



2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE
INSPECTION REPORT
BRIDGE INSPECTION REPORT

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

IR-280 over MAUMEE RIVER AND NSRR

Inspection Type: Routine

Inspection Date: 09/15/2017



District: 02

County: LUCAS

Place Code (FIPS): TOLEDO

Bridge Type: CONCRETE

Type of Service: HIGHWAY

Owner: OHIO STATE TRANSPORTATION DEPARTMENT

Inspection Responsibility: OHIO STATE TRANSPORTATION
DEPARTMENT

Maintenance Responsibility: OHIO STATE TRANSPORTATION
DEPARTMENT

Lead Inspector: Hevener, Wesley

Reviewed By: Hevener, Wesley

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

LOCATION MAP

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

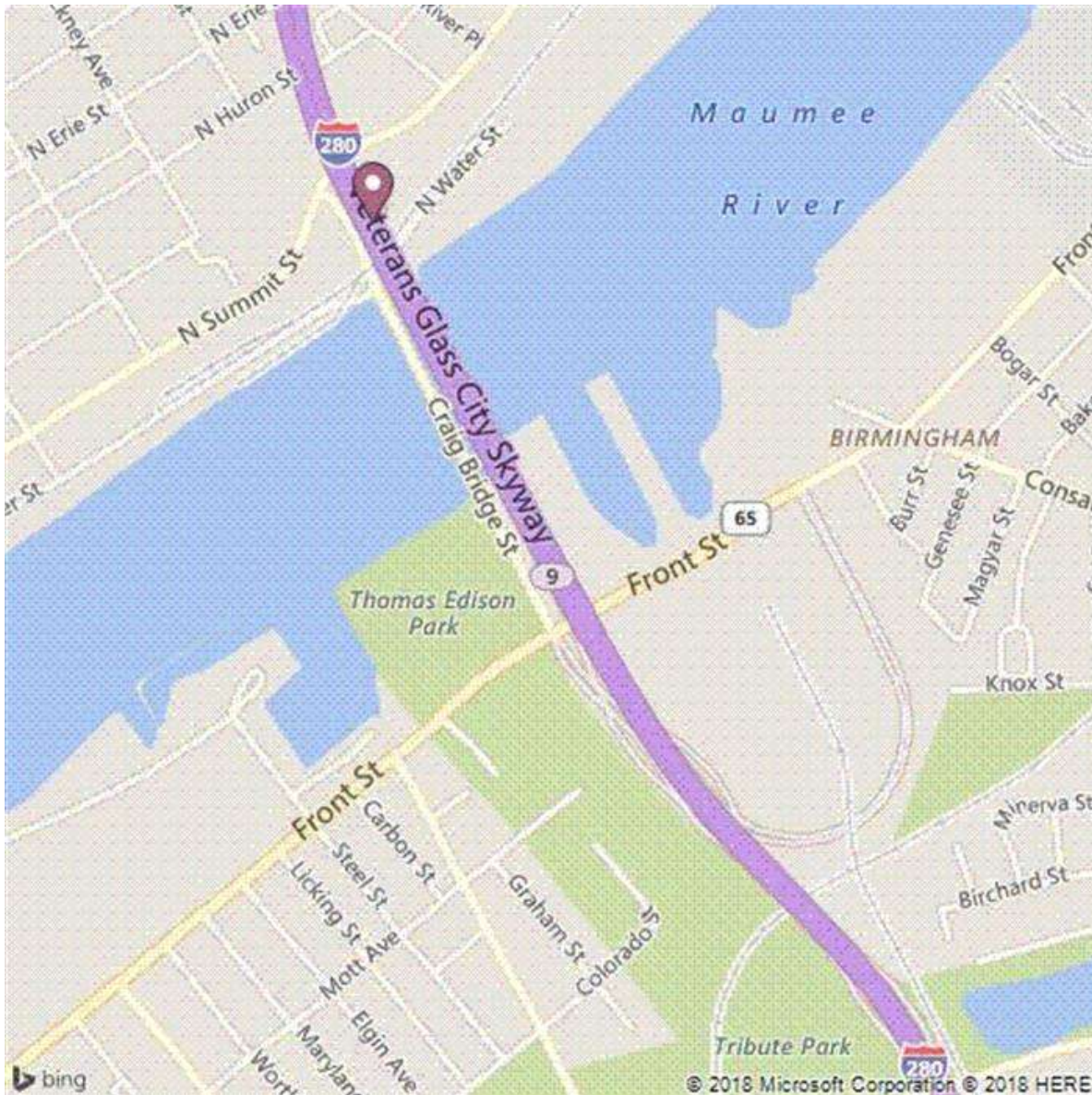
Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



LOCATION MAP #1

Region:

State: 395

County: 48

Facility Carried: IR-280

Facility Intersected: MAUMEE RIVER and NSRR

Location: VGCS MAIN SPAN @ MAUMEE R

Description: Main Span (NB/SB) Location Map

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GENERAL ELEVATION PHOTOS

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Photo 1

End view Main span Southbound looking
North

(2) District: 02 (4) FIPS Code: 77000 - TOLEDO (102) Direction of Traffic: 2- 2-way traffic	(3) County: 48 - LUCAS (216) Temporary:	(9) Location: VGCS MAIN SPAN @ (208) Route On Bridge: 99 - Non highway (110) Truck Network: 1 (42A) Type Serv (On): 1 - Highway	(7) Facility Carried: IR-280 (207) Route Under Bridge: 10 - State (ODOT) (Toll) (101) Parallel: N (42B) Type Serv (Under): 7 - Railroad - waterway
Inventory Route Data			
(5A) Route On/Under: 1 - Route carried "on" the (5D) Route No: 00280 (6) Feature Intersected: MAUMEE RIVER and NSRR (3) County: LUC (200) Mileage: 03.460 (201) Special Desig: (29) Avg. Daily Traffic (ADT): 57,927 (30) ADT Year: 2015 (235) Truck Traf: 9,305 (210) Corridor: Y (104) NHS: 1- NHS BRIDGE (26) Functional Class: 11 - Urban - Principal (100) Strahnt: 1 - STRAHNET Interstate		(45) Main Spans Number: 4 (46) Approach Spans Number: 0 (307) Total Spans: 2 Type: 1 - CONCRETE/A - CABLE - STAYED/4 - THRU Type: N - NONE/N - NONE/N - NONE (48) Max Span: 613 Ft (49) Overall Leng: 1525 Ft	
Intersected Route Data			
(370A) Record Type: (370D) Route No: (373) Feature Intersected: (3) County: LUC (371) Mile Marker: (379) Avg. Daily Traffic (ADT): (381) Truck Traf: (375) Functional Class:		(370B) Hwy Sys: (370C) Des: (387) Special Desig: (380) ADT Year: (378) NHS: (386) Strahnt:	
Clearance On the Bridge			
Min. Hriz on Bridge: (53) Prac Max Vert On Brg: Min Vrt Clr On Brg: Min Latl Clr: (39) Vrt Clr Lft:		(335) NC: 56 Ft 99.99 Ft (336) NC: 0 Ft (338) Right NC: 10 Ft (340) Left NC: 10 Ft 124.000 Ft (47) CARD: 56 Ft (10) CARD: 99.99 Ft (337) Right CARD: 10 Ft (339) Left CARD: 10 Ft	
Structure Information			
(19) Bypass Length: 10 Miles (16) Latitude: 41.66297892951782 (20) Toll: 3 - On Free Road, the structure is toll (27) Date Built: 2007 (28A) No. Lanes On: 06 (301) Horiz Curve: (32) App. Rdw Width: 56 Ft (52) Deck Width: 129.917 Ft (406) Median Type: 2 - RAISED MEDIUM/4 - 42" DEFLECTOR TYPE (NEW JERSEY SHAPE)/N - (33) Bridge median: 3 - Closed median with non-mountable barriers Sidewalks: Type Curb or Sidewalk:		(17) Longitude: -83.51308895875161 (106) Major Rehabilitation: Major Reconstruction Date: (28B) No. Lanes Under: 00 (34) Skew: 0 Deg (51) Brg. Rdw Width: 127.333 Ft Deck Area: 198123.43 (408) Composite: N - Non-composite (425) Left Matl: N - None (427) Right Matl: N - None (412) Flared: N (407) Railing: 2 - Reinforced Concrete and Steel (409) Deck Drainage: 3 - Scupper and downspouts (107) Deck Type: 0 - Other Deck Protection: (108A) Wearing Surface: 2 - Integral Concrete (Monolithic) - Not an Overlay (420) Thickness: 1.0 in (547) Slope Protection: N - None	
		(455) Pier, Total Count: 9 (663) Stream Velocity: 4.3 fps (92B) Dive: Y Freq: 60 (93B) Date of Last Dive Insp: 06/25/2015	
		Foundation and Scour Information: (531) Type: N - None (526) Type: N - None (534) Type: 4 - Open Column (537) Type: B - Tower (540) Type: N - None (533) Fnd: N - None (such as most Culverts) (528) Fnd: N - None (Such as most Culverts) (536) Fnd: 3 - Drilled Shafts (539) Fnd: 3 - Drilled Shafts (542) Fnd: N - None (Such as most Culverts)	
		(663) Stream Velocity: 4.3 fps (92B) Dive: Y Freq: 60 (93B) Date of Last Dive Insp: 06/25/2015	
		(113) Scour: 8 - Bridge foundations determined to be stable for the assessed or (655) Chan Prot: 0 - Other (grass, bushes, trees) (657) Drainage Area: 999 Sq. Mi	
		Clearance Under the Bridge	
		(326) NC: 0 Ft 99.75 Ft (327) NC: 99.75 Ft (329) Right NC: 31.333 Ft (330) Left NC: 63 Ft (325) CARD: 0 Ft (54) CARD: R 99.583 Ft (55) Right CARD: R 31.333 Ft (56) Left CARD: 63 Ft	
		Load Rating Information	
		(31) Design Load: 9 - HS25 or greater (64) Opr Rat Fact: 2.300 (66) Inv Rat Fact: 1.250 (734) Ohio Percent Legal 150 (704) Year of Rating: 7/1/2011 (63) Analysis: 7 - Allowable Stress (AS) rating reported by RF using HS20 (708) Rate Soft: 1 - BARS (707) PE# 0	
		(71) Waterway Adequacy: 9 (72) Approach Alignment: 9 (67) Calc Str Appraisal: 6 - Equal to present minimum (68) Calc Deck Geometry: 9 - Superior to present (69) Calc Underclearance: 9 - Superior to present	
		Approach Information	
		(401) Approach Guardrail: N - None (403) Approach Pavement: N - None or Not Applicable (402) Grade: 1 - Good	
		Culvert Information	
		(575) Culvert Type: N - Not a Culvert or Rigid Frame (580) Depth of Fill: 0 Ft (578) Length: 0 Ft (582) Headwalls: N - None or Not Applicable (Not a	
		General Information	
		(475) Main Member: 9 - Segmental Box Girder (414) Expansion Joint: A - MODULAR// (453) Bearing Devices: C - ELASTOMERIC (LAMINATED)/A - SLIDING (OTHER/ (38) Navigation: 1 - Yes Navigation control on (92C) Spec Insp: N Freq: 0 (92A) Fracture Critical Insp: N Freq: (474) Long Member: 0 - Other (486) Structural Steel Memb: N - None (477) Moment Plate: N - No Moment Plates (40) Horiz Clear: 200 Ft (93C) Special Inspection Date: (93A) Special Inspection Date: (468) Hinges: N - Not Applicable (structures with no hinges) (465) Framing: N - None or Not Applicable (407) Railing: 2 - Reinforced Concrete and Steel (482) Paint: N - None or Not Applicable	
		(203) Bridge Dedicated VETERANS GLASS CITY SKYWAW	

Unit of Measure: ENGLISH
 Structure File Number: 4805909
 Sufficiency Rating: 80.0

Bridge Inventory and Appraisal
 Inventory Bridge Number: LUC 00280 03.460
 1 MAUMEE RIVER and NSRR

Report Date: 09/15/2017
 BR. TYPE: 1 - CONCRETE/A - CABLE - STAYED/4 - THRU
 Date of Last Inventory Update: 03/03/2018

General Information (Continued)		Original Plans Information	
(37) Hist Significance: 4 - Not determinable at this time (112) NBIS: Yes (842) Hist/Designer: (827) Hist Build Year: (828) Hist Type: (98A) Border Bridge (98B) Resp: (99) SFN:		(250) Fabricator: (249) Contractor: FRU-CON (248) Ohio Original Construction Project Number: 049301 (252) Microfilm Reel: (251) Standard Drawing: Aperture Cards: (246) Orig: N (247) Repair: N (245) Fabr: N (709) Rating Score: 1 - Plan information available for load rating analysis (Default)	
Proposed Improvements		Utilities	Special Features
(114) Future ADT (On Bridge): 80403 (115) Year of Future ADT: 2038		(265) Electric Line: Y (266) Gas Line: N (269) Sanitary Sewer: N (267) Telephone Line: N (268) TV Cable: N (270) Water Line: N (271) Other Utilities: N	(283) Lighting: Y (430) Fence: N (432) Glare Screen: N (435) Splash Guard: N (459) Catwalk: Y (271) Other-Feat: N (279) Signs on Bridge: Y (281) Signs Under Bridge: N (431) Fence Height: 0 Ft (433) Noise Barrier: N
Programming Info			
PID Number: PID Status: PID Date:			
Inspection Summary	Survey Items		
(58) Deck: 6 (59) Superstructure: 6 (60) Substructure: 7 (62) Culvert: N (61) Channel: 8 (c6) Approaches: N General Appraisal: 6 (41) Operational Status: A (90) Inspection Date: 09/15/2017 (91) Desig Insp Freq: 12 Months	(36A) Railings: 1 - Meets acceptable standards (36B) Transitions: N - NA/Safety feature not required (36C) Guardrail: N - NA/Safety feature is not required (36D) Rail Ends: N - NA/safety feature is not required (92A) Fracture Critical: N (113) Scour Critical: 8 - Bridge foundations determined to Inspection Review Date:		
SFNs Replacing this retired bridge: - SFNs That were replaced by this bridge: - This bridge was retired and copied to: The bridge was copied from:		Insp 1st: 1 - Ohio State Transportation Department 2nd: X - None 3rd: X - None (21) Major Maint 1st: 1 - Ohio State Transportation Department 2nd: X - None 3rd: X - None (225) Routine Maint 1st: 1 - Ohio State Transportation Department 2nd: X - None 3rd: X - None	

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Type of Service on: HIGHWAY

DECK

(58) NBIS Deck Summary:

6

Recommended: 9

c7.1 Floor/Slab (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
198123	184648	13475			1.10

Northbound:

The Northbound portion of the bridge extends from Pier 26NB (Station 233+62.50) to Pier 30NB (Station 248+87.50). The entire deck quantity is rated in this report. The longitudinal joint is rated in this report as per the 2016 inspection.

The bottom of the deck slab is rated in the superstructure inspection section of this report and subsequent photos for these defects are also located in that section. Numerous transverse closure pour joints in the top flange/deck displayed areas of cracking, some with efflorescence, over the length of the bridge. See Photo 1.

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. See Photo 2. Numerous deck patches were noted along the length of the bridge and displayed moderate cracking (0.0130" to 0.020") with spalling and discoloration around the perimeter. See Photo 3. These patches and cracks appeared to be reflective and were present in the wearing surface.

Additional delaminated or unsound patches with moderate cracking were noted in the shoulder and travel lane areas of the deck.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches

Southbound:

The Southbound extends from Pier 26SB (Station 233+62.50) to Pier 30SB (Station 248+87.50). The entire deck quantity is rated in this report. The longitudinal joint is rated in this report as per the 2016 inspection.

The bottom of the deck slab is rated in the superstructure inspection section of this report and subsequent photos for these defects are also located in that section. Numerous transverse closure pour joints in the top flange/deck displayed areas of cracking, some with efflorescence, over the length of the bridge. See Photo 4.

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. See Photo 5. Numerous deck patches were noted along the length of the bridge and displayed moderate cracking (0.0130" to 0.020") with spalling and discoloration around the perimeter. See Photo 6.

Additional delaminated or unsound patches with moderate cracking were noted in the shoulder and travel lane areas of the deck. See Photos 7 through 9.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches

c7.2 Edge of Floor/Slab (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
	0				

c8. Wearing Surface (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
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DECK

194183

181008

13175

1.10

Northbound:

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. See Photo 2.

Numerous deck patches were noted along the length of the bridge and displayed moderate cracking (0.0130" to 0.020"), spalling and discoloration around the perimeter. See Photo 3.

A few areas of wearing surface exhibited slight scaling and abrasion in the West traffic lane in Span 26NB. See Photo 10.

Southbound:

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. See Photo 5.

Numerous lift hole and deck patches were noted along the length of the bridge and displayed moderate cracking (0.0130" to 0.020"), spalling and discoloration around the perimeter. See Photo 6. Additional delaminated or unsound patches with moderate cracking were noted in the shoulder and travel lane areas of the deck. See Photos 7 through 9.

A few areas of the wearing surface exhibited scaling and abrasion in the traffic lanes of Span 27SB. See Photo 11.

c10. Median (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
1525		1525			2.00

Transverse and map cracks efflorescence were present along the median top and bottom concrete surfaces. Based upon the 2016 Report, HMWM was applied to seal the cracks in 2010.

c11. Railing (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
6100	0	6055	45		2.04

Northbound:

The West and East parapets run from Pier 26NB (Station 233+62.50) to Abutment 30NB (Station 248+87.50).

Typical areas of hairline to moderate vertical and horizontal cracking were noted along the length of the concrete parapets on both sides of the roadway. See Photos 12 and 13. Numerous areas of cracking had efflorescence, rust stains and/or discoloration. See Photo 14.

A few areas of delaminated concrete and spalls were noted in Span 27NB. See Photo 15.

Several areas of deterioration and heavy rust on the steel railing were noted on the East steel railing along the length of the bridge. See Photo 16.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

Southbound:

The West and East parapets run from Pier 26NB (Station 233+62.50) to Abutment 30NB (Station 248+87.50).

Typical areas of hairline to moderate vertical and horizontal cracking were noted along the length of the concrete parapets on both sides of the roadway. See Photos 17 and 18. In the Span 27SB, five (5) newly installed concrete barriers sections had

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DECK

vertical cracks. See Photo 19. Collision damage on the East parapet in Span 27SB was observed. See Photo 20.

A few areas of delaminated concrete and spalls were noted along the length of the bridge in Spans 27SB, 28SB and 29SB. See Photos 21 through 23.

Several areas of deterioration and heavy rust on the steel railings along the length of the bridge. Minor paint damage was found at multiple locations. See Photos 24 and 25.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

c12. Drainage (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
536	436	100			1.26

Northbound:

A majority of scuppers on the deck appeared to be partially or fully filled with debris and not serving their intended function. See Photo 26.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

Southbound:

A majority of scuppers on the deck appeared to be partially or fully filled with debris and not serving their intended function. See Photo 27. In Span 27SB, nine (9) drains were missing PVC pipes. See Photo 28.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

c13. Expansion Joint (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
224	0	224			2.00

Northbound:

All the expansion joints were either partially or fully filled across the entire width of the roadway with vegetation growing along the joints in certain places. See Photo 29.

Southbound:

All the expansion joints were either partially or fully filled across the entire width of the roadway with vegetation growing along the joints in certain places. See Photo 30.

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DECK INSPECTION PHOTOS

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Photo 1 Transverse cracks with efflorescence in the bottom of the deck slab in Span 28NB



Photo 2 Transverse cracks in the deck in Span 28NB



Photo 3 Concrete patch with cracks and discoloration around perimeter in Span 27NB



Photo 4 Bottom of the deck slab closure pour with transverse cracks and efflorescence in Segments 5 through 13 in Span 29SB



Photo 5 Transverse cracks in the traffic lane in Span 28SB



Photo 6 Lift hole patches with leaching efflorescence around perimeter in Span 27SB

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Photo 7 Concrete patch (4'x2') in the traffic lane in Span 28SB



Photo 8 Spalls (7"x5"x0.75") in Span 28SB



Photo 9 Concrete patches in the West traffic lane of Span 26SB



Photo 10 Scaling and abrasion in the wearing surface in Span 26NB looking West



Photo 11 Scaling in the wearing surface of Span 27SB



Photo 12 Full height vertical cracks in the East parapet in Span 28NB looking East

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Photo 13 Vertical cracks in the West parapet in the Span 28NB looking West



Photo 14 Leaching efflorescence on the West parapet in Span 28NB looking West



Photo 15 Spalls on the top of the East parapet in Span 27NB looking East



Photo 16 Deterioration and heavy rust in the East steel railing of Span 27NB looking East



Photo 17 Typical hairline vertical cracks in the East parapet of Span 28SB looking East



Photo 18 Cracks in the West parapet in Span 28SB looking West

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Photo 19 Vertical cracks in newly installed West parapet sections in Span 27SB



Photo 20 Collision damage to the West parapet in Span 27SB



Photo 21 Spall underneath the steel railing in Span 27SB looking West



Photo 22 Spall in the West parapet in Span 28SB looking West



Photo 23 Gouges and 2" saw cut unfilled in Span 29SB of West parapet



Photo 24 Typical condition of the steel railing along the length of the bridge

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Photo 25 Coating damage/failure to the West steel railing in Span 27SB



Photo 26 Scupper filled with debris at Pier 30NB



Photo 27 Scupper filled with debris and growing vegetation at Pier 29SB



Photo 28 Missing PVC pipes in the drain holes on the West side of Span 27SB

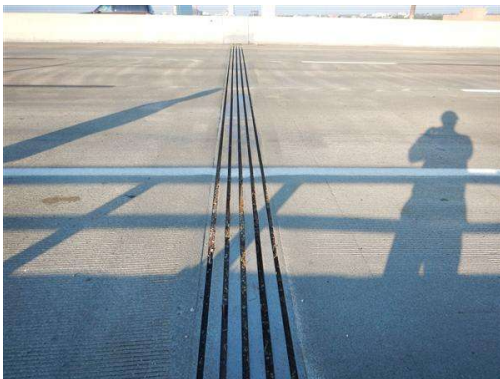


Photo 29 Expansion joint at Pier 30NB filled with debris and growing vegetation looking West



Photo 30 Expansion joint at Pier 29SB filled with debris and growing vegetation

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SUPERSTRUCTURE INSPECTION

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SUPERSTRUCTURE

(59) NBIS Superstructure Summary: 6

Recommended: 7

c14. Alignment (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
4	4				1.00

Northbound

No areas of misalignment or distortion were noted

Southbound

No areas of misalignment or distortion were noted

c15.1 Beams/Girders (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3050	1150	1900			1.71

Northbound:

Numerous unsound or delaminated patches were observed in the lift holes at the top flange/slab along the edges of the interior of the segments. A majority of these areas exhibited efflorescence over the length of the bridge. See Photo 1. At Piers 26NB and 28NB, lift holes were noted to be missing grout. See Photo 2. At multiple locations, spalls with exposed reinforcement were observed in the webs and bottom flange/slab. See Photos 3 through 7. Additional patches and construction joints in the interior of the segments, both webs and top/bottom flanges/slabs exhibited delaminated and spalled concrete. See Photos 8 through 10. Delaminated/unsound concrete patches, cracking and honeycombed concrete were observed on the deviator walls along the length of the bridge. See Photos 11 and 12. The construction access hole patch in the Span 27NB top flange/slab had cracks with efflorescence. See Photo 13.

Cracks and spalls were observed on the PT caps at the delta struts along the length of the bridge. See Photo 14.

Along the exterior web and bottom flange/slab, several delaminated and spalled patches were noted along the length of the bridge. See Photos 15 through 17.

A majority of the exterior struts had typical hairline to moderate cracking along the length of the bridge. See Photo 18. A concrete spall (9"x8"x1") and map cracking were observed on the strut at Stay Cable 3B (East side), top/North edge. See Photo 19. At Stay Cable 1B (East side) cracks (10' long) and spalls at the weep holes were noted.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and top flange/slab of every segment. These cracks varied in length and were typically 0.005" to 0.030" in width. See Photo 20. Additional hairline cracks, vertical and longitudinal, were present along the interior and exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photos 21 through 24.

Voids were present in the segment construction joints, both interior and exterior, varying in size and depth. Some of the voids were observed to be up to 4" deep. See Photos 25 and 26. Spalls and delaminated areas were noted throughout the interior and exterior of the segments in the pier segment closure pours and the future exterior stressing blocks located at the top of the webs and along the floor slab. See Photos 27 through 29.

Small areas of honeycombed concrete were also noted on the interior and exterior of the segments along the length of the bridge.

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SUPERSTRUCTURE

Southbound:

Numerous unsound or delaminated patches were observed in the lift holes at the top flange/slab along the edges of the interior segment. A majority of these areas exhibited efflorescence over the length of the bridge. See Photo 30. A hole in the web was left unfilled in Span 28SB that extends the full width of the concrete. See Photo 31.

At multiple locations concrete spalls with exposed reinforcement were observed in the webs and bottom flange/slab. See Photos 32 through 34. Additional patches and construction joints in the interior of the segments, both webs and top/bottom flanges/slabs exhibited cracking and delaminated and spalled concrete. See Photos 35 and 36. Concrete spalls were observed on the bottom flange/slab strut legs along the length of the bridge. See photo 37. Spalls with exposed reinforcement were observed in the corner blocks in the webs along the length of the bridge. See Photo 38. The construction access hole patch in Span 27SB, had cracks with efflorescence. See Photo 39.

Along the exterior web and bottom flange/slab, several delaminated and spalled patches were noted along the length of the bridge. Some of the spalls had exposed reinforcement. See Photos 40 through 44.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and top flange/slab of every segment. These cracks varied in length and were typically 0.005" to 0.030" in width. See Photo 45. Additional hairline cracks, vertical and longitudinal, were present along the interior and exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photos 46 and 47.

Voids and cutouts were present in the segment construction joints, both interior and exterior, varying size and depth. Some of the voids were observed to be up to 3" deep. See Photos 48 and 49. Spalls and delaminated areas were noted throughout the interior and exterior of the segments in the pier segment closure pours and the future exterior PT blocks located on the webs and on the floor slab. See Photos 50 and 51. Spalls with exposed reinforcement in the corbels were observed along the length of the bridge. See Photo 52.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

c16. Diaphragm/Cross Frames (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
56	26	30			1.63

Northbound:

The interior diaphragms exhibited typical hairline to moderate vertical and map cracking (0.05" to 0.04"). Efflorescence and leaching was present at some locations, although these areas did not appear to be active. Additionally, several diaphragms had areas of delaminated/unsound concrete on the vertical faces. See Photo 53 and 54.

Southbound:

The interior diaphragms exhibited typical hairline to moderate vertical and map cracking (0.005" to 0.045"). Efflorescence and leaching was present at some locations, although these areas did not appear to be active. Additionally, several diaphragms had areas of delaminated/unsound concrete on the vertical faces. See Photos 55 and 56.

c17. Stringers (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
0					

c18. Floorbeams (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
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2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SUPERSTRUCTURE

0

c19. Truss Verticals (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
----------------	---------	---------	---------	---------	-------------------

c20. Truss Diagonals (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
----------------	---------	---------	---------	---------	-------------------

c21. Truss Upper Chord (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
----------------	---------	---------	---------	---------	-------------------

c22. Truss Lower Chord (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
----------------	---------	---------	---------	---------	-------------------

c23. Truss Gusset Plate (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
----------------	---------	---------	---------	---------	-------------------

c26. Bearing Devices (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
----------------	---------	---------	---------	---------	-------------------

24

24

2.00

Northbound:

The plinths at Piers 26NB, 27NB 29NB and 30NB exhibited areas of unsound/delaminated or spalled concrete and moderate to severe cracking in over 5% of the bearing area.

The East bearing at the Pier 27NB was inclined 10° to the North while sole plate was shifted 4" South. See Photo 57. At Pier 29NB, a gap between load plate and sole plate was noted. See Photo 58. At Pier 30NB, the West bearing was inclined 3.5° to the East and the sole plate was shifted 1" South. At Pier 30NB, the East bearing was inclined 5° to the East and the sole

Inspection Date: 09/15/2017

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Reviewed Date: 03/03/2018

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT
SUPERSTRUCTURE INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SUPERSTRUCTURE

plate was shifted 1" South.

Southbound:

The plinths at Piers 26SB, 27SB 29SB and 30SB exhibited areas of unsound/delaminated or spalled concrete and moderate to sever cracking in over 5% of the bearing area.

At Pier 27SB, the East and West bearings were observed to be shifted 5" to the South. At Pier 29SB, East and West bearings were shifted 1" to the North. At Pier 30SB, the East bearing was shifted 1" to the South. The West bearing at Pier 30SB was inclined 8° to the South and East bearing inclined 6° to the South.

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 1 Leaching efflorescence from lift holes in Span 26NB



Photo 2 Lift hole missing grout in Span 28NB

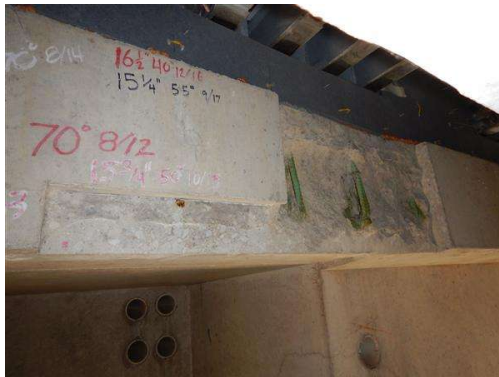


Photo 3 Spalls with exposed reinforcement at the expansion joint at Pier 26NB



Photo 4 Exposed strand on the bottom flange/slab at Pier 27NB looking West



Photo 5 Exposed reinforcement on the bottom flange/slab in Span 29NB looking South



Photo 6 Spalls with exposed reinforcement in the web in Span 28NB looking East

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 7 Spalls with exposed reinforcement at expansion joint at Pier 29NB looking South



Photo 8 Delaminated concrete patch on the bottom flange/slab at Pier 27NB looking East



Photo 9 Typical spalls in the top flange/slab looking North



Photo 10 Delaminated patch with leaching efflorescence in Span 29NB looking West



Photo 11 Spalls on the deviator wall at Pier 27NB looking West



Photo 12 Multiple hairline cracks in deviator wall at Pier 27NB looking West

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 13 Construction access hole patch with cracks and leaching efflorescence in Span 27NB



Photo 14 Spalls on the top edge of delta strut in Span 27NB



Photo 15 Delaminated concrete patch (12"x12") in the exterior bottom flange of Span 27NB



Photo 16 Spall (5"x7"x1") in the exterior East web of Span 28NB looking West



Photo 17 Spall (6"x6"x0.5") at the core hole in Segment 16 of Span 29NB



Photo 18 Horizontal and vertical cracks in the lower right strut at Stay Cable Anchor 4B between Segments 53-55 in Span 27NB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 19 Spall and cracks in the lower right strut at Cable Stay Anchor 3B in Span 27NB



Photo 20 Cracks with leaching efflorescence in the top flange/slab in Span 28NB



Photo 21 Typical interior, upper corner cracks along the length of the bridge looking East



Photo 22 Typical cracks on future PT blocks along the length of the bridge looking West



Photo 23 Longitudinal cracks with leaching efflorescence in the exterior bottom flange/slab in Span 27NB



Photo 24 Typical longitudinal cracks on the exterior webs

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
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District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 25 Concrete cutout (2.5" deep) in the top flange/slab at Pier 28NB looking West



Photo 26 Void (4" deep) between Segments 17 and 18 of Span 28NB



Photo 27 Spalls with exposed reinforcement in future PT block on the bottom flange/slab of Span 29NB looking South



Photo 28 Typical spall with exposed reinforcement in the future PT blocks in webs



Photo 29 Delaminated patch on future PT block at 28NB looking West



Photo 30 Leaching efflorescence from lift holes in Span 27SB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 31 Unfilled hole in web of Span 28SB



Photo 32 Spall with exposed reinforcement in the top flange/slab of Span 28SB



Photo 33 Typical spall with exposed reinforcement in the exterior PT block and web along the length of the bridge



Photo 34 Concrete spall (36"x12"x2") with exposed reinforcement in the web of Span 27SB



Photo 35 Delaminated/unsound patch and spalls in the top flange/slab in Span 28SB



Photo 36 Closure pour with cracks and efflorescence in Span 28SB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 37 Typical spall in the strut legs along the length of the bridge



Photo 38 Typical spalls with exposed reinforcement in the corner blocks



Photo 39 Construction access hole patch with cracks and efflorescence in Span 27SB



Photo 40 Delaminated patch (8"x4") in the exterior East web of Span 29SB



Photo 41 Spall (27"x5"x0.5") in the exterior East web of Span 28SB looking West

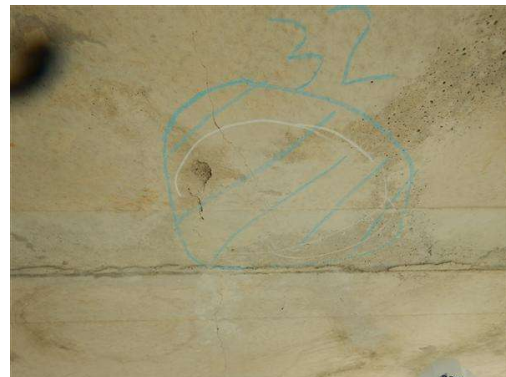


Photo 42 Delaminated concrete patch in the bottom flange/slab of Span 28SB looking North

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 43 Multiple holes in closure pour between Segments 22 and 23 of Span 28SB



Photo 44 Delaminated concrete patch (14"x10") in the exterior bottom flange/slab of Span 26SB



Photo 45 Longitudinal cracks with efflorescence in the top flange/slab of Span 28SB



Photo 46 Typical cracks on the diaphragm blocks along the length of the bridge



Photo 47 Longitudinal cracks with efflorescence in the exterior bottom flange of Span 28SB



Photo 48 Small void at the intersection of strut and corner block in Span 28SB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 49 Cutout (3" deep) in the exterior East web between Segments 57 and 58, in Span 28SB looking West



Photo 50 Spalls with exposed reinforcement in the diaphragm block in Span 27SB



Photo 51 Typical spall with exposed reinforcement in the temporary PT blocks on bottom flange/slab along the length of the bridge



Photo 52 Typical cracks with exposed reinforcement in corbels along the length of the bridge



Photo 53 Map cracking on the vertical face of diaphragm at Pier 26NB



Photo 54 Delaminated concrete area in the vertical face of diaphragm at Pier 27NB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 55 Delaminated concrete area in the vertical face of the diaphragm in Span 27SB



Photo 56 Cracks and spalls in the vertical face of the diaphragm at Pier 27SB



Photo 57 East bearing at Pier 27NB rotated 10° to the North



Photo 58 Gap between load plate and sole plate on West bearing at Pier 29NB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUBSTRUCTURE INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SUBSTRUCTURE

(60) NBIS Substructure Summary: 7

Recommended: 9

c38. Pier Columns/Bents (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
9	8	1			1.16

Northbound:

Typical hairline to moderate (0.030") width vertical, horizontal and map cracking areas were present on the pier columns. Honeycombed concrete areas were observed on majority of the pier columns.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

Southbound:

Typical hairline to moderate (0.035") width vertical, horizontal and map cracking areas were present on the pier columns. Honeycombed concrete areas were observed on majority of the pier columns.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

c36. Pier Walls (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
	0				

c37. Pier Caps (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
128	128				1.00

Northbound:

Typical hairline to medium (0.035") width vertical and map cracking with leaching efflorescence were noted on majority of the pier caps. See Photo 1.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

Southbound:

Typical hairline to medium (0.035") width vertical and map cracking with leaching efflorescence were noted on majority of the pier caps. See Photo 2.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches.

c39. Backwalls (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
	0				

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUBSTRUCTURE INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SUBSTRUCTURE

c40. Wingwalls (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
0.00					

c42. Scour (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3	3				1.00

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUBSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 1 Typical cracking and rust stains in the Northbound pier caps



Photo 2 Typical cracking and rust stains in the Southbound pier caps

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

CHANNEL INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

CHANNEL

(61) NBIS Channel Summary: 8

Recommended: 6

c51. Alignment (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
200.0	200.0				1.00

Maumee River flows West (left) to East (right) toward Lake Erie. No issues with the channel alignment were observed.

c52. Protection (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
200.0		200.0			2.00

Erosion along river bank. Not affecting structure.

c53. Hydraulic Opening (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3	3				1.00

No defects to the hydraulic opening were noted.

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

CHANNEL INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 1

Channel alignment looking East



Photo 2

Channel alignment looking West

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SIGNS/UTILITIES

(41) Open, Posted or Closed: A

c55. Signs (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3	0	1		2	3.00

Northbound:

Interstate 280 North sign was observed to be faded and two 10.2 mile markers were missing. See Photo 1.

Southbound:

No Signs.

c56. Sign Supports (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3	1			2	3.00

Northbound:

The sign supports were in good condition with no noticeable defects.

Southbound:

No sign supports.

c57. Utilities (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3050	3030	20			1.01

Northbound:

Parapet reflectors were either missing or broken on both sides of the bridge. See Photo 2. In Span 29NB, screws were missing in the junction box covers on the East parapet. See Photo 3.

An electrical conduit was separated and clamps were broken in Span 26NB. See Photo 4. The ground wire was not attached to the brackets in Span 26NB. See Photo 5. Electrical conduits were separated and wires exposed in Span 29NB. See Photos 6 and 7.

Southbound:

Light reflectors were either missing or broken on both the parapets along the length of the bridge. In the span 27SB, the grounding wire connected the light pole was disconnected. See Photo 8.

Electrical conduit was pulled apart in Span 27SB. See Photo 9. Electrical conduit clamp was broken in Span 26SB. See Photo 10.

Cable stays and Pylon Utilities (Mott MacDonald):

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SIGNS/UTILITIES

The lower, flashing, aerial warning light on the Northeast side of the pylon was not functioning during daylight hours. This does not meet applicable FAA requirements for aerial warning lights. This should be a priority item for maintenance. See Photo 11.

The cover on a junction box at the upper, mechanical room, level was missing and the wires were exposed. This should be replaced. See Photo 12. There are other junction boxes in the personnel lift ways that likewise were missing and should be replaced. See Photo 13. Several service lights in the personnel lift ways had water in the bottom of the globes or were burned out. See Photo 14.

One of the wire ropes on the southeast lift had come off its sheave and was dragging across the trunnion support. This condition did not appear to interfere with the operation of the lifting mechanism, but will increase wear on this rope significantly. See Photo 15.

The highway lighting seemed to have several lamps out traveling in both the North and South directions. 15 traveling Northbound and 9 traveling Southbound were not in operation.

For a detailed layout and description of defects found during the inspection, refer to the Mott MacDonald Report in the asset file section

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 1 Faded I-280 North sign



Photo 2 Broken or missing reflectors along the length of the bridge



Photo 3 Missing screws in the electrical junction box on the East parapet in Span 29NB



Photo 4 Separated electrical conduits and broken clamps at Pier 26NB



Photo 5 Ground wire not attached to the brackets in Span 26NB

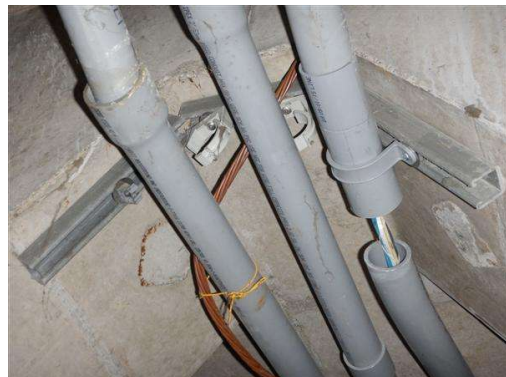


Photo 6 Separated electrical conduit with exposed wires at Pier 29NB

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 7 Separated electrical conduit at Pier 29NB



Photo 8 Disconnected grounding wire in Span 27SB



Photo 9 Separated electrical conduit in Span 27SB



Photo 10 Broken electrical conduit clamp in Span 26SB

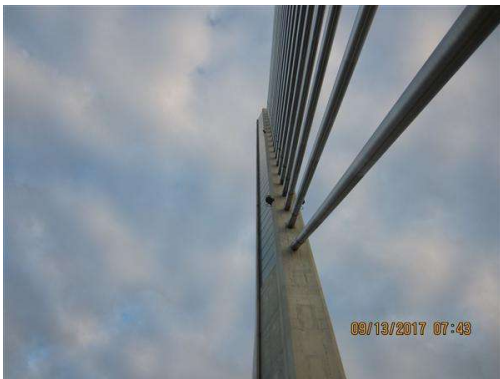


Photo 11 Aerial warning light on the Northeast side of the pylon not functioning during daylight hours



Photo 12 Missing cover on a damaged junction box exposing wires

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY



Photo 13 Missing junction box cover in the liftway



Photo 14 Burned out service lights in the personnel liftway



Photo 15 Southeast lift wire rope off sheave

2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT

SUPPLEMENTAL INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over MAUMEE RIVER AND NSRR

Type of Service on: HIGHWAY

SUPPLEMENTAL

c63. Post Tensioning End Cap (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
640	361	200	61	18	2.54

Northbound:

Numerous PT end cap locations were noted to have small void areas within the grout in the cap. These areas were determined and verified by gently tapping on the plastic end caps with a hammer. A few caps were observed to have missing bolts connecting the cap with the duct at the diaphragm. See Photos 1 and 2.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

It is recommended that a form of NDT or ultrasound be utilized to determine the exact extent and accuracy of the voids. With the caps being covered with waterproofing material and being plastic, hollow areas within the cap were difficult to detect with certainty. In addition, the brittle nature of the material could lead to cracking of the end caps if struck too hard with a hammer.

Southbound:

Numerous PT end cap locations were noted to have small void areas within the grout in the cap. These areas were determined and verified by gently tapping on the plastic end caps with a hammer. A few caps were observed to have missing bolts connecting the cap with the duct at the diaphragm. See Photos 3 through 5.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

It is recommended that a form of NDT or ultrasound be utilized to determine the exact extent and accuracy of the voids. With the caps being covered with waterproofing material and being plastic, hollow areas within the cap were difficult to detect with certainty. In addition, the brittle nature of the material could lead to cracking of the end caps if struck too hard with a hammer.

c64. Post Tensioning Segmental Box Internal (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
336	0	336			2.00

Northbound:

Numerous unsound or delaminated patches were observed in the lift holes at the top flange/slab along the edges of the interior segments. A majority of these areas exhibited efflorescence over the length of the bridge. See Photo 1 in the Superstructure section. At Pier 26NB and 28NB, lift holes were noted without grout. See Photo 2 in the Superstructure section. At multiple locations, spalls with exposed reinforcement were observed in the webs and bottom flange/slab. See Photos 3 through 7 in the Superstructure section. Additional patches and construction joints in the interior of the segments, both webs and top/bottom flanges/slabs exhibited delaminated and spalled concrete. See Photos 8 through 10 in the Superstructure section. Delaminated/unsound concrete patches, cracking and honeycombed concrete were observed on the deviator walls along the length of the bridge. See Photos 11 and 12 in the Superstructure section. The construction access hole patch in the top flange/slab of Span 27NB, had cracks with efflorescence. See Photo 13 in the Superstructure section.

Cracks and spalls were observed on the PT caps at the delta struts along the length of the bridge. See Photo 14 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along interior corner edges between the web and top flange/slab of every segment. These cracks varied in length and were typically 0.005" to 0.030" in width. See Photo 20 in the Superstructure section. Additional hairline cracks, vertical and longitudinal, were present along the interior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photo 21 and 22 in the Superstructure section.

Voids were present in the segment construction joints, both interior and exterior, varying in size and depth. Some of the voids

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SUPPLEMENTAL INSPECTION

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

Bridge Type: 1 - CONCRETE/A - CABLE - STAYED/4
- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

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Type of Service on: HIGHWAY

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were observed to be up to 4" deep. See Photo 25 in the Superstructure section. Spalls and delaminated areas were noted throughout the interior and exterior of the segments in the pier segment closure pours and the future exterior stressing blocks located at the top of the webs and along the bottom flange/slab. See Photos 27 through 29 in the Superstructure section.

Small areas of honeycombed concrete were also noted on the interior and exterior of the segments along the length of the bridge.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

Southbound:

Numerous unsound or delaminated patches were observed in the lift holes at the top flange/slab along the edges of the interior segment. A majority of these areas exhibited efflorescence over the length of the bridge. See Photo 30 in the Superstructure section. A hole in the web was left without grout in Span 28SB. See Photo 31 in the Superstructure section.

At multiple locations, spalls with exposed reinforcement were observed in the webs and bottom flange/slab. See Photos 32 through 34 in the Superstructure section. Additional patches and construction joints in the interior of the segments, both webs and top/bottom flanges/slabs exhibited cracking and delaminated and spalled concrete. See Photos 35 and 36 in the Superstructure section. Spalls were observed on the bottom flange/slab strut legs along the length of the bridge. See Photo 37 in the Superstructure section. Spalls with exposed reinforcement were observed in the corner blocks located in the webs along the length of the bridge. See Photo 38 in the Superstructure section. The construction access hole patch in Span 27SB, had cracks with efflorescence. See Photo 39 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along interior corner edges between the web and top flange/slab of every segment. These cracks varied in length and were typically 0.005" to 0.030" in width. See Photo 45 in the Superstructure section. Additional hairline cracks, vertical and longitudinal, were present along the interior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photo 46 in the Superstructure section.

Voids and cutouts were present in the segment constriction joints, varying in size and depth. Some of the voids were observed to be up to 3" deep. See Photo 48 in the Superstructure section. Spalls and delaminated areas were noted throughout the interior of the segments in the pier segment closure pours and the future exterior PT stressing blocks located in the webs and temporary PT blocks on the bottom flange/slab. See Photos 50 and 51 in the Superstructure section. Spalls with exposed reinforcement were observed in the corbels along the length of the bridge. See Photo 52 in the Superstructure section.

Small areas of honeycombed concrete were also noted on the interior and exterior of the segments along the length of the bridge.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

c65. Post Tensioning Segmental Box External (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
336	236	100			1.39

Northbound:

Along the exterior web and bottom flange/slab, several delaminated and spalled patches were noted along the length of the bridge. See Photos 15 through 17 in the Superstructure section.

All the exterior struts had typical cracking along the length of the bridge. See Photo 18 in the Superstructure section. A concrete spall (9"x8"x1") and map cracking were observed on the strut at Stay Cable 3B (East side), top/North edge. See Photo 19 in the Superstructure section. At Stay Cable 1B (East side) cracks (10' long) and spalls at the weep holes were noted.

Additional hairline cracks, vertical and longitudinal, were present along the exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photos 23 and 24 in the Superstructure section.

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SUPPLEMENTAL INSPECTION

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Inventory Bridge Number: LUC 00280 03.460

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- THRU

Sufficiency Rating: 80.0

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Voids were present in the segment constriction joints varying in size and depth. See Photo 26 in the Superstructure section. Small areas of honeycombed concrete were also noted on the exterior of the segments along the length of the bridge.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

Southbound:

Along the exterior web and bottom flange/slab, several delaminated and spalled patches were noted along the length of the bridge. Some of the spalls had exposed reinforcement. See Photos 40 through 44 in the Superstructure section.

Additional hairline cracks, vertical and longitudinal were present along the exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photo 47 in the Superstructure section.

Voids were present in the segment constriction joints, varying in size and depth. Some of the voids were observed to be up to 3" deep. See Photo 49 in the Superstructure section.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

c66. Post Tensioning External Tendon (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
106	106				1.00

Northbound:

PT tendons with soft sleeves and broken clamps were observed in Span 26NB. See Photo 6. In span 27NB, a PT clamp was missing. See Photo 7. At few locations PT clamps were noted to be rusting.

Numerous future prestressing ducts in the diaphragm exhibited moderate to heavy rust with the stain leaching in some locations. See Photo 8.

As noted above in the PT end cap section, it is recommended that a form of NDT or ultrasound be utilized to determine the exact extent and accuracy of the grout voids located within the PT end caps.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

Southbound:

Numerous future PT ducts in the diaphragms exhibited moderate to heavy rust with the stain leaching in some locations. See Photo 9.

As noted above in the PT end cap section, it is recommended that a form of NDT or ultrasound be utilized to determine the exact extent and accuracy of the grout voids located within the PT end caps.

For a detailed layout and description of defects found during the inspection, refer to the asset file section for sketches and spreadsheets.

c91. Cable Stayed: Deck Anchorage (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
40	40				1.00

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed on a majority of the deck top anchorages. See Photo 10. At Stay Cable Anchor 20A, on the top face, an unsound/delaminated

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SUPPLEMENTAL INSPECTION

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- THRU

Sufficiency Rating: 80.0

Date Built: 6/24/2007

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concrete patch (12"x12") was observed. See Photo 11. Radial cracks and concrete popouts were observed around the perimeter of the stainless steel sheaths and anchorage interface along the length of the bridge.

Map cracking was noted on a majority of the deck bottom anchorage areas on all faces. See Photo 12. A spall (18"x2"x1") on the South face, East side at Stay Cable Anchor 18A. See Photo 13. A concrete cut out (17"x9"x4") with exposed reinforcement was observed on the South face at Stay Cable Anchor 16A. See Photo 14. A spall (8"x8"x0.5") was observed on the North face, East side at Stay Cable Anchor 15A. Delaminated or unsound concrete patches were observed on North and South faces, East side at Stay Cable Anchor 8A. See Photo 15. A small area of honeycombed concrete was observed on North face at Stay Cable Anchor 4A. See Photo 16. Leaching rust stains from the stainless steel cable sheath were observed at Stay Cable Anchor 2A. See Photo 17. At Stay Cable Anchor 12B, diagonal cracks on the East and West faces were noted. Honeycombed concrete with exposed reinforcement was observed at Stay Cable Anchor 3B.

c92. Cable Stayed: Tower Anchorage (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
20	20				1.00

Reinforced Concrete Upper Pylon

The reinforced concrete pylon is in overall satisfactory condition. The faces typically exhibited hairline to 0.0625" wide cracking throughout with moisture staining. Small patches up to 2" diameter were located throughout with isolated locations of full perimeter hairline cracking and moisture staining. Random locations of shallow spalling exist in the pylon around the cradle sheath. See Photos 28 through 31.

For a detailed layout and description of defects found during the inspection, refer to the Infrastructure Engineers Inc. report in the asset file section

c93. Cable Stayed: Dampeners (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
80	70	10			1.18

The damper assembly exhibited slight alignment issues in random locations with gaps up to 0.1875" between the damper support leg and the connection clamp; none of the damper support legs were loose. In multiple locations, the damper support leg had been welded to the cable clamp connection due to previous cracking; no weld defects or cracks were noted during the inspection. See Photos 18 through 20.

For a detailed layout and description of defects found during the inspection, refer to the Infrastructure Engineers Inc. report in the asset file section

c95. Cable Stayed: Sheathing (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
40	40				1.00

The stainless steel sheaths and sleeves protecting the 20 cable stays were in overall very good condition. Beginning at the delta frame anchorage, each cable stay had a guide sleeve and termination sheath connecting the cable stay to the bearing. No significant deficiencies were found on the guide sleeves or termination sheaths. The termination sheath was connected to the main sheath via the lower sleeve. Attached to the lower sleeve was the damper clamp.

The main sheath of the stay between the upper and lower sleeves made up the majority of the cable stay's length. Minor scrapes and gouges were noted in random locations. No other significant deficiencies were noted on the main sleeves of the cable stay. See Photos 21 and 22.

Near the pylon the main sheath is spliced with the cradle sheath via the upper sleeve. At the upper sleeve connections, the caulking at the edges of the sleeve had multiple locations with gaps and breaks. See Photos 23 through 25.

No ground wire present and 3" gap between caulk and bottom splice at the cable 9B. See Photo 26. Ground cable is

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SUPPLEMENTAL INSPECTION

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Sufficiency Rating: 80.0

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disconnected from the lower bolt at the top sleeve at the cable 20B. See Photo 27.

For a detailed layout and description of defects found during the inspection, refer to the Infrastructure Engineers Inc. report in the asset file section

c96. Cable Stayed: Cable Alignment (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
1	1				1.00

c97. Cable Stayed: Cable Condition (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
40	40				1.00

See Infrastructure Engineers Inc. Report for condition details.

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Photo 1 Void in the PT anchor cap at Pier 27NB



Photo 2 Loose bolt on PT anchor cap at Pier 28NB



Photo 3 Rusted PT base plate in Span 28SB



Photo 4 Loose and missing bolt on PT anchor cap in Span 27SB



Photo 5 Voids in the PT anchor cap at Pier 27SB



Photo 6 Soft PT tendon sleeves at Pier 26NB

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Photo 7 Missing PT clamp at Pier 27NB looking West



Photo 8 Typical rust on the future PT ducts on diaphragms looking Northeast



Photo 9 Typical rust on future PT ducts on the diaphragms



Photo 10 Typical hairline cracks on top of deck Stay Cable Anchors



Photo 11 Delaminated/unsound concrete patch on the top face of deck Stay Cable Anchor 20A

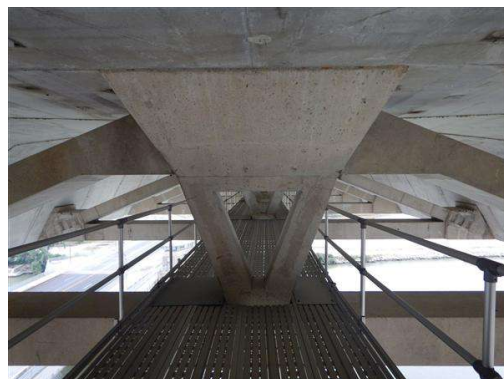


Photo 12 Typical map cracking on the bottom of Deck Stay Cable Anchor

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Photo 13 Spall (18"x2"x1") on South face (East side) of deck Stay Cable Anchor 18A



Photo 14 Concrete cutout with exposed reinforcement on the bottom (South face) of deck Stay Cable Anchor 16A



Photo 15 Delaminated/unsound concrete patch on the bottom (North face) of Stay Cable Anchor 8A



Photo 16 Honeycombed concrete on the top (North face) of deck Stay Cable Anchor 4A



Photo 17 Leaching rust stains from stainless steel sheath at the bottom of deck Stay Cable Anchor 2A



Photo 18 Welded repair to the West damper support at the lower sleeve cable clamp connections Cable Stay 4B

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Photo 19 Gap (0.25") between cable clamp and East damper support leg at Cable Stay 9A



Photo 20 South bolt on the West cable damper clamp loose at Cable Stay 19A



Photo 21 Gouge (8"x0.75") with light surface corrosion along the bottom side of the main sheath approximately 50' from the deck anchorage on Cable Stay 16A



Photo 22 Scrape/surface gouge (12"x3") along the bottom face of the main sheath, near the upper splice on Cable Stay 19B



Photo 23 Full perimeter 2" gap in caulk at the top splice of Cable Stay 5B upper sleeve



Photo 24 2.5" gap between sealant and top splice of Cable Stay 10B upper sleeve

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SUPPLEMENTAL INSPECTION PHOTOS

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Photo 25 0.75" gap between the original caulk and the end of the upper sleeve. Full circumference gap between upper sleeve and cradle sheath on Cable Stay 16B upper sleeve



Photo 26 No ground wire present on Cable Stay 9B upper sleeve



Photo 27 Ground cable disconnected from the lower bolt on the main sheath Cable Stay 20B upper sleeve

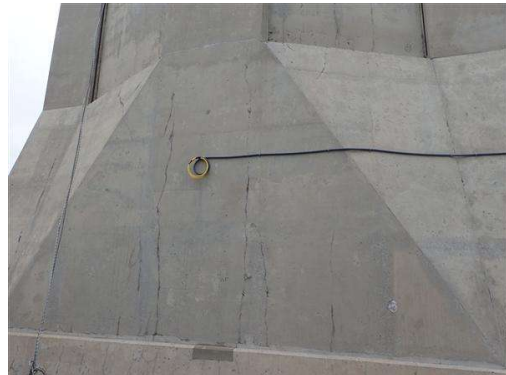


Photo 28 Two (2) full height x 0.0625" vertical cracks with random intermittent cracking in the West face of the Upper Pylon below Cable Stay 1

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SUPPLEMENTAL INSPECTION PHOTOS

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Photo 29 Two (2) patches with 0.0625" wide gaps along the bottom edge on the Upper Pylon West face near Cable Stay 20



Photo 30 1.5"x1" edge spall around the stay cable from 12 to 2 o'clock on the Upper Pylon South face at Cable Stay 12



Photo 31 Multiple round patches up to 2" diameter with full perimeter cracking up to .03125" in width with discoloration on the Upper Pylon East face near Cable Stay 9

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CRITICAL FINDINGS

Structure File Number: 4805909

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**2017 LUC-00280-0346 (SB/NB MAIN SPAN) ROUTINE INSPECTION REPORT
REVIEW**

Structure File Number: 4805909

Inventory Bridge Number: LUC 00280 03.460

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Sufficiency Rating: 80.0

Date Built: 6/24/2007

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IR-280 over MAUMEE RIVER AND NSRR

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