Savanna-Sabula/US Highway 52 Bridge IL HAER No. CA-2014-1
US Highway 52 spanning the Mississippi River
City of Savanna
Carroll County
Illinois

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
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ILLINOIS HISTORIC AMERICAN ENGINEERING RECORD

SAVANNA-SABULA/US HIGHWAY 52 BRIDGE

(CANTILEVER THROUGH-TRUSS BRIDGE WITH PRATT THROUGH-TRUSS APPROACH SPAN)

Location: US Highway 52 over the Mississippi River
City of Savanna, Carroll County, Illinois, and Union Township, Jackson County, Iowa

USGS Quadrangle: USGS Savanna, 7.5 minute, Illinois
Latitude 042° 06' 15.23" N Longitude 090° 09' 39.23" W

Universal Transverse Mercator Coordinates:
Zone 15 Easting 734752 Northing 4665035

Present Owner: Illinois Department of Transportation

Present Use: Vehicular Bridge (IDOT Structure No. 008-6000)

Significance: The Savanna-Sabula/US Highway 52 Bridge was completed in 1932 and is a steel, cantilever through-truss structure with a Pratt through-truss approach span that carries the road across the Mississippi River between Savanna, IL, and Sabula, IA. It was listed on the National Register of Historic Places in 1999 and is significant as a good example of its type, as well as an example of a local commercial effort to build a toll bridge across the Mississippi River.

PART 1. HISTORICAL INFORMATION

A. Physical History:

1. Date of Erection: 1932

2. Designer: George A. Maney (Northwestern University, Evanston, IL)

3. Original and subsequent owners:

   Savanna-Sabula Bridge Company
   Illinois and Iowa Departments of Transportation

4. Builder or contractor: Minneapolis Bridge Company (Minneapolis, MN)

5. Alterations and additions: The original wooden deck was replaced with steel grating, as was the eastern approach reconstructed which removed the original ornamental concrete railing. A major rehabilitation effort also occurred in 1985.

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.[1]

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.[2]

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.[3]

Cantilever Through-Truss Bridges

Cantilevered bridges are similar to beam bridges, except that cantilevered bridges utilize balance for support. Much like a diving board, the anchor arm is attached to a pier and provides balance to the cantilever arm that reaches over a pier and extends beyond. It then meets the cantilever arm from the other side in order to form a continuous span. Cantilevers can be balanced on both sides of a pier in order to provide for additional spans. The length of a cantilevered span can be extended even

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[1] 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.

[2] 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).

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

further if a truss span is suspended between the two self-supporting, cantilevered spans. Cantilever trusses can extend either above or below the bridge deck—similar to a deck truss.

The top chords of a cantilevered bridge are in tension while the bottom chords are in compression. Since the bridge is balanced on the pier, the amount of material needed for construction becomes less as the structure extends beyond the piers and over the object below. As a result, the superstructure over the piers is heavier and more elaborate than it is at the center of each span or at either end.

Cantilevered bridges have two distinct advantages. First, for longer spans of comparable strength, they require less material than other types of rigid structures. And second, cantilevered bridges support themselves during construction and require no falsework. This element is important where falsework is physically impossible or financially impractical to use, for example over a wide river used for navigation. A well-designed, cantilevered bridge, consequently, can be one of the most economical types of long-span bridges to build quickly. Such bridges typically are used for crossings that require significant vertical and horizontal clearance, or, in other words, where it would not be practical to build truss, post-and-beam or moveable bridges.[4]

The first known use of a cantilevered bridge was in Japan in the fourth century. Other early examples are noted around the world. The first bridge in the United States to employ such principles is the 1874 Eads Bridge at St. Louis. Although an arched structure, each end of the bridge's three arches was constructed using the principles of cantilevering in order to eliminate the need for falsework, which was impossible to deploy over the Mississippi River.[5]

Perhaps the most notable cantilevered bridge is John Fowler's and Benjamin Baker's Firth of Forth Bridge, built in Scotland in 1890. It has twenty approach spans and three cantilevered trusses, in between which are two suspended trusses. Its total length is 8,400 feet, of which 5,360 feet is cantilevered.[6]

Pratt 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

[4] C.F. Findley, "Cantilever Bridges," in *Transactions of the Canadian Society of Engineers* (Montreal: John Lovell & Son, 1889), Vol. 3: 55-56.

[5] Henry Grattan Tyrrell, *History of Bridge Engineering* (Chicago: 1911), 257, 260.

[6] Ibid., 275-76.

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 had significant strength. He later patented his design and it became known as the Burr Arch Truss.[7]

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 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.[8]

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 were placed in tension. A typical Pratt Truss displays heavy vertical beams constructed of steel plates and angles while diagonals are much more slender and are 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 all-iron bridges in the 1840s. Pratts were designed for both pony and through-truss conveyances.[9]

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 with steel.[10]

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[7] T. Allen Comp and Donald Jackson, "Bridge Truss Types: A Guide to Dating and Identifying," in *History News* 32:5 (May 1977): not paginated. *History News* is published by the American Association for State and Local History.

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

[9] 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.

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

The engineer who designed the subject cantilever bridge with a Pratt through-truss approach span is George Alfred Maney, who was born on 9 December 1888 in Minneapolis, Minnesota. Maney graduated from high school and enrolled in the University of Minnesota where he completed in 1911 his degree in civil engineering. He worked for a year as a draftsman with the Minneapolis & St. Louis Railroad before enrolling in a master's program at the University of Illinois. He graduated in 1914 and returned to the University of Minnesota as an engineering instructor. Maney was hired in 1928 by Northwestern University and eventually became its Dean of Structural Engineering. During his academic career Maney wrote papers about stresses on tall buildings and steel bridges, as well as on the introduction of the slope deflection method of structural analysis – an important concept for analyzing continuous beams and frames. He also worked as a consulting engineer on a variety of projects with the subject bridge and the Santa Fe Terminal Building in Dallas cited as his notable works. He died on 10 March 1947.[11]

City of Savanna

Carroll County was separated from Jo Daviess County in 1839 and the city of Savanna was platted that same year by Luther H. Bowen. The city soon had a flourishing sawmill and provided services to both overland and river travelers. Savanna was designated in 1857 the western terminus of the Racine & Mississippi Railroad. A ferry across the Mississippi River between Savanna and the small community of Sabula, Iowa, operated as early 1862. The toll was fifteen cents per person and 75 cents for a wagon and two horses. Savanna's population in 1910 reached 3,691. It was a division point for both the Chicago, Milwaukee & St. Paul and Chicago, Burlington & Quincy railroads, which were the city's largest employers. The U.S. Army in 1918 established an artillery testing facility seven miles north of Savanna. The site soon was redesignated the Savanna Army Depot and was a munitions storage facility until the mid-1990s.[12]

Development of US Highway 52

The State of Illinois passed in 1918 a $60 million bond issue to fund paving roads

[11] "Changes in Personnel of the Faculty of the College of Engineering," in *The Minnesota Engineer* 23:1 (November 1914): 28; "George Alfred Maney" in *Who's Who in America, 1946-1947* Vol. 24 (Chicago: A.N. Marquis Company, 1946), 1,494.

[12] Newton Bateman & Paul Selby, eds., *Encyclopedia History of Illinois and History of Carroll County* (Chicago: Munsell Publishing Company, 1913), 721-24, 697; "Savanna Army Depot, Savanna, Carroll County, IL," Historic American Engineering Record, HAER No. IL-19, Prepared by Wesley Shank, et. al. (1982), 1-3; E. George Thiem, ed. *Carroll County—A Goodly Heritage* (Mt. Morris, IL: Kable Printing Company, 1968), 150.

throughout the state. This amount was augmented by matching federal funds allocated by the Federal Aid Road Act of 1916. A significant factor that dictated the selection of a roadway for federal aid was if it 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 originally identified as State Bond Issue (SBI) Route 4, much of which later became US Route 66.[13]

As early as 1917, the Indianhead Trail connected Savanna with Galena to the north and Dixon to the southeast via Mt. Carroll. Fifteen percent of this route was paved by 1921. That portion of the Indianhead Trail from Savanna to Mt. Carroll had been designated by 1923 as IL Route 27. This highway soon was extended eastward to Lanark and Brookville before terminating at Polo (Ogle County). IL Route 27 also was part of the Chicago-Iowa Trail which connected Savanna with Chicago via a route that meandered through Mt. Carroll, Polo, Oregon, Sycamore, St. Charles and Lombard. State highway maps indicated by 1926 that Savanna residents had to drive on an unpaved roadway either to East Dubuque or Fulton along IL Route 5 to find a bridge across the Mississippi River. A ferry was available in Savanna as another option. This road was largely paved by 1928 and had been redesignated IL Route 80 (present-day IL Route 84).[14]

When the bridge connecting Savanna with Sabula, Iowa, was completed in 1932, IL Route 27 met Iowa Route 117, which then extended to Cedar Rapids in 1938 and was redesignated as Iowa Route 64. IL Route 27 had been redesignated US Highway 52 by 1935. It ran southeast from Savanna through Polo, Dixon, Morris, and Kankakee before it entered Indiana at Sheldon (Iroquois County). Once across the river into Iowa, USH 52 turned north and ventured to Dubuque.[15]

The Savanna-Sabula US Highway 52 Bridge

The Savanna-Sabula Bridge Company was organized in 1930 by a group of area businessmen to sell stock for the purpose of improving the highway connection between Cedar Rapids, Iowa, and Chicago. The group believed that a bridge across the Mississippi River would enhance business and tourism in the immediate area. The

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[13] 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.

[14] "Map Showing Marked Through Routes in Illinois," Prepared by the Illinois State Highway Department (1917, 1921); "Map Showing Construction Progress on Federal Aid and State Bond Issue Roads," Prepared by the Illinois Department of Highways (1923); *Illinois Official Auto Trails Map* (Chicago: Rand-McNally & Company, 1924, 1925, 1926); *Map of Illinois Showing State Highways* (Springfield, IL: State of Illinois, 1928).

[15] *Official 1932 Illinois Road Map* (Springfield, IL: State of Illinois, 1932); *Official Map of Illinois System of Highways* (Springfield, IL: State of Illinois, 1933, 1935); *1938 Illinois Official Highway Map* (Springfield, IL: State of Illinois, 1938).

company hired George A. Maney to design the structure. Maney was the Dean of Structural Engineering at Northwestern University in Evanston. The bridge cost $750,000 with $190,000 of that coming from the Federal Reconstruction Finance Corporation since the project provided employment during the Great Depression. The Minneapolis Bridge Company completed the fabrication in December 1932. It was dedicated in October 1933 by Illinois Governor Henry Horner. The structure operated as a toll bridge until its $300,000 construction bond was paid.[16]

PART II: ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: The US Highway 52 Bridge was completed in 1932. It employs one Pratt through-truss approach span on the west and three cantilever through-truss main spans. It has concrete piers, steel truss members and a steel grate traffic deck.

2. Condition of Fabric: The structure's historic integrity is good. Its original wooden deck was replaced by one of steel grating and the eastern approach apron was reconstructed, which eliminated its original ornamental railing. It also underwent in 1985 a major rehabilitation prior to Illinois taking sole jurisdiction of the structure.

B. Description:[17] (*Note that a detailed diagram identifying the members of the Pratt and cantilevered spans, the components from which they are fabricated and their measurements, can be found on Pages 18-20 of this report.*) The Savanna-Sabula/ US Highway 52 Bridge is a three-span, cantilever through-truss bridge with a Pratt through-truss approach span immediately to the west. A long, multiple-span, post-and-beam approach supported by pile bents provides access to the west end of the structure, while a broad, paved apron accommodates vehicle access at the east end. The length of the truss portion of the structure is 1,362′-6″. The traffic deck is 20' wide and consists of steel grate. The bridge is oriented on an east-west axis and its five piers are of concrete. All connections are riveted.

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[16] "Bridge Built for Sum of $750,000; 2,200 Tons of Steel," *Savanna* (IL) *Times-Journal*, 6 December 1932; "Savanna-Sabula Bridge Complete in all Details," *Savanna Times-Journal*, 16 January 1933; "Savanna-Sabula Bridge," Bridge history located online at www.iowadot.gov/historicbridges, Accessed April 2015; "Federal Loan for Wilmette Water Works," *Chicago Tribune*, 13 October 1932; "Horner Speaks in Dedicating Savanna Bridge," *Chicago Tribune*, 13 October 1933; Thiem, ed. *Carroll County*, 151.

[17] The measurements used to describe this bridge were taken from original plans, as well as from the structure itself. Field measurements were limited to components that could be reached from the road deck without aid of ladders, boats or other equipment. The complex nature of the original plans, combined with the massive nature of the bridge, limited the ability to glean individual measurements of specific components in some instances.

Image viewed at https://www.flickr.com/photos/45436499@N02/6974704091/ on 08 May 2015. Construction of the Savanna-Sabula Bridge on 29 July 1932. View to West Southwest.

Image viewed at https://www.flickr.com/photos/45436499@N02/6828577832/ on 08 May 2015. Work on the foundation of the Savanna-Sabula Bridge, 18 January 1932. View to East Southeast.

Approaches:[18]

The west approach is 1,265' long and consists of seventeen post-and-beam spans. The grade of the approach gradually rises until it meets the westernmost bridge pier. The east approach consists of a broad, two-span, concrete apron that connects an adjacent north-south roadway (IL Route 84) to the bridge's easternmost pier. The length of the apron is 78'.

Piers:[19]

Five concrete piers support the three-span, cantilevered through-truss and the single-span Pratt through-truss. Piers 1 and 2 carry the Pratt truss, while piers 3 and 4 support the bridge's two cantilevered columns and piers 2 and 5 anchor the cantilever's distant ends. The piers consist of a massive foundation that supports the base from which rises a pair of shafts connected by either one or two horizontal, intermediate chords.

Piers 1 and 2 rise from 15'-5" thick underwater foundations anchored to piles. Each foundation pad measures 24' by 32', while the pier base is 18' by 35'. The combined height of the foundation and base is 34' for pier 1 and 45' for pier 2. Two cylindrical uprights (pier 1: 26'-5"; pier 2: 39"-1") rise from the base. Each upright has a 6' diameter. They are set 17' apart. Pier 1 has one intermediate chord between the two columns, thus creating an opening of 14'-5' between the top of the foundation and the chord and of 6' between the top of the chord and the top of the column. Pier 2 features two chords with opening heights of 8'-1", 13' and 6'. The distance between the outmost point of each column is 29', perpendicular to and across which the bridge deck extends. The total height from the foundation to the top of pier 1 is 60'-5" and 84'-1" to the top of pier 2.

Pier 3 rises from an underwater foundation that is 10' thick. The base built on the foundation is 57'-9" by 35'. A pair of 53'-7" tall uprights with 8' diameters rise from the pier base. The uprights are tied together by two 8' tall horizontal chords which create three, 18'-wide openings. The heights of the openings between the horizontal chords are 10'-9", 16' and 10'-10", bottom to top. The distance between the outermost point of each column top is 34'. The height of the pier, from foundation to top, is 121'-4".

Piers 4 and 5 both rise from foundations that are 10' thick and anchored to bedrock. Each pier consists of a 29'-9" tall base, the length of which is 37'. Pier 4 has 53'-7" tall

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[18] All measurements derived from "Savanna-Sabula Bridge," Original plans prepared by George A. Maney (1931), Plans in possession of Illinois Department of Transportation, Springfield, IL. Henceforth cited as Original Plans.

[19] Ibid.

shafts (8' diameter) while those for pier 5 (6' diameter) rise 33'-2. Pier 4 has three openings between the shafts created by the horizontal chords between the columns. Those openings are 18' wide and have heights of 10'-9", 16' and 7', while the two openings for pier 5 are 17'-5" wide with heights of 16'-2" and 5'. The distance between the outermost point of each column top for pier 4 is 34' while that of pier 5 is 29'. Pier 4's total height is 85'-4" and pier 5's is 54'-11".

Spans:

Span 1 is a Pratt through-truss approach span that is 200'-6" long. The inclined endpost and top chord is an "I" beam that measures 15½" by 14¾". The two, 11" by 13½" hip verticals are of angles and lacing. The eight intermediate verticals are 12" by 14" and of channels and lacings. The span has eleven panels with the outside two defined by the inclined endposts and hip verticals. The center panel is crossbraced with a pair of 11" by 14½" intersecting diagonals of angles and lacing. The next two panels to either side feature single 11" by 14½" diagonals, also of angles and lacing. The outside two sets of full panels also have diagonals (11" by 14") of from angles and lacing.

Spans 2 and 4 are the cantilever's outside spans, each of which is 321' long. The inclined endpost is a 15¾" by 14¾" "I" beam. The hip vertical is fabricated from angles and lacing and measures 10¾" by 14". The verticals that divide these two spans from the central span are constructed of 24" by 15½" "I" beams. Ten verticals are positioned between the hip and central verticals. Each is 12" by 14". The third upright to either side of the center vertical is comprised of angles and lacing while the remaining nine are of channels and lacing.

Those spans also each have twelve panels, the distant one being defined by the inclined endpost and hip vertical. Moving toward the central vertical, panel 2 has one full diagonal while panels 3 and 4 feature a pair of intersecting diagonals. All components are of angles and lacing and measure 11" by 14". Full diagonals built from angles, lacing and plates brace panels 5 through 9. The measurements of those members are 11" by 14½" (panels 5 and 6), 13" by 14½" (panel 7) and 13" by 14" (panels 8 and 9). Panels 10 and 11 display "K" bracing, the lower angle-and-lacing members of which measure 12" by 14". Panel 12 is adjacent to the central vertical and has a "K" braced core reinforced with an intersecting horizontal member. The lower diagonal brace is of channels and lacing and measures 12" by 15". The triangle formed by the lower diagonal is further reinforced with diagonal and vertical 7" by 14" "I" beams.

The third span is the cantilever bridge's middle. It has a length of 520'. The span's two halves are mirror images of each other with the mid-point vertical being comprised of a channel-and-lacing member of 12" by 14". The nine verticals to either side of the mid-point vertical are also 12" by 14". Additionally, the third upright to either side of the mid-point vertical is constructed of angles and lacing while the other eight are fabricated from channels and lacing. There are ten panels to either side of the mid-point vertical. Beginning at that point, panel 1 has a full diagonal of angles and lacing that measures 10½" by 14½". The diagonal in panel 2 measures 10½" by 14½" and is comprised of angles, lacing and plates. Panels 3 and 4 both have 11" by 14½" diagonals of angles, lacing and plates. The diagonal in panel 5 is 13" by 14½" and constructed of angles, lacing and steel reinforcing plates. Panels 6 and 7 have full diagonals (13" by 14") built with angles, lacing and plates. Panel 6 is further reinforced with an 8" by 13¾" mid-level, "I" beam diagonal. Panel 8 displays a "K" brace, the lower member of which is built with channels and lacing and measures 12" by 14". The "K" brace in panel 9 is further reinforced with a short, 7" by 14" "I" beam diagonal. The main lower diagonal is 12" by 15" and constructed of channels and lacing. Panel 10 is adjacent to the central vertical and has a "K" braced core reinforced with an intersecting horizontal member. The lower diagonal is a 12" by 15" beam of channels and lacing. The triangle formed by this diagonal is reinforced with diagonal and vertical 7" by 14" "I" beams.

All four spans are topped with overhead and portal bracing, the individual members of which are fabricated from channels, angles and lacing. Additionally, the lower chords of the cantilevered spans are 14¾" by 16" "I" beams, while the deck beams are 9" by 24¼" "I" beams. The deck beams carry 7" by 16" I-beam stringers set on 3'-9" centers. A railing that is 4" by 18" and 27" high flanks the deck.

Plaques:

A pedimented plaque is located above the bridge's eastern portal. And a second is located on the north side of the east approach apron. Images of these plaques are found in Photographs 34 of 35 and 35 of 35.

C. Setting: The bridge spans the Mississippi River. Its east end is located in the City of Savanna, which generally consists of modest one and two-story residential and commercial buildings. The territory at the bridge's west end consists of a combination of open land, wooded parcels and wet land.

PART III: SOURCES OF INFORMATION

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

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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 investigation of the bridge was also part of the research plan.

B. Research Process

1. Visited bridge site to review, photograph and measure the structure, as well as to reconcile it with project plans.

2. Searched repositories in Springfield for background material relating to general road and bridge development in Carroll County in general, and the historic development of US Highway 52, in particular, as well information regarding early highway bridges across the Mississippi River.

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 Record Group 242.28, Local Government Records Index and Maps)

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

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

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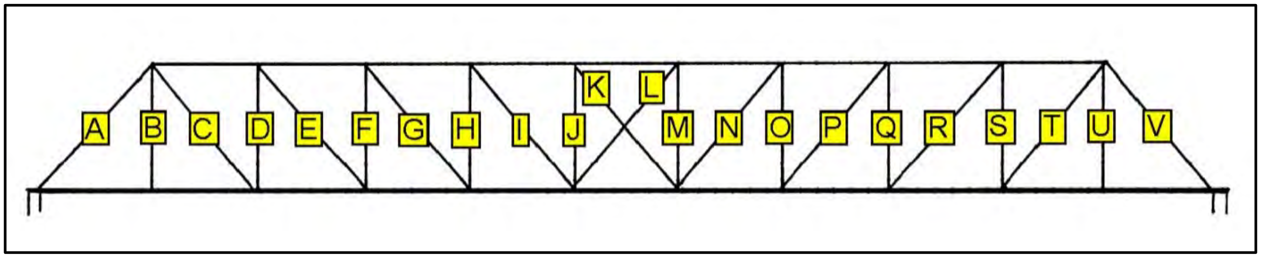
PART V: PROJECT INFORMATION

This IL-HAER archival documentation is submitted in compliance with a stipulation of a Memorandum of Agreement (MOA) between the Federal Highway Administration, Illinois Division, and the Illinois State Preservation Officer, dated with final signature on 09 January 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.

West Approach Span (Pratt Through Truss)

Select Bridge Member Measurements:



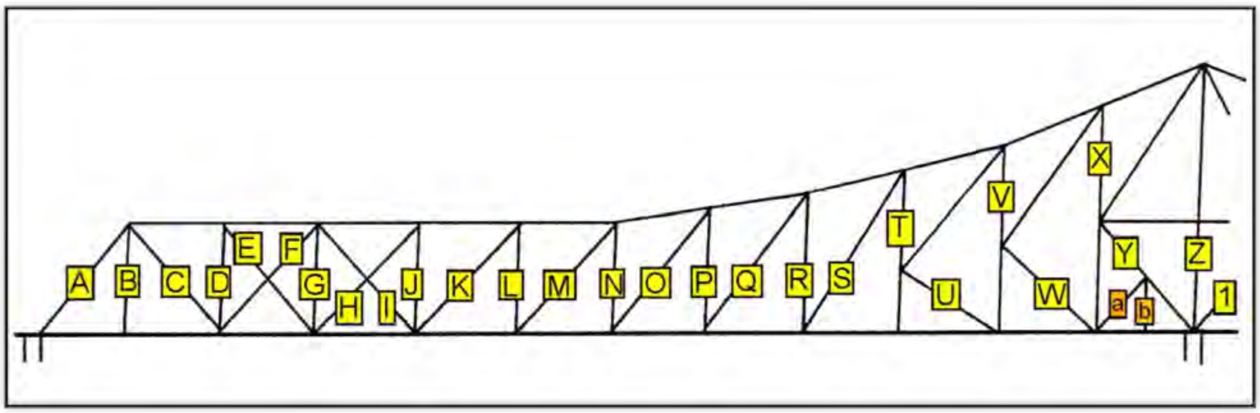
Key to Abbreviations:

I = "I" Beam; C=Channel; L=Lacing; A=Angles; SRP=Steel Reinforcement Plate

A:	15½" x 14¾"	I
B:	11" x 13½"	A, L
C:	11" x 14"	A, L
D:	12" x 14"	C, L
E:	11" x 14"	A, L
F:	12" x 14"	C, L
G:	11" x 14½"	A, L
H:	12" x 14"	C, L
I:	11" x 14½"	A, L
J:	12" x 14"	C, L
K:	11" x 14½"	A, L
L:	11" x 14½"	A, L
M:	12" x 14"	C, L
N:	11" x 14½"	A, L
O:	12" x 14"	C, L
P:	11" x 14½"	A, L
Q:	12" x 14"	C, L
R:	11" x 14"	A, L
S:	12" x 14"	C, L
T:	11" x 14"	A, L
U:	11" x 13½	A, L
V:	15½" x 14¾"	I

West Span (Cantilever Through Truss)

Select Bridge Member Measurements:



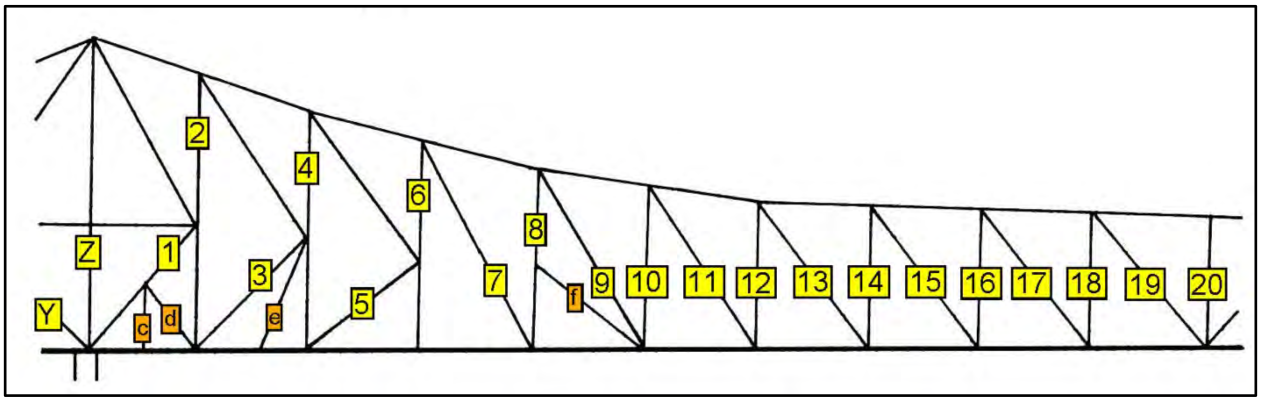
Key to Abbreviations:

I = "I" Beam; C=Channel; L=Lacing; A=Angles; SRP=Steel Reinforcement Plates

A:	15¾" x 14¾"	I
B:	10¾" x 14"	A, L
C:	11" x 14"	A, L
D:	12" x 14"	C, L
E:	11" x 14"	A, L
F:	11" x 14"	A, L
G:	12" x 14"	C, L
H:	11" x 14"	A, L
I:	11" x 14"	A, L
J:	12" x 14"	C, L
K:	11" x 14½"	A, L, SRP
L:	12" x 14"	C, L
M:	11" x 14½"	A, L, SRP
N:	12" x 14"	C, L
O:	13" x 14½"	A, L, SRP
P:	12" x 14"	C, L
Q:	13" x 14"	A, L, SRP
R:	12" x 14"	C, L
S:	13" x 14"	A, L, SRP
T:	12" x 14"	A, L
U:	12" x 14"	C, L
V:	12" x 14"	C, L
W:	12" x 14"	C, L
X:	12" x 14"	C, L
Y:	12" x 15"	C, L
Z:	24" x 15½"	I
a:	7" x 14"	I
b:	7" x 14"	I
1:	12" x 15"	C, L

West One-Half, Center Span (Cantilever Through Truss)

Select Bridge Member Measurements:

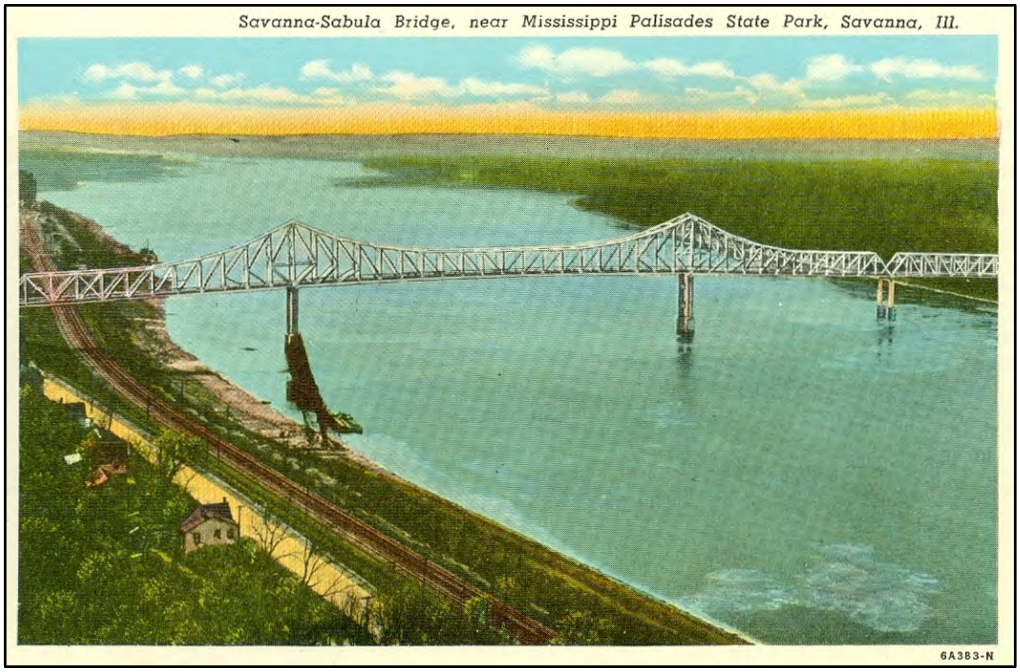


Key to Abbreviations:

I = "I" Beam; C=Channel; L=Lacing; A=Angles; SRP=Steel Reinforcement Plates

Y:	12" x 15"	C, L
Z:	24" x 15½"	I
1:	12" x 15"	C, L
2:	12" x 14"	C, L
3:	12" x 15"	C, L
4:	12" x 14"	C, L
5:	12" x 14"	C, L
6:	12" x 14"	C, L
7:	13" x 14"	A, L, SRP
8:	12" x 14"	C, L
9:	13" x 14"	A, L, SRP
10:	12" x 14"	C, L
11:	13" x 14½"	A, L, SRP
12:	12" x 14"	C, L
13:	11" x 14½"	A, L, SRP
14:	12" x 14"	A, L
15:	11" x 14½"	A, L, SRP
16:	12" x 14"	C, L
17:	10½" x 14½"	A, L, SRP
18:	12" x 14"	C, L
19:	10½" x 14½"	A, L
20:	12" x 14"	C, L
c:	7" x 14"	I
d:	7" x 14"	I
e:	7" x 14"	I
f:	8" x 13¾"	I

Historic Images of the Savanna-Sabula Bridge (These postcard images are undated and generally unattributable since their backs, with publication information, were not available for viewing. The pictures are on file at Heritage Research, Ltd., Menononee Falls, WI.):



View to South Southwest.

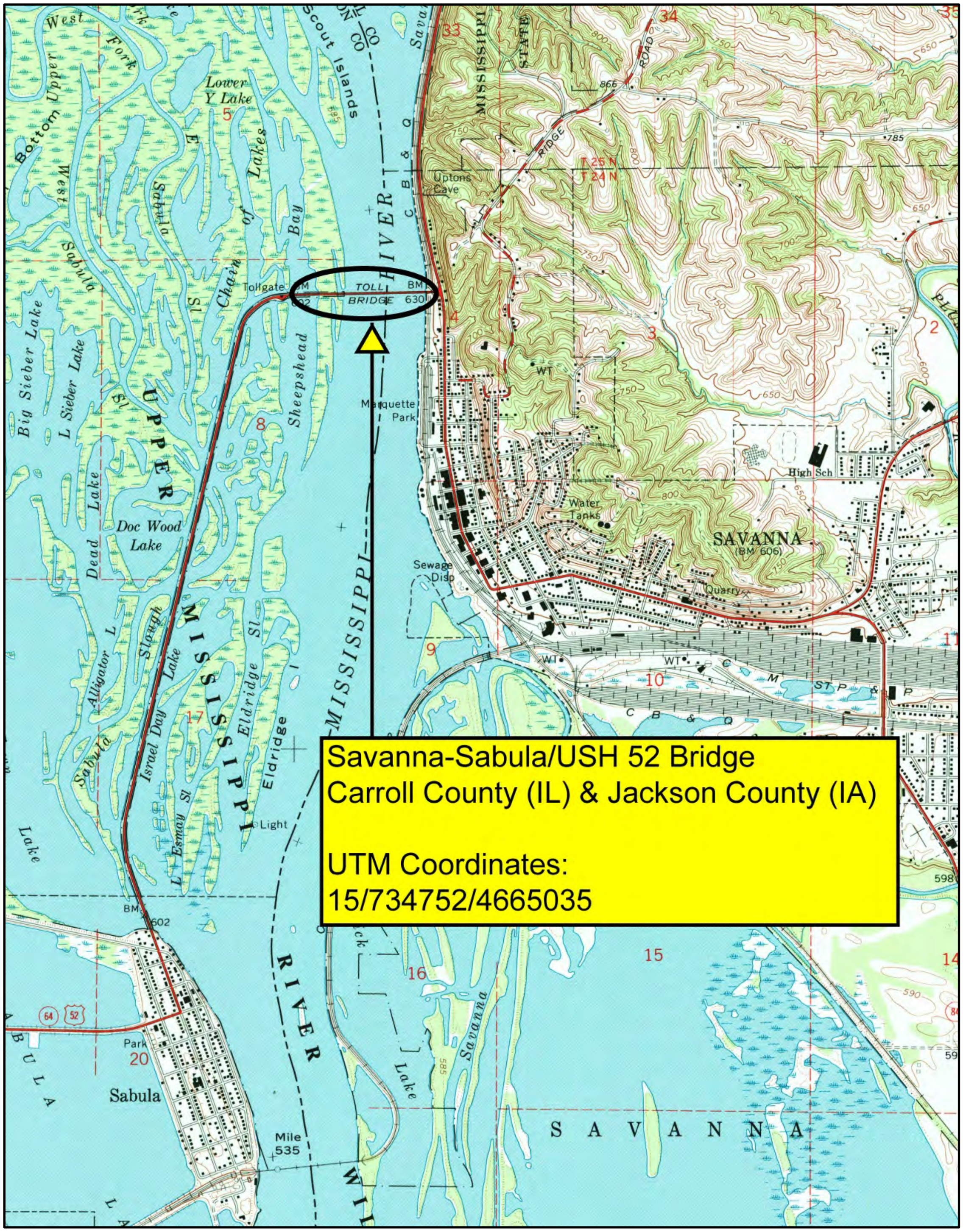
View to Northwest.

Historic Images of the Savanna-Sabula Bridge – 2

View to Northwest.

View to East Northeast (from Iowa looking to Illinois).

USGS Map Identifying the Location of the Bridge:



USGS Geological survey, *Savanna, Illinois-Iowa Quadrangle* [map], 1967, 1:24000, 7.5 Minute Series (Reston, VA: United States Department of the Interior, USGS, 1967, Photo Inspected 1990).

ILLINOIS HISTORIC AMERICAN BUILDING SURVEY

INDEX TO PHOTOGRAPHS

Savanna-Sabula/US Highway Bridge IL HAER No. CA-2014-1
US Highway 52 spanning the Mississippi River
City of Savanna
Carroll County
Illinois

Documentation: 35 Exterior Photographs (2014)
22 Data Pages
03 Diagrams
06 Historic Images
01 7.5 Minute USGS Map

John N. Vogel, Ph.D., Photographer

IL HAER No. CA-2014-1.1 DISTANT AERIAL VIEW TO WEST.

IL HAER No. CA-2014-1.2 AERIAL VIEW TO WEST NORTHWEST.

IL HAER No. CA-2014-1.3 AERIAL VIEW TO NORTHWEST.

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IL HAER No. CA-2014-1.6 AERIAL VIEW TO NORTHEAST.

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IL HAER No. CA-2014-1.19	VIEW TO WEST SOUTHWEST. BRIDGE PIERS.
IL HAER No. CA-2014-1.20	VIEW TO WEST. BOTTOM LATERAL BRACING. LOWER CHORDS. DECK BEAMS. DECK STRINGERS. DECK.
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IL HAER No. CA-2014-1.25	VIEW TO SOUTHEAST. PRATT TRUSS APPROCAH SPAN. CLOSEUP OF INTERMEDIATE VERTICAL. DIAGONAL. TOP CHORD. SWAY BRACING. STRUT CONNECTION.
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IL HAER No. CA-2014-1.28	VIEW TO WEST. CANTILEVER TRUSS. INCLINED ENDPOSTS. PORTAL STRUT AND BRACING.
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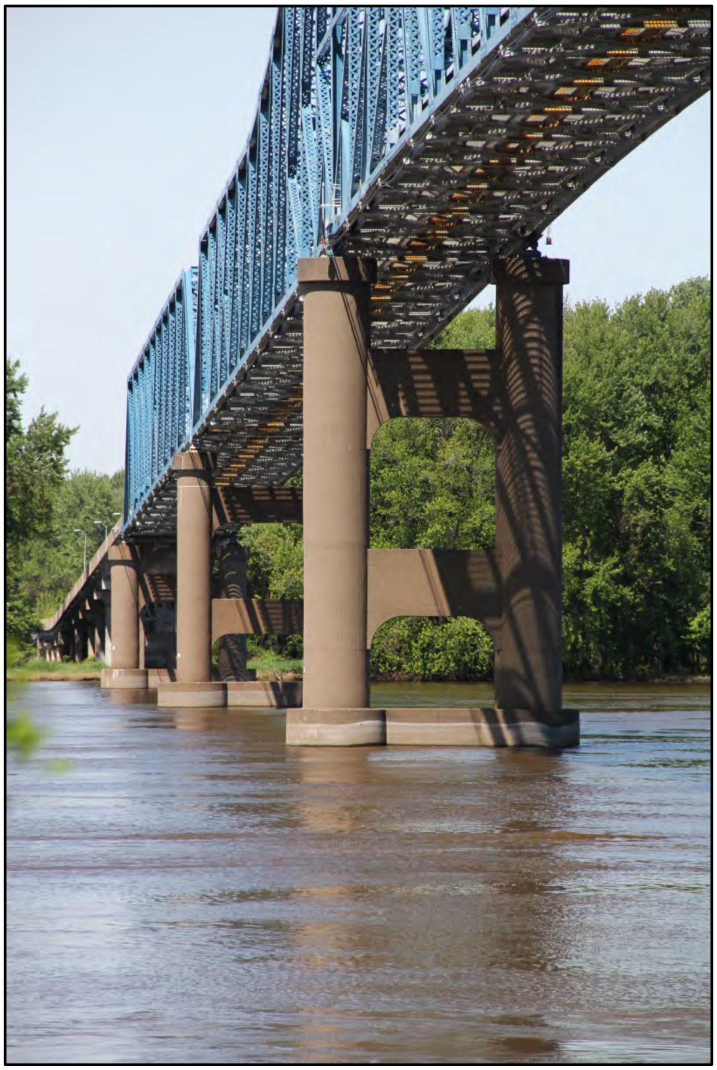

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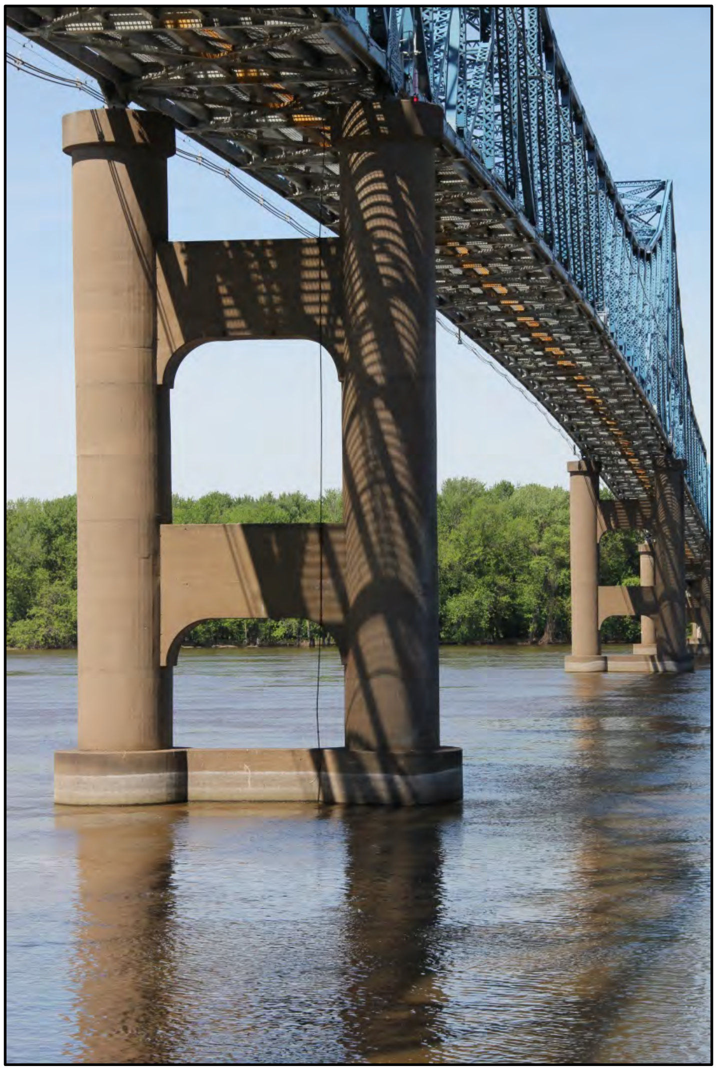

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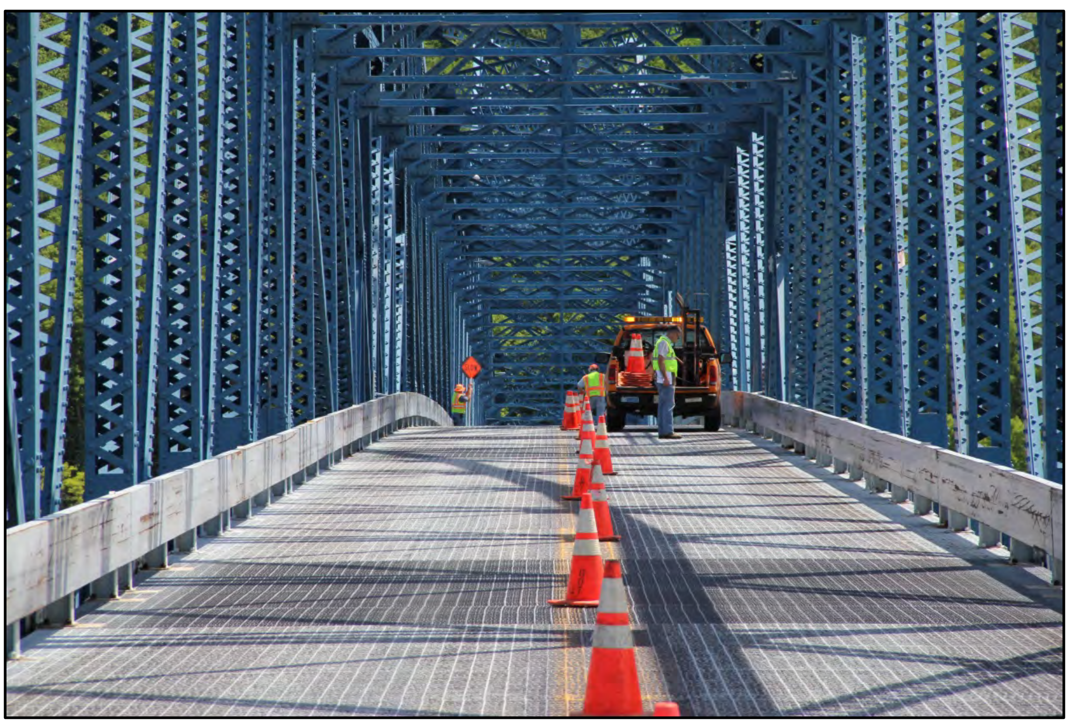

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PHOTOGRAPHS

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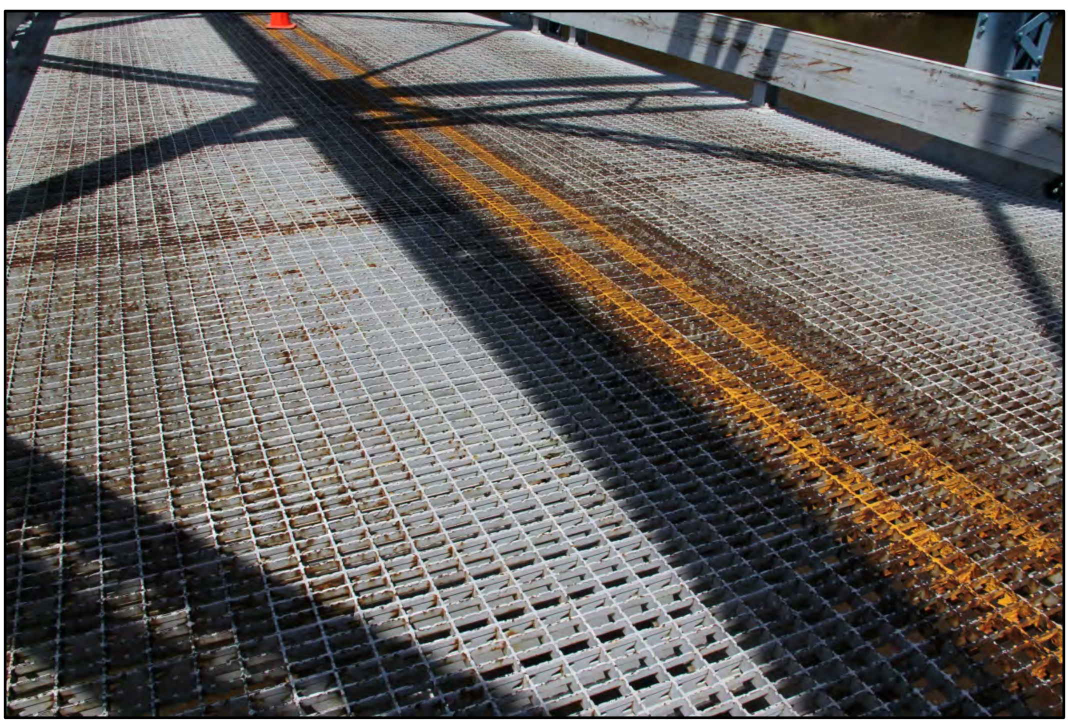

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