2026 In-Depth Element Level and NSTM Inspection Report

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STATE OF OHIO
TRAVIS M. BAKER
75849
REGISTERED PROFESSIONAL ENGINEER

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Prepared by
AECOM Technical Services, Inc.
AECOM



Department of Transportation

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APPENDICES

APPENDIX A
NSTM Member Plan

APPENDIX B
AssetWise Bridge Inspection Report

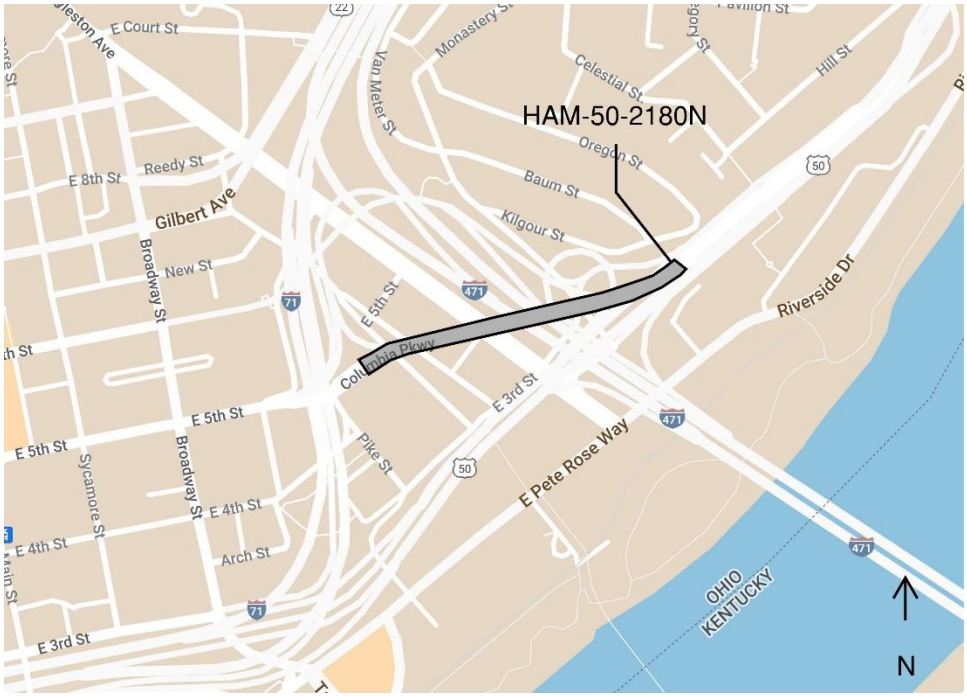
Chapter 1: Introduction

1.1 BRIDGE DESCRIPTION

The Columbia Parkway Viaduct (HAM-00050-21.800N) connects East 5th Street to U.S. Route 50 in Downtown Cincinnati carrying eastbound and westbound vehicular traffic and a pedestrian sidewalk over Butler Street, Culvert Street, local parking lots, Eggleston Avenue, Monastery St., Interstate 471, and ramps to U.S. Route 50. The location of the structure can be seen in Figure 1. The overall bridge length is 1,660'-9" and the structure was opened to traffic in 1938 with rehabilitations in 1997-1998 and 2017-2018. The rear approach spans (Spans 1-4) and the forward approach spans (Spans 12-17) consist of three lines of simple span, built-up steel girders. The main spans (Spans 5-11) consist of three lines of Pratt deck trusses. Spans 5-6 and 10-11 are continuous over two spans, while Spans 7-9 are continuous over three spans. In the truss spans, the diagonals and verticals consist of rolled members and the upper and lower chords consist of built-up box sections. The floor beams consist of rolled members and the cantilevered floor beam extensions consist of welded plates. In the truss spans, sway bracing, and lower lateral bracing are riveted to gusset plates at even-numbered panel points. In girder spans, cross-frame and lower lateral bracing spacing varies due to the curved geometry. A reinforced concrete deck, with a roadway width of 56 ft-4 in, carries four lanes of traffic across the structure. A 10 ft-8 in wide sidewalk carries pedestrian traffic on the south side of the structure. The Rear Abutment (Abutment 1) and the Forward Abutment (Abutment 18) are concrete wall type substructures. All piers (Piers 2-17) are concrete cap and column substructures.

The bridge follows a west to east stationing. Girders and truss lines are labeled north, center, and south. Floor beams are numbered from west to east and re-cycle at the beginning of each continuous span.

FIGURE 1–LOCATION MAP



1.2 NSTM LOCATIONS

Bridge HAM-00050-21.800N contains NSTM girders in the approach spans (Spans 1-4 and Spans 12-17), and NSTM truss members in Spans 5-11. Per ODOT's direction, the floor beams are not considered NSTMs. The locations of the NSTM members can be seen in Appendix A.

1.3 FATIGUE DETAILS

There are tack welds present in both truss and girder spans on several gusset plates, truss member flanges, bearing plates, girder member plates, and fill plates. These tack welds are located on NSTMs and are considered fatigue prone details since they can create stress risers and cracks in the weld metal could propagate into adjacent members. Some of the welds are of poor quality, are under cut, or cracked. None of the cracks were observed to have propagated into the base metal of any adjacent members or plates. The defects related to the tack welds are presented in the respective element sections of the report.

1.4 INSPECTION METHODS

The AECOM Team performed the in-depth element level and NSTM inspection over two periods on August 3, 2026 through August 14, 2026 and August 21, 2026. The inspection was performed in accordance with the D08 BI 2025/2026 (A) Consultant Bridge Inspection Scope of Services. The inspection team organization is shown below.

Team Member	Role	Organization
Travis Baker, P.E.	Project Manager	AECOM
Kyle Compton-Troesch, P.E.	Team Leader	AECOM
Prateek Nepal, E.I.	Team Leader	AECOM
Matt Kish, E.I.	Team Member	AECOM
Stephen Mayo, P.E.	Team Leader	WSP
Chris Stonehocker, P.E.	Team Member	WSP

The superstructure; including all truss members, gusset plates, girders, bearings, and bracing; the deck underside, and the upper portion of the substructure were accessed primarily using a manlift, the catwalk adjacent to the Center Truss, and climbing. The remaining structural elements including the wearing surface, joints, drainage, railings, approaches, embankments, and the lower portion of the substructure were accessed from the ground or deck surface. Table 1 in the following section describes the condition ratings assigned to each element during the inspection. A copy of the AssetWise Bridge Inspection Report is included in Appendix B. Note that "inactive" as used in this report refers to areas where rusting/corrosion (pack rust, pitting, etc.) was once actively occurring but is currently arrested with paint.

1.5 CONDITION DESCRIPTIONS AND RATINGS

State and federal guidelines for evaluating the condition of bridges have been developed to promote uniformity in the inspections performed by different teams and at different times. Condition ratings are used to describe the existing, in-place bridge as compared to the as-built condition. The following table (Table 7-2 of the ODOT Bridge Inspection Manual) is a general guide in evaluating the condition of the various members of the bridge. More in-depth tables and figures can be found in Chapter 7 in the 2025 ODOT Bridge Inspection Manual.

TABLE 1–CONDITION RATING GUIDELINES (TABLE 7.2-ODOT MBIS 2025)

Condition		Defect Severity				Strength or Performance Affected
		Inherent	Minor	Moderate	Major	
9	Excellent	Isolated				No
8	Very Good	Some				No
7	Good		Some			No
6	Satisfactory		Widespread	Isolated		No
5	Fair			Some	Isolated AND	No
4	Poor			Widespread	Isolated AND	Yes—advanced deterioration of structure. Repairs are necessary.
3	Serious				≥ Isolated	Yes—local failures possible. Urgent repairs are necessary.
2	Critical				≥ Isolated	Yes—severe loss of strength. Emergency repairs are required.
1	Imminent Failure					Yes—bridge is closed pending major repairs or rehabilitation.
0	Failed					Yes—bridge is closed and beyond repair.

Chapter 2:
Bridge Condition

2.1 ITEM B.C.01 – DECK CONDITION RATING

The deck is in SATISFACTORY CONDITION [6-SNBI].

2.1.1 Element 12 – Reinforced Concrete Deck

The reinforced concrete deck is in satisfactory condition. There are some medium-width longitudinal and transverse cracks with efflorescence in the deck underside. The longitudinal cracks are typically located between the floorbeams above the upper chord (see Figure 2). The majority of the transverse cracks are located in the deck overhangs and have light to moderate build-up of efflorescence (see Figure 3). In Span 5 at the south overhang, there are medium-width diagonal cracks with efflorescence near the expansion joint (see Figure 4).

There are isolated areas of minor spalls on the underside of the deck most notably near expansion joints. There are also isolated spalls in the floorbeam haunches measuring up to 1 ft in diameter (see Figure 5 and Figure 6). The end haunches on the north overhang brackets were sounded along the length of the truss. The haunches were observed to be sound.

FIGURE 2–LONGITUDINAL CRACKS ABOVE UPPER CHORD BETWEEN FB9 AND FB10 (SPAN 10)



FIGURE 3–TRANSVERSE CRACKS WITH EFFLORESCENSE IN SOUTH OVERHANG (SPAN 17)



FIGURE 4–DIAGONAL CRACKS WITH EFFLORESCENSE IN SOUTH OVERHANG (SPAN 5)



FIGURE 5–FLOORBEAM HAUNCH SPALLS ALONG SOUTH TRUSS (SPAN 6)



FIGURE 6–HAUNCH SPALL AT FB26 NORTH OVERHANG BRACKET (SPAN 8)



2.2 ITEM B.C.01.01 – WEARING SURFACE CONDITION RATING

The wearing surface is in SATISFACTORY CONDITION [6-SNBI].

2.2.1 Element 805 – Wearing Surface – Monolithic Concrete

The monolithic concrete wearing surface is in satisfactory condition overall. There are some medium-width longitudinal and transverse cracks throughout. There are isolated locations of wide cracks near drainage scuppers and expansion joints. At the drainage scuppers, the cracks are propagating from the corners of the scupper grate (see Figure 7). At the expansion joints, the cracking is typically near the areas where the joint armor bends and measures up to 0.1" wide (see Figure 8). There is a 1" diameter by 1" deep pop out in Span 13 (see Figure 9).

FIGURE 7–DIAGONAL CRACK EXTENDING FROM SCUPPER (SPAN 4)



FIGURE 8–LONGITUDINAL CRACK NEAR BEND IN EXPANSION JOINT (PIER 4)



FIGURE 9–POPOUT IN WEARING SURFACE 8 FEET FROM PIER 14 (SPAN 13)



2.3 ITEM B.C.02 – SUPERSTRUCTURE CONDITION RATING

The superstructure is in FAIR CONDITION [5-NBIS] overall controlled by the steel truss and gusset plates.

2.3.1 Element 107 – Steel Open Girder/Beam

The steel built-up riveted plate girders are located in the approach spans (Spans 1-4 and 12-17) containing 3 girder lines and are in satisfactory condition. There are isolated stiffeners with distortion due to pack rust (see Figure 10). There are weld/flame cuts in the bottom flanges in Spans 13-15. In Span 12, there are isolated locations where the bottom flange is distorted (see Figure 11).

Tack welds are present at several floorbeam connection angles and at isolated diaphragm connection angles where the fill plates are attached to the girder. No cracks were found during the 2026 inspection. There are isolated locations where either rivet heads are missing or there are blind holes, particularly near stiffener locations on the top flange (see Figure 12) and in the web behind the bearing. Four unused holes located in the web near pier locations occur in the Span 4 South Girder and Span 12 North Girder (see Figure 13). There are isolated locations of plug welds in the fill plate to web connections (see Figure 14). No distress was observed in the surrounding areas.

There are isolated areas of surface corrosion along the top flange. There are isolated areas of painted over pitting ranging from 1/16” to 1/4” deep, most notably near the girder ends behind the bearings (see Figure 15). In Span 13, the South Girder has a 2” diameter corrosion hole in the web behind the bearing at Pier 14. Isolated areas of pack rust up to 1/8” between the cover plates along the bottom flange of the girders are present. There is pack rust up to 1” thick between the bottom flange cover plates on the North Girder in Span 2 near midspan (see Figure 16).

FIGURE 10-DISTORTED STIFFENER DUE TO PACK RUST (SOUTH GIRDER, SPAN 4)



FIGURE 11–DISTORTED BOTTOM FLANGE NEAR MIDSPAN (SOUTH GIRDER, SPAN 12)



FIGURE 12–BLIND HOLE AND MISSING RIVET (SOUTH GIRDER, SPAN 3)



FIGURE 13–FOUR UNUSED HOLES IN WEB NEAR PIER 12 (NORTH GIRDER, SPAN 12)

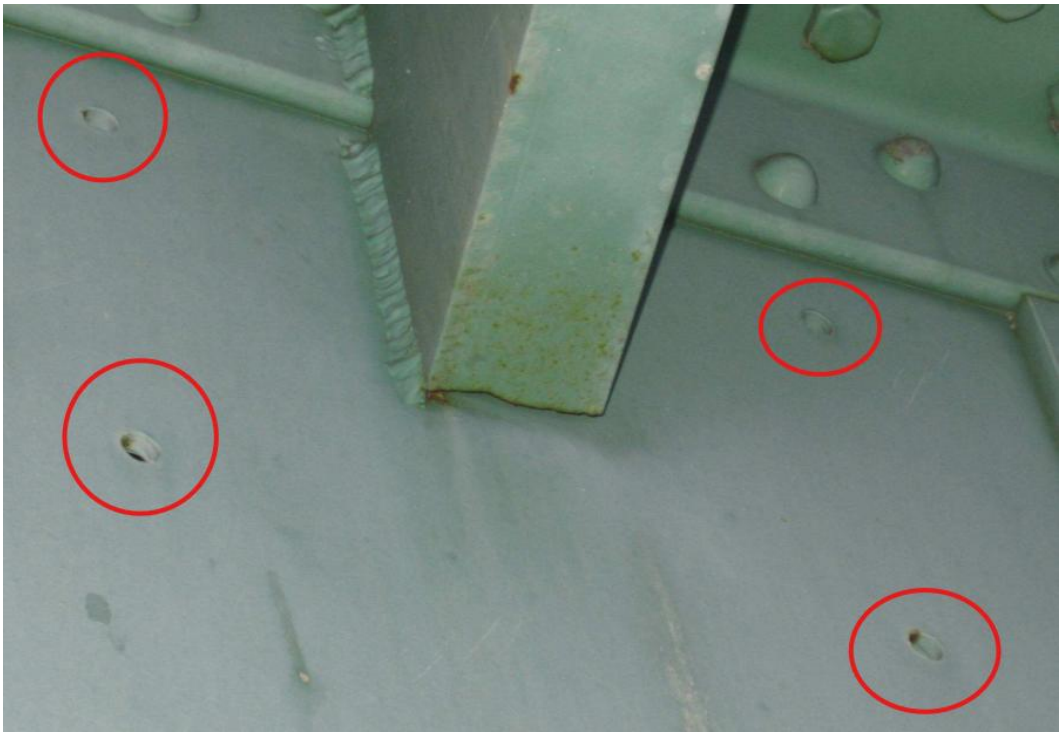


FIGURE 14–TYPICAL PLUG WELDS (NORTH GIRDER, SPAN 16, PIER 16)

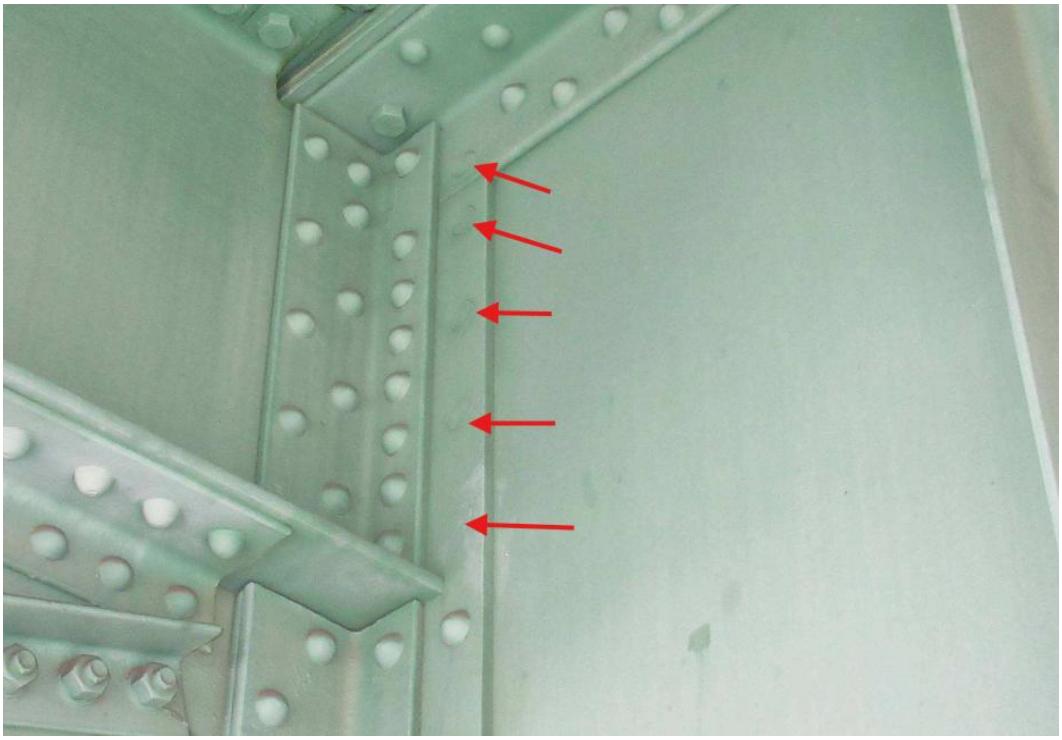


FIGURE 15–TYPICAL PITTING ON WEB BEHIND BEARING LOCATION (SOUTH GIRDER, SPAN 16)



FIGURE 16–PACK RUST BETWEEN BOTTOM FLANGE COVER PLATES NEAR MIDSPAN (NORTH GIRDER, SPAN 2)



2.3.2 Element 120 – Steel Truss

The steel trusses are in fair condition overall. The trusses are located in Spans 5 through 11 and consist of three truss lines. The following sections (lower chord, diagonals, verticals, and upper chord) describe the deficiency findings for the truss components that contribute to the overall condition rating.

Lower Chord

The lower chord has widespread areas with varying levels of pack rust between the web and flange components and internal stiffeners. The pack rust is commonly located on both sides and typically varies from 1/16” to 1” thickness with one area up to 1-1/2” on L22L23 in Span 8 of the North Truss (see Figure 17). Some areas of thicker pack rust have caused the web plate to warp giving it a wavelike appearance.

There is pack rust between the internal stiffener plates (typically located near the bearings), typically up to 1-1/2" thick, with one location up to 2" thick (see Figure 18). Other areas that are being affected by pack rust include at fill plates where the lower chord connects to the vertical (panel points) and at the batten plates. At isolated locations, the pack rust is prying the plate away from the connected member (see Figure 19). There are also isolated areas of distorted lacing bars (see Figure 20).

The lower chord components typically have areas of inactive section loss ranging from 1/16" to 3/16" depth. The areas of section loss tend to occur around the panel points and typically are located on the batten plate, top flange ends, bottom flange, or web plates adjacent to the gusset plate (see Figure 21).

Rivet heads with up to 50% section loss are present at isolated panel points within the lower chord. There are corrosion holes in several batten plates near the truss bearings (see Figure 22).

Two steel wedges previously attached to the bottom flanges at Pier 10 are no longer in place. At the North Truss, the steel wedge near L44 in Span 9 has rusted off the bottom flange and is sitting on the pier cap (see Figure 23 and Figure 24). The Center Truss wedge is still attached, while the South Truss wedge is missing.

Throughout the length of the truss, there are various locations of blind holes and missing fasteners. The blind holes are commonly located in the lower chord top flange near the panel point where a batten plate or lacing bar is installed (see Figure 25) or in the lower chord web adjacent to a bearing, where previous jacking plates were installed or are still installed (see Figure 26).

FIGURE 17–DISTORTION TO WEB PLATES DUE TO PACK RUST (L22L23, SPAN 8, NORTH TRUSS)

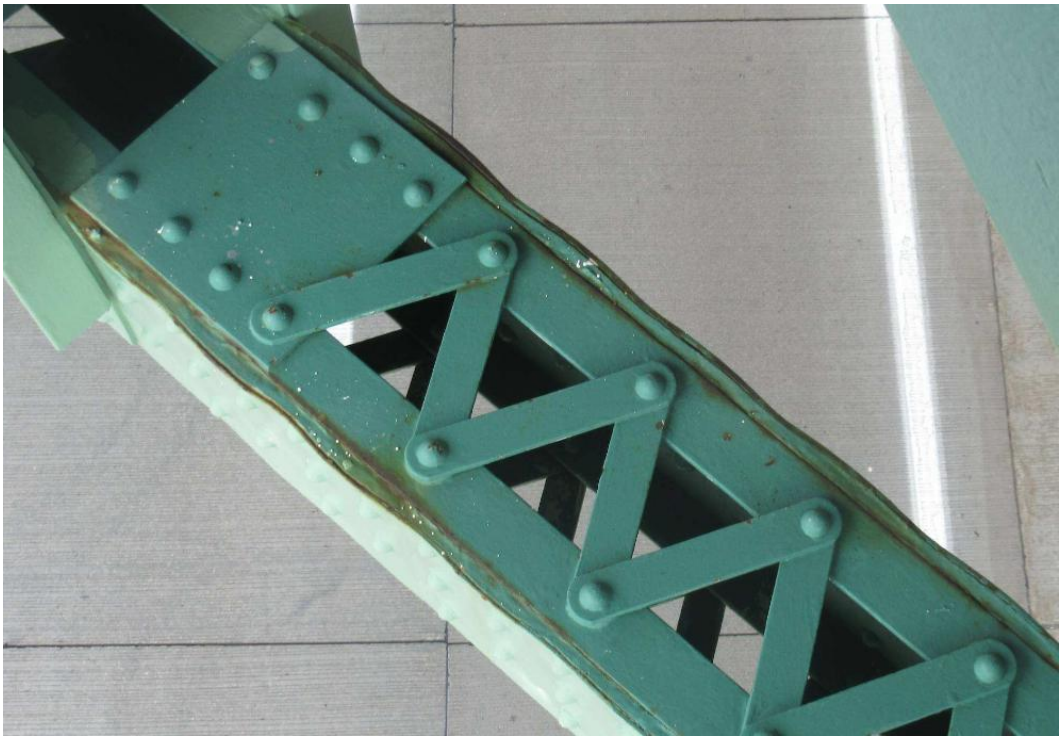


FIGURE 18–DISTORTION TO INTERNAL STIFFENERS DUE TO PACK RUST (L0L1, SPAN 7, SOUTH TRUSS)



FIGURE 19–DISTORTED BATTEN PLATE DUE TO PACK RUST NEAR L6 (L6L7, SPAN 7, SOUTH TRUSS)



FIGURE 20–DISTORTED BOTTOM LACING BARS (L8L9, SPAN 6, CENTER TRUSS)



FIGURE 21–PAINTED OVER PITTING NEAR L20 (L19L20, SPAN 6, SOUTH TRUSS)



FIGURE 22–10”L X 6”W CORROSION HOLE IN LOWER BATTEN PLATE AT L0 (L0L1, SPAN 5, NORTH TRUSS)



FIGURE 23–RUSTED OFF STEEL WEDGE (L43L44, SPAN 9, NORTH TRUSS)



FIGURE 24-RUSTED OFF STEEL WEDGE ON TOP OF PIER 10 NORTH PEDESTAL



FIGURE 25–MISSING RIVETS NEAR L0 (L0L1, SPAN 5, NORTH TRUSS



FIGURE 26–BLIND HOLES IN WEB NEAR L0 (L0L1, SPAN 11, SOUTH TRUSS)



Upper Chord

The upper chord has isolated locations of pack rust. The top and bottom batten plates and splice plates have isolated locations of pack rust up to 1/2" thick. Member U42U43 bottom batten plate has 3/4" pack rust between the plate and the bottom flange in Span 9 of the North Truss (see Figure 27). There are isolated locations of pack rust distorting the fill plates at splice locations (see Figure 28).

Laminating corrosion with minor section loss is present in isolated locations on the lacing bars and bottom flanges. Member U14U15 has multiple areas of pitting measuring 1" diameter by 3/16" deep in the top flange (see Figure 29). There is an isolated 8" long by 2" wide corrosion hole in a fill plate at the splice in U9U10 of the Center Truss in Span 6. Corrosion holes are present at the bottom flange angles at bearing locations. These locations include the following:

- U20, Span 6, Center Truss – 1' by 1" corrosion hole.
- U0, Span 7, North Truss – 1' long by 3" wide and 4" long by 2" wide corrosion holes.
- U0, Span 7, Center Truss – (2) 1" diameter and 18" long by 3" wide corrosion holes (see Figure 30).

- U20, Span 10, Center Truss – 2” long by 1” wide and 12” long by 2” wide corrosion holes.

There are isolated misdrilled holes in the upper chord members, most notable at the splice plate connections (see Figure 31). At U25 of the North Truss in Span 8, there are four plug welds on each side of the upper chord.

FIGURE 27–PACK RUST BETWEEN BOTTOM FLANGE AND BATTEN PLATE (U42U43, SPAN 9, NORTH TRUSS)



FIGURE 28–DISTORTED FILL PLATE AT SPLICE LOCATION (U12U13, SPAN 6, CENTER TRUSS)



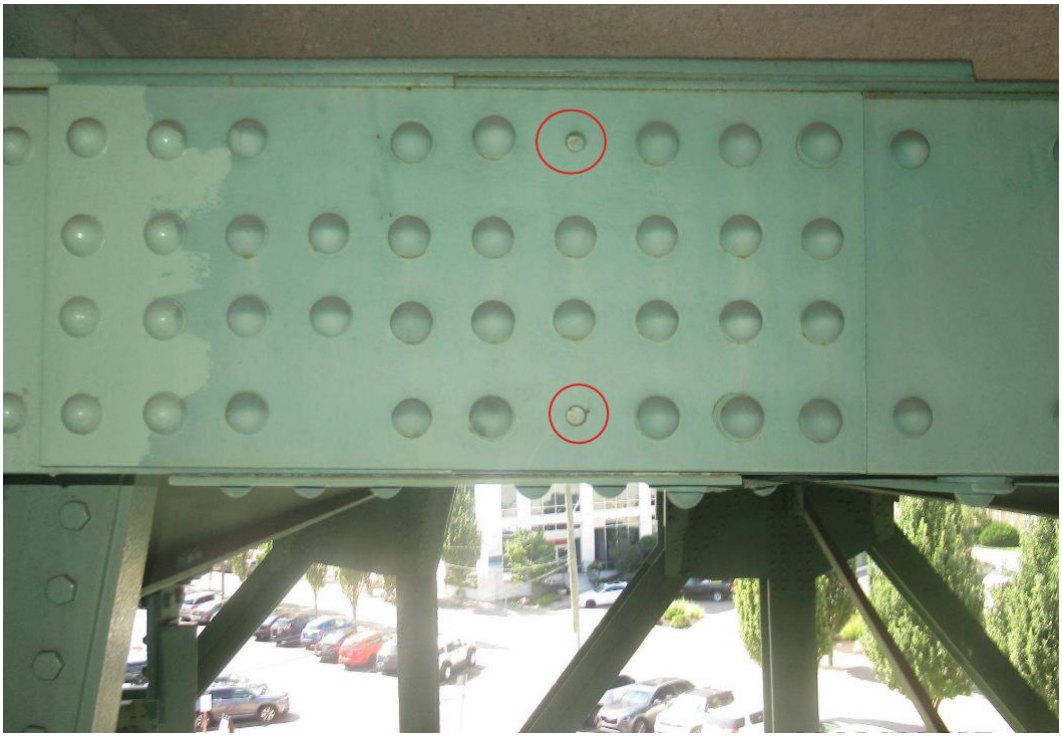
FIGURE 29–PITTING IN TOP FLANGE NEAR U14 (U14U15, SPAN 6, CENTER TRUSS)



FIGURE 30–CORROSION HOLES IN BOTTOM FLANGES NEAR U0 (U0U1, SPAN 7, CENTER TRUSS)



FIGURE 31–MISDRILLED HOLES IN SPLICE PLATE (U10U11, SPAN 6, CENTER TRUSS)



Verticals

At the lower connection to the gusset plate, there is typically pack rust between the flange and the fill plate causing distortion to the fill plate. At L6 in Span 5 of the North Truss, pack rust has caused distortion of up to 1 inch to the fill plate with the top fill plate edge exhibiting a corrosion hole (see Figure 32). The verticals have isolated locations of painted over pitting up to 3/16" deep most common along the flanges and at the lower gusset connections. The most notable areas of section loss include:

- U20L20, Span 6, Center Truss: 5" high by 7" wide by 3/16" deep painted over pitting on the south flange (see Figure 33).
- U6L6, Span 10, South Truss: Painted over pitting up to 1/8" deep over the length of the north flange.

Several of the welds attaching items to the verticals are of poor quality. Throughout the truss, there are locations where the remains of a previously welded attachment are still on the vertical. The attachment was torch cut off and the partial pieces of steel remain welded. Many verticals have errant welds attached to the flange and locations of gouging (see Figure 34).

At U40 of the North Truss, Span 9, there are gaps at three bolted connections. The bolts are not loose to the touch, but they have not been properly tightened (see Figure 35). At U11 of the Center Truss, Span 7, and U33 of the Center Truss, Span 9, there are three plug welds near the top end of the vertical (see Figure 36). No deficiencies are noted in these areas. Two rivet heads have been torch cut off at U20 of the North Truss, Span 11.

Ten cracks are currently noted at attachments to the verticals and are summarized in Table 2 below. Eight of the cracks are in the tack weld between the gusset fill plate and the vertical and two occur at the catwalk attachment tack weld. No cracks changed in size from the previous inspection and none of the cracks propagate into the base metal.

TABLE 2–CRACK SUMMARY TABLE (VERTICALS)

Vertical	Truss Line	Span	Crack Location	Crack Size	Status	Figure
U13L13	Center	6	Fill Plate Weld	1” 1”	**No Change** **No Change**	
U8L8	Center	7	Fill Plate Weld	1”	**No Change**	Figure 37
U25L25	Center	8	Fill Plate Weld	1/2” West 1” East	**No Change** **No Change**	Figure 38
U36L36	Center	9	Catwalk Support	1” East 3/4” West	**No Change** **No Change**	
U36L36	Center	9	Fill Plate Weld	1” West 3/4” East	**No Change** **No Change**	
U18L18	North	10	Fill Plate Weld	1”	**No Change**	

FIGURE 32–CORROSION HOLE ALONG THE TOP EDGE OF THE FILL PLATE AND DISTORTION DUE TO PACK RUST AT L6 (U6L6, SPAN 5, NORTH TRUSS)



FIGURE 33–PAINTED OVER PITTING ON THE SOUTH FLANGE NEAR U20 (U20L20, SPAN 6, CENTER TRUSS)



FIGURE 34–TYPICAL ERRANT WELD AND GOUGES ON THE FLANGES WITH REMAINS OF PREVIOUS WELDED ATTACHMENTS (U30L30, SPAN 9, NORTH TRUSS)

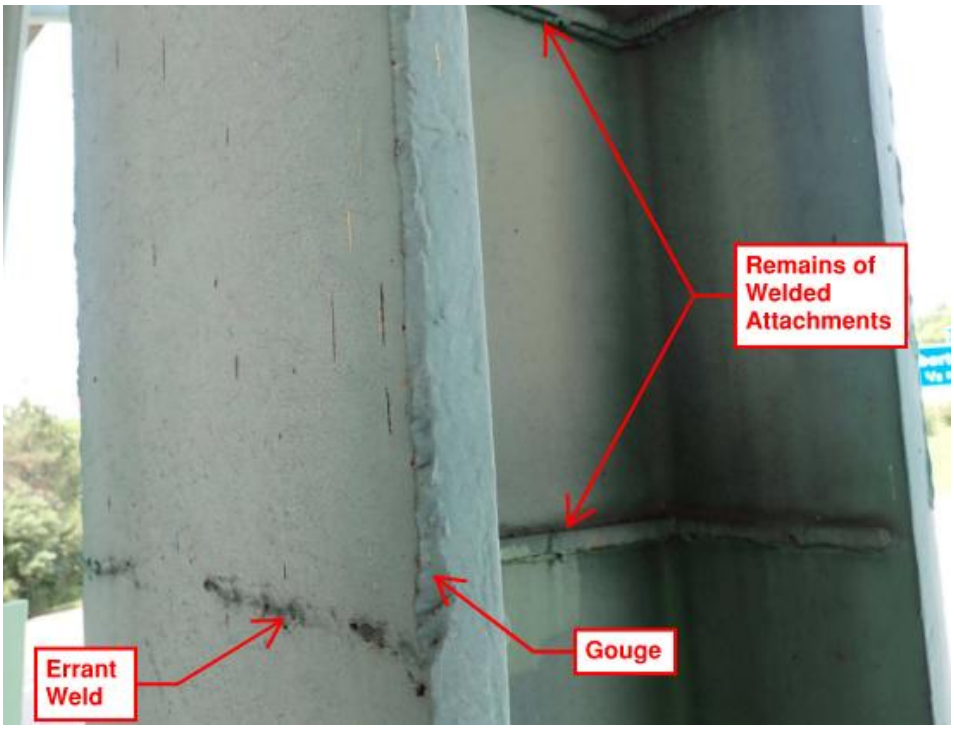


FIGURE 35–3 BOLTS NOT SNUG AT U40 GUSSET PLATE CONNECTION (U40L40, SPAN 9, NORTH TRUSS)



FIGURE 36–PLUG WELDS AT U33 (U33L33, SPAN 9, CENTER TRUSS)



FIGURE 37–CRACK IN WELD ON FILL PLATE (U8L8, SPAN 7, CENTER TRUSS)

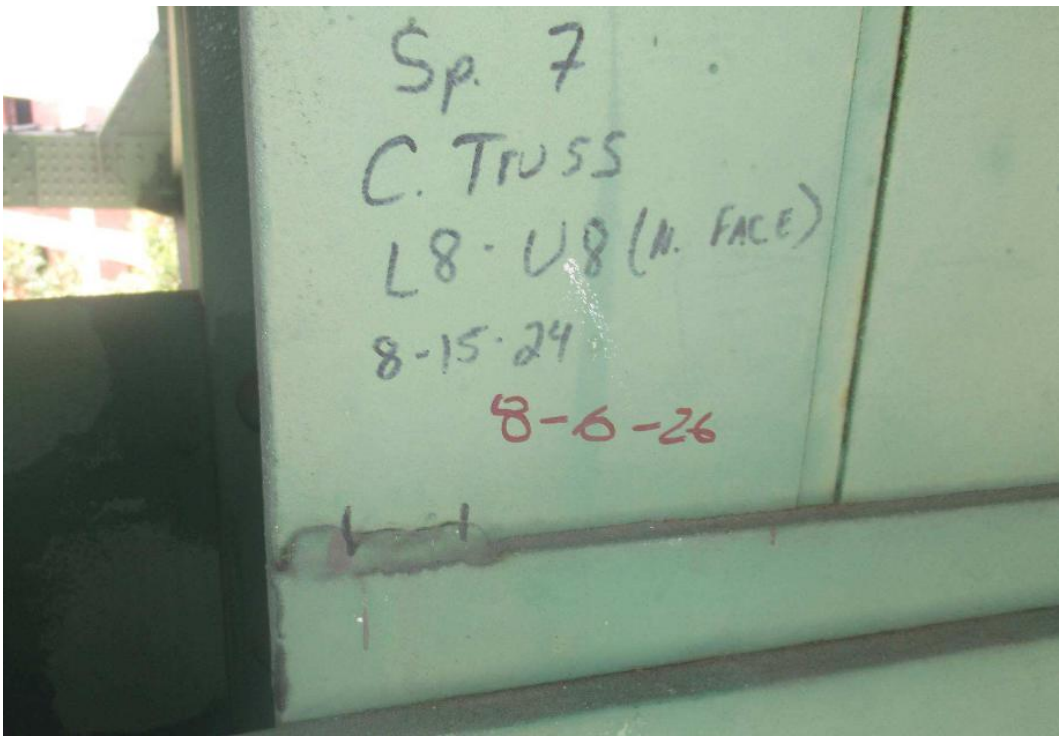


FIGURE 38–CRACK IN WELD AT FILL PLATE (U25L25, SPAN 8, CENTER TRUSS)



Diagonals

The diagonals have isolated areas of pack rust up to 3/8" thick at the fill plate and lower gusset connections causing distortion to the fill plate (see Figure 39). There are isolated areas of surface corrosion present on the webs, flanges, and rivets. Some painted over pitting less than 1/16" deep is present, most notable along the flanges (see Figure 40). At U31L32, Span 9, North Truss there is an area of 3/16" deep pitting at the lower gusset connection (see Figure 41).

A plug weld exists at U3L4, Center Truss, Span 5 (see Figure 42). There are isolated locations of misdrilled holes.

At U18 of L17U18, North Truss, Span 6, there is a previously marked 1-1/2" long cracked tack weld between the diagonal and the north gusset plate (see Figure 43). No change was noted at the time of inspection.

FIGURE 39–PACK RUST CAUSING DISTORTION TO FILL PLATE AT L40 (U41L40, SPAN 9, NORTH TRUSS)



FIGURE 40–TYPICAL MINOR PITTING ALONG FLANGE (U13L14, SPAN 6, NORTH TRUSS)



FIGURE 41–PITTING AT THE LOWER GUSSET CONNECTION ON THE NORTH FLANGE (U31L32, SPAN 9, NORTH TRUSS)



FIGURE 42–PLUG WELD NEAR U3 (U3L4, SPAN 5, CENTER TRUSS)



FIGURE 43–CRACKED TACK WELD AT U18 (L17U18, SPAN 6, NORTH TRUSS)



2.3.3 Element 152 – Steel Floor Beam

The steel floorbeams are in satisfactory condition. There are isolated locations of pack rust ranging from 3/16” to 1/2” thick at the intersection with the girders and at the floorbeam cantilever connection to the girder top flange (see Figure 44).

There are isolated locations of surface corrosion on the floorbeams. The floorbeams have isolated locations of painted-over pitting up to 1/4” deep and one location of active section loss 1’ long by 1” wide by 1/16” deep at the top flange in Floorbeam 1, Span 17 (see Figure 45). The pitting is most notable along the bottom and top flange and lower portion of the web. The floorbeam connections to the upper gusset plates have areas of painted over pitting up to 3/16” deep (see Figure 46). The most notable areas of pitting on the floorbeams include:

- Floorbeam 20, Span 6: 5' long by up to 1/4" deep pitting on the bottom flange and lower 4” of web (see Figure 47).
- Floorbeam 20, Span 10: up to 1’ long by 3” wide by 1/4" deep pitting on the top flange at the Center Truss (see Figure 48).
- Floorbeam 0, Span 11, Center Truss: 2" long by 3” wide by 3/16" deep pitting on the top flange at the Center Truss.

The floorbeam on the south side of U39, Center Truss, Span 9, has a 3/8” vertical overcut at the top flange cope (see Figure 49). No additional issues are noted at this location. There is a misdrilled hole at the floorbeam connection to the gusset plate at U15, South Truss, Span 6. Over Pier 10, North Truss, Span 10, there is a blind hole in the top floorbeam flange.

FIGURE 44–PACK RUST AT OVERHANG BRACKET AND GIRDER CONNECTION (FB1, SPAN 4, SOUTH GIRDER)



FIGURE 45-ACTIVE SECTION LOSS ON TOP FLANGE (FB1, SPAN 17)



FIGURE 46–PAINTED OVER PITTING AT THE U20 CENTER TRUSS SOUTH CONNECTION (FB20, SPAN 10)



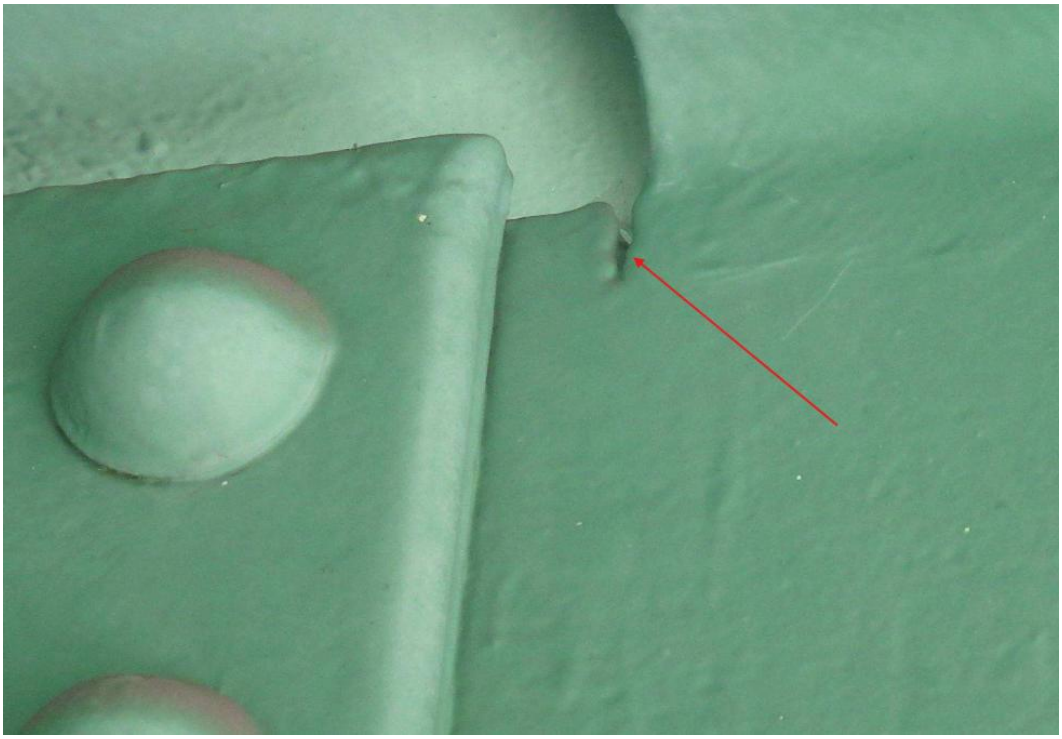
FIGURE 47–PITTING ALONG BOTTOM FLANGE AND BOTTOM 4" OF WEB (FB20, SPAN 6)



FIGURE 48–PAINTED OVER PITTING ON THE TOP FLANGE NEAR U20 OF THE CENTER TRUSS (FB20, SPAN 10)



FIGURE 49–OVERCUT IN THE FLOORBEAM COPE AT THE SOUTH SIDE OF U39 CENTER TRUSS (FB39, SPAN 9)



2.3.4 Element 162 – Steel Gusset Plate

The steel gusset plates are in fair condition. There is widespread painted over pitting typically up to 3/16” (see Figure 50), with isolated areas up to 5/16” deep on the gusset plates, and isolated areas of active section loss up to 3/16" deep along the interface with the lower chord (see Figure 51). There is a 3” diameter corrosion hole at L0 in the South Plate of the Center Truss in Span 7 (see Figure 52). The most notable locations of section loss include:

- U8, North Plate, Center Truss, Span 5: 3" long by 1" high by 1/4" deep painted over pitting on the outboard face near the bracing connection.
- U0, South Plate, Center Truss, Span 6: 18" wide by 12" high by 1/4" deep painted over pitting on the outboard face near floorbeam connection.
- L20, North Plate, South Truss, Span 6: 5" long by 2" high by 1/4" deep pitting on the outboard face near lower chord connection.
- L0, North Plate, South Truss, Span 7: Up to 1/4” deep painted over pitting along the diagonal and lower chord on the interior and a 4” high by 10” long by 1/4” deep painted over pitting on the exterior near bearing connection.
- U36, South Plate, Center Truss, Span 9: 12" high by 4" long by 1/4" deep pitting on the outboard face near floorbeam connection.
- U44, South Plate, Center Truss, Span 9: 10" long by 5" high by up to 5/16" deep painted over pitting and rivet head section loss on the outboard face west of the floorbeam connection (see Figure 53).
- U0, South Plate, Center Truss, Span 11: 9" high by 2" wide and 8” wide by 2” high by 1/4" deep painted over pitting on the outboard face in the top corner near the floorbeam connection.

Some gusset plates have bowing along the free edge and/or deformation along a fastener line. Stiffening angles have been added to several gusset plates due to free edge bowing. Most free edge bowing and all fastener line deformation appears to be due to pack rust which is 1/4" to 1/2" thick, with isolated locations up to 1" thick predominately on the lower chord gussets and at bearing locations (see Figure 54). There are isolated locations where the fastener line deformation is allowing water to pond between the vertical and the gusset plate (see Figure 55) and there are isolated locations where the gusset plates are bowed up to 3/16" along the free edge with no apparent pack rust (see Figure 56). Measurements were taken with a combination of folding rulers and levels.

In isolated locations, the gusset plates have gouges where previous attachments had been welded to the plates. Catwalk supports have been welded to the gusset plates on the Center Truss, but no defects associated with this detail were observed. There are isolated locations

of mis-drilled holes, some of which have been filled with plug welds (see Figure 57). There are isolated rivet heads that appear to have been cut or ground off, with gouges in the gusset plate base metal and light rusting along the cut lines (see Figure 58).

FIGURE 50-PAINTED OVER PITTING ON EXTERIOR FACE (L0, NORTH PLATE, SPAN 7, SOUTH TRUSS)



FIGURE 51–ACTIVE PITTING ALONG LOWER CHORD (L20, NORTH PLATE, SPAN 6, SOUTH TRUSS)



FIGURE 52–CORROSION HOLE IN SOUTH PLATE (LO, SPAN 7, CENTER TRUSS)



FIGURE 53–PAINTED OVER PITTING WITH RIVET HEAD SECTION LOSS ON THE OUTBOARD FACE NEAR FLOORBEAM CONNECTION (U44, SOUTH PLATE, SPAN 9, CENTER TRUSS)



FIGURE 54–FREE EDGE BOWING DUE TO PACK RUST AT LOWER CHORD (L20, SOUTH PLATE, SPAN 6, SOUTH TRUSS)



FIGURE 55- PACK RUST BETWEEN VERTICAL AND GUSSET PLATE WITH ACCUMULATED WATER (L0, NORTH PLATE, SPAN 7, SOUTH TRUSS)



FIGURE 56–INWARD BOWING AT BEARING CONNECTION (L20, NORTH PLATE, SPAN 6, CENTER TRUSS)



FIGURE 57–PLUG WELDS (U25, SPAN 8, NORTH TRUSS)

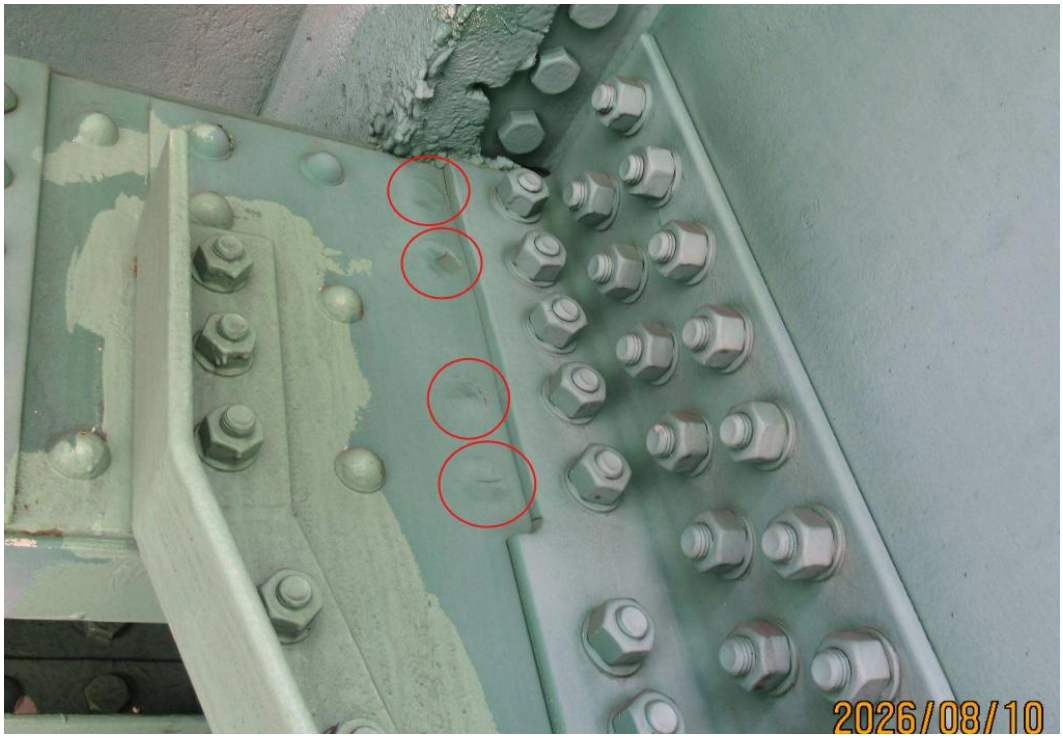


FIGURE 58–GOUGES DUE TO CUT RIVET (U43, NORTH PLATE, SPAN 9, NORTH TRUSS)



2.3.5 Item B.C.14 – NSTM Inspection Condition

The NSTMs are in FAIR CONDITION [5-NBIS] overall, controlled by the gusset plates and truss members. In 2017, repairs were made to strengthen the bowed gusset plates which greatly reduced or eliminated the bowing. There are still locations of gusset bowing, predominantly from pack rust, and these locations need to be monitored to determine when additional repairs are required. The gusset plates also have widespread section loss and the truss members have some section loss with isolated corrosion holes. Both the gusset plates and truss members have some areas of pack rust causing distortion. The remaining NSTMs are still in satisfactory condition, as mentioned above.

Fatigue

There are tack welds on the gusset plates, fill plates, and splice plates. Some of these are broken or cracked, but none have propagated into the base metal. Many of the cracked locations are due to pack rust occurring between the plates. Welded attachments are also present at several locations. In addition, flame cuts, gouges, and overcuts were noted on the truss members and gusset plates.

2.3.6 Non-Inventoried Superstructure Items

Alignment

The alignment is in good condition. No deficiencies in the horizontal or vertical member alignment were observed.

Crossframes

The crossframes are in good condition with no deficiencies observed.

Bracing

The sway bracing is in satisfactory condition. There are isolated locations of painted over pitting up to 3/16" deep (see Figure 59) and areas with active corrosion (see Figure 60). The batten plates commonly have painted over pitting up to 1/4" deep. There is a corrosion hole in one of the batten plates at L0 in Span 6 of the Center Truss (see Figure 61). There are multiple corrosion holes in the bracing member connecting to the South and Center Girder between Floorbeams 0 and 2 in Span 17 (see Figure 62). At the ends of the bottom struts, there are isolated locations where there is pack rust between the flange angles and either the batten plate or the lower gusset plate (see Figure 63). The bracing between L44 of the North Truss and U42 of the Center Truss is bowed (see Figure 64).

FIGURE 59–PITTING ON BRACING TOP FLANGE (L12 TO L12, CENTER TRUSS TO NORTH TRUSS, SPAN 6)



FIGURE 60–ACTIVE CORROSION ALONG BRACING TOP FLANGE (L0 TO L0, SOUTH TRUSS TO CENTER TRUSS, SPAN 7)

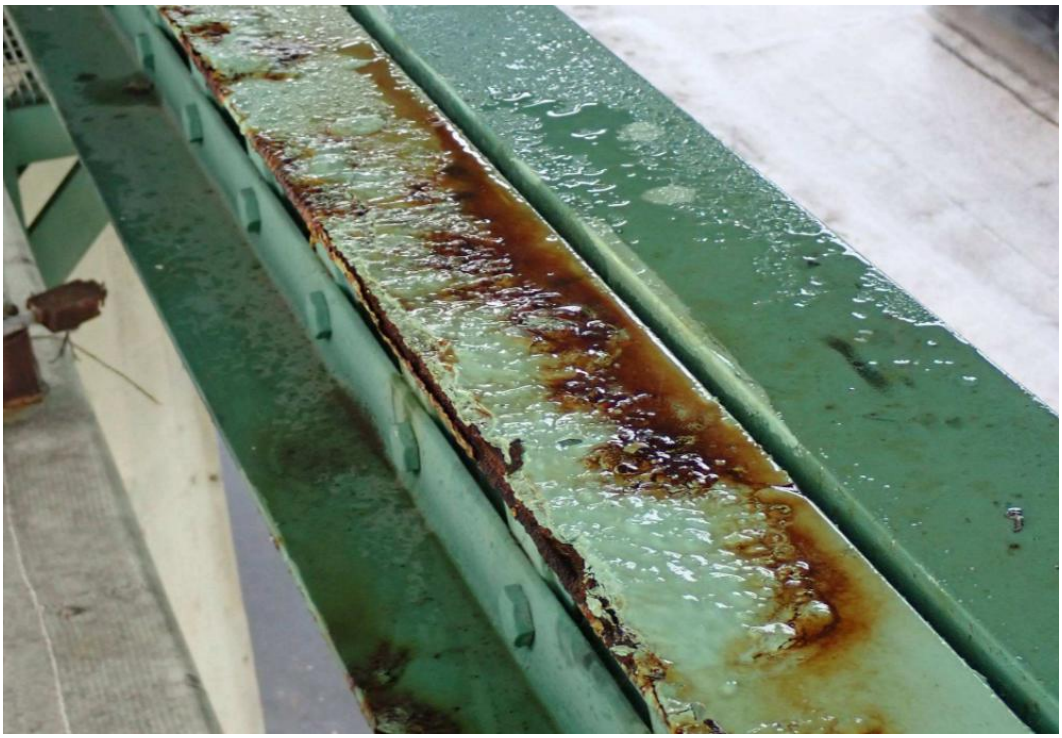


FIGURE 61–CORROSION HOLE IN BRACING BATTEN PLATE (L0, CENTER TRUSS, SPAN 6)

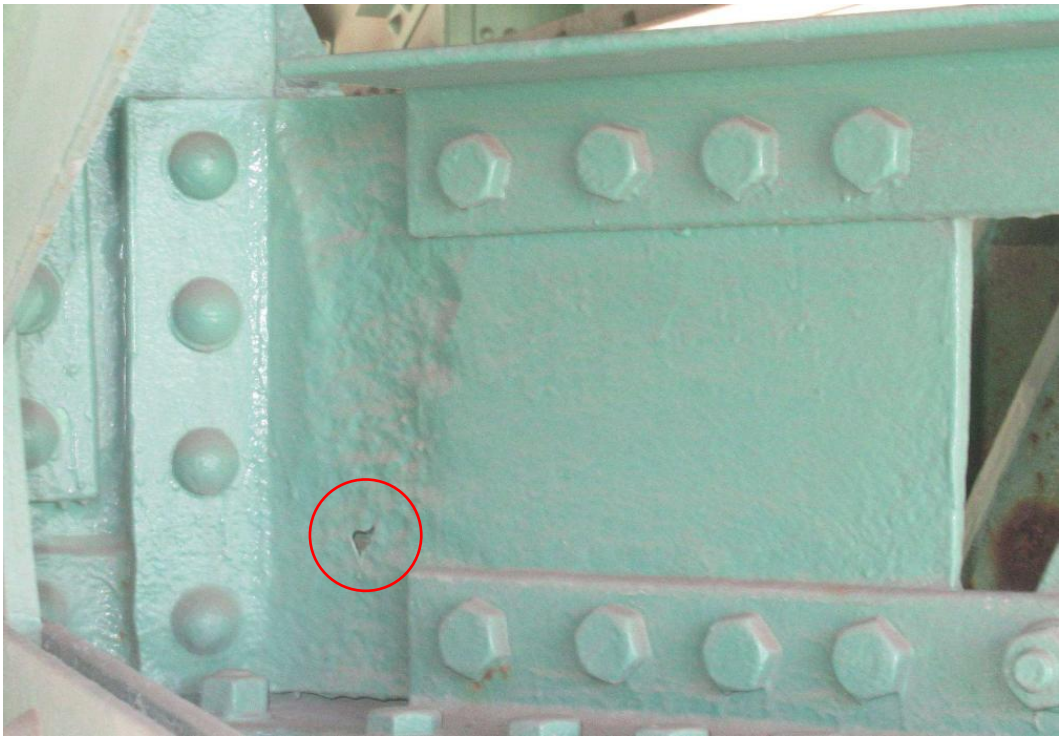


FIGURE 62–CORROSION HOLES IN BRACING MEMBER BETWEEN FB0 AND FB2 CONNECTING SOUTH GIRDER TO CENTER GIRDER (SPAN 17)



FIGURE 63–PACK RUST BETWEEN BRACING AND FILL PLATE (L8, SPAN 6, CENTER TRUSS)

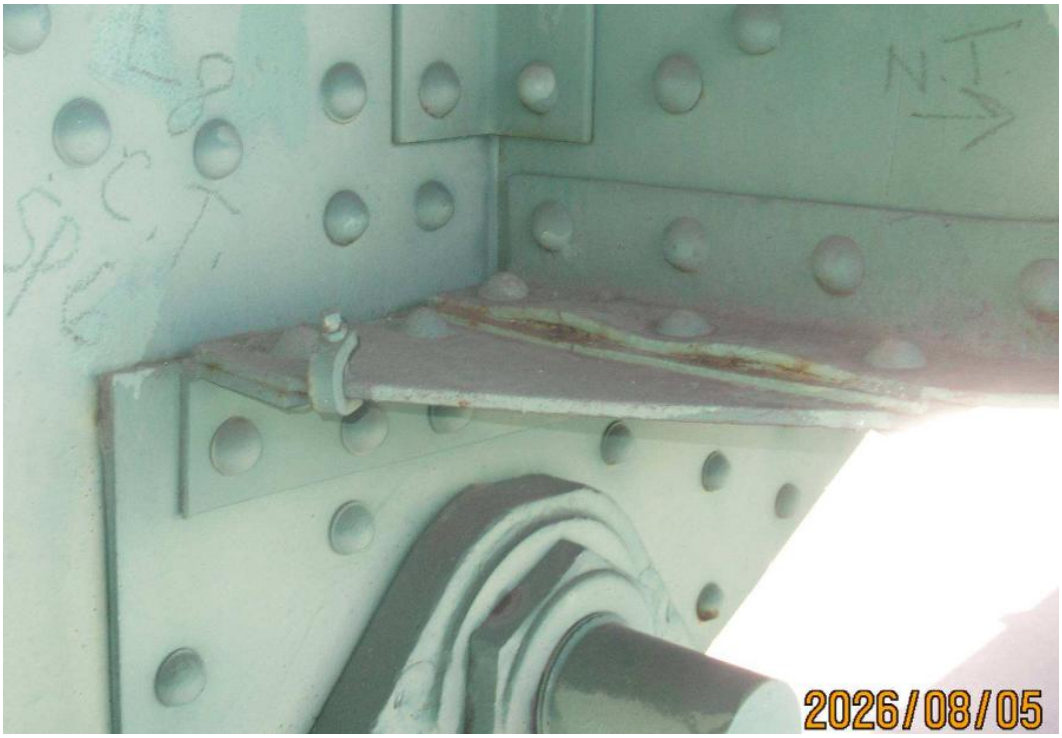


FIGURE 64–BOWED BRACING ANGLE BETWEEN L44, NORTH TRUSS AND U42, CENTER TRUSS



2.4 ITEM B.C.02.01 – PROTECTIVE COATING SYSTEM CONDITION RATING

The steel protective coating system is in SATISFACTORY CONDITION [6-SNBI].

2.4.1 Element 515 – Steel Protective Coating

The steel protective coating system is OZEU paint applied in 1999 and is in satisfactory condition. There are isolated areas of active corrosion throughout the structure. These areas are most prevalent between laminated plates such as in built up members, at splice plates, and at gusset plates. There are isolated locations where the paint has peeled or chipped away exposing either the prime coat or the bare steel (see Figure 65 and Figure 66).

FIGURE 65–PEELED PAINT EXPOSING THE PRIMER (L4, CENTER TRUSS, SPAN 7)



FIGURE 66–PEELED PAINT EXPOSING THE PRIMER (FB8, SPAN 10)



2.5 ITEM B.C.03 – SUBSTRUCTURE CONDITION RATING

The substructure is in SATISFACTORY CONDITION [6-NBIS] overall.

2.5.1 Element 205 – Reinforced Concrete Column

The reinforced concrete columns are in satisfactory condition. There are isolated locations of unsealed medium-width vertical and horizontal cracks with rust staining. The columns have isolated locations of delaminations and moderate spalls with exposed rebar on the side faces and on the tops. See Table 3 for all delaminations and other notable deficiencies with supporting photos.

TABLE 3–CONCRETE COLUMN DEFECTS

Pier	Column	Location	Defect	Size	Photo
2	Center South South	SE Corner South NE Corner	Spall with Exposed Rebar Wide Crack and Delamination* Spall with Exposed Rebar	1'H x 6" W x 1"D 4' 3" Dia. x 1"D	Figure 67
3	Center Center South	East West East	Spall with Exposed Rebar Spall Spall with Exposed Rebar	2'H x 1'W x 3"D 2'L x 1'H x 2"D 3'H x 1'W x 2"D	
4	North	NW Corner	Spall with Exposed Rebar	1'L x 2"H x 1.5"D	
5	Center Center North	South North North	Cracking with Rust Staining Spall with Exposed Rebar Spall with Exposed Rebar	 4'L x 8" W x 6"D 1.5'L x 4"H x 3"D	
7	South North North North	SE Corner South South West	Spall with Delamination** Cracking with Rust Staining Spall with Exposed Rebar Spall with Exposed Rebar	2'L x 5'H (Delam) with 1 SF x 1"D Spall 1'L x 4'H x 1.5"D 2'L x 3'H x 3"D	Figure 68 Figure 69 Figure 69
8	South	North	Spall with Exposed Rebar	1.75'L x 8"H x 2"D	
10	North	SW Corner	Spall with Exposed Rebar	2'L x 3'H x 3"D	
11	South	NE Corner	Spall with Exposed Rebar	1.5'L x 2'-1"H x 1"D	
12	North Center	East South	Cracking with Rust Staining Spall with Exposed Rebar	Full Face 2' Dia. x 2"D	Figure 70
13	Center Center	SE Corner SW Corner	Spall with Exposed Rebar Spall with Exposed Rebar	2'L x 2'H x 2"D 2'H x 3"W x 3"D	 Figure 71
15	South South	West East	Spall with Exposed Rebar Spall	3'L x 1'H x 5"D 1' Dia. x 1"D	Figure 72
17	South	West	Spall with Exposed Rebar	2'L x 3'H x 1"D	

* The delaminated area could not be removed due to parked vehicles in the surrounding area.

** The delaminated area is adjacent to a sidewalk and could not be removed because of lift access and overhead electric lines.

FIGURE 67-CRACK AND DELAMINATION ON THE SOUTH FACE OF THE PEDESTAL (SOUTH COLUMN, PIER 2)



FIGURE 68-DELAMINATION AND SPALL ON SOUTHEAST CORNER (SOUTH COLUMN, PIER 7)



FIGURE 69–SPALLS WITH EXPOSED REBAR ON SOUTH FACE (NORTH COLUMN, PIER 7)



FIGURE 70–CRACKING WITH RUST STAINING ON EAST FACE (NORTH COLUMN, PIER 12)



FIGURE 71–SPALL WITH EXPOSED REBAR ON THE SOUTHWEST CORNER NEAR THE BASE (CENTER COLUMN, PIER 13)



FIGURE 72–SPALL WITH EXPOSED REBAR ON TOP OF COLUMN (SOUTH COLUMN, PIER 15)



2.5.2 Element 215 – Reinforced Concrete Abutment

The reinforced concrete abutments are in satisfactory condition. The abutment walls have isolated moderate spalls with exposed rebar. There are isolated sealed and unsealed medium-width vertical and transverse cracks (some with rust staining and/or minor efflorescence). For notable deficiencies for Abutment 1 and Abutment 18, see Table 4.

TABLE 4–ABUTMENT DEFECTS

Abutment	Defect	Size	Photo
1	Cracking with Rust Staining	Medium-Width	Figure 73
18	Spall with Exposed Rebar	3'L x 2'H x 1"D	Figure 74
18	Cracking/Spalling with Rust Staining and Exposed Rebar	3'L x 9"H x 1"D	Figure 75
18	Sealed Crack with Rust Staining and Efflorescence	18'L	Figure 76

FIGURE 73–CRACKING WITH RUST STAINING (ABUTMENT 1)



FIGURE 74–SPALL WITH EXPOSED REBAR (ABUTMENT 18)



FIGURE 75–CRACKING AND SPALLING WITH RUST STAINING AND EXPOSED REBAR BEHIND CENTER BEARING (ABUTMENT 18)



FIGURE 76–SEALED CRACK WITH RUST STAINING AND EFFLORESCENCE (ABUTMENT 18)



2.5.3 Element 234 – Reinforced Concrete Pier Cap

The reinforced concrete pier caps are in satisfactory condition. The pier caps have isolated delaminations and unsealed medium-width cracking. Loose delaminated concrete was removed where access allowed. The remaining delaminated areas are unsound, but intact. There are isolated areas of rust staining, wide cracks, failed repair patches, and moderate spalls with exposed and corroded rebar. See Table 5 for all delaminations and other notable deficiencies with supporting photos.

TABLE 5–PIER CAP DEFECTS

Pier	Pier Face	Defect	Size	Photo
2	West/Top East	Delamination* and Crack Spall	2'L x 1'H 2'H x 8"W x 1.5"D	Figure 77
3	Top	Rust Staining		
5	East	Rust Staining Through FRP		Figure 78
6	West/Top	Spall	6"L x 3"H x 2.5"D	
8	Top East	Spall with Exposed Rebar Spall with Exposed Rebar	(2) 1'-4" Dia. x 1.5"D 1'L x 1'H x 1.5"D	
9	Bottom	Spall with Exposed Rebar	1' Dia. x 1"D	Figure 79
10	West/Bottom Top	Repair Patch Cracking Full Length Crack	95 SF 1/16" x Full Length	
12	West/Bottom	Delamination** and Wide Crack with Rust Staining	4'L	Figure 80
13	Top East/Bottom East East West	Spall Spall with Exposed Rebar; Crack Spall with Exposed Rebar Spall with Exposed Rebar Delamination***	2.5'L x 2'W x 1"D 1'L x 1.5'H x 1"D; 6' x 1/16" 1'L x 3'H x 1"D 1'L x 1'H x 1"D 196 SF	 Figure 81 Figure 81
14	West	Crack with Rust Staining	6'L	
15	East	Cracked Patch	10'L and Extends 1' Underneath	Figure 82
16	East West West West/Top	Spall with Exposed Rebar with SL Delamination* Spall with Exposed Rebar Spall	4'L x 1'-4"H x 4"D 20 SF 1'-8" Dia. x 2"D 1'L x 4"H x 2"D	Figure 83
17	West	Wide Crack	6'L x 1/16"	

*The Pier 2 delaminated area is over a parking lot. The Pier 16 delaminated area is over the dirt slope. Both areas are intact and could not be removed with hand tools.

** The delaminated area is over the concrete slope protection and could not be removed because of lift access constraints.

***The delaminated area was previously reported and is over concrete slope protection. This area was not sounded due to lift constraints but appears intact from a visual inspection and should be verified in the future.

FIGURE 77-DELAMINATED AND CRACKED AREA ON THE TOP AND WEST FACE NEAR THE SOUTH COLUMN (PIER 2)



FIGURE 78–RUST STAINING THROUGH FRP WRAP ON THE EAST FACE (PIER 5)



FIGURE 79–SPALL WITH EXPOSED REBAR ON BOTTOM FACE (PIER 9)



FIGURE 80–DELAMINATION AND WIDE CRACK WITH RUST STAINING (PIER 12)



FIGURE 81–SPALLS WITH EXPOSED REBAR ON EAST FACE (PIER 13)



FIGURE 82–CRACKED PATCH ON EAST FACE (PIER 15)



FIGURE 83–SPALL WITH EXPOSED REBAR WITH SECTION LOSS ON EAST FACE (PIER 16)



2.5.4 Non-Inventoried Substructure Items

Wingwalls

The wingwalls are in good condition. There are hairline horizontal cracks in the wingwall at the northwest corner.

2.6 ITEM B.C.05 – BRIDGE RAILINGS CONDITION RATING

The bridge railings are in SATISFACTORY CONDITION [6-SNBI].

2.6.1 Element 331 – Reinforced Concrete Bridge Railing

The reinforced concrete bridge railings run the full length of both sides of the bridge and along the north side of the sidewalk. They are in satisfactory condition. There is widespread unsealed medium-width vertical and horizontal cracking. The cracking is most notable on the top and bottom of the railing (see Figure 84). Between Pier 5 and Pier 6 of the north railing, the decorative extension to the post is cracked with a spalled off corner (see Figure 85).

There are some locations of various sizes of spalls. There are isolated spalls with exposed and corroded rebar with section loss up to 1/16” deep. Spalls with corroded rebar include the following:

- Span 7, North rail - (2) 9" H × 5" W × ¾" D (see Figure 86)

- Span 7, North rail - 18" H × 5" W × ¾" D (see Figure 87)
- Span 8, North rail - 9" H × 3" W × ¾" D
- Span 8, North rail - 5" H × 3" W × ¾" D

Isolated posts on the south railing have unsealed medium-width map cracking with rust staining and minor efflorescence. There is tight spiderweb cracking with thin leakage along the cracks that indicate possible alkali-silica reaction (ASR) (see Figure 88). These posts are on the south railing near Pier 8, near Pier 9, and isolated posts in Spans 10, 11, and 13.

In the westbound lane just east of I-471, there is a crash attenuator at the exit ramp for Sixth St Downtown. The crash attenuator has been damaged and has panels hanging loose, deployed cushions, and loose cables (see Figure 89).

FIGURE 84–CRACKING ON TOP OF RAILING (SOUTH RAILING, SPAN 9)



FIGURE 85–CRACK WITH DELAMINATION AND SPALLED CORNER WITH EXPOSED REBAR AT THE DECORATIVE POST CAP (NORTH RAIL, SPAN 5)



FIGURE 86–SPALLS WITH CORRODED REBAR (NORTH RAILING, SPAN 7)



FIGURE 87–SPALL WITH CORRODED REBAR (NORTH RAILING, SPAN 7)



FIGURE 88–MAP CRACKING WITH EFFLORESCENCE (POSSIBLE ASR) IN THE CONCRETE RAILING (SOUTH RAILING, SPAN 9)



FIGURE 89–DAMAGED CRASH ATTENUATOR



2.7 ITEM B.C.07 – BRIDGE BEARINGS CONDITION RATING

The bridge bearings are in FAIR CONDITION [5-SNBI] overall controlled by the fixed bearings.

2.7.1 Element 310 – Elastomeric Bearing

The elastomeric bearing devices are in satisfactory condition overall. There is an isolated location of pack rust between the girder and the sole plate occurring at the North Bearing on Pier 4 in Span 5. The bearing at this location is also missing a bolt attaching the sole plate to the girder on the east side (see Figure 90).

There are isolated locations of surface corrosion on the bearings and rusting from the pins (see Figure 91). There is a 1" diameter by 3/16" deep pit on the South Bearing at Abutment 1 (see Figure 92). There is a gouge in the south pin of the North Bearing at Abutment 1 (see Figure 93).

FIGURE 90–MISSING BOLT ON THE EAST SIDE ATTACHING THE SOLE PLATE TO THE GIRDER (NORTH BEARING, PIER 4, SPAN 5)



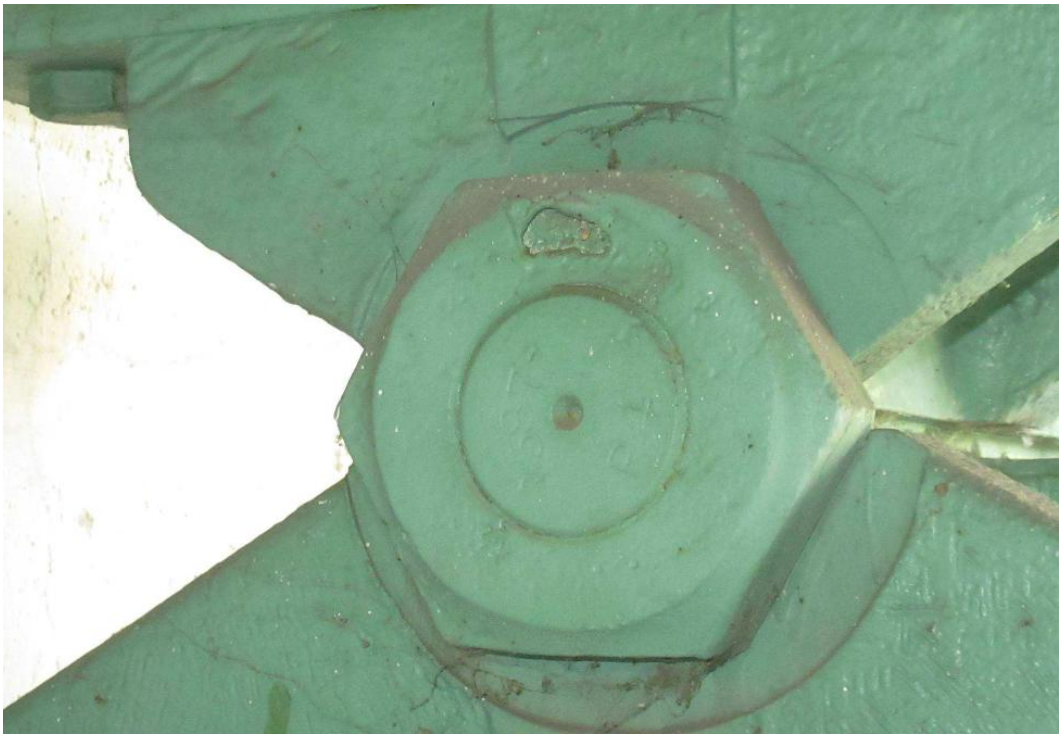
FIGURE 91–SURFACE RUST AND RUSTING FROM PIN (CENTER BEARING, PIER 4)



FIGURE 92–PITTING ON THE WEST FACE, (SOUTH BEARING, ABUTMENT 1)



FIGURE 93–GOUGE IN SOUTH PIN (NORTH BEARING, ABUTMENT 1)



2.7.2 Element 313 – Fixed Bearing

The fixed bearing devices are in fair condition overall. There is an isolated location of pack rust between the girder and the sole plate past the bearing location occurring at the South Bearing on Pier 4 in Span 4 (see Figure 94).

The bearings have widespread areas of surface corrosion with the worst areas being at the base. There are isolated locations of laminating corrosion on the base plates (see Figure 95). Some locations have 1/8" deep painted over pitting with the worst location noted at the South Bearing on Pier 7 having up to 1/4" painted over pitting between the wing plates (see Figure 96). The pin nut at Pier 12, Center Girder, Span 12, has a gouge in the side and the remaining surface has 1/16" to 1/8" pitting (see Figure 97). There are some locations of active corrosion and section loss on the anchor nuts and washers (see Figure 98).

At Pier 4, Span 3, North Girder, the bearing to the 471 S ramp has one loose anchor nut (see Figure 99). The North Bearing at Pier 4 has a missing bolt attaching the sole plate to the bearing (see Figure 100).

FIGURE 94–PACK RUST BETWEEN SOLE PLATE AND GIRDER (SOUTH BEARING, PIER 4, SPAN 4)



FIGURE 95–SURFACE CORROSION AND LAMINAR CORROSION ON THE BASE PLATE (SOUTH BEARING, PIER 4)



FIGURE 96–PAINTED OVER PITTING BETWEEN WING PLATES (SOUTH BEARING, PIER 7)



FIGURE 97–GOUGE IN PIN NUT (CENTER BEARING, PIER 12)

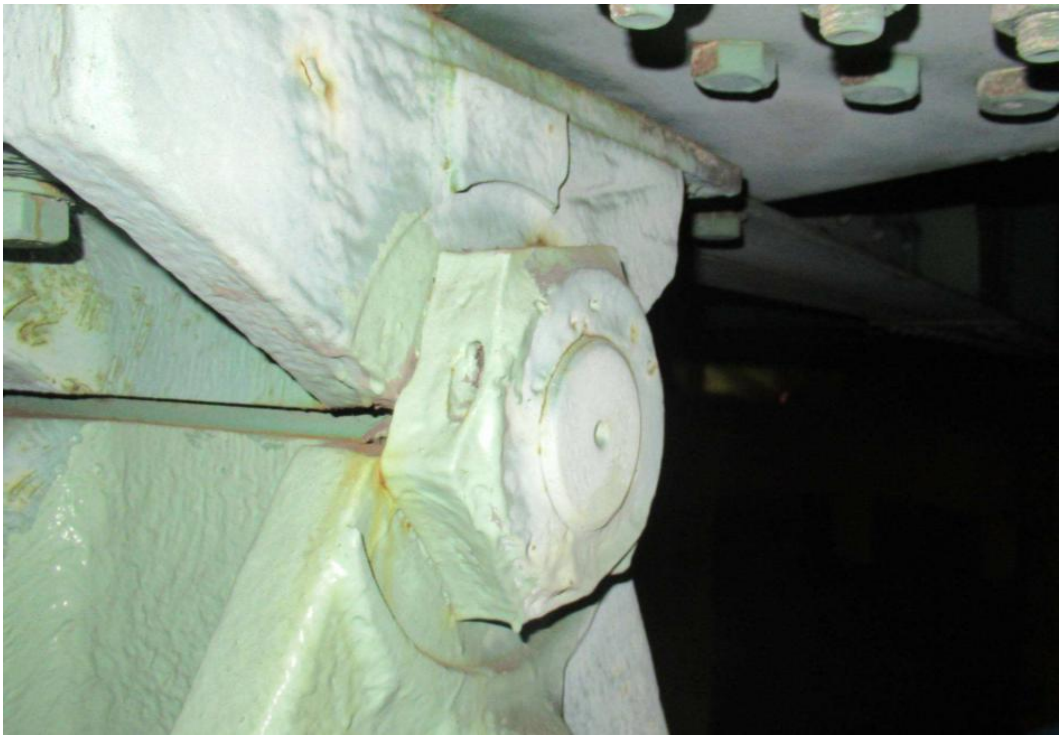


FIGURE 98–TYPICAL SECTION LOSS ON ANCHOR NUT AND CORRODED WASHER (CENTER BEARING, PIER 3)



FIGURE 99–ONE LOOSE ANCHOR NUT AND TWO WITH SECTION LOSS (NORTH BEARING, PIER 4)



FIGURE 100–MISSING BOLT (NORTH BEARING, PIER 4)



2.7.3 Element 314 – Pot Bearing

The pot bearing devices are in satisfactory condition overall. There are some areas of active surface corrosion most notably on the masonry plate and the anchor nuts and bolts (see Figure 101). There are isolated areas of painted over pitting.

The pot bearings at Pier 6 are rotated 3 degrees to the west at 80 degrees Fahrenheit (see Figure 102). The rotation appears consistent with the measurements last noted in the 2020 inspection report and there are no apparent visual impacts to the truss.

FIGURE 101–ACTIVE CORROSION ON THE ANCHOR NUTS AND BOLTS AND MASONRY PLATE (NORTH GIRDER, PIER 5)



FIGURE 102–TYPICAL BEARING ROTATED WEST AT PIER 6 (NORTH BEARING)



2.8 ITEM B.C.08 – BRIDGE JOINTS CONDITION RATING

The joints are in SATISFACTORY CONDITION [6-SNBI] overall. The joints are located at Abutment 1, Piers 2 through 5, Pier 7, Pier 10, Piers 12 through 17, and Abutment 18.

2.8.1 Element 300 – Strip Seal Expansion Joint

All joint openings have some level of debris impaction ranging from partially full to completely full of debris (see Figure 103). The debris does not appear to be affecting the overall movement of the joints at this time.

There are widespread areas of surface corrosion that vary from initiation to fully developed. The majority of the surface corrosion is located in the shoulder area, but at Piers 2, Piers 13-15, and Abutment 18, the surface corrosion is more abundant across the entire length of the joint armor (see Figure 103). Minor popouts and edge spalls are present along the entire length of all the joints (see Figure 104).

The seal material is torn in isolated locations. Leakage through the joints and water ponding on the pier caps were noted at the following locations:

- Pier 4 Joint – Water ponding on pier cap between South and Center Bearings.
- Pier 10 Joint – Water leaking near Center Truss

At both Abutment 1 and Abutment 18, there is a concrete header that runs along the full length of the approach side. At Abutment 18, the header has isolated shallow edge spalls and hairline transverse cracks. At Abutment 1, the spalling is larger in size and the adjacent construction joint is detaching and being pulled away (see Figure 105).

At Pier 3, the expansion joint has a 1/2" vertical offset. The horizontal measurements of the joint openings were taken at the exterior edge of the white striping on the left and right sides of the bridge. The measurements compare well to past measurements at similar temperatures. See Table 3 for the current and previous three inspection cycle measurements.

TABLE 6–EXPANSION JOINT MEASUREMENTS (MEASURED PERPENDICULAR TO JOINT)

LOCATION	2020 (84˚F)		2022 (75˚F)		2024 (89˚F)		2026 (85˚F)	
	North Curb	South Curb	North Curb	South Curb	North Curb	South Curb	North Curb	South Curb
Abutment 1 (Rear Abutment)	1-1/2"	7/8"	1-1/8"	7/8"	1-1/2”	1”	N/A*	1-1/8”
Pier 2	1-1/4"	3/4"	1-1/4"	13/16"	1-1/4”	7/8”	N/A*	1”
Pier 3	1-3/4"	1-3/4"	1-7/8"	1-3/16"	1-1/2”	1-7/8”	N/A*	2”
Pier 4	1"	1-1/2"	1-7/8"	1-5/8"	1-3/4”	1-1/2”	1-3/4”	1-3/4”
Pier 5	1-1/2"	1-1/4"	1-3/8"	1-1/2"	1-1/4”	1-1/4”	1-1/4”	1-1/4”
Pier 7	2-3/4"	2-3/8"	2-5/8"	2-3/4"	2-7/8”	2-5/8”	2-5/8”	2-1/2”
Pier 10	1-3/4"	1-3/8"	2-3/8"	1-3/8"	2”	1-1/4”	2-1/4”	1-1/2”
Pier 12	1-1/2"	1"	7/8"	7/8"	5/8”	1-1/16”	N/A*	1-1/4”
Pier 13	1-3/8"	1-3/8"	1-5/8"	1-1/4"	1-1/2”	1-1/2”	1-5/8”	1-1/2”
Pier 14	1-1/2"	1-3/8"	1-5/8"	1-3/8"	1-5/8”	1-3/16”	1-5/8”	1-1/2”
Pier 15	1-1/2"	1-3/4"	1-1/2"	1-3/4"	1-5/8”	1-3/4”	1-5/8”	1-3/4”
Pier 16	1-1/4"	1-3/8"	1-1/4"	1-3/8"	1-3/16”	1-1/2”	1-1/4”	1-5/8”
Pier 17	7/8"	1-1/8"	1/2"	1-1/4"	7/8”	1”	1-1/4”	1-1/4”
Abutment 18 (Forward Abutment)	1-7/8"	1-3/8"	1-3/4"	1-1/2"	2”	1-7/8”	2-1/4”	1-3/4”

*Joint location could not be measured safely

FIGURE 103–DEBRIS AND SURFACE CORROSION ALONG FULL LENGTH OF JOINT (EASTBOUND, PIER 15)



FIGURE 104–SHALLOW SPALLS ALONG JOINT ARMOR (PIER 13, WESTBOUND)



FIGURE 105–SPALLING ALONG JOINT HEADER (ABUTMENT 1, EASTBOUND)



2.9 SIDEWALK

The pedestrian sidewalk is located on the south side of the bridge and runs the full length. The sidewalk is in good condition. Isolated hairline longitudinal and transverse cracks were observed throughout the sidewalk. No other deficiencies were noted.

2.10 APPROACHES

2.10.1 Element 321 – Reinforced Concrete Approach Slab

The reinforced concrete approach slabs are in satisfactory condition. There is hairline cracking and some wear to the tines in the wheel lines of the west approach slab. There is unsealed map cracking with a wide crack in the east approach slab (see Figure 106).

FIGURE 106–CRACK IN THE EAST APPROACH SLAB



2.10.2 Non-Inventoried Approach Items

Approach Pavement

The approach pavement is in fair condition. The majority of the deficiencies noted are located at the east approach pavement. There is abundant wide map cracking near the East Approach Slab and wide random cracking to the remainder of the pavement at the east end (see Figure 107). The approach pavement at the west end exhibits less deterioration.

FIGURE 107–CRACKING IN THE EAST APPROACH PAVEMENT



Reinforced Concrete Approach Railing

The approach reinforced concrete barrier is in satisfactory condition. The protective coating system is chipping and there are isolated hairline cracks. There is a full width by 4" tall x 4" deep spall at the bottom of the south rail at the West Approach (see Figure 108). Moderate vegetation growth was noted at the East Approach railing.

FIGURE 108–SPALL AT BOTTOM OF SOUTH APPROACH RAILING AT THE WEST APPROACH



Embankment

The embankment is in good condition. No significant deficiencies are noted.

Sign Supports

The sign supports are in good condition. No significant deficiencies are noted.

2.11 ELEMENT 815 – DRAINAGE

The bridge deck drainage is in satisfactory condition. There are isolated locations where the deck scupper has debris build-up, but all appear to be draining. The drainpipes, drainpipe connections, and scuppers have isolated areas of surface corrosion. Notable drainage defects include the following:

- Pier 5, north column - drain is partially clogged and the drainpipe is aimed at the edge of the drain rather than the center (see Figure 109)
- Pier 9, south column - drainpipe cracked at ground level and actively leaking (see Figure 110)
- Pier 11, south column - slope protection broken and undermined
- Pier 12, north column - slope protection broken, with a void directly under the drainpipe

- Pier 13, south column - adjacent slope protection and approach slab undermined

FIGURE 109–PARTIALLY CLOGGED DRAIN WITH MISALIGNED DRAINPIPE (NORTH COLUMN, PIER 5)



FIGURE 110–CRACKED DRAINPIPE (SOUTH COLUMN, PIER 9)



2.12 SIGNS, UTILITIES, AND LIGHTING

The signs, utilities, and lighting are in satisfactory condition overall. Isolated areas of surface corrosion are present on the utility conduits. There is a heavily corroded utility conduit at Pier 10 on the Center Truss (see Figure 111).

The light fixture above Butler Street does not illuminate at night (see Figure 112).

FIGURE 111–CORRODED UTILITY CONDUIT AT PIER 10



FIGURE 112–BROKEN LIGHT ABOVE BUTLER STREET



2.13 ITEM B.C.13.01 – OHIO GENERAL APPRAISAL

Based on the 2026 In-Depth Element Level and NSTM Inspection findings, the HAM-00050-21.800N bridge is in FAIR CONDITION [5-SNBI]. This rating is controlled by the condition of the Superstructure and was changed from Satisfactory due to the condition of the gusset plates and truss members. The AssetWise Bridge Inspection Report containing the element level condition ratings can be found in Appendix B.

Chapter 3: Recommendations

The four categories of recommendations for the HAM-00050-21.800N Bridge are as follows:

Priority Work: (Within 1 Year Period)	Work which should be performed as soon as possible to address deficiencies which affect the capacity of the structure or public safety.
Rehabilitation/Evaluation: (Within 5 Year Period)	Recommendations for large-scale deficiencies which are extensive in nature and require engineering analysis.
Maintenance: (As Scheduled)	Recommendations that are minor in nature and can be easily repaired.
Monitoring: (As Recommended)	Regular field observation of defects which are not currently in need of repair but will require corrective action if deterioration continues.

Priority Work:

Superstructure

1. Remove the rusted off steel wedge from Pier 10 and consider removing any remaining wedges attached to the chords.

Substructure

2. Remove the delaminated areas from Pier 2 Cap, Pier 2 South Column, Pier 7 South Column, Pier 12 Cap, Pier 16 Cap, and Pier 13 Cap (limits to be verified before performing work).

Rehabilitation/Evaluation:

Deck

1. Repair the expansion joint header at Abutment 1 (Rear Abutment).
2. Seal cracks in wearing surface.

Approach

3. Resurface the East Approach pavement.

Slope Protection

4. Repair the broken and undermined slope protection.

Rehabilitation/Evaluation:

Superstructure

5. Replace missing fasteners throughout the bridge.
6. Spot paint areas of the bridge with heavier corrosion or failed PCS.

Substructure

7. Repair the spalls with exposed rebar and areas of cracking.

Maintenance:
(As Scheduled)

Deck

1. Clean debris from the bridge deck and scuppers.
2. Repair the spalls in the bridge railing.
3. Remove debris from the strip seals and add a protective coating to the joint armor.
4. Replace the crash attenuator at the Sixth St. Downtown exit ramp.
5. Repair the torn strip seal at Piers 4 and 10.
6. Clean vegetation from the east approach.

Drainage

7. Repair the cracked drainpipe at the Pier 9 South Column.

Monitoring:
(As Recommended)

Deck

8. Monitor possible ASR at the railing posts.
9. Monitor the deck deterioration, especially for loose concrete over public areas.

Bearings

10. Monitor the corrosion and section loss.
11. Monitor the rotated pot bearings at Pier 6.

Monitoring:
(As Recommended)

Superstructure

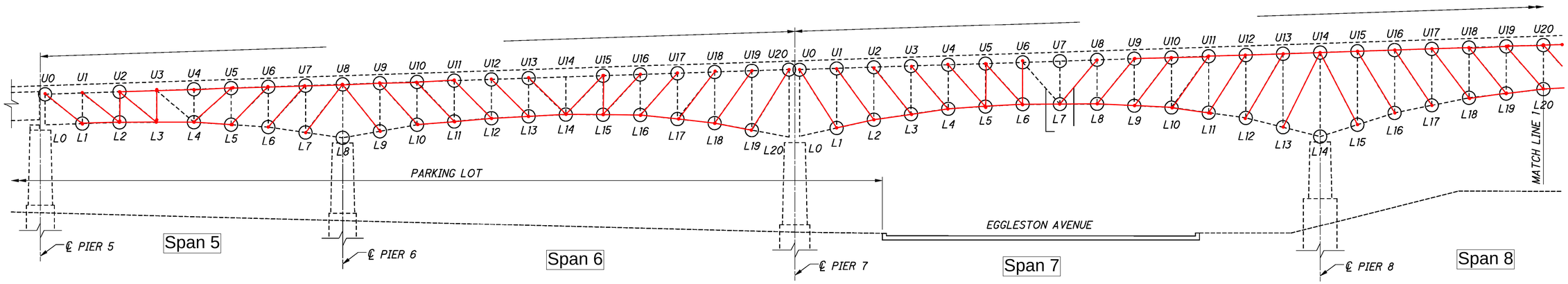
12. Monitor member alignment based on bearing movements.
13. Monitor the tack welds and plug welds.
14. Monitor the section loss to all members.
15. Monitor the pack rust and how it affects the elements.
16. Monitor the overcuts in the floorbeam copes.
17. Monitor the stiffening repairs at the gusset plates and any gusset bowing. Establish a documented measuring procedure for bowing. Considerations for a measuring procedure include:
    - Clarify which gusset edge bowing measurements were taken on and focus on edges adjacent to compression members.
    - Include reference marks on gussets when taking bowing measurements.
    - Focus measurements on gussets bowed 1/8" or more.
18. Monitor the cut rivets and associated gouges left in the adjacent gusset plates.

Substructure

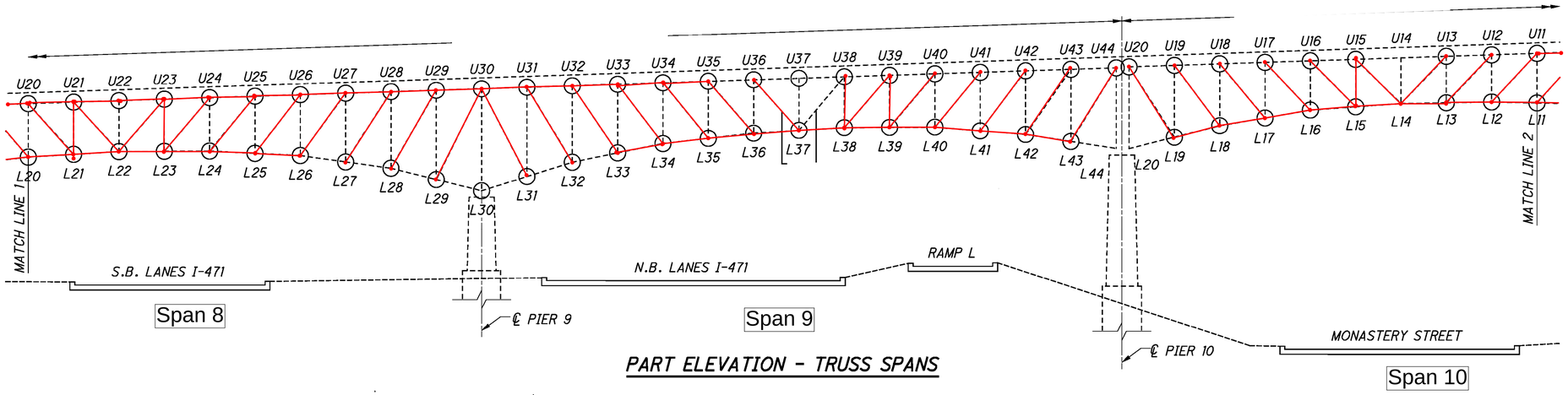
19. Monitor the deterioration, especially for loose concrete over public areas.

APPENDIX A

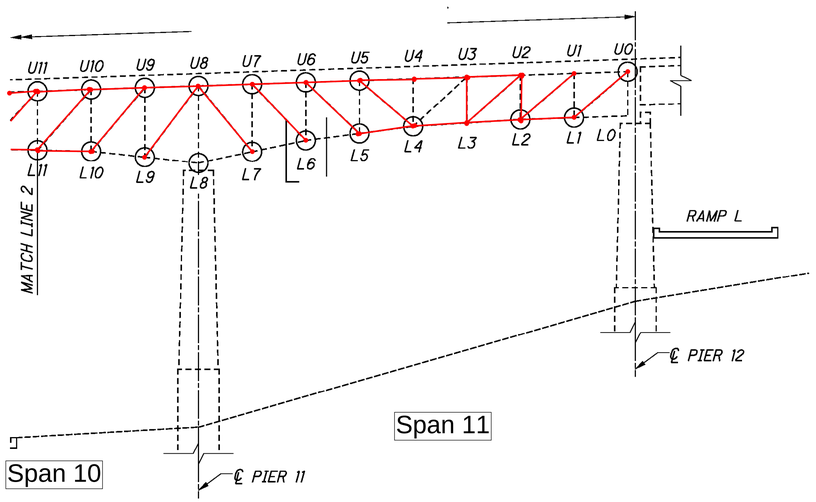
NSTM Member Plan



PART ELEVATION - TRUSS SPANS



PART ELEVATION - TRUSS SPANS



PART ELEVATION - TRUSS SPANS

Notes:

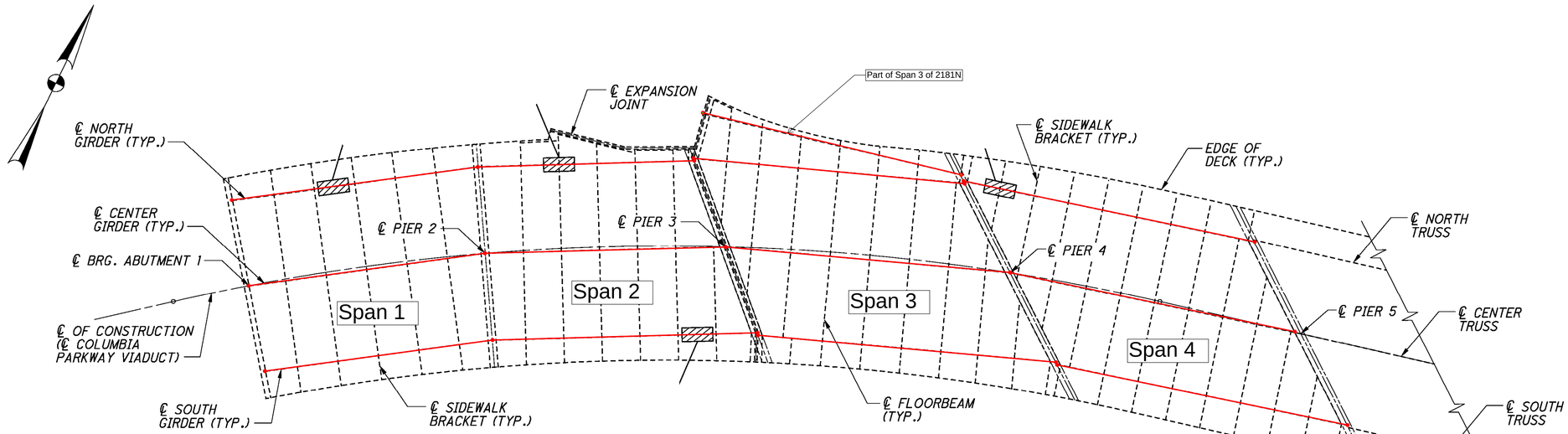
1. Image is taken from the 2016 Rehabilitation Drawings, Sheet 19 of 156, Truss Spans Elevations - Repair Locations Bridge No. Ham-50-2180N (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

2. Red Lines indicate NSTMs (tension or stress reversal) based on the original constructions drawings

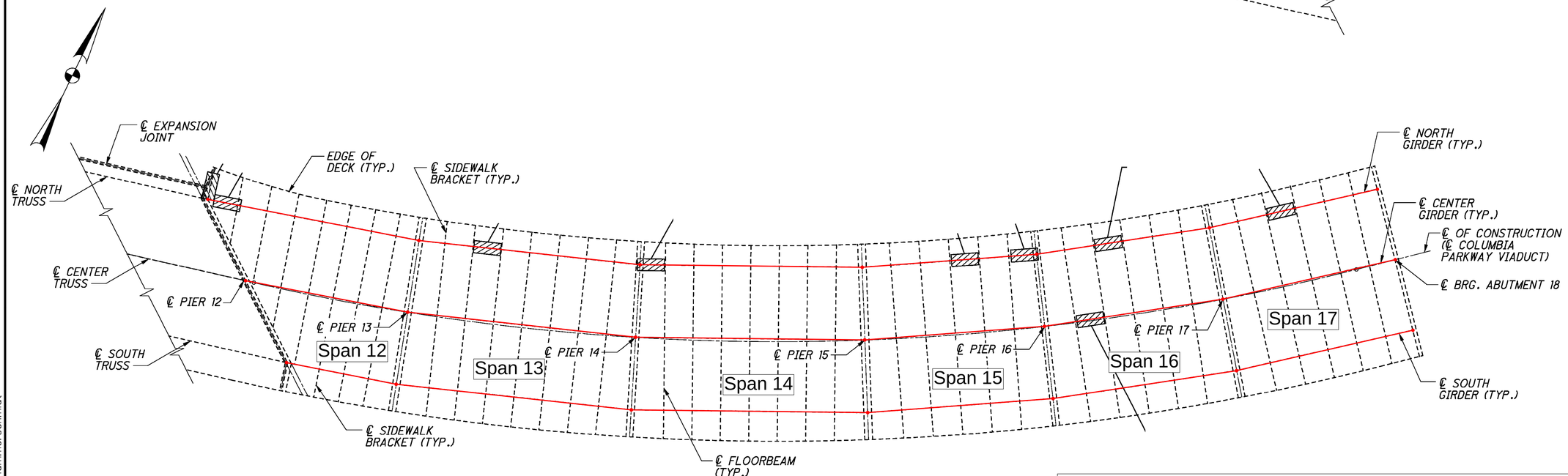
TRUSS SPANS ELEVATION
BRIDGE No. HAM-50-2180N
COLUMBIA PARKWAY VIADUCT OVER I-471

HAM-50-2180N

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PART FRAMING PLAN - SPANS 1 THRU 4



PART FRAMING PLAN - SPANS 12 THRU 17

Notes:

1. Image is taken from the 2016 Rehabilitation Drawings, Sheet 150 of 156,Girder Spans Framing - Painting Locations Bridge No. Ham-50-2180N (Columbia Parkway Viaduct Over I-471). Some information from the original sheet has been removed and or updated.

2. Red lines indicate NSTMs.

GIRDER SPANS FRAMING
BRIDGE No. HAM-50-2180N
COLUMBIA PARKWAY VIADUCT OVER I-471

HAM-50-2180N

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APPENDIX B

AssetWise Bridge Inspection Report

Inspector: Nepal,Prateek
Inspection Date: 08/21/2026

Structure Number: 3103390
Facility Carried: COLUMBIA PARKWAY

Ohio Bridge Inspection Summary Report

HAM-00050-2180N_(3103390)

B.L.04: District	District 08 15000 - CINCINNATI (HAM county)	
B.CL.02: Major Maint.	01 - State Highway Agency	/
B.CL.02.02: Rou. Maint A/B	04 - City or Municipal Highway Agency	/
B.CL.02.03: Inspection A/B	01 - State Highway Agency	/

Condition

B.C.01: Deck	6
58.01: Wearing Surface	6
B.C.08: Joint	6
B.C.02: Superstructure	5
59.01: Paint & PCS	6
B.C.03: Substructure	6
B.C.09: Channel	N
B.C.11: Scour	N
B.C.10: Channel Prot.	N
B.C.05: Bridge Railing	6
B.C.06: Transitions	N
B.C.07: Bearings	5
B.C.04: Culverts	N
Ohio GA	5

Appraisal

B.AP.03: Scour Vul.	Not over Waterway

Geometric

B.G.01: NBIS Bridge Length (ft)	1659.0
B.G.02: Total Bridge Length (ft)	1659.1
B.G.03: Max Span (ft)	169.9
B.G.05: Deck Width, Out-To-Out (ft)	71.9
B.G.16: Calc Deck Area (sf)	119289.3
B.G.09: Appr Roadway Width (ft)	56.1
B.G.06: Bridge Width, Curb-Curb (ft)	56.1
B.G.07: Curb/SW Width: Left (ft)	0
B.G.08: Curb/SW Width: Right (ft)	10.8
B.G.11: Skew (deg)	0
54B: Min Vert Underclearance (ft)	26.08
336A: Min Vert Clrnce IR Cardinal (ft)	99
336B: Min V Clr IR Non-Cardinal (ft)	0
B.SP.16.02: Culvert Length (ft)	0

Load Posting

41: Op/Post/Closed	A - Open
70: Posting	5 - Equal to or above legal loads
70.01: Date	
70.02: Sign Type	
734: Percent Legal (%)	146
B.LR.03: Rating Date	07/01/2009
B.LR.04: Rating Method	LFR - Load Factor Rating

5A: Inventory Route	1 00050
7: Facility On	COLUMBIA PARKWAY
6: Feature Ints	IR471,RAMP,EGG,CUL
9: Location	N OF I471 & US50 INT
Lat, Lon	39.103181 , -84.502469

Structure Type

43: Bridge Type	3 - Steel 09 - Truss - Deck N- Not Applicable
45: Spans Main / Approach	7 / 10
107: Deck Type	1 - Concrete Cast-in-Place
408: Composite Deck	Y - Composite Construction
414A Joint Type 1	8 - Elastomeric Strip Seal
414B: Joint Type 2	N - None
108: Wearing Surface	1 - Monolithic Concrete (concurrently placed with structural deck) N - Not Applicable
B.SP.10.03: WS Date	07/01/1997
B.SP.10.02: WS Thick (in)	1.0
B.SP.07.01: PCS Type	5 - Paint System OZEU
483: PCS Date	10/01/1999
453: Bearing Type 1	4 - Elastomeric (Plain)
455: Bearing Type 2	5 - Pot
528: Foundn: Abut Fwd	4 - Spread Footing (on soil)
533: Foundn: Abut Rear	7 - Steel H Piles (HP 10 x 42)
536: Foundn: Pier 1	2 - Cast-in-Place Reinforced Concrete Piles (Other diameter)
539: Foundn: Pier 2	7 - Steel H Piles (HP 10 x 42)

Age and Service

B.W.01: Year Built / Rehab	1938 / 1997
42A: Service On	1 - Highway
42B: Service Under	1 - Highway, with or w/out pedestrian
28A: Lanes on	04
28B: Lanes Under	19
19: Bypass Length	5
29: ADT	56580
109: % Trucks (%)	3

Inspections

		Months	
B.IE.03 Routine Insp.		12	08/19/2025
B.IE.03: NSTM Insp.	Y	24	08/21/2026
B.IE.03: UW Insp.		0	
B.IE.03: Special Insp.		0	
UBIT Insp.	Y	24	09/16/2022
Drone Insp.	N	0	
Inspector	Nepal,Prateek		

Inspector: Nepal,Prateek
Inspection Date: 08/21/2026

Structure Number: 3103390
Facility Carried: COLUMBIA PARKWAY

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
12-Reinforced Concrete Deck	3 - Mod.	119448	sq. ft.	91926	27511	11	0
	CS2 -There is hairline to 0.025" multi-directional cracking in all spans throughout. -The cantilevered overhangs exhibit transverse cracks with efflorescence. In Span 5 at the south overhang, diagonal cracks with efflorescence are present. -There are medium-width vertical cracks on the haunches at the ends of isolated cantilever brackets on the north side of the deck. -There are isolated areas of small spalls on the deck soffit. CS3 -There are spalls up to 1' in diameter in the deck haunches at isolated floorbeam ends and isolated cantilever bracket ends on the north side of the deck.						
805-Wearing Surface - Monolithic Concrete		93170	sq. ft.	82921	9701	548	0
	CS2 -Some hairline to 0.030" wide longitudinal and transverse cracks were observed randomly throughout the wearing surface. These are typically spaced around 5' to 10'. -Small shallow spalls are present along the joint armor. CS3 -Isolated wide cracks were observed emanating from the deck drains, at expansion joints where joint armor bends, and at deck joints. -There is a 1" diameter by 1" deep pop out in Span 13.						
107-Steel Open Girder/Beam	3 - Mod.	2262	ft.	2050	177	35	0
	CS2 -Surface corrosion is present on the top flange in isolated areas and on rivet heads throughout. -There are isolated locations of stiffeners with distortion due to pack rust. The distortion noted does not exceed 3/8" over 4" to 1'. CS3 -The bottom flange of the South Girder in Span 12 is bent 1" out of plane. -The ends of the girder web and bottom flange below the joints exhibit locations of section loss up to 1/4" deep, and knife edging. Typically, this section loss occurs past the bearing area. -Active and inactive pack rust is present causing distortion up to 1/2" thick between flange plates. There is pack rust up to 1" between the bottom flange plates on the North Girder in Span 2. -There is a corrosion hole in the bottom of the web of the South Girder of Span 13 at Pier 14 past the bearing area. -There are gouges caused by welds/flame cuts in the bottom flanges of Spans 13-15. -There are isolated locations of missing rivets or blind holes, most notable along the top flange.						
515-Steel Protective Coating		50614	sq. ft.	49543	506	565	0
	CS2 -Paint on the outside has faded and chalked in isolated areas. CS3 -There are isolated areas of peeling or chipped paint. -There are isolated areas of light surface corrosion.						
120-Steel Truss	3 - Mod.	2705	ft.	1899	136	670	0

Inspector: Nepal,Prateek
Inspection Date: 08/21/2026

Structure Number: 3103390
Facility Carried: COLUMBIA PARKWAY

Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	CS2 -Surface corrosion is present at various locations throughout the truss. -Random lacing bars are deformed throughout the lower chord. CS3 -Isolated painted-over pitting is present on the truss members, typically up to 1/8" deep, with isolated areas up to 3/16" deep. -Pack rust up to 1" thick between web plates and cover/splice plates are present throughout the truss. The pack rust is mostly inactive, but some areas are reactivating. In many locations the pack rust is prying the component plates. - There are isolated gouges up to 3/8" deep in the lower chord and verticals. Lower Chord: -Areas of thicker pack rust are causing the web plate of the lower chord to have a wavelike appearance. Lower chord internal stiffeners have pack rust up to 2" thick. -Rivet heads with up to 50% section loss are present. -Corrosion holes in several batten plates near the truss bearings. -Steel wedge rusted off the bottom near L44, Span 9, North Truss and the South Truss wedge is missing. Upper Chord: -Isolated pack rust up to 1/2" thick at batten plates and splice plates. Member U42U43, Span 9, North Truss, has 3/4" thick pack rust between the bottom batten plate and the bottom flange. -Isolated pack rust distorting fill plates at splice locations. -U14U15, Span 6, Center Truss: multiple 1" diameter by 3/16" deep pits on top flange. -U9U10: Corrosion hole in the splice fill plate. -Corrosion holes at the bottom flange angles at bearing locations: U20, Span 6, Center Truss; U0, Span 7, North Truss; U0, Span 7, Center Truss; U20, Span 10, Center Truss. -There are isolated misdrilled holes in the upper chord members, most notable at the splice plate connections. Verticals: -Pack rust between the flange and fill plate at the lower gusset connection, distorting the fill plate. At L6, Span 5, North Truss, distortion is up to 1", with a corrosion hole at the top edge of the fill plate. -10 cracks in tack welds at the verticals. Eight are in the fill plate between the gusset and the vertical, two are at the catwalk attachment. Diagonals: -Isolated pack rust up to 3/8" at the fill plate and lower-gusset connections, distorting the fill plate. - 1-1/2" long cracked tack weld between the diagonal and the north gusset at L17U18.						
515-Steel Protective Coating		95362	sq. ft.	89422	4000	1435	505
	CS2 -There are isolated areas where the paint is peeling or chipped. -There are isolated areas with light surface corrosion. -In some areas the paint is beginning to exhibit surface dulling/ chalking. CS3 -Isolated areas of surface corrosion. - Isolated areas of paint have peeled off exposing the primer below. CS4 There are isolated areas of active corrosion, pack rust, and laminar corrosion.						
152-Steel Floor Beam	3 - Mod.	9256	ft.	9116	50	90	0

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	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	CS2 -There are isolated areas of surface corrosion. -There is a 5/8" long gouge on the west face of Floorbeam 4 in Span 12 at the South Girder. CS3 - There are isolated locations of pack rust ranging from 3/16" to 1/2" thick at the intersection with the girders and at the floorbeam cantilever connection to the girder top flange. - The floorbeam connections to the upper gusset plates have areas of painted over pitting up to 3/16" deep. -The floorbeams have isolated locations of painted-over pitting up to 1/4” deep. Pitting is present in the flanges, webs, and connection angles at isolated locations, typically at expansion joints. -There is active section loss 1’ long by 1” wide by 1/16” deep at the top flange in Floorbeam 1, Span 17 -Laminar corrosion between the top flange and the haunch is present at isolated locations. -3/8" vertical overcut at U39, Center Truss, Span 9.						
515-Steel Protective Coating		96487	sq. ft.	90662	5000	800	25
	CS2 In some areas the paint is beginning to exhibit surface dulling/chalking. CS3 There are isolated areas where the paint is peeling or chipped. There are isolated areas with surface corrosion. CS4 There are isolated areas of active corrosion, pack rust, and laminating corrosion.						
162-Steel Gusset Plate	3 - Mod.	522	each	443	27	52	0
	CS2 -Tack welds are present between gusset and fill plates at isolated locations. Some tack welds and fill plates are cracked but none of the cracks propagate into the base metal of the gussets. CS3 -There are missing rivets or bolts at isolated locations. -There is bowing along gusset plate edges due to pack rust in several locations. This bowing ranges from 1/8" to 1" and has been retrofitted with stiffening angles. Active and inactive pack rust up to 1” thick is between the gusset plates, fill plates, bracing connections, and truss members in many locations. -There is widespread painted-over pitting in the gusset plates, typically up to 3/16" deep, with isolated areas up to 5/16" deep, and isolated areas of active section loss up to 3/16" deep along the interface with the lower chord. -There is an isolated 3" diameter corrosion hole in the south plate of L0 of the South Truss in Span 6. -There are isolated locations where pack rust between the vertical and the gusset plate has created a gap, allowing water to accumulate between the flange and plate.						
515-Steel Protective Coating		33408	sq. ft.	31433	1650	75	250
	CS2 -There are isolated areas where the paint is peeling or chipped. -There are isolated areas with light surface corrosion. -In some areas the paint is beginning to exhibit surface dulling/ chalking. CS3 -There are isolated areas of active corrosion and pack rust.						
205-Reinforced Concrete Column	3 - Mod.	54	each	27	10	17	0

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Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	CS2 - There are isolated locations of medium-width vertical and horizontal cracks - The columns have isolated locations of delaminations. CS3 -There are isolated locations of vertical and horizontal cracks with rust staining. -1" H x 6" W x 1" D spall with exposed rebar at the SE corner of the Center Column, Pier 2. -3" diameter x 1" D spall with exposed rebar at the NE corner of the South Column, Pier 2. -2' H x 1' W x 3" D spall with exposed rebar at the Center Column, Pier 3, east face. -2' L x 1' H x 2" D spall with a delamination at the Center Column, Pier 3, west face. -3' H x 1' W x 2" D spall with exposed rebar at the South Column, Pier 3, east face. -1' L x 2" H x 1.5" D spall with exposed rebar at the NW corner of the North Column, Pier 4. -Cracking with rust staining at the Center Column, Pier 5, south face. -4' L x 8" W x 6" D spall with exposed rebar at the Center Column, Pier 5, north face. -1.5' L x 4" H x 3" D spall with exposed rebar at the North Column, Pier 5, north face. -2' L x 5' H delamination with a 1 SF x 1" D spall at the South Column, Pier 7, SE corner. -1' L x 4' H x 1.5" D spall with exposed rebar at the North Column, Pier 7, south face. -2' L x 3' H x 3" D spall with exposed rebar at the North Column, Pier 7, west face. -Cracking with rust staining at the North Column, Pier 7, south face. -1.75' L x 8" H x 2" D spall with exposed rebar at the South Column, Pier 8, north face. -2' L x 3' H x 3" D spall with exposed rebar at the North Column, Pier 10, SW corner. -1.5' L x 2'-1" H x 1" D spall with exposed rebar at the South Column, Pier 11, NE corner. -Cracking with rust staining on the North Column, Pier 12, east face. -2' diameter x 2" D spall with exposed rebar at the Center Column, Pier 12, south face. -2' L x 2' H x 2" D spall with exposed rebar at the Center Column, Pier 13, SE corner. -2' L x 3" W x 3" D spall with exposed rebar at the Center Column, Pier 13, SW corner. -3' L x 1' H x 5" D spall with exposed rebar at the South Column, Pier 15, west face. -1' diameter x 1" D spall at the South Column, Pier 15, east face. -2' L x 3' H x 1" D spall with exposed rebar at the South Column, Pier 17, west face.						
215-Reinforced Concrete Abutment	3 - Mod.	144	ft.	81	37	26	0
	CS2 -There are isolated medium-width vertical and transverse cracks. -Hairline map cracking over an area of 5' L x 2' H at the Forward Abutment (Abutment 18), west face. CS3 -Medium-width cracking with rust staining at the Rear Abutment (Abutment 1). -3' L x 2' H x 1" D spall with exposed rebar at the Forward Abutment (Abutment 18). -3' L x 9" H x 1" D cracking/spalling with rust staining and exposed rebar at the Forward Abutment (Abutment 18). -18' L sealed crack with rust staining and efflorescence at the Forward Abutment (Abutment 18).						
234-Reinforced Concrete Pier Cap	3 - Mod.	1137	ft.	839	137	161	0

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	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
	CS2 -2 SF delamination on the top/west face of Pier 2 between the Center Column and the South Column. -4' L crack with a delamination on the west bottom of Pier 12 between the Center Column and the North Column. -106 SF delamination on the west face of Pier 13 between the Center Column and the South Column. -(2) 45 SF delaminations on the west face of Pier 13 between the Center Column and the North Column. -20 SF delamination on the west face of Pier 16 between the Center Column and the North Column. CS3 -2' H x 8" W x 1.5" D spall on the east face of Pier 2. -Rust staining at the top of Pier 3. -Rust staining through the FRP on the east face of Pier 5. -6" L x 3" H x 2.5" D spall on the west/top face of Pier 6. -(2) 1'-4" diameter x 1.5" D spalls with exposed rebar at the top of Pier 8. -1' L x 1' H x 1.5" D spall with exposed rebar on the east face of Pier 8. -1' diameter x 1" D spall with exposed rebar on the bottom of Pier 9. -95 SF of repair patch cracking at the west/bottom of Pier 10. -1/16" wide full-length crack at the top of Pier 10. -4' L wide crack with rust staining at the west/bottom of Pier 12. -2.5' L x 2' W x 1" D spall at the top of Pier 13. -1' L x 1.5' H x 1" D spall with exposed rebar and a 6' x 1/16" crack on the east/bottom face of Pier 13. -1' L x 3' H x 1" D spall with exposed rebar on the east face of Pier 13. -1' L x 1' H x 1" D spall with exposed rebar on the east face of Pier 13. -6' L crack with rust staining on the west face of Pier 14. -10' L cracked patch that extends 1' underneath on the east face of Pier 15. -4' L x 1'-4" H x 4" D spall with exposed rebar and section loss on the east face of Pier 16. -1'-8" diameter x 2" D spall with exposed rebar on the west face of Pier 16. -1' L x 4" H x 2" D spall on the west/top face of Pier 16. -6' L x 1/16" wide crack on the west face of Pier 17.						
300-Strip Seal Joint	3 - Mod.	973	ft.	335	630	8	0
	CS2 -The expansion joints are partially full to completely full of debris. The debris does not appear to be affecting the overall movement of the joints at this time. - There are widespread areas of surface corrosion. The majority of the surface corrosion is located in the shoulder area, but at Piers 2, Piers 13-15, and Abutment 18, the surface corrosion is more abundant across the entire length of the joint armor. -Widespread minor popouts and edge spalls are present along the entire length of the joints. CS3 -Joint seal is torn in isolated areas with leakage noted at Piers 4 and 10. -Spalls in the joint slab header with damaged and loose joint material. -1/2" vertical offset at the Pier 3 joint.						
310-Elastomeric Bearing	3 - Mod.	30	each	13	10	7	0
	CS2 -There is surface corrosion on the bearing plates in isolated locations. -The Rear Abutment, north bearing, has a manufacturing defect on the pin nut. CS3 -The elastomeric bearings have painted over pitting at the following locations: Pier 3, Span 3, north bearing; Pier 4, Span 4, all bearings; Pier 13, Span 12, north bearing; Pier 13, Span 13, north bearing. - There is a 1” diameter by 3/16” deep pit on the South Bearing at the Rear Abutment. -Isolated location of pack rust between the lower chord member and the sole plate in Span 4, North Girder, Floorbeam 0. There is a missing bolt attaching the sole plate to the girder at this location.						

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515-Steel Protective Coating		30	sq. ft.	20	0	10	0
	CS3 There is surface corrosion on the bearing plates in isolated locations.						
313-Fixed Bearing	3 - Mod.	39	each	10	11	18	0
	CS2 - The bearings have widespread areas of surface corrosion with the worst areas being at the base. -There is a loose anchor nut on the north bearing at Pier 4 in Span 4. CS3 -The fixed bearings have painted over pitting up to 1/4” deep at the following locations: Pier 2, Span 1, north and center bearing; Pier 3, Span 2, north and center bearing; Pier 4, Span 3, all bearings; Pier 5, Span 4, all bearings; Pier 7, Span 6, all bearings; Pier 12, Span 12, center bearing. -Isolated bearings have laminating corrosion, most notable on the base plate. -Pier 4, Span 3, Center Girder has 40% section loss to the anchor nuts. -The Pier 12, Span 12, center bearing has a gouge in the pin nut. -The Pier 14, Span 13, center bearing has section loss on one of the anchor nuts. -There are some locations of active corrosion and section loss on the anchor nuts and washers.						
515-Steel Protective Coating		39	sq. ft.	28	0	5	6
	CS3 - There are isolated areas with surface corrosion CS4 -There are isolated areas of laminar corrosion on the base plates.						
314-Pot Bearing	3 - Mod.	21	each	9	6	6	0
	CS2 -There are some areas of active surface corrosion, most notable on the masonry plate and the anchor nuts and bolts. -All bearings at Pier 6 are rotated 3 degrees at 80 degrees Fahrenheit. CS3 -The pot bearings have painted-over pitting at the following locations: Pier 5, Span 5, all bearings; Pier 7, Span 7, all bearings. -There is pack rust developing between the bearing and the truss member near the pin at L44, Center Truss, Span 9.						
515-Steel Protective Coating		21	sq. ft.	15	0	4	2
	CS2 -There are isolated areas of freckled rust. CS3 -There is surface corrosion on the bearings in isolated locations. CS4 -There are areas of failed paint, most notable on the base plates.						
321-Reinforced Concrete Approach Slab	3 - Mod.	2310	sq. ft.	2108	200	2	0
	CS2 -The west approach slab exhibits hairline longitudinal cracks spaced at approximately 3 ft. -There is some wear to the tines in the wheel lines of the west approach slab. -There is map cracking in the east approach slab. CS3 -1’long x 0.06” wide crack in the east approach slab.						

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	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
331-Reinforced Concrete Bridge Railing	3 - Mod.	4980	ft.	3643	1245	92	0
	CS2 -The railings typically exhibit medium width vertical, horizontal, and map cracking throughout the entire length of the bridge. -The protective coating is peeling and chipped throughout the railing, and scaling is present in some locations. CS3 -Between Pier 5 and Pier 6 of the north railing, the decorative extension to the post is cracked and fully delaminated with a spalled off corner. -There are some locations of various sizes of spalls, and isolated locations with exposed and corroded rebar. Spalls with corroded rebar include; Span 7, North rail - (2) 9" H x 5" W x 3/4" D, Span 7, North rail - 18" H x 5" W x 3/4" D, Span 8, North rail - 9" H x 3" W x 3/4" D, Span 8, North rail - 5" H x 3" W x 3/4" D. -Tight spiderweb cracking with thin leakage along the cracks indicates possible alkali-silica reaction (ASR). These posts are on the south railing near Pier 8, Pier 9, and at isolated posts in Spans 10, 11, and 13.						
815-Drainage	3 - Mod.	32	each	22	8	1	1
	CS2 -There is light debris build up in a few of the drainage grates at the end of the downspouts, but drainage flow is not yet inhibited. -A few of the downspouts exhibit surface corrosion. CS3 -The downspout termination is aligned at the catch basins edge instead of the center at Pier 5. CS4 - Pier 9, south column - drainpipe cracked at ground level and actively leaking.						

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HAM-00050-2180N_(3103390)

ODOT District:	District 08					Date Built:	07/01/1938
Major Maint:	01 - State Highway Agency	Facility Carried:	COLUMBIA PARKWAY	Traffic On:	1 - Highway	Rehab Date:	07/01/1997
Routine Maint:	04 - City or Municipal Highway Agency	Feature Inters:	IR471,RAMP,EGG,CUL	Traffic Under:	1 - Highway, with or w/out pedestrian	Insp. Resp A:	01 - State Highway Agency
FIPS Code:	15000 - CINCINNATI (HAM county)	Location:	DISTRICT 08	N OF I471 & US50 INT		Insp Resp B:	

Inspector Nepal,Prateek Inspection Date 08/21/2026 Reviewer Not Approved

Inspector Comments - Deck and Approach

Deck, Wearing Surface, Joints, Railing

Deck

There are some medium-width longitudinal and transverse cracks with efflorescence in the deck underside. The longitudinal cracks are typically located between the floorbeams above the upper chord. The majority of the transverse cracks are located in the deck overhangs and have light to moderate build-up of efflorescence. In Span 5 at the south overhang, there are medium-width diagonal cracks with efflorescence near the expansion joint.

There are isolated areas of minor spalls on the underside of the deck most notably near expansion joints. There are also isolated spalls in the floorbeam haunches measuring up to 1 ft in diameter. The end haunches on the north overhang brackets were sounded along the length of the truss. The haunches were observed to be sound.

Wearing Surface

There are some medium-width longitudinal and transverse cracks throughout. There are isolated locations of wide cracks near drainage scuppers and expansion joints. At the drainage scuppers, the cracks are propagating from the corners of the scupper grate. At the expansion joints, the cracking is typically near the areas where the joint armor bends and measures up to 0.1” wide. There is a 1” diameter by 1” deep pop out in Span 13.

Joints

All joint openings have some level of debris impaction ranging from partially full to completely full of debris. The debris does not appear to be affecting the overall movement of the joints at this time.

There are widespread areas of surface corrosion that vary from initiation to fully developed. The majority of the surface corrosion is located in the shoulder area, but at Piers 2, Piers 13-15, and Abutment 18, the surface corrosion is more abundant across the entire length of the joint armor. Minor popouts and edge spalls are present along the entire length of all the joints.

The seal material is torn in isolated locations. Leakage through the joints and water ponding on the pier caps were noted at Pier 4 and 10.

At both Abutment 1 and Abutment 18, there is a concrete header that runs along the full length of the approach side. At Abutment 18, the header has isolated shallow edge spalls and hairline transverse cracks. At Abutment 1, the spalling is larger in size and the adjacent construction joint is detaching and being pulled away.

At Pier 3, the expansion joint has a 1/2" vertical offset.

Railing

There is widespread unsealed medium-width vertical and horizontal cracking. The cracking is most notable on the top and bottom of the railing. Between Pier 5 and Pier 6 of the north railing, the decorative extension to the post is cracked with a spalled off corner.

There are some locations of various sizes of spalls. There are isolated spalls with exposed and corroded rebar with section loss up to 1/16" deep.

Isolated posts on the south railing have unsealed medium-width map cracking with rust staining and minor efflorescence. There is tight spiderweb cracking with thin leakage along the cracks that indicate possible alkali-silica reaction (ASR). These posts are on the south railing near Pier 8, near Pier 9, and isolated posts in Spans 10, 11, and 13.

In the westbound lane just east of I-471, there is a crash attenuator at the exit ramp for Sixth St Downtown. The crash attenuator has been damaged and has panels hanging loose, deployed cushions, and loose cables.

Drainage

There are isolated locations where the deck scupper has debris build-up, but all appear to be draining. The drainpipes, drainpipe connections, and scuppers have isolated areas of surface corrosion. Pier 5, north column - drain is partially clogged and the drainpipe is aimed at the edge of the drain rather than the center. Pier 9, south column - drainpipe cracked at ground level and actively leaking. Pier 11, south column - slope protection broken and undermined. Pier 12, north column - slope protection broken, with a void directly under the drainpipe. Pier 13, south column - adjacent slope protection and approach slab undermined.

Signs, Utilities, and Lighting

Isolated areas of surface corrosion are present on the utility conduits. There is a heavily corroded utility conduit at Pier 10 on the Center Truss. The light fixture above Butler Street does not illuminate at night.

Approach

Approach Slab

There is hairline cracking and some wear to the tines in the wheel lines of the west approach slab. There is unsealed map cracking with a wide crack in the east approach slab.

Approach Pavement

The majority of the deficiencies noted are located at the east approach pavement. There is abundant wide map cracking near the East Approach Slab and wide random cracking to the remainder of the pavement at the east end. The approach pavement at the west end exhibits less deterioration.

Reinforced Concrete Approach Railing

The protective coating system is chipping and there are isolated hairline cracks. There is a full width by 4" tall x 4" deep spall at the bottom of the south rail at the West Approach. Moderate vegetation growth was noted at the East Approach railing.

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Inspector Comments - General Appraisal

Superstructure, Bearings

Girders

There are isolated stiffeners with distortion due to pack rust. There are weld/flame cuts in the bottom flanges in Spans 13-15. In Span 12, there are isolated locations where the bottom flange is distorted.

Tack welds are present at several floorbeam connection angles and at isolated diaphragm connection angles where the fill plates are attached to the girder. No cracks were found during the 2026 inspection. There are isolated locations where either rivet heads are missing or there are blind holes, particularly near stiffener locations on the top flange and in the web behind the bearing. Four unused holes located in the web near pier locations occur in the Span 4 South Girder and Span 12 North Girder. There are isolated locations of plug welds in the fill plate to web connections. No distress was observed in the surrounding areas.

There are isolated areas of surface corrosion along the top flange. There are isolated areas of painted over pitting ranging from 1/16” to 1/4” deep, most notably near the girder ends behind the bearings. In Span 13, the South Girder has a 2” diameter corrosion hole in the web behind the bearing at Pier 14. Isolated areas of pack rust up to 1/8” between the cover plates along the bottom flange of the girders are present. There is pack rust up to 1” thick between the bottom flange cover plates on the North Girder in Span 2 near midspan.

Lower Chord

The lower chord has widespread areas with varying levels of pack rust between the web and flange components and internal stiffeners. The pack rust is commonly located on both sides and typically varies from 1/16” to 1” thickness with one area up to 1-1/2” on L22L23 in Span 8 of the North Truss. Some areas of thicker pack rust have caused the web plate to warp giving it a wavelike appearance.

There is pack rust between the internal stiffener plates (typically located near the bearings), typically up to 1-1/2" thick, with one location up to 2" thick. Other areas that are being affected by pack rust include at fill plates where the lower chord connects to the vertical (panel points) and at the batten plates. At isolated locations, the pack rust is prying the plate away from the connected member. There are also isolated areas of distorted lacing bars.

The lower chord components typically have areas of inactive section loss ranging from 1/16” to 3/16” depth. The areas of section loss tend to occur around the panel points and typically are located on the batten plate, top flange ends, bottom flange, or web plates adjacent to the gusset plate.

Rivet heads with up to 50% section loss are present at isolated panel points within the lower chord. There are corrosion holes in several batten plates near the truss bearings.

Two steel wedges previously attached to the bottom flanges at Pier 10 are no longer in place. At the North Truss, the steel wedge near L44 in Span 9 has rusted off the bottom flange and is sitting on the pier cap. The Center Truss wedge is still attached, while the South Truss wedge is missing.

Throughout the length of the truss, there are various locations of blind holes and missing fasteners. The blind holes are commonly located in the lower chord top flange near the panel point where a batten plate or lacing bar is installed or in the lower chord web adjacent to a bearing, where previous jacking plates were installed or are still installed.

Upper Chord

The upper chord has isolated locations of pack rust. The top and bottom batten plates and splice plates have isolated locations of pack rust up to 1/2" thick. Member U42U43 bottom batten plate has 3/4" pack rust between the plate and the bottom flange in Span 9 of the North Truss. There are isolated locations of pack rust distorting the fill plates at splice locations.

Laminating corrosion with minor section loss is present in isolated locations on the lacing bars and bottom flanges. Member U14U15 has multiple areas of pitting measuring 1" diameter by 3/16" deep in the top flange. There is an isolated 8" long by 2" wide corrosion hole in a fill plate at the splice in U9U10 of the Center Truss in Span 6. Corrosion holes are present at the bottom flange angles at bearing locations.

There are isolated misdrilled holes in the upper chord members, most notable at the splice plate connections. At U25 of the North Truss in Span 8, there are four plug welds on each side of the upper chord.

Verticals

At the lower connection to the gusset plate, there is typically pack rust between the flange and the fill plate causing distortion to the fill plate. At L6 in Span 5 of the North Truss, pack rust has caused distortion of up to 1 inch to the fill plate with the top fill plate edge exhibiting a corrosion hole. The verticals have isolated locations of painted over pitting up to 3/16" deep most common along the flanges and at the lower gusset connections.

Several of the welds attaching items to the verticals are of poor quality. Throughout the truss, there are locations where the remains of a previously welded attachment are still on the vertical. The attachment was torch cut off and the partial pieces of steel remain welded. Many verticals have errant welds attached to the flange and locations of gouging.

At U40 of the North Truss, Span 9, there are gaps at three bolted connections. The bolts are not loose to the touch, but they have not been properly tightened. At U11 of the Center Truss, Span 7, and U33 of the Center Truss, Span 9, there are three plug welds near the top end of the vertical. No deficiencies are noted in these areas. Two rivet heads have been torch cut off at U20 of the North Truss, Span 11.

Ten cracks are currently noted at attachments to the verticals. Eight of the cracks are in the tack weld between the gusset fill plate and the vertical and two occur at the catwalk attachment tack weld. No cracks changed in size from the previous inspection and none of the cracks propagate into the base metal.

Diagonals

The diagonals have isolated areas of pack rust up to 3/8" thick at the fill plate and lower gusset connections causing distortion to the fill plate. There are isolated areas of surface corrosion present on the webs, flanges, and rivets. Some painted over pitting less than 1/16" deep is present, most notable along the flanges. At U31L32, Span 9, North Truss there is an area of 3/16" deep pitting at the lower gusset connection.

A plug weld exists at U3L4, Center Truss, Span 5. There are isolated locations of misdrilled holes.

At U18 of L17U18, North Truss, Span 6, there is a previously marked 1-1/2” long cracked tack weld between the diagonal and the north gusset plate.

Floorbeams

There are isolated locations of pack rust ranging from 3/16” to 1/2” thick at the intersection with the girders and at the floorbeam cantilever connection to the girder top flange.

There are isolated locations of surface corrosion on the floorbeams. The floorbeams have isolated locations of painted-over pitting up to 1/4” deep and one location of active section loss 1’ long by 1” wide by 1/16” deep at the top flange in Floorbeam 1, Span 17. The pitting is most notable along the bottom and top flange and lower portion of the web. The floorbeam connections to the upper gusset plates have areas of painted over pitting up to 3/16” deep.

The floorbeam on the south side of U39, Center Truss, Span 9, has a 3/8” vertical overcut at the top flange cope. No additional issues are noted at this location. There is a misdrilled hole at the floorbeam connection to the gusset plate at U15, South Truss, Span 6. Over Pier 10, North Truss, Span 10, there is a blind hole in the top floorbeam flange.

Gusset Plates

There is widespread painted over pitting typically up to 3/16”, with isolated areas up to 5/16” deep on the gusset plates, and isolated areas of active section loss up to 3/16" deep along the interface with the lower chord. There is a 3” diameter corrosion hole at L0 in the South Plate of the Center Truss in Span 7.

Some gusset plates have bowing along the free edge and/or deformation along a fastener line. Stiffening angles have been added to several gusset plates due to free edge bowing. Most free edge bowing and all fastener line deformation appears to be due to pack rust which is 1/4" to 1/2" thick, with isolated locations up to 1" thick predominately on the lower chord gussets and at bearing locations. There are isolated locations where the fastener line deformation is allowing water to pond between the vertical and the gusset plate and there are isolated locations where the gusset plates are bowed up to 3/16" along the free edge with no apparent pack rust.

In isolated locations, the gusset plates have gouges where previous attachments had been welded to the plates. Catwalk supports have been welded to the gusset plates on the Center Truss, but no defects associated with this detail were observed. There are isolated locations of mis-drilled holes, some of which have been filled with plug welds. There are isolated rivet heads that appear to have been cut or ground off, with gouges in the gusset plate base metal and light rusting along the cut lines.

Elastomeric Bearing

There is an isolated location of pack rust between the girder and the sole plate occurring at the North Bearing on Pier 4 in Span 5. The bearing at this location is also missing a bolt attaching the sole plate to the girder on the east side.

There are isolated locations of surface corrosion on the bearings and rusting from the pins.

There is a 1” diameter by 3/16” deep pit on the South Bearing at Abutment 1. There is a gouge in the south pin of the North Bearing at Abutment 1.

Fixed Bearing

There is an isolated location of pack rust between the girder and the sole plate past the bearing location occurring at the South Bearing on Pier 4 in Span 4.

The bearings have widespread areas of surface corrosion with the worst areas being at the base. There are isolated locations of laminating corrosion on the base plates. Some locations have 1/8” deep painted over pitting with the worst location noted at the South Bearing on Pier 7 having up to 1/4” painted over pitting between the wing plates. The pin nut at Pier 12, Center Girder, Span 12, has a gouge in the side and the remaining surface has 1/16” to 1/8” pitting. There are some locations of active corrosion and section loss on the anchor nuts and washers.

At Pier 4, Span 3, North Girder, the bearing to the 471 S ramp has one loose anchor nut. The North Bearing at Pier 4 has a missing bolt attaching the sole plate to the bearing.

Pot Bearing

There are some areas of active surface corrosion most notably on the masonry plate and the anchor nuts and bolts. There are isolated areas of painted over pitting. The pot bearings at Pier 6 are rotated 3 degrees at 80 degrees Fahrenheit.

Fatigue

There are tack welds on the gusset plates, fill plates, and splice plates. Some of these are broken or cracked, but none have propagated into the base metal. Many of the cracked locations are due to pack rust occurring between the plates. Welded attachments are also present at several locations. In addition, flame cuts, gouges, and overcuts were noted on the truss members and gusset plates.

Alignment

The alignment is in good condition. No deficiencies in the horizontal or vertical member alignment were observed.

Crossframes

The crossframes are in good condition with no deficiencies observed.

Bracing

There are isolated locations of painted over pitting up to 3/16” deep and areas with active corrosion. The batten plates commonly have painted over pitting up to 1/4” deep. There is a corrosion hole in one of the batten plates at L0 in Span 6 of the Center Truss. There are multiple corrosion holes in the bracing member connecting to the South and Center Girder between Floorbeams 0 and 2 in Span 17. At the ends of the bottom struts, there are isolated locations where there is pack rust between the flange angles and either the batten plate or the lower gusset plate. The bracing between L44 of the North Truss and U42 of the Center Truss is bowed.

Substructure

Columns

There are isolated locations of unsealed medium-width vertical and horizontal cracks with rust staining. The columns have isolated locations of delaminations and moderate spalls with exposed rebar on the side faces and on the tops.

Abutments

The abutment walls have isolated moderate spalls with exposed rebar. There are isolated sealed and unsealed medium-width vertical and transverse cracks (some with rust staining and/or minor efflorescence).

Pier Caps

The pier caps have isolated delaminations and unsealed medium-width cracking. The remaining delaminated areas are unsound, but intact. There are isolated areas of rust staining, wide cracks, failed repair patches, and moderate spalls with exposed and corroded rebar.

Wingwalls

There are hairline horizontal cracks in the wingwall at the northwest corner.

Culvert

N/A

Inspector Comments - Waterway

Channel Protection

N/A

Channel

N/A

Scour

N/A