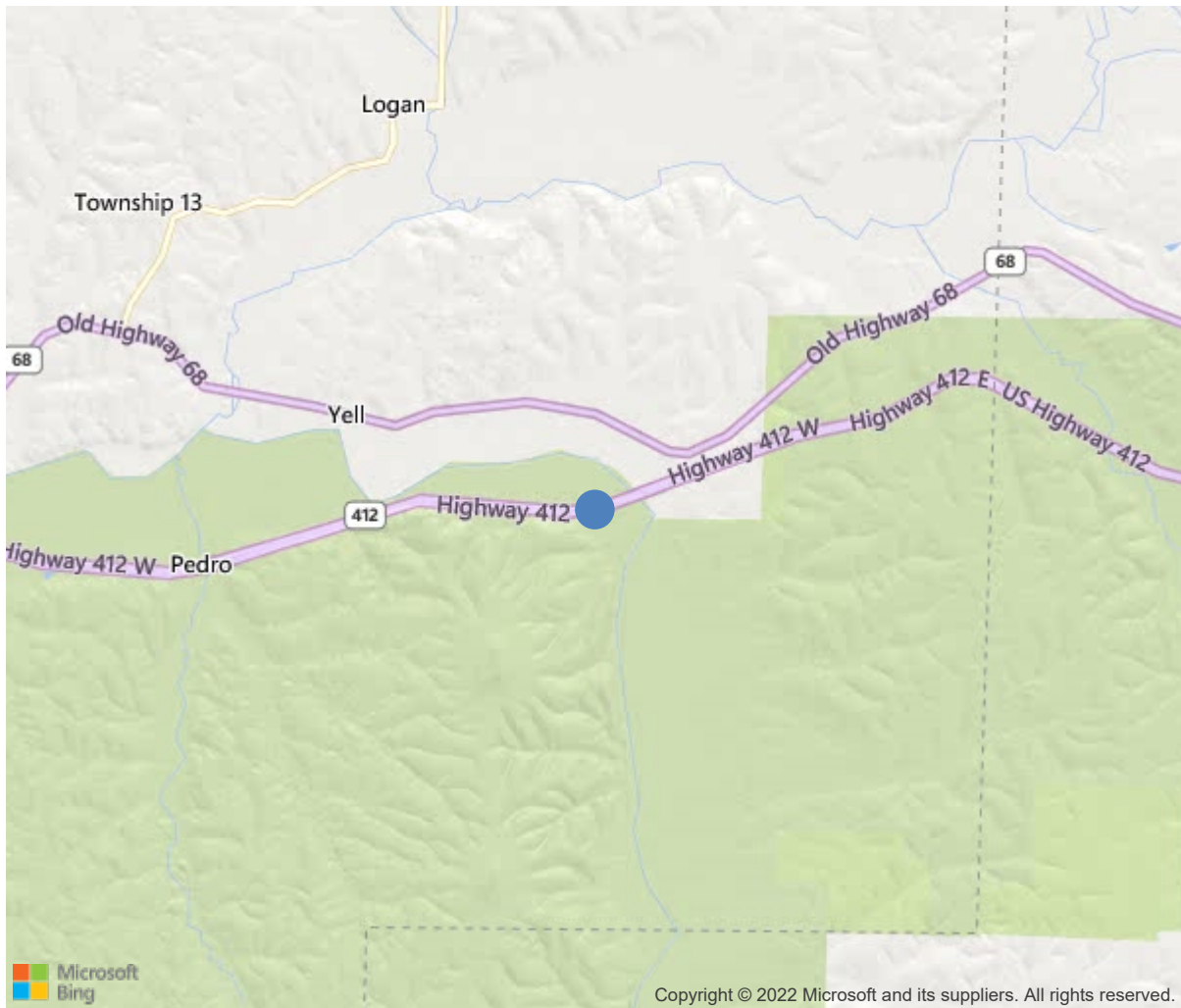
Route:412 Section:01 Log:11.6

Arnold Road ID:4x412x1xA, Arnold Log mile:11.589

District 09, Benton County

Owner: 1-State Highway Agency

11.64 MI E OF OKLAHOMA LN



36.17202, -94.36971

Inspection Direction : W to E



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IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	B6478
(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
(7) Facility Carried	Benton US 412
(9) Location	11.64 MI E OF OKLAHOMA LN
(11) Mile Point	11.6 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000412010
(16) Latitude	36.17202
(17) Longitude	-94.36971
(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	19
(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	19000
(30) Year of ADT	2013
(109) Truck ADT	1 %
(19) Bypass, Detour Length	1 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	120 ft
(49) Structure Length	1344 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	25 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	R-The right structure of paralle
(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	6
(61) Channel & Channel Protection	7
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	5-MS 18 / HS 20
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	36
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	19
Rating	22
(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	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	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	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.			

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	53680	48183	5494	3	0
1080	Delamination/Spall/Patched Area	SF	14	0	11	3	0
1120	Efflorescence/Rust Staining	SF	0	0	0	0	0
1130	Cracking (RC and Other)	SF	2795	0	2795	0	0
1190	Abrasion/Wear (PSC/RC)	SF	2688	0	2688	0	0
(12)							
06/16/2021 WNR & DBM:							
- The driving surface of the deck has full length longitudinal cracks in the left and right wheel paths of the outside lane.							
-Span #19 has areas of spalling in the Right wheel path adjacent to abutment #2.							
-The left lane of span #19 at abutment #2 has areas of heavy abrasion that is beginning to spall.							
-The wheel paths have light abrasion in the wheel paths of both lanes.							
Undersurface:							
-Span #14, right overhang has an area of mapcracking with efflorescence approximately 5' long.							
-SIP forms in span #2, bays #3 and #4 have corrosion.							
-SIP forms in span #3, bays #3 and #4 have corrosion.							
-SIP forms in span #5, bay #2 has corrosion.							
-SIP forms in span #16, bays #3 and #4 have corrosion.							
-SIP forms in span #18, bay #4 have corrosion at splice plate connection #1.							
107	Steel Open Girder/Beam	LF	6702	6685	8	9	0
1000	Corrosion	LF	17	0	8	9	0
515	Steel Protective Coating	SF	60649	60616	2	31	0
3430	Oxide Film Degradation Color/Texture Adherence(Steel Protective Coatings)	SF	33	0	2	31	0
(107)							
06/16/2021 WNR & DBM:							
-The bottom flanges of girders have areas of out-of-plane bending in several locations throughout that appear to be from rough handling.							
-Span #2, exterior side of girder #5 has an area of corrosion with initial section loss to web and top and bottom flanges where deck cracking leaches onto superstructure.							
-Span #7, Girder #3 has an area of out-of-plane bending to bottom flange near mid-span.							
-Span #12, Girder #4 over bent #12 has corrosion with flaking rust due to leaking compression joint seal. The adjacent diaphragm in bay #4 has corrosion with flaking rust.							
-Span #13, Girder #4 over bent #12 has corrosion with flaking rust due to leaking expansion joint.							
-Span # 7, girder #1, span #15, girder #2 and span #17, girder #2 have one loose bolt in the splice plate connections.							
-Span #19, girder #5 has corrosion with flaking rust over abutment #2 due to leaking compression joint seal.							
205	Reinforced Concrete Column	EA	18	16	1	1	0
1130	Cracking (RC and Other)	EA	2	0	1	1	0
(205)							
06/16/2021 WNR & DBM:							
-The channel has an area of localized scour at the base of bent #1 that has created a scour hole that is approximately 5' deep, 10' wide and 30' long. The footing is not exposed at this inspection.							
-Bent #1 column has numerous diagonal cracks that range in width from hairline up to 0.060". The cracks are visible on both side of							

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
column and extend up the column from the base an estimated 10 to 12 feet. -Bent #12 column has 3 diagonal cracks visible on both sides that propagate from the base of column up to first construction joint. -Bent #13 column has numerous wide diagonal cracks on both sides that extend from base of column approximately 7' high.							
215	Reinforced Concrete Abutment	LF	132	110	22	0	0
1130	Cracking (RC and Other)	LF	22	0	22	0	0
(215)							
06/16/2021 WNR & DBM: - The top of the abutment backwalls have longitudinal cracking on approximately 12" centers visible from the driving surface.							
234	Reinforced Concrete Pier Cap	LF	801	764	34	3	0
1080	Delamination/Spall/Patched Area	LF	8	0	5	3	0
1130	Cracking (RC and Other)	LF	29	0	29	0	0
(234)							
06/18/2019 - WNR & DBM: -Bent caps have short duration hairline vertical cracking at the step downs and other random locations. -Bent #3 cap has areas of hairline mapcracking on both sides of cap. -Bent #8, Right end has a hairline horizontal crack. -bent cap #10 has concrete risers due to an elevation bust during construction. -The top of Bent cap #16 has an area of heavy scaling on the right side approximately 8' long where the compression joint seal leaks on the cap.							
300	Strip Seal Expansion Joint	LF	276	152	124	0	0
2310	Leakage	LF	23	0	23	0	0
2350	Debris Impaction	LF	101	0	101	0	0
(300)							
06/16/2021 WNR & DBM: -Strip seal expansion joints have heavy debris impaction in joints across the left and right shoulders and moderate impaction across portions of the driving lanes. The strip seal appears to have pulled out of the assembly in locations. -Compression joint seals at main span and expansion joint areas are beginning to lose adhesion but do not appear to be leaking. -Joint seal material at sawn joint locations is missing and/or leaking at most areas.							
310	Elastomeric Bearing	EA	120	119	1	0	0
1000	Corrosion	EA	1	0	1	0	0
515	Steel Protective Coating	SF	240	240	0	0	0
(310)							
06/16/2021 WNR & DBM: - Anchor bolts in several locations are leaning out-of-plumb. - Span #12, bearing #4 has corrosion with flaking rust due to leaking compression joint seal.							
321	Reinforced Concrete Approach Slab	SF	1680	1006	658	16	0
1130	Cracking (RC and Other)	SF	114	0	98	16	0
1190	Abrasion/Wear (PSC/RC)	SF	560	0	560	0	0
(321)							

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
06/16/2021 WNR & DBM: -The West approach slab has wide diagonal cracking and light abrasion in the wheel paths. -The approach gutters of the West approach have medium scaling. -The East approach slab has longitudinal and transverse cracking with light abrasion in the wheel paths.							
331	Reinforced Concrete Bridge Railing	LF	2688	2098	496	60	34
1080	Delamination/Spall/Patched Area	LF	22	0	18	4	0
1090	Exposed Rebar	LF	112	0	100	12	0
1130	Cracking (RC and Other)	LF	456	0	378	44	34
(331)							
06/16/2021 WNR & DBM: Right parapet in span #6 has a 2' long spall with exposed reinforcing steel. Right side parapet in span #7 has areas of horizontal cracking. -Right side parapet wall in span #8 has a 12' long piece of exposed reinforcing steel. -Map cracking with delaminated areas exists at several locations.							



Inventory looking East



Upstream view



Downstream view



Splice bolts are still loose.



Bent #12 bearings #4 & #5 have been recessed into concrete cap due to an elevation bust.



View of abutment #2.



Bent #10 has concrete riser due to elevation bust.



Bent #1 still has cracks present in the pier wall.



View of abutment #1



View of spalling in deck adjacent abutment #2



Spalling behind expansion joint at bent #4.



Maintenance forces have patched steel pavement markers.



General view of deck.



Abutment #1 expansion joint.



Cracking in west approach slab



View of expansion joint at bent #16 debris impaction



Span #11 right over hang efflorescence with cracking.



General view of channel under structure.



Large tree wedge against bent #17.



Bent #8 expansion joint debris impaction



Bent #5 Typical vertical cracking in pier cap.



Span #8 right railing spalling with rebar exposed.



Inventory looking East



Bent #12 expansion joint debris impaction



Large spall adjacent to abutment #2.



Typical efflorescence and cracking in parapet wall.



Span #12 girder #4 flaking rust at the end of girder over bent #12



Elevation looking South.



General condition of the deck.



Span #2 bay #4 approximately 10' ahead of bent #1 the sip forms have active corrosion this is typical throughout undersurface.



Span #2, exterior side of girder #5 has an area of corrosion with initial section loss to web and top and bottom flanges where deck cracking leaches onto superstructure.



Bent #1 pier cracking in the pier.



Typical view of longitudinal crack at centerline.



Typical displacement of pourable joint material.



Abutment #2 debris impaction.



Span #4 adjacent to bent #4 road iron spalling and delaminated areas.



Abutment #1 minor debris impactation



Bent #4 expansion joint debris impactation.



Span #8 right railing spalling with rebar exposed.

Maintenance Needs

Date Reported: 06/21/2011

Priority: D- Routine

Type of Work: None

Status: Assigned

Component:

Deficiency Description

Deck - The driving surface of the deck has sealable cracking in all spans.

Remarks



Longitudinal cracking typical, photo #2.



Span #19-Transverse cracking.



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Location: 11.64 MI E OF OKLAHOMA LN

Team Lead: Nathan Rowland **Inspection Date:** June 16, 2021



Typical view of longitudinal crack at centerline.

Date Reported: 06/21/2011
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Deck - The deck has spalling in the right lane of span #19 at abutment #2 that has created potholes in the driving surface. The left lane of span #19 at abutment #2 has a large area of heavy scaling that is beginning to spall.

Remarks



Span #19-Spalling in deck adjacent to abutment #2.



Large spall adjacent to abutment #2.

Date Reported: 06/21/2011

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Concrete parapets - The concrete parapet on the right side of span #8 has collision damage with a large area of spalling that exposes the reinforcing steel. The parapets have areas of wide mapcracking in several locations.

Remarks



Span #8 right railing spalling with rebar exposed.



Span #8 right railing spalling with rebar exposed.

Date Reported: 06/21/2011

Priority: D- Routine

Type of Work: None

Status: Assigned

Component:

Deficiency Description

Expansion joint seals - The strip seals have moderate debris impactation and appear to have come out of the assemblies in random locations allowing water to leak onto the superstructure promoting corrosion. The sawn joint seal material is missing in several locations.

Remarks



Span #10-Sawn joint material missing.



Bent #8 expansion joint debris impactation



Abutment #2 debris impactation.



Abutment #1 minor debris impactation



West abutment-Debris impaction.

Date Reported: 06/21/2011

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

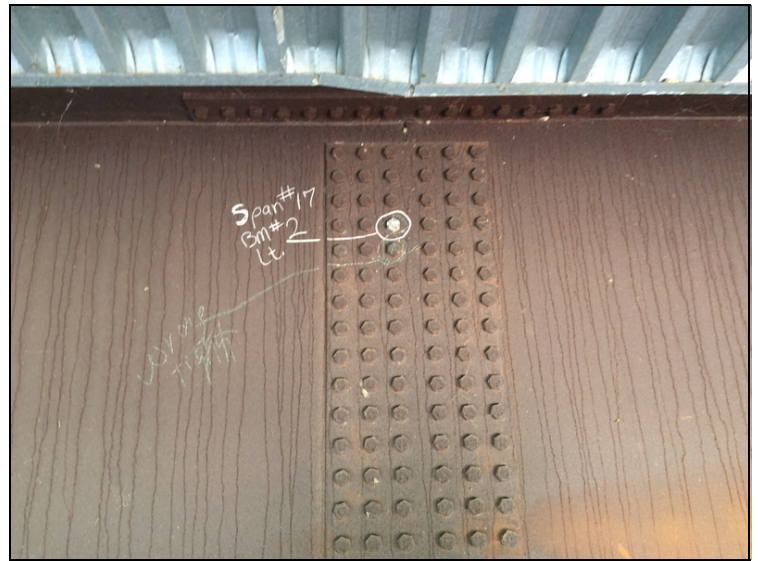
Deficiency Description

Superstructure splice connections - Span # 7, girder #1, span #15, girder #2 and span #17, girder #2 have one loose bolt in the splice plate connections.

Remarks



Span #15, Girder #2 has a loose bolt in the bottom flange splice plate.



Span #17, Girder #2-Loose splice plate bolt.

Date Reported: 05/09/2017
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Substructure -

The columns of bent #1 and bent #13 have numerous diagonal cracks that range in width from hairline up to 0.060". The cracks are visible on both side of the columns and extend up the column from the base an estimated 10 to 12 feet. Bent #12 column has 3 diagonal cracks visible on both sides that propagate from the base of column up to first construction joint.

Remarks



Cracking in bent #1 column. Photo #1.



Bent #1-Cracking on right side.



Cracking in bent #1 column. Photo #2.



Bent #1 pier cracking in the pier.



Bent #1-Diagonal cracking.



Bent #1, Span #2-Diagonal cracking.

Date Reported: 06/07/2017
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Channel - The channel has a tree lodged against bent #17.

Remarks



Large tree wedge against bent #17.



Channel-Drift at bent #17.



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Location: 11.64 MI E OF OKLAHOMA LN

Team Lead: Nathan Rowland **Inspection Date:** June 16, 2021

Date Reported: 06/21/2021
Priority: B - Pressing; 6 month completion goal
Type of Work: Clean
Status: Open
Component: Channel

Deficiency Description

Vegetation:

-The vegetation under the structure is growing into the substructure and making it difficult to for the bridge inspection process.

Remarks



Elevation looking South.



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Inspection Comments

06/16/2021 WNR & DBM: Routine inspection conducted this date. See element notes for documentation.
Logged West to East.