

City of Fayetteville Staff Review Form

2022-0458

Legistar File ID

6/7/2022

City Council Meeting Date - Agenda Item Only
N/A for Non-Agenda Item

Chris Brown

5/17/2022

ENGINEERING (621)

Submitted By

Submitted Date

Division / Department

Action Recommendation:

A Resolution expressing the willingness of the City of Fayetteville to apply for and utilize Federal-aid funding for road and bridge improvement projects.

Budget Impact:

Account Number

Fund

Project Number

Project Title

Budgeted Item? No

Current Budget

\$ -

Funds Obligated

\$ -

Current Balance

\$ -

Does item have a cost? No

Item Cost

\$ -

Budget Adjustment Attached? No

Budget Adjustment

\$ -

Remaining Budget

\$ -

V20210527

Purchase Order Number:

Previous Ordinance or Resolution #

Change Order Number:

Approval Date:

Original Contract Number:

Comments:



MEETING OF JUNE 7, 2022

TO: Mayor and City Council

THRU: Susan Norton, Chief of Staff
Chris Brown, Public Works Director/City Engineer

FROM: Paul Libertini, Staff Engineer *P.L.*

DATE: May 17, 2022

SUBJECT: **A Resolution expressing the willingness of the City of Fayetteville to apply for and utilize Federal-aid funding for road & bridge improvement projects**

RECOMMENDATION:

Staff requests approval of a resolution expressing the willingness of the City to apply for and utilize Federal-aid funding for road & bridge improvement projects, namely, N. Hemlock Avenue, Millsap Road and College Avenue Intersection, and Bridge #19976 Armstrong Avenue over Town Branch.

BACKGROUND:

In 2012, the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) designated the Fayetteville-Springdale-Rogers, AR-MO urbanized area as a Transportation Management Area (TMA). This TMA designation provides Surface Transportation Block Grant Program – Attributable (STBGP-A) funds to the Northwest Arkansas Regional Planning Commission (NWARPC) based on the 2010 Census Urbanized Area population of 295,083. The Bipartisan Infrastructure Law (BIL), enacted as the Infrastructure Investment and Jobs Act, Pub. L. 117-58 (Nov. 15, 2021) provides federal apportioned suballocated funding to the Fayetteville-Springdale-Rogers AR-MO Urbanized area. Under current BIL, STBGP-A funds can be utilized for all eligible transportation projects at the discretion of the Metropolitan Planning Organization (MPO), which is the Northwest Arkansas Regional Planning Commission/Policy Committee (NWARPC).

For Federal Fiscal Year 2023 (FFY2023), it is anticipated that approximately \$9,000,000 of STBGP-A funds will be available for the TMA. The STBGP-A program is a federally funded at 80% with a City match of 20%. The City is required to pay 100% for services, and then apply for the 80% reimbursement of eligible expenditures.

It is staff's understanding that 2 new federal bridge programs will be available this year: the Bridge Investment Program (BIP) and the Bridge Formula Program (BFP). The details have not been released, but it may be possible that Bridge #19976 may be eligible to be funded by one of these programs.

DISCUSSION:

Staff would like authorization to apply for STBGP-A funds for the 3 referenced projects with a commitment to provide the 20% match with City funds, and to apply for BIP and/or BFP funds for Bridge #19976 with a commitment to provide the 20% match with City funds.

N. Hemlock Avenue and Millsap Road & College Avenue Intersection

On February 14, 2017, a public meeting was held in City Hall for the Sain Street Extension project. Exhibits were presented for both Near-Term Improvements and Long-Term Improvement for the project area. The Near-Term Exhibit showed a "Future Road" connecting Sain Street to Millsap Road. That future road is now called N. Hemlock Avenue. The Near-Term Exhibit also showed intersection improvements to Millsap Road and College Avenue. Both projects are essentially Phase 2 improvements of the Near-Term Improvements. With Sain Street under construction and approximately 50% complete, it is time to pursue funding for the Phase 2 projects to complete the area transportation network to achieve the full benefit of routing traffic from Joyce Boulevard to Sain Street to N. Hemlock Avenue to the signalized intersection of Millsap Road and College Avenue and thus avoiding the congested Joyce Boulevard and College Avenue Intersection.

Bridge #19976 Armstrong Avenue over Town Branch

Based on the bridge inspection report performed by the Arkansas Department of Transportation (ARDOT) in February 2022 which documented multiple significant structural repairs, it would be more prudent to replace the entire bridge.

BUDGET/STAFF IMPACT:

N/A

Attachments:

Sain Street Near Term Improvements Exhibit 2016

Millsap/College Ave Intersection and Hemlock Exhibit 2022

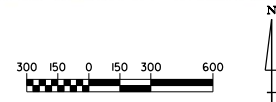
N. Hemlock Avenue Plan Sheet

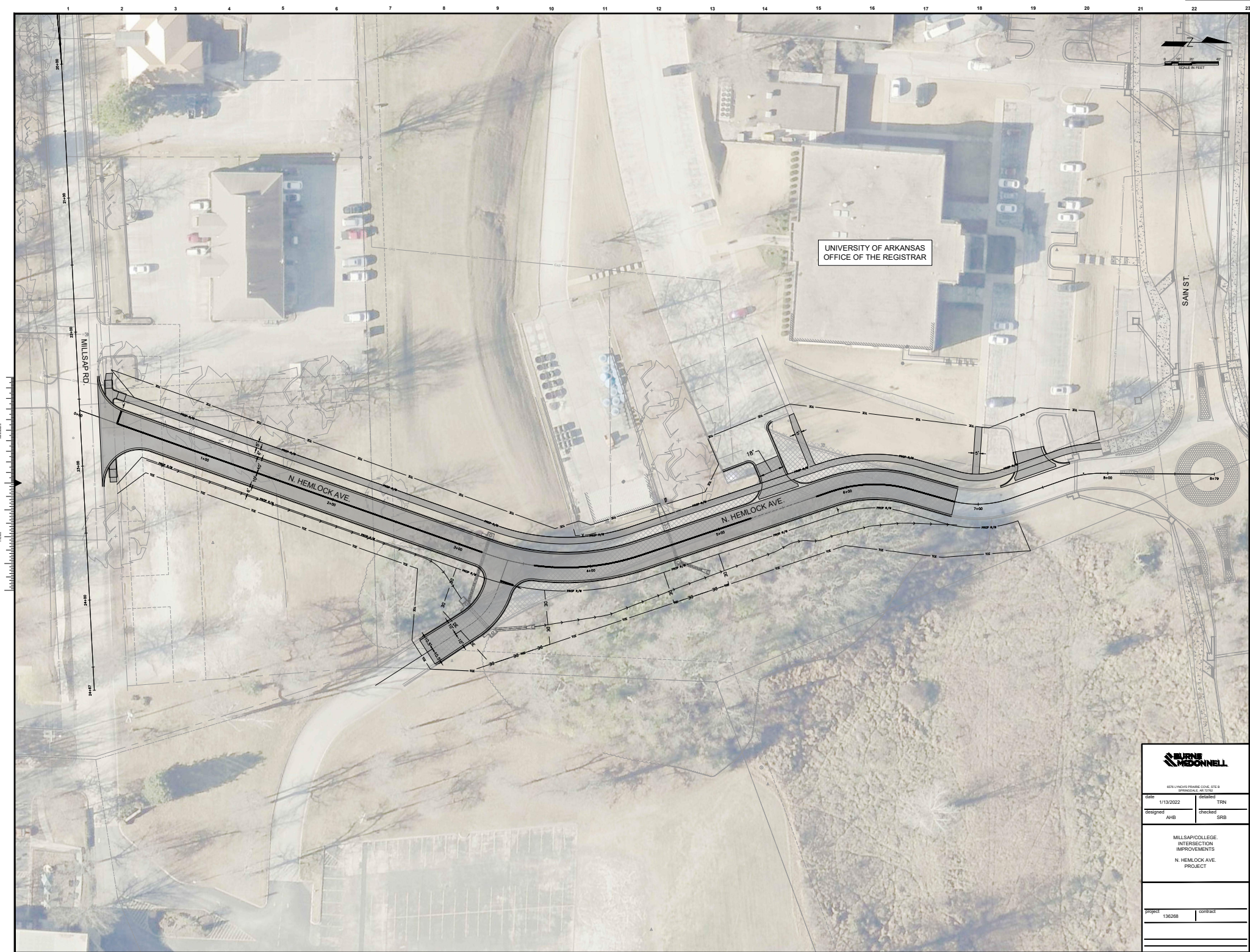
Millsap Road and College Avenue Intersection Concept Plan

Bridge #19976 Armstrong Avenue over Town Branch Inspection Report, February 15, 2022



SAIN STREET EXTENSION WITH NEAR TERM IMPROVEMENTS



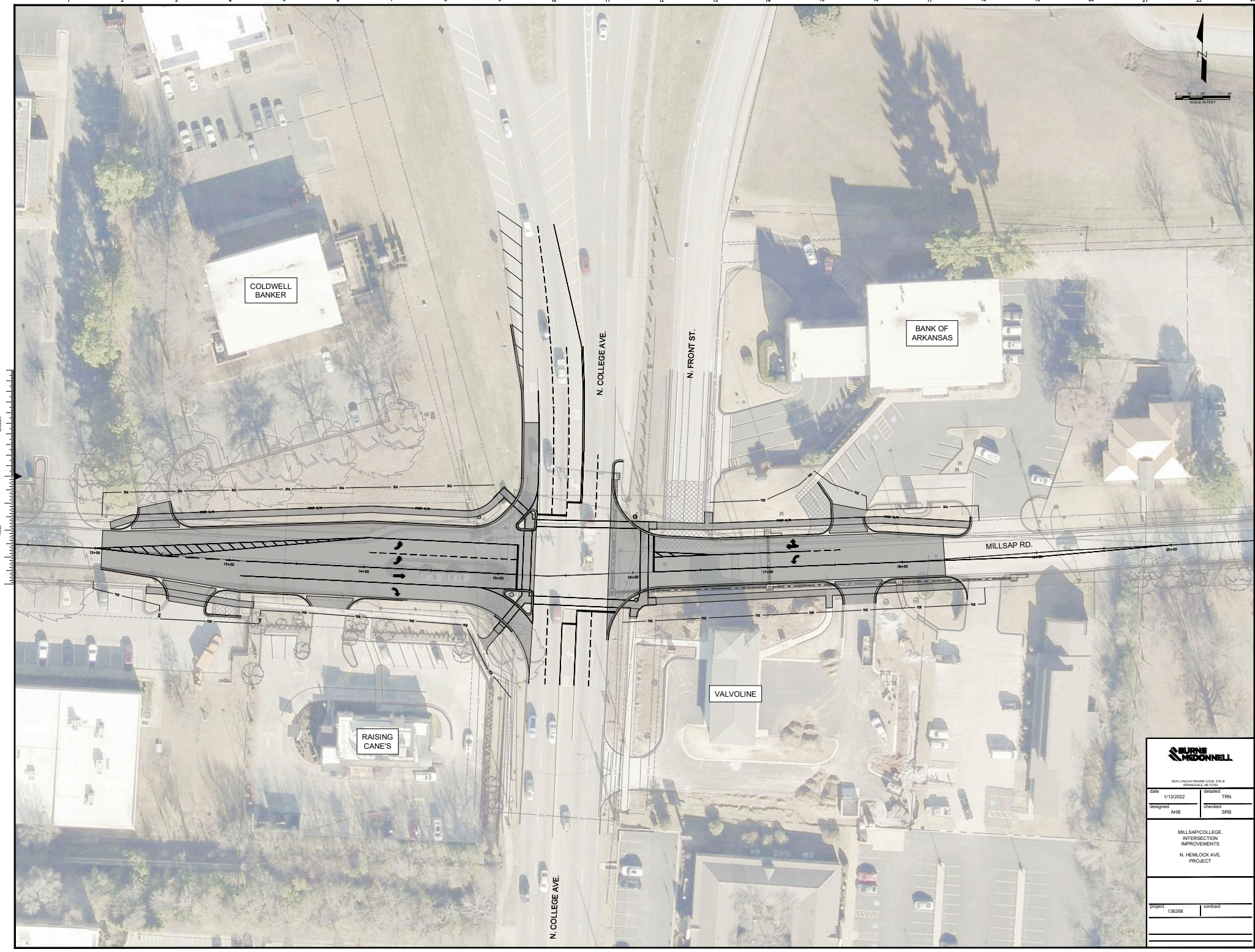


1676 LYNCH FRANK CONVE SITE B
SPRINGFIELD, MO 65765

date	1/13/2022	designed	TPN
designed	AHB	checked	SRB

MILLSAP/COLLEGE
INTERSECTION
IMPROVEMENTS
N. HEMLOCK AVE.
PROJECT

project	136268	control	
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Scale: 1" = 40' (1:160)



6676 LYNDEN FRANKLIN CORP. SITE B WINDMILL AVE. CORP.	
Date: 1/13/2022	Designed: TPN
Drawn: AHB	Checked: SRB
MILLSAP COLLEGE INTERSECTION IMPROVEMENTS N. HEMLOCK AVE. PROJECT	
Project: 130268	Contract:



Latitude:36.04339, Longitude:-94.13611

Route:2070 Section:00 Log:0.4

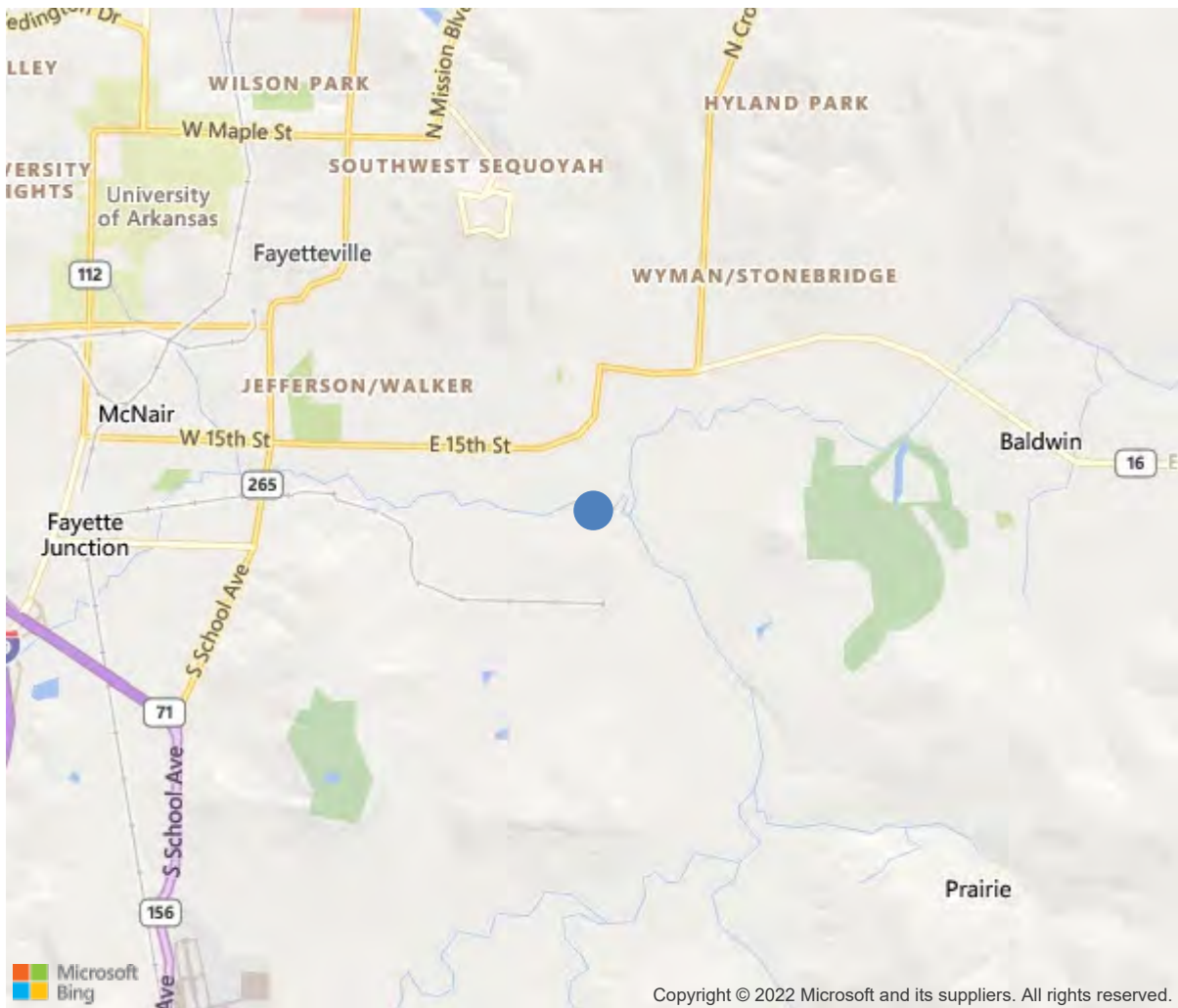
Arnold Road ID:72xSARMSTRONGAVEx3xA, Arnold Log mile:0.366

District 04, Washington County

Owner: 4-City or Municipal Highway Agency

Place Code: 23290 - Fayetteville

0.4 MI SOUTH SH 16



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36.04339, -94.13611



Bridge #19976(Routine)
Armstrong Avenue over Town Creek - Wash. Co.

Location: 0.4 MI SOUTH SH 16

Team Lead: Eric West Inspection Date: February 15, 2022

IDENTIFICATION	
(1) State Names	Arkansas
(8) Structure Number	19976
(5) Inventory Route	2070
(2) Highway Agency District	04
(3) County Code	143-Washington County, Arkansas
(4) Place Code	23290
(6) Features Intersected	Town Creek - Wash. Co.
(7) Facility Carried	Armstrong Avenue
(9) Location	0.4 MI SOUTH SH 16
(11) Mile Point	0.4 mi
(12) Base Highway Network	No
(13) LRS Inventory Rte & Subrte	0000000000
(16) Latitude	36.043392
(17) Longitude	-94.136108
(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	0-None
AGE AND SERVICE	
(27) Year Built	1972
(106) Year Reconstructed	0
(42) Type of Service	55
On	5-Highway-pedestrian
Under	5-Waterway
(28) Lane	
On	2
Under	0
(29) Average Daily Traffic	3900
(30) Year of ADT	2018
(109) Truck ADT	7 %
GEOMETRIC DATA	
(48) Length of Maximum Span	40 ft
(49) Structure Length	112 ft
(50) Curb or Sidewalk Width	
Left	6.2 ft
Right	1.2 ft
(51) Bridge Roadway Width Curb to Curb	24.9 ft
(52) Deck Width Out to Out	32.6 ft
(32) Approach Roadway Width (W/Shoulders)	27.9 ft
(33) Bridge Median	0-No median
(34) Skew	45 Deg
(35) Structure Flared	No flare
(10) Inventory Route Min Vert Clear	99.99 ft
(47) Inventory Route Total Horiz Clear	32.2 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	17-Urban 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	0-The inventory route is not part of
(20) Toll	3-On free road. The structure is toll-
(21) Maintain	4-City or Municipal Highway Agency
(22) Owner	4-City or Municipal Highway Agency
(37) Historical Significance	4-Historical significance is not dete
CONDITION	
(58) Deck	5
(59) Superstructure	5
(60) Substructure	4
(61) Channel & Channel Protection	5
(62) Culverts	N
LOAD RATING AND POSTING	
(31) Design Load	0-Other or Unknown
(63) Operating Rating Method	1
(64) Operating Rating	
Type	1-Load Factor(LF)
Rating	54
(65) Inventory Rating Method	1-Load Factor(LF)
(66) Inventory Rating	
Type	3
Rating	32
(70) Bridge Posting	5-Equal to or above legal loads
(41) Structure Open/Posted/Closed	P-Posted for load (may include o
APPRAISAL	
(67) Structural Evaluation	5
(68) Deck Geometry	4
(69) Clearances, Vertical/Horizontal	N
(71) Waterway Adequacy	7
(72) Approach Roadway Alignment	8
(36A) Bridge Railings	0-Inspected feature does not meet cur
(36B) Transitions	0-Inspected feature does not meet cur
(36C) Approach Guardrail	0-Inspected feature does not meet cur
(36D) Approach Guardrail Ends	0-Inspected feature does not meet cur
(113) Scour Critical Bridges	3-Bridge is scour critical; bridge fo
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	831
(115) Year of Future ADT	2007

INSPECTIONS *			
(90) Inspection Date			02/2022
(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.			



Roadway



North approach load posting sign.



South approach load posting sign.



Typical driving surface of the deck.



Span #1 typical undersurface of the deck.



Span #2 typical undersurface of the deck.



Span #3 typical undersurface of the deck.



Span #2 sealable deck cracking.



Span #1 Lt concrete delamination's, spalling and efflorescence buildup at the deck drains.



Span #1 Rt over abutment #1 with efflorescence buildup at the expansion dam.



Span #2 Lt spalling with exposed reinforcing steel at the deck drains.



Span #2 & 3 concrete delamination's and spalling with exposed reinforcing steel in the edge of the deck overhang.



Rail posts are loosely bolted to the edge of the deck.



Abutment #1 expansion joint road irons not welded at the centerline.



Abutment #1 failing joint seal.



Abutment #2 failing joint seal.



Span #2 splice plates.



Abutment #1 beam #3 with active corrosion and layers of flaking rust forming between the bearing and beam.



Bent #2 typical cap and elastomeric bearings.



Abutment #2 beam #4 active corrosion with layers of flaking rust between the bearings and beam.



Typical failing paint system.



Abutment #2 beam #3 active corrosion with layers of flaking rust and 5/16" remaining section adjacent to the bearing.



Bent #3 typical.



Abutment #2 erosion under the abutment.



Abutment #2 no apparent rotation or settlement.



Abutment #2 steel pile with layers of flaking rust and section loss.



Abutment #2 with full depth erosion under the abutment cap.



Abutment #2 exposed steel piling.



Bent #2 typical.



Bent #3 pile #4 active corrosion with layers of flaking rust and measurable section loss at the base of the pile.



Bent #3 pile #3 with active corrosion and layers of flaking rust with measurable section loss at the base of the pile.



Bent #3 pile #1 & 2 have no apparent section loss at the base of the piling.



Bent #2 minor misalignment of the steel piling where concrete fell against the bent.



Abutment #1 fractured concrete repair collar.



Abutment #1 with a fractured section of the repair.



Bent #2 pile #3 active corrosion with layers of flaking rust and measurable section loss.



Bent #2 pile #3 out of plane bending.



Bent #2 pile #2 active corrosion with layers of flaking rust with measurable section loss.



Bent #2 pile #1 with active corrosion and layers of flaking rust with measurable section loss.



Abutment #1 with no apparent rotation or settlement.



Abutment #1 erosion.



Abutment #1 Lt erosion under the edge of the abutment.



Abutment #1 pile #1 exposed with layers of flaking rust.



Span #3 erosion.

Maintenance Needs

Date Reported: 04/18/2012
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: Channel

Deficiency Description

The channel embankment adjacent to the north and south abutments -
There is significant embankment erosion adjacent to both abutments with earth settlement under both abutment caps. Earth settlement has exposed the piling. Exposed piling have active corrosion with up to 1/8" section loss during this inspection.
Concrete collars placed adjacent to the abutments in the past as an erosion countermeasure are undermined.

Remarks



There is significant embankment erosion adjacent to both abutments with earth settlement under both abutment caps.
Earth settlement has exposed the piling. Exposed piling have active corrosion with up to 1/8" section loss during this inspection.
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Concrete collars placed adjacent to the abutments in the past as an erosion countermeasure are undermined.



South embankment erosion at abutment 2.



Abutment #2 with full depth erosion under the abutment cap.



Abutment #1 Lt erosion under the edge of the abutment.

Date Reported: 04/18/2012
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: Miscellaneous

Deficiency Description

The expansion joint assemblies at the North and South bridge ends -
The expansion joint anchorage is loose at both abutments. Both joints are noisy and have movement during live load impacts.
The joint seals are in place but leak water and debris on the abutments and the ends of the beams.

Remarks



The expansion joint anchorage is loose at both abutments. Both joints are noisy and have movement during live load impacts.



Abutment #1 expansion joint road irons not welded at the centerline.

Date Reported: 04/18/2012
Priority: D- Routine
Type of Work: Repair
Status: Monitor
Component: Deck

Deficiency Description

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

Remarks



Span 2-Transverse cracking.



Span 1, left lane-Mapcracking.



Bridge #19976(Routine)
Armstrong Avenue over Town Creek - Wash. Co.

Location: 0.4 MI SOUTH SH 16

Team Lead: Eric West **Inspection Date:** February 15, 2022



Span 2-Transverse cracking.

Date Reported: 02/27/2014
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: Substructure

Deficiency Description

Substructure -

Steel Piling at Bents #2 and 3 have no paint system with active corrosion and section loss at the base of bents.

Bent #2 Steel Pile Bent:

- Bent #2 pile #1 has up to 1/4" section loss and the edges of the flanges reduced to knife edge in locations. The pile has been reduced from 12 1/16" to 11 1/2" at the water elevation. Pile has approximately 3/16" remaining section at the water elevation.
- Bent #2 pile #2 has up to 3/8" section loss the the flanges in areas. The web has up to 5/16" section loss on one side of the web and up to 3/16" in the same area in the corresponding area of the opposite side. No hole were found. The pile width has been reduced by approximately a 1/4" due to corrosion.
- Bent #2 pile #3, 4 & 5 have approximately 1/8" section loss to the base of the web and the flanges at the water elevation.

Bent #3 Steel Pile Bent:

- Bent #3 pile #1 & 2 have rip rap cover and do not appear to have measurable section loss where exposed at the base.
- Bent #3 pile #3 has approximately 1/8" section loss to the flanges and approximately 3/16" to the base of the web at the water elevation.
- Bent #3 pile #4 has approximately 1/8" section loss to the flanges and approximately 5/16" to the base of the web at the water elevation.
- Bent #3 pile #5 has areas with 5/16" section loss to the flanges and approximately 5/16" to the base of the web.

Remarks

02/15/2022 - EJW - Updated deficiency description on this date to reflect current conditions due to continued deterioration of the substructure.



Bent #2, pile #1-Section loss to flange.



Section loss to pile flange.



Bent #2, pile 1-Knife edge section loss to flange.



Bent #2 pile #1 with active corrosion and layers of flaking rust with measurable section loss.

Date Reported: 02/08/2018
Priority: C - Important
Type of Work: Repair
Status: Monitor
Component: Superstructure

Deficiency Description

Superstructure -

There is active corrosion forming in the ends of the beams over the abutments where the expansion joints leak water on the superstructure. The most noteworthy example is at Bent # 4, Beam # 3. The bottom flange is reduced to 5/16" adjacent to the bearing at this inspection. The sole plates have heavy deterioration, section loss and pack rust. The majority of the superstructure has freckled rust showing through the paint system.

Remarks

02/15/2022 - EJW - Updated deficiency description on this date due to continued deterioration of the beam ends.



Span 3, beam 1 @ abutment 2-Pack rust 3/16"
section loss.



Span 3, beam 3 @ abutment 2-Corrosion.



Abutment #2 beam #3 active corrosion with layers of flaking rust and 5/16" remaining section adjacent to the bearing.

Date Reported: 02/17/2022
Priority: G - General/ Preventive maintenance
Type of Work: Repair
Status: Open
Component: Substructure

Deficiency Description

Substructure-

Bent #2 pile #3 has approximately 3" of out of plane bending from a portion of concrete that has fracture from the repair at Abutment #1 and fell against the pile.

Remarks



Abutment #1 fractured concrete repair collar.



Bent #2 pile #3 out of plane bending.



Inspection Comments

02/15/2022 - EJW - Substructure NBI rating reduced on this date from "5" to "4" due to continued deterioration of the steel piles in Bents # 2 & 3. Other Special Inspection added on this date on a 24 month inspection frequency set to alternate with the Routine inspection.

06/07/2021 - RSM - Inspection created to document Local Action Only. Scour POA inspection performed by City of Fayetteville personnel. See POA Report(s) in Files/Scour tab. Scour POA inspection indicates that there are no additional scour.

05/11/2021 - RSM - Inspection created to document Local Action Only. Scour POA inspection performed by City of Fayetteville personnel. See POA Report in Files/Scour tab.

04/27/2021 - RSM - Inspection created to document Local Action Only. Scour POA inspection performed by City of Fayetteville personnel. See POA Report in Files/Scour tab.

02/19/2020 - RSM & SPC: Routine and Underwater Type II Inspections conducted this date. See notes tab for documentation.

02/17/2016 - EJW & RWF - Underwater Type II inspection conducted on this date. Probing with low clear water conditions indicates the intermediate bents have no apparent scour problems at this inspection. The abutments both have compacted embankment settlement that exposes the steel piling under the abutment caps.

Deck Notes

R.C. Deck:

- The concrete deck has heavy sealable transverse cracking at approximately 12 to 24 inch centers in all spans.
- There are areas of sealable map cracking on the driving surface of the deck in all spans.
- Span #3 Lt lane has wear with several shallow spalls / delaminated areas in the left wheel path.
- The undersurface has concrete delamination's and spalling with exposed reinforcing steel along the edge of the deck with heavy efflorescence leaching from the deck drains.
- Span #1 Rt has efflorescence buildup leaching through the deck at the expansion dam.
- The bridge rails are loosely bolted to the edge of the deck. The nuts are tight.

Expansion Joints:

- The expansion joint seals are in place at both abutments with areas of adhesion failure. Stains and debris accumulation on the abutments indicate that the seals leak.
- The metal expansion joint anchorage at both abutments is loose and fractured near the centerline of the structure and is noisy during live load impacts from traffic. The portion of the road iron in the right lane of the South approach roadway between abutment #2 and the South approach slab is missing.

Approach roadways:

- The left lane of the North approach roadway has settlement with failing asphalt repairs adjacent to the approach slab.
- The asphalt driving surface of the South approach roadway has potholes forming at the bridge end.

Superstructure Notes

Beams:

- Active corrosion is forming in the ends of the beams over the abutments where the expansion joints leak water on the superstructure. The most noteworthy area is at abutment #2, Beam # 3. The bottom flange is reduced to 5/16" adjacent to the bearing at this inspection with no apparent repairs since the last inspection with an increase of 1/8" since the last inspection. The bearing shim plates over the abutment #2 have heavy corrosion, section loss and pack rust.
- The beams over the abutments have active corrosion with layers of flaking rust forming between the beams and the bearings.
- The exterior beams have corrosion to top flanges where deck drains discharge water.

Paint system:

- Freckled rust typical in all spans with active corrosion and flaking rust at the abutments.

Substructure Notes



Bridge #19976(Routine)
Armstrong Avenue over Town Creek - Wash. Co.

Location: 0.4 MI SOUTH SH 16

Team Lead: Eric West Inspection Date: February 15, 2022

02/19/2020 - RSM & SPC: Underwater Type II Inspection: Wading, probing and visual observation revealed that the channel has a tree wedged against bents #2 and #3. Probing indicated no apparent scour problems at the intermediate bents. The erosion / earth settlement at both abutments still exists with no apparent repairs or significant changes since last inspection.

R.C. Abutments:

- Both abutments have earth settlement / erosion that expose some of the steel piling. Exposed steel piling at the abutments have active corrosion with flaking rust and section loss up to 1/8" at this inspection. The exposed piling are 10" x 10" with exposed areas that are reduced to 5/16" at the flanges.
- Abutment #2 has up to 4' of earth settlement under the abutment cap.
- Concrete collars placed adjacent to the abutments in the past by maintenance forces are completely undermined and no longer functioning as intended.

Intermediate Bents:

- Steel Piling at Bents #2 and 3 have no paint system with active corrosion and section loss at the base of bents.

Bent #2 Steel Pile Bent:

- Bent #2 pile #1 has up to 1/4" section loss and the edges of the flanges reduced to knife edge in locations. The pile has been reduced from 12 1/16" to 11 1/2" at the water elevation. Pile has approximately 3/16" remaining section at the water elevation.
- Bent #2 pile #2 has up to 3/8" section loss the the flanges in areas. The web has up to 5/16" section loss on one side of the web and up to 3/16" in the same area in the corresponding area of the opposite side. No holes were found. The pile width has been reduced by approximately a 1/4" due to corrosion.
- Bent #2 pile #3, 4 & 5 have approximately 1/8" section loss to the base of the web and the flanges at the water elevation.
- Bent #2 pile #3 has approximately 3" of out of plane bending from a portion of concrete that has fracture from the repair at Abutment #1 and fell against the pile.

Bent #3 Steel Pile Bent:

- Bent #3 pile #1 & 2 have rip rap cover and do not appear to have measurable section loss where exposed at the base.
- Bent #3 pile #3 has approximately 1/8" section loss to the flanges and approximately 3/16" to the base of the web at the water elevation.
- Bent #3 pile #4 has approximately 1/8" section loss to the flanges and approximately 5/16" to the base of the web at the water elevation.
- Bent #3 pile #5 has areas with 5/16" section loss to the flanges and approximately 5/16" to the base of the web.