

Bridge Inspection Report

03308
SH 21 Carroll
over
DRY FORK CREEK



Inspection Date:

Inspected By:

Inspection Type(s):

Inspector:

Structure Number: 03308

Inspection Date:

Facility Carried: SH 21 Carroll

Bridge Inspection Report

National Bridge Inventory

IDENTIFICATION		INSPECTIONS	
(1) STATE CODE	056 - Arkansas	(90) INSPECTION DATE	06/11/2018
(8) STRUCTURE NUMBER	03308	(91) DESIGNATED INSPECTION FREQUENCY	24
(5) INV. ROUTE (ON/UNDER)	1 3 1 21 0	(92) CRITICAL FEATURE INSPECTION	(93) CFI DATE
(2) HIGHWAY AGENCY	09 (3) COUNTY CODE 015	A. FRACTURE CRITICAL DETAIL	N
(4) PLACE CODE	00000	B. UNDERWATER INSPECTION	N
(6) FEATURES INTERSECTED	DRY FORK CREEK	C. OTHER SPECIAL	N
(7) FACILITY CARRIED	SH 21 Carroll		
(9) LOCATION	2.47 MI N JCTOF US 412		
(11) MILEPOINT 2.470	(12) BASE HIGHWAY NETWORK 0		
(13A) LRS INVENTORY ROUTE	0000000000 (13B) SUBROUTE NUMBER 00		
(16) LATITUDE 36.16862	(17) LONGITUDE -93.53827		
(98A) BORDER BRIDGE CODE			
PERCENT RESPONSIBILITY	(99) BORDER BRIDGE STRUCT		
STRUCTURE TYPE AND MATERIAL		CONDITION	
(43) STRUCTURE TYPE, MAIN		(58) DECK	6
A) KIND OF MATERIAL/DESIGN: 3 - Steel		(59) SUPERSTRUCTURE	6 (60) SUBSTRUCTURE 6
B) TYPE OF DESIGN/CONSTR: 02 - Stringer/Multi-beam or Girder		(61) CHANNEL & CHANNEL PROTECTION	6 (62) CULVERT N
(44) STRUCTURE TYPE, APPROACH SPANS			
A) KIND OF MATERIAL/DESIGN: 0 - Other			
B) TYPE OF DESIGN/CONSTR: 00 - Other			
(45) NUMBER OF SPANS IN MAIN 4	(46) NUMBER OF APPROACH 0		
(107) DECK STRUCTURE TYPE 1	(108A) WEARING SURFACE 1		
(108B) DECK MEMBRANE 0	(108C) DECK PROTECTION 0		
AGE OF SERVICE		LOAD RATING AND POSTING	
(27) YEAR BUILT 1960	(106) YEAR RECONSTRUCTED 0000	(31) DESIGN LOAD	2
(42) TYPE OF SERVICE ON 1 UNDER 5		(63) METHOD USED TO DETERMINE OPERATING RATING	1
(28) LANES ON 02 UNDER 00		(64) OPERATING RATING	50
(29) AVERAGE DAILY TRAFFIC 1600	(19) BYPASS DETOUR LENGTH 10	(65) METHOD USED TO DETERMINE INVENTORY RATING	1
(30) YEAR OF AVERAGE DAILY TRAFFIC 2014		(66) INVENTORY RATING	30
(109) AVERAGE DAILY TRUCK TRAFFIC 1		(70) BRIDGE POSTING	5
		(41) STRUCTURE OPEN/POSTED/CLOSED	A
GEOMETRIC DATA		APPRAISAL	
(48) LENGTH OF MAX SPAN (ft.) 45	(49) STRUCTURE LENGTH (ft.) 182	(67) STRUCTURAL EVALUATION	6
(50) CURB/SIDEWALK WIDTHS (ft.) LEFT 1 RIGHT 1		(68) DECK GEOMETRY	4
(51) BRDG RDWY WIDTH CURB-TO-CURB (ft.)	24.0	(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL	N
(52) DECK WIDTH, OUT-TO-OUT (ft.)	28.5	(71) WATERWAY ADEQUACY	8
(32) APPROACH ROADWAY WIDTH (ft.)	24.0	(72) APPROACH ROADWAY ALIGNMENT	8
(33) BRIDGE MEDIAN 0	(34) SKEW (DEG.) 0	(36) TRAFFIC SAFETY FEATURE	
(35) STRUCTURE FLARED 0	(10) INV RTE, MIN VERT CLEAR (ft.) 99.99	36A) BRIDGE RAILINGS:	1
(47) TOTAL HORIZONTAL CLEARANCE (ft.)	25.9	36B) TRANSITIONS:	1
(53) VERTICAL CLEARANCE OVER BRIDGE ROADWAY (ft.)	99.99	36C) APPROACH GUARDRAIL:	1
(54) VERTICAL UNDER CLEARANCE (ft.)	N 0	36D) APPROACH GUARDRAIL ENDS:	1
(55) LATERAL UNDER CLEARANCE RIGHT (ft.)	N 99.9	(113) SCOUR CRITICAL BRIDGES	5
(56) MIN LATERAL UNDER CLEARANCE (ft.)	0	SUFFICIENCY RATING	77.6 STATUS 0
PROPOSED IMPROVEMENTS		CLASSIFICATION	
(75A) TYPE OF WORK PROPOSED	(75B) WORK DONE BY	(112) NBIS BRIDGE LENGTH	Y
(76) LENGTH OF STRUCTURE IMPROVEMENT (ft.) 0		(104) HIGHWAY SYSTEM OF THE INVENTORY ROUTE	0
(94) BRIDGE IMPROVEMENT COST (\$)	0	(26) FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE	07
(95) ROADWAY IMPROVEMENT COST (\$)	0	(100) STRAHNET HIGHWAY DESIGNATION	0
(96) TOTAL PROJECT COST	0	(101) PARALLEL STRUCTURE DESIGNATION	N
(97) YEAR OF IMPROVEMENT COST ESTIMATE		(102) DIRECTION OF TRAFFIC	2
(114) FUTURE ADT 1703	(115) YEAR OF FUTURE ADT 2028	(103) TEMP STRUCTURE	
		(105) FEDERAL LANDS HIGHWAYS	0
		(110) DESIGNATED NATIONAL NETWORK	0
		(20) TOLL	3
		(21) MAINTENANCE RESPONSIBILITY	01
		(22) OWNER	01
		(37) HISTORICAL	5
		NAVIGATION DATA	
		(38) NAVIGATION CONTROL	0
		(111) PIER OR ABUTMENT PROTECTION	1
		(39) NAV VERT CLEARANCE (ft.)	0
		(116) MIN NAVIGATION VERT CLEARANCE, VERT LIFT BRIDGE (ft.)	0
		(40) NAV HORIZONTAL CLEARANCE (ft.)	0

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Element Inspection

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12 - Reinforced Concrete Deck	1- Ben.	4550	sq. ft.	2661	1873	16	0
	<p>Driving surface-</p> <p>Span #1 has delaminations and patched areas for its entire length and width 1012 sqft . Span #2 has 17' of delaminations. Span #3 has 37' of delamination and patched areas. Span #4 has 60' of delamination and patched area. Almost all delamination and spalling is in the left gutter of spans #2,3,4. All spans have unsealed transverse cracks, avg spacing is 24".</p> <p>Undersurface- the undersurface is showing areas of map cracking with efflorescence in several of the bays.</p> <p>Several deck drains along the left and right sides have spalling with exposed rebar.</p>						
1080 - Delamination/Spall/Patched Area		1126		0	1126	0	0
1090 - Exposed Rebar		16		0	0	16	0
1130 - Cracking (RC and Other)		747		0	747	0	0
107 - Steel Open Girder/Beam	1- Ben.	900	ft.	570	260	70	0
	<p>5 beam painted steel system. 6.08' per foot of paintable surface. The surface includes the diaphragms.</p> <p>The beams have bottom flange cover plates that are not as wide as the flange, the ends are tapered and welded. The general condition of the paint has chalking in the spans. The beams ends and the areas under the drains on the fascia beams have corrosion.</p> <p>Span #1- the beginning of all 5 beams have corrosion for 1' to 3' due to leaking joint seals at the abutment. All 5 beams have corrosion with section loss in the bottom flange directly over the bearing at bent #1. The bottom flange has corrosion for 2' at all 5 beams at the bent. Beams #1,5 have corrosion on the bottom flange and web from the drain areas.</p> <p>Span #2- all 5 beams have corrosion for 2' at the beginning of the span. The beams have corrosion for 3' at the end of the span. Beams #1,5 have corrosion on the bottom flange and web from the drain areas. Beam #1 has minor section loss on the bottom flange and web for 14' at mid span.</p> <p>Span #3- all 5 beams have corrosion for 3' at the beginning of the span. Beams #1,5 have large areas of corrosion on the lower web and bottom flange under the drain areas. All 5 beams have corrosion on the bottom flange and lower web at the end of span #3 for up to 4'.</p> <p>Span #4- beams #1, 5 have corrosion for 10' at the beginning of the span. Beams #2,3,4 have corrosion on the bottom flange for 3'. All 5 beams have corrosion at the end of the span for up to 3'.</p> <p>4' of the beam ends over the caps were re-painted in 2013.</p>						
1000 - Corrosion		330		0	260	70	0

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515 - Steel Protective Coating		5586	sq. ft.	4926	520	140	0
3440 - Effectiveness (Steel Protective Coatings)		660		0	520	140	0
202 - Steel Column	1- Ben.	10	each	0	10	0	0
All 10 steel piles have light sporadic corrosion with small areas of heavier corrosion with minor section loss near the ground line. Steel piles have minor corrosion with minor section loss to bottom 2' at ground line especially at bent #2. Concrete repairs to substructure (top of steel piles) are still holding at this inspection.							
1000 - Corrosion		10		0	10	0	0
515 - Steel Protective Coating		747	sq. ft.	592	120	35	0
205 - Reinforced Concrete Column	1- Ben.	2	each	0	0	2	0
<p>Pier wall #3 columns-</p> <p>Left column- has 8' of shallow exposed rebar on the inside face next to the web wall. The column has very light abrasion at the bottom.</p> <p>Right column- The right cap haunch has exposed rebar with efflorescence. The column has very light abrasion at the bottom. The column has a large drift accumulation.</p>							
1090 - Exposed Rebar		2		0	0	2	0
210 - Reinforced Concrete Pier Wall	1- Ben.	17	ft.	9	8	0	0
Pier wall #1- the upper left corner has a 3' diagonal hairline crack and upper right corner has a 5' diagonal hairline crack.							
1130 - Cracking (RC and Other)		8		0	8	0	0
215 - Reinforced Concrete Abutment	1- Ben.	52	ft.	28	23	1	0
<p>Abutment #1 has 12' of vertical hairline cracking in the bridge seat and backwall with a 4' delamination at the right end of the abutment. The left side of abutment #1 has 2' of delamination.</p> <p>Abutment #2- The bridge seat has 5 total feet of vertical hairline cracking. The back wall of abutment #2 has areas of honeycombing, the vertical face of the bridge seat has 1' of shallow exposed rebar under beam #1.</p>							
1080 - Delamination/Spall/Patched Area		6		0	6	0	0
1090 - Exposed Rebar		1		0	0	1	0
1130 - Cracking (RC and Other)		17		0	17	0	0
234 - Reinforced Concrete Pier Cap	1- Ben.	78	ft.	53	22	3	0
<p>Bent #1 cap- The top of the concrete cap under the bearings of beams #3,4 has minor cracking extending from around the bearings, it also has a crack on the underside of the cap between beams #3,4. The span #2 side of the cap has a delamination at the right end.</p> <p>Bent #2 cap- has 13' of horizontal and vertical hairline cracking on the span #2 and 3 side, some cracks extend into the top of the cap around the bearing areas.</p> <p>Pier #3 cap- has a horizontal hairline crack that extends the width of the cap on the span #3 side, with patched areas on both cap ends. The left cap end has a spall in front the the bearing area of beam #1 at the beginning of span #4 with no rebar exposed.</p>							

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1080 - Delamination/Spall/Patched Area		5		0	2	3	0
1130 - Cracking (RC and Other)		20		0	20	0	0
305 - Assembly Joint without Seal	1- Ben.	120	ft.	120	0	0	0
	<p>The assembly joints over the intermediate bents are not constructed with troughs.</p> <p>The assembly seals are leaking at all locations, causing corrosion on the bearings. The road iron over bent #1 left lane is loose, making noise under traffic</p>						
311 - Movable Bearing	1- Ben.	15	each	0	0	15	0
	<p>All moveable bearings have moderate corrosion with minor section loss. Bearings over the caps were painted in 2013, paint system is no longer effective.</p> <p>Bent #1 moveable bearings- All 5 have heavy corrosion with section loss.</p> <p>Bent #2 moveable bearings- All 5 have heavy corrosion with section loss.</p> <p>Pier #3 moveable bearings- All 5 have heavy corrosion with section loss.</p>						
1000 - Corrosion		15		0	0	15	0
515 - Steel Protective Coating		15	sq. ft.	0	0	0	15
3440 - Effectiveness (Steel Protective Coatings)		15		0	0	0	15
313 - Fixed Bearing	1- Ben.	25	each	0	0	25	0
	<p>All 10 fixed bearings at abutments #1,2 have heavy corrosion with section loss. The fixed bearings on the caps have corrosion due to leaking joint seals.</p> <p>Abutment #1 fixed bearings- All 5 have heavy corrosion with section loss.</p> <p>Bent #1 fixed bearings- All 5 have corrosion with section loss.</p> <p>Bent #2 fixed bearings- All 5 have corrosion with section loss.</p> <p>Pier #3 fixed bearings- All 5 have corrosion with section loss.</p> <p>Abutment #2 fixed bearings- All 5 have heavy corrosion with section loss.</p>						
1000 - Corrosion		25		0	0	25	0
515 - Steel Protective Coating		25	sq. ft.	0	0	0	25
3440 - Effectiveness (Steel Protective Coatings)		25		0	0	0	25
330 - Metal Bridge Railing	1- Ben.	364	ft.	0	364	0	0
	<p>Bridge rail through out is in need of paint system. The rail has pin point rusting throughout with a light rust coating on the back side and random locations on the front side.</p>						
1000 - Corrosion		364		0	364	0	0
515 - Steel Protective Coating		1092	sq. ft.	1092	0	0	0
331 - Reinforced Concrete Bridge Railing	1- Ben.	364	ft.	361	3	0	0
	<p>The concrete railing consists of 1' 7" of deck overhang on each side of the structure, this footage was subtracted from the deck area.</p> <p>The concrete posts have minor spalling at random locations.</p>						
1080 - Delamination/Spall/Patched Area		3		0	3	0	0

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Maintenance Needs

Date Reported: 6/6/2011 12:00:00 AM

Priority: D - Routine

Work Code:

Deficiency Description:

All deck spans have delaminated and patched areas mostly in the left gutter line. Span #1 is the worst case condition with patched areas in the driving lanes.

Work Description:

Date Repairs Completed:

Maintenance Comments:

Stage: Assigned



PHOTO 1 Description

Stage: Assigned



PHOTO 2 Description View of span #1 showing patches and delamination .

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Maintenance Needs

Date Reported: 6/6/2011 12:00:00 AM

Priority: D - Routine

Work Code:

Deficiency Description:

Spalls with rebar exposed on the left and right overhangs of the deck at almost all drain areas.

Work Description:

Date Repairs Completed:

Maintenance Comments:

Stage: Assigned



PHOTO 1 Description Spall with rebar exposed at all drain areas

Stage: Assigned



PHOTO 2 Description Spall with rebar exposed at drain area of left side of span #1. Typical of almost all drain areas on structure.

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Maintenance Needs

Date Reported: 06/06/2017

Priority: D - Routine

Work Code:

Deficiency Description:

The road iron is loose in the left lane over bent #1, and is noisy under traffic.

Work Description:

Date Repairs Completed:

Maintenance Comments:

Stage: Open



PHOTO 1 Description

Inspector:

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Maintenance Needs

Date Reported: 06/12/2018

Priority: D - Routine

Work Code:

Deficiency Description:

Beams #1,5 in all spans have corrosion on the web and bottom flange beneath the drain areas.
Beam #1 of span #2 has heavier corrosion with minor section loss at mid span.

Work Description:

Date Repairs Completed:

Maintenance Comments:

Stage: Open



PHOTO 1 Description