IL Route 89 Bridge
IL Route 89 spanning the Illinois River
City of Spring Valley
Bureau & Putnam Counties
Illinois

IL HAER No. BU-2014-1

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Illinois Historic American Engineering Record
Illinois Historic Preservation Agency
Springfield, Illinois

Prepared for the Illinois State Archaeological Survey on behalf of IDOT
by:
Heritage Research, Ltd.
Historical/Environmental Consultants
Menomonee Falls, Wisconsin
April 2015

ILLINOIS HISTORIC AMERICAN ENGINEERING RECORD

IL ROUTE 89 BRIDGE
(PENNSYLVANIA THROUGH TRUSS BRIDGE)

Location: IL Route 89 over the Illinois River
City of Spring Valley, Bureau & Putnam Counties, Illinois

USGS Quadrangle: USGS Spring Valley, 7.5 minute, Illinois
Latitude 041° 18' 42.94" N Longitude 089° 11' 59.08" W

Universal Transverse Mercator Coordinates:
Zone 16 Easting 315862 Northing 4575511

Present Owner: Illinois Department of Transportation

Present Use: Vehicular Bridge (IDOT Structure No. 078-0006)

Significance: The IL Route 89 Bridge was completed in 1935 and is a steel, Pennsylvania through-truss structure that carries the highway across the Illinois River. The bridge is significant as a good example of its type, and as a component of the Illinois Division of Highway's initial program in the late 1920s and early 1930s to construct state trunk highway bridges over the Illinois River.

PART 1. HISTORICAL INFORMATION

A. Physical History:

1. Date of Erection: 1935

2. Designer: McClintic-Marshall Corporation (Chicago, IL) for the Illinois Division of Highways[1]

3. Original and subsequent owners: Illinois Department of Transportation

4. Builder or contractor: Wisconsin Bridge & Iron Company (Milwaukee, WI)

5. Alterations and additions: The bridge was rehabilitated in 1989, although its sense of historical integrity and character in general, and that of the truss spans in particular, was retained. An example of an original component that was removed is the structure's original railing. It was replaced by beam guard.

[1] State of Illinois, Division of Highways, "Plans for Proposed State Highway, SBI Route 94, Sec. 1B, Bureau Co./Putnam, Co., -- Bridge over the Illinois River," Engineering Plans located at IDOT, Bureau of Design & Environment (Springfield, IL). Henceforth cited as Original Bridge Plans.

B. Historical Context:

Bridge Development in Illinois

The earliest permanent bridges in Illinois include a few masonry arches built in 1832, when the National Road was extended west from Maryland. At least one other arch was built on the Chicago-Galena Road in the same period. Accounts of early travelers suggest that rudimentary ferries sometimes facilitated passage over larger streams in the region. Planks laid on the ice were also used to cross bodies of water in winter months. In warmer periods, timber structures came to accommodate such travel. Little is known of the pile trestles or half-submerged floating platforms used, both of which are mentioned in pioneer memoirs. All were subject to risks, as well as frequent wash-outs by high water.[2]

As settlers established permanent communities, "experienced mechanics" – either self-taught or from New England shipyards – were attracted to the frontier to erect covered bridges. An estimated two to three hundred covered bridges were built in Illinois between 1820 and 1900, of which few remained at the turn of the 21st Century.[3]

Railroads improved upon the early timber structures. But by the late 1850s, their need for stronger bridges encouraged the development of iron fabrications, which were followed after the 1870s by those made of steel. The development of steel trusses in the second half of the nineteenth century contributed to the rapid expansion of railroads, settlement and industrialization of a growing America.[4]

Pennsylvania Through-Truss Bridges

The earliest truss bridges date to the ancient period and were constructed of wood. These early bridges utilized king or queen posts to transfer the load placed upon the deck to diagonal beams that were anchored to each abutment. The deck, diagonals and posts combined to form a triangle, which is among the strongest of all geometric shapes. Pennsylvanian Theodore Burr constructed in 1803 a wooden bridge that combined several king post trusses with an arch to form a long bridge that possessed significant strength. He later patented his design and it became known as the Burr

[2] John R. Nolen and the Illinois Department of Transportation (IDOT), *Ms. on file at IDOT* (1995), 310ff; Milo M. Quaife, *Chicago's Highways Old and New* (Chicago: D.F. Keller & Co., 1923), 69ff.

[3] Russell M. Garrard, "Early Bridges in Central Illinois," in *Heritage of Mid-Illinois Engineering* (Capital City Chapter of the Illinois Society of Professional Engineers, circa 1976), 15ff; IDOT, *Historic Bridge Survey List* (Springfield, IL: Bureau of Location and Environment, 1992, 2004).

[4] Walter V. Voss, "How New Materials Increased Man's Building Ability," in *Centennial Transactions* (New York: American Society of Civil Engineers, 1953), 829ff.

Arch Truss.[5]

Other American bridge designers expanded upon Burr's design and created their own patents. All exclusively called for wood, which was difficult to use in tension (the act of pulling apart). It was also prone to fire, as well as catastrophic failure after prolonged exposure to the elements. William Howe partially solved these problems in 1840 by patenting the Howe Truss. This type of truss bridge used wood for elements (diagonals) held in compression (the act of pushing together), while wrought iron was substituted for members (verticals) placed in tension. Initially, railroads constructed significant numbers of Howe Trusses. But the combination of wood and iron suffered from several infamous failures of railroad bridges. Railroad companies demanded the design of an all-metal bridge as a result.[6]

One of the earliest truss bridge designs that lent itself to all-metal construction was the Pratt Truss, which was patented in 1844 by Thomas and Caleb Pratt. A Pratt Truss was the reverse of a Howe Truss in that its verticals, with the exception of the hip vertical next to the inclined endpost, acted in compression, while diagonals are placed in tension. A typical Pratt Truss displays heavy vertical beams constructed of steel plates and angles while diagonals are much more slender and comprised of steel rods or smaller-scale plates and angles. The first Pratt Trusses were constructed with a combination of wrought iron and wood. Squire Whipple utilized the Pratt design when he began to build in the 1840s all-iron bridges. Pratts were designed for both pony and through-truss conveyances.[7]

The structural problems inherent to both cast and wrought iron were solved after the Civil War when new processes made steel economically viable. Much more elastic and stronger was steel, which acted well in both compression and tension. In 1874, the Eads Bridge across the Mississippi River at St. Louis was the first bridge constructed of steel.[8]

The IL 89 bridge is a Pennsylvania Truss variation of a Pratt. It was developed in the mid-1870s specifically to accommodate the construction of extended span structures for railroads. The bridge-type, which was adapted for highway use in the decade following, was notable for its seven-sided top chord, as well as the fact that its panels were subdivided by full or half-length verticals and additional diagonals. The

[5] T. Allen Comp and Donald Jackson, "Bridge Truss Types: A Guide to Dating and Identifying," in *History News* 32:5 (May 1977): nonpaginated. *History News* is published by the American Association for State and Local History.

[6] Comp and Jackson, "Bridge Truss Types."

[7] Ibid.; Jeffrey A. Hess and Robert M. Frame, *Historic Highway Bridges in Wisconsin* (Madison, WI: Wisconsin Department of Transportation, 1998), Vol. 2, Part 1, 19-23.

[8] Comp and Jackson, "Bridge Truss Types.

Pennsylvania Truss was used on highway bridges through the 1920s, although it was not a common type of highway bridge.[9]

City of Spring Valley

Henry J. Miller and his son-in-law Charles J. Devlin organized the Spring Valley Coal Company in the early 1880s. The pair obtained the right to mine 5,000 acres in Hall Township, near the Illinois River, which at the time was devoted to agriculture and supported a population of just over 1,000 people. Miller and Devlin also purchased land and platted in 1884 what would become the city of Spring Valley. They wanted to sell homes to those who came to work in the mines. Spring Valley was incorporated in 1886 and a spur of the Chicago & North Western Railroad from DeKalb was completed to the community two years later. It touted in 1900 a population of 6,214 with about 80 percent of those employed working in the four coal mines that ringed the city. Accommodated by excellent transportation facilities on the Illinois River, as well as several adjacent rail lines, coal mining dominated the Spring Valley economy until the late 1920s when larger coal seams in southern Illinois surpassed those to the north. Spring Valley subsequently emerged as a prominent grain shipping location upon completion in the 1930s of the Illinois Deep Waterway. It claimed several riverside loading terminals.[10]

Development of IL Route 89

The State of Illinois passed in 1918 a $60 million bond issue to fund paving roads throughout the state. This amount was augmented by matching federal funds allocated by the Federal Aid Road Act of 1916. A significant factor that affected the selection of a roadway for federal aid was if the route supported a Rural Free Delivery mail route. One of the first, and ultimately most famous, routes selected in Illinois for paving was the "Pontiac Trail," which extended from Chicago to St. Louis. It was identified as State Bond Issue (SBI) Route 4, much of which later became US Route 66.[11]

Parts of present-day IL Route 89 were marked in the late 1920s on state maps as undesignated earthen roads. The conveyance was paved by 1931 from its southern

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[9] Parsons Brinckerhoff & Engineering and Industrial Heritage, *A Context for Common Historic Bridge Types, NCHRP Project 25-25, Task 15* (Washington, D.C.: Transportation Research Board, 2005), 3-37, Viewed on 10 May 2015 at http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(15)_FR.pdf.

[10] *Past and Present of Bureau County, Illinois* (Chicago: The Pioneer Publishing Company, 1906), 119; John H.M. Laslett, *Colliers Across the Sea: A Comparative Study of Class Formation in Scotland and the American Midwest, 1830-1924* (Champaign, IL: University of Illinois Press, 2000), 128-30; "Spring Valley History," Material online at www.spring-valley.il.us, Accessed March 2015.

[11] Michael Wallis, *Route 66: The Mother Road* (New York: St. Martin's Press, 1990), 33-35; Susan Croce, Kelly and Quinta Scott, *Route 66: The Highway and its People* (Norman, OK: University of Oklahoma Press, 1988), 7-9.

terminus of Metamora in Woodford County – northeast of Peoria – north through Washburn and Magnolia to present-day IL Route 71 (then identified as IL Route 89 to the west) which it followed west to the Illinois River, thereafter turning north and continuing to Dixon.[12]

IL Route 89 was subsequently rerouted north over the Illinois River via the subject bridge at Spring Valley. (The Bureau to Dixon segment then became IL Route 26.) With this realignment, 89 extended north through the communities of Ladd and Cherry before it terminated at its junction with US Highway 34 near La Moille in Bureau County. The road today follows this alignment for its approximately 56-mile length.[13]

Illinois River State Highway Bridges and the IL Route 89 Bridge

The Illinois Division of Highways considered in 1930 the Illinois River to be "the greatest natural hazard to be overcome in the construction of the State Highway system." No fewer than twenty-six state highways crossed the river or the Chicago Sanitary Canal, which connected the Illinois River to Lake Michigan, at that time. Achieving navigational clearance in anticipation of the Illinois Deep Waterway – a navigation project to connect the Mississippi River to Lake Michigan via the Illinois River – was the primary challenge for designing and building bridges across that river. The first such bridge completed by the Division of Highways was the 1929 Shippingsport Bridge at LaSalle. It consisted of seven, fixed, 200′ spans, as well as a 260′ vertical-lift span. Two additional bridges across the river were completed in 1930 – one at Florence and the other at Pekin. The state completed at Seneca (about 15 miles east of Ottawa) its first high-level, fixed-span bridge across the river. It had a vertical clearance of 47′. The four earlier spans built by the state utilized moveable spans.[14]

The Division of Highways let contracts in 1934 for a high-level, fixed-span bridge at Spring Valley – its ninth bridge across the Illinois River. Preliminary plans called for a structure with a 363′-10″ channel span along with four 200′ spans and fourteen 43′ approach spans. The bridge was designed with a 350′ horizontal clearance and 44′ vertical clearance at the high water mark. The initial budget for the bridge was $337,606.02.[15]

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[12] *Highway Map and Guide of Illinois* (Aurora, MO: Mid-West Map Co., 1928?); *Map of Illinois Showing State Highways* (Springfield, IL: State of Illinois, 1931).

[13] *Map of Illinois Showing State Highways* (1931); *1936 Road Map – Illinois* (Chicago: Rand McNally, 1936); *D-X Road Map of Illinois and the United States* (Chicago: H.M. Gousha, 1940).

[14] Illinois Department of Public Works and Buildings, *Thirteenth Annual Report of Division of Highways* (Springfield, IL: Journal Printing Company, 1931), 26-27; *Sixteenth Annual Report of the Division of Highways* (Springfield, IL: State of Illinois, 1934), 106.

[15] *Seventeenth Annual Report of Division of Highways* (Springfield, IL: State of Illinois, 1934), 47.

This structure replaced the first crossing at this location. It was a multiple-span, steel truss bridge with a swing span that was built in 1890 by the Milwaukee Bridge & Iron Company. That $25,000 bridge was built with funds provided to the City of Spring Valley and townships of Hall and Granville. It was low to the river and featured a wooden deck. The U.S. Army Corps of Engineers closed the bridge in 1931 because the swing span apparatus required repairs. The result was that 700 cars a day were detoured to other river crossings. Spring Valley paid in October 1932 for those repairs in order to minimize the business lost to its downtown merchants.[16]

A state building program for the year of 1932 included a new bridge at Spring Valley, but it was vetoed by Governor Louis Emmerson. The structure was again included the next year as part of a $17 million federal aid program for roads and bridges in Illinois. Chicago's McClintic-Marshall Corporation designed the bridge for the Illinois Division of Highways. Work began in 1934 and the Wisconsin Steel & Iron Company of Milwaukee completed it, with an attached viaduct over a set of railroad tracks, in the fall of 1935. Governor Henry Horner dedicated the bridge on 19 September 1935.[17]

PART II: ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: The five-span, steel, IL Route 89 Bridge was completed in 1935 and employs a Pennsylvania through-truss design. The structure's abutments, piers, and traffic deck are all of concrete.

2. Condition of Fabric: The bridge was rehabilitated in 1970 and 1989. Repairs to the structural steel were also made in 2008. Despite that, the historic integrity of its concrete and steel truss components appears to be good.

B. Description:[18]

(*Note that a detailed diagram identifying the members of the Pennsylvania spans, the components from which they are fabricated and their measurements, can be found on Pages 15-17 of this report.*) The bridge is a five-span, Pennsylvania through-truss

[16] "Old Bridge Served More than 44 Years," *Spring Valley* (IL) *Gazette*, 26 October 1935; "Start Work on Repairing of Bridge," *Spring Valley Gazette*, 20 June 1932; "Spring Valley Bridge is Reopened," *Spring Valley Gazette*, 6 October 1932; "May Start Work on Valley Bridge this Fall," *Spring Valley Gazette*, 24 August 1933.

[17] "New River Bridge is Impressive," *Spring Valley Gazette*, 26 October 1935; "Spring Valley Bridge Dedication and Celebration," *LaSalle* (IL) *Daily Post Tribune*, 17 September 1935.

[18] Measurements for this bridge were taken in the field, as well as gleaned from original plans provided by IDOT. Fieldwork was limited to components that could be reached from the road deck without aid of ladders, boats or other equipment. The massive nature of the bridge limited the ability to determine individual measurements of specific components.

structure with multiple-span (six on south and eight on north), post-and-beam approaches. It is 1,773'-11¼" long. The traffic deck is 23' wide and paved with concrete. The structure's two abutments, twelve approach piers and six, Pennsylvania Truss-carrying main piers are constructed of concrete. The bridge is oriented on a north-south axis. All connections are riveted.

Approach Piers:[19]

The approach piers are of concrete and anchored on concrete piles. Each pier consists of three columns that rise vertically and support a top beam. The south approach includes five piers, while the north approach contains seven. Both approaches rise in grade to meet the main part of the bridge.

Both the southern and northernmost piers have 26'-6" long top beams and foundations. The foundation for the south pier is 11'-6" wide and anchored to 18 piles, while that of the north is 15'-0" feet wide and tied to twenty-one piles. The three columns associated with the south pier are 10'-6" long at the base and taper to a length of 2' at the top, the length of the pier being parallel with the bridge's length. The three columns in the northernmost pier are 14'-0" feet long at the base and taper to a 2' length at the top, again, with the pier length paralleling that of the bridge. The distance between each 2' wide upright is 9'-0". Regarding height, the rise of the south pier is 24'-2½" while that to the north is 31'-5½". The distance from the southern and northernmost piers to the next intermediate pier is 41'-6".

The twelve intermediate, approach piers are identical in form. Each foundation is 30' long by 7'-6" wide and anchored to ten, concrete piles. The top beam of each is 25'-8" by 5'-8" and supported by three, 3' by 3', squared uprights (posts) each of which is separated by a distance of 8'. The heights for piers 2 through 6 on the south side are 23', 25'-3", 27'-6", 32'-6" and 34'-9", respectively, while the heights for piers 7 through 13 on the north side are 30'-9", 28'-6", 25'-6", 23'-3", 21', 18' and 15'-9". The distance between each pier is 43'.

Pennsylvania Truss Bridge Piers:[20]

Six concrete, two-course piers support the five Pennsylvania through-truss spans. The piers rise from foundations anchored to untreated timber piles. The first course is solid and rounded on both its up and downstream ends. The second course consists of two columns that rise from the first. They are crowned by a top chord that supports the bridge and its deck. Truss bridge piers 1 and 6 are the outermost, while 2 and 5 are the next. Piers 3 and 4 support the primary, center span of the bridge.

[19] All measurements derived from original bridge plans.

[20] All measurements gleaned from original plans. Several measurements on these plan sheets included fractional inches that were illegible and, as a result, measurements were rounded down to the nearest inch.

Piers 1 and 6 rise from an underwater/underground foundation that is anchored to 119 timber piles and that is 50'-6" long by 20'-6" wide. Each pier consists of a solid, 33'-0" tall base, the width of which tapers from 9'-3" at the base to 6'-6". Rising therefrom are two, 17'-5" tall columns. Each column is 5'-2" long and 6' wide. They are tied together at the top by an elliptical arch and crowned by a beam. A distance of 20' separates the columns. The length of the top beam is 31'-4". The total height of the pier from the foundation to its top is 63'-6 ".

Anchored to 144 timber piles is the 53'-6" by 23'-6" foundation for piers 2 and 5. A 41'-4" tall base rises therefrom, the width of which tapers from 10'-3" at the base to 7'-6". Thereafter do two, 27'-5" tall columns rise. Each is 5'-2" long while the width tapers from 7'-1" at the bottom and 6' at the top. The resulting distance between the columns, which are tied together at the top by an elliptical arch and crowned by a top chord, is 20'. The length of the top chord is 30'-4" and the total height from foundation to top is 83'-7".

Pier 3 supports the south end of center span. It rises from a 53'-6" by 23'-6" underwater foundation tied to 144 timber piles. The first course of the pier consists of a 53'-6" tall component, the sides of which taper from 11'-11" at the base to 7'-11". From that rises two, 53'-1" (±) tall columns, each of which is 6'-2" long and the width of which decreases from 7'-6" at the bottom to 6' at the top. A distance of 20' separates the two columns which are connected by an elliptical arch. The total height of the pier is 93'.

The north end of the center span is supported by Pier 4. Its 52' by 23' foundation is anchored to a foundation of, again, 144 timber piles. The first course of the pier is 58'-11" tall, the width of which tapers from 12'-7" at the base to 7'-11". Rising therefrom are two, 55'-7" tall columns. Each is 6'-2" long and 7'-6" wide at the bottom, a width that tapers to 6' at the top. An elliptical arch ties the columns, which are 20' apart, together at the top. The length of the pier is 30'-2" at its crown, while 101'-7" is the total height of the pier from its foundation to its top.

Pennsylvania Truss Spans:

The primary component of the bridge is the five spans that traverse the Illinois River. The two spans to either side of the central span (spans 1, 2, 4 and 5) are identical. Each is about 200' long. The spans claim eight panels each and have inclined end posts and top chords that are fabricated from plates, channels and lacing and that measure 15½" by 20". The hip verticals are 8¼" by 11" and fabricated from back-to-back angles and occasional (batten) plates. The five intermediate verticals are comprised of channels and lacing and measure 9" by 17½". Panels two, three, six and seven have single, 8¼" by 11" diagonals fabricated with back-to-back angles and occasional plates. Panels four and five are notable for their two diagonals (arranged as an "X"), comprised of angles, back-to-back and occasional plates, the dimensions of which are 7¼" by 11".

The center span, which accommodates barges and commercial river traffic, is 362'-10" long and has inclined endposts and top chords comprised of plates, channels and lacing, the dimensions of which are 25" by 28". The inclined endposts are braced vertically at their midpoints with 8¼" by 16¾" members built from back-to-back angles and occasional plates. Also comprised of back-to-back angles with occasional plates are the 10¼" by 16¾" hip verticals. This span claims nine intermediate verticals all of which are 8¼" by 16¾" and fabricated from angles back-to-back and lacing.

Panels 1 and 14 of the fourteen panel span are defined by the inclined endposts and their mid-point connection with outermost verticals. Panels 2 and 13, defined by the previously referenced and hip verticals, each contain a 10" by 17"diagonal of channels and lacing. Panels 3 and 12 contain two diagonals, the first being tied to the lower chord at its connection with the hip vertical and extending to the half-way point of the next vertical. It is 10" by 17" and fabricated from channels and lacing. The second diagonal connects with the top chord and hip vertical and extends the width of two panels to that point where intermediate verticals 2 and 8 connect with the lower chord (the inside verticals of panels 4 and 11). They are 12" by 17" and built of back-to-back angles and occasional plates. Panels 5 and 10 have a subordinate, mid-point horizontal member, as well as a 10" x 17" diagonal of channels and lacing that extends from the horizontal connection point with intermediate verticals 3 and 7 back to intermediate verticals 2 and 8 and their connection to the lower chord. Panels 5 and 10 also contain a 10¼" by 16¾" diagonal of back-to-back angles and occasional plates that is connected to intermediate verticals 2 and 8 and their connection to the top chord, and that extend through panels 5 and 10, as well as 6 and 9. They connect to the lower chord where do intermediate verticals 4 and 6. Panels 7 and 8 are at the center of the span and tied together by intersecting diagonals strengthened by a horizontal member. The diagonals are 10" by 17" and fabricated from channels and lacing.

C. Setting: The bridge spans the Illinois River. Its north end is separated from the City of Spring Valley by a large, man-made pond to the northwest and a farm field to the northeast. Two barge terminals are also immediately to either side of the bridge's north end. Beyond that is the City of Spring Valley, which generally consists of modest one and two-story residential and commercial structures. The territory at the bridge's southern end claims a yacht club and recreational entity to the southeast and another barge terminal to the southwest. Wooded and farmland extends beyond.

PART III: SOURCES OF INFORMATION

A. Bibliography (Resources consulted, but not cited, are marked with an *)

1. Primary and Unpublished Sources:

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PART IV: METHODOLOGY OF RESEARCH

A. Research Strategy

Research objectives were to place the bridge in its geographic, historic and engineering contexts. A strategy was developed to accomplish those goals that investigated both local and statewide documentary sources. On-site observation and investigations of the bridge were also part of the research plan.

B. Research Process

1. Visited bridge site to review conditions and reconcile with project plans.

2. Searched repositories in Springfield and Spring Valley for historic background material relating to general road and bridge development in Bureau and Putnam counties and the historic development of IL Route 89.

3. Prepared draft of report, noting needs for special historic and field attention.

4. Internal document review at Heritage Research, Ltd.

5. Completed all revisions and submit to IDOT.

C. Archives and Repositories Used/Consulted:

Illinois Department of Transportation
2300 S. Dirksen Parkway
Springfield, Illinois 62764
(Bridge Plans)

Illinois State Archives
Norton Building
State Capitol Complex
Springfield, Illinois 62756
(IDOT Records, Local Government Records Index and Maps)

Illinois State Historical Society Library
Abraham Lincoln Presidential Library
112 N. 6th Street
Springfield, Illinois 62701-1507
(Histories, Newspapers)

Illinois State Library
300 S. 2nd Street
Springfield, Illinois 62701-1796
(Map Collection and Histories)

Richard A. Mautino Memorial Library
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(Newspapers, Local Histories)

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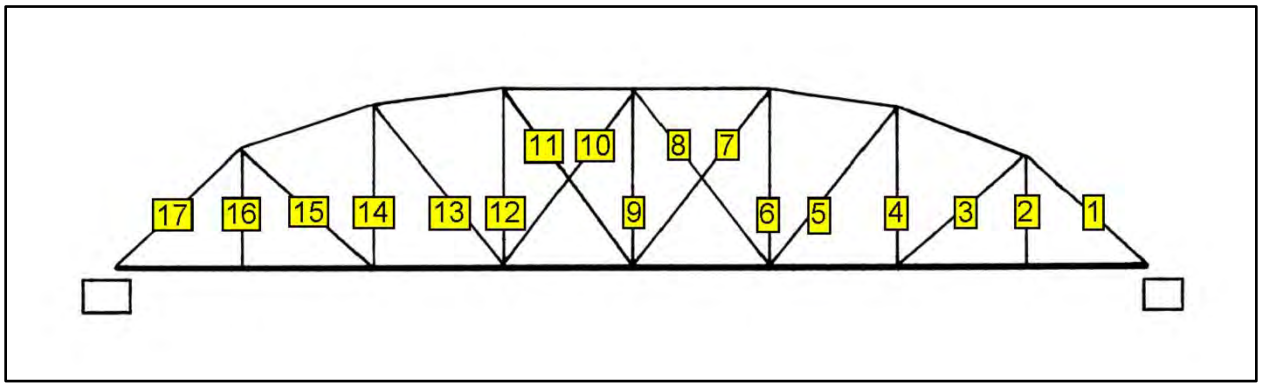
PART V: PROJECT INFORMATION

This IL-HAER archival documentation is submitted in compliance with a stipulation of the Memorandum of Agreement (MOA) between the Federal Highway Administration, Illinois Division, and the Illinois State Preservation Officer, dated with final signature on 12 March 2014. The MOA was executed in compliance with CFR 36 800.6(b)(1)(iv) of the National Historic Preservation Act of 1966, as amended.

South & North Spans (Pennsylvania Through Trusses)

Select Bridge member Measurements:



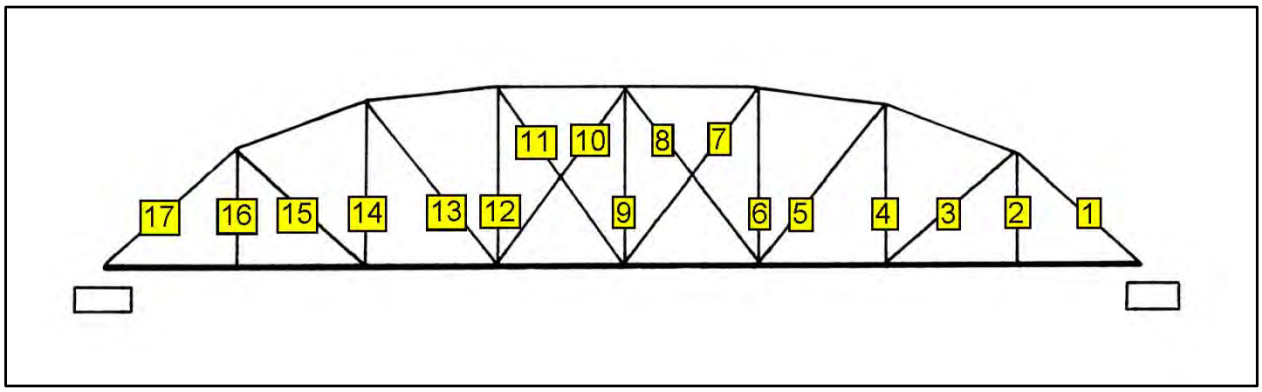
Key to Abbreviations:

P=Plate; C=Channel; L=Lacing; OP=Occasional Plates; A=Angles; b2b=back-to-back

1:	15½" x 20'	P, C, L
2:	8¼" x 11"	A(b2b), OP
3:	8¼" x 11"	A(b2b), OP
4:	9" x 17½"	C, L
5:	8¼" x 11"	A(b2b), OP
6:	9" x 17½"	C, L
7:	7¼" x 11"	A(b2b), OP
8:	7¼" x 11"	A(b2b), OP
9:	9" x 17½"	C, L
10:	7¼" x 11"	A(b2b), OP
11:	7¼" x 11"	A(b2b), OP
12:	9" x 17½"	C, L
13:	8¼" x 11"	A(b2b), OP
14:	9" x 17½"	C, L
15:	8¼" x 11"	A(b2b), OP
16:	8¼" x 11"	A(b2b), OP
17:	15½" x 20'	P, C, L

South Center & North Center Spans (Pennsylvania Through Trusses)

Select Bridge member Measurements:



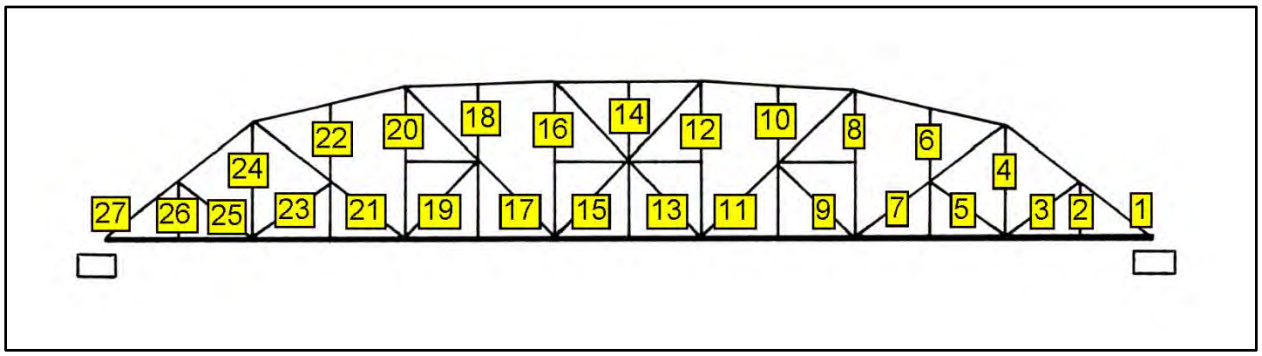
Key to Abbreviations:

P=Plate; C=Channel; L=Lacing; OP=Occasional Plates; A=Angles; b2b=back-to-back

1:	15½" x 20'	P, C, L
2:	8¼" x 11"	A(b2b), OP
3:	8¼" x 11"	A(b2b), OP
4:	9" x 17½"	C, L
5:	8¼" x 11"	A(b2b), OP
6:	9" x 17½"	C, L
7:	7¼" x 11"	A(b2b), OP
8:	7¼" x 11"	A(b2b), OP
9:	9" x 17½"	C, L
10:	7¼" x 11"	A(b2b), OP
11:	7¼" x 11"	A(b2b), OP
12:	9" x 17½"	C, L
13:	8¼" x 11"	A(b2b), OP
14:	9" x 17½"	C, L
15:	8¼" x 11"	A(b2b), OP
16:	8¼" x 11"	A(b2b), OP
17:	15½" x 20'	P, C, L

Center Span (Pennsylvania Through Truss)

Select Bridge member Measurements:



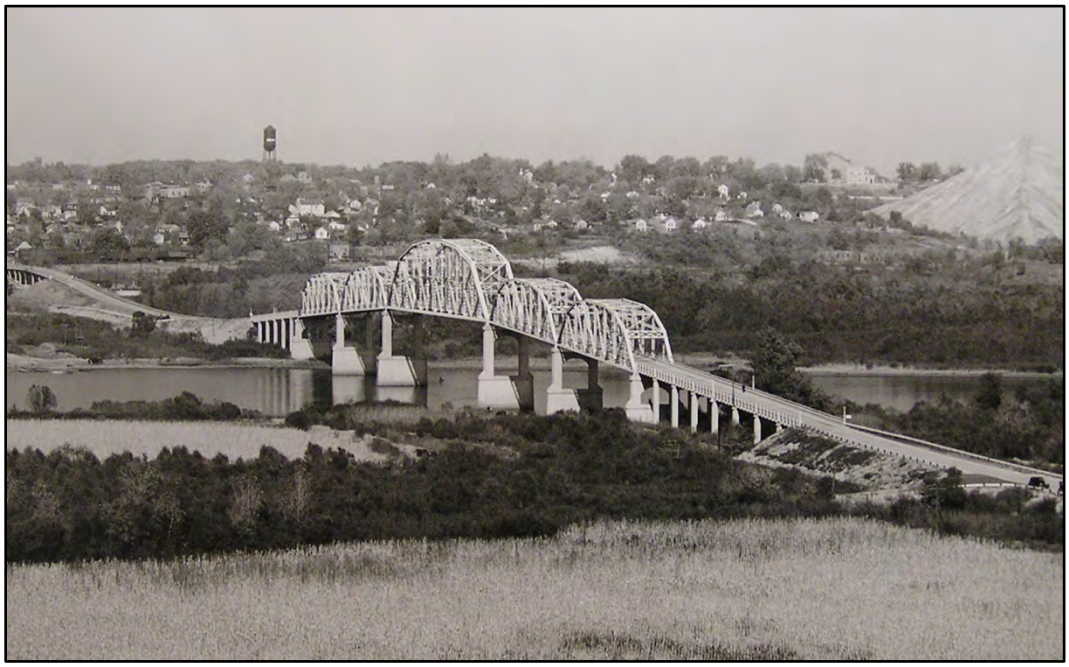
Key to Abbreviations:

P=Plate; C=Channel; L=Lacing; OP=Occasional Plates; A=Angles; b2b=back-to-back

1:	25" x 28"	P, C, L
2:	8¼" x 16¾"	A(b2b), OP
3:	10" x 17"	C, L
4:	10¼" x 16¾"	A(b2b), OP
5:	10" x 17"	C, L
6:	8¼" x 17"	A(b2b), OP
7:	12" x 17"	A(b2b), OP
8:	11" x 16¾"	A(b2b), OP
9:	10" x 17"	C, L
10:	8¼" x 16¾"	A(b2b), OP
11:	10¼ x 16¾"	A(b2b), OP
12:	8¼" x 16¾"	A(b2b), OP
13:	10" x 17"	C, L
14:	8¼" x 16½"	A(b2b), L
15:	10" x 17"	C, L
16:	8¼" x 16¾"	A(b2b), OP
17:	10¼" x 16¾"	A(b2b), OP
18:	8¼" x 16¾"	A(b2b), OP
19:	10" x 17"	C, L
20:	11" x 16¾"	A(b2b), L
21:	12" x 17"	(b2b), OP
22:	8¼" x 17"	A(b2b), OP
23:	10" x 17"	C, L
24:	10¼" x 16¾"	A(b2b), OP
25:	10" x 17"	C, L
26:	8¼" x 16¾"	A(b2b), OP
27:	25" x 28"	P, C, L

(NOTE: The inclined endposts (members 1 & 27) utilize channels built of plates and angles. All other channels on the bridge are rolled.)

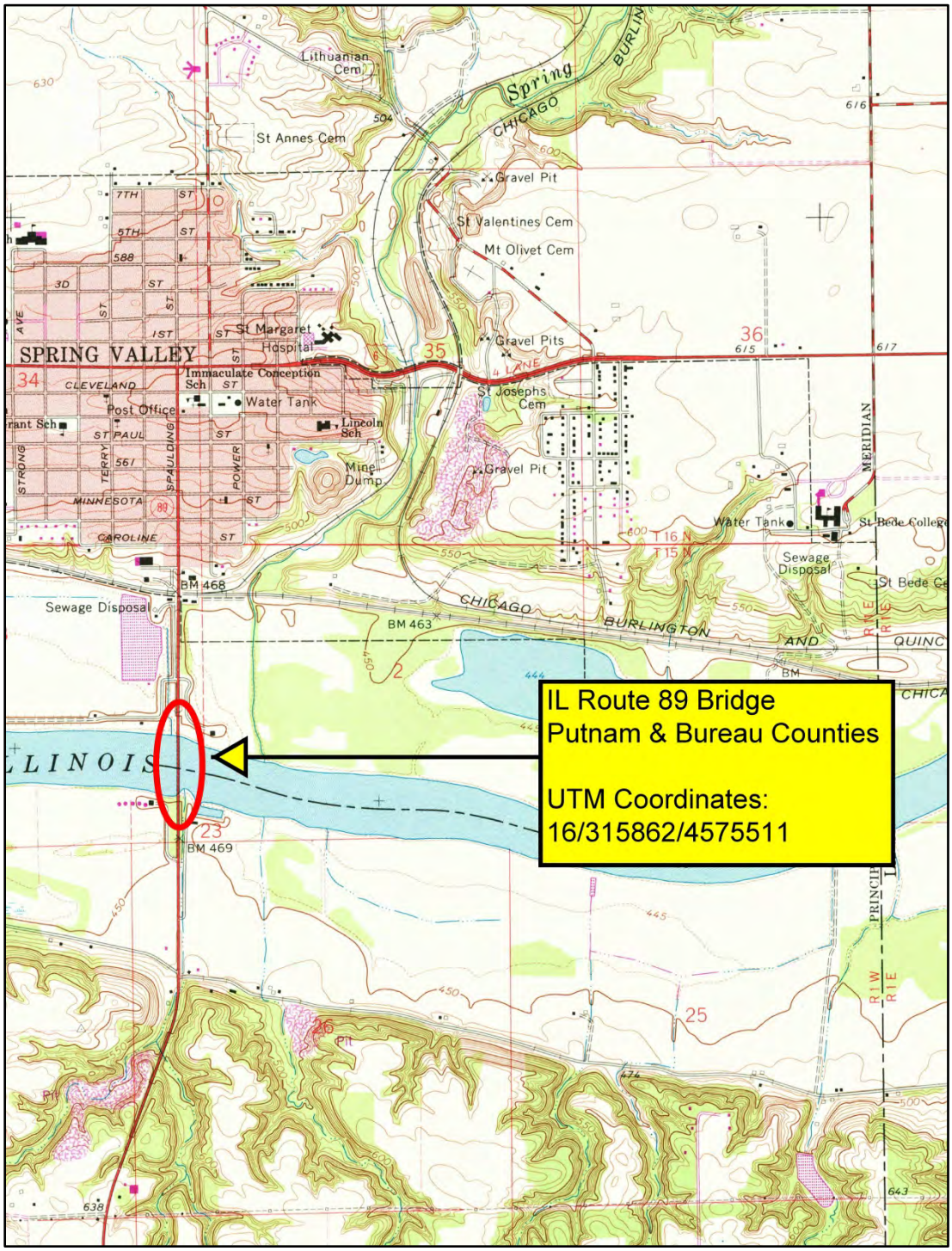
Historic Images of the IL Route 89 Bridge:



View to North Northeast. Art Kistler, IDOT, Photographer, 1939. Photograph online at http://bridgehunter.com/ uploads/comments/14/14082-002.jpg, Accessed May 2015.

This postcard image is undated and unattributable since its back, with the publication information, was not available for viewing. This picture is on file at Heritage Research, Ltd., Menomonee Falls, WI.

USGS Map Identifying the Location of the Bridge:



USGS Geological Survey, *Spring Valley, Illinois Quadrangle* [map], 1966, 1:24000, 7.5 Minute Series (Reston, VA: United States Department of the Interior, USGS, 1966, Photorevised, 1979).

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John N. Vogel, Ph.D., Photographer

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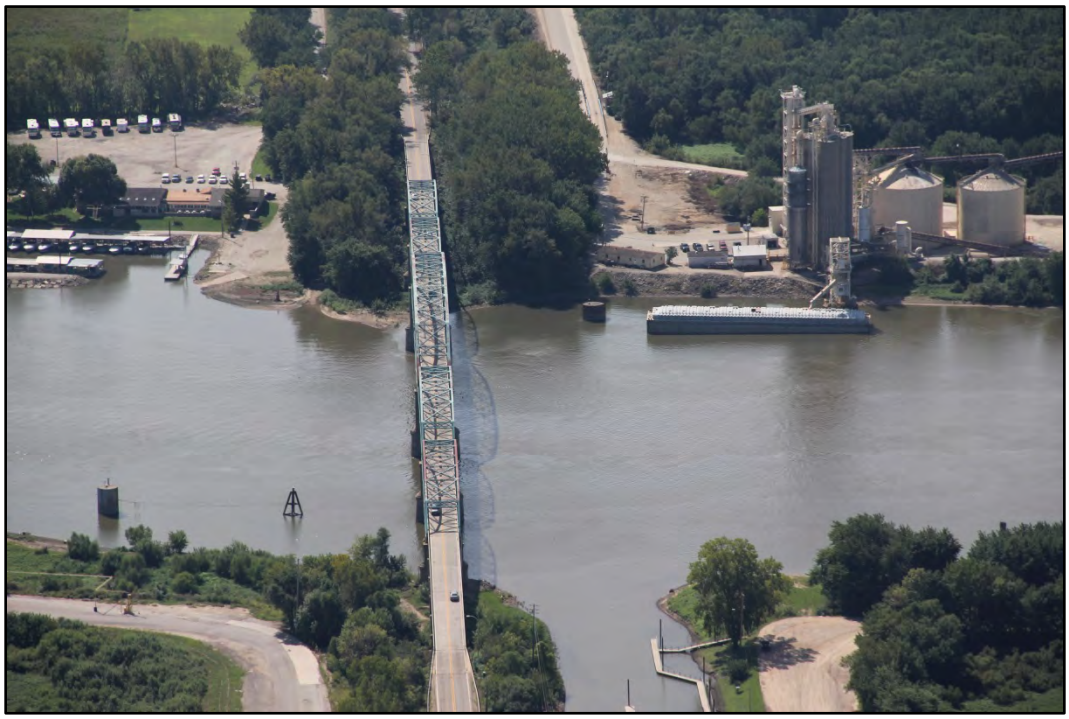

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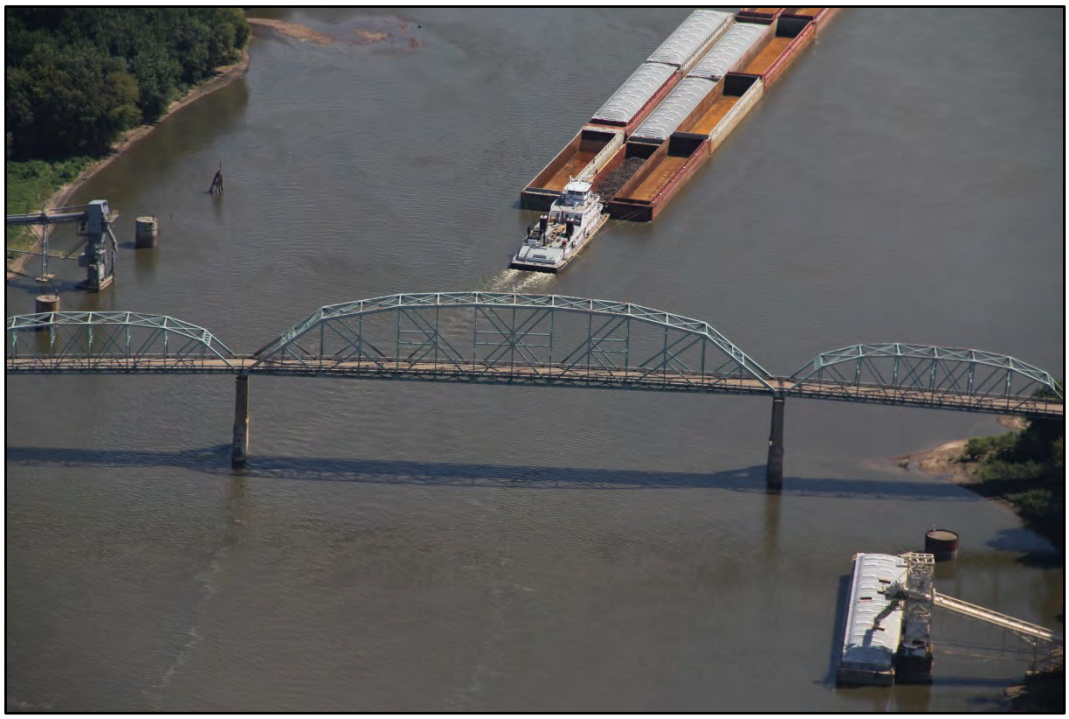

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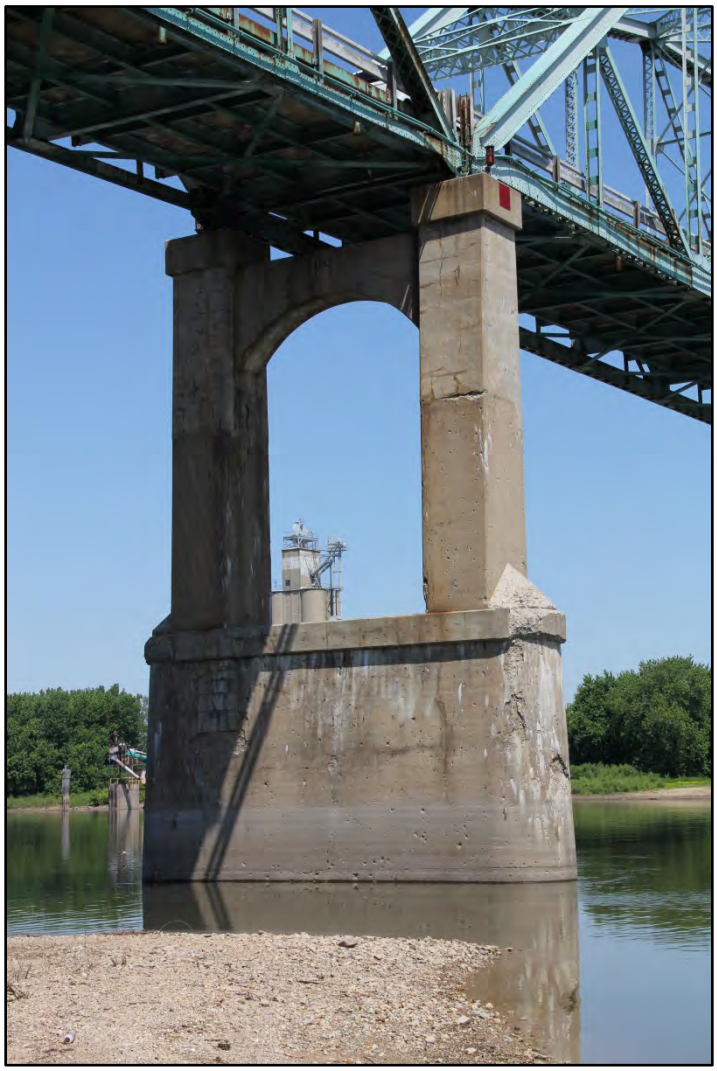

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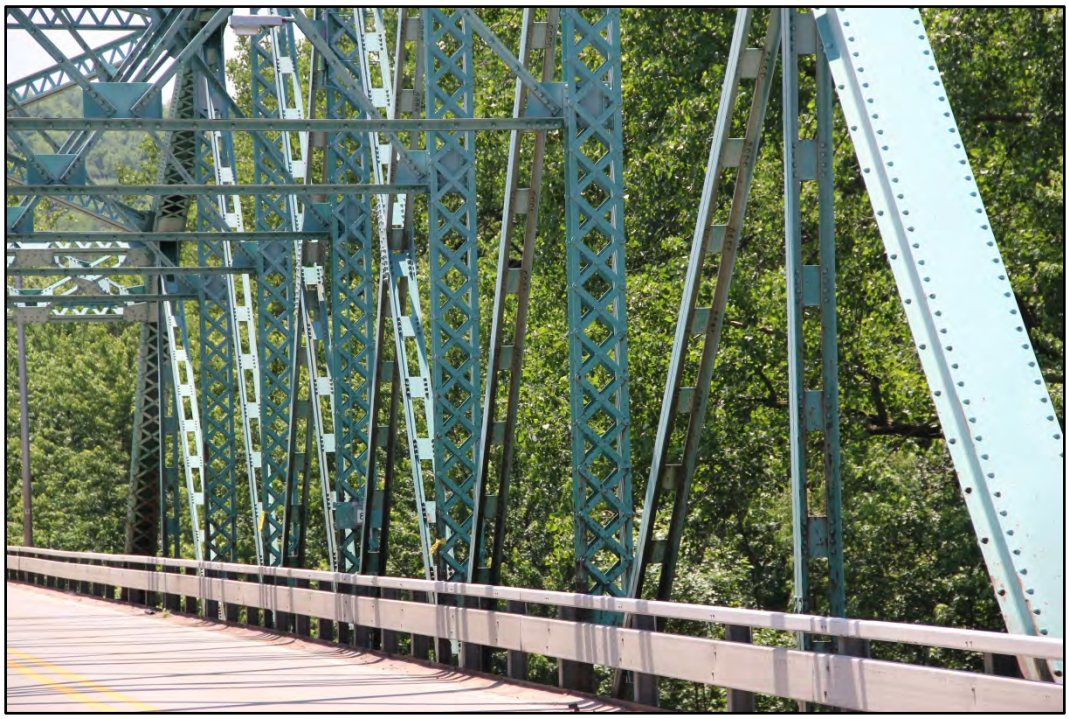

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