

Inspector: Schmitz,Joseph

Inspection Date: 06/06/2025

Structure Number: 5765145

Facility Carried: S CASSEL ROAD

Ohio Bridge Inspection Summary Report

MOT-T0067-0060 (5765145)

B.L.04: District District 0779492 - VANDALIA (MOT county)

B.CL.02: Major Maint 04 - City or Municipal Highway / Agency

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

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

5A: Inventory Route 1 T0067

7: Facility On S CASSEL ROAD

6: Feature Ints POPLAR CREEK

9: Location .6 MI N OF LITTLE YORK RD

Condition		Lat, Lon	39.8645	,-84.171169
B.C.01: Deck		Structure Type		
58.01: Wearing Surface	6	43: Bridge Type	3 - Steel	
B.C.08: Joint	N		02 - Stringer/Multi-beam or Girder	
B.C.02: Superstructure	3		N- Not Applicable	
59.01: Paint & PCS	3	45: Spans Main / Approach	1	/ 0
B.C.03: Substructure	3	107: Deck Type	1 - Concrete Cast-in-Place	
B.C.09: Channel	5	408: Composite Deck	N - Non-composite Construction	
B.C.11: Scour	4	414A Joint Type 1	N - None	
B.C.10: Channel Prot.	N	414B: Joint Type 2	N - None	
B.C.05: Bridge Railing	3	108A: Wearing Surface	1 - Monolithic Concrete	
			(concurrently placed with structural deck)	
B.C.06: Transitions	N		N - Not Applicable	
B.C.07: Bearings	3	422: WS Date	07/01/1979	
		423: WS Thick (in)	2.50	
B.C.04: Culverts	N	482: Protective Coating	5 - Paint System OZEU	
Ohio GA	3	483: PCS Date	08/01/2000	
		453: Bearing Type 1	3 - Sliding (Bronze)	
		455: Bearing Type 2	N - None	
		528: Foundn: Abut Fwd	U - Unknown	
		533: Foundn: Abut Rear	U - Unknown	
		536: Foundn: Pier 1	N - None (Such as most Culverts)	
		539: Foundn: Pier 2	N - None (Such as most Culverts)	

Appraisal	
B.AP.03: Scour Vul.	D - Scour appraisal completed. Bridge is, or may become, unstable for scour. Bridge is scour critical.

Geometric		Age and Service	
48: Max Span Length (ft)	42.3	27: Year Built/ 106 Rehab	1915 / 1979
49: Structure Length (ft)	45.5	42A: Service On	1 - Highway
52: Deck Width, Out-To-Out (ft)	22.0	42B: Service Under	5 - Waterway
424: Deck Area (sf)	1001	28A: Lanes on	02
32: Appr Roadway Width (ft)	18.0	28B: Lanes Under	00
51: Road Width, Curb-Curb (ft)	22.0	19: Bypass Length	99
50A: Curb/SW Width: Left (ft)	0	29: ADT	452
50A: Curb/SW Width: Right (ft)	0	109: % Trucks (%)	5
34: Skew (deg)	0		
33: Bridge Median	0 - No median		
54B: Min Vert Underclearance (ft)	0		
336A: Min Vert Clrnce IR Cardinal (ft)	99		
336B: Min V Clr IR Non-Cardinal (ft)	0		
578: Culvert Length (ft)	0		

Load Posting	
41: Op/Post/Closed	A - Open
70: Posting	5 - Equal to or above legal loads
70.01: Date	
70.02: Sign Type	
734: Percent Legal (%)	118
704: Analysis Date	05/26/2023
63: Analysis Method	8 - Load and Resistance Factor Rating (LRFR) rating report by rating factor (RF)

Inspections		
	Months	
90: Routine Insp.	12	06/27/2024
92A: FCM Insp.	N	0
92B: Dive Insp.	N	0
92C: Special Insp.	N	0
92D: UBIT Insp.	N	0
92E: Drone Insp.	N	0
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method using HL-93 loadings.

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ODOT District: District 07

MOT-T0067-0060_(5765145)

Date Built: 07/01/1915

Major Maint: 04 - City or Municipal Highway Agency

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Traffic On: 1 - Highway

Rehab Date: 01/01/1979

Routine Maint: 04 - City or Municipal Highway Agency

Feature Inters: POPLAR CREEK

Traffic Under: 5 - Waterway

Insp. 04 - City or Municipal
Resp A: Highway Agency

FIPS Code: 79492 - VANDALIA (MOT county)

Location: CITY OF VANDALIA

.6 MI N OF LITTLE YORK RD

Insp
Resp B:

Inspector

Schmitz,Joseph

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Inspector Comments - Deck and Approach

Deck

Floor/Slab

Spalling along the haunches typical with exposed rebar at Beams 3 and 4. Heavy saturation and delamination on underside of deck at Bays 1 & 3, isolated locations in Bay 2.

Edge of Floor/Slab

Spalling along both fascia, up to 2 reinforcement bars exposed. Spalling along the haunches (typical) partially exposing the top flange in some areas. Top flange laminar corrosion along both fascia.

Bridge Wearing Surface

Hairline transverse cracks; hairline longitudinal and diagonal cracks at the south; Spalls along east and west edges with previous asphalt patches. Patch along west edge failed and spall for half of bridge length. Full-length spall on east edge.

Deck Drainage

Drip strips heavily deteriorated on both sides throughout. Drip strip failed in northwest and southwest corners. Drainage from deck is infiltrating along drip strips down the fascia accelerating the deterioration of flanges and other superstructure and substructure components.

Railing

Detached rail post at southeast and southwest corners. Multiple posts along both fascia have section loss at top of web and connection I-beam extension.

Cones placed along both the east and west rails at time of 2025 inspection, reducing travel way by approximately 3' on each side (1 lane).

Approach

Approach Wearing Surface

Wide map cracking in the wearing surface throughout both approaches. Most severe at north approach. Voids and previous patches have failed at the north approach.

Approach Embankment

Steep embankments and erosion at southeast and southwest corner of structure.

Approach Guardrail

Missing post and impact damage at the southeast. Posts not tall enough and disconnected from rail at northeast. I beam at southwest termination does not meet requirements.

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Signs

Bridge end markers.

"Yield To Oncoming Traffic" sign at south end, "One Lane Road Ahead" sign at north end, both added since 2024 routine inspection.

Inspector Comments - General Appraisal

Superstructure

Beams/Girders

Fascia girders have laminar corrosion with section loss to the bottom flange and the top flange, severe bottom flange section loss near beam ends. Bottom plate of built-up exterior girders near midspan notes section loss; 1/8" painted over pitting to the webs. 75-100% loss to numerous rivet heads, most severe at fascia of exterior girders. Half the length of G4 up to 30% section loss to bottom flange.

Webs have holes and section loss at locations:

- Girder 1, north end, 3.75" corrosion hole in web
- Girder 1, 18" from centerline of bearing, 2" diameter hole surrounded by 1/8" loss (2" x 18").
- Girder 4, near midspan, (3) 2" corrosion holes in the web

Transverse stiffeners have 100% section loss to the bottom 4" at locations:

- Girder 1, 10 stiffeners at exterior
- Girder 4, all stiffeners at exterior face
- Girder 4, 5 stiffeners at interior face

Beam condition at bearings:

- Girder 1: bottom 6-8" of stiffener and 2-4" of top flange and bottom flange at interior face with 100% section loss. Hole (3" x 3") in web near north abutment bearing.
- Girder 4: 3' length from each abutment knife edge corrosion at bottom flange, both sides up to 50% section loss. Missing 3" x 9" portion of bottom flange, interior side. Bearing stiffeners at south abutment 100% loss. 2-4" of top flange and bottom flange at interior face with 100% section loss.

Bearing Devices

Bearings appear to be frozen. Heavy laminar corrosion to masonry plates with section loss.

Protective Coating System

Paint failure along the girder ends and along the top and bottom flanges of the exterior Girders 1 & 4.

Substructure

Abutment Walls

Progressive disintegration of concrete exposing aggregate along the face of abutments, at abutment caps,

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and beam seats. Severe spalling and cracking under Girder 4 beam seats. Spalling under Girder 1 beam seat at north abutment (negligible loss of bearing, avg 3 ft wide and 4.75 ft tall). Full height spall under Girder 1 at north abutment face, with scaling and unsound concrete surround. Spalling under Girder 4 beam seat at north abutment. Spalling below beam seats in abutment wall typical.

Abutment condition at bearings:

Loss of bearing under the masonry plate at both ends of G1, ~25% at South end (14" x 20.5"), ~20% at North end with cracking and spalling extending to lower ledge of abut of Girder 4. Spalling under north end of Girder 1 up to masonry plate. Concrete at bearings is disintegrating, exposing aggregate.

Backwalls

Minor voids/spalls at the top of the backwalls. Full height vertical crack between interior girders at both abutments.

Wingwalls

Spalling and cracking typical. Footing exposed at Southwest and Northeast corners. Heavy spalling on backside of southwest wingwall at erosion area.

Substructure Scour

See 'Scour Critical' section of this report for detailed scour information.

Culvert

Inspector Comments - Waterway

Waterway Adequacy

Channel

Channel Alignment

Poplar Creek flows west to east.

Channel poorly aligned with bridge, water flows into the southwest wingwall.

Channel Protection

Sparse/minimal channel protection upstream and downstream. Some protection near bridge at base of wingwalls.

Scour Critical

Northeast wingwall is abraded and undermined 20" for a length of about 18' along the face of the north abutment. Flow impacts the southwest wingwall, with 2' deep scour hole adjacent and up to 30" of

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undermining at footing. South footing exposed over 12' length.

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Summary Recommendations

Following parameters incorporated into 2017 load rating analysis:

Girder 1:

-10% LOS to bottom cover plate width full length, 0' to 42.33'

-50% LOS to bottom cover plate width and thickness, 0' to 5'

-15% LOS to bottom cover plate width and 50% LOS to bottom cover plate thickness, 12' to 15'

-15% LOS to bottom cover plate width and 50% LOS to bottom cover plate thickness, 27.33' to 30.33'

-40% LOS to bottom cover plate width and thickness, 39.33' to 42.33'

Girder 4:

-10% LOS to bottom cover plate width full length, 0' to 42.33'

-10% LOS to bottom cover plate width and 25% LOS to bottom cover plate thickness, 0' to 7'

-25% LOS to bottom cover plate width and thickness, 38.33' to 42.33'

No deterioration on interior girders included in analysis

2021 Inspection: Due to steady corrosion to fascia Girders G1 & G4 and continue disintegration of concrete around the area of the bearing seats, it is advised to make repairs to the deck pavement, abutment seat/cap areas or determine if the legal loading need revising.

2023 Inspection and Load Rating Review: LOS incorporated in load rating is still reasonable, along with the additional factor for poor condition. Corrosion is progressing, but not at an accelerated rate. Biggest concern is the loss of bearing area at the seats.

2024: Immediate recommendation: Restore bearing below G1 and G4. Protect abutments and wingwalls with large diameter rock channel protection. It is recommended to program structure for replacement. Replace/repair compromised rail connections.

2025: Immediate recommendation: Restore bearing below G1 and G4. Cones were deployed to channel traffic to 1 lane at the center of the bridge, but cones are temporary and can be easily moved/removed. Protect abutments and wingwalls with large diameter rock channel protection. Replace/repair compromised rail connections. Design is underway for replacement bridge (ODOT PID 120484), scheduled for construction Q1 of 2027.

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Bridge Inspection Report

Pictures



PHOTO 1 Condition

Description Upstream elevation



PHOTO 2 Condition

Description Downstream elevation

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Bridge Inspection Report

Pictures



PHOTO 3 Condition
Description End view looking north



PHOTO 4 Condition
Description Wearing surface

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Bridge Inspection Report

Pictures



PHOTO 5 Condition

Description Unsound concrete along west deck edge



PHOTO 6 Condition

Description One lane sign at north approach

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Bridge Inspection Report

Pictures



PHOTO 7 Condition
Description Detached rail post at southwest section bridge



PHOTO 8 Condition
Description Typical underside of bridge

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PHOTO 9 Condition
Description Girder 1 at north abutment



PHOTO 10 Condition
Description Girder 4 at north abutment

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Bridge Inspection Report

Pictures



PHOTO 11 Condition
Description Girder 4 at south abutment



PHOTO 12 Condition
Description Girder 4 at south abutment

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Bridge Inspection Report

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PHOTO 13 Condition

Description Girder 4 at south abutment



PHOTO 14 Condition

Description Web holes at Girder 4

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Bridge Inspection Report

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PHOTO 15 Condition

Description Deck saturation at Bay 3



PHOTO 16 Condition

Description North abutment

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Bridge Inspection Report

Pictures



PHOTO 17 Condition

Description North abutment below Girder 1



PHOTO 18 Condition

Description South abutment

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Bridge Inspection Report

Pictures



PHOTO 19 Condition

Description Scaling concrete at south abutment below girder 1



PHOTO 20 Condition

Description Upstream channel

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Bridge Inspection Report

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PHOTO 21 Condition
Description Downstream channel

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Latitude: 39.86450

Longitude: -84.17117