2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
BRIDGE INSPECTION REPORT

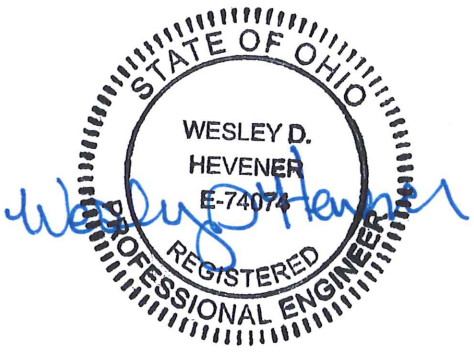
Structure File Number: 4805860

Inventory Bridge Number: LUC 00280 04.260 AL

IR-280 RAMP A over CHAMPLAIN, NSRR

Inspection Type: Routine

Inspection Date: 09/05/2017



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

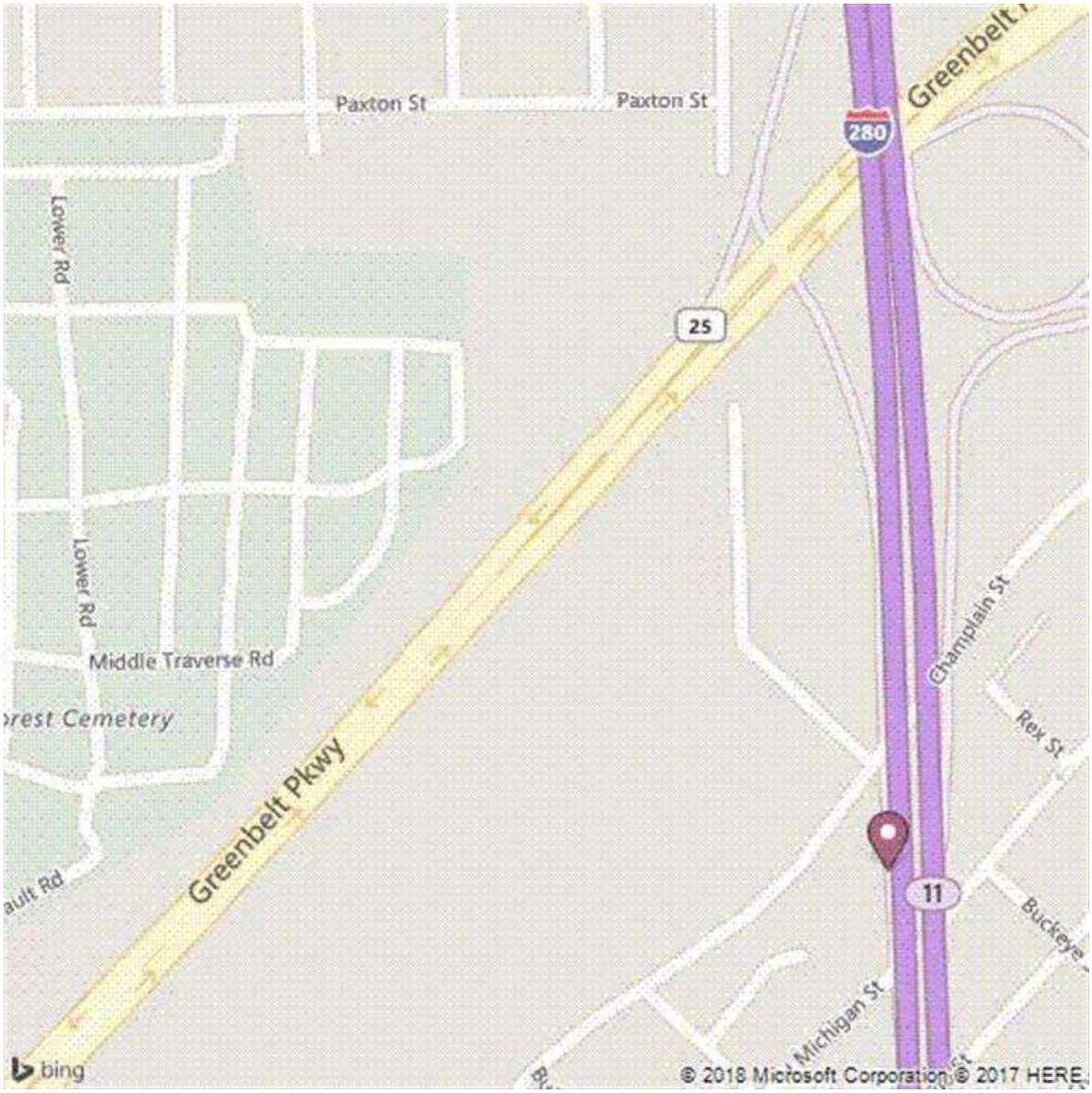
Reviewed By: Hevener, Wesley

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
LOCATION MAP

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY



LOCATION MAP #1
Region:
State: 395
County: 48
Facility Carried: IR-280 RAMP A
Facility Intersected: CHAMPLAIN, NSRR
Location: RAMP A,SB,FROM GREENBELT

Description: Ramp A Location Map

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
GENERAL ELEVATION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	End view of the Ramp A looking South

(2) District: 02 (3) County: 48 - LUCAS (9) Location: RAMP A,SB,FROM (7) Facility Carried: IR-280 RAMP A
(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
(5D) Route No: 00280 (5E) Dir: 3 - South (5C) Des: 7 - Ramp or Wye
(6) Feature Intersected: CHAMPLAIN, NSRR
(3) County: LUC (200) Mileage: 04.260 (201) Special Desig: AL (209)Mile Marker: 10.893
(29) Avg. Daily Traffic (ADT): 4,210 (30) ADT Year: 2005
(235) Truck Traf: 340 (210) Corridor: Y (104) NHS: 1- NHS BRIDGE
(26) Functional Class: 11 - Urban - Principal (100) Strahnt: 0 - NOT STRAHNET

Intersected Route Data

(370A) Record Type: 2 - ROUTE 2 (370B) Hwy Sys: 5 - Municipal Street (i.e.
(370D) Route No: 00280 (370E) Dir: (370C) Des: 1 - Mainline
(373) Feature Intersected: RAMP A,SB.FROM GREENBELT
(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: N - NHS BRG EXCLUDES
(375) Functional Class: 19 - Urban - Local (386) Strahnt: 1 - Strahnet Interstate Bridges

Clearance On the Bridge

Min. Hriz on Bridge: (335) NC: 0 Ft (47) CARD: 26 Ft
(53) Prac Max Vert On Brg: 23.583 Ft
Min Vrt Clr On Brg: (336) NC: 0 Ft (10) CARD: 23.583 Ft
Min Latl Clr: (338) Right NC: 6 Ft (337) Right CARD: 0 Ft
(340) Left NC: 4 Ft (339) Left CARD: 0 Ft
(39) Vrt Clr Lft: 0 Ft

Structure Information

(19) Bypass Length: 10 Miles
(16) Latitude: 41.669759535383 (17) Longitude: -83.5152620616955
(20) Toll: 3 - On Free Road, the structure is toll (106) Major Rehabilitation:
(27) Date Built: 2007 Major Reconstruction Date:
(28A) No. Lanes On: 1 (28B) No. Lanes Under: 2
(301) Horiz Curve: 25.68 (34) Skew: 0 Deg
(32) App. Rdw Width: 26 Ft (51) Brg. Rdw Width: 26 Ft
(52) Deck Width: 29 Ft Deck Area: 70934
(406) Median Type: N - NONE/N - NON BARRIER/N - NO JOINT
(33) Bridge median: 0 - No 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: N (408) Composite: N - Non-composite
(407) Railing: D - 42" Deflector Type Parapet (New Jersey Shape)
(409) Deck Drainage: 4 - Inlets with drain pipes
(107) Deck Type: 0 - Other
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: 18 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: 150 Ft (49) Overall Leng: 2446 Ft

Substructure: Foundation and Scour Information:

Abut-Rear	(532) Matl: N - None	(531) Type: N - None	(533) Fnd: N - None (such as most Culverts)
Abut-Fwd	(527) Matl: 2 - Concrete	(526) Type: 2 - Cantilever	(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: 19
(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: 28 Ft
(328) Prac Max Vrt Under Clear: 28.5 Ft
Min. Vert Under Clear: (327) NC: 28.5 Ft (54) CARD: H 23.583 Ft
Min Lat Under Clear: (329) Right NC: 28.667 Ft (55) Right CARD: H 0 Ft
(330) Left NC: 99.99 Ft (56) Left CARD: 0 Ft

Load Rating Information

(31) Design Load: 9 - HS25 or greater
(64) Opr Rat Fact: 2.300 (700) LD: 2 - HS20 Loading
(66) Inv Rat Fact: 1.250 (702) LD: 2 - HS20 Loading
(734) Ohio Percent Legal 150
(704) Year of Rating: 7/1/2011
(63) Analysis: 6 - Load Factor Rating (LFR) reported by RF using HS20
(708) Rate Soft: 5 - Finite Element (FE) Program
(707) PE# 0

(71-72) Appraisal

(71) Waterway Adequacy: N
(72) Approach Alignment: 8
(67) Calc Str Appraisal: 6 - Equal to present minimum
(68) Calc Deck Geometry: 8 - Equal to present desirable
(69) Calc Underclearance: 3 - Intolerable - high priority

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: D - 42" Deflector Type Parapet (New Jersey Shape)
(482) Paint: N - None or Not Applicable
(203) Bridge Dedicated MAUMEE RIVER CROSSING

General Information (Continued)

(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:

Proposed Improvements

(114) Future ADT (On Bridge): 5843
(115) Year of Future ADT: 2031

Programming Info

PID Number:
PID Status:
PID Date:

Inspection Summary

(58) Deck:	7
(59) Superstructure:	6
(60) Substructure:	7
(62) Culvert:	N
(61) Channel:	N
(c6) Approaches:	7
General Appraisal:	6
(41) Operational Status:	A
(90) Inspection Date:	09/05/2017
(91) Desig Insp Freq:	12 Months

Survey Items

(36A) Railings:	1 - Meets acceptable standards
(36B) Transitions:	1 - Meets acceptable standards
(36C) Guardrail:	1 - Meets aceptable 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:

Original Plans Information

(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)

Utilities

(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

Special Features

(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

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

APPROACH

(c6) Approach Summary: 7 **Recommended:** 6

c1. Approach Wearing Surface (EA)

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

Areas if insignificant to moderate cracks 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
650	0	650			2.00

Insignificant to moderate cracks (0.016”) were noted throughout the approach slab.

c3. Relief Joint (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
22	22				1.00

The relief joint was in good condition with minor longitudinal cracks in the joint asphalt. The northern edge of the relief joint and roadway/approach slab concrete exhibited minor spalling and vegetation growth. See Photo 1.

c4. Embankment (EA)

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

No washout or no varmint holes were observed.

c5. Guardrail (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
2	2				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. See Photo 2.

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
APPROACH INSPECTION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	General Condition of the relief joint with cracking looking East

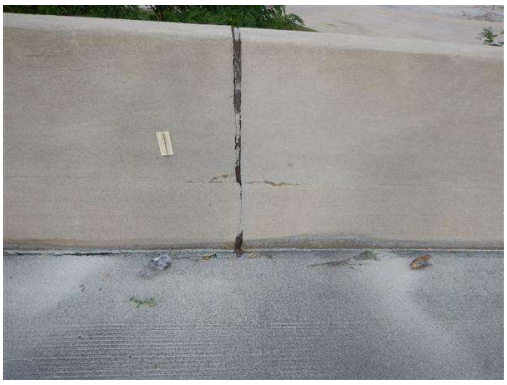


Photo 2	Typical hairline longitudinal cracks on the West parapet

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
70934	70334	600			1.01

Ramp A (LUC-280-00426AL) deck sketches show from Abutment 1A (Sta. 5+85.20) to Pier 9A (Sta. 16+96.05). The remaining deck sketches were included on the SB North Approach deck sketches in the LUC-280-0375L report. The entire deck quantity is rated in this report. The longitudinal joint is rated in the LUC-280-0375L report as per the 2016 inspection.

Numerous transverse closure pour joints in the top flange/deck displayed area of cracking with efflorescence over the length of the bridge. See Photo 1. The top flange/deck of the segments exhibited efflorescence and rust staining along the length of the bridge. See Photo 2. The defects in the bottom of the deck slab are documented and detailed in the superstructure inspection of this report and the interior final notes asset file.

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. See Photo 3. Moderate longitudinal cracks were noted in the middle of traffic lane wearing surface in Span 8A. See Photo 4.

Numerous lift hole and deck patches with spalls of 1” in depth and HL cracks with discoloration around the perimeter were noted along the length of the structure. See Photo 5. Several deck patches along the bridge were depressed and exhibited hairline to moderate cracking. See Photo 6

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
63596	62996	600			1.01

Areas of moderate transverse and map cracking (0.013" to 0.025") along the length of the bridge were observed. See Photo 3. Moderate longitudinal cracks were noted in the middle of traffic lane wearing surface in Span 8A, See Photo 4.

Numerous lift hole and deck patches with spalls of 1” in depth and HL cracks with discoloration around the perimeter were noted along the length of the bridge. See Photo 5. Other patches along the bridge were determined to have a depression along the surface with hairline to moderate cracking. See Photo 6

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
1111	1111				1.00

DECK

c11. Railing (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
3557	0	3557			2.00

The east parapet/barrier runs from Abutment 1A (Sta. 5+85.20) to Pier 9A (Sta 16+96.05). The west parapet/barrier runs for the entire length of the bridge. The quantity was adjusted accordingly.

Typical areas of hairline vertical and map cracking were noted along the length of the concrete parapet on both sides of the roadway. See Photo 7.

A few areas of spalling or delamination were noted along the length of parapet in Spans 1A, 8A and 9A. A concrete spall was noted (7”x2.5”x1”) under the steel railing. See Photo 8. A concrete delamination (12”x5”) was also noted in Span 8A. See Photo 9. A spall measuring 12"x2"x2" was observed on the East parapet in Span 1A near Abutment 1A. See Photo 10.

Map cracking in the barrier transition and minor rust with on the steel railing were noted in the Span 7A. See Photo 11.

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
17			17		3.00

Moderate amount of debris was observed in most scuppers at the deck level, some of which had vegetation growing. All the scuppers appeared to be partially or fully filled and not serving their intended purpose. See Photo 12.

Drainage caps on the edge face of the end segments were leaking on a majority of the scupper locations. These locations consisted of varying levels, moderate to heavy rust with efflorescence in the concrete. See Photo 13.

Interior drainage pipes within the interior of the box segments at Piers 4A and 11A exhibited evidence of past leakage with leaching of efflorescence. See Photos 14 and 15.

For a detailed layout and description of 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
104	52	52			1.60

The expansion joint at Abutment 1A was noted to be open 5.75” @ 57°. The joints at Piers 7A, 9A were partially filled with debris over the full width of the roadway. Abutment 1A joint had a minor concrete spall on the North side of the header concrete. See Photos 16 and 17.

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

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
DECK INSPECTION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	Bottom of the deck slab closure pour transverse cracks exhibiting efflorescence between Spans 15A & 16A looking South

Photo 2	Rust stains on the deck slab looking West

Photo 3	Transverse and map cracks in the wearing surface between Spans 4A & 5A

Photo 4	Longitudinal cracks in the wearing surface

Photo 5	Concrete patches with spalls and discoloration between Spans 4A & 5A

Photo 6	Depressed concrete patches at Spans 3A & 4A

Photo 7	Horizontal and vertical cracks in the concrete parapet in the Spans 4A & 5A looking West

Photo 8	Concrete spall under steel railing in Spans 8A & 9A looking West

Photo 9	Delaminated concrete under the steel railing in Spans 8A & 9A looking West

Photo 10	Concrete spall on the East parapet at Abutment 1

Photo 11	At the barrier transition, minor rust on steel railing and map cracks in barrier in Spans 7A & 8A looking West

Photo 12	Scuppers clogged with debris on the west side of the bridge between Spans 4A & 5A

Photo 13	Drainage cap on the edge face of the end segment in Span 13A looking East

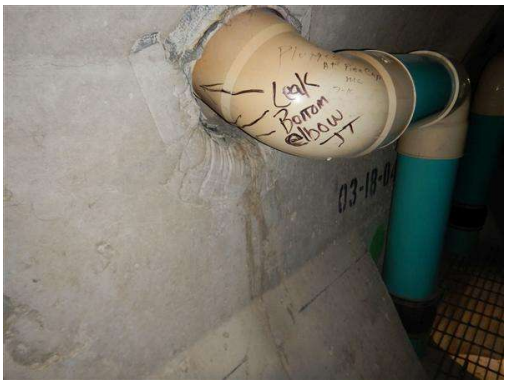


Photo 14	Interior drainage pipe at Pier 4A, rust staining

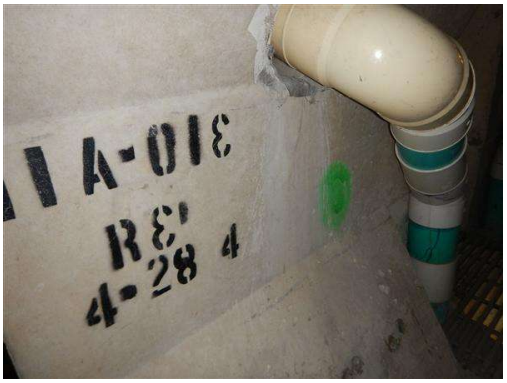


Photo 15	Interior drainage pipe at Pier 11A, efflorescence in concrete

Photo 16	Expansion joint filled with debris at Pier 7A looking West

Photo 17	Concrete spalls in the header at the expansion joint at Abutment 1A looking West

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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
18	18				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
2446	2046	400			1.23

Numerous areas of 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. Other patches and construction joints in the interior segments and ducts exhibited delaminated and spalled concrete. See Photos 1 and 2. Along the exterior web and bottom flange/slab, several delaminated and spalled areas and patches with exposed reinforcement were noted along the length of the bridge at patch locations and joints. See Photos 4 and 5.

Longitudinal hairline to moderate cracking was present along both interior and exterior corner edges between the web and top flange/slab of every segment. These cracks varied in length and were typically 0.005" to 0.030" in width. Cracks exhibited efflorescence at some locations. See Photos 6 and 7. Additional hairline vertical cracks were in the Abutment wall and in the webs and top and bottom flange. The exterior pier end segments had moderate cracking near the drainage cap location. See Photo 8.

Voids were present in the segment construction/closure joints, both interior and exterior, varying size and depth. Some of the voids were observed to be up to 5” deep. Spalls and delaminated areas were noted throughout the interior and exterior of the box segments and on future stressing blocks located on the webs and along the floor slab. See Photos 9 through 11.

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

c16. Diaphragm/Cross Frames (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
36	33	3			1.12

The interior diaphragm vertical faces exhibited hairline to moderate map cracking ranging from 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 12 and 13. Several diaphragms exhibited areas of spalling, some with exposed reinforcement. See Photo 14. The diaphragm at Pier 15A exhibited a 2" deep, unfilled form-tie hole in the lower vertical face near the tendons. See Photo 15.

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

c26. Bearing Devices (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
51		51			2.00

The plinths at Piers 7A to 15A exhibited typical areas of unsound, spalled or delaminated concrete and moderate to severe cracking in over 5% of the bearing area. See Photos 16 and 17.

The west bearing sliding plate had an area of rust over a 6” long section at Pier 11A. See Photo 18. The sliding plate at the

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SUPERSTRUCTURE

Pier 5A east bearing also exhibited rusting.

At Pier 14A, the west bearing was rotated 5° to the east. See Photo 19. The Pier 16A east bearing was noted to lean 3/8” to the east and the west bearing was noted to lean 3/8” to the east. The east bearing at Pier 17A was also noted to lean 1/2" to the east.

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
SUPERSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	Leaching effloroscene from lift holes in Span 2A looking West

Photo 2	Concrete spall in the top flange slab with rebar exposed in Span 10A, Segment 04

Photo 3	Concrete spalls around the ducts at the Pier 13A

Photo 4	Concrete patches in the bottom flange of Spans 13A & 14A

Photo 5	Concrete spall with rebar exposed in the bottom flange of Span 15A, Segment 12

Photo 6	Typical hairline horizontal cracks with efflorescence in the interior segment at Pier 4A

Photo 7	Longitudinal cracks with efflorescence in the bottom flange near Pier 8A

Photo 8	Cracks in exterior pier segment at Pier 17A on the West side looking East

Photo 9	Void in the bottom flange between Segments 10A & 11A in Span 14A

Photo 10	Concrete cut out of 20"x2.5"x5" in Segment 1A at Pier 17A at the shear key in the top slab

Photo 11	Void in web segment joint at Segment 5A in Span 1A.

Photo 12	Map cracks ranging from 0.016" to 0.030" with efflorescence on the Pier 17A Diaphragm

Photo 13	Typical cracks in the vertical face of the interior diaphragm at Pier 9A

Photo 14	Concrete spall in diaphragm at Segment 8D in Span 11A, measuring 16"x12"x3/4",

Photo 15	Form-tie hole at Pier 15A not fully grouted

Photo 16	Cracks and delaminated concrete in the plinth of Pier 12A East bearing

Photo 17	Concrete spall on the West bearing, SW Corner at Pier 7A

Photo 18	Steel sliding plate with rust at the Pier 11A west bearing

Photo 19	Pier 14A West bearing rotated to 5° towards the east

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over 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
29	27	2			1.10

The abutment wall and wing wall exhibited areas of hairline map cracking.

c35. Abutment Columns/Bents (EA)

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

Hairline diagonal cracks, some with efflorescence, were observed in the abutment bent. An area of delaminated concrete of 9" x 72” was noted in the pedestal at the west bearing.

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
19	9	10			1.62

Typical hairline to medium (0.030 in) width vertical, horizontal and map cracking areas were present in the pier columns. A few small spalls were noted in the pier columns. See Photo 1. Minor honeycombing areas in the concrete were typical at a majority the columns. See Photo 2.

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
190	120	70			1.47

Typical hairline to moderate vertical and map cracking, up to 0.03" wide, were noted in the pier caps.

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

c39. Backwalls (LF)

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District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

SUBSTRUCTURE

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 the cast in place reinforced concrete wall along the length of the approach slab

c43. Slope Protection (EA)

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

No washout area and no varmint holes were observed

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
SUBSTRUCTURE INSPECTION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	Concrete spall in the column at Pier 14A

Photo 2	Typical honeycombing on all the columns

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over 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
2	2				1.00

All signs were in good condition with no noticeable defects.

c56. Sign Supports (EA)

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

The overhead sign support was in good condition with no notable defects.

c57. Utilities (LF)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
2218	2203	15			1.01

Junction box covers in the concrete parapet appeared to be securely fastened with no notable defects.

A new security system was installed to monitor access into the bridge at the hatch locations. See Photo 1.

A safety lanyard was attached to the PT duct for safety tie-off in Span 8A. See Photo 2.

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

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
SIGNS/UTILITIES INSPECTION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	Security system was attached to the access hatch at Pier 1A

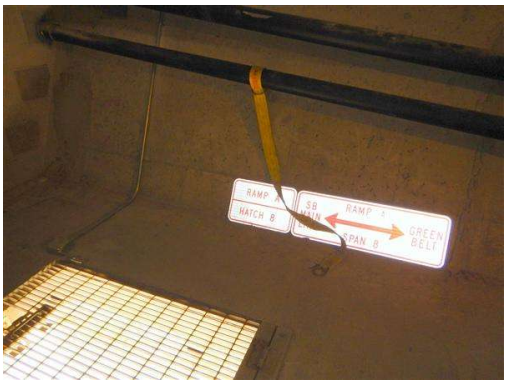

Photo 2	Safety lanyard attached to the PT duct at Pier 8A

SUPPLEMENTAL

c63. Post Tensioning End Cap (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
120	68	48	4		1.82

PT end cap locations were noted to have small void areas within the grout in the cap. These areas were determined 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 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
279	0	279			2.00

Numerous areas of unsound patches were observed in the lift holes at the top flange/slab along the edges of the interior segment. A majority of the lift holes exhibited efflorescent over the length of the bridge. See Photo 1 in Superstructure section. Other patches and construction joints in the interior segments exhibited delaminated and spalled concrete. See Photos 2 and 3 in Superstructure section.

Longitudinal hairline to moderate cracking was present along both interior corner edges between the web and top flange/slab of every segment. These cracks varied in length and were typically 0.005" to 0.030" in width. Cracks exhibited leaching of efflorescence at some locations. See Photo 6 in Superstructure section. Additional hairline vertical cracks were noted in the abutment wall and in the webs and top and bottom flange

Voids were present in the segment construction/closure joints, both interior and exterior, varying size and depth. Some of the voids observed to be up to 5” in depth. Spalls and delaminated areas were noted throughout the interior and exterior of the box segments and on future stressing blocks located on the webs and along the floor slab. See Photos 10 and 11 in the Superstructure section.

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

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

c65. Post Tensioning Segmental Box External (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
279	243	36			1.18

Along the exterior web and bottom flange/slab, several delaminated and spalled areas and patches with exposed reinforcement were noted along the length of the bridge at patch locations and joints. See Photos 4 and 5 in the Superstructure section.

Hairline cracks with leaching efflorescence in the bottom flange/slab of the exterior segments were noted. See Photo 7 in the Superstructure section. Hairline to moderate cracking in the exterior pier segments were typical on a majority of the elements. See Photo 8 in the Superstructure section.

Voids were present in the segment closure joints, varying size and depth. See Photo 9 in the Superstructure section. Small areas of honeycombed concrete was also noted on the exterior segments along the length of the bridge.

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Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

SUPPLEMENTAL

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

c66. Post Tensioning External Tendon (EA)

Total Quantity	State 1	State 2	State 3	State 4	Transition Rating
120	120				1.00

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

PT duct splices appeared to soft and bulging at few locations. See Photo 15 in the superstructure section.

Numerous future stressing ducts in the diaphragm exhibited moderate to heavy rust with the stain leaching down the concrete in some locations. See Photo 3.

As noted above in the PT end cap section, it would be recommended to have 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.

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SUPPLEMENTAL INSPECTION PHOTOS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

Photo 1	Bolt missing and noted void in PT anchor cap at Pier 1A.

Photo 2	Small voids in PT caps and PT clamp and duct rusting at Pier 1A looking Southwest

Photo 3	Bulging PT ducts

Photo 4	Typical moderate rust on the future PT ducts located in the diaphragms at Pier 1A

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT
CRITICAL FINDINGS

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY

2017 LUC-00280-0426_AL (RAMP A) ROUTINE INSPECTION REPORT

REVIEW

Structure File Number: 4805860 Inventory Bridge Number: LUC 00280 04.260 AL Bridge Type: 1 - CONCRETE/3 - BOX BEAM/2 - CONTINUOUS

Sufficiency Rating: 92.7 Date Built: 6/24/2007

District: 02 Place Code (FIPS): TOLEDO IR-280 RAMP A over CHAMPLAIN, NSRR Type of Service on: HIGHWAY