



Bridge #A6478(Routine, Underwater type 2)

US 412, WB Bent CO over ILLINOIS RIVER

Location: 11.6 MI E OF OKLAHOMA LN

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



Latitude:36.17221, Longitude:-94.37003

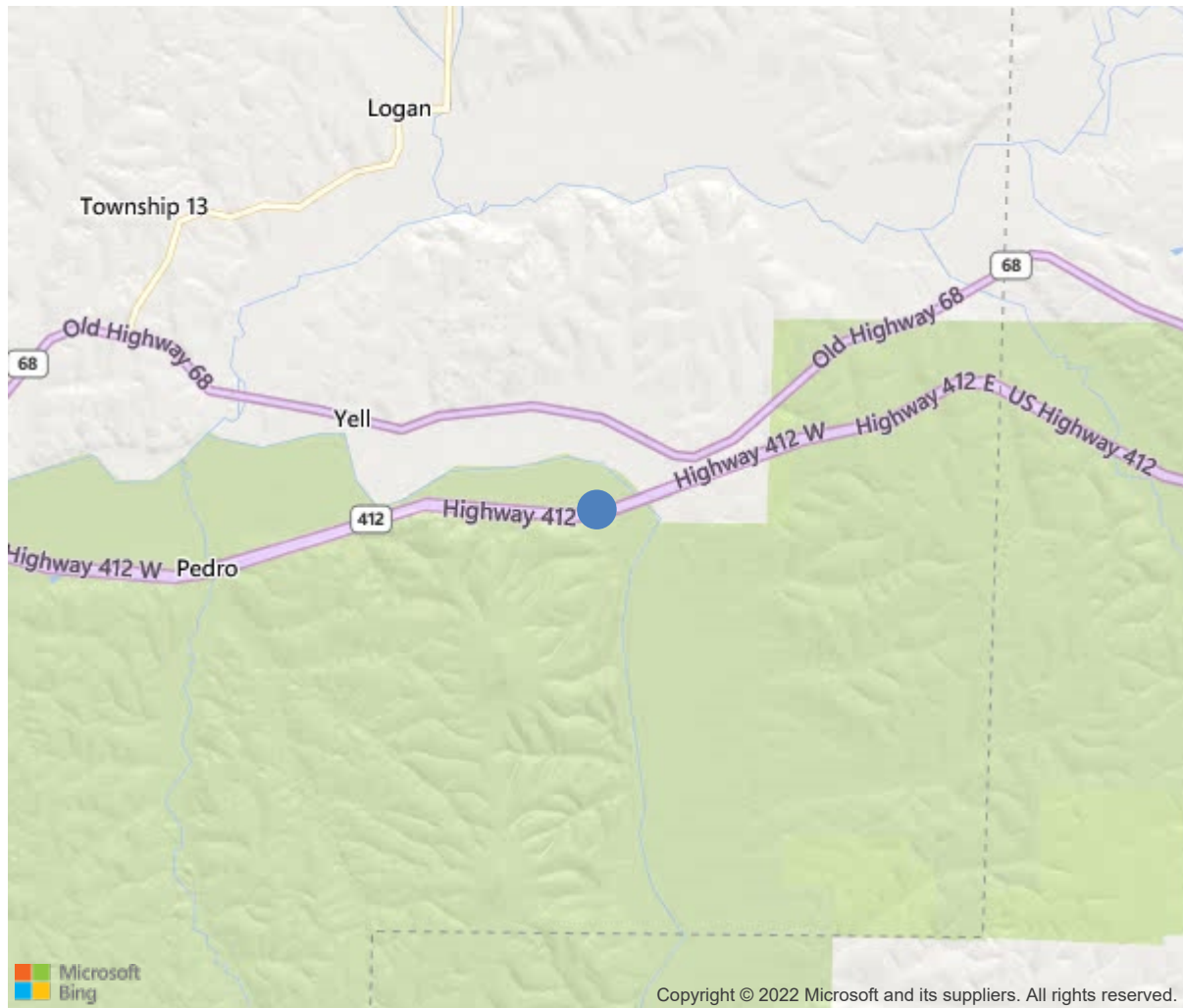
Route:412 Section:01 Log:11.587

Arnold Road ID:4x412x1xB, Arnold Log mile:2.103

District 09, Benton County

Owner: 1-State Highway Agency

11.6 MI E OF OKLAHOMA LN



36.17221, -94.37003

Inspection Direction : W to E



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IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	A6478
(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	US 412, WB Bent CO
(9) Location	11.6 MI E OF OKLAHOMA LN
(11) Mile Point	11.587 mi
(12) Base Highway Network	Yes
(13) LRS Inventory Rte & Subrte	0000412010
(16) Latitude	36.17221
(17) Longitude	-94.37003
(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	10000
(30) Year of ADT	2018
(109) Truck ADT	6 %
(19) Bypass, Detour Length	1 mi
GEOMETRIC DATA	
(48) Length of Maximum Span	120 ft
(49) Structure Length	1329 ft
(50) Curb or Sidewalk Width	
Left	0 ft
Right	0 ft
(51) Bridge Roadway Width Curb to Curb	39.7 ft
(52) Deck Width Out to Out	42.6 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 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	6
(61) Channel & Channel Protection	7
(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	50
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	19
Rating	30
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	A-Open, no restriction
APPRAISAL	
(67) Structural Evaluation	6
(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.			



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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
12	Reinforced Concrete Deck	SF	58815	52428	6154	233	0
1080	Delamination/Spall/Patched Area	SF	1	0	1	0	0
1090	Exposed Rebar	SF	2	0	2	0	0
1130	Cracking (RC and Other)	SF	2403	0	2170	233	0
1190	Abrasion/Wear (PSC/RC)	SF	3981	0	3981	0	0
(12)							
06/15/2021 WNR & DBM:							
-The driving surface has sealable longitudinal, transverse, diagonal cracking in several locations.							
-The wheel paths have light abrasion typical throughout.							
-The Left wheel path of the outside lane has a longitudinal crack the full length of structure.							
-Span #9 left overhang 4' ahead of bent #8 honeycombed area with steel exposed.							
-Spans #18 and #19 has the heaviest amount of cracking with longitudinal and transverse cracking in several locations. The transverse cracking in span #18 is on approximately 4' centers.							
Undersurface:							
-Spans #1 and #2 do not have SIP forms. Efflorescence and leakage is visible in the undersurface at sawn construction joints in spans #1 and #2.							
-The undersurface of the deck has spalling on the left side over bent #12 along the expansion joint assembly with exposed epoxy coated reinforcing steel.							
-Span #3 bay #1 rusting of SIP forms approximately 8' behind bent #3.							
-Span #4 left overhang at bent #4 has a golf ball sized spall with exposed reinforcing steel							
-Span #5 Left side over bent #4 has mapcracking in the overhang portion of deck.							
-Undersurface over bent #16 left the overhang has a 1' long spall adjacent to road iron.							
107	Steel Open Girder/Beam	LF	6627	6585	28	14	0
1000	Corrosion	LF	36	0	22	14	0
1900	Distortion	LF	6	0	6	0	0
515	Steel Protective Coating	SF	60088	60034	54	0	0
3430	Oxide Film Degradation Color/Texture Adherence(Steel Protective Coatings)	SF	54	0	54	0	0
(107)							
06/15/2021 WNR & DBM:							
-Diaphragms in bays #2 and #3 over bent #1 have bolts that's never been installed.							
-Beams #2 and #3 at abutment #1 have corrosion that appears to be from leaking joint seal. The protective coating in the corroded area has flaking rust in the bottom flange area.							
-The ends of all girders over bent #12 have active corrosion due to leaking expansion joint.							
-Span #17 & #16 Girders #1 and #2 have corrosion to ends of girders due to leaking expansion joint seal.							
-Girders have areas of out-of-plane bending to bottom flanges that appear to be from rough handling during the construction process.							
-Ends of girders over strip seal expansion joint locations have areas of corrosion.							
210	Reinforced Concrete Pier Wall	LF	252	226	26	0	0
1130	Cracking (RC and Other)	LF	26	0	26	0	0

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ELEM	DESCRIPTION	UNITS	TOTAL	CS1	CS2	CS3	CS4
(210)							
06/15/2021 WNR & DBM:							
-Bent #5 base of column has medium width diagonal cracks that extend from base of column to first construction joint.							
-Bent #6 base of column has two diagonal cracks and one medium width vertical crack on the span #6 and #7 side.							
-Bent #8 base of column has 3 narrow short duration vertical cracks.							
-Bent #9 has 5 vertical cracks that propagate from the base of column and extend approximately 50% of the height of column.							
-Bent #10 base of column has 3 narrow short duration vertical cracks. Visible from the ahead side.							
-The channel has light drift accumulation at bent #17. Bent #17 has signs of footing from a previous structure.							
215	Reinforced Concrete Abutment	LF	132	111	21	0	0
1130	Cracking (RC and Other)	LF	21	0	21	0	0
(215)							
06/15/2021 WNR & DBM:							
-The top of Abutments #1 and #2 backwalls have longitudinal cracking on approximately 2' centers visible from the driving surface.							
234	Reinforced Concrete Pier Cap	LF	801	736	64	1	0
1080	Delamination/Spall/Patched Area	LF	1	0	1	0	0
1090	Exposed Rebar	LF	1	0	0	1	0
1130	Cracking (RC and Other)	LF	63	0	63	0	0
(234)							
06/15/2021 WNR & DBM:							
-Bent #1 cap ahead side under girder #2 repaired area that is failing as of this inspection. This area is beginning to delaminate upon sounding.							
-Bent #4 cap in span #5 has an 18" high shallow spall with exposed reinforcing steel located in lower portion of cap. The exposed reinforcing steel has measurable section loss.							
-Bent #5 cap has hairline horizontal cracking on both sides of cap that extend the majority of length of cap located approximately 2' from top of cap.							
-Ben #7 cap ahead side - tall hairline vertical cracking at random locations throughout the cap.							
-Bent #10 cap ahead side top of vertical face has hairline vertical cracks at random spacing.							
-Bent #14 cap ahead side top of vertical face has hairline vertical cracks at random spacing.							
-Typical for Pier caps have short and tall vertical hairline cracks at the step downs.							
300	Strip Seal Expansion Joint	LF	276	197	71	8	0
2320	Seal Adhesion	LF	8	0	0	8	0
2350	Debris Impaction	LF	71	0	71	0	0
(300)							
06/15/2021 WNR & DBM:							
-Strip seal compression joint seals have heavy debris impaction and appear to have pulled out of the assemblies in locations allowing water to leak onto the superstructure promoting corrosion.							
-Pourable joint seal material at sawn construction joints are missing and/or leaking at most locations.							
310	Elastomeric Bearing	EA	120	110	4	6	0
1000	Corrosion	EA	10	0	4	6	0
515	Steel Protective Coating	SF	240	240	0	0	0
(310)							



Inventory looking east



Downstream view



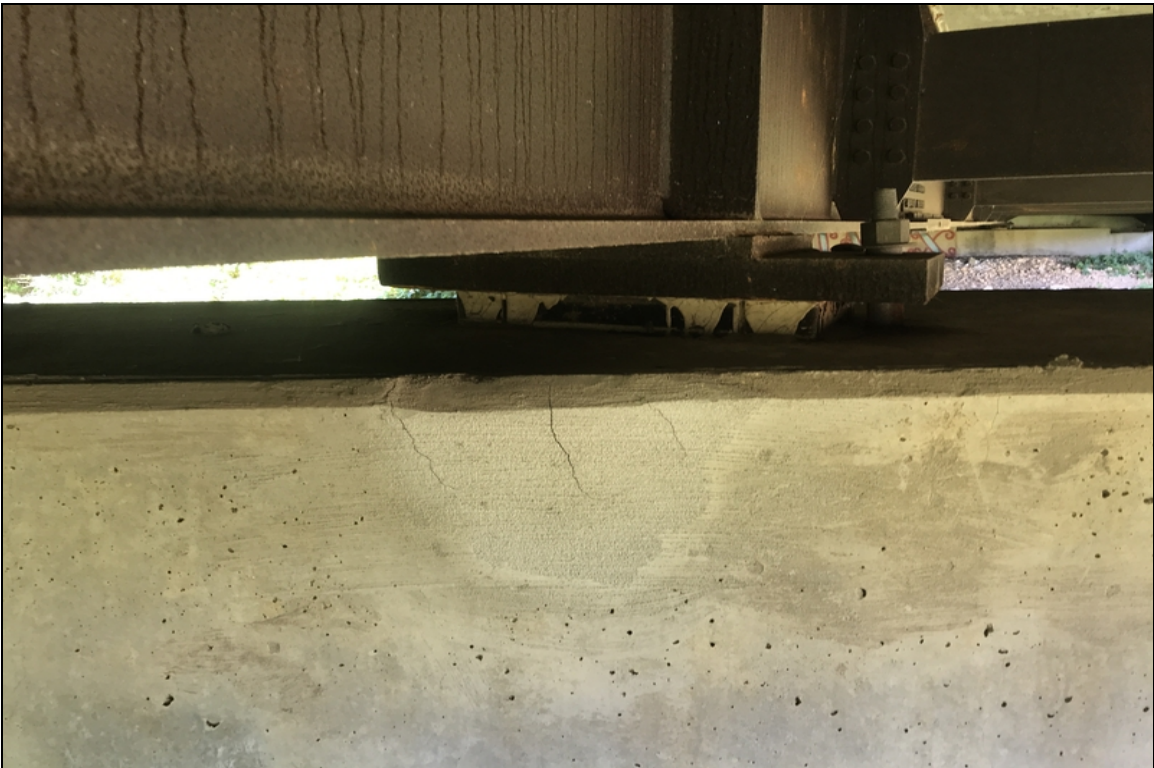
Upstream view



View of bearings at abutment #1.



Typical flaking rust at abutment #1 for bearings and girders.



Bent #1 cap ahead side under girder #2 repaired area that is failing as of this inspection. This area is beginning to delaminate upon sounding.



Bent #10 base of column has 3 narrow short duration vertical cracks. Visible from the ahead side.



View of bent #11 ahead side.



Bearing #1 at bent #16 flaking rust



Span #16 girder #1 flaking rust



Large amounts of bat Feces accumulated on top of bent #16.



Bent #16 general view.



Possibly footing from old structure at bent #17



View of abutment #1 minor spalling the breast wall



View of abutment #1 expansion joint



Limited cover over shear pins has caused multiple pop outs.



Bent #4 expansion joint



Additional diagonal cracking at bent #5 cracking repairs are not holding as of this inspection



Large diagonal crack over bent #5.



View of expansion joint over bent #8.



General view of deck



View of expansion joint at bent #12.



View of diagonal cracking propagating from construction crack over bent #14.



View of expansion joint at bent #16



Typical cracking in deck over bent #18



Cracking in east approach slab



View of abutment #2 expansion joint



Expansion joint over bent #12 debris impaction.



West approach slab cracking



Joint material for sawn joints loss of adhesion due to spalling.



Bent #5 behind side of pier has diagonal cracking.



Parapet right span #8 large crack adjacent sawn joint.



Bent #1 cap ahead side under girder #2 repaired area is cracking.



Bent cap #4 ahead side has large spall with steel exposed with minor section loss.



Span #17 left typical transverse cracking.



Ahead side of bent #17 - minor drift accumulation.



Bat droppings at bent #16 top of cap.



Inventory looking East



Ben #7 cap ahead side - tall hairline vertical cracking at random locations throughout the cap.



Typical cracking and efflorescence in parapet.



Bats at bent #16 joint



Typical of exterior girders - failing of the patina adjacent to compression joints.



Typical - Joint material for construction joints have bent displaced in random locations.



Elevation looking South.



Abutment #1 expansion joint debris impact.



Expansion joint over bent #4 debris impact.



Span #9 left overhang ' ahead of bent #8 honeycombed area with steel exposed.



Abutment #2 expansion joint material debris impaction.



Span #9 left overhang & ahead of bent #8 honeycombed area with steel exposed.



Main channel under structure



Span #3 typical longitudinal cracking.



Typical cracking over bents.



Span #4 right parapet approximately 10' behind bent #4 spalling in parapet.



Expansion joint over Bent #16 debris impaction.



Bent #7 expansion joint minor debris impaction.



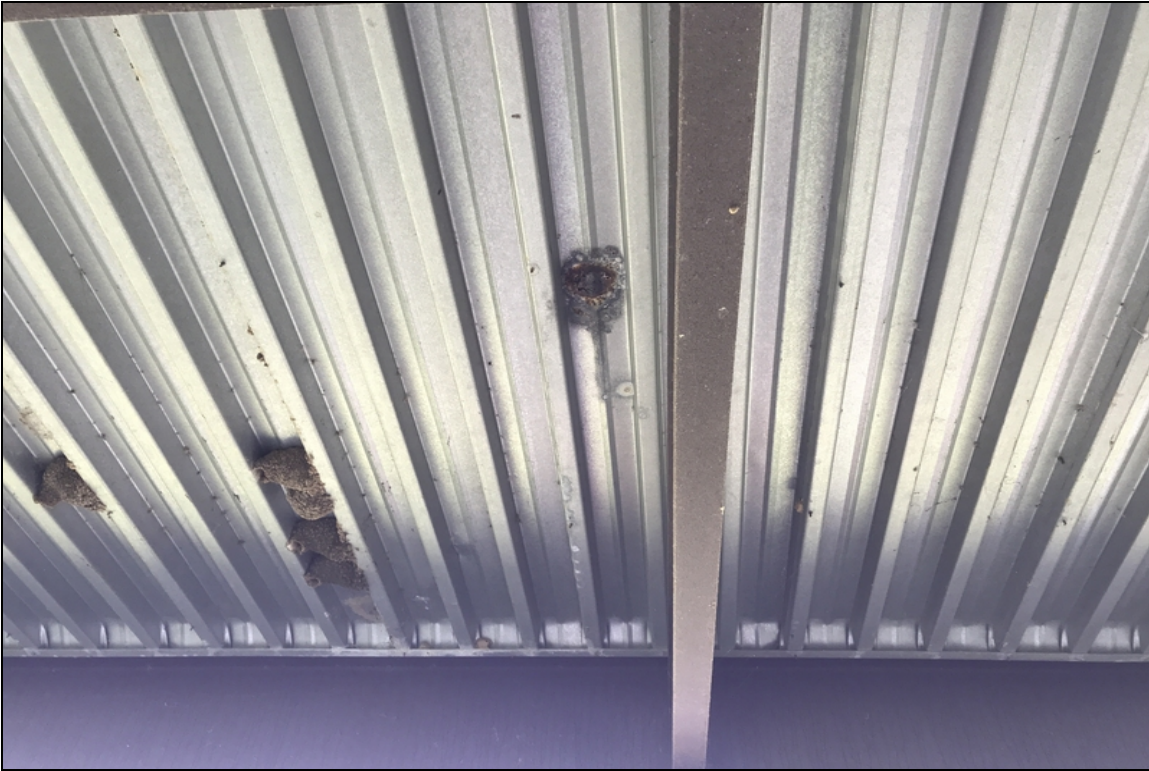
Typical view of expansion joint material coming loose from connection allowing leakage.



Spalling over bent #12 left epoxy coat steel exposed at the bottoms of haunch area.



Span #4 right parapet approximately 10' behind bent #4 spalling in parapet.



Span #3 bay #1 rusting of SIP forms approximately 8' behind bent #3.



Typical Ends of Girders over bent #12 active corrosion due to leaking expansion joint.

Maintenance Needs

Date Reported: 06/25/2013

Priority: D- Routine

Type of Work: None

Status: Assigned

Component:

Deficiency Description

Bridge railing - The bridge railing on the right side span #4 has apparent collision damage that has created an area of spalling with exposed reinforcing steel. The bridge railing has areas of mapcracking that sounds delaminated in areas when sounded.

Remarks



Span #4 right parapet approximately 10' behind bent #4 spalling in parapet.



Span #4 right parapet approximately 10' behind bent #4 spalling in parapet.



Span #7-Mapcracking in left bridge railing.



Span #4, right side-Collision damage to railing



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Date Reported: 06/13/2017

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Deck - The deck has sealable cracking in all spans. Span #19 is the most notable area with moderate width longitudinal and transverse cracking in several locations.

Remarks



Span #19-Transverse and longitudinal cracking in driving surface.



Typical cracking over bents.



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Longitudinal cracking in driving surface.



Span #3 typical longitudinal cracking.

Date Reported: 06/20/2011

Priority: D- Routine

Type of Work: None

Status: Assigned

Component:

Deficiency Description

Deck - Strip seal expansion joint seals have heavy debris impactation at all locations. The joint seals appear to have pulled out of the assembly in locations allowing water to leak onto the superstructure promoting corrosion.

The sawn construction joints are missing joint sealant in numerous locations throughout.

Remarks



Abutment #1 expansion joint debris impactation.



Expansion joint over bent #4 debris impactation.



Abutment #2 expansion joint material debris impaction.



Typical - Joint material for construction joints have bent displaced in random locations.

Date Reported: 06/06/2017

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Channel - The channel has light drift accumulation at bent #17.

Remarks



Bent #17-Drift.



Ahead side of bent #17 - minor drift accumulation.



Drift still exists at bent #17

Date Reported: 06/06/2017

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Superstructure - Bearings and ends of girders have abnormal weathering with flaking rust due to leaking expansion joint seals.

Remarks



Span #17, Girder #2-Corrosion.



Typical Ends of Girders over bent #12 active corrosion due to leaking expansion joint.



Typical of exterior girders - failing of the patina adjacent to compression joints.



Bearing corrosion.



Abutment #1, bearing #3-Corrosion with flaking rust.

Date Reported: 06/06/2017

Priority: D- Routine

Type of Work: None

Status: Monitor

Component:

Deficiency Description

Substructure - Pier columns in several locations have vertical and diagonal cracks that propagate from the bases of columns to the first construction joint.

Pier #4 cap in span #5 has a vertical shallow spall with exposed reinforcing steel approximately 18" long. The exposed reinforcing steel has measurable section loss.

Remarks



Bent #9-Vertical cracking.



Bent #4 cap-shallow spalling with exposed reinforcing steel.



Bent #5 behind side of pier has diagonal cracking.



Bent #6-Vertical and diagonal cracking in column.



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Date Reported: 06/16/2021
Priority: C - Important
Type of Work: Clean
Status: Open
Component: Channel

Deficiency Description

Heavy vegetation:

-The spans leading up to the main channel have heavy vegetation.

Remarks



Heavy vegetation that is starting to grow into structure.



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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.

Logged West to East.

Bats are present at this inspection