

ABBREVIATED ENGINEER'S REPORT
Bridge Project-Scope Undetermined
Wilson Road over Dukes Creek, Dunes State Park, Porter County

Date: 2/23/2022 Work Type: Bridge Project-Scope Undetermined
 Project FY: TBD Work Category: Institutional Road Project
 Des: TBD STR #: P000-64-07069 NBI#: **060160**

Purpose of Report

The purpose of this report is to document the engineering assessment phase of project development, including all coordination and technical review that has been completed in preparation for this bridge project. This document outlines the proposal and is intended to serve as a guide for subsequent survey, design, environmental, right of way and other project activities leading to construction. The preferred treatment identified in this document is considered pre-decisional, pending the outcome of environmental studies.

Project Location

Str Number: P000-64-07069 RP+Offset: NA
 Route: Wilson Road Year Built: 1934
 Location: Over Dunes Creek, Dunes State Park Last Rehab: 1950

District: LaPorte Posted Speed: 25
 Subdistrict: LaPorte
 County: Porter

Existing Facility

Roadway

Basic Design E	
Functional Class	Local
Posted Speed	25 mph
Access Control	None
Rural/Urban	Rural
Member Road Systems	Not on NHS
	Not on National Truck Network

**REVIEW OF DESIGN PLANS/DOCUMENTS
 REVIEWED FOR DESIGN FEATURES**

(Bridge Reviewer)

Randy Henderson 3/18/24

BY: _____ **DATE:** _____

EGIS BLN USA, INC.

Structure P000-64-07069

Bridge History

Project Type	Year	Work Type
Built	1934	New bridge
Rehab	1950	(No record of project)

Current Structure Dimensions

Structure Number: P000-64-07069
 NBI Number: 060160
 Feature Intersected: Dunes Creek
 Historic Structure: Yes - Select
 Last Inspection Date: 10/5/2021 (12 month inspection cycle)
 Surface Type: HMA Overlay on concrete cast-in-place
 Deck Width (o-o Copings): 30'
 Str Length (o-o Br Floor): 160'
 Deck Area: 3,568 sft
 Skew Angle: 0°
 Superstructure Type: Concrete cast-in-place
 # Spans: 8
 Span Length(s): 20' (each span)
 Approach Rd Width: 22 ft
 Lanes Carried (over): 2
 Inventory Rating: 41 Tons
 Operating Rating: 49 Tons
 Unofficial Sufficiency Rating: 55.9

Structure Inspection Observations: P000-64-07069

Deck	4	There is cracking with heavy efflorescence in all spans of the deck. Span F is heavily map cracked worse than the other spans and contains significant efflorescence
Wearing Surface	5	HMA Wearing surface. Cracking in the surface and some of the cracks have been sealed with crumb rubber. Condition of the original wearing surface is unknown due to HMA overlay.
Superstructure	4	There is beam end cracking on the majority of the beams with efflorescence. Beam one and two in Span B have spalling with exposed reinforcement. Some of the exposed reinforcement has been covered by hand with grout. Span F all beams are map cracked, longitudinal cracking in the bottom of the beams and vertical cracking in the beams. Cracking has heavy efflorescence.
Substructure	5	Minor concrete pillar and pier cap cracking. Minor vertical cracks in abutment walls. There is spalling with exposed reinforcement on the south wing wall of east (?) abutment. East outside ends of caps at top of piers 2,5,6, and 7 have efflorescence and spalling. West outside ends of caps at top of piers 2 and 6 have heavy efflorescence and spalling. Pier #3, Column #5, is spalled and cracked at base of column.
Channel Protection	6	There are two channels that flow under the structure. The main channel flows under the majority of Span A. The area around is swamp like conditions (wetland area). District note: channel protection is not recommended due to wetland conditions under structure.

Scour	8	Spread footings, NO piles. Channel empties into Lake Michigan to North. Main channel at east side of structure, swampy area. Slow velocity
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Traffic

YEAR	AADT	DHV	COMMERCIAL
2004	143		
Future	XXXX	XXX	XXX

Designer shall verify traffic data projections.

Crash Data & Analysis

Crash data was not conducted for this structure, nor are safety improvements warranted. Structure is historically select thus changes to the geometry or physical structure of the bridge are not warranted.

Purpose and Need

The need for this project is due to the deteriorated condition of the structure. The superstructure and deck are both rated at 4 (out of a possible 9, Poor Condition) with the remainder of the structural components rated a 5 (out of 9, Fair Condition). There is cracking, efflorescence, and cracking throughout the structure. Efflorescence is caused by water vapor moving through the concrete bringing soluble minerals to the surface, and a sign of pending further damage to the concrete of the structure.

The purpose of this project is to address the items below as follows:

Primary Project Goals			
Item	Existing Condition	Goal Condition	Reference
Deck	4 out of 9 (Poor)	>7 out of 9 (Good)	FHWA-PD-96-001
Superstructure	4 out of 9 (Poor)	>7 out of 9 (Good)	FHWA-PD-96-001
Substructure	5 out of 9 (Fair)	>7 out of 9 (Good)	FHWA-PD-96-001
Wearing Surface	5 out of 9 (Fair)	>7 out of 9 (Good)	FHWA-PD-96-001

Recommended Treatment

The historic nature of the structure requires the structural rehabilitation treatment be determined through INDOT’s Historic Bridge Alternative Analysis. The following scope of work was developed based on field inspection, and reasonable assumption of a potential feasible treatment within the HBAA process.

Itemized scope of work

1. Remove existing HMA overlay from existing deck and overlay with rigid deck overlay. Poly meric overlay may be used depending on dead load concerns.
2. Remove and replace Spans B and F completely. Finished lines shall match original bridge plans. Material within new spans may need to be evaluated for dead load on existing foundations. *Note this option requires validation of feasibility through HBAA.*
3. Patch curbs, railing, walk and deck as required.
4. Patch piers, abutments, and wing walls
5. Replace portions diaphragms as necessary
6. Close open joints over piers, utilizing expansion joint material similar to stad plan 503-BATJ series.
7. Address downspouts with extension or elimination.

8. Surface seal walks, rails and copings

If replacement in kind of damaged spans is not a feasible solution, recommended treatment changes to a new structure adjacent to the existing bridge. Due to the remote location and low traffic volume a modular structure similar to a Mabey-Johnson bridge is recommended as a potential treatment.

Is the structure historic and require a Historic Bridge Alternatives Analysis? Yes

Level One Evaluation

Level 1 Evaluation will not be completed for this project (low volume road, low speed environment)

Maintenance of Traffic Concept

Is this a mobility significant project/require a TMP? Yes
 Can the road be closed to traffic (detour)? No
 Does the project require an IHCP Exception? Yes

This project is within the Dunes State Park, adjacent to Lake Michigan. Wilson Road is the main east-west roadway within the park and requires a TMP to facilitate the coordination of the maintenance of traffic plan. This bridge is the only route between the park entrance and the campgrounds within the park.

A complete closure of the roadway is not acceptable as Wilson Road is the traffic backbone of Dunes State Park.

Environmental Impacts

	Description	Notes
<input checked="" type="checkbox"/>	Tree Clearing	Some clearing may be required for contractor access to superstructure. Clearing may be required to facilitate bypass alternatives in HBAA.
<input type="checkbox"/>	Fish Spawning	
<input type="checkbox"/>	ETR Species	
<input checked="" type="checkbox"/>	Historical	

Permits Required

	Description	Notes
<input type="checkbox"/>	USACE 404	
<input type="checkbox"/>	IDEM 401	
<input checked="" type="checkbox"/>	IDNR CIF	
<input type="checkbox"/>	IDNR Navigable Waterway	
<input type="checkbox"/>	IDEM Rule 5	
N/A	Storm Water Quality Level	

Estimated Total Project Costs

	NBI60160 Amount	Comments
Right of Way Purchase	0.00	No add'l ROW is req'd
Right of Way Services	0.00	

	NBI60160 Amount	Comments
Preliminary Engineering	0.00	
Railroad PE	0.00	
Railroad CN	0.00	No active crossing w/in project limits
Utilities PE (UT1)	\$10,000.00	
Utilities CE (UT2)	\$150,000.00	Utility relocation possible costs for State's benefit
Construction Total:	\$788,000.00	
Construction Engineering (CE)	0.00	
Other Considerations	0.00	
TOTAL:	\$948,000.00	

Survey Requirements

Full survey is not anticipated for this project. The designer will utilize existing plans and aerial photography to prepare design plans for this project

Right of Way Impacts

This project is not expected to require the purchase of temporary right of way or permanent right of way

Railroad Impacts

There are no active railroad lines within the project limits.

Utility Impacts

There is an existing iron pipeline attached to the north coping of the bridge. Line may require relocation to facilitate rehabilitation work.

Attachments:

- Project Estimate (Itemized)
- Bridge Inspection Report
- Site Inspection Notes
- Pictures

Project Description: Bridge Project-Scope Undetermined

This document was prepared by:

Paul South, PE
District Scoping Manager, LaPorte District

Concurrence

Reviewed by:

Steve Benczik, PE
(Interim) Bridge Asset Engineer, LaPorte
District

Reviewed by:

// omitted //

Paul South, PE
District Scoping Manager, LaPorte District

Approved by:

Steve Benczik, PE
Systems Asset Manager, LaPorte District

Changes to the scope/work type require a formal addendum per Section 3-4.04 of the Engineering Assessment Manual



Site Visit Notes

Project: Wilson Road over Dunes Creek, Bridge Rehabilitation

Date & Time: Wednesday, August 2nd at 11:00 am EST

Location: Indiana Dunes State Park

Attending: Ed Spahr (CO Bridge Design), Anthony Schuler (CO Bridge Design) and Paul South (District PM)

- Multi-span Reinforced Concrete girders
- Filed Observations
 - Rails, walk and deck surface in fair condition with minor spalling
 - Deck drains are 6" +/- cast iron pipe. Unplugged and free flowing
 - Beams and deck soffit are generally in fair condition with some cracks, spalls and leaching.
 - Concrete diaphragms are fair to poor with cracks and leaching.
 - Span 2 (as numbered from west to east) has spalling with exposed reinforcing steel at all beams.
 - Beams 1 – 5 (number south to north), Span 2 have about 1 foot loss of cover near supports with 50 – 75% loss of reinforcing.
 - Beam 6, Span 2 has 2 feet loss of cover with 75% loss of reinforcing
 - Span 6 had excessive cracking and leaching
 - Piers are in fair condition with some spalling especially at cap ends and under beams.
 - End bents and wings are in fair condition with some spalling, cracking and leaching.
- Design Components
 - Load Rating
 - Current load rating says 36 tons. Will verify.
 - Environmental
 - Area under bridge is a wetland. Anticipate mitigation will be required
 - Bridge is listed as Select Historic
 - Hydraulics
 - Contacted Hydraulics on 7/31/2017, No model available
 - Non modeling DNR CIF anticipated
 - Utilities/Railroad Coordination
 - Two utilities on or near bridge.
 - 18" cast iron (possible water or sanitary sewer) on north coping
 - Manholes for possible water line on east approach
 - Railroad Coordination – No Railroad Involvement
 - Geotechnical/Pavement Design

- HMA overlay (2"?) on concrete pavement and bridge deck
 - Geotechnical Waiver anticipated
 - Maintenance of Traffic
 - Roadway is the only access to the campgrounds.
 - Campgrounds are busy March – October
 - Phased construction or short closures preferred
 - Right of Way
 - R/W – No Permanent R/W anticipated (all part of park property)
 - R/W – Temporary access will be required
 - Survey – Scope of work not extensive enough to expect that survey will be required
- Recommendations
 - Remove existing asphalt overlay.
 - Replace superstructure in spans 2 and 6 entirely
 - Patch rails, walks, curbs and deck as necessary. (Deck Full depth = 10%, Partial Depth = 10%)
 - Replace portions diaphragms as necessary (Est = 15%).
 - Use Link Slab/Joint Elimination to close open joints over piers.
 - Overlay deck using rigid overlay if possible, Polymeric if necessary.
 - Patch piers, abutments, and wing walls
 - Extend downspouts or shield adjacent beams.
 - Surface seal walks, rails and copings
- Next Steps/Action Items
 - District to request core samples for Span 6 beams and possible 1 or 2 other locations in deck.
 - Create estimated construction cost for project initiation

(105-06845) Construction Engineering use 2%

(110-01001) Mobilization and Demobilization use 5%

(202-01066) Hydro Demolition use 300 SYS

$$\text{Bridge_Length} := 160 \text{ ft}$$

$$\text{Overlay_Length} := \text{Bridge_Length} - 20 \text{ ft} \cdot 2 = 120 \text{ ft}$$

Spans 2 and 6 are full replacement

$$\text{Clear_Roadway} := 22.333 \text{ ft}$$

$$\text{Overlay_Area} := \text{Overlay_Length} \cdot \text{Clear_Roadway} = 2679.96 \text{ ft}^2$$

$$\text{Overlay_Area} = 297.773 \text{ yd}^2$$

(202-51328) Present Structure Remove, Portions use L.S.

see Concrete Class C $\text{Volume} := 57 \text{ yd}^3$

(205-12108) Storm Water Management Budget use 10,000 DOL

(205-12109) SWQCP And Implementation Level 1 use L.S.

(306-08043) Milling Transition use 250 SYS

$$\text{Length} := 100 \text{ ft}$$

assume 50 ft on each side

$$\text{Width} := 22.333 \text{ ft}$$

$$\text{Area} := \text{Length} \cdot \text{Width} = 2233.3 \text{ ft}^2$$

$$\text{Area} = 248.144 \text{ yd}^2$$

(306-08036) Milling, Asphalt, 2 in use 400 SYS.

$$\text{Bridge_Length} = 160 \text{ ft}$$

assume pavement thickness on the bridge is 2 in.

$$\text{Clear_Roadway} = 22.333 \text{ ft}$$

$$\text{Milling} := \text{Bridge_Length} \cdot \text{Clear_Roadway} = 3573.28 \text{ ft}^2$$

$$\text{Milling} = 397.031 \text{ yd}^2$$

(610-07487) HMA for Approaches, Type B use 15 TON

Assume: $weight := 110 \frac{lbf}{yd^2} = 0.055 \frac{tonf}{yd^2}$

$$Length := 50 \text{ ft} \cdot 2 = 100 \text{ ft}$$

$$Clear_Roadway = 22.333 \text{ ft}$$

$$amount := weight \cdot Length \cdot Clear_Roadway = 13.648 \text{ tonf}$$

(702-12706) Grates Basins and Fittings Cast Iron use 4 EACH

Span 2: 2 EACH

Span 6: 2 EACH

(703-06029) Reinforcing Bars, Epoxy Coated use 90,000 LBS

From 1950 Plans for one span: $Weight := 17465 \text{ lbf} + 26665 \text{ lbf} + 564 \text{ lbf} + 70 \text{ lbf} = 44764 \text{ lbf}$

Replacing two spans: $Rein := 2 \cdot Weight = 89528 \text{ lbf}$

(704-51002) Concrete C Superstructure use 57 CYS

From 1950 Plans Span 2: $Volume1 := 16.9 \text{ yd}^3 + 4 \text{ yd}^3 = 20.9 \text{ yd}^3$

From 1950 Plans Span 6: $Volume2 := 16.9 \text{ yd}^3 + 4 \text{ yd}^3 = 20.9 \text{ yd}^3$

Link Slabs over Piers 5, 6, and 9: $Width := 2 \cdot (11 \text{ ft} + 2 \text{ in} + 2 \text{ ft} + 11 \text{ in} + 10 \text{ in} + 1 \text{ in}) = 30 \text{ ft}$

$$Length := 5 \text{ ft}$$

$$thickness := 7.5 \text{ in}$$

$$Volume3 := 3 \cdot Width \cdot Length \cdot thickness = 10.417 \text{ yd}^3$$

From 1950 Diaphragms: $Height := 1 \text{ ft} + 4.5 \text{ in} = 1.375 \text{ ft}$

$$Width := 5 \text{ ft} + 10 \text{ in} - (1 \text{ ft} + 3 \text{ in}) = 4.583 \text{ ft}$$

$$Depth := 8 \text{ in} = 0.667 \text{ ft}$$

$$Volume := 4 \cdot Height \cdot Width \cdot Depth = 16.806 \text{ ft}^3$$

9 Bents with 15% Repair: $Volume4 := Volume \cdot 0.15 \cdot 9 = 0.84 \text{ yd}^3$

From 1950 Plans Total Handrail: $Handrail_Total := 14.6 \text{ yd}^3$

$$Bridge_Length = 160 \text{ ft}$$

$$Handrail_per_foot := \frac{Handrail_Total}{Bridge_Length} = 0.091 \frac{\text{yd}^3}{\text{ft}}$$

Handrail for Span 2 and 6: $Handrail_Volume := Handrail_per_foot \cdot 2 \cdot 20 \text{ ft} = 3.65 \text{ yd}^3$

$$Total_Volume := Volume1 + Volume2 + Volume3 + Volume4 + Handrail_Volume = 56.707 \text{ yd}^3$$

(709-51821) Surface Seal use L.S.

$$Total_Width := 2 \cdot (2 \text{ ft} + 10 \text{ in} + 2 \text{ ft} + 2 \text{ ft} + 11 \text{ in} + 7.5 \text{ in}) = 16.75 \text{ ft}$$

$$Bridge_Length = 160 \text{ ft}$$

$$Surface_Seal := Total_Width \cdot Bridge_Length = 2680 \text{ ft}^2$$

(710-09158) Patching Concrete Structures use 360 SFT

Existing 1950 Plans Face of
Each Bent: $Height := 4.83333 \text{ ft}$

$$Width := 25.6667 \text{ ft}$$

$$Face_Area := Height \cdot Width = 124.056 \text{ ft}^2$$

Existing 1950 Plans Underneath
Each Bent:

$$Depth := 1 \text{ ft} + 5 \text{ in} + 2.5 \text{ in} \cdot 2 = 1.833 \text{ ft}$$

$$Width := 5 \text{ ft} + 6 \text{ in} - (4 \text{ in} + 8 \text{ in} + 4 \text{ in}) = 4.167 \text{ ft}$$

$$Underneath := 4 \cdot Depth \cdot Width = 30.556 \text{ ft}^2$$

$$Bent_Area := 2 \cdot Face_Area + Underneath = 278.667 \text{ ft}^2$$

Existing Plans Wing + End Bents
(Estimated):

$$Wing_Area := \left(6 \text{ ft} \cdot \frac{(30 \text{ ft} + 42 \text{ ft})}{2} \right) = 216 \text{ ft}^2$$

2 End Bents with Wing Walls + 7
Bents Total Area:

$$Total_Area := 2 \cdot Wing_Area + 7 \cdot Bent_Area = 2382.668 \text{ ft}^2$$

Assume Patching 15% of Total Area: $Patching := 0.15 \cdot Total_Area = 357.4 \text{ ft}^2$

(722-51401) Bridge Deck Patching Full Depth use 270 SFT

$$\text{Bridge_Length} = 160 \text{ ft}$$

$$\text{Overlay_Length} := \text{Bridge_Length} - 20 \text{ ft} \cdot 2 = 120 \text{ ft}$$

$$\text{Clear_Roadway} = 22.333 \text{ ft}$$

$$\text{Overlay_Area} := \text{Overlay_Length} \cdot \text{Clear_Roadway} = 2679.96 \text{ ft}^2$$

$$\text{Full_Depth_Patching} := 0.1 \cdot \text{Overlay_Area} = 267.996 \text{ ft}^2$$

Spans 2 and 6 are full replacement

Assume 10 % of Area to require full depth patching.

(722-51842) Bridge Deck Overlay use 300 SYS

$$\text{Bridge_Length} = 160 \text{ ft}$$

$$\text{Overlay_Length} := \text{Bridge_Length} - 20 \text{ ft} \cdot 2 = 120 \text{ ft}$$

$$\text{Clear_Roadway} = 22.333 \text{ ft}$$

$$\text{Overlay_Area} := \text{Overlay_Length} \cdot \text{Clear_Roadway} = 2679.96 \text{ ft}^2$$

$$\text{Overlay_Area} = 297.773 \text{ yd}^2$$

Spans 2 and 6 are full replacement

(722-51846) Bridge Deck Overlay, Additional use 5 CYS

$$\text{Bridge_Length} = 160 \text{ ft}$$

$$\text{Overlay_Length} := \text{Bridge_Length} - 20 \text{ ft} \cdot 2 = 120 \text{ ft}$$

$$\text{Clear_Roadway} = 22.333 \text{ ft}$$

$$\text{Overlay_Area} := \text{Overlay_Length} \cdot \text{Clear_Roadway} = 2679.96 \text{ ft}^2$$

$$\text{Overlay_Area} = 297.773 \text{ yd}^2$$

$$\text{Unsound_Concrete_Area} := 0.2 \cdot \text{Overlay_Area} = 535.992 \text{ ft}^2$$

Assume 20% of the bridge has unsound concrete.

$$\text{Additional} := 2 \text{ in} \cdot \text{Unsound_Concrete_Area} + 1.75 \text{ in} \cdot 0.1 \cdot \text{Overlay_Area} = 128.415 \text{ ft}^3$$

$$\text{Additional} = 4.756 \text{ yd}^3$$

(801-06775) Maintaining Traffic use 1 L.S.

PROJECT QUANTITY SUMMARY TABLE

Project Limits: WILSON ROAD over DUNES CREEK, 00.00 DUNES STATE PARK

Des. No.: NBI 60160
Contract No.:

CN Est: \$787,546.44

Item Number	Item Description	Supplemental Description	Quantity	Unit	Unit Price	Extension	Remarks
202-	PRESENT STRUCTURE, REMOVE PORTIONS		50,000	DOL	\$1.00	\$50,000.00	
306-08034	MILLING, ASPHALT 1.5 IN		149	SYS	\$6.00	\$894.00	
306-08043	MILLING, TRANSITION		446	SYS	\$6.00	\$2,676.00	
401-	QC/QA HMA		50	TON	\$180.00	\$9,000.00	
706-	SUPERSTRUCTURE PATCHING		75,000	DOL	\$1.00	\$75,000.00	Note this is a parametric placeholder
722-01066	HYDRODEMOLITION		534	SYS	\$65.00	\$34,710.00	
722-12380	BRIDGE DECK OVERLAY, BUDGET		10,146	DOL	\$1.00	\$10,146.00	
722-12382	TRANSVERSE GROOVING		534	SYS	\$11.00	\$5,874.00	
722-12463	BRIDGE DECK, REM EXISTING CONC OVERLAY		534	SYS	\$13.00	\$6,942.00	
722-51401	BRIDGE DECK PATCHING, FULL DEPTH		241	SFT	\$70.00	\$16,870.00	
722-51842	BRIDGE DECK OVERLAY, LATEX MODIFIED		671	SYS	\$150.00	\$100,650.00	
722-51874	OVERLAY DAM		120	SFT	\$46.00	\$5,520.00	
724-12103	PRE-COMPRESSED FOAM JOINT		250	LFT	\$120.00	\$30,000.00	
OTHER ITEMS (NOT INCLUDED IN BRIDGE SUMMARY SHEET)							
	PATCHING CONCRETE STRUCTURES		150	SFT	\$300.00	\$45,000.00	
MOT SPECIFIC ITEMS							
801-	MOT SCHEME BASE COST		1	LSUM	\$73,300.00	\$73,300.00	2 LANE PHASED
SUBTOTAL						\$466,582.00	
105-06807	ADDITIONAL, CONTINGENCY	20%	1	LS	\$93,316.40	\$93,316.40	
105-06845	CONSTRUCTION ENGINEERING	4%	1	LS	\$18,663.28	\$18,663.28	USE 4% OF CN COST FOR SCOPE EST
110-01001	MOBILIZATION AND DEMOBILIZATION	6%	1	LS	\$27,994.92	\$27,994.92	USE 6% OF CN COST FOR SCOPE EST
201-52370	CLEARING R/W	2%	1	LS	\$9,331.64	\$9,331.64	USE 2% OF CN COST FOR SCOPE EST
205-	STORM WATER MANAGEMENT	2%	1	LS	\$9,331.64	\$9,331.64	USE 2% OF CN COST FOR SCOPE EST
801-06775	MAINTAINING TRAFFIC	4%	1	LS	\$18,663.28	\$18,663.28	USE 4% OF CN COST FOR SCOPE EST
628-	CELL PHONES / FIELD OFFICE		1	LS	\$125,000.00	\$125,000.00	Parametric item
808-	PAVEMENT MARKING ITEMS	4%	1	LS	\$18,663.28	\$18,663.28	USE 4% OF CN COST FOR SCOPE EST

Bridge Inspection Report

P000-64-07069
WILSON ROAD
over
DUNES CREEK



Inspection Date: 10/05/2021

Inspected By: Amy Wines

Inspection Type(s): Routine

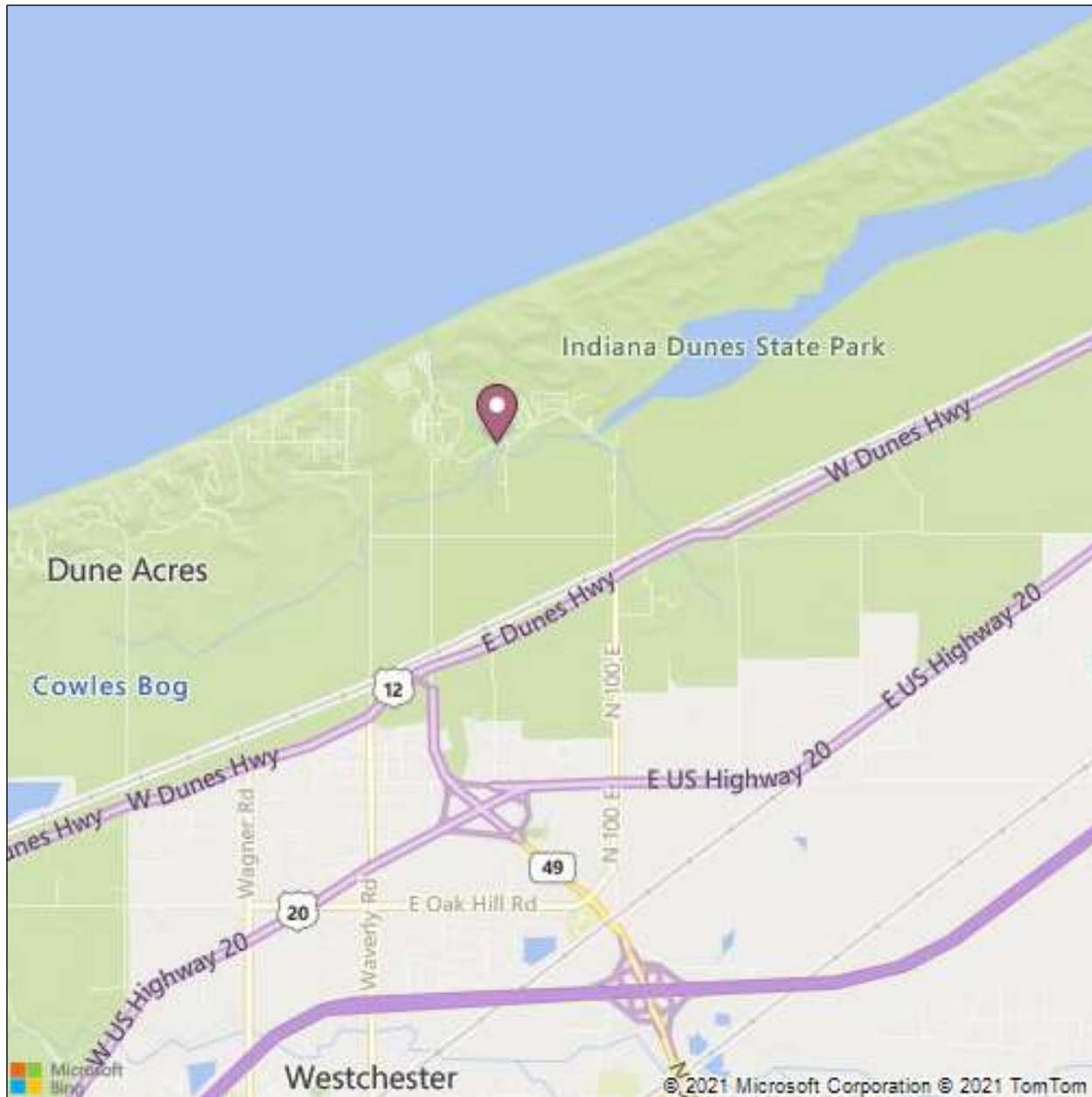
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Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report

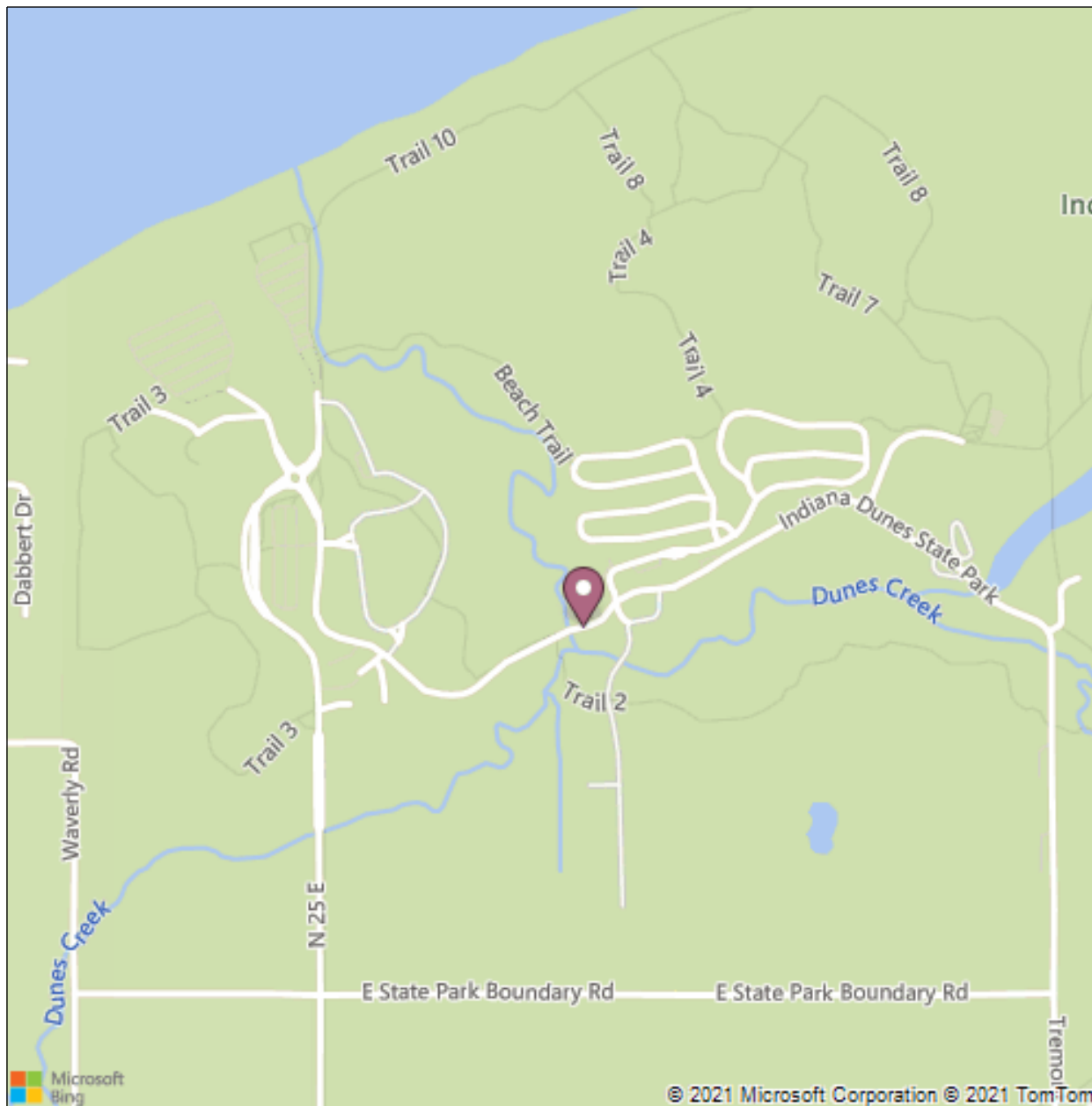


Latitude: 41.65665
Longitude: -87.05748

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



Latitude: 41.65665
Longitude: -87.05748

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report

This routine inspection was made by Amy Wines on 10/5/2021. The deck and HMA wearing surface are heavily cracked throughout the structure, some of the cracks are sealed with crumb rubber. There is no known membrane between the deck and wearing surface which with the deterioration lowers the deck and wearing surface rating to 3. The deck underside has significant leaking efflorescence in areas. Span F being in worst conditions compared to the other spans with growing efflorescence. There is beam end cracking on the majority of the beams with efflorescence. Beam one and two in span B have spalling with exposed reinforcement. Some of the exposed reinforcement has been patched with grout. Note that the patching did not restore the original cross section. Span F all beams are map cracked, longitudinal cracking in the bottom of the beams and vertical cracking in the beams. Cracking has heavy growing efflorescence. Load rating has been requested.

Bridge History:

1934 New Bridge
1951 Unknown Bridge Work

Bridge has been on a 12 month frequency due to its condition since 2014. Former LaPorte Bridge Asset Engineer Mark Pittman explained that DNR is responsible for any projects done to the bridge and if anything was planned it most likely would not be communicated to INDOT via SPMS, although Mark Pittman has on several occasions reported the condition of this bridge to DNR. It is recommended that this bridge receive work in the next couple years, at minimum a superstructure replacement with either patching and/or fiber wrapping of the substructure.

Inspector: Amy Wines
 Inspection Date: 10/05/2021

Asset Name: P000-64-07069
 Facility Carried: WILSON ROAD

Bridge Inspection Report

IDENTIFICATION

(1) STATE CODE:	185 - Indiana	(12) BASE HIGHWAY NETWORK:	0
(8) STRUCTURE:	060160	(13A) INVENTORY ROUTE:	
(5 A-B-C-D-E) INV. ROUTE:	1 - 7 - 8 - 00000 - 0	(13B) SUBROUTE NUMBER:	
(2) HIGHWAY AGENCY DISTRICT:	04 - La Porte	(16) LATITUDE:	41.65665
(3) COUNTY CODE:	064 - PORTER	(17) LONGITUDE:	-87.05748
(4) PLACE CODE:	00000 - N/A	(98) BORDER	
(6) FEATURES INTERSECTED:	DUNES CREEK	A) STATE NAME:	
(7) FACILITY CARRIED:	WILSON ROAD	B) PERCENT	%
(9) LOCATION:	00.00 DUNES STATE	(99) BORDER BRIDGE STRUCT. NO:	
(11) MILEPOINT:	PARK 0000.000		

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN:		(45) NUMBER OF SPANS IN MAIN 008 UNIT:	
A) KIND OF MATERIAL/DESIGN:	1 - Concrete	(46) NUMBER OF APPROACH SPANS:	0000
B) TYPE OF DESIGN/CONSTR:	02 - Stringer/Multi-beam or Girder	(107) DECK STRUCTURE TYPE:	1 - Concrete Cast-in-Place
(44) STRUCTURE TYPE, APPROACH SPANS:		(108) WEARING SURFACE/PROT SYS:	
A) KIND OF MATERIAL/DESIGN:	0 - Other	A) WEARING SURFACE:	6 - Bituminous
B) TYPE OF DESIGN/CONSTR:	00 - Other	B) DECK MEMBRANE:	0 - None
		C) DECK PROTECTION:	0 - None

AGE OF SERVICE

(27) YEAR BUILT:	1934	(28) LANES:	
(106) YEAR RECONSTRUCTED:	1950	A) ON BRIDGE:	02
(42) TYPE OF SERVICE:		B) UNDER BRIDGE:	00
A) ON BRIDGE:	5 - Highway-pedestrian	(29) AVERAGE DAILY TRAFFIC:	000143
B) UNDER BRIDGE:	5 - Water way	(30) YEAR OF AVERAGE DAILY TRAFFIC:	2004
		(109) AVERAGE DAILY TRUCK TRAFFIC:	10 %
		(19) BYPASS DETOUR LENGTH:	006 MI

Inspector: Amy Wines
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 Facility Carried: WILSON ROAD

Bridge Inspection Report

GEOMETRIC DATA

(48) LENGTH OF MAX SPAN: 0020.0 FT	(35) STRUCTURE FLARED: 0 - No flare
(49) STRUCTURE LENGTH: 00160.0 FT	(10) INV RTE, MIN VERT CLEARANCE: 99.99 FT
(50) CURB/SIDEWALK WIDTHS:	(47) TOT HORIZ CLEARANCE: 022.3 FT
A) LEFT 02.9 FT	(53) VERT CLEAR OVER BR RDWY: 99.99 FT
B) RIGHT: 02.9 FT	(54) MIN VERTICAL UNDERCLEARANCE:
(51) BRDG RDWY WIDTH CURB-TO-CURB: 022.3 FT	A) REFERENCE FEATURE: N
(52) DECK WIDTH, OUT-TO-OUT: 030.0 FT	B) MIN VERT UNDERCLEAR: 0 FT
(32) APPROACH ROADWAY 022.0 FT	(55) LATERAL UNDERCLEARANCE RIGHT:
(33) BRIDGE MEDIAN: 0 - No median	A) REFERENCE FEATURE: N
(34) SKEW: 00 DEG	B) MIN LATERAL UNDERCLEAR: 000.0 FT
	(56) MIN LATERAL UNDERCLEAR ON LEFT: 00.0 FT

INSPECTIONS

(90) INSPECTION DATE: 10/05/2021	(91) DESIGNATED INSPECTION FREQUENCY: 12 MONTHS
(92) CRITICAL FEATURE INSPECTION:	(93) CRITICAL FEATURE INSPECTION DATE:
A) FRACTURE CRITICAL REQUIRED/FREQUENCY: N	A) FRACTURE CRITICAL DATE:
B) UNDERWATER INSPECTION REQUIRED/FREQUENCY: N	B) UNDERWATER INSP DATE:
C) OTHER SPECIAL INSPECTION REQUIRED/FREQUENCY: N	C) OTHER SPECIAL INSP DATE:

CONDITION

(58) DECK: 3 - Serious Condition (primary structure affected)	(60) SUBSTRUCTURE: 4 - Poor Condition (advanced deterioration)
(58.01) WEARING SURFACE: 3 - Serious Condition	(61) CHANNEL/CHANNEL PROTECTION: 6 - Bank slump. widespread minor damage
(59) SUPERSTRUCTURE: 3 - Serious Condition (primary structure affected)	(62) CULVERTS: N - Not Applicable

CONDITION COMMENTS

(58) DECK: 3 - Serious Condition (primary structure affected)

Comments:

There is cracking with heavy efflorescence in all spans of the deck. Span F is heavily map cracked worse than the other spans and contains significant leaking efflorescence. The Span F beams and deck were sounded, finding significant delamination. Exact amount not know in paved deck. It is also unknown if there is a deck membrane between the wearing surface and deck.

(58.01) WEARING SURFACE: 3 - Serious Condition

Comments:

The HMA wearing surface has a large amount of cracking throughout the entire surface. Some of the cracking have been sealed with crumb rubber.

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Bridge Inspection Report

(59) SUPERSTRUCTURE: 3 - Serious Condition (primary structure affected)

Comments:

There is beam end cracking on the majority of the beams with efflorescence. Beam one and two in span B have spalling with exposed reinforcement. Some of the exposed reinforcement has been patched with grout. Note that the patching did not restore the original cross section. Span F all beams are map cracked, longitudinal cracking in the bottom of the beams and vertical cracking in the beams. Cracking has heavy efflorescence.

(60) SUBSTRUCTURE: 4 - Poor Condition (advanced deterioration)

Comments:

Minor concrete pillar and pier cap cracking. Minor vertical cracks in abutment walls. There is spalling with exposed reinforcement on abutment 9 the south wing wall. Abutment 1 has a spall with exposed rebar near its base. East outside ends of caps at top of piers 2,3,4, 5,6,7,8 have efflorescence and spalling. West outside ends of caps at top of piers 2 and 6 have heavy efflorescence and spalling. Pier #3, Column #5, is spalled and cracked at base of column. Pier #6 Column # 5 has spalling at its base as well.

(61) CHANNEL/CHANNEL PROTECTION 6 - Bank slump. widespread minor damage

Comments:

There are two channels that flow under the structure. The main channel flows under the majority of Span A. The north channel has debris in sediment build up that should be cleared out. The area around is swamp like conditions.

(62) CULVERTS: N - Not Applicable

Comments:

LOAD RATING AND POSTING

(31) DESIGN LOAD:	5 - HS 20	(66) INVENTORY RATING:	
(70) BRIDGE POSTING	5 - Equal to or above legal loads	(65) INVENTORY RATING METHOD:	8 - Load and Resistance Factor Rating (LRFR) rating report by rating factor (RF) method using HL-93 loadings.
(41) STRUCTURE OPEN/POSTED/CLOSED:	A - Open	(66B) INVENTORY RATING (H):	
(64) OPERATING RATING:		(66C) TONS POSTED :	
(63) OPERATING RATING METHOD:	8 - Load and Resistance Factor Rating (LRFR) rating report by rating factor (RF) method using HL-93 loadings.	(66D) DATE POSTED/CLOSED:	

APPRAISAL

SUFFICIENCY RATING:	39.8	(36) TRAFFIC SAFETY FEATURE:	
STATUS:	1	36A) BRIDGE RAILINGS:	0
(67) STRUCTURAL EVALUATION:	3	36B) TRANSITIONS:	0
(68) DECK GEOMETRY:	4	36C) APPROACH GUARDRAIL:	0
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL:	N	36D) APPROACH GUARDRAIL ENDS:	0

(71) WATERWAY ADEQUACY: 7 - Slight Chance of Overtopping Bridge
 Comments:

(72) APPROACH ROADWAY ALIGNMENT: 8 - Equal to present desirable criteria
 Comments:
 There is no need for a speed reduction for traffic to pass safely over thee structure.

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 Inspection Date: 10/05/2021

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 Facility Carried: WILSON ROAD

Bridge Inspection Report

(113) SCOUR CRITICAL BRIDGES: 8 - Stable for scour conditions

Comments:

Spread footings, no piles. Channel empties into Lake Michigan to North. Main channel at east side of structure, swampy area. Slow velocity.

CLASSIFICATION

(20) TOLL:	3 - On Free Road	(21) MAINT. RESPONSIBILITY:	01 - State Highway Agency
(22) OWNER:	21 - Other State Agencies	(26) FUNCTIONAL CLASS OF INVENTORY RTE:	09 - Rural - Local
(37) HISTORICAL SIGNIFICANCE:	2 - Eligible for National Register	(100) STRAHNET HIGHWAY:	Not a STRAHNET route
(101) PARALLEL STRUCTURE:	N - No parallel structure	(102) DIRECTION OF TRAFFIC:	2-way traffic
(103) TEMPORARY STRUCTURE:		(104) HIGHWAY SYSTEM OF INVENTORY ROUTE:	0 - Structure/Route is NOT on NHS
(105) FEDERAL LANDS HIGHWAYS:	0-Not Applicable	(110) DESIGNATED NATIONAL NETWORK:	Inventory route not on network
(112) NBIS BRIDGE LENGTH:	Yes		

NAVIGATION DATA

(38) NAVIGATION CONTROL:	0 - No navigation control on waterway (bridge permit not required)	(39) NAVIGATION VERTICAL CLEAR:	000.0 FT
(111) PIER OR ABUTMENT PROTECTION:		(116) MINIMUM NAVIGATION VERT. CLEARANCE, VERT. LIFT BRIDGE:	FT
		(40) NAV HORIZONTAL CLEARANCE:	0000.0 FT

PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK:		(95) ROADWAY IMPROVEMENT COST:	\$ 000000
(75B) WORK DONE BY:		(96) TOTAL PROJECT COST:	\$ 000000
(76) LENGTH OF IMPROVEMENT:	00000.0 FT	(97) YR OF IMPROVEMENT COST EST:	
(94) BRIDGE IMPROVEMENT COST:	\$ 000000	(114) FUTURE AVG DAILY TRAFFIC:	000237
		(115) YR OF FUTURE ADT:	2030

Inspector: Amy Wines
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Bridge Inspection Report



PHOTO 1 Condition
Description South profile



PHOTO 2 Condition
Description Span b, beam patching

Inspector: Amy Wines
Inspection Date: 10/05/2021

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Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 3 Condition
Description Abutment 1 looking north



PHOTO 4 Condition
Description Pier 4

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 5 Condition
Description Pier 2



PHOTO 6 Condition
Description Pier 3

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 7 Condition
Description Wearing surface



PHOTO 8 Condition
Description Span c

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 9 Condition
Description East road alignment



PHOTO 10 Condition
Description Span a

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 11 Condition
Description Pier 6



PHOTO 12 Condition
Description Pier 5

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 13 Condition
Description Span d



PHOTO 14 Condition
Description Spalling on pier 4

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 15 Condition
Description Span e



PHOTO 16 Condition
Description Pier 7

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 17 Condition
Description Span f



PHOTO 18 Condition
Description Span h

Bridge Inspection Report



PHOTO 19 Condition
Description Abutment 9



PHOTO 20 Condition
Description North channel alignment

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 21 Condition
Description Span g



PHOTO 22 Condition
Description Activity growing efflorescence on beams in span f

Inspector: Amy Wines
Inspection Date: 10/05/2021

Asset Name: P000-64-07069
Facility Carried: WILSON ROAD

Bridge Inspection Report



PHOTO 23 Condition
Description Pier 8

Miscellaneous Asset Data
Asset Management

060160

Load Rating 2:

Has the dead load or the structural condition of the primary load carrying members changed since the last inspection? No

Extended Frequency:

Submittal Date:

Inspector:

INDOT Reviewer:

This bridge has been accepted into the Extended Frequency Program.

Approval Date:

Joints: * *Indicate location, type, and rating of lowest rated joint.*

L - Unknown
(covered with
bituminous)

N - ONLY to remove other
value that is no longer
present.

Comments:

Terminal Joints: * *Rating of lowest rated terminal joint.* N

Comments:

Concrete Slopewall: * *Rating of lowest rated slopewall.* N

Comments:

Bearings: * *Indicate type, and rating of lowest rated bearing.*

N - No Bearing(s)

Comments:

Approach Slabs: * *Indicate if present & condition rating.*

2 - Approach Slab but paved over

Comments:

Paint: * Indicate if paint present , year painted & condition rating.

N - No Paint

N

Comments:

Endangered Species: * If yes, add one photo to the dropdown field

Bats: seen or heard under structure? *

N

Birds/swallows/nests seen? Empty nests present? *

N

BRIDGE Culvert Geometry:

Barrel Length:

Height:

Width:

LOAD RATING - BRADIN

Load Rating Date: 13-SEP-19

National Bridge Inventory (NBI):

(65) INVENTORY RATING METHOD:	8	(31) DESIGN LOAD:	5
(66) INVENTORY RATING:		(70) BRIDGE POSTING:	5
(63) OPERATING RATING METHOD:	8	(41) STRUCTURE OPEN/POSTED/CLOSED:	A
(64) OPERATING RATING:		(66C) TONS POSTED:	
		(66D) DATE POSTED/CLOSED:	

Posting Configurations:

Emergency Vehicles:

EV2: LEGAL RF:	1.475
EV3: LEGAL RF:	1.007

5-Axles:

AASHTO TYPE 3S2: LEGAL RF:	1.805
SU5: LEGAL RF:	1.347
TOLL ROAD LOADING NO. 1: ROUTINE PERMIT RF:	

2-Axles:

H20-44: LEGAL RF:	1.384
ALTERNATE MILITARY: LEGAL RF:	1.166

6+-Axles:

AASHTO TYPE 3-3: LEGAL RF:	1.999
LANE TYPE: LEGAL RF:	99

3-Axles:

HS20: LEGAL RF:	1.384
AASHTO TYPE 3: LEGAL RF:	1.646

SU6: LEGAL RF:	1.295
SPECIAL TOLL ROAD TRUCK: ROUTINE PERMIT RF:	
SU7: LEGAL RF:	1.295

4-Axles:

SU4: LEGAL RF:	1.403
TOLL ROAD LOADING NO. 2: ROUTINE PERMIT RF:	

MICHIGAN TRAIN TRUCK NO. 5: ROUTINE PERMIT RF:	
MICHIGAN TRAIN TRUCK NO. 8: ROUTINE PERMIT RF:	

Other Configurations:

H20-44: DESIGN RF:	1.147
NRL: LEGAL RF:	1.295

SUPERLOAD-11 AXLES: SPECIAL PERMIT RF:	1.267
SUPERLOAD-13 AXLES: SPECIAL PERMIT RF:	1.484
SUPERLOAD-14 AXLES: SPECIAL PERMIT RF:	1.086
SUPERLOAD-19 AXLES (152.5T): SPECIAL PERMIT RF:	1.639
SUPERLOAD-19 AXLES (240.045T): SPECIAL PERMIT RF:	1.265