



2017 LUC-00280-0375_L (SB NORTH APPROACH) ROUTINE
INSPECTION REPORT
BRIDGE INSPECTION REPORT

Structure File Number: 4806115

Inventory Bridge Number: LUC 00280 03.750 L

I-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_L (SB NORTH APPROACH) ROUTINE INSPECTION REPORT

LOCATION MAP

Structure File Number: 4806115

Inventory Bridge Number: LUC 00280 03.750 L

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

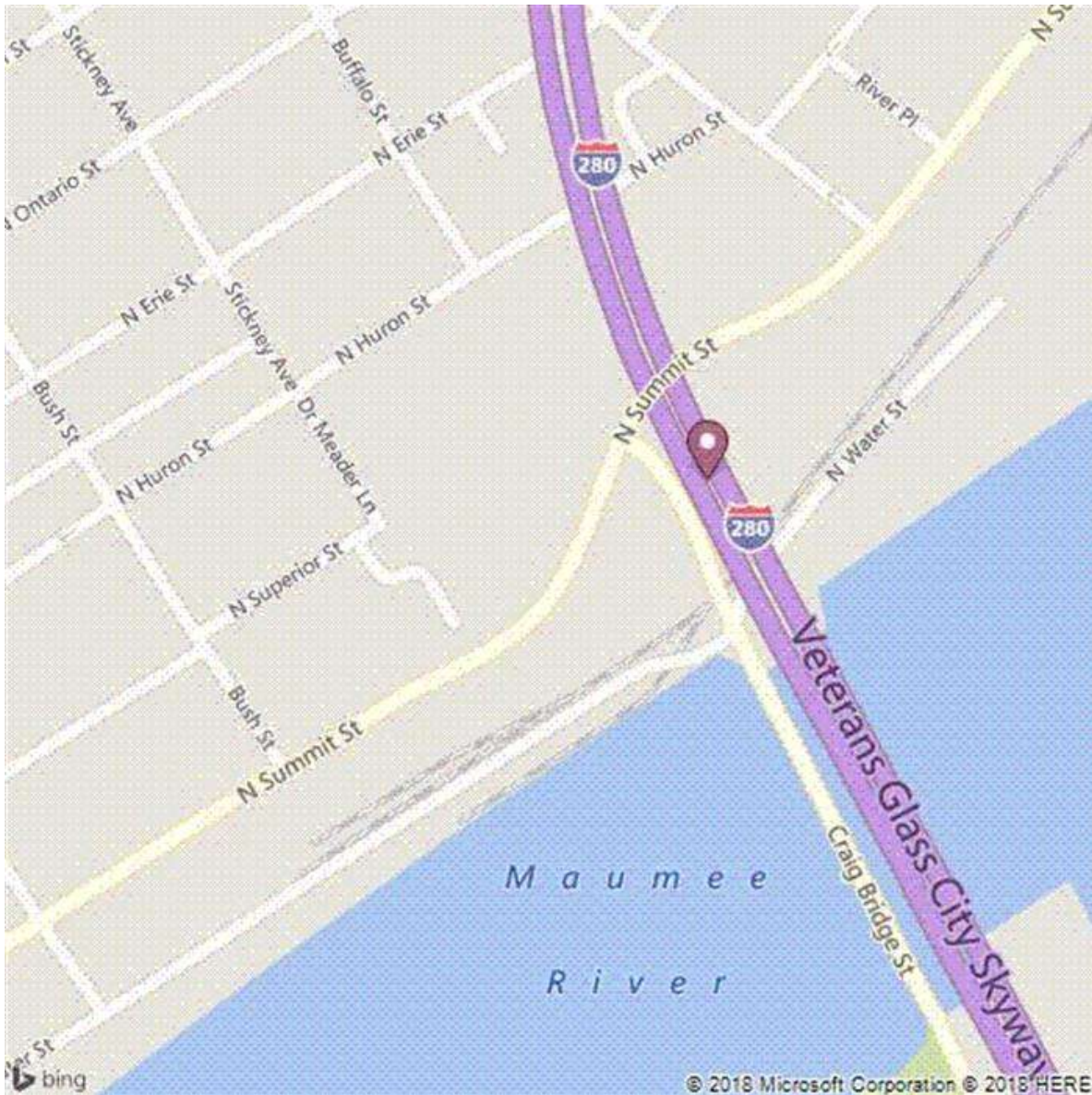
Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

I-280 over SUMMIT TO CHAMPLAIN NSRR

Type of Service on: HIGHWAY



LOCATION MAP #1

Region:

State: 395

County: 48

Facility Carried: I-280

Facility Intersected: SUMMIT TO CHAMPLAIN NSRR

Location: N.SB.APPR.SPAN TO VGCS

Description: Southbound North Approach Location Map

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GENERAL ELEVATION PHOTOS

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Photo 1

General elevation of the Southbound North approach



Photo 2

End view of the Southbound North approach

[illegible]

Unit of Measure: ENGLISH
 Structure File Number: 4806115
 Sufficiency Rating: 85.0

Bridge Inventory and Appraisal
 Inventory Bridge Number: LUC 00280 03.750 L
 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: 6 (62) Culvert: N (61) Channel: N (c6) Approaches: 6 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: 1 - Meets acceptable standards (36C) Guardrail: 1 - Meets acceptable standards (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	

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APPROACH INSPECTION

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APPROACH

(c6) Approach Summary: 6

Recommended: 6

c1. Approach Wearing Surface (EA)

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

Areas of insignificant to moderate cracking were present along the length and width of the approach slab. The riding surface over the length of the slab and expansion joint location was noted to be smooth.

c2. Approach Slabs (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
1400	1100	300			1.29

Insignificant to moderate transverse and map cracking were observed throughout the approach slab. See Photos 1 and 2.

c3. Relief Joint (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
56	0	56			2.00

Transverse cracks and spalls were observed in the asphalt relief joint. Growing vegetation was noted along the width of the roadway. See Photo 3.

c4. Embankment (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
2	1	1			1.60

Erosion along the cast-in-place wingwall at the back of the approach slab was observed. See Photo 4.

c5. Guardrail (EA)

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

The concrete barriers along both sides of the roadway exhibited typical longitudinal and vertical hairline cracks over the length of the approach slab. The East parapet exhibited 0.75" of vertical and longitudinal displacement/rotation. See Photos 5 and 6.

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APPROACH INSPECTION PHOTOS

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Photo 1 Transverse crack in the traffic lane of approach slab looking East

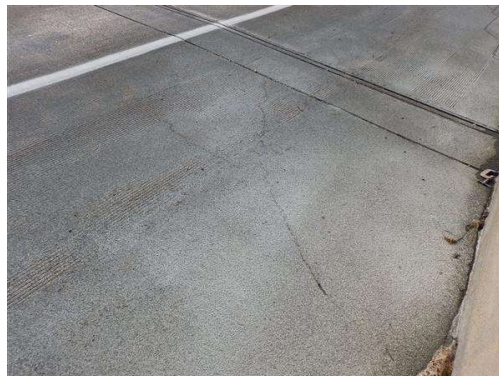


Photo 2 Cracks in the shoulder of approach slab



Photo 3 Cracks and growing vegetation in relief joint looking East



Photo 4 Erosion along wingwall at the back side of the approach slab



Photo 5 East barrier displaced/rotated by 0.75" looking East

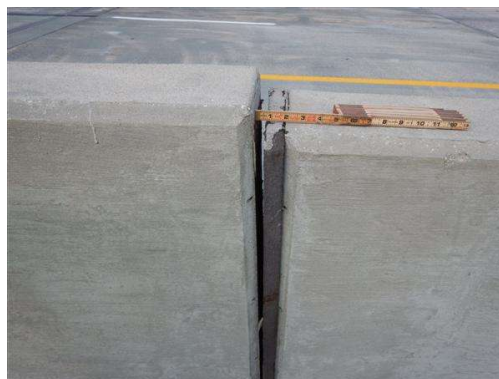


Photo 6 0.75" gap in the East parapet

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DECK INSPECTION

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I-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
233487	226815	6672			1.04

The Southbound North approach extends from Pier 30SB (Station 248+87.50) to Abutment 59SB (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 0.030" wide transverse, longitudinal and map cracking, with efflorescent leaching 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 that section. Numerous transverse closure pour joints in the top flange/deck displayed areas of cracking with efflorescence over the length of the bridge.

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

Numerous lift hole and deck patches along the length of the bridge displayed moderate cracking (0.013" to 0.030"), spalling and discoloration around the perimeter. See Photos 3 through 6. These patches and cracks appeared to be reflective and were present in the wearing surface.

Scaling of the deck was observed in the shoulder and traffic lanes of Spans 36SB and 39SB. See Photos 7 and 8.

Concrete depressions were noted on the deck ranging from 0.25" to 0.375" in depth in Spans 30SB, 33SB, 35SB, 36SB and 39SB. See Photos 9 and 10.

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
222874	217036	5838			1.04

Numerous lift hole and deck patches along the length of the bridge displayed moderate cracking (0.013" to 0.030"), spalling and discoloration around the perimeter. See Photos 3 through 6. These patches and cracks appeared to be reflective and were present in the wearing surface.

Scaling of the deck was observed in the shoulder and traffic lanes of Spans 36SB and 39SB. See Photos 7 and 8.

Concrete depressions were noted on the deck ranging from 0.25" to 0.375" in depth in Spans 30SB, 33SB, 35SB, 36SB and 39SB. See Photos 9 and 10.

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c10. Median (LF)

Inspection Date: 09/17/2017

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Reviewed Date: 03/03/2018

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DECK INSPECTION

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Sufficiency Rating: 85.0	Date Built: 1/1/2007	
District: 02 Place Code (FIPS): TOLEDO	I-280 over SUMMIT TO CHAMPLAIN NSRR	Type of Service on: HIGHWAY

DECK

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

c11. Railing (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
6629	0	6629			2.00

The East and West parapets run from Pier 30SB (STA. 248+87.50) to Abutment 59SB (STA. 288+67.40). The parapets for Ramp A bridge (Pier 9A to 19A = 1335') were included in the ramp report, thus 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 Photo 11.

Numerous areas of cracking had efflorescence, rust staining and/or discoloration/leaching. The bottom saw cut was not filled in the West parapet in Span 33SB. See Photo 12.

Several areas of delamination, spalls and gouges were noted in Spans 37SB and 51SB. See Photos 13 through 15. A few areas of scaling along the top edge of the West parapet were noted in Spans 32SB and 34SB. See Photo 16. Spalls were observed in the vertical joints of the West parapet along the length of the bridge. See Photo 17.

A few areas of deterioration and heavy rust were noted on the West steel railing along the length of the bridge See Photo 18. Minor paint damage was found at multiple locations. See Photo 19.

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
32	0	8	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 20.

The drainage caps on the face of the pier end segments were leaking at majority of the scupper locations. Varying levels of rust and efflorescence were noted at these locations. See Photo 21.

The drainage pipes within the interior of the box segments at Pier 32SB and 33SB exhibited leakage with rust and/or water staining. See Photos 22 and 23.

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
685	684	1			1.00

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 in certain locations. See Photo 243 The joint at the Abutment 59SB had a concrete spall on the North side of the header concrete. See Photo 25.

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DECK INSPECTION PHOTOS

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Photo 1 Transverse and map cracks along longitudinal joint in Span 46SB



Photo 2 Map cracking along closure pour in Span 48SB



Photo 3 Concrete patch with 0.5" deep spall in Span 35SB



Photo 4 Spall (12"x12"x1") in Span 51SB



Photo 5 Concrete patch with spalls and discoloration around perimeter in the shoulder in Span 31SB



Photo 6 Liftholes with spalls around perimeter in Span 48SB

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Photo 7 Scaling and damage to grooving (10') in Span 39SB

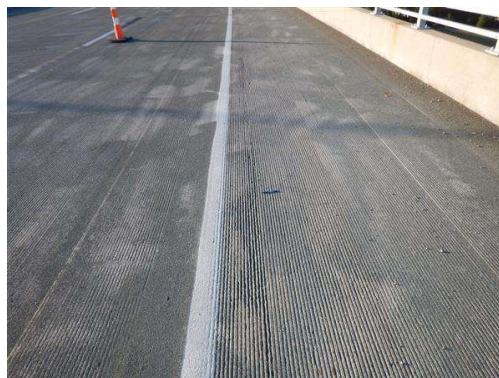


Photo 8 Scaling of deck in the shoulder in Span 36SB



Photo 9 Depression (0.25\") in deck/wearing surface in Span 36SB



Photo 10 Depression (0.375\") in deck/wearing surface in Span 35SB



Photo 11 Typical full height vertical cracks in the West parapet looking West



Photo 12 Bottom of saw cut in the West parapet in the Span 33SB was not filled

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Photo 13 Delamination and vertical cracks on face of the West parapet in Span 51SB looking West



Photo 14 Delamination in parapet beneath the steel railing post in Span 37SB looking West



Photo 15 Minor spalls on the edge of the parapet in Span 37SB



Photo 16 Scaling on the top of the West parapet in Span 34SB



Photo 17 Typical spalls in the vertical joint of the West parapet looking West



Photo 18 Typical condition of the steel railing with rust staining and minor deterioration along the length of the bridge

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Photo 19 Typical minor paint damage on steel railing along the length of the bridge



Photo 20 Fully filled scuppers with vegetation growing in Span 52SB looking West



Photo 21 Rust stains and efflorescence on the edge face of the end segments along with delaminated concrete patches



Photo 22 Interior drainage pipe at Pier 33SB with rust staining



Photo 23 Interior drainage leak and minor rust stains at Pier 30SB

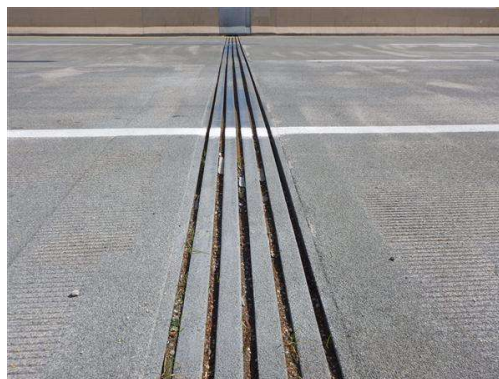


Photo 24 Expansion joint at Pier 30SB filled with debris and growing vegetation looking East

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Photo 25

Spalls in the expansion joint header at
Abutment 59SB

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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
7960	7360	600			1.11

Numerous delaminated or unsound 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. At multiple locations, 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. At multiple locations, cracks and spalls were observed in the deviator wall, primarily at the edges of the joints between the top and bottom flanges/slabs. See Photo 5. The access hole patch in Span 37SB exhibited spalling with cracks and 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. See Photos 7 through 9. At Piers 33SB, 36SB and 52SB, at the bottom flange near the bearings, concrete spalls with exposed reinforcement were noted. See Photos 10 and 11. The exterior PT end blocks at Piers 33SB and 36SB had multiple patches with cracking. See Photo 12.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and top flange/slab on a majority of segments. These cracks varied in length and were typically 0.005" to 0.030" wide. Additional hairline vertical and longitudinal cracks were present along the interior and exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photos 13 through 16. The exterior PT pier end segments had hairline to moderate transverse, longitudinal and map cracking on a majority of the elements on all faces. See Photos 17 and 18.

Voids were present in the segment construction joints, both interior and exterior, varying size and depth. Some of the voids were observed to be 12" deep. See Photos 19 and 20. In Span 37SB, the joint between segments 12 and 13 contained no epoxy or joint filler. See Photo 21. Spalls and delaminated areas were noted throughout the interior and exterior of 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 13 and 22.

Small areas honeycombed concrete were also noted on the interior and exterior of the segments along the length of the bridge. See Photo 23.

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

c16. Diaphragm/Cross Frames (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
58	52	6			1.15

The interior diaphragms exhibited typical hairline to moderate vertical and map cracking ranging from 0.005" to 0.04" in width. Efflorescence was noted at some locations although these areas did not appear to be active. See Photo 25. Additionally, several diaphragms had areas of delaminated concrete on the vertical faces along the length of the bridge. See Photo 26.

c26. Bearing Devices (EA)

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SUPERSTRUCTURE

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
87	82	5			1.08

The plinths of Piers 27SB, 29SB, 33SB, 34SB, 40SB, 46SB, 52SB and 56SB exhibited areas of unsound, spalled or delaminated concrete with moderate to severe cracking in over 5% of the bearing area. See Photos 26 through 28. At Pier 51SB, honeycombed concrete around the edges of each bearing was observed. See Photo 29. Spalls with exposed reinforcement were noted in the bottom flange/slab adjacent to at Pier 38SB and spalling with moderate cracks were observed in the pedestal at Pier 44SB. See Photo 30.

At Pier 29SB, the West bearing was noted to be shifted 11" North and 9" South. The Southeast bearing at Pier 30 SB was leaning 0.5" West. At Pier 41SB, the East bearing was leaning 0.375" West. The Northeast and Northwest bearings at Pier 42SB were leaning 0.25" West. The Southwest bearing at Pier 42SB was leaning 0.75" South while the Southeast bearing was leaning 0.625" South.

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Photo 1 Efflorescence leaching from lift holes in Span 53SB



Photo 2 Spall with exposed reinforcement in the PT block in Span 48SB



Photo 3 Typical spall in the top flange/slab in Span 30SB



Photo 4 Spall in the top flange/slab in Span 41SB



Photo 5 Crack in the top of the deviator wall in Span 32SB



Photo 6 Construction access hole patch with spalls and efflorescence in Span 37SB

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Photo 7 Delaminated patch with discoloration in the web in Span 57SB



Photo 8 Spall at the drain hole in Span 36SB



Photo 9 Spall of (5'x20.5'x3.5') in the bottom flange of Span 52SB



Photo 10 Spall with exposed reinforcement in the bottom flange at Pier 33SB bearings



Photo 11 Spall of (3.5'x12'x2') in the bottom flange at bearings at Pier 36SB



Photo 12 Concrete patches with cracks, efflorescence and discoloration on PT end block at Pier 36SB

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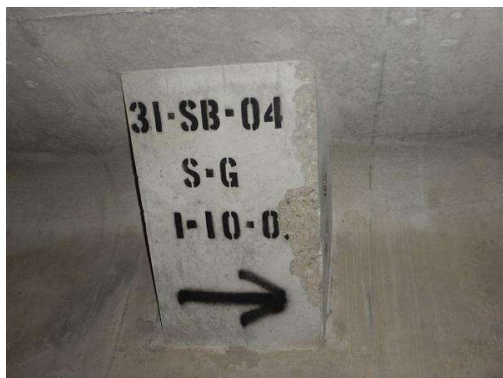


Photo 13 Typical cracking and spalling on future external PT blocks



Photo 14 Interior upper corner cracks typical along the length of the bridge



Photo 15 Cracks in the bottom flange at Pier 38SB



Photo 16 Typical longitudinal and map cracks with efflorescence in the exterior webs



Photo 17 Full height vertical cracks on South face of PT pier end segment at 38SB

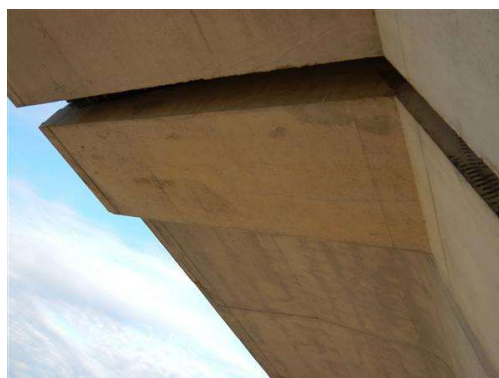


Photo 18 Longitudinal cracks in the bottom face of PT pier end segment at Pier 30SB

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Photo 19 12" deep void in the interior segment joint in Span 34SB



Photo 20 Concrete cut out (9"x3"x1.5") in the web in Span 34SB



Photo 21 Missing epoxy/joint filler between Segments 12 and 13 in Span 37SB



Photo 22 Spall on exterior floor PT stressing block in Span 34SB looking South



Photo 23 Typical honeycombed concrete in the webs looking East



Photo 24 Map cracking and rust stains on vertical face of diaphragm at Pier 30SB looking South

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SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4806115

Inventory Bridge Number: LUC 00280 03.750 L

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

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

I-280 over SUMMIT TO CHAMPLAIN NSRR

Type of Service on: HIGHWAY



Photo 25 Delaminated concrete in the vertical face of the diaphragm at Pier 47SB looking North



Photo 26 Spall in the West bearing plinth at Pier 56SB



Photo 27 Spalls with exposed reinforcement at East bearing at Pier 34SB



Photo 28 Vertical cracks in the plinth of East bearing at Pier 51SB



Photo 29 Honeycombed concrete around the edges of each bearing at Pier 51SB



Photo 30 Spalls with exposed reinforcement at North bearing at Pier 38SB

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SUBSTRUCTURE INSPECTION

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Type of Service on: HIGHWAY

SUBSTRUCTURE

(60) NBIS Substructure Summary: 6

Recommended: 8

c33. Abutment Walls (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
59	59				1.00

The Abutment 59SB wall exhibited area 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
1	1				1.00

The Abutment 59SB bent exhibited area 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.

c34. Abutment Caps (LF)

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

c38. Pier Columns/Bents (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
26	20	6			1.31

Typical hairline to medium (0.025") width vertical, horizontal and map cracking was noted on a majority of the pier columns. Honeycombed concrete areas were observed on a majority of the pier columns. See Photo 1.

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
416	242	174			1.52

Typical hairline to medium (0.030") width vertical and map cracking with rust stains were noted on a majority of the pier caps. See Photo 2. The drainage pipe on the Southeast side at Pier 38SB does not extend into the cap. See Photo 3. Heavy rust

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SUBSTRUCTURE INSPECTION

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SUBSTRUCTURE

on the drainage pipe clamp on Southeast side was observed at Pier 38SB. See Photo 4. The bird screen was hanging at Pier 30SB on the West face. See Photo 5.

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				

c40. Wingwalls (EA)

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

Insignificant cracking was noted on the wing walls.

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.

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SUBSTRUCTURE INSPECTION PHOTOS

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Photo 1 Typical honeycombed and hairline cracks on the columns



Photo 2 Typical vertical and longitudinal cracks with rust stains in the pier caps



Photo 3 Drainage pipe on Southeast side at Pier 38SB does not extend into the cap



Photo 4 Heavy rust on drainage pipe clamp at Pier 38SB



Photo 5 Hanging bird screen on the West face of Pier 30SB

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SIGNS/UTILITIES INSPECTION

Structure File Number: 4806115

Inventory Bridge Number: LUC 00280 03.750 L

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

Sufficiency Rating: 85.0

Date Built: 1/1/2007

District: 02 Place Code (FIPS): TOLEDO

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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
8	7		1		2.13

The overhead and roadway signs (4 mile markers (1/10th mile), 11 mile marker, 1280 South and exit overhead) attached to the side of the parapet were in good condition with no noticeable defects.

c56. Sign Supports (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
8	6		2		2.50

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

An electrical conduit bracket was broken in Span 33SB. See Photo 1. Electrical conduits were seperated in Span 30SB. See Photo 2. A loose electrical conduit bracket was noted in Span 48SB. See Photo 3. Cables were hanging in Span 56SB. See Photo 4.

The security camera bracket was loose on the exterior of Span 58SB. See Photo 5

A ground wire was disconnected in Span 44SB. See Photo 6.

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SIGNS/UTILITIES INSPECTION PHOTOS

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Photo 1 Broken electrical conduit bracket in Span 33SB



Photo 2 Separated electrical conduits in Span 30SB looking South



Photo 3 Loose electrical conduit in Span 48SB



Photo 4 Loose/hanging cables in Span 56SB looking West



Photo 5 Loose security camera bracket in Span 58SB



Photo 6 Disconnected grounding wire in Span 44SB

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SUPPLEMENTAL INSPECTION

Structure File Number: 4806115 Inventory Bridge Number: LUC 00280 03.750 L Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS
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SUPPLEMENTAL

c63. Post Tensioning End Cap (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
484	458	26			1.08

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 had missing bolts connecting the cap with the duct at the diaphragm. See Photo 1.

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
440	0	440			2.00

Numerous delaminated or unsound 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 1 in the Superstructure section. At multiple locations, spalls with exposed reinforcement were observed. See Photo 2 in the Superstructure section. Other patches and construction joints in the interior, both webs and top/bottom flanges/slabs exhibited delaminated and spalled concrete. See Photos 3 and 4 in the Superstructure section. At multiple locations, cracks and spalls were observed in the deviator wall, primarily at the edges of joints between the top and bottom flanges/slabs. See Photo 5 in the Superstructure section. The construction access hole patch in Span 37SB had cracks and efflorescence. See Photo 6 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along the interior 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" wide. Additional hairline vertical and longitudinal cracks were present along the interior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photos 13 and 14 in the Superstructure section.

Voids were present in the segment construction joints, varying size and depth. Some of the voids were observed to be 12" deep. See Photo 19 in the Superstructure section.

Spalls and areas of delaminated concrete 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 13 and 22 in the Superstructure section.

Small areas honeycombed concrete were also noted on the interior and exterior of the segments along the length of the bridge. See Photo 23.

The interior diaphragms exhibited typical hairline to moderate vertical and map cracking ranging from 0.005" to 0.04" in width. Efflorescence was noted at some locations although these areas did not appear to be active. See Photo 25 in the Superstructure section. Additionally, several diaphragms had areas of delaminated concrete on the vertical faces along the length of the bridge. See Photo 26 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.

c65. Post Tensioning Segmental Box External (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
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SUPPLEMENTAL INSPECTION

Structure File Number: 4806115 Inventory Bridge Number: LUC 00280 03.750 L Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS
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SUPPLEMENTAL

440 340 100 1.31

Several delaminated and spalled patches were noted along the length of the bridge at the exterior web and bottom flange/slab. At the bottom flange near Piers 33SB, 36SB and 52SB, concrete spalls with exposed reinforcement were observed near the bearings. See Photos 7 through 11 in the Superstructure section. The exterior PT pier end segments at Pier 33SB and 36SB had multiple patches with cracking. See Photo 12 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along exterior corner edges between the web and top flange/slab on a majority of segments. These cracks varied in length and were typically 0.005" to 0.030" wide. Additional hairline vertical and longitudinal cracks were present along the exterior webs and bottom flange/slabs of the box segments over the length of the bridge. See Photos 15 and 16 in the Superstructure section. A majority of the exterior PT end segments had typical cracking on all faces. See Photos 17 and 18 in the Superstructure section.

Voids were present in the segment construction joints, varying size and depth. In Span 37SB, the joint between segments 12 and 13 contained no epoxy/joint filler. See Photo 21 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
242	242				1.00

The 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 2.

In Span 36SB, at Segment 14P, a tear in the PT duct cover was observed. See Photo 3.

In Span 44SB, at Segment 16E, efflorescence was noted to be leaching from a PT duct . See Photo 4.

At Pier 39SB, poor repair work was done on tendon sheathing. See Photo 5.

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

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Photo 1 Voids in the PT anchor cap at Pier 39SB looking South



Photo 2 Rust on PT duct clamp at Pier 51SB looking West



Photo 3 Tear in the PT duct splice at Pier 36SB looking West



Photo 4 Leaching efflorescence from PT duct in Span 44SB



Photo 5 Poor sheathing work on PT duct in Span 39SB looking West

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CRITICAL FINDINGS

Structure File Number: 4806115

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