



Bridge #01101(Record Change, Fracture Critical)

US 70 Cache River over CACHE RIVER

Location: .03 MI W OF MONROE CO LIN

Team Lead: Keith Harris **Inspection Date:** September 21, 2020



Latitude:34.83107, Longitude:-91.37766

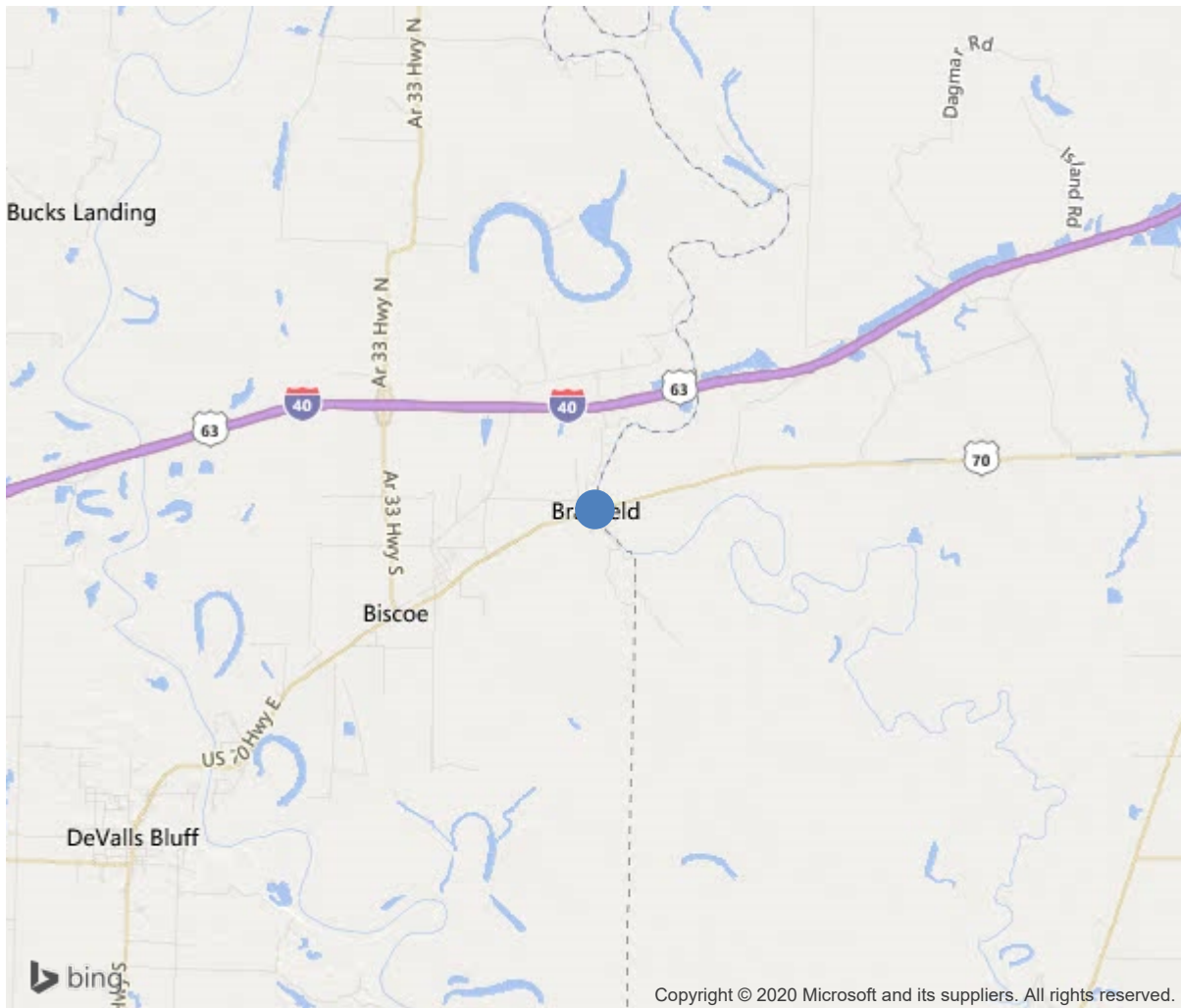
Route:70 Section:16 Log:19.836

Arnold Road ID:59x70x16xA, Arnold Log mile:19.791

District 06, Prairie County

Owner: 1-State Highway Agency

.03 MI W OF MONROE CO LIN



34.83107, -91.37766



Bridge #01101(Record Change, Fracture Critical)

US 70 Cache River over CACHE RIVER

Location: .03 MI W OF MONROE CO LIN

Team Lead: Keith Harris Inspection Date: September 21, 2020

IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	01101
(5) Inventory Route	70
(2) Highway Agency District	06
(3) County Code	117-Prairie County, Arkansas
(4) Place Code	0
(6) Features Intersected	CACHE RIVER
(7) Facility Carried	US 70 Cache River
(9) Location	.03 MI W OF MONROE CO LIN
(11) Mile Point	19.836 mi
(12) Base Highway Network	No
(13) LRS Inventory Rte & Subrte	0000000000
(16) Latitude	34.83107
(17) Longitude	-91.37766
(98) Border Bridge State Code	
(99) Border Bridge Structure No.	
STRUCTURE TYPE AND MATERIAL	
(43) Main Structure Type	33
Material	3-Steel
Type	3-Girder and floorbeam system
(44) Approach Structure Type	13
Material	1-Concrete
Type	3-Girder and floorbeam system
(45) No. of Spans in Main Unit	3
(46) No. of Approach Spans	5
(107) Deck Structure Type	1-Concrete Cast-in-Place
(108) Wearing Surface/Protective System	
Type of Wearing Surface	6-Bituminous
Type of Membrane	0-None
Type of Deck Protection	0-None
AGE AND SERVICE	
(27) Year Built	1930
(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	1300
(30) Year of ADT	2018
(109) Truck ADT	9 %
(19) Bypass, Detour Length	4 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	81 ft
(49) Structure Length	444 ft
(50) Curb or Sidewalk Width	
Left	0.5 ft
Right	0.5 ft
(51) Bridge Roadway Width Curb to Curb	26.9 ft
(52) Deck Width Out to Out	30 ft
(32) Approach Roadway Width (W/Shoulders)	27.9 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	27.9 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	7-Rural Major Collector
(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	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	2-Bridge is eligible for the NRHP.
CONDITION	
(58) Deck	5
(59) Superstructure	5
(60) Substructure	5
(61) Channel & Channel Protection	7
(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	44
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	3
Rating	27
(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	8
(36) Traffic Safety Features	0000
A) Bridge Railings	0-Inspected feature does not meet cur
B) Transitions	0-Inspected feature does not meet cur
C) Approach Guardrail	0-Inspected feature does not meet cur
D) Approach Guardrail Ends	0-Inspected feature does not meet cur
(113) Scour Critical Bridges	5-Bridge foundations determined to be
PROPOSED IMPROVEMENTS	
(75) Type of Work	Bridge rehabilitation because
(76) Length of Structure Improvement	444 ft
(94) Bridge Improvement Cost	\$ 0
(95) Roadway Improvement Cost	\$ 0
(96) Total Project Cost	\$ 597
(97) Year of Improvement Cost Estimate	2003
(114) Future ADT	1620
(115) Year of Future ADT	2033
INSPECTIONS	
(90) Inspection Date	
(91) Frequency	24 Months
(92) Critical Feature Inspection	Done Freq. (Mon) Date
A: Fracture Critical Detail	Yes 24 202009
B: Underwater Inspection	No 0
C: Other Special Inspection	No 0 201609

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	7371	5610	845	916	0
1080	Delamination/Spall/Patched Area	SF	386	0	0	386	0
1090	Exposed Rebar	SF	66	0	0	66	0
1120	Efflorescence/Rust Staining	SF	464	0	0	464	0
1130	Cracking (RC and Other)	SF	845	0	845	0	0
510	Wearing Surfaces	SF	6561	3690	2871	0	0
3210	Delam/Spall/Patched Area/Pothole	SF	27	0	27	0	0
3220	Crack (Wearing Surface)	SF	2844	0	2844	0	0
(12)							
Span 3, 4 and 5 have Spalls with exposed rebar on the soffit and cracks with rust stains and efflorescence.							
16	Reinforced Concrete Top Flange	SF	6107	5895	38	174	0
1080	Delamination/Spall/Patched Area	SF	38	0	38	0	0
1090	Exposed Rebar	SF	29	0	0	29	0
1120	Efflorescence/Rust Staining	SF	145	0	0	145	0
510	Wearing Surfaces	SF	5400	2457	2943	0	0
3210	Delam/Spall/Patched Area/Pothole	SF	27	0	27	0	0
3220	Crack (Wearing Surface)	SF	2916	0	2916	0	0
(16)							
The soffit of the approach spans has some small Spalls with exposed rebar and transverse cracks with rust stains and light efflorescence.							
107	Steel Open Girder/Beam	LF	486	8	282	196	0
1000	Corrosion	LF	457	0	282	175	0
1900	Distortion	LF	21	0	0	21	0
515	Steel Protective Coating	SF	191040	0	169650	20130	1260
3410	Chalking (Steel Protective Coatings)	SF	187400	0	169650	17750	0
3420	Peeling/Bubbling/Cracking	SF	2380	0	0	2380	0
3440	Effectiveness (Steel Protective Coatings)	SF	1260	0	0	0	1260
(107)							
Scattered areas of active rust on the top and bottom flanges and at the girder ends. The ends of girders at bottom flange and lateral gusset plates, pack rust has formed at these locations causing distortion to gusset plates and bottom flanges. See photos.							

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
110	Reinforced Concrete Open Girder/Beam	LF	400	335	64	1	0
1080	Delamination/Spall/Patched Area	LF	4	0	4	0	0
1090	Exposed Rebar	LF	1	0	0	1	0
1130	Cracking (RC and Other)	LF	60	0	60	0	0
(110)							
Span 7 girder 2 at bent 8 spall with exposed rebar on right side. Flex cracks in the legs of spans 1,2,6,7,&8. Span 7&8 have small spalls on both girders from traffic impact							
113	Steel Stringer	LF	1215	278	250	687	0
1000	Corrosion	LF	922	0	250	672	0
1020	Connection	LF	15	0	0	15	0
(113)							
Scattered areas of active corrosion on the stringers in all spans, most common on the top flange. Active rust is present on some of the gusset plates that connect the fascia stringers to the floor beams.							
152	Steel Floor Beam	LF	972	127	205	640	0
1000	Corrosion	LF	845	0	205	640	0
(152)							
Areas of active corrosion on the top flanges of the floor beams is common on the section under the deck overhang and near the top flanges of the main girders where there is deck cracking.							
155	Reinforced Concrete Floor Beam	LF	157	153	4	0	0
1130	Cracking (RC and Other)	LF	4	0	4	0	0
205	Reinforced Concrete Column	EA	6	0	1	5	0
1080	Delamination/Spall/Patched Area	EA	2	0	1	1	0
1090	Exposed Rebar	EA	2	0	0	2	0
1130	Cracking (RC and Other)	EA	2	0	0	2	0
(205)							
Both columns at bent 2 have vertical cracks. 0.050 inch avg. Column 1 at bent 7 has spall with exposed rebar. Column 2 at bent 7 has a small delam right side. Column 1 at bent 8 has spall with exposed rebar on back face. Column 2 at bent 8 has delam on back face.							
210	Reinforced Concrete Pier Wall	LF	72	0	29	43	0
1090	Exposed Rebar	LF	7	0	0	7	0
1190	Abrasion/Wear (PSC/RC)	LF	65	0	29	36	0
(210)							
All of the pier wall have moderate to heavy abrasion.							



Bridge #01101(Record Change, Fracture Critical)

US 70 Cache River over CACHE RIVER

Location: .03 MI W OF MONROE CO LIN

Team Lead: Keith Harris, **Inspection Date:** September 21, 2020

ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
Bent 6 pier wall back spall with exposed rebar. See photo.							
215	Reinforced Concrete Abutment	LF	60	60	0	0	0
234	Reinforced Concrete Pier Cap	LF	128	83	18	27	0
1090	Exposed Rebar	LF	24	0	0	24	0
1130	Cracking (RC and Other)	LF	14	0	14	0	0
(234)							
Bent 3 right side spall with rebar at the top. Bent 4 both sides Spalls with exposed rebar. Bent 5 both sides Spalls with exposed rebar. Bent 6 has horizontal and vertical cracks with one spall and exposed rebar.							
311	Movable Bearing	EA	10	4	0	2	4
2220	Alignment	EA	6	0	0	2	4
(311)							
The bearings at bents 3 and 5 are fully rotated back. See photos.							
313	Fixed Bearing	EA	6	0	2	4	0
1000	Corrosion	EA	6	0	2	4	0
(313)							
The base of all of the fixed bearings have active rust							
331	Reinforced Concrete Bridge Railing	LF	886	649	237	0	0
1080	Delamination/Spall/Patched Area	LF	36	0	36	0	0
1130	Cracking (RC and Other)	LF	121	0	121	0	0



Approach



Deck overview



Approach soffit view



Main soffit view



Span 3 typical paint condition



Bent 2 spall with exposed rebar on cap, cracks in both columns.



Span 5 outside stringer corrosion



Span 7 girder 2 at bent 8 spall with exposed rebar on right side.



Exposed rebar on soffit span 3

Maintenance Needs

Date Reported: 09/21/2020
Priority: B - Pressing; 6 month completion goal
Type of Work: Repair
Status: Open
Component:

Deficiency Description

Pier 1, Span 3, girder1, 6"x1" hole in gusset plate were lateral bracing ties in above bearing 1.

Remarks



Pier 1, Span 3, girder1, 6"x1" hole in gusset plate were lateral bracing ties in above bearing 1.



Pier 1, Span 3, girder1, 6"x1" hole in gusset plate were lateral bracing ties in above bearing 1.

Date Reported: 09/18/2019
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Bent 1, span 1, girder 2: Transverse crack in the girder near the cap.

Remarks



Bent 1, span 1, girder 2: Transverse crack in the girder near the cap.



Bent 1, span 1, girder 2: Transverse crack in the girder near the cap.



Bridge #01101 (Record Change, Fracture Critical)

US 70 Cache River over CACHE RIVER

Location: .03 MI W OF MONROE CO LIN

Team Lead: Keith Harris **Inspection Date:** September 21, 2020

Date Reported: 09/18/2019
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Bent 8, column 1 and 2: large spall with exposed rebar.

Remarks



Bent 8 column 1 & 2 large spalls with exposed rebar

Date Reported: 09/26/2017
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Spans 3,4 & 5 the stringer and floor beams have active rust with moderate pitting. The corrosion is more common on the stringers and floor beams on the out side of girders at soffit overhangs.

Added 9/20/18

Span 5, stringer 1: 25' ahead of bent 4: bottom flange and lower web with measurable section loss, at this same location the top flange and upper web with measurable section loss. Lower web with 3/16" section loss. Bottom flange with 1/4" section loss

Remarks



Span 5 right of girder 2 active rust on the cantilevered floor beams.



Span 4, stringer 4: top flange with laminating rust and lower web with measurable section loss. (8' from pier 2 joint)



Span 3 right side stringer 4 active rust to top flange at scupper drain.



Span 3 left of girder 1 active rust on the cantilevered floor beams.

Date Reported: 09/21/2015

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Right side pier 4: diagonal crack in the step up of the cap, also the main cap below.

Remarks



Right side pier 4: diagonal crack in the step up of the cap, also the main cap below.



Span 6, girder 2
Cracking at the end of the girder.



Right side pier 4: diagonal crack in the step up of the cap, also the main cap below.

Date Reported: 09/21/2015

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

The top flanges of the main girders have active corrosion due to deck cracking. The rust "washes" out during rainy conditions, staining the sides of the girders.

Remarks



Span 3, right girder left face.
Deck cracking is allowing water to rust the top flange and "wash out" on the web and bottom flange.



Span 3, right girder left face.
Deck cracking is allowing water to rust the top flange and "wash out" on the web and bottom flange.

Date Reported: 09/21/2015
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

The edges of the bottom flanges of the girders of spans 3,4 and 5 have some section loss above the bearings.

Remarks



Span 4, girder 2 at bent 4 on the left side.
Pack rust has deformed the bottom flange near the bearing.



Span 3, girder 2, right side at bent 4.
The web plate is pitted to 1/8 inch at the diagonal brace and the end vertical stiffener.



Span 3, girder1

The left edge of the bottom flange at the bearing is corroded down approx. 1/4"



Span 3, girder 2, left side at bent 4.

The web plate and bottom flange have active corrosion with section loss up to 1/8"

Date Reported: 09/21/2015
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

The moveable bearings at Bent 3 & 5 under the main span are fully rotated. See photos

Remarks



Pier 1: both right and left bearing are fully rotated back.



Span 3, girder1
The left edge of the bottom flange at the bearing is corroded down approx. 1/4"



Pier 1, span 3, girder 2: right bearing fully rotated back. Girder 2 bearing in similar condition



Span 3, girder1
The left edge of the bottom flange at the bearing is corroded down approx. 1/4"

Date Reported: 09/21/2015
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Pack rust development has distorted some of the horizontal brace gusset plates attached to the bottom flanges of spans 3,4 and 5.

Remarks



Girder 2, three feet back from bent 4.
Pack rust has developed between the diagonal brace gusset plate and the top of the bottom flange.



Pier 1, girder 1: pack rust between bottom flange and gusset plate above bearing. This is a common condition at all piers near the bearings



Pier 2 , Girder 1, span 3 Pack rust has developed between the diagonal brace gusset plate and the top of the bottom flange.

Date Reported: 09/21/2015
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Span 5, girders 1 pack rust has deformed bottom flange at riveted built up section. See photo.

Remarks



Span 5 girder 1, left side
1/2" of pack rust between the plates of the bottom
flange,
Approx. 20 feet ahead of bent 5.



Span 5, girders 1 pack rust has deformed bottom
flange at riveted built up section.



Span 5 girder 1, left side
1/2" of pack rust between the plates of the bottom
flange,
Approx. 20 feet ahead of bent 5.

Date Reported: 09/21/2015
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

The soffit (bottom of the deck) of spans 3,4 and 5 have transverse cracks with rust stains and efflorescence build up, spalls and spalls with exposed rebar.

Remarks



Span 5 right of girder 2: spalls with exposed rebar and transverse cracks with heavy efflorescence build up. Common deficiency at this span



Span 5 right of girder 2: spalls with exposed rebar and transverse cracks with heavy efflorescence build up. Common deficiency at this span

Typical outside floor beam condition.

Date Reported: 09/21/2015
Priority: D- Routine
Type of Work: None
Status: Repair Documented
Component:

Deficiency Description

Both of the abutments (spill through abutments) have active erosion due to storm water run off.

Remarks

Assigned Prairie 06591 11-10-16



Abutment 1 erosion.



State forces have placed erosion countermeasures

Date Reported: 09/21/2015
Priority: C - Important
Type of Work: None
Status: Monitor
Component:

Deficiency Description

Bent 4, girder 1, the bearing pin is worn 1/8" deep
Bent 4 girder 2, the bearing pin is worn 1/4" deep.
Bent 6 girders 1 and 2 the bearing pins are worn 1/16" deep.

Remarks



Looking back at the moveable bearing of girder 2
at bent 4.
The pin is worn (saddled) approx. 1/4 inch deep.



Bent 4, girder 1, the bearing pin is worn 1/4" deep

Date Reported: 09/28/2010

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Caps of piers 1,2,3 and 4 have Spalls with exposed rebar

Remarks



Backside of pier 3 cap has spalls with exposed rebar



Ahead side of pier 3, left side: large spall with exposed rebar



Ahead Pier 1, under girder 1: vertical crack under bearing



Back side pier 2, under girder 2: spalls with exposed rebar that has section loss. USGS river gauge is bolted to the cap and the bolts are loose.



Back side pier 2, under girder 2: spalls with exposed rebar that has section loss. USGS river gauge is bolted to the cap and the bolts are loose.



Pier wall 3 cap spalls with exposed rebar



Bridge #01101(Record Change, Fracture Critical)

US 70 Cache River over CACHE RIVER

Location: .03 MI W OF MONROE CO LIN

Team Lead: Keith Harris **Inspection Date:** September 21, 2020

Inspection Comments

Layout Dwg# 2706

Snooper or Aspen needed.

Logged East bound.