90 Inspection Date - 11/18/15
Inspector - (23)

059B00054L - **8 Bridge ID**
Fracture Critical (24 months) -**Primary Inspection Type**

Inspection Report with SI&A Data

Structure Description: 413 Foot - 4 Span Steel continuous Stringer/Multi-beam or Girder
2 District: 06 **3 County:** Kenton **16 Latitude:** 39º02'05.00" **7 Longitude:** 84º35'58.00"
7 Facility Carried I-275 WB **Milepoint:** 0.020
6A Feature Intersected: I-75 N&S-RAMPS A-C-G-D
9 Location: WBI275@I75
Structure Description: 413 Foot - 4 Span Steel continuous Stringer/Multi-beam or Girder

NBI	X
Element	X
Fracture Critical	X
Underwater	
Special	

NBI CONDITION RATINGS

58 Deck:	7	**61 Channel:**	N
59 Superstructure:	7	**62 Culvert:**	N
60 Substructure:	7	**Sufficiency Rating:**	93

DESIGN

Substandard:	No
Fracture Critical:	No FC Details
43A Main Span Material:	(4) Steel Continuous
43B Main Span Design:	(02) Stringer / Girder
45 Number of Spans Main:	4
44A Approach Span Material:	Not Applicable
44B Approach Span Design:	Not Applicable
46 Number of Approach Spans:	0
107 Deck Type:	(1) Concrete-Cast-in-Place
108A Wearing Surface:	(4) Low Slump Concrete
108B Membrane:	(0) None
108C Deck Protection:	(0) None
Overlay Y/N:	Yes
Overlay Type:	PCC
Overlay Thickness:	2.000 in
Overlay Date:	

APPRAISAL

36A Bridge Railings:	(1) Meets Standards
36B Transitions	(1) Meets Standards
36C Approach Guardrail:	(0) Substandard
36D Approach Guardrail Ends:	(1) Meets Standards
71 Waterway Adequacy:	(N) Not Applicable
72 Approach Alignment:	(9) Above Desirable Crit
113 Scour Critical:	(N) Not over Waterway
Recommended Scour Critical:	(N) Not over Waterway

LOAD RATINGS

63 Operating Type:	(1) Load Factor (LF)
64 Operating Rating:	60.0 tons
65 Inventory Type:	(1) Load Factor (LF)
66 Inventory Rating:	36.0 tons
Truck Capacity Type I:	tons
Truck Capacity Type II:	tons
Truck Capacity Type III:	tons
Truck Capacity Type IV:	tons

GEOMETRIC DATA

48 Max Length Span:	118.110 ft
49 Structure Length:	412.999 ft
32 Approach Roadway:	-3.281 ft
33 Median:	(1) Open Median
34 Skew:	30°
35 Flare:	No Flare
50A Curb/Sidewalk Width L:	1.499 ft
50B Curb/Sidewalk Width R:	1.499 ft
47 Horiz. Clearance:	51.181 ft
51 Width Curb to Curb:	-3.281 ft
52 Width Out to Out:	55.000 ft
48 Max Length Span:	118.110 ft

ADMINISTRATIVE

27 Year Built:	1971
106 Year Reconstructed:	0
42A Type of Service On:	(7) 3d Level Intrch
42B Type of Service Under:	(1) Highway
37 Historical Significance:	(5) Not Eligible
21 Maintenance Responsibility:	(01) State Hwy Agency
22 Owner:	(01) State Hwy Agency
101 Parallel Structure:	(L) Left Of II Structure
52 Width Out to Out:	55.000 ft

CLEARANCES

10 Vert. Clearance:	19.583 ft
53 Min. Vert. Clearance Over:	99.999 ft
54A Vert. Under Reference:	(H) Hwy beneath struct.
54B Min. Vert. Underclearance:	16.417 ft
55A Lateral Under Reference:	(H) Hwy beneath struct.
55B Min. Lat. Underclearance R:	0.000 ft
56 Min. Lat. Underclearance L:	0.000 ft
10 Vert. Clearance:	99.999 ft

POSTINGS

41 Posting Status:	(A) Open, No Restriction
Signs Posted Cardinal:	No
Signs Posted Non-Cardinal:	No
Field Postings Gross:	-1 tons
Field Postings Type I:	-1 tons
Field Postings Type II:	-1 tons
Field Postings Type III:	-1 tons
Field Postings Type IV:	-1 tons

Inspection Report with SI&A Data

12: Re Concrete Deck									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
SQ.FT	22,714.93	20,443.93	90%	2,271	10%	0	0%	0	0%

Deck*
Note that diagonal and transverse cracking was found randomly throughout the deck surface. Map cracking conditions were noted in the deck surface above the pier locations randomly.
Random areas of rust seepage staining were found to be seeping upward through the top surface of the deck.
There was a minor amount of roadway dirt and debris as well as ponding water was found in the gutter lines of the deck.
See Photos

510: Wearing Surfaces									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
SQ.FT	21,481.86	19,210.86	89%	2,271	11%	0	0%	0	0%

Wearing Surface*
Note that diagonal and transverse cracking was found randomly throughout the deck surface. Map cracking conditions were noted in the deck surface above the pier locations randomly.
Random areas of rust seepage staining were found to be seeping upward through the top surface of the deck.
There was a minor amount of roadway dirt and debris as well as ponding water was found in the gutter lines of the deck.
See Photos

1130: Cracking (RC and Other)									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
SQ.FT	2,271	0	0%	2,271	100%	0	0%	0	0%

Concrete Cracking*
Note that diagonal and transverse cracking was found randomly throughout the deck surface. Map cracking conditions were noted in the deck surface above the pier locations randomly.
Random areas of rust seepage staining were found to be seeping upward through the top surface of the deck.
There was a minor amount of roadway dirt and debris as well as ponding water was found in the gutter lines of the deck.
See Photos

Inspection Report with SI&A Data

102: Steel Clsd Box Gird

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	171	165	96%	6	4%	0	0%	0	0%

Steel Clsd Box Gird-
Steel closed web/box girder members were found located at piers #2, #3 and #4 throughout structure.
Exterior portions of box girders, as well as newer protective paint coating system were found performing well at this time.
Interior portions of box girders were found to have random areas of light top coat paint, exposed primer system, and isolated areas of surface rusting conditions and corrosion. Paint coating system throughout interior of box girders was found exposing random areas of both peeling and flaking conditions.
Paint system failure, rusting conditions, corrosion and pack rust to varying degrees were found in areas in between access hatches and face of box girders (union of connections).
Note that random areas throughout seal material in areas of I-girder penetrations through box girders (bottom flanges) were found showing cracking conditions, with seal material found missing at bottom flange of I-girder #2 at penetration through east web of box girder #2.
Access hatch located on the north end of box girder #2 was found missing three attachment bolts.
Note that access hatch of box girder #3, which is located at center column shared between both eastbound and westbound structures, was found to be secured inside box girder at this time and was not in place, nor performing as designed. Subject hatch was found to be missing several attachment bolts, with one nut missing from system. Hatch was also found exposing corrosion, with an area of rust through (section loss).
Access hatch located on the north end of box girder #4 was found missing one attachment bolt, with south hatch having one missing bolt and one broken bolt.
(See Photos)

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	1,215.46	1,214.16	100%	1.3	0%	0	0%	0	0%

Steel Protective Coating-
Exterior portions of box girders, as well as newer protective paint coating system were found performing well at this time.
Interior portions of box girders were found to have random areas of light top coat paint, exposed primer system, and isolated areas of surface rusting conditions and corrosion. Paint coating system throughout interior of box girders was found exposing random areas of both peeling and flaking conditions.
Paint system failure, rusting conditions, corrosion and pack rust to varying degrees were found in areas in between access hatches and face of box girders (union of connections).
(See Photos)

Inspection Report with SI&A Data

1000: Corrosion

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	6	0	0%	6	100%	0	0%	0	0%

Corrosion-
Exterior portions of box girders, as well as newer protective paint coating system were found performing well at this time.
Interior portions of box girders were found to have random areas of light top coat paint, exposed primer system, and isolated areas of surface rusting conditions and corrosion. Paint coating system throughout interior of box girders was found exposing random areas of both peeling and flaking conditions.
Paint system failure, rusting conditions, corrosion and pack rust to varying degrees were found in areas in between access hatches and face of box girders (union of connections).
(See Photos)

107: Steel Opn Girder/Beam

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	2,870	2,863	100%	1	0%	6	0%	0	0%

Steel Opn Girder/Beam-
10/29/2015: Note that these elements were only able to be viewed from ground level with binoculars.
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013. Paint system was found to be performing as designed at this time.
Note that hand written labels from recent fracture critical inspection were found at the top cope portion of beams # 4 and 5 at the connection point to the rear portion of the bent cap over pier # 3. Exactly what these labels are indicating could not be determined from ground level.
See Photos

11/18/2015: Note that cracking conditions were observed in the following girder members throughout structure, originating from areas of upper web copes:

Span #1, Pier #2, Girder #2/ Inclined orientation/form, extends 1" in length, terminates at two arrestor holes.
Span #1, Pier #2, Girder #5/ Inclined orientation/form, extends 13 7/8" to top flange fillet.

Span #2, Pier #3, Girder #4/ Inclined orientation/form, extends 6 1/2" to top flange fillet, and 2 7/8" along flange fillet.
Span #2, Pier #3, Girder #5/ Inclined orientation/form, extends 6 1/8" towards top flange fillet.

Span #3, Pier #3, Girder #4/ Inclined orientation/form, extends 7 1/2" to top flange fillet, and 2 3/8" along flange fillet.
Span #3, Pier #3, Girder #5/ Inclined orientation/form, extends 9" to top flange fillet, and 1 1/4" along flange fillet.
Span #3, Pier #3, Girder #6/ Inclined orientation/form, extends 5 3/4" to top flange fillet, and 1 1/2" along flange fillet.

Note that five out of seven crack locations were found to have grown since the last Fracture Critical Inspection completed in 2013, according to previous noted findings.
(See Photos)

Inspection Report with SI&A Data

515: Steel Protective Coating									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	7,872.98	7,872.98	100%	0	0%	0	0%	0	0%

Paint System*
Note that these elements were only able to be viewed from ground level with binoculars.
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013. Paint system was found to be performing as designed at this time

1010: Cracking									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	7	0	0%	1	14%	6	86%	0	0%

Cracking-
11/18/2015: Note that cracking conditions were observed in the following girder members throughout structure, originating from areas of upper web copes:

Span #1, Pier #2, Girder #2/ Inclined orientation/form, extends 1" in length, terminates at two arrestor holes.
Span #1, Pier #2, Girder #5/ Inclined orientation/form, extends 13 7/8" to top flange fillet.

Span #2, Pier #3, Girder #4/ Inclined orientation/form, extends 6 1/2" to top flange fillet, and 2 7/8" along flange fillet.
Span #2, Pier #3, Girder #5/ Inclined orientation/form, extends 6 1/8" towards top flange fillet.

Span #3, Pier #3, Girder #4/ Inclined orientation/form, extends 7 1/2" to top flange fillet, and 2 3/8" along flange fillet.
Span #3, Pier #3, Girder #5/ Inclined orientation/form, extends 9" to top flange fillet, and 1 1/4" along flange fillet.
Span #3, Pier #3, Girder #6/ Inclined orientation/form, extends 5 3/4" to top flange fillet, and 1 1/2" along flange fillet.

Note that five out of seven crack locations were found to have grown since the last Fracture Critical Inspection completed in 2013, according to previous noted findings.
(See Photos)

205: Re Conc Column									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
EACH	6	6	100%	0	0%	0	0%	0	0%

Pier Columns*
Other than a very minor amount of loss of protective coating the pier columns appear to be performing as designed at this time.
A moderate to heavy amount of soil erosion was found around column # 1 of Pier # 2. This erosion has caused up to 2" of erosion along one side of the column and in time could become a problem. Footing was not detected at this time.
See Photos

Inspection Report with SI&A Data

215: Re Conc Abutment

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	128	112	87%	16	13%	0	0%	0	0%

Abutments*
Note that there is some minor water seepage and staining as well a random vertical cracking it the backwall of both abutments.
See Photos

1130: Cracking (RC and Other)

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	16	0	0%	16	100%	0	0%	0	0%

Concrete Cracking*
Note that there is some minor water seepage and staining as well a random vertical cracking it the backwall of both abutments.
See Photos

300: Strip Seal Exp Joint

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	120	120	100%	0	0%	0	0%	0	0%

Joints*
There strip seal joints at both ends of the deck were found to be performing as designed at this time. Note that the seal material at both joints were found to be filled with a moderate amount of roadway dirt and debris at this time.
See Photos

2350: Debris Impaction

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
FT	120	120	100%	0	0%	0	0%	0	0%

Debris Impaction*
Note that the seal material at both joints were found to be filled with a moderate amount of roadway dirt and debris at this time.

Inspection Report with SI&A Data

311: Moveable Bearing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	18	18	100%	0	0%	0	0%	0	0%

Moveable Bearings*
The rocker bearings at both abutments have a very minor amount of tilt toward the backwall of the abutment that they are at.
The other rocker bearings appear to be vertical, but could only be seen from ground level.
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013. Paint system was fond to be performing as designed at this time.
See Photos

515: Steel Protective Coating

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	6.14	6.14	100%	0	0%	0	0%	0	0%

Paint System*
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013. Paint system was fond to be performing as designed at this time.

313: Fixed Bearing

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
EACH	2	2	100%	0	0%	0	0%	0	0%

Fixed Bearings*
The fixed bearings could only be seen from ground level. Fixed bearings and paint system appear to be performing as designed at this time.
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013.
See Photos

Inspection Report with SI&A Data

515: Steel Protective Coating									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
EACH	0.68	0.68	100%	0	0%	0	0%	0	0%

Paint System*
The fixed bearings could only be seen from ground level. Fixed bearings and paint system appear to be performing as designed at this time.
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013.
See Photos

331: Re Conc Bridge Railing									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	826	796	96%	30	4%	0	0%	0	0%

Concrete Bridge Railing*
Note that there is a moderate amount of loss of protective coating as well as random roadway traffic impact scrapes and minor concrete spalls throughout the concrete bridge railing.
Vertical flexure cracking was found at random spacing throughout.
There is an access panel in the concrete bridge railing, along the interior portion of the left side railing approximately 10 ft. from the rear end of the structure which is missing a cover.
Note that there is a tubular railing system mounted to the top side of the concrete bridge railing along both sides of the structure which was found to be performing as designed at this time.
See Photos

1130: Cracking (RC and Other)									
Units	**Total Qty**	**Qty. St. 1**	**% in 1**	**Qty. St. 2**	**% in 2**	**Qty. St. 3**	**% in 3**	**Qty. St. 4**	**% in 4**
FT	20	0	0%	20	100%	0	0%	0	0%

Concrete Cracking*
Vertical flexure cracking was found at random spacing throughout.

Inspection Report with SI&A Data

850: 2nd Elem

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	0	0%	1	100%	0	0%	0	0%

Diaphragms*
Diaphragms were found to be performing as designed at this time.
Note that all structural steel elements of this structure were painted during a recent paint project on 01-2013. Paint system was found to be performing as designed at this time.
See Photos

853: Utilities

Units	Total Qty	Qty. St. 1	% in 1	Qty. St. 2	% in 2	Qty. St. 3	% in 3	Qty. St. 4	% in 4
(EA)	1	0	0%	0	0%	1	100%	0	0%

Utilities*
The inside face of left side bridge railing near rear end of bridge has a electrical junction box with the cover plate missing. There are no wires inside. There is one overhead light pole on the left side bridge railing. There is a steel conduit running along the left face of bridge to service this light. The conduit has areas of surface rust and loose from one bracket. This light is no longer being used. If there are no plans to use it in the future the pole and conduit should be removed.

STRUCTURE NOTES

-Note that this structure recently had both the rear and forward sliding plate expansion joints removed and replaced. (10/30/2013) GTC

-Note that this structure was painted on January, 2013. (10/30/2013) GTC

-Structure Stamped HS 20-44

-Note that the painters stamped the wrong bridge I.D. on this structure.

INSPECTION NOTES

Note that this was a Fracture Critical Inspection this date, performed and completed by KYTCs Andrew Bush, Craig Bresch, Rick Rogers, Greg Cady and Gary Cochran.
Other structures in local area were also undergoing inspections, starting on November 15th 2015 and having completion of such on November 18th 2015.
All Steel Closed Web/Box Girder members (Element Description #102) at seat on piers were in scope of this inspection. Also while in areas, local Steel I-Girder members of structure were reviewed along locations at or near union with subject Box Girders.
For details on structural elements and work orders not in scope of this Fracture Critical Inspection, refer to previous Bi-Annual report. (11/18/2015)

Element Description #231 (Steel Pier Cap) was removed from this report as being a member of this structure after review from both KYTC Central and District Office personnel, which has now been replaced and/or changed to Element Description #102 (Steel Closed Web/Box Girder). Such Box Girder members were determined to be performing as part of the superstructure system and not as part of the substructure system. Each Box Girder member will be labeled with the corresponding pier number it is bearing above/ at seat on. There are three fracture critical box girder members inventoried on this structure. (11/18/2015)

Inspection Report with SI&A Data

WORK	
Action:	1079 - Superstructure-Repair Steel

Generated by user "gcochran" on 11/18/2015

-Repair and/or drill for arrestor holes in areas of cracks found in I-girder members of structure.

Action:	1079 - Superstructure-Repair Steel

Generated by user "gcochran" on 11/18/2015

-Repair or replace all Access Hatch panels throughout box girder members, due to corrosion of panels, missing attachment bolts and broken attachment bolts.