



2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE
INSPECTION REPORT
BRIDGE INSPECTION REPORT

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Inspection Type: Routine

Inspection Date: 09/17/2017



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-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

LOCATION MAP

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

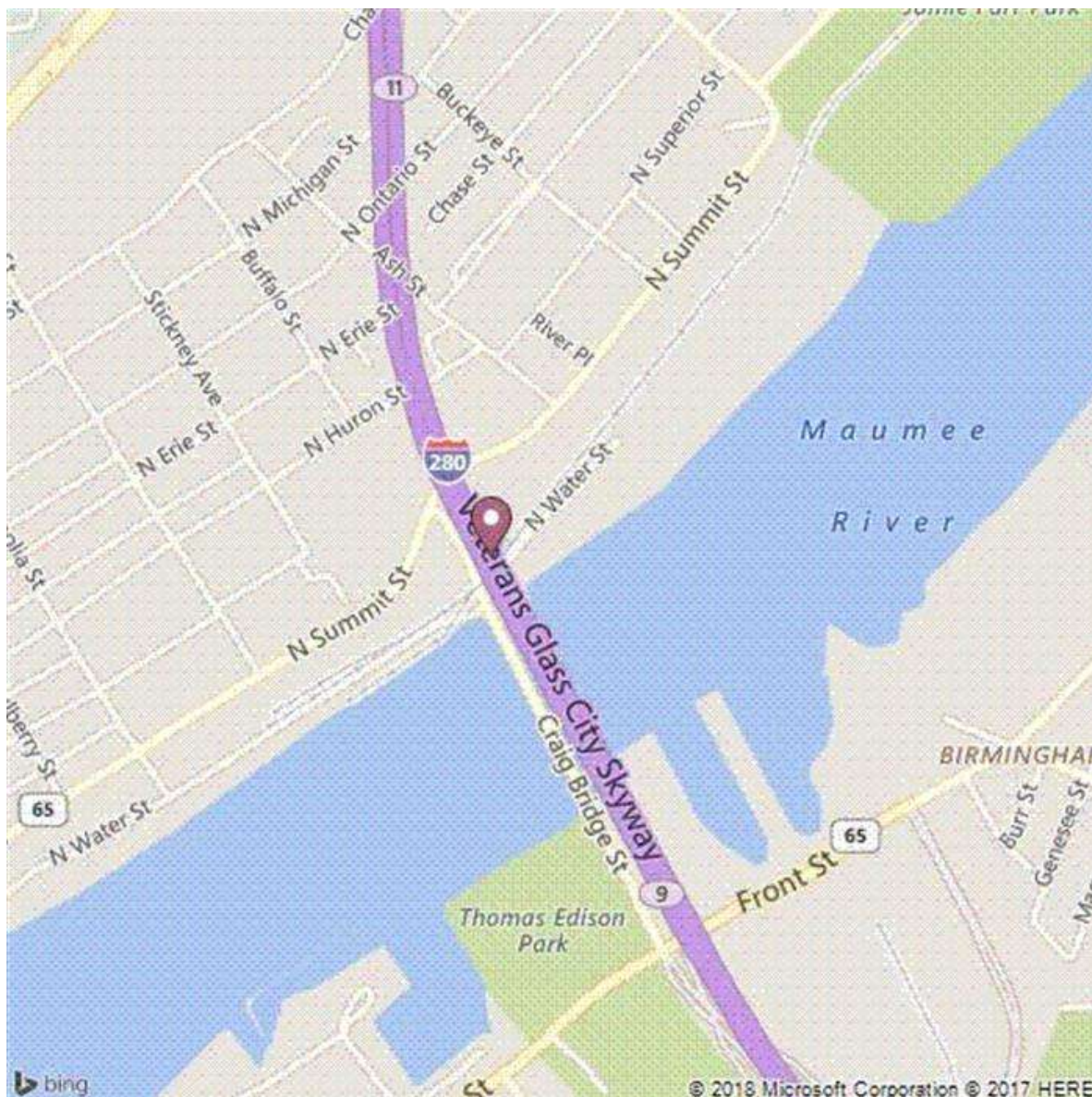
Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN,NSRR

Type of Service on: HIGHWAY



LOCATION MAP #1

Region:

State: 395

County: 48

Facility Carried: IR-280

Facility Intersected: SUMMIT TO CHAMPLAIN,NSRR

Location: N.NB.APPR.SPAN TO VGCS.

Description: NB North Approach Location Map

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

GENERAL ELEVATION PHOTOS

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CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 1

End view of the Northbound North approach looking South



Photo 2

Northbound North Approach/Ramp D
Elevation View looking Northwest

Unit of Measure: ENGLISH
Structure File Number: 4806107
Sufficiency Rating: 85.0

Bridge Inventory and Appraisal
Inventory Bridge Number: LUC 00280 03.750 R
1 SUMMIT TO CHAMPLAIN,NSRR

Report Date: 09/17/2017
BR. TYPE: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS
Date of Last Inventory Update: 03/03/2018

(2) District: 02		(3) County: 48 - LUCAS		(9) Location: N.NB.APPR.SPAN TO		(7) Facility Carried: IR-280	
(4) FIPS Code: 77000 - TOLEDO				(208) Route On Bridge: 41 - Municipal		(207) Route Under Bridge: 10 - State (ODOT) (Toll	
(102) Direction of Traffic: 1 - 1-way traffic		(216) Temporary:		(110) Truck Network: 1		(101) Parallel: R	
				(42A) Type Serv (On): 1 - Highway		(42B) Type Serv (Under): 4 - Highway - railroad	
Inventory Route Data							
(5A) Route On/Under: 1 - Route carried "on" the		(5B) Hwy Sys: 1 - Interstate Highway		(45) Main Spans Number: 29		Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS	
(5D) Route No: 00280		(5E) Dir: 1 - North		(46) Approach Spans Number: 0		Type: N - NONE/N - NONE/N - NONE	
(5C) Des: 1 - Mainline				(307) Total Spans: 0		(48) Max Span: 151 Ft	
(6) Feature Intersected: SUMMIT TO CHAMPLAIN,NSRR						(49) Overall Leng: 3916 Ft	
(3) County: LUC		(200) Mileage: 03.750		(201) Special Desig: R		(209) Mile Marker: 10.383	
(29) Avg. Daily Traffic (ADT): 28,964		(30) ADT Year: 2015					
(235) Truck Traf: 4,653		(210) Corridor: Y		(104) NHS: 1- NHS BRIDGE			
(26) Functional Class: 11 - Urban - Principal		(100) Strahnt: 1 - STRAHNET Interstate					
Intersected Route Data							
(370A) Record Type: A - ROUTE A		(370B) Hwy Sys: 5 - Municipal Street (i.e.					
(370D) Route No: 00280		(370E) Dir:		(370C) Des: 1 - Mainline			
(373) Feature Intersected: NB.N.APPR SPANS							
(3) County: LUC		(371) Mile Marker:		(387) Special Desig:			
(379) Avg. Daily Traffic (ADT): 589		(380) ADT Year: 2015					
(381) Truck Traf: 28		(384) Corridor: N		(378) NHS: X - NON-NHS BRG EXCLDES			
(375) Functional Class: 17 - Urban - Collector		(386) Strahnt: 0 - Non-strahnet Bridges					
Clearance On the Bridge							
Min. Hriz on Bridge:		(335) NC: 0 Ft		(47) CARD: 56 Ft			
(53) Prac Max Vert On Brg:		28.5 Ft					
Min Vrt Clr On Brg:		(336) NC: 28.5 Ft		(10) CARD: 28.5 Ft			
Min Latl Clr:		(338) Right NC: 0 Ft		(337) Right CARD: 10 Ft			
		(340) Left NC: 0 Ft		(339) Left CARD: 10 Ft			
(39) Vrt Clr Lft:		0 Ft					
Structure Information							
(19) Bypass Length: 10 Miles							
(16) Latitude: 41.6627103		(17) Longitude: -83.5129056					
(20) Toll: 3 - On Free Road, the structure is toll		(106) Major Rehabilitation:					
(27) Date Built: 2007		Major Reconstruction Date:					
(28A) No. Lanes On: 3		(28B) No. Lanes Under: 2					
(301) Horiz Curve: 26.47		(34) Skew: 0 Deg					
(32) App. Rdw Width: 56 Ft		(51) Brg. Rdw Width: 56 Ft					
(52) Deck Width: 58.667 Ft		Deck Area: 233503					
(406) Median Type: N - NONE/N - NON BARRIER/N - NO JOINT							
(33) Bridge median: 1 - Open median							
Sidewalks:		(50A) Left: 0 Ft		(50B) Right: 0 Ft			
Type Curb or Sidewalk:							
(425) Left Matl: N - None		(426) Type: N - None or N/A (RR, Pedestrian,					
(427) Right Matl: N - None		(428) Type: N - None or N/A (RR, Pedestrian,					
(412) Flared: Y		(408) Composite: N - Non-composite					
(407) Railing: 2 - Reinforced Concrete and Steel							
(409) Deck Drainage: 4 - Inlets with drain pipes							
(107) Deck Type: 1 - Reinforced concrete							
Deck Protection:							
(108B) External: N - Not Applicable (only for bridges for no decks)		(108C) Internal: 1 - Epoxy Coated Reinforcing					
(108A) Wearing Surface: 2 - Integral Concrete (Monolithic) - Not an Overlay							
(420) Thickness: 1.0 in		(419) Date of Wearing Surface: 06/06/2007					
(547) Slope Protection: 2 - Stone (No. 1 Aggregate)							
(45) Main Spans Number: 29		Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS					
(46) Approach Spans Number: 0		Type: N - NONE/N - NONE/N - NONE					
(307) Total Spans: 0		(48) Max Span: 151 Ft		(49) Overall Leng: 3916 Ft			
Substructure:				Foundation and Scour Information:			
Abut-Rear		(532) Matl: N - None		(531) Type: N - None		(533) Fnd: 3 - Drilled Shafts	
Abut-Fwd		(527) Matl: 2 - Concrete		(526) Type: 8 - Pedestal		(528) Fnd: 3 - Drilled Shafts	
Pier-Pred		(535) Matl: 2 - Concrete		(534) Type: 4 - Open Column		(536) Fnd: 3 - Drilled Shafts	
Pier-Other		(538) Matl: N - None		(537) Type: N - None		(539) Fnd: N - None (Such as most Culverts)	
Pier-Other		(541) Matl: N - None		(540) Type: N - None		(542) Fnd: N - None (Such as most Culverts)	
(545) Pier, Total Count: 26							
(663) Stream Velocity: 0.0 fps				(113) Scour: N - Bridge not over waterway.			
(92B) Dive: N Freq: 0				(655) Chan Prot: X - Not Applicable			
(93B) Date of Last Dive Insp:				(657) Drainage Area: 0 Sq. Mi			
Clearance Under the Bridge							
Min. Horiz Under Clear:		(326) NC: 0 Ft		(325) CARD: 26 Ft			
(328) Prac Max Vrt Under Clear:		28.5 Ft					
Min. Vert Under Clear:		(327) NC: 28.5 Ft		(54) CARD: H 25.583 Ft			
Min Lat Under Clear:		(329) Right NC: 0 Ft		(55) Right CARD: H 54 Ft			
		(330) Left NC: 0 Ft		(56) Left CARD: 96 Ft			
Load Rating Information				(71-72) Appraisal			
(31) Design Load: 9 - HS25 or greater				(71) Waterway Adequacy: N			
(64) Opr Rat Fact: 2.390		(700) LD: 2 - HS20 Loading		(72) Approach Alignment: 9			
(66) Inv Rat Fact: 1.250		(702) LD: 2 - HS20 Loading		(67) Calc Str Appraisal: 6 - Equal to present minimum			
(734) Ohio Percent Legal		150		(68) Calc Deck Geometry: 6 - Equal to present minimum			
(704) Year of Rating: 7/1/2011				(69) Calc Underclearance: 9 - Superior to present			
(63) Analysis: 6 - Load Factor Rating (LFR) reported by RF using HS20							
(708) Rate Soft: 5 - Finite Element (FE) Program							
(707) PE# 0							
Approach Information							
(401) Approach Guardrail: 7 - Concrete Deflector Parapet							
(403) Approach Pavement: 1 - Concrete				(402) Grade: 1 - Good			
Culvert Information							
(575) Culvert Type: N - Not a Culvert or Rigid Frame				(578) Length: 0 Ft			
(580) Depth of Fill: 0 Ft				(582) Headwalls: N - None or Not Applicable (Not a			
General Information							
(475) Main Member: 9 - Segmental Box Girder				(477) Moment Plate: N - No Moment Plates			
(414) Expansion Joint: A - MODULAR//							
(453) Bearing Devices: C - ELASTOMERIC (LAMINATED)/A - SLIDING (OTHER)/							
(38) Navigation: N - Not Applicable - No waterway		(39) Vert Clr: 0 Ft		(40) Horiz Clear: 0 Ft			
(92C) Spec Insp: N Freq: 0				(93C) Special Inspection Date:			
(92A) Fracture Critical Insp: N Freq:				(93A) Special Inspection Date:			
(474) Long Member: N - Not Applicable (i.e. Culvert, Beam, Slab,				(468) Hinges: N - Not Applicable (structures with no hinges)			
(486) Structural Steel Memb: N - None				(465) Framing: N - None or Not Applicable			
				(407) Railing: 2 - Reinforced Concrete and Steel			
				(482) Paint: N - None or Not Applicable			
(203) Bridge Dedicated APR MAUMEE RIVER CROSSING							

Unit of Measure: ENGLISH
 Structure File Number: 4806107
 Sufficiency Rating: 85.0

Bridge Inventory and Appraisal
 Inventory Bridge Number: LUC 00280 03.750 R
 1 SUMMIT TO CHAMPLAIN, NSRR

Report Date: 09/17/2017
 BR. TYPE: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS
 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: (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): 40202 (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: N (430) Fence: N (432) Glare Screen: N (435) Splash Guard: N (459) Catwalk: N (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: 7 (59) Superstructure: 6 (60) Substructure: 7 (62) Culvert: N (61) Channel: N (c6) Approaches: 5 General Appraisal: 6 (41) Operational Status: A (90) Inspection Date: 09/17/2017 (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: N - Bridge not over waterway. 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	

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

APPROACH INSPECTION

Structure File Number: 4806107

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Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY

APPROACH

(c6) Approach Summary: 5

Recommended: 4

c1. Approach Wearing Surface (EA)

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

Approach pavement cracked in all the lanes and at some locations patches were spalled. See Photo 1. The riding surface over the length of the slab and expansion joint was noted to be smooth.

c2. Approach Slabs (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
1400	0		1400		3.00

Transverse cracks of 0.030" width were seen on the East shoulder of the approach slab. Minor transverse cracks were observed in all the lanes. See Photo 2.

c3. Relief Joint (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
56	56				1.00

Replaced in 2010.

c4. Embankment (EA)

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

No notable defects were observed.

c5. Guardrail (EA)

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

A concrete spall of 21"x8"x0.75" was observed on the east barrier. See Photo 3. A 0.75" header gap was observed in concrete barriers on both sides. See Photo 4. Vegetation growth between joints was seen in the West barrier.

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APPROACH INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 1 Concrete spalls in approach pavement in all lanes looking West



Photo 2 Transverse cracks in East side of the approach slab looking East



Photo 3 Concrete spall 21"x8"x3/4" in East parapet looking East



Photo 4 0.75" header gap between concrete barriers looking East

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

DECK INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY

DECK

(58) NBIS Deck Summary:

7

Recommended: 9

c7.1 Floor/Slab (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
229740	225906	3834			1.02

The Northbound North approach (LUC-280-0375R) extends from Pier 30NB (Station 248+87.50) to Abutment 59NB (Station 288+67.40). The entire deck quantity is rated in this report. The longitudinal joint is rated in this report as per the 2016 inspection.

Hairline to moderate (0.025" wide) transverse and map cracking with efflorescence in areas was noted along the length of the longitudinal closure pour joint. See Photo 1.

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 the section. Numerous transverse closure pour joints in the top flange/deck displayed areas of cracking, some with heavy efflorescence, over the length of the bridge. See Photo 2.

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. A majority of the segmental and expansion joints exhibited transverse cracks. See Photo 3.

Numerous lift hole and deck patches were noted along the length of the bridge and displayed moderate cracking (0.013" to 0.020"), spalling and discoloration around the perimeter. See Photo 4. Other patches were determined to be delaminated and unsound with moderate cracking in both the shoulder and travel lane areas of the deck. See Photos 5 through 8. These patches and cracks appeared to be reflective and were present in the wearing surface.

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
219296	215782	3514			1.02

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. A majority of the segmental and expansion joints exhibited transverse cracks. See Photo 3.

Numerous lift hole and deck patches were noted along the length of the bridge and displayed moderate cracking (0.013" to 0.020"), spalling and discoloration around the perimeter. See Photo 4. Other patches were determined to be delaminated and unsound with moderate cracking in both the shoulder and travel lane areas of the deck. See Photos 5 through 8.

A few areas of the wearing surface exhibited scaling and abrasion in the west traffic lanes of the roadway in spans 54 to 56NB. See Photo 9.

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

c10. Median (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
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Inspection Date: 09/17/2017

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Reviewed Date: 03/03/2018

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

DECK INSPECTION

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CONTINUOUS

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DECK

0 0

c11. Railing (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
7140	0	7140			2.00

The East and West parapets run from Pier 30NB (Station 248+87.50) to Abutment 59NB (Station 288+67.40). The parapets for Ramp D Bridge (Pier 1D to Pier 7D = 820') were included in the ramp report, this they were subtracted from this quantity.

Typical areas of hairline to moderate vertical and horizontal cracking were noted along the length of the concrete parapet on both sides of the roadway. See Photos 10 and 11.

Numerous areas of cracking had efflorescence, rust staining and/or discoloration/leaching. The bottom 2" saw cut was not filled in the East concrete parapets in Spans 37NB through 40NB. See Photo 12.

Several areas of delamination, spalls and gouges were noted along the length of the bridge in Spans 40NB through 43NB, 53NB and 55NB. See Photos 13 through 15. A few areas of scaling along the top edge of the East parapet were noted in the Span 40NB. See Photo 16. Concrete pop outs were observed in the Span 42NB. See Photo 17.

A few areas of deterioration and heavy rust on the steel railing were noted on the East steel railing along the length of the bridge. Minor paint damage was found at multiple locations. In Span 30NB, the splice plate bolt was missing from the railing. See Photos 18 through 21.

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
34	0	10	24		3.00

A majority of the scuppers on the deck appeared to be partially or fully filled with debris and not serving their intended function. Some of the scuppers had vegetation growing. See Photo 22.

The drainage caps on the face of the pier end segments were leaking on majority of the scupper locations. Varying levels of rust and efflorescence were noted at these locations. See Photo 23.

Interior drainage pipes within the interior of the box segments at Piers 32NB, 36NB, 41NB and 44NB exhibited leakage with rust staining. See Photo 24. Leaks were observed in the expansion joint device area at Pier 53NB. See Photo 25.

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
584	0	584			2.00

All the expansion joints over the length of the bridge were either partially or fully filled over the entire width of the roadway with vegetation growing along the joints. See Photo 26. The joint at Abutment 59NB had minor concrete spalls on the North side of the header concrete. See Photo 27.

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Photo 1 Hairline to moderate (0.025") cracking with efflorescent leaching in closure pour joint



Photo 2 Bottom of the deck slab closure pour with transverse cracks and efflorescence in Span 29NB



Photo 3 Transverse cracks at the segmental joint in Span 56NB



Photo 4 Lift hole patches with spalling and efflorescence around the perimeter at Pier 56NB



Photo 5 Unsound concrete patch (1'x1') with map cracking at Pier 45NB scupper



Photo 6 Concrete patches with minor spalls around the perimeter in the Span 45NB

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Photo 7 Delaminated concrete patch (5'x3') in the West traffic lane in the Span 55NB looking West



Photo 8 Concrete patch with map cracking in the travel lane in Span 58NB looking West



Photo 9 Scaling and abrasion in the wearing surface looking West



Photo 10 Typical vertical cracks in the West parapet looking West



Photo 11 Typical full length vertical cracks in the East parapet looking East



Photo 12 Bottom 2" saw cut in the East parapet unfilled looking East

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Photo 13 Spall (42"x15"x2") on the East parapet in Span 53NB looking East



Photo 14 Spall at the light pole with exposed reinforcement in Span 55NB looking South



Photo 15 Delamination in East parapet in Span 43 looking East



Photo 16 Scaling along the top of East parapet in Span 40NB looking East



Photo 17 Concrete popouts in East parapet in Span 42NB looking East



Photo 18 Missing splice plate bolt for the steel railing in Span 30NB looking East

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Photo 19 Typical condition of the steel railing along the length of the bridge looking South



Photo 20 Deterioration in the steel railing due to heavy rust in Span 38NB



Photo 21 Paint damage to the steel railing in Span 41NB looking East



Photo 22 Fully filled scuppers with vegetation growing at Pier 55NB looking East



Photo 23 Heavy rust staining and efflorescence on the edge face of the end segments



Photo 24 Interior drainage pipe at Pier 32NB with rust staining

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Photo 25 Leaking expansion joint at Pier 53NB



Photo 26 Pier 30NB expansion joint fully filled with debris looking East



Photo 27 Concrete spalls in the expansion joint header at Abutment 59NB looking West

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY

SUPERSTRUCTURE

(59) NBIS Superstructure Summary: 6

Recommended: 9

c14. Alignment (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
29	29				1.00

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
3980	3380	600			1.21

Numerous unsound or delaminated patches were observed in the lift holes at the top flange/ceiling slab along the edges of the interior segment. A majority of these areas exhibited efflorescence over the length of the bridge. See Photo 1. At multiple locations concrete spalls with exposed reinforcement were observed. See Photo 2. Other patches and construction joints in the interior of the segments, both webs and top/bottom flanges/slabs exhibited delaminated and spalled concrete. See Photos 3 and 4. Temporary jacking stiffeners/corbels were removed exposing reinforcement in Spans 43NB and 48NB. These areas have been painted, however the concrete was not patched. See Photo 5. The construction access hole patches in Spans 33NB and 37NB had cracks with efflorescence. See Photo 6.

Along the exterior web and bottom flange/slab, several delaminated and spalled patches were noted along the length of the bridge. Grout or epoxy leakage between the segments was observed in Span 34NB. See Photos 7 through 10.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and top flange/slab of a majority of segments. These cracks varied in length and were typically 0.005" to 0.030" in width. See Photo 11. 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 12 through 15. The exterior PT block segments had typical cracking on a majority of the elements on all faces. See Photos 16 and 17.

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 9" deep. See Photos 18 and 19. 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 Photo 20.

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.

c16. Diaphragm/Cross Frames (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
58	50	8			1.19

The interior diaphragms exhibited typical hairline to moderate vertical and map cracking ranging from 0.005" to 0.04" in width. Efflorescence and leaching was present at some locations although the areas did not appear to be active. Additionally, several diaphragms had areas of delaminated/unsound concrete on the vertical faces. See Photos 21 and 22.

c26. Bearing Devices (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
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2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY

SUPERSTRUCTURE

81

78

3

1.05

The plinths of Piers 32NB, 35NB, 37NB, 39NB, 46NB and 55NB exhibited areas of unsound, spalled or delaminated concrete with moderate to severe cracking in over 5% of the bearing area. See Photo 23. At the Pier 29NB West bearing, a gap between load plate and sole plate was observed. See Photo 24. The Pier 53NB West bearing was noted leaning 1 5/16" to South and the East bearing was leaning ¼" to the South. At Pier 34NB honeycombed concrete and cracks were observed in the pedestal. The Pier 30NB West bearing was rotated 3.5° to the East and the East bearing was rotated 5° to the South. See Photo 25.

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 1 Efflorescence leaching from lift holes in Span 49NB



Photo 2 Severe spall at lift hole location with exposed reinforcement in Span 50NB



Photo 3 Concrete spall (5"x6"x1") in the top flange/slab in Span 33NB



Photo 4 Delamination in the top flange over future PT block in Span 41NB



Photo 5 PT block removed with exposed reinforcement in Span 43NB



Photo 6 Construction access hole patch cracks and efflorescence in Span 33NB

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 7 Spall (8"x3"x1.5") in PT block 2 at Pier 42NB looking West



Photo 8 Concrete cut out of the web at the end of the beam at Pier 45NB looking West



Photo 9 Grout or epoxy leakage between segments in Span 34NB looking North



Photo 10 Spall (8"x8"x0.5") between Segments 12 & 13 in Span 34NB



Photo 11 Cracks with efflorescence in the top flange in Span 35NB

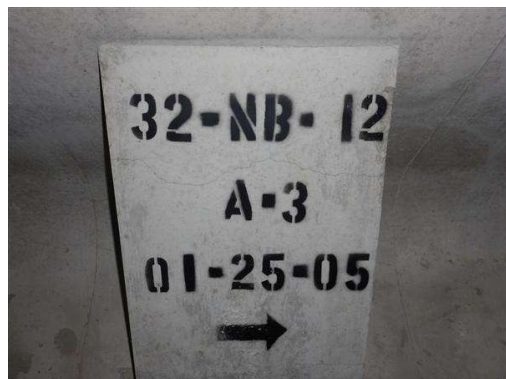


Photo 12 Typical longitudinal cracks on future PT blocks

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 13 Interior upper corner cracks typical along the length of the bridge



Photo 14 Cracks with efflorescence in the cantilever portion of the slab at Pier 36NB looking East



Photo 15 Typical hairline longitudinal cracks in the exterior webs



Photo 16 Longitudinal and transverse cracks in the bottom of PT block at Pier 42NB



Photo 17 Typical cracking in the vertical faces of the PT end segments at the piers



Photo 18 9" deep void in the interior construction joint in Span 44NB

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 19 Void in the exterior construction joint in the bottom flange in Span 39NB



Photo 20 Typical concrete spalls in the future PT blocks



Photo 21 Delaminated concrete area in the vertical of the diaphragm at Pier 42NB



Photo 22 Map cracking and rust stains on vertical face of diaphragm at Pier 58NB



Photo 23 Concrete spalls in East bearing plinth of Pier 37NB



Photo 24 Gap between load plate and sole plate on West bearing at Pier 29NB looking South

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 25

East bearing at Pier 30NB leaning 3.5°
South

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUBSTRUCTURE INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY

SUBSTRUCTURE

(60) NBIS Substructure Summary: 7

Recommended: 8

c33. Abutment Walls (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
59	58	1			1.03

The Abutment 59NB wall exhibited areas of hairline vertical and map cracking.

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

c35. Abutment Columns/Bents (EA)

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

The Abutment 59NB bent exhibited areas of hairline diagonal cracks .

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

c34. Abutment Caps (LF)

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

c38. Pier Columns/Bents (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
26	26				1.00

Typical hairline to medium (0.025") width vertical, horizontal and map cracking areas were noted on the pier columns. Honeycombed concrete areas were observed on a majority of the pier columns.

c36. Pier Walls (LF)

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

c37. Pier Caps (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
416	300	116			1.37

Typical hairline to medium (0.025") width vertical, horizontal and map cracking areas were noted on a majority of the pier caps. See Photos 1 and 2. Numerous caps exhibited delaminated form-tie patches in the North and South faces.

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

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUBSTRUCTURE INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY

SUBSTRUCTURE

c39. Backwalls (LF)

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

c40. Wingwalls (EA)

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

Insignificant cracking was noted in the cast-in-place concrete wingwalls.

c43. Slope Protection (EA)

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

No notable defects were observed.

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUBSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 1 Typical cracking and efflorescence or staining in the pier caps



Photo 2 Typical cracking and efflorescence or staining in the pier caps

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, 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
12	12				1.00

All overhead and roadway [4 mile marker (1/10th mile), 11 mile marker and exit 11 overhead] attached to the side of the parapet were in good condition with no notable defects.

c56. Sign Supports (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
9	9				1.00

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

c57. Utilities (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
7960	7940	20			1.00

Electrical conduits were noted to be separated or broken in the interior Spans 30NB, 41NB, 44NB, 50NB and 53NB. See Photo 1 and 2. In Span 54NB, the bottom of the electrical conduit was observed to be burnt. See Photo 3.

In Spans 30 through 33NB, screws were missing or loose in the junction box covers on the East parapet. See Photo 4. In Span 35NB, the light pole was missing the luminary device. See Photo 5. The ground wire connecting the light pole in Span 39NB was disconnected. See Photo 6. In Span 58NB, a leveling nut was not fully tightened on the light pole base plate. See Photo 7.

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 1 Broken and separated electrical conduit in Span 30NB



Photo 2 Broken electrical conduit bracket in Span 50NB



Photo 3 Burned electrical conduit in Span 54NB



Photo 4 Missing and loose screws in the electrical panel in Span 31NB



Photo 5 Missing light in Span 35NB



Photo 6 Disconnected grounding wire in Span 39NB

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 7

Loose leveling nut on light pole base in
Span 58NB

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPPLEMENTAL INSPECTION

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, 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
480	453	20	7		1.29

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.

c64. Post Tensioning Segmental Box Internal (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
437	0	437			2.00

Numerous unsound patches were observed in the lift holes at the top flange/ceiling slab along the edges of the interior segment. A majority of these patches exhibited efflorescence over the length of the bridge. See Photo 1 in the Superstructure section. At multiple locations concrete spalls with exposed reinforcement were observed. See Photo 2 in the Superstructure section. Other patches and construction joints in the interior of the segments, both webs and top/bottom flanges/slabs, exhibited delaminated and spalled concrete. See Photos 3 and 4 in the Superstructure section. Temporary jacking stiffeners/corbels were removed exposing reinforcement in Spans 43NB and 48NB. These areas have been painted. See Photo 5 in the Superstructure section. The construction access hole patch in Spans 33NB and 37NB had cracks with efflorescence. See Photo 6 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and top flange/slab of a majority the segments. These cracks varied in length and were typically 0.005" to 0.03" in width. See Photo 11 in the Superstructure section. Additionally, 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 12 and 13 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 were observed to be up to 9" deep. See Photo 18 in the Superstructure section. Spalls and delaminated areas were noted throughout the interior future stressing blocks located at the top of the webs and along the floor slab. See Photo 20 in the Superstructure section.

The interior diaphragms exhibited typical hairline to moderate vertical and map cracking ranging from 0.005" to 0.04" in width. Efflorescence 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 21 and 22 in the Superstructure section.

Small areas of honeycombed concrete were also noted on the interior 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
437	337	100			1.31

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SUPPLEMENTAL INSPECTION

Structure File Number: 4806107 Inventory Bridge Number: LUC 00280 03.750 R Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS
Sufficiency Rating: 85.0 Date Built: 1/1/2007
District: 02 Place Code (FIPS): TOLEDO IR-280 over SUMMIT TO CHAMPLAIN, NSRR Type of Service on: HIGHWAY

SUPPLEMENTAL

Along the exterior web and bottom flange/slab, several delaminated and spalled patches were noted along the length of the bridge. Grout or epoxy leaking between the segments was observed in Span 34NB. See Photos 7 through 10 in the Superstructure section.

Additional hairline vertical and longitudinal cracks were present along exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See photos 14 and 15 in the Superstructure section. The exterior pier segments had typical cracking with rust staining and efflorescence on a majority of the elements on all faces. See photos 16 and 17 in the Superstructure section.

Voids were present in segment closure joints, varying size and depth. See Photo 19 in Superstructure section. Small areas of honeycombed concrete were also noted on the exterior 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.

c66. Post Tensioning External Tendon (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
240	240				1.00

External tendons were in good condition with minimal notable defects. A few areas of rusting were observed on the steel PT ducts at the diaphragm connections and clamps connecting the PTFE sheathing to the steel ducts. See Photo 3.

A couple of the exterior tendon couplers connecting sections of the sheathing together appeared misaligned slightly over the length of the bridge. PT duct splices appeared to be cracking, soft and/or bulging at multiple locations. See Photo 4.

An area of sheathing splice material was not properly adhered to the PTFE tendon sections in Span 55NB at Segment 15. It could not be determined whether this location was allowing access for moisture to penetrate the tendon. See Photo 5.

Numerous future prestressing ducts in the diaphragm exhibited moderate to heavy rust with the staining in some locations. See Photo 6.

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 voids.

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

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

SUPPLEMENTAL INSPECTION PHOTOS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

Type of Service on: HIGHWAY



Photo 1 Voids in the PT anchor cap



Photo 2 Missing bolt on PT anchor heads and rust on clamps at Pier 55NB



Photo 3 Rust on PT duct at Pier 52NB



Photo 4 Cracking and bulging on PT sleeves at Pier 58NB



Photo 5 Splice material not properly adhered to the PT tendon in Span 55NB



Photo 6 Typical rust on the future PT ducts located in the diaphragms

2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT

CRITICAL FINDINGS

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

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2017 LUC-00280-0375_R (NB NORTH APPROACH) ROUTINE INSPECTION REPORT REVIEW

Structure File Number: 4806107

Inventory Bridge Number: LUC 00280 03.750 R

Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 -
CONTINUOUS

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over SUMMIT TO CHAMPLAIN, NSRR

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