Ohio Department of Transportation

Fracture Critical Member and Fatigue Prone Connection Identification Plan

Reference: ODOT Manual of Bridge Inspection, Part 1, Section 2.11

District: 2
County-Route-SLM Woo-64-1203
Structural File Number: 8702462
Access: 50' Snooper between spans at end-bent openings, 32' fiberglass ladder with outriggers from the river for the sidewalk LC, climbing all other members unreachable by snooper

Fatigue Life Study: Year of Study ___N/A____ Remaining Fatigue Life ___N/A___

Load Path Redundant: No, structure is fracture critical, inspect FCM's every 24 months
Structurally Redundant: No, simple spans
Internally Redundant: No, although several members do offer some int. redundancy several lower-chord members only have 2 vertical plates

Figure 1 - Woo-64-1203 – Elevation looking northeast

Location: The WOO-64-1203 Bridge spans the Maumee River east of Waterville, OH (Figure 2 next page). The bridge carries traffic on State Route 64 and also carries a sidewalk on the left side looking up station toward the town of Waterville.

Structure Description: This structure consists of 5 spans with a length of 846 feet and a maximum span of 167 feet. It carries 2 lanes of traffic with a 23.6 foot roadway width and a 31.9 foot overall width. The sidewalk is cantilevered over the left lower chord, fastened vertically at each outboard left truss gusset-plate and horizontally by two threaded bolts above the panel point. The average daily traffic for the bridge is 9,170 vehicles with average truck traffic of 270 vehicles (2006).

Figure 2 – Woo-64-1203; East end of Waterville in District 2 on the Wood and Lucas County border over the Maumee River

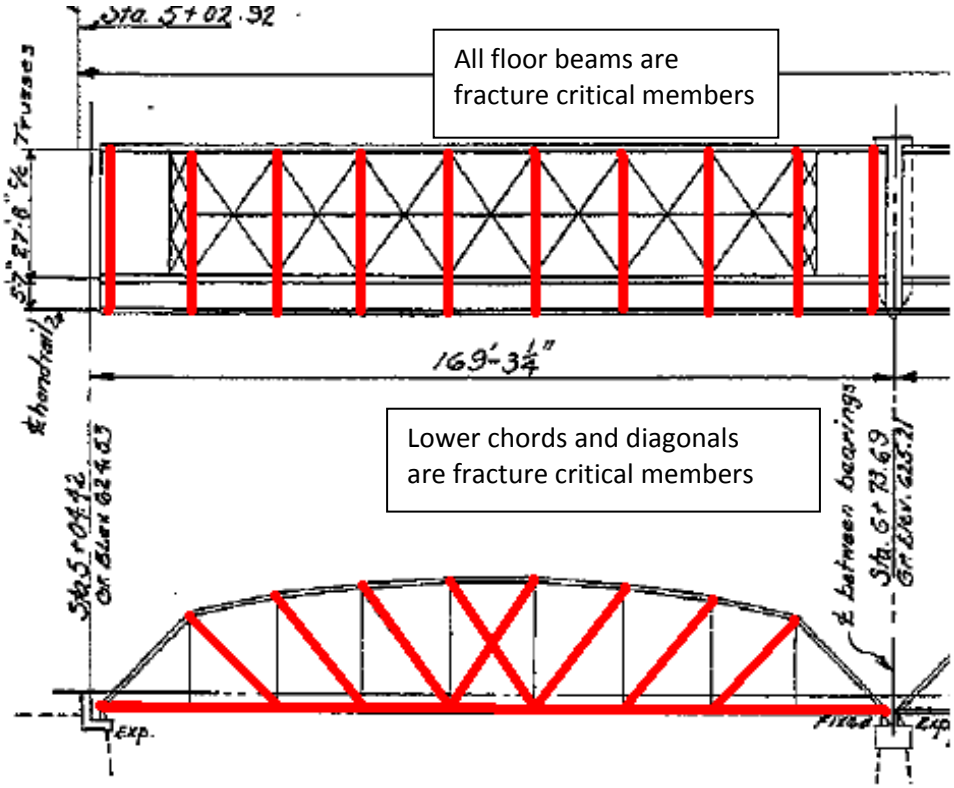

Figure 3 – Highlighted red Floorbeams, Lowerchords and Diagonal tension members are fracture critical, symmetrical all spans

Fatigue Prone Details

reference: AASHTO LRFD Bridge Design Specs Table 6.6.1.2.3-1

Photo Reference	Category (**R** for Retrofit)	Distribution	Description
4a,b	E'	Widespread	Tack weld connection at Gusset Plate to Lower Chord flange plates
5	E'	Various Isolated	Welded brackets for stream monitoring spans 4 and 5
6	E'	Widespread	Termination end of cover plate underside of bottom flange on floor beams
7	E'	Various Isolated	Not on FCM: Vertical weld on fascia stringer web retrofit at end Floor beams (0 and 9)
8a,b	E	Widespread	Tack welds on web-plate diaphragms between lower chord flange plates (1 tack weld cracked through Span 4, right L6L7)
9	**R**	Various	Bolted plates over floorbeam fatigue cracks near truss connection underneath joints (Spans 1, 2, 3 at Floorbeam 0)
10a, b		Localized	Fatigue crack in floorbeam web above clip angle at inboard lower chord truss gusset plate

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Blank cells are for inspectors to add FPD's, retrofits or fatigue crack locations in future inspections

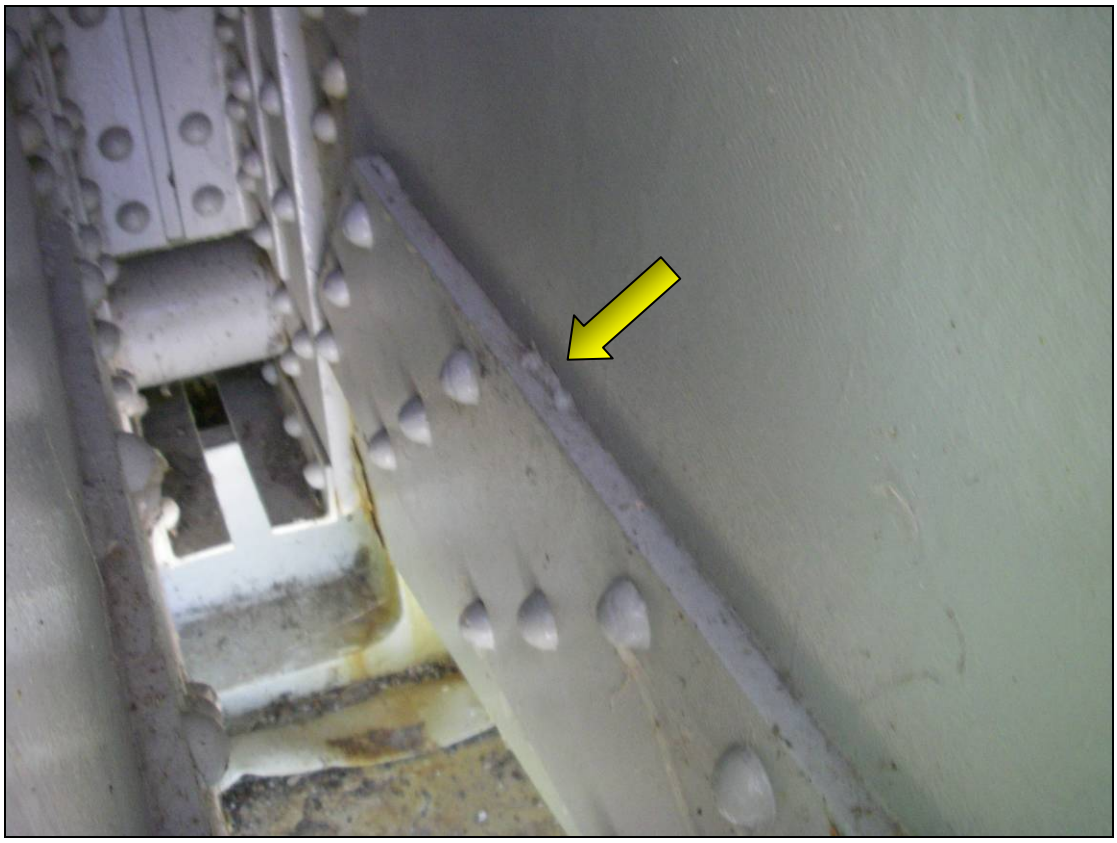

Figure 4a - Tack weld connection at Gusset Plate to Lower Chord flange plates

Figure 4b - Tack weld connection at Gusset Plate to Lower Chord flange plates

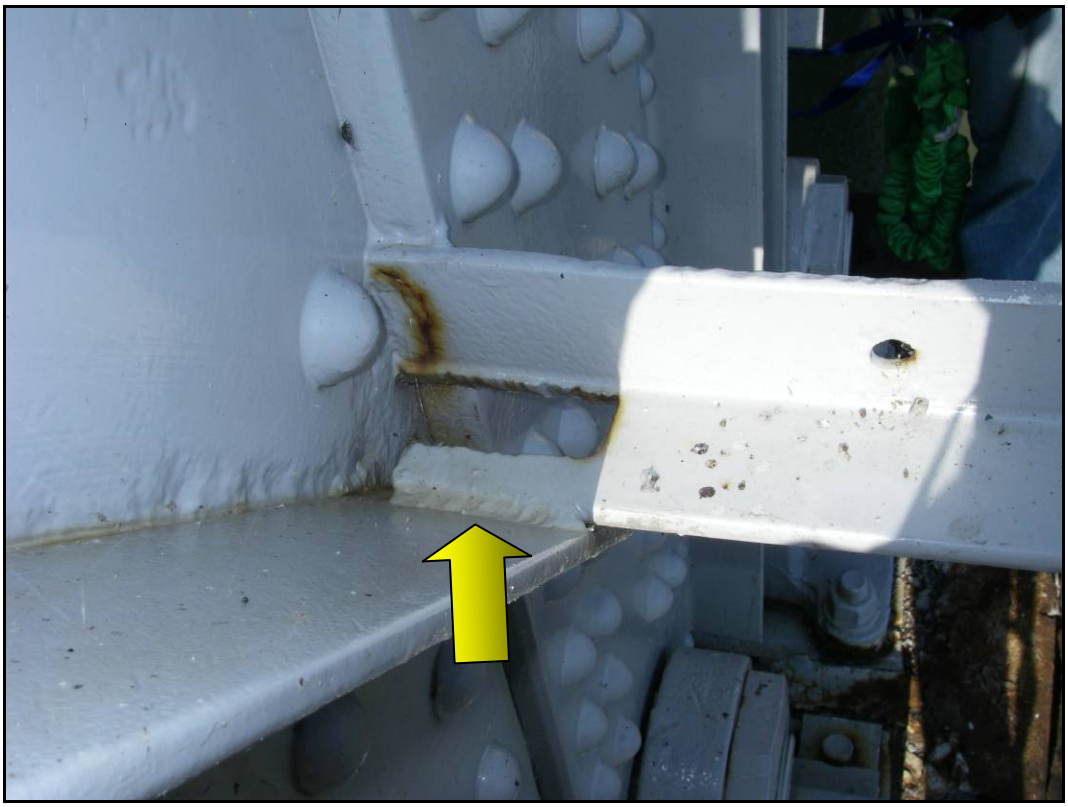

Figure 5- Welded brackets for stream monitoring equipment in spans 4 and 5

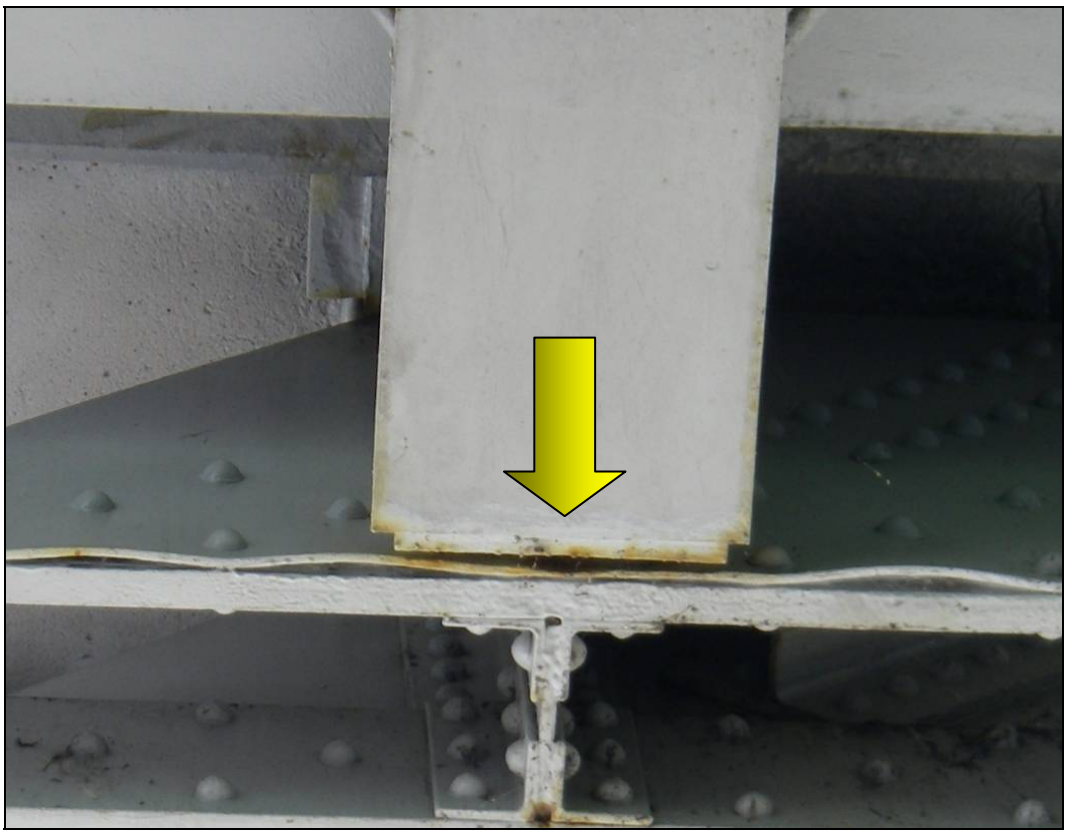

Figure 6 - Termination end of cover plate underside of bottom flange on floor beams (note: B FPD *along* fillet weld)

Figure 7 - Vertical weld on right fascia stringer web retrofit
at end Floor beams (0 and 9)

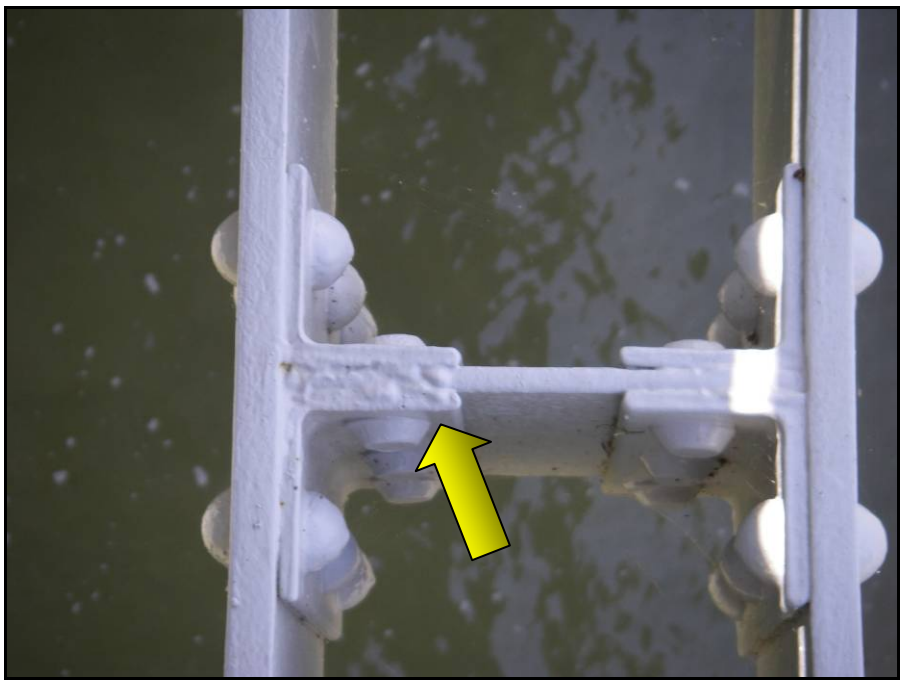

Figure 8a - Tack welds on web-plate diaphragms between lower chord flange plates

Figure 8b - Tack welds on web-plate diaphragms between lower chord flange plates. Location: Right truss span 4, L6L7, note crack around angle-fusion zone of tack weld

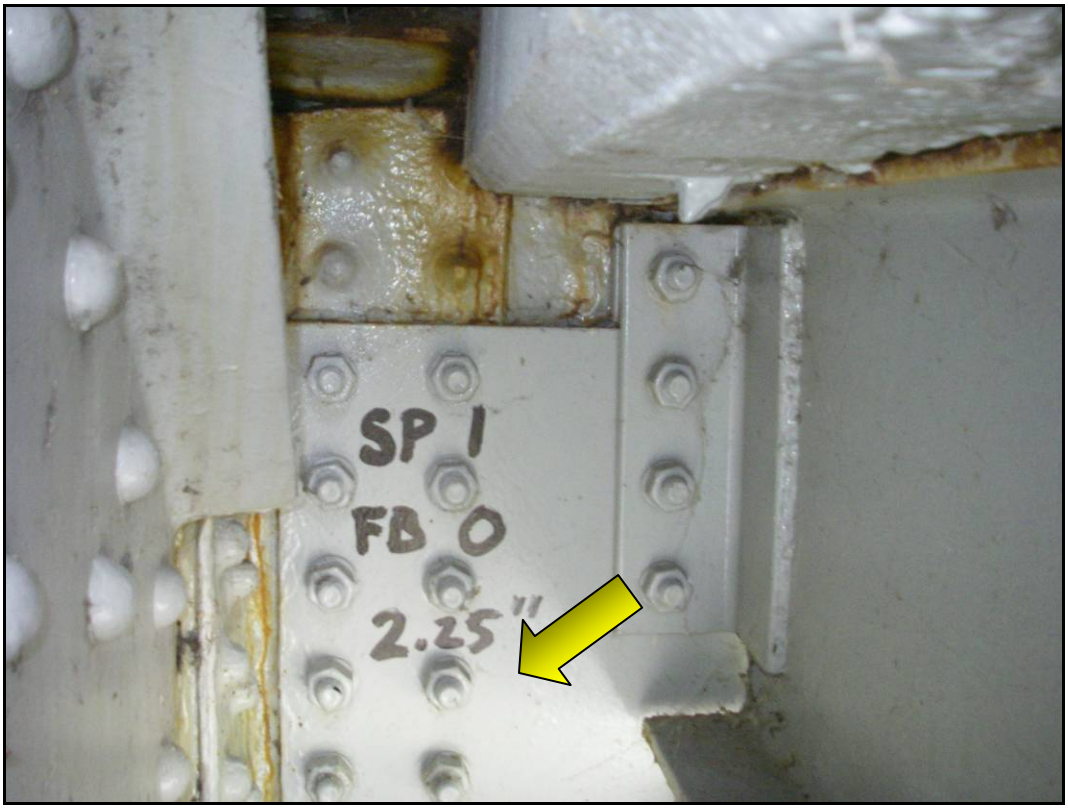

Figure 9 – Retrofit at floorbeam ends over fatigue cracks in floorbeam cope (FB 0 in Spans 1,2,3)

Figure 10a– Fatigue crack in floorbeam web above clip angle to inboard lower chord truss. 1-5/8" long on 8/6/09

Figure 10b – Fatigue crack in floorbeam web above clip angle to inboard lower chord truss. 1-5/8" long on 8/6/09