

Inspector: Hess,Derek
Inspection Date: 11/09/2022

Structure Number: 8758948
Facility Carried: BRIDGE STREET

Bridge Inspection Report

Ohio Bridge Inspection Summary Report

WOO-C463A-0001 (8758948)

2: District 61504 - PEMBERVILLE (WOO county)
ict
02

5A: Inventory Route 1 M463A

21: Major Maint A/B 04 - City or Municipal Highway /
Agency

7: Facility On BRIDGE STREET

225 Routine Main A/B 04 - City or Municipal Highway /
Agency

6: Feature Ints MID BR POR RIV BRIDGE ST

221 Inspection A/B 04 - City or Municipal Highway /
Agency

9: Location 0.15 ML W OF P-VILLE RD

220: Inv. Location 1-463A

Lat, Lon 41.409136 , -83.457031

Condition		Structure Type	
58: Deck	4 - Poor Condition	43: Bridge Type	4 - Steel continuous
58.01 Wearing Surface	5 - Fair (10-15%, 2% asphalt patch)		02 - Stringer/Multi-beam or Girder
58.02 Joint	2- Critical		N- Not Applicable
59: Superstructure	2 - Critical Condition	45: Spans Main / Approach	3 / 0
59.01 Paint & PCS	2 - Critical PCS (30-40% corr.)	107: Deck Type	1 - Concrete Cast-in-Place
60: Substructure	4 - Poor Condition	408: Composite Deck	Y - Composite Construction
61: Channel	7	414A Joint Type 1	2 - Sliding Metal Plate Angle
61.01 Scour	6 - Satisfactory	414B: Joint Type 2	N - None
62: Culverts	N - Not Applicable	108A: Wearing Surface	1 - Monolithic Concrete (concurrently placed with structural deck)

67.01 GA 2

Appraisal		422: WS Date	01/01/1970
Sufficiency Rating	29.4 SD/FO 1 - SD	423: WS Thick (in)	1
36: Rail, Tr, Gd, Term Std	0 0 0 0	482: Protective Coating	0 - Other Paint
72: Approach Alignment	6 - Equal to present minimum criteria	483: PCS Date	01/01/1951
113: Scour Critical	5 - Scour within limits of footing or piles	453: Bearing Type 1	A - Sliding (Other)
71: Waterway Adequacy	7 - Slight Chance of Overtopping Bridge	455: Bearing Type 2	N - None
Geometric		528: Foundn: Abut Fwd	4 - Spread Footing (on soil)
48: Max Span Length (ft)	60.0	533: Foundn: Abut Rear	4 - Spread Footing (on Soil)
49: Structure Length (ft)	160.0	536: Foundn: Pier 1	4 - Spread Footing (on soil)
52: Deck Width, Out-To-Out (ft)	36.8	539: Foundn: Pier 2	N - None (Such as most Culverts)
424: Deck Area (sf)	5888	Age and Service	
32: Appr Roadway Width (ft)	20.0	27: Year Built/ 106 Rehab	1947 / 0000
51: Road Width, Curb-Curb (ft)	24	42A: Service On	1 - Highway
50A: Curb/SW Width: Left (ft)	4.6	42B: Service Under	5 - Waterway
50A: Curb/SW Width: Right (ft)	4.6	28A: Lanes on	02
34: Skew (deg)	0	28B: Lanes Under	00
33: Bridge Median	0 - No median	19: Bypass Length	1
54B: Min Vert Underclearance (ft)	0	29: ADT	175
336A: Min Vert Clrnce IR Cardinal (ft)	99	109: % Trucks (%)	6
336B: Min V Clr IR Non-Cardinal (ft)	0	Inspections	
578: Culvert Length (ft)	0	Months	

Load Posting		90: Routine Insp.	12	11/09/2022
41: Op/Post/Closed	K - Closed	92A: FCM Insp.	N	0
70: Posting	0 - More than 39.9% below legal loads	92B: Dive Insp.	N	0
70.01: Date	08/24/2018	92C: Special Insp.	Y	6
70.02: Sign Type	1- R12-H5 ("Weight Limit Single Unit", 5 trucks + Silhouette)	92D: UBIT Insp.	N	0
		92E: Drone Insp.	N	0

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92A: FCM Insp.	N	0
92B: Dive Insp.	N	0
92C: Special Insp.	Y	6
92D: UBIT Insp.	N	0
92E: Drone Insp.	N	0

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734: Percent Legal (%)	25	Inspector	
704: Analysis Date	11/30/2017		Hess,Derek
63: Analysis Method	6 - Load Factor (LF) rating reported by rating factor (RF) method using MS18 loading.		

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ODOT District: District 02

WOO-C463A-0001 _(8758948)

Date Built: 07/01/1947

Major Maint: 04 - City or Municipal Highway
Agency

Facility Carried: BRIDGE STREET

Traffic On: 1 - Highway

Rehab Date:

Routine Maint: 04 - City or Municipal Highway
Agency

Feature Inters: MID BR POR RIV BRIDGE ST

Traffic Under: 5 - Waterway

Insp: 04 - City or Municipal

FIPS Code: 61504 - PEMBERVILLE (WOO county)

Location: 1-463A

0.15 ML W OF P-VILLE RD

Resp A: Highway Agency

Insp: Blank

Resp B:

Inspector

Hess,Derek

Inspection Date

11/09/2022

Reviewer

Homan,Christopher

Inspector Comments - Deck and Approach

Deck

Floor/Slab (SF)

- There are numerous shallow spalls with exposed steel on the deck underside.
- Transverse cracks on underside.
- Span 1 has areas of saturation.
- Spalls and delams on deck near scuppers.

Bridge Wearing Surface (SF)

- Transverse cracking and scaling throughout.
- Span 1 has small potholes with some having been patched.
- Spot sounding has indicated approximately 25% of the wearing surface is delaminated. More prevalent in Span 1.

Curbs/Sidewalk (LF)

- Both sidewalks are heavily scaled.
- Curbs and sidewalks have shallow spalls with exposed reinforcing due to lack of concrete cover. More prevalent in the south sidewalk.
- The south sidewalk has considerable drop offs to the embankment as there are no approach sidewalks on this side..

Bridge Railing (LF)

- The concrete railing posts have minor cracks and spalls with some having reinforcing exposed.
- 2nd post in the NW corner has a vertical spall with exposed rebar.

Deck Drainage (EA)

- Deck drainage is through scuppers which are leading to severe deterioration of the beams below these areas.
- Consider sealing scuppers to reduce beam corrosion.
- Deterioration of curbs is restricting proper drainage.

Expansion Joint (LF)

- The expansion joints are closed.
- Plates were welded on top of expansion joints in 2018.
- Some vertical movement under traffic with large impact force.

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Approach

Approach Wearing Surface (EA)

- The first 15' of approach pavement off the bridge has been recently paved on both sides. Beyond that, the pavement is cracked (most sealed) and unraveling on the edges.
- Settled at the expansion joints.

Approach Embankment (EA)

- The shoulders on the south side are low.
- North approach sidewalks were repaired by county crew in November of 2018.

Signs (EA)

- 2 load limit signs (7, 7, 8, 8, 9, 13).

Inspector Comments - General Appraisal

Superstructure

Beams/Girders (LF) (Critical Findings in Bold)

- The beams have minor surface corrosion throughout their length.
- Beam 2 above fwd abutment had a web plate added in 2018.
- Beam 6 above fwd abutment had a web and flange plate added in 2018.
- Beams 2 and 6 have plates added to the web and bottom flanges added in 2018.

Rear Abutment Section Loss:

- Beams above rear abutment have web section loss as follows: Beam 1 has 50% loss for bottom 12". Beam 3 has 50% loss for bottom 6". Beam 5 has 25% loss for bottom 6". Beam 6 has 25% loss for bottom 12"

Fwd Abutment Section Loss:

- Beams above fwd abutment have web section loss as follows: Beam 1 has 20% loss for full height. Beam 2 has 20% loss to web plate for bottom 8". Beam 6 has 20% loss for bottom 8" and 10% for remaining height to web plate. Beam 7 has 15% loss to bottom 4".

Span 1 Section Loss:

- Span 1 Beam 2 near scupper has an approximate section loss of 50% of top flange, 25% of web, 25% to 50% of bottom flange for a length of 12 feet.
- **Span 1 Beam 6 near scupper has an approximate section loss of 50% of top flange, 25% to 60% of web, 50% to 75% of bottom flange for a length of 17 feet. There is a 8" diameter hole in the web in this region.**

Span 2 Section Loss:

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- Span 2 Beam 2 near rear scupper has an approximate section loss of 50% of top flange, 30% of web, 30% of bottom flange for a length of 8 feet.
- Span 2 Beam 2 near fwd scupper has an approximate section loss of 50% of top flange, 25% of web, 25% of bottom flange for a length of 8 feet.
- Span 2 Beam 6 near rear scupper has an approximate section loss of 50% of top flange, 50% of web, 50% of bottom flange for a length of 9 feet. **There is a 3" diameter hole in the web within this area.**
- Span 2 Beam 6 near fwd scupper has an approximate section loss of 50% of top flange, 50% of web, 50% of bottom flange for a length of 9 feet. **There is a 1 foot area with 90% section loss of bottom flange at end of moment plates.**

Span 3 Section Loss:

- Span 3 Beam 2 has a 2 foot long hole in web beneath scupper. Has shown noticeable increase in size from the 2021 inspection. **(Approximated at 50% of top flange, 50% to 90% of web, and 60% of bottom flange for a length of 10 feet)**
- Span 3 Beam 6 has section loss beneath scupper (Approximated at 50% of top flange, 50% of web, and 50% of bottom flange for a length of 14 feet)
-
- beams 2(hole in web in span 3 near forward scupper)and 6 have section loss under each of the scuppers. a majority of the beam ends at both abutments have corrosion holes. beam 2(plated in 2018)at the forward abutment has 2 small holes in the web over the original rocker bearing under the top flange. rear abutment: beams 2 & 6 ends have new webs and bottom flanges for +-50" and are plated at the splices(2018). forward abutment: beam 6 end has a new web and bottom flange and is plated at the splice(2018). beam 2 end is plated on each side of the web(2018). span 1 - beam 6 - 2.25" l x 3" h hole near first cross frame from abutment. span 2 - beam 6 - 8" l x 3" h hole @ 1st splice near pier 1 many rivets are missing over pier 1 and 2 for all splice plates-as built.

Diaphragm/X-Frames (EA)

- The end cross frames of both abutments are heavily deteriorated with most having complete section loss.
- Forward abutment bays 1,2, 5 and 6 and Rear Abutment bays 1, 5, and 6 are non-functional.
- Intermediate cross frames in Bay 2 the first and last cross frame have complete section loss.
- Intermediate cross frames in Bay 6 the last cross frame has complete section loss.

Bearing Devices (EA)

- Original rear rocker bearings 3 & 4 are rotated.
- Original rear rocker bearings 2 & 6 were removed in 2018.
- Rear rocker bearings have heavy section loss and are loose.
- Original forward rocker bearings 1 & 2 are rotated.
- Original forward rocker bearing 6 was removed in 2018.
- H-pile type bearings placed in front of original rocker bearings in 2018 and overhang abutment seat in areas.

Protective Coating System (LF)

- Greater than 50% of the protective coating system has failed.

Substructure

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Abutment Walls (LF)

- There are moderate vertical cracks with leaking in both abutments

Pier Walls (LF)

- Pier 1 has a 1/16" - 1/8" full height vertical crack under beams 3-4 through both faces.

Backwalls (LF)

- The north side of both abutments have an abandoned gas line into the backwall.
- Somehow drainage is seeping through the abutment where the pipe was dumping water onto the bearings of beam 1 and causing deterioration.
- Both backwalls have cracking and areas of delamination.
- The forward has a large spall(4" deep)in bays 2 & 3 with steel exposed.
- Top of the rear backwall has cracks and spalling.
- Honeycombing in face of rear backwall.

Wingwalls (EA)

- All four wingwalls are cracked and are scaling.
- SW has spalling on the face and on the end.

Slope Protection (EA)

- Scoured/eroded over the years.

Culvert

Inspector Comments - Waterway

Waterway Adequacy

Channel Hydraulic Opening (EA)

- Debris on SW abutment seat.
- Some tree debris on cross frames, beam flanges and forward abutment seat.
- Small log jam against the inlet side of pier 1.

Channel

Latest channel photos taken on 11/9/2022 and are included with this report.

Scour Critical

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Substructure Scour (EA)

- Scour Assessment last performed on 11/9/2022 and is on file.
- No Scour POA on file.
- All substructures founded on bedrock.
- Vertical face of both pier footings exposed with pier 1 exposed 6" and pier 2 exposed 6" at upstream end.

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PHOTO 1

Description 8758948_Rear Approach_Looking East



PHOTO 1

Description 8758948_Upstream Profile

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PHOTO 1

Description 8758948_Span 1 Surface



PHOTO 1

Description 8758948_Rear Abutment

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PHOTO 1

Description 8758948_Beam 1 @ FA_Corrosion



PHOTO 1

Description 8758948_Span 3 Beam 2_Section Loss (2)

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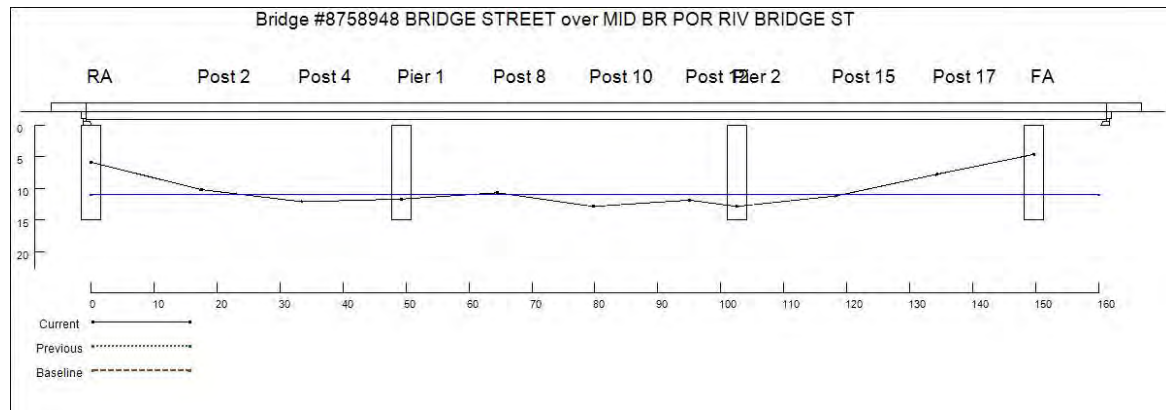


PHOTO 1

Description



PHOTO 2

Description 8758948_Span 3 Beam 2_Section Loss (3)

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PHOTO 2

Description 8758948_Beam 2 @ FA_Corrosion



PHOTO 2

Description 8758948_Span 2 Surface

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PHOTO 2

Description 8758948_Pier 1 West Face



PHOTO 2

Description 8758948_Downstream Profile

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PHOTO 2

Description 8758948_Fwd Approach_Looking West



PHOTO 3

Description 8758948_Pier 2 East Face

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PHOTO 3

Description 8758948_Span 3 Surface



PHOTO 3

Description 8758948_FA Bay 1_Broken X-frame

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PHOTO 3

Description 8758948_Span 3 Beam 2_Section Loss



PHOTO 4

Description 8758948_FA Bay 5_Broken X-Frame

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PHOTO 4

Description 8758948_Span 1 Beam 6_Corrosion (2)



PHOTO 4

Description 8758948_Pier 2 West Face

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PHOTO 4

Description 8758948_Rear Joint



PHOTO 5

Description 8758948_Fwd Joint

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PHOTO 5

Description 8758948_Span 1 Beam 6_Corrosion (3)



PHOTO 5

Description 8758948_FA Bay 6_Broken X-Frame

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PHOTO 5

Description 8758948_Pier 1 East Face



PHOTO 6

Description 8758948_Span 1 Beam 2_Corrosion (2)

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PHOTO 6

Description 8758948_Span 1 Beam 6_Corrosion (4)



PHOTO 6

Description 8758948_North Sidewalk_Scaling

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PHOTO 6

Description 8758948_Fwd Abutment



PHOTO 7

Description 8758948_FA_Vertical Cracks

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PHOTO 7

Description 8758948_South Curb_Spall



PHOTO 7

Description 8758948_Span 1 Beam 6_Corrosion

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PHOTO 7

Description 8758948_Span 1 Underside



PHOTO 8

Description 8758948_Span 2 Beam 2 Fwd_Corrosion (2)

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PHOTO 8

Description 8758948_Span 2 Beam 6 Fwd_Corrosion (2)



PHOTO 8

Description 8758948_North Curb_Spall

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PHOTO 8

Description 8758948_FA Bay 2_Backwall Repair



PHOTO 9

Description 8758948_FA Bay 3_Backwall Spall

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PHOTO 9

Description 8758948_Span 2 Beam 2 Rear_Corrosion (2)



PHOTO 9

Description 8758948_Typical Railing Spall

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PHOTO 9

Description 8758948_Span 2 Beam 6 Fwd_Corrosion



PHOTO 10

Description 8758948_Span 2 Beam 6 Rear_Corrosion (2)

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PHOTO 10

Description 8758948_Span 2 Beam 6 Rear_Corrosion



PHOTO 10

Description 8758948_Span 1 Patches

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PHOTO 11

Description 8758948_Bridge Closure 1



PHOTO 11

Description 8758948_Span 2 Underside

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PHOTO 12

Description 8758948_Bridge Closure 2



PHOTO 12

Description 8758948_RA Bay 1-2_Broken X-frames

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PHOTO 13

Description 8758948_Span 3 Beam 6_Section Loss (2)



PHOTO 14

Description 8758948_RA Bay 5-6_Broken X-frames

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PHOTO 15

Description 8758948_Span 3 Beam 6_Section Loss (3)



PHOTO 16

Description 8758948_Span 3 Beam 6_Section Loss

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PHOTO 17

Description 8758948_Span 3 Underside



PHOTO 18

Description 8758948_Span 1 Beam 2_Corrosion

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PHOTO 19

Description 8758948_Span 2 Beam 2 Fwd_Corrosion



PHOTO 20

Description 8758948_Span 2 Beam 2 Rear_Corrosion