



erin@thebrewery.org

August 13, 2018

Erin Stenum, Manager
The Brewery Neighborhood Improvement District
1125 N. 9th Street, Suite J
Milwaukee, WI 53233

Re: Pabst Sign Support Structure Review
Milwaukee, WI

Dear Ms. Stenum:

PIERCE ENGINEERS, INC., (PE) performed site visit of the **Pabst Sign** support bridge over West Juneau Avenue at North 10th Street in Milwaukee, Wisconsin on August 8, 2018. The purpose of site visit was to review visually the sign supporting steel truss bridge, decking, connections, and supports to provide our opinion regarding the condition of the structure and determine necessary repair work to preserve the structural integrity of the structure.

The steel bridge that supports Pabst Sign connects Buildings 21 and 25 in the historic Pabst Brewing Campus. See attached a map of historic old Pabst Brewing Campus in Figure 1. Based on the construction years for Building 25 (1882) and Building 21 (1891), the sign bridge must have been constructed in 1891 or later.

The existing bridge framing consists of 2 longitudinal steel trusses in the north-south direction connected by short transverse open-web steel joists in the east-west direction. These transverse open web steel joists support longitudinal steel beams that support the wood beams and decking. Horizontal bracing in the form of rods with turnbuckles (below decking) and angle members (at the bridge bottom level) are provided for the lateral stability of the bridge. Schematics of the longitudinal trusses are provided in Figure 2.

Observations

The different views of bridge are provided in photographs P1, P2, and P3. Note that the south ends of the bridge trusses are embedded into exterior wall of building 25 and the north ends are resting on the parapet of building 21 as shown in Figure 2. Attached photographs P4 and P5 further illustrate these conditions.

Bridge Decking

Existing wood decking spans in the north-south directions and is supported on wood joists resting on steel beams. See attached photographs P4 and P5. Wood decay was noted visually in decking and the top of wood beams at random locations. Cracks were also seen in wood joist at random locations. Attached photographs P6 and P7 depict

this observation. The cause of wood decay and crack could be attributed to dry and wet states (related to moisture) due to their exposed condition.

Steel Transverse Open Web Joists

The top and bottom chords of the existing transverse open web steel joists spanning in the east-west direction were constructed using double angles (back-to-back). Steel bars were used as web members in these trusses (see photograph P8). In general, these existing steel transverse joists are in satisfactory condition with some steel corrosion at random locations. Attached photographs P9 and P10 illustrate this observation. Majority of corrosion noted was in the steel gusset plates between angles. Paint peeling or missing was also noted at some steel members in these joists (see photographs P9 and P10).

Steel Longitudinal Trusses

Back-to-back double angles were used for both chord and web members in the construction of steel longitudinal trusses. In general, existing steel longitudinal trusses are in satisfactory condition with some minor issues, e.g., steel corrosion, steel section loss, and member imperfections (bent angle legs) at random locations. These issues are shown in photographs P11, P12, and P13. The Pabst Sign is supported along the east truss. A continuous pipe from Building 21 to Building 25 is supported along the west truss. At the north end of these trusses, some missing bolts and detached steel splice plates were noted. This observation is depicted in photographs P14 and P15. A cracked steel connector of the guardrail is spotted on the top chord of the east truss at the south end. This observation is shown in photograph P16. The locations of the above observations and corresponding photographs are also provided in the truss schematics in Figure 2.

Truss Supports

The south ends of the trusses are embedded into existing exterior brick masonry wall. Mortar loss was noted in this wall and is shown in attached photograph P17. The north ends of the trusses are resting on steel bearing plates installed over the parapet stone coping. Cracks were noted in the stone coping and cement mortar. See attached photographs P18 and P19. The existing metal stair at the south end of the bridge rests on the decking support framing. This stair has some corrosion. This observation is illustrated in photograph P20.

Repair Recommendations

Based on our observations of the decking, steel joists, steel trusses and their supports, the following repair recommendations (in the same order as in the observation section) are made. All repair recommendations shall be performed before the next review in 2023.

Bridge Decking

All existing wood decking and beams should be reviewed for decay in future. All wood members (both deck and joists) with decay should be replaced with new wood members of same size and strength. Until such compromised members are replaced, a temporary protection measure (e.g., barricade, plywood, etc.) should be undertaken as a safety measure.

Steel Trusses

All main steel trusses and transverse open web joists including welded joints should be cleaned to remove rust and coated with rust inhibitive paint (minimum 2 coats). A new steel member or steel reinforcement is recommended for the existing sign supporting member with a section loss shown in photographs P12 and P13. Similar recommendation is also made for the truss panel point shown in photograph P11. The trusses bearing condition at the north end requires further review from the roof of Building 21 to determine the cause of splice plate detachment and missing rivets. Plug weld is recommended at the missing rivets. The cracked connector in guardrail connection should be removed and replaced or apply new welds. Cleaning and painting is also recommend to existing stair at the south end with corrosion.

Truss Supports

Tuck pointing is strongly recommended in the existing building wall area identified in photograph P17 supporting the south ends of the trusses. Prior to tuck pointing, remove all existing deteriorated and loose mortar up to 1" in depth in the brick joints and clean. At the north truss supporting ends, sealing existing cracks in stone coping, pointing loose and cracked mortar (by removing loose mortar and cleaning) are also priority repair items. This repair will stop any moisture infiltration into existing building wall.

Thank you for the opportunity to be of assistance to you and your staff. Please review the above information and contact me if further clarification is required or if additional questions develop.

Sincerely,

PIERCE ENGINEERS, INC.



Shilak Shakya, SE, PE,
Senior Structural Engineer



Attachments:

Figures 1 and 2
Photographs P1 – P20

DISCLAIMER

The observations discussed and documented in this report are based strictly upon the observable exterior conditions. Concealed wall and column distresses may be present, and this report does not address unsafe or hazardous conditions that are created by internal distress not visible from the exterior. In addition, the scope of this report does not include numerical analysis of the structure, nor does it include a code-compliance review as an egress route.

Old Pabst Brewing Campus

Map courtesy of Brew City Redevelopment Group, LLC. Modified by G.F., July, 2005.

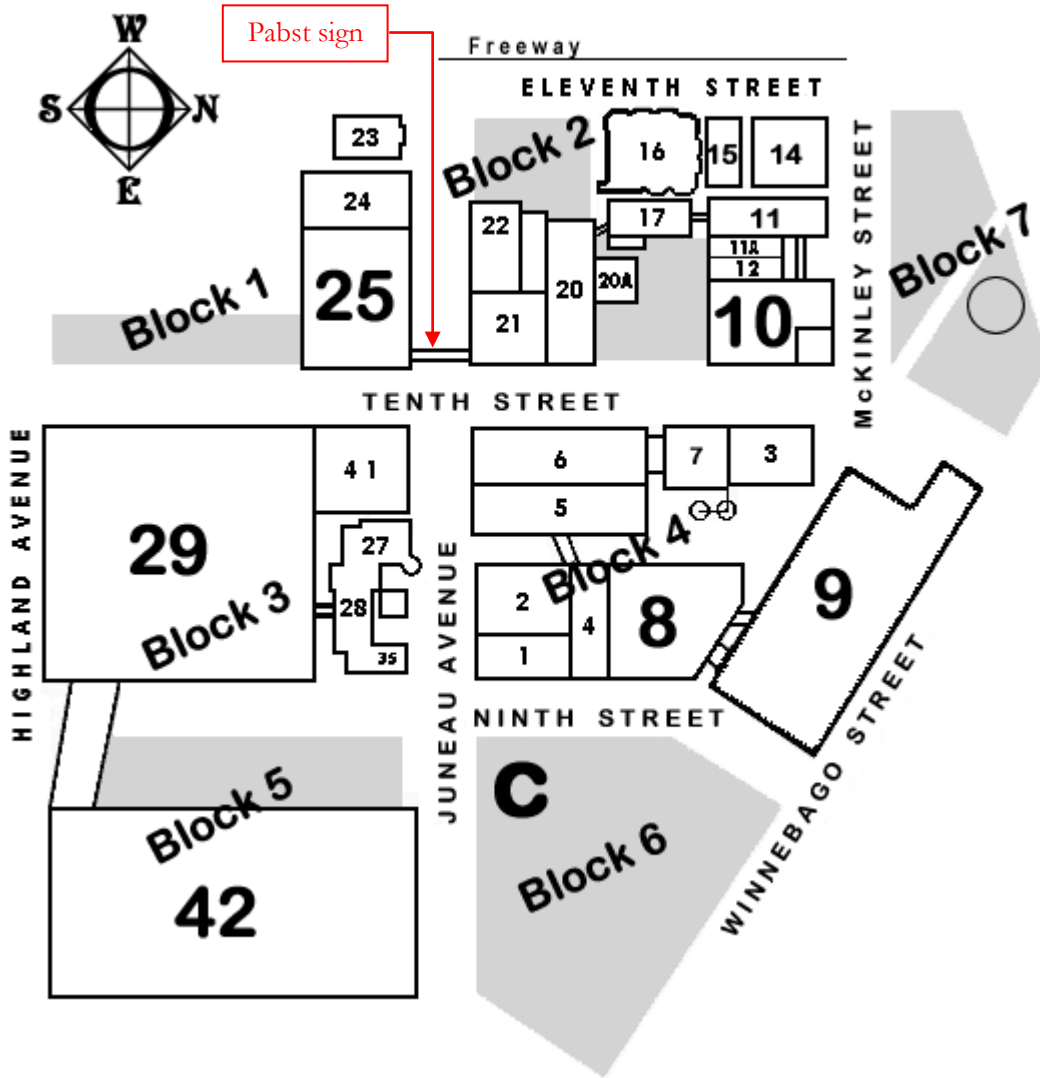
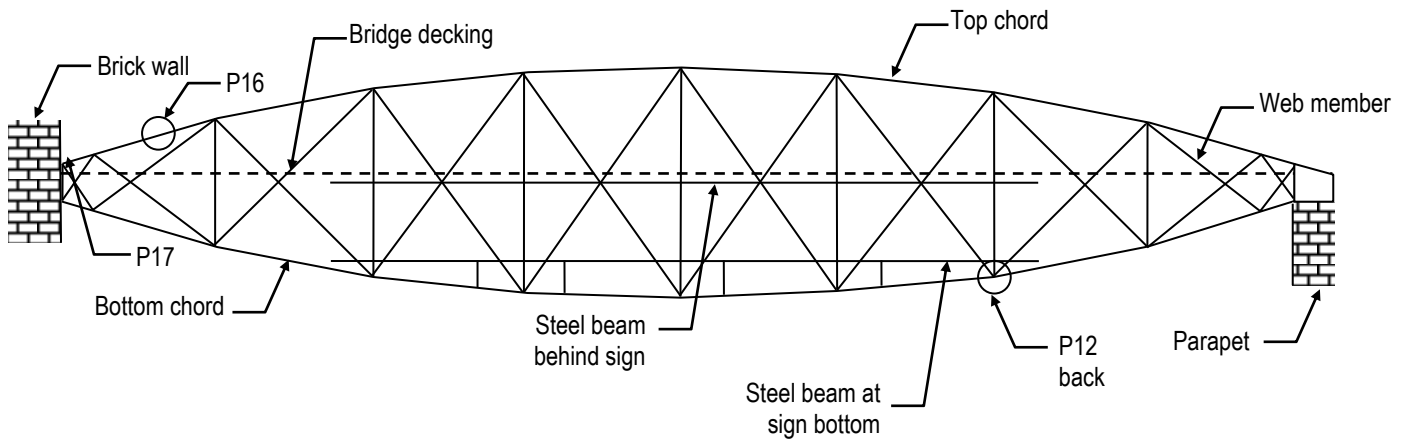
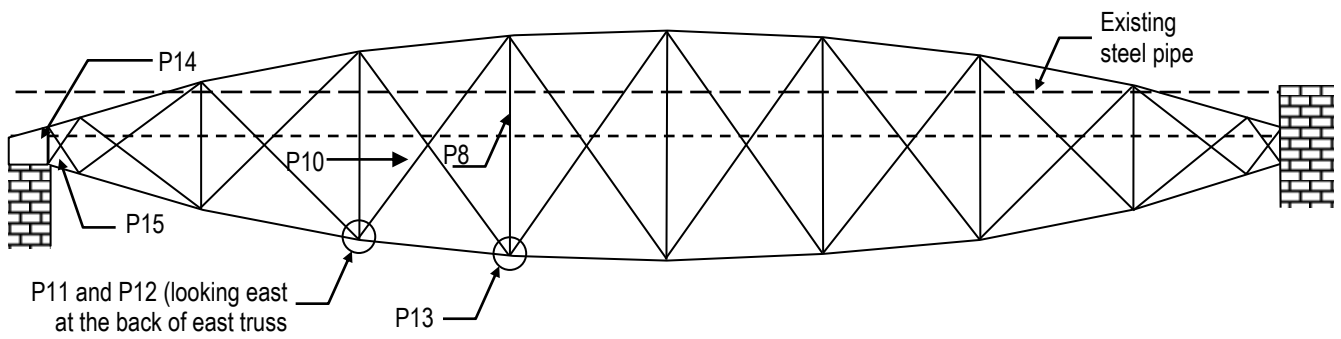


Figure1: Old Pabst brewing campus map



a) East truss



b) West truss

Figure 2: Pabst sign supporting longitudinal trusses



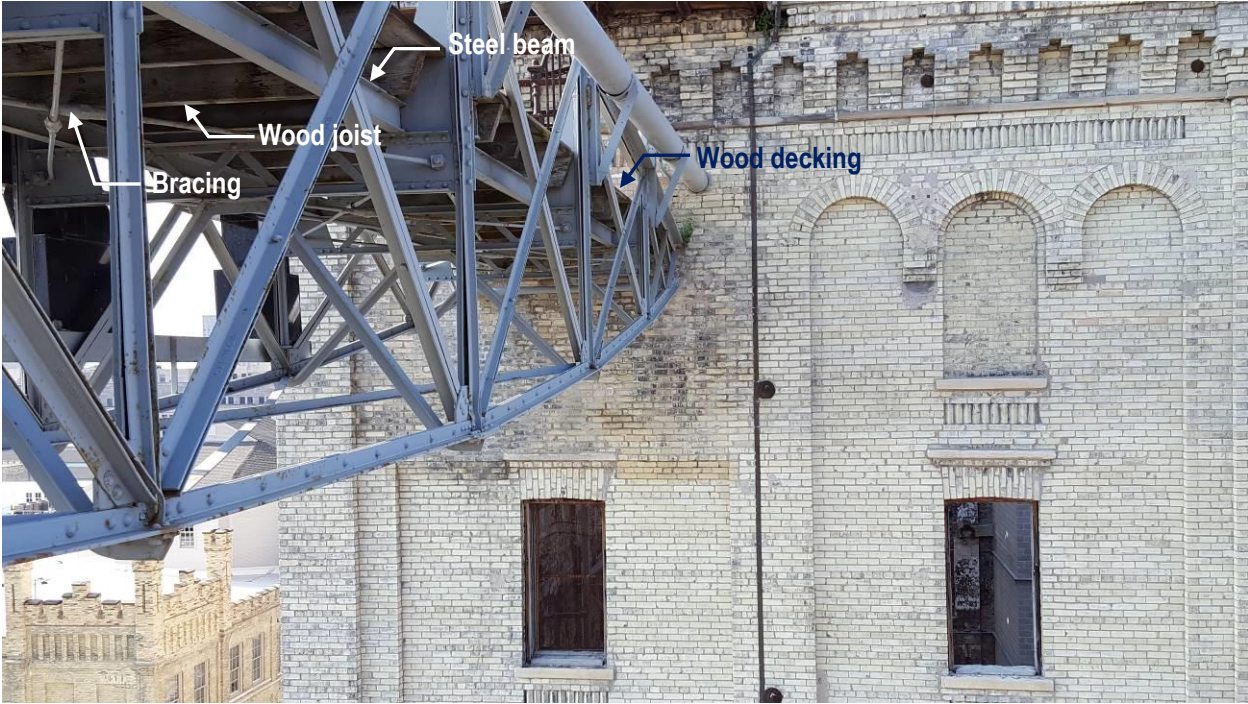
P1 Pabst sign bridge (looking west)



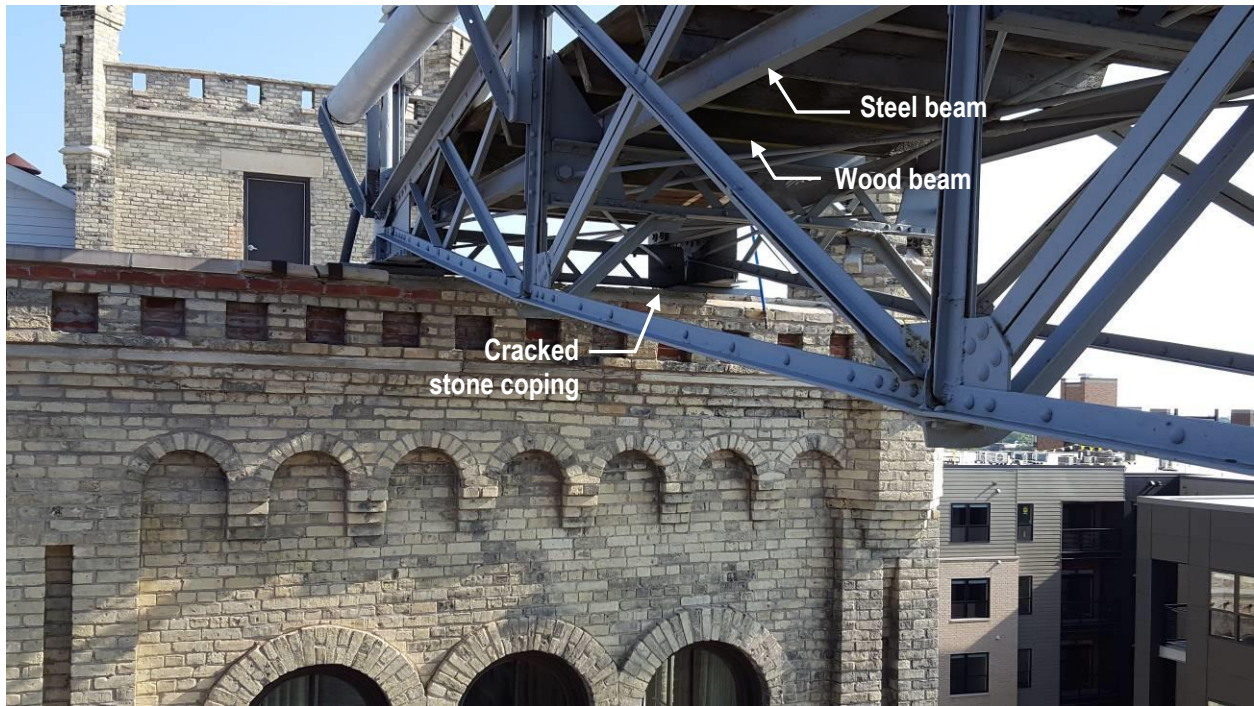
P2 Pabst sign bridge (looking east)



P3 Pabst sign bridge (bottom view).



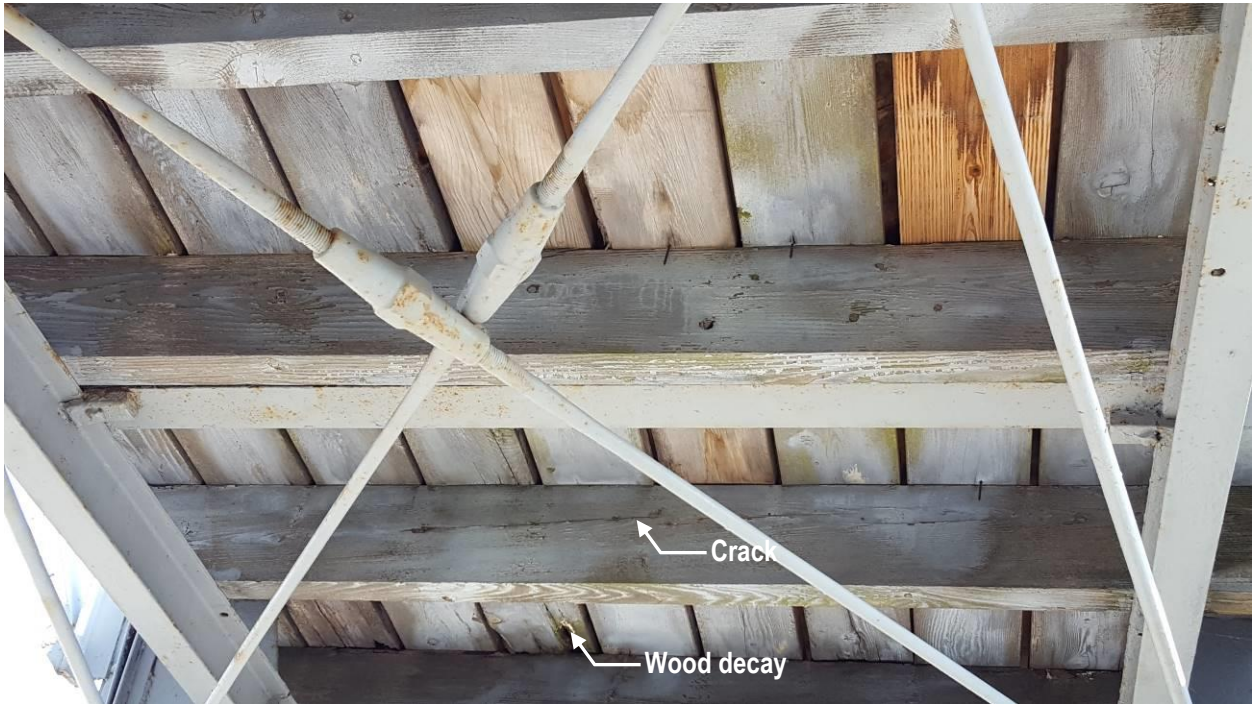
P4 Pabst sign bridge support (south end).



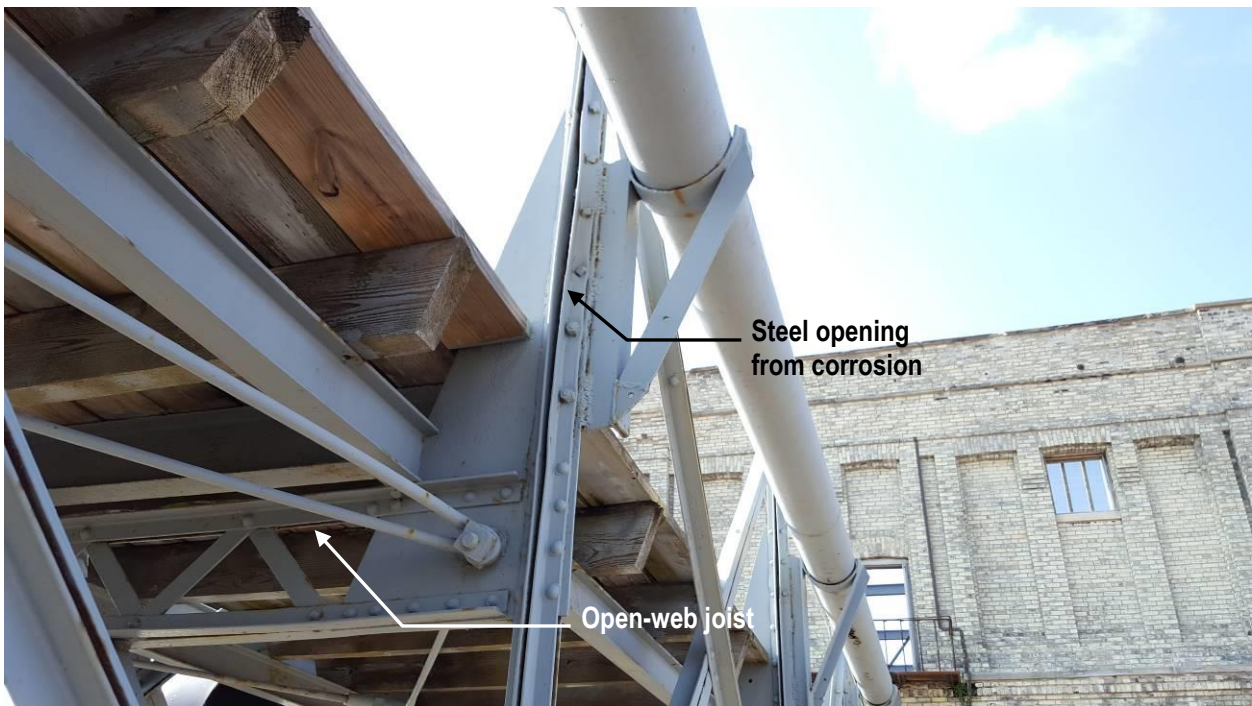
P5 Pabst sign bridge support (north end).



P6 Pabst sign bridge with cracked wood joist decay in wood decking



P7 Pabst sign bridge with cracked wood joist and decay in decking.



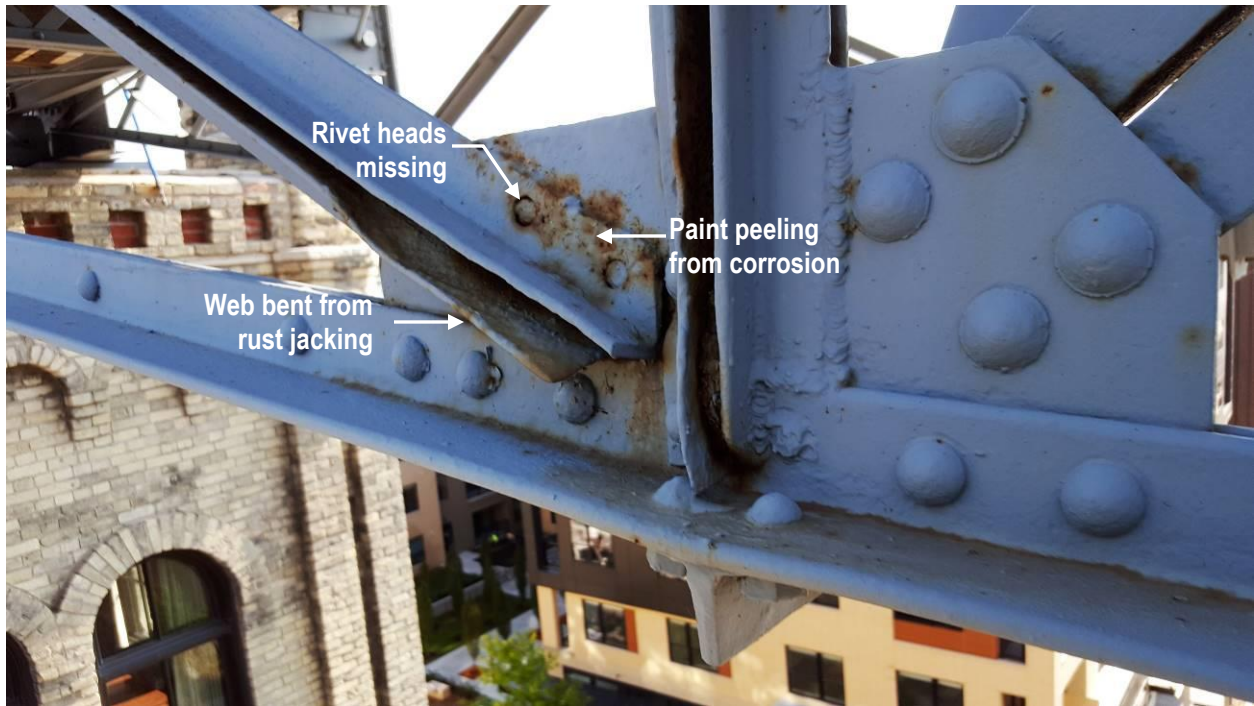
P8 Pabst sign bridge with open web steel joist spanning E-W directions.



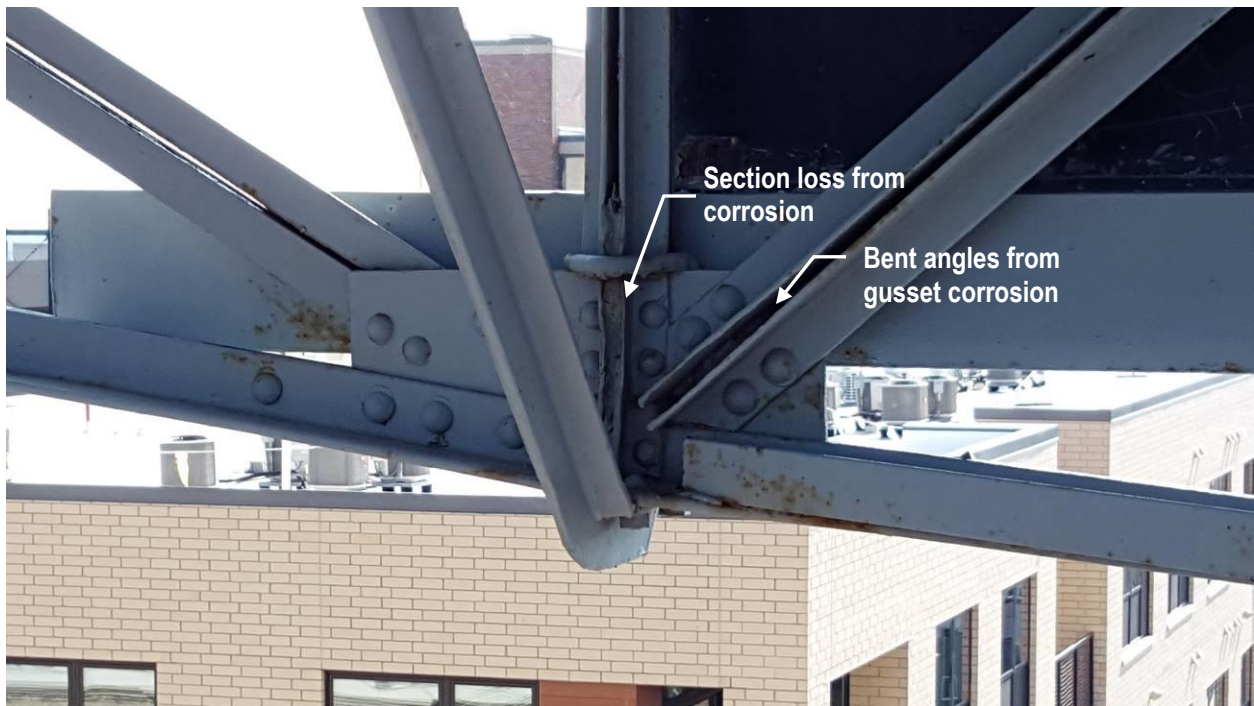
P9 Pabst sign bridge with corrosion at interior transverse open web steel joist support.



P10 Pabst sign bridge with steel corrosion and loss at interior transverse open web steel joist support



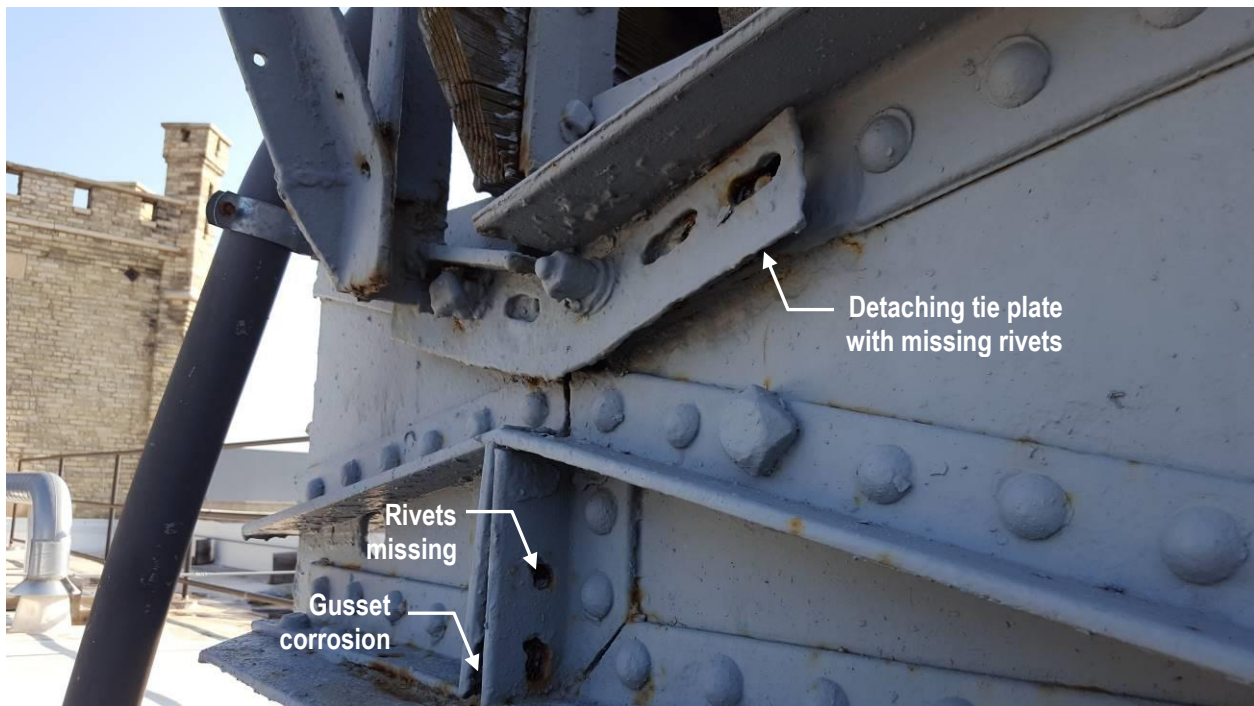
P11 Pabst sign bridge with steel corrosion (west truss).



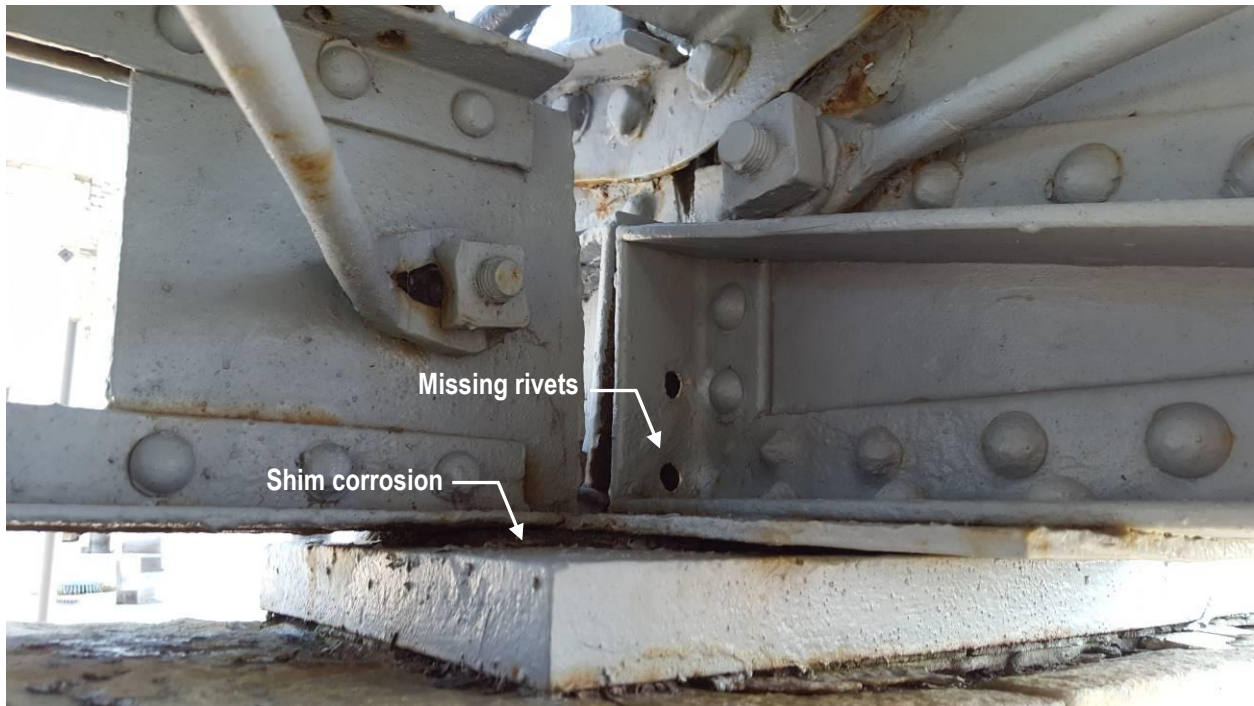
P12 Pabst sign bridge with bent steel angles and section loss from corrosion at panel point (east truss).



P13 Pabst sign bridge with bent steel angles and section loss from corrosion at panel point (east truss).



P14 Pabst sign bridge support end with detaching plate and missing rivets (north end).



P15 Pabst sign support strut with missing rivets at east truss (north end).



P16 Pabst sign bridge with cracked steel connector at guard rail (east truss).



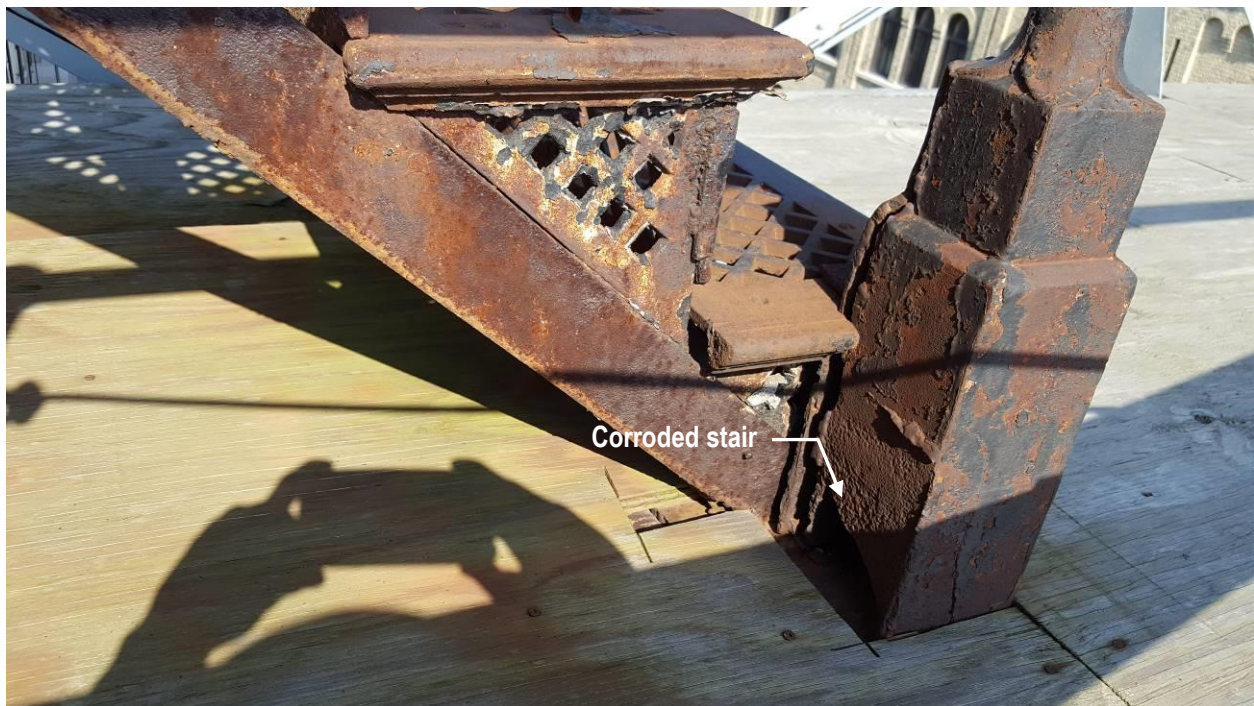
P17 Open joints with mortar loss at Pabst sign bridge south support end.



P18 Cracked and loose stone joints Pabst sign bridge (north support end).



P19 Cracked and loose mortar grouts (north support end).



P20 Metal stair with corrosion at south end.