



Latitude:36.16776, Longitude:-94.40407

Route:412 Section:01 Log:9.608

Arnold Road ID:4x412x1xA, Arnold Log mile:9.612

District 09, Benton County

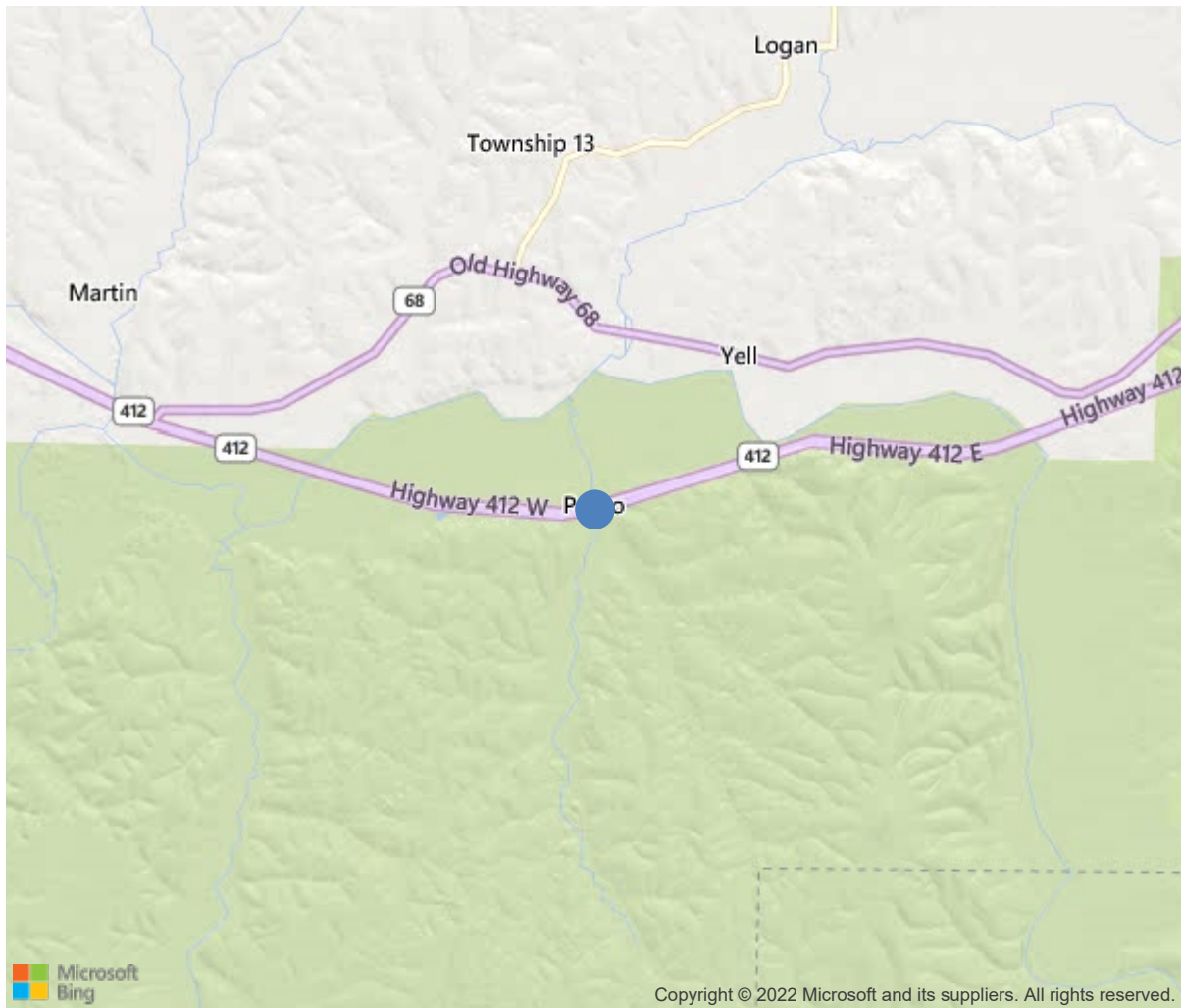
Owner: 1-State Highway Agency



Bridge #B6477 (Routine)
US 412 EB Benton2 over PEDRO CREEK
Location: Benton Co 9.65 MI E OK LIN

Team Lead: Benjamin Smith **Inspection Date:** June 10, 2021

Benton Co 9.65 MI E OK LIN



36.16776, -94.40407

Inspection Direction : W to E



Bridge #B6477 (Routine)
US 412 EB Benton2 over PEDRO CREEK
Location: Benton Co9.65 MI E OK LIN

Team Lead: Benjamin Smith Inspection Date: June 10, 2021

| IDENTIFICATION | |
|---|--|
| (1) State Names | Arkansas |
| (8) Structure Number | B6477 |
| (5) Inventory Route | 412 |
| (2) Highway Agency District | 09 |
| (3) County Code | 7-Benton County, Arkansas |
| (4) Place Code | 0 |
| (6) Features Intersected | PEDRO CREEK |
| (7) Facility Carried | US 412 EB Benton2 |
| (9) Location | Benton Co9.65 MI E OK LIN |
| (11) Mile Point | 9.608 mi |
| (12) Base Highway Network | Yes |
| (13) LRS Inventory Rte & Subrte | 0000412010 |
| (16) Latitude | 36.16776 |
| (17) Longitude | -94.40407 |
| (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 | 3 |
| (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 | 20000 |
| (30) Year of ADT | 2013 |
| (109) Truck ADT | 1 % |
| (19) Bypass, Detour Length | 1 mi |
| GEOMETRIC DATA | |
| (48) Length of Maximum Span | 95 ft |
| (49) Structure Length | 238 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 | 30 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 | 8 |
| (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 | 60 |
| (65) Inventory Rating Method | 1-Load Factor(LF) |
| (66) Inventory Rating | |
| Type | 3 |
| Rating | 36 |
| (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. | | | |

Team Lead: Benjamin Smith, **Inspection Date:** June 10, 2021

| ELEM | DESCRIPTION | UNITS | TOTAL | CS1 | CS2 | CS3 | CS4 |
|--|---|-------|-------|-------|-----|-----|-----|
| 12 | Reinforced Concrete Deck | SF | 9940 | 9211 | 717 | 12 | 0 |
| 1080 | Delamination/Spall/Patched Area | SF | 3 | 0 | 0 | 3 | 0 |
| 1090 | Exposed Rebar | SF | 1 | 0 | 0 | 1 | 0 |
| 1120 | Efflorescence/Rust Staining | SF | 32 | 0 | 24 | 8 | 0 |
| 1130 | Cracking (RC and Other) | SF | 693 | 0 | 693 | 0 | 0 |
| (12) | | | | | | | |
| <p>Driving surface- Sealable deck cracks adjacent to the bent caps are typical in all spans. Longitudinal and transverse cracking was also noted in all 3 spans.</p> <p>Span #3 has a 1' by 1' pothole near the center line at the end of the span.</p> <p>Under surface-</p> <p>Span #1- the left overhang has 7' of cs3 map cracking with efflorescence (2' of this area is quantified as spalling) and 2' of cs2 efflorescence. The left outer edge of the overhang has a 2' spall with no rebar exposed. The right overhang has 1' of cs3 efflorescence and 2' of cs2 efflorescence. Span #1- The left overhang has 2'x2' area of map cracking with efflorescence adjacent to abutment #1.</p> <p>Span #2- the right overhang has 4' of cs2 efflorescence. The left overhang has 13' of cs2 efflorescence.</p> <p>Span #3- the right overhang has 3' of cs2 efflorescence. The left overhang has 2' of cs2 efflorescence. The deck has spalling with rebar exposed on the deck under surface at the left corner at the end of span #3.</p> | | | | | | | |
| 107 | Steel Open Girder/Beam | LF | 1180 | 1100 | 70 | 10 | 0 |
| 1000 | Corrosion | LF | 80 | 0 | 70 | 10 | 0 |
| 515 | Steel Protective Coating | SF | 12430 | 12270 | 140 | 20 | 0 |
| 3430 | Oxide Film Degradation Color/Texture Adherence(Steel Protective Coatings) | SF | 160 | 0 | 140 | 20 | 0 |
| (107) | | | | | | | |
| <p>Span #1- Beam #1 over abutment #1 has cs2 corrosion on the exterior lower web for the length of the span due to leaking expansion joint seal. Beam #3 has 6' of cs3 corrosion with an additional 2' of cs2 corrosion at the beginning of the span.</p> <p>Span #2- no deficiencies noted.</p> <p>Span #3- Beam #4 over abutment #2 has cs3 corrosion on the bottom flange and lower web at the beam end in an area approximately 4' long due to a leaking joint seal.</p> | | | | | | | |
| 210 | Reinforced Concrete Pier Wall | LF | 28 | 28 | 0 | 0 | 0 |
| (210) | | | | | | | |
| <p>The pier walls are 14' wide.</p> <p>Pier wall #1- no deficiencies noted. The footing has cover.</p> <p>Pier wall #2- no deficiencies noted. The footing has cover.</p> | | | | | | | |
| 215 | Reinforced Concrete Abutment | LF | 136 | 75 | 61 | 0 | 0 |
| 1130 | Cracking (RC and Other) | LF | 61 | 0 | 61 | 0 | 0 |
| (215) | | | | | | | |

Team Lead: Benjamin Smith, **Inspection Date:** June 10, 2021

| ELEM | DESCRIPTION | UNITS | TOTAL | CS1 | CS2 | CS3 | CS4 |
|--|------------------------------------|-------|-------|------|-----|-----|-----|
| -The top of abutment backwalls have transverse cracking on approximately 16" centers visible from the driving surface. Abutment #1- the rip rap at the toe of the slope is in place and functioning as intended. Abutment #2- the right corner has a small area of embankment erosion that is just to the edge of the abutment back wall. The rip rap at the toe of the slope is in place and functioning as intended. | | | | | | | |
| 234 | Reinforced Concrete Pier Cap | LF | 90 | 88 | 2 | 0 | 0 |
| 1080 | Delamination/Spall/Patched Area | LF | 2 | 0 | 2 | 0 | 0 |
| (234) | | | | | | | |
| Bent #1 cap- no deficiencies noted. Bent #2 ahead side has baseball sized delaminated areas at bearings #1 and #5. | | | | | | | |
| 300 | Strip Seal Expansion Joint | LF | 96 | 21 | 66 | 9 | 0 |
| 2310 | Leakage | LF | 9 | 0 | 0 | 9 | 0 |
| 2350 | Debris Impaction | LF | 66 | 0 | 66 | 0 | 0 |
| (300) | | | | | | | |
| -Strip seal expansion joint seals have loose debris impaction. The strip seals appear to have come out of the assemblies in some locations allowing water to leak onto the superstructure promoting corrosion. Abutment #1 seal- has 27' of debris impaction with 5' of leakage due to the seal being detached from the armoring plate. Abutment #2 seal has 39' of debris impaction. The seal has 4' of leakage due to the seal being detached from the armoring plate. | | | | | | | |
| 310 | Elastomeric Bearing | EA | 24 | 21 | 1 | 2 | 0 |
| 1000 | Corrosion | EA | 3 | 0 | 1 | 2 | 0 |
| (310) | | | | | | | |
| -Span #1, bearings #1 and #3 have cs3 corrosion on the sole plate with flaking rust due to leaking expansion joint seal. -Span #3, bearing #4 over abutment #2 has cs2 corrosion on the sole plate due to leaking expansion joint. | | | | | | | |
| 321 | Reinforced Concrete Approach Slab | SF | 1944 | 1858 | 27 | 59 | 0 |
| 1130 | Cracking (RC and Other) | SF | 86 | 0 | 27 | 59 | 0 |
| (321) | | | | | | | |
| -The West approach slab has a longitudinal crack approximately 27' long that has been sealed in the past, the repair has mostly been worn away by traffic. -The East approach slab has areas of wide random cracking. No settlement was apparent at this inspection. | | | | | | | |
| 331 | Reinforced Concrete Bridge Railing | LF | 476 | 206 | 82 | 141 | 47 |
| 1080 | Delamination/Spall/Patched Area | LF | 1 | 0 | 0 | 1 | 0 |
| 1120 | Efflorescence/Rust Staining | LF | 100 | 0 | 0 | 100 | 0 |
| 1130 | Cracking (RC and Other) | LF | 169 | 0 | 82 | 40 | 47 |
| (331) | | | | | | | |
| -The bridge railing has vertical cracks that correspond with sawn joints and in several other random locations. -The bridge railing has numerous areas of map cracking with efflorescence. The areas of map cracking are delaminated in locations. | | | | | | | |

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Location: Benton Co9.65 MI E OK LIN

Team Lead: Benjamin Smith, **Inspection Date:** June 10, 2021

| ELEM | DESCRIPTION | UNITS | TOTAL | CS1 | CS2 | CS3 | CS4 |
|-----------|--|-------|-------|-----|-----|-----|-----|
| -Span #3, | right parapet has softball sized spall with exposed reinforcing steel over abutment #2. The right railing has 72' of cs3 efflorescence map cracking. The left parapet has 28' of cs3 efflorescence map cracking. | | | | | | |



Approach view in direction of log mile.



Spalling with rebar exposed on the deck undersurface at the left corner at the end of span #3



Downstream channel view.



Upstream channel view.



Cs2 corrosion on beam #1 at the beginning of span #1.



Cs3 corrosion on beam #3 in span #1.



2' of cs3 spalling with no rebar exposed on the left outer overhang of span #1.



Typical view of driving surface.



Typical transverse cracking in bridge deck.



Girder #3 over abutment #1 active corrosion due to leaking compression joint.



Expansion plate on right parapet missing.



Channel under structure



General view of abutment #2 compression joint debris impact.



Right side of abutment #2 erosion.



General view of deck surface.



Typical cracking and efflorescence of parapet.



Elevation looking South.



General view span #2 undersurface.



Leakage on bridge seat from leaking compression seal.



Inventory looking East

Maintenance Needs

Date Reported: 06/13/2011
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component:

Deficiency Description

Deck / Approach slabs - The driving surface of the deck has sealable longitudinal and transverse cracking in all spans. The East and West approach slabs have wide longitudinal, transverse and diagonal cracking.

Remarks



Transverse deck cracking.



Typical transverse cracking in bridge deck.



West approach slab-Longitudinal cracking.



Deck-Typical of diagonal cracking.

Date Reported: 06/13/2011
Priority: D- Routine
Type of Work: Replace
Status: Monitor
Component:

Deficiency Description

Expansion joint assembly at abutment #1 - Expansion plate on right parapet missing.

Remarks



Abutment #1, right side-Missing sliding plate on parapet.



Expansion plate on right parapet missing.

Date Reported: 06/13/2011

Priority: D- Routine

Type of Work: Repair

Status: Monitor

Component:

Deficiency Description

Expansion joints - The strip seal expansion joints at the East and West abutments have heavy debris impaction. The strip seals appear to have come out of the assemblies in locations allowing water to leak onto the superstructure promoting corrosion.

Remarks



Leakage on bridge seat from leaking compression seal.



Abutment #2, beam #4-Corrosion due to leaking expansion joint.



Abutment #1-Debris impact in expansion joint.



General view of abutment #2 compression joint debris impact.

Date Reported: 06/15/2015
Priority: D- Routine
Type of Work: Repair
Status: Assigned
Component:

Deficiency Description

Bridge railing - The concrete bridge railing has numerous areas of map cracking with efflorescence. The affected areas are delaminated in locations with wide cracking in the top surface of railing.

Remarks



Typical cracking and efflorescence of parapet.



Map cracking in parapet wall



Parapet wall has map cracking with efflorescence



Span #1, right side-Mapcracking with efflorescence.



Left parapet-Mapcracking with efflorescence.

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

Deficiency Description

Superstructure - The bearings and ends of beams over abutments #1 and #2 have corrosion with flaking rust due to leaking expansion joint seals.

Remarks



Abutment #1, beam #3-Corrosion to bottom flange and web due to leaking expansion joint seal.



Excessive corrosion due to leaking expansion joint.



Girder #3 over abutment #1 active corrosion due to leaking compression joint.



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Team Lead: Benjamin Smith **Inspection Date:** June 10, 2021

Inspection Comments

Logged West to East and is accessible with an extension ladder. The structure is inspected with the flow of traffic.