



STATE OF OHIO DEPARTMENT OF TRANSPORTATION
BRIDGE INSPECTION REPORT

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

IR-280 over NSRR,RAMP Z FRONT ST.

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

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
LOCATION MAP

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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

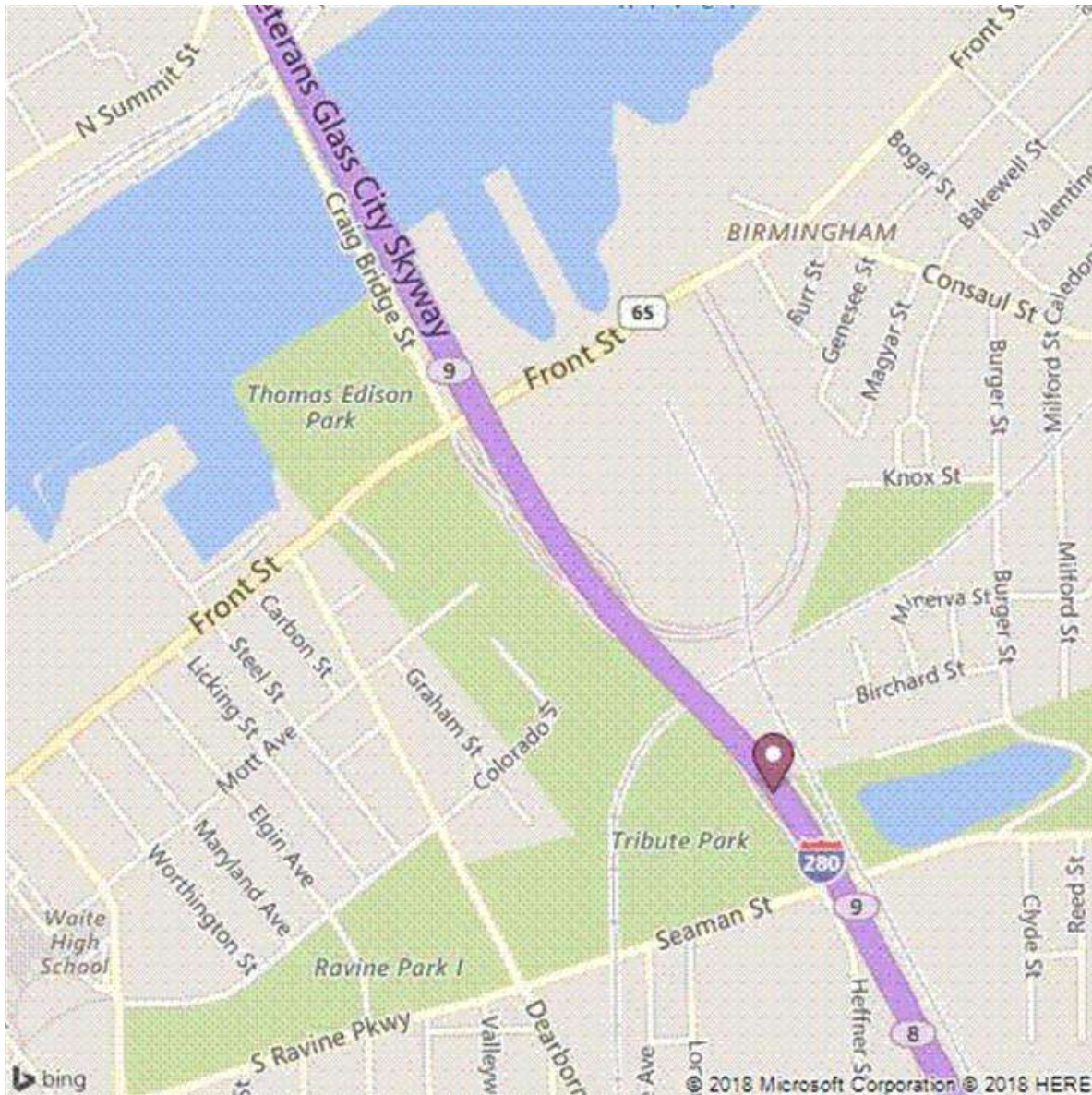
Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

Type of Service on: HIGHWAY



LOCATION MAP #1

Region:

State: 395

County: 48

Facility Carried: IR-280

Facility Intersected: NSRR,RAMP Z FRONT ST.

Location: S. NB APPR SPAN TO VGC5

Description: Northbound South Approach Location Map

**STATE OF OHIO DEPARTMENT OF TRANSPORTATION
GENERAL ELEVATION PHOTOS**

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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CONTINUOUS

Sufficiency Rating: 83.0

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IR-280 over NSRR,RAMP Z FRONT ST.

Type of Service on: HIGHWAY



Photo 1

General elevation of Northbound South
approach looking North

[illegible]

Unit of Measure: ENGLISH
 Structure File Number: 4805844
 Sufficiency Rating: 83.0

Bridge Inventory and Appraisal
 Inventory Bridge Number: LUC 00280 02.830 R
 1 NSRR,RAMP Z FRONT ST.

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: 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): 34865 (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: 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: 1 - Meets acceptable standards (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	

**STATE OF OHIO DEPARTMENT OF TRANSPORTATION
APPROACH INSPECTION**

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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CONTINUOUS

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IR-280 over NSRR,RAMP Z FRONT ST.

Type of Service on: HIGHWAY

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 was noted to be smooth.

c2. Approach Slabs (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
1400		1400			2.00

Three (3) spalls of varying size were noted in the approach slab. See Photo 1. Insignificant to moderate map cracks were observed throughout the approach slab. See Photo 2.

c3. Relief Joint (LF)

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

The relief joint was in fair condition with minor longitudinal cracks in the asphalt joint. Growing vegetation was observed on the East side of the joint. See Photo 3.

c4. Embankment (EA)

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

The concrete barriers along both sides of the roadway exhibited typical longitudinal hairline cracks over the length of the approach slab.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
APPROACH INSPECTION PHOTOS

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Type of Service on: HIGHWAY



Photo 1 Concrete spalls of varying sizes in approach slab looking West



Photo 2 Moderate map cracks in the approach slab looking West



Photo 3 Growing vegetation on the East side of the relief joint looking West

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

DECK INSPECTION

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

Type of Service on: HIGHWAY

DECK

Recommended: 9

c7.1 Floor/Slab (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
196503	194821	1682			1.01

The Northbound South approach deck extends from Abutment 1NB (STA. 200+18.54) to Pier 26NB (STA. 233+62.50). 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 and map cracking, with efflorescent leaching in areas, was noted along the length of the longitudinal closure pour joint. See Photo 1.

Numerous transverse closure pour joints in the top flange/deck displayed areas of cracking with heave 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 transverse cracks were seen at the construction and expansion joints. See Photos 3 and 4. Numerous lift hole and deck patches with spalls and hairline cracks with discoloration around the perimeter were noted along the length of the bridge. See Photos 5 through 7. These patches and cracks appeared to be reflective and were present in the wearing surface.

At a few locations, the deck was noted to not provide a smooth riding surface. See Photo 8. Signs of scaling and advanced deck wear were observed throughout the structure. See Photos 9 and 10.

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

c7.2 Edge of Floor/Slab (LF)

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

c8. Wearing Surface (SF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
187040	186006	1034			1.01

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. A majority of the transverse cracks were seen at the construction and expansion joints. See Photos 3 and 4. Numerous lift hole and deck patches with spalls and hairline cracks with discoloration around the perimeter were noted along the length of the bridge. See Photos 5 through 7. These patches and cracks appeared to be reflective and were present in the wearing surface.

At a few locations, the deck was noted to not provide a smooth riding surface. See Photo 8. Signs of scaling and advanced deck wear were observed throughout the structure. See Photos 9 and 10.

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c10. Median (LF)

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

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DECK

0 0

c11. Railing (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
5528	0	5528			2.00

The East and West parapets run Abutment 1NB (STA. 200+18.54) to Pier 26NB (STA. 233+62.50). The East parapets for the Ramp Y bridge (Pier 11NB to Pier 20NB = 1160') were included with that report, thus subtracted from the quantity. T

Typical areas of hairline and map cracking were noted along the length of the parapet on both sides of the roadway. See Photos 11 and 12.

Spalls and minor rust stains were noted on the parapet due to a collision in Span 3. See Photo 13. Delaminated/spalled concrete (26"x1.5") was observed in Span 9. See Photo 14. Minor rust and section loss in the steel railing was noted along the length of the bridge. See Photo 15.

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

c12. Drainage (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
26			26		3.00

A moderate amount of debris was observed in a majority of the scuppers at the deck level, some of which had vegetation growing. Most of the scuppers appeared to be partially or fully filled and not serving their intended purpose. See Photos 16 and 17.

The interior drainage pipes at Pier 3NB exhibited leakage with rust stains. See Photo 18.

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

c13. Expansion Joint (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
482	482				1.00

All the joints were either partially or fully filled with debris over the full width of the roadway with vegetation growing along the joints in certain locations. See Photos 19 and 20.

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

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

DECK INSPECTION PHOTOS

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CONTINUOUS

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Type of Service on: HIGHWAY



Photo 1 Typical transverse closure pour joint cracking with efflorescence



Photo 2 Bottom of the deck slab closure pour transverse cracks with heavy efflorescence looking North



Photo 3 Transverse cracks at the construction joint between Spans 1NB and 2NB



Photo 4 Transverse cracks at the expansion joint between Spans 8NB and 9NB looking West



Photo 5 Concrete patches with map cracking around the perimeter between Spans 1NB and 2NB



Photo 6 Depressed concrete patch with discoloration around perimeter between Spans 1NB and 2NB

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Photo 7 Lift hole patches with spall between Spans 8NB and 9NB



Photo 8 Deck discontinuity between segments and not smooth riding surface between Spans 8NB and 9NB



Photo 9 Scaling of the deck surface between Spans 19NB and 20NB looking West



Photo 10 Deck surface worn out between Spans 14NB and 15NB looking West



Photo 11 Typical vertical cracks and spall in West parapet of Span 4NB looking West



Photo 12 Typical vertical and horizontal cracks in the East parapet of Span 5NB looking East

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DECK INSPECTION PHOTOS

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Photo 13 Collision damage (2.5' long) on East parapet of Span 3NB looking Northeast



Photo 14 Delaminated/spalled concrete (26"x2.5") in Span 9NB of East parapet looking East



Photo 15 Minor rust and section loss in the steel railing in Span 5NB looking East



Photo 16 Vegetation growing out of scuppers in Span 19NB looking West



Photo 17 Scuppers fully clogged with debris in Span 22NB



Photo 18 Interior drainage pipe with rust staining at Pier 3NB

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DECK INSPECTION PHOTOS

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Photo 19	Expansion joint at Pier 20NB filled with debris and growing vegetation looking West
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Photo 20	Expansion joint at Abutment 1NB looking West
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SUPERSTRUCTURE INSPECTION**

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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
25	25				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
3344	3344	500			1.18

Numerous areas of delaminated or unsound 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 Photos 1 and 2. Other patches and construction joints in the interior exhibited delaminated and spalled concrete. At multiple locations, temporary jacking blocks were removed, exposing reinforcement. These areas were painted, but not patched. See See Photos 3 through 8.

Along the exterior of the web and bottom flange, several delaminated and spalled areas with exposed reinforcement were noted along the length of the bridge. See Photos 9 through 12. The exterior pier PT end segments exhibited vertical and map hairline cracking, some with efflorescence and rust staining, at multiple locations.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and the top flange/slab of a majority of segments. These cracks varied in length and were typically between 0.05" and 0.030" in width. At some locations, these cracks exhibited leaching efflorescence. See Photos 13 and 14.

Voids were present in the segment construction closure joints, both interior and exterior, varying in size and depth. Some of the voids were observed to be 19" deep. See Photos 15 through 17. Spalls and delaminated areas were noted throughout the the interior and exterior of the segments and on future stressing blocks located on the webs and along the floor slab. See Photos 18 through 20. At a few locations, exposed reinforcement in the bottom flange/slab was noted in the interior of the box segments. See Photo 21.

Small areas of honeycombed concrete were also noted on the interior and exterior of the segments along the length of the bridge. See Photo 22.

c16. Diaphragm/Cross Frames (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
50	50	4			1.11

The interior diaphragm vertical faces exhibited hairline to moderate cracking (0.005" to 0.030") in width. Efflorescence and discoloration were present at some locations, although these areas did not appear to be active. See Photos 23 and 24. The PT concrete end block at Pier 15NB had a spall with exposed reinforcement. See Photo 25.

c26. Bearing Devices (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
56	56	15			1.29

The plinths at Piers 9NB, 11NB, 19NB and 24NB exhibited areas of unsound, spalled or delaminated concrete and moderate to severe cracking in over 5% of the bearing areas. See Photo 26.

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SUPERSTRUCTURE

The bearings at Piers 10NB and 14NB had areas of rust over a 6" in length. The East bearing at Pier 11NB had efflorescence on the load plate. See Photos 27 and 28.

The East bearing at Pier 9NB was noted to be shifted 3" South and the West bearing was observed to be shifted 2" South. At Pier 11NB, the East bearing was bulging out to the North. See Photos 29 and 30.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE INSPECTION PHOTOS

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Type of Service on: HIGHWAY



Photo 1 Efflorescence leaching from lift holes at 2NB looking West



Photo 2 Rust stains at lift holes at 10NB looking West



Photo 3 Spall along the construction joint in top flange in Span 3NB looking North



Photo 4 Temporary jacking block removed exposing reinforcement and no patch in Span 15NB looking East



Photo 5 Spall (3'x3'x3") in web exposing reinforcement in Span 17NB looking East



Photo 6 Full width spall in top flange in Span 17NB looking South

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE INSPECTION PHOTOS

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Photo 7 Spall (16"x16"x2") in web in Span 19NB looking West



Photo 8 Spall (12"x12"x0.75") in top flange of Span 22NB



Photo 9 Spall (4'x 8"x1") with 0.01" crack in the bottom flange of Spans 21 NB and 22NB



Photo 10 Concrete patch with map cracks in the bottom flange of Spans 21NB and 22NB



Photo 11 Spall (3'x28"x4") with exposed reinforcement in the bottom flange of Spans 22NB and 23NB



Photo 12 Spall (20"x15"x2") with exposed reinforcement in bottom flange of Spans 24NB and 25NB

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE INSPECTION PHOTOS

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Photo 13 Longitudinal cracks in web in Span 9NB looking East



Photo 14 Longitudinal crack with concrete popout in the web at Pier 23NB



Photo 15 10 inch deep void in web of Span 12NB looking East



Photo 16 Void (15"x3.5"x6") in the bottom flange of Spans 21 NB and 22NB



Photo 17 Void (19" deep) at the construction joint between Spans 23NB and 24NB



Photo 18 Delamination (12"x12") in the deviator wall of Span 5NB looking Southwest

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SUPERSTRUCTURE INSPECTION PHOTOS

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Photo 19 Delamination (18"x18") and spall (6"x6"x1") in web exterior PT block in Span 10NB looking East



Photo 20 Spall with exposed reinforcement on future PT block in Span 21NB looking East



Photo 21 Exposed reinforcement on the floor of Span 18NB looking Northeast



Photo 22 Honeycombed concrete in the bottom flange of Spans 6NB and 7NB



Photo 23 Map cracking (0.005" to 0.030") in the diaphragm in Span 10NB looking North



Photo 24 Delaminated concrete patch (12"x39") and map cracking in diaphragm in Span 17NB looking North

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SUPERSTRUCTURE INSPECTION PHOTOS

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Photo 25 Spall with exposed reinforcement in the PT concrete end block in Span 15NB looking West



Photo 26 Four (4) spalls in the plinth at Pier 24NB



Photo 27 Rust on the East bearing plate at Pier 14NB



Photo 28 Efflorescence on the plinth and bearing plate at Pier 11NB East bearing



Photo 29 East bearing shifted 3" South at Pier 9NB looking East



Photo 30 East bearing bulging out North at Pier 11NB looking West

**STATE OF OHIO DEPARTMENT OF TRANSPORTATION
SUBSTRUCTURE INSPECTION**

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SUBSTRUCTURE

(60) NBIS Substructure Summary: 6

Recommended: 6

c33. Abutment Walls (LF)

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

Hairline to moderate vertical cracks were noted between Abutment 1NB and the headwall.

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

c35. Abutment Columns/Bents (EA)

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

Delaminated concrete patches were noted on the East and West pedestals.

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

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
24	24				1.00

Typical hairline to moderate vertical, horizontal and map cracking was present on a majority of the pier columns. A few small spalls were noted in the pier columns. Minor honeycombed concrete was typical at a majority of the columns as well. See Photos 1 through 3.

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

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
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SUBSTRUCTURE

604 534 70 1.16

Typical hairline to moderate (0.050") width vertical and map cracks were noted in the pier caps. Wider cracks, vertical and ,ap, were noted in the hammerhead caps at Piers 4NB through 8NB. See Photos 4 and 5. At some locations, bird debris was observed on the pier caps. Heavy rust on the drainage pipe clamp was noted at Pier 16NB. See Photos 6 and 7.

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

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
1	1				1.00

Insignificant cracking in the cast-in-place reinforced concrete wall along the length of the approach slab was noted

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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Photo 1 Vertical cracks in the column at Pier 19NB



Photo 2 Typical honeycombing on a majority of columns



Photo 3 Spall and map cracking at Pier 25NB



Photo 4 Typical hairline to moderate cracking with rust staining or efflorescence on pier caps



Photo 5 Hairline to moderate map cracks on the South face of Pier 21NB



Photo 6 Bird debris on the cap at Pier 18NB looking West

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SUBSTRUCTURE INSPECTION PHOTOS

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

Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

Type of Service on: HIGHWAY



Photo 7

Heavy rust on drainage pipe clamp at Pier
16NB looking South

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
SIGNS/UTILITIES INSPECTION

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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

Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

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
7	6			1	3.25

The overhead and roadway signs attached to the top and sides of the parapet were in good condition with no notable defects. The 10 mile marker sign was noted to be missing.

c56. Sign Supports (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
6	5	6		1	4.00

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

c57. Utilities (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
6688	6668	20			1.00

The junction box covers in the parapet appeared to be securely fastened.

An electrical conduit bracket was broken at Pier 1 NB. See Photo 1.

The access hatch was not secured at Pier 3NB. See Photo 2.

The ground cable was hanging down at Pier 15NB. See Photo 3.

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

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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

Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

Type of Service on: HIGHWAY



Photo 1	Broken electrical conduit bracket at Pier 1NB
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Photo 2	Access hatch not tied down at Pier 3NB
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Photo 3	Ground cable is hanging at Pier 15NB
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STATE OF OHIO DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL INSPECTION

Structure File Number: 4805844 Inventory Bridge Number: LUC 00280 02.830 R Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 83.0 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 over NSRR,RAMP Z FRONT ST. Type of Service on: HIGHWAY

SUPPLEMENTAL

c63. Post Tensioning End Cap (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
424	407		17		1.55

Numerous PT end cap locations were noted to have small voids within the grout cap. These areas were identified and/or 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. Several locations had rust on the tendon ducts. See Photo 1.

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

It is recommended that a form of NDT 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 if 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
371	0	371			2.00

Numerous areas of delaminated or unsound 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 Photos 1 and 2 in the Superstructure section. Other patches and construction joints in the interior exhibited delaminated and spalled concrete. At multiple locations, temporary jacking blocks were removed, exposing reinforcement. These areas were painted, but not patched. See See Photos 3 through 8 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along both the interior corner edges between the web and the top flange/slab of a majority of segments. These cracks varied in length and were typically between 0.05" and 0.030" in width. At some locations, these cracks exhibited leaching efflorescence. See Photo 13 in the Superstructure section.

Voids were present in the segment construction closure joints, varying in size and depth. Some of the voids were observed to be 19" deep. Spalls and delaminated areas were noted throughout the the interior of the segments and on future stressing blocks located on the webs and along the floor slab. At a few locations, exposed reinforcement in the bottom flange/slab was noted in the interior of the box segments. See Photos 15 and 18 through 21 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. See Photo 22 in the Superstructure section.

The interior diaphragm vertical faces exhibited hairline to moderate cracking (0.005" to 0.030") in width. Efflorescence and discoloration were present at some locations, although these areas did not appear to be active. See Photos 23 and 24 in the Superstructure section. The PT concrete end block at Pier 15NB had a spall with exposed reinforcement. See Photo 25 in the Superstructure section.

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

c65. Post Tensioning Segmental Box External (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
371	371	100			1.29

Along the exterior of the web and bottom flange, several delaminated and spalled areas with exposed reinforcement were noted along the length of the bridge. See Photos 9 through 12 in the Superstructure section.

Longitudinal hairline to moderate cracking was present along the exterior corner edges between the web and the top

**STATE OF OHIO DEPARTMENT OF TRANSPORTATION
SUPPLEMENTAL INSPECTION**

Structure File Number: 4805844 Inventory Bridge Number: LUC 00280 02.830 R Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS
Sufficiency Rating: 83.0 Date Built: 6/24/2007
District: 02 Place Code (FIPS): TOLEDO IR-280 over NSRR,RAMP Z FRONT ST. Type of Service on: HIGHWAY

SUPPLEMENTAL

flange/slab of a majority of segments. These cracks varied in length and were typically between 0.05" and 0.030" in width. At some locations, these cracks exhibited leaching efflorescence. See Photo 14 in the Superstructure section.

Voids and cutouts were present in the segment construction closure joints, varying in size and depth. See Photos 16 and 17 in the Superstructure section.

Small areas of honeycombed concrete were noted on the exterior of the segments along the length of the bridge. See Photo 22 in the Superstructure section.

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

c66. Post Tensioning External Tendon (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
212	212				1.00

The external tendons were in good condition with no notable defects on a majority of the elements. A few areas were noted on the steel PT ducts at the diaphragm connections connecting the sheathing to the steel ducts with rusting present on the clamps/ducts. See Photo 2.

A PT duct at Pier 19NB was not aligned. See Photo 3.

Numerous future stressing ducts in the diaphragms exhibited moderate to heavy rust with the stain leaching down the face of the diaphragm in some locations. See Photo 4.

As noted above in the PT end cap section, it is recommended to perform some form of NDT to determine the exact extend and accuracy of the voids.

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

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL INSPECTION PHOTOS

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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

Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

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Photo 1 Bolt missing and rust on tendon duct at PT anchor cap at Pier 3NB looking North



Photo 2 PT clamp rust at Pier 5NB looking North



Photo 3 PT duct pipe not aligned at Pier 19NB looking East



Photo 4 Heavy rust on the future PT ducts at Pier 3NB looking North

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
CRITICAL FINDINGS

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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

Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

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STATE OF OHIO DEPARTMENT OF TRANSPORTATION
REVIEW

Structure File Number: 4805844

Inventory Bridge Number: LUC 00280 02.830 R

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

Sufficiency Rating: 83.0

Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO

IR-280 over NSRR,RAMP Z FRONT ST.

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