Description

Bridge 4846 is a single-span, wrought iron Pratt through-truss located in Lake Washington Park, in Kasota Township, Le Sueur County, Minnesota. The bridge has an overall structural length of 118 feet 10 inches and an overall width of 13 feet 8 inches, and carries a pedestrian and bicycle trail over Shanaska Creek. Located near the northwest edge of the park, the bridge is nestled in the tree-lined banks of the creek. There is an agricultural field to the north, Lake Washington to the east, and a wooded area to the south and west. The embankments of the creek are lined with trees, small rock, and grass. There are also walking paths nearby on both sides of the creek.

The superstructure consists of an eight-panel, wrought iron, Pratt through-truss span with pin and eye-bar connections. The top chord and inclined endposts of the truss are built-up members that consist of two channel sections riveted together with a continuous top cover plate and rectangular batten plates along the lower flanges. The vertical posts consist of built-up wrought iron channel sections. The diagonal bracing consists of rectangular eye-bar rods with forged ends. Tubular lateral struts and top sway bracing is riveted to the top chords. The top lateral bracing, located between the vertical members and struts, consists of rods. The north portal strut consists of a channel with quatrefoil details cut (or punched) in the web and a bridge plate. The south portal strut consists of an early I-beam that is riveted to the top chords and a bridge plate. Both bridge plates read “1875.”

Ornamental brackets comprise the portal bracing. The lower chords of the truss are comprised of independent eye-bars with punched ends that are connected to the vertical posts by pin connections. Seven floor beams run transversely under the bridge. Round rod bottom lateral bracing is located between the floor beams. Atop the floor beams are eight I-beam stringers. The stringers support a wood plank bridge deck. A wood wheel guard sits atop the deck, just inside the posts. The bi-rail type railings are composed of angle iron, with vertical posts. The substructure of Bridge 4846 consists of reinforced concrete abutments. The embankments under the abutments are packed earth.

The bridge was relocated in 1928, and was moved to its present location in 1984 when it was converted to a pedestrian bridge. The superstructure exhibits some repairs and member replacements, including the floor beams and bottom laterals that were damaged in 1960. The wood deck was replaced and new abutments were constructed when the bridge was relocated to its present site.

EVALUATION AND ANALYSIS

Historical Context
Historic Iron and Steel Bridges in Minnesota, 1873-1945

Historical Narrative

Bridge 4846 was constructed in 1875 to carry horse-drawn traffic across the Blue Earth River, just south of Vernon Center in Blue Earth County, Minnesota (Arias and Krause 1984:7). Blue Earth County is notable in the history of iron bridges in Minnesota. Blue Earth County experienced a rapid population growth in the late 1860s due in part to the arrival of the railroad in 1868. Consequently, due to the many rivers and tributaries in the county, the County, “embarked on a program to build high quality, permanent bridges in the late 1860s, the county first turned to iron in 1872” (Quivik and Martin 1988:E-7). From the early 1870s to the turn of the twentieth century all but two bridges in the county were constructed of iron or steel (Quivik and Martin 1988:E-8).

Bridge 4846 was built by Soulerin, James and Company of Milwaukee, Wisconsin, which was established by Leon Soulerin and Garth W. James in 1870. Two years later, the firm was renamed the Milwaukee Bridge & Iron Works, but continued to bid on projects under the partnership’s original name. Both Soulerin and James left the company by 1877 (Quivik and Martin 1988:E-8).

To accommodate increased traffic and heavier, motorized vehicles, Bridge 4846 was replaced by a new bridge in 1928. Although it was already 53 years old, the bridge was still in good condition and reasonably portable, so it was moved to Kasota Township in LeSueur County, just south of St. Peter. In its new location, the bridge carried County Road 102 over the newly built Trunk Highway (TH) 22, 0.1 miles southeast of the Minnesota River (Bloomberg 1980; Arias and Krause 1984:7).

In 1960, the bridge was struck by a “high load operating on the trunk highway and afterwards it was noticed that the bottom laterals were missing and at least one of the floorbeam hangers was broken.” (Bridge Number 4846 letter from Minnesota SHPO file R & C No. 0-356, J.T. Pawlak, District Engineer, Mankato, to G. H. Kolstad, Road Services Engineer, April 21, 1970). The bridge was repaired and continued to carry County Road 102 over TH 22.

By the early 1980s, there was a growing recognition of the significance of Bridge 4846, but after over 100 years in service, it was showing signs of significant deterioration. Reflecting its historic significance as one of a dwindling number of 19th century bridges, the bridge was listed in the NRHP in 1981. Since the bridge had deteriorated to the point where it required replacement, the Minnesota Department of Transportation (MnDOT) began planning to replace the structure. Between 1982 and 1983, plans were prepared for the replacement structure. As part of the planning process, MnDOT reached an agreement with the Le Sueur County Board of Commissioners, whereby Le Sueur County would take ownership of the bridge, preserve it, and move it to Lake Washington Park in Le Sueur County for use as a pedestrian bridge (Arias and Krause 1984:7; The Free Press 1984). Le Sueur County would assume full ownership and maintenance responsibilities for the bridge from MnDOT after it was moved.

As the project was receiving state funds and at one point, funding from the Federal Highway Administration (FHWA), the project was subject to Section 106 of the National Historic Preservation Act, and applicable state laws governing historic resources. Therefore, MnDOT entered into consultation with the Minnesota State Historic Preservation Office (SHPO) that spanned several years. During the consultation, the Minnesota SHPO stated that the “proposed bridge replacement and relocation of the old bridge structure should not affect any significant historical or archaeological sites or data so long as current plans are followed (Minnesota SHPO Findings Report regarding the Replacement of Bridge 4846 in Minnesota SHPO Review & Compliance file 0-356, Leslie D. Peterson, Trunk Highway Archaeologist, Minnesota Historical Society, to C. P. Kachelmyer, Preliminary Design Engineer MnDOT). The Minnesota SHPO later concluded that “because the bridge has already been moved from its original site, we have no objection to the proposed move which placed the bridge in an appropriate setting in Le Sueur County’s Washington Park” (Replacement of Bridge #4846 in Minnesota SHPO Review & Compliance File 0-356, C. P. Kachelmyer, Preliminary Design Engineer MnDOT to Russell W. Fridley, Director Minnesota Historical Society, 3 May 1984; Minnesota SHPO Response Letter in Minnesota SHPO Review & Compliance file 0-356, Russell W. Fridley, Director Minnesota Historical Society to C. P. Kachelmyer, Preliminary Design Engineer MnDOT, 17 May, 1984). A memorandum of agreement (MOA) for the project was drafted but never executed. The Keeper of the National Register was also not consulted in advance of the move to gain approval per 36 CFR 60 of the National Historic Preservation Act.
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Act. Therefore, the requirements for moved properties, as described in 36 CFR 60 were not met, so per §60.12(b), Bridge 4846 was automatically delisted when it was moved in 1984 (MnDOT 2013). However, Minnesota SHPO records still show it as listed at its second location (Susan Roth, Minnesota SHPO to Dennis Gimnesstad, MnDOT CRU, and Kristen Zschomler, MnDOT CRU, Personal Communication 7 February 2011, Bridge 4846 LeSueur County). According to LeSueur County records, no major changes have been made to the bridge since its relocation to Lake Washington Park.

Significance
Bridge 4846 was added to the NRHP in 1981 for its significant under Criterion C, in the areas of Transportation and Engineering, “as the oldest Pratt through truss highway bridge in the state of Minnesota and as a notable example of the truss bridges that were a common element on the Minnesota landscape during the late nineteenth and early twentieth centuries” (Bloomberg 1980). Since proper protocols were not followed when the bridge was moved in 1984, it was automatically delisted.

Within the historic context “Historic Iron and Steel Bridges in Minnesota, 1873-1945,” Bridge 4846 has significance under National Register Criterion C in the area of Engineering. Fabricated in 1875, Bridge 4846 meets Registration Requirements 1 of the “Historic Iron and Steel Bridge in Minnesota, 1873-1945 Multiple Property Documentation Form (MPDF),” as a bridge “Built Prior to 1890,” and specifically as a very rare example of a wrought iron bridge in Minnesota (Quivik and Martin 1988:F-8). Wrought iron was the principal bridge-building metal into the late 19th century, when the Bessemer converter made the production of large amounts of steel possible. As such, wrought iron disappeared from bridgework by the mid-1890s. Wrought iron also tends to become brittle over time, necessitating replacement. Given these factors, wrought iron was a rare material for bridges constructed in Minnesota and even more uncommon for them to survive (Quivik and Martin 1988:E-6-E-8, E-13). Aside from Bridge 4846, the only other extant wrought iron bridges in Minnesota are the Kern Bridge (Bridge L5669) in Blue Earth County by the Wrought Iron Bridge Company; the Gateway Trail Iron Bridge (Bridge 82524) in Grant Township, Washington County; the Hanover Bridge (Bridge 92366) in Hennepin County; and one span from the Broadway Avenue Bridge (now the Merriam Street Bridge 27664) over the Mississippi River in Minneapolis, also in Hennepin County (Quivik and Martin 1988:E-6-E-8).

Bridge 4846 also meets Registration Requirement 4, as a bridge “Built by an Important Bridge Fabricator” (Quivik and Martin 1988:F-9). The Pratt truss was fabricated by Soulerin, James and Company of Milwaukee, Wisconsin, which was an important bridge fabricator. “Prior to the establishment of businesses in Minnesota which fabricated iron and steel bridges, several nationally-significant, out-of-state companies…supplied bridge materials for Minnesota projects” (Quivik and Martin 1988:F-9). These out-of-state fabricators, which included Soulerin, James and Company, “were important for introducing iron bridge technologies to Minnesota” (Quivik and Martin 1988:F-7).

Integrity -
According to the “Iron and Steel Bridges in Minnesota, 1873-1945 MPDF,” to be eligible under Criterion C, a bridge may be relocated, but “should retain integrity of setting, i.e. they should still span a channel or body of water, railroad tracks, or some other barrier to vehicular travel” (Quivik and Martin 1988:F-8). Bridge 4846 has been moved twice since its construction. In 1928, it was moved from its original location over the Blue Earth River, just south of Vernon Center in Blue Earth County to Kasota Township in LeSueur County, just south of St. Peter, where it carried County Road 102 over TH 22. In 1984, the bridge was moved to its present location in Lake Washington Park in Le Sueur County. As a result, the bridge no longer retains integrity of its original location. Today, Bridge 4846 spans Shanaska Creek, which like the Blue Earth River, is relatively narrow body of water, lined with trees and surrounded by agricultural fields. Therefore, since it still crosses a body of water similar to its original crossing and is located in a comparable setting, the bridge retains sufficient integrity of setting to meet the registration requirements for setting. The “Iron and Steel Bridges in Minnesota, 1873-1945 MPDF” also requires that a bridge’s superstructure must be in “substantially original condition, including the connections, and the composition and configuration of individual composite members. Because the superstructure is the most important feature of bridges in this property type, neither an original substructure nor an original deck and guardrail system are necessary for the bridge to be eligible (although these original components may add to the significance of the bridge)” (Quivik and Martin 1988:F-8). The superstructure of Bridge 4846 is in largely original condition. The truss retains its top and bottom chords, its vertical members, and the distinctive detailing in its portal bracing. Although some repairs and member replacements were made to the superstructure in 1960 after it was damaged, the repairs have not significantly altered the overall design or aesthetics of the bridge. However, the repairs
would have a slight effect on the integrity of materials as any later materials used would have been steel versus wrought iron. Additionally, it is likely that the wood deck has been replaced due to the nature of the material, though no documentation confirms the replacement of the deck. When the 1875 Pratt through truss was moved in 1984 it was placed on a new reinforced-concrete substructure. According to the “Iron and Steel Bridges in Minnesota, 1873-1945 MPDF,” to be eligible for the NRHP the bridge does not need to retain its original substructure, but, the “replacement substructure or deck components must be of such scale and composition that they do not overwhelm or otherwise detract from a clear visual impression of the iron or steel frame of the superstructure and its function” (Quivik and Martin 1988:F-8). The scale and composition of the new abutments are compatible with that of the bridge; therefore, they meet the registration requirements. Therefore, Bridge 4846 retains sufficient historic integrity to convey its historic significance.

Recommendation

Bridge 4846 was listed in the NRHP in 1981 for its significance under Criterion C in the areas of Transportation and Engineering. In 1984, the structure was moved to its current location in Lake Washington Park in Le Sueur County. Since this move was not done in consultation with the ACHP per 36 CFR 800, nor was the Keeper of the National Register consulted in advance of the move per 36 CFR 60, the requirements for moved properties outlined in 36 CFR 60 were not met. As a result, it was automatically delisted per §60.12(b).

Bridge 4846 has significance under NRHP Criterion C in the area of Engineering, as an important type, within the historic context “Historic Iron and Steel Bridges in Minnesota, 1873-1945.” The 1875 wrought iron Pratt truss meets Registration Requirement 1, as a bridge “Built Prior to 1890” and as a very rare surviving example of a wrought iron truss in Minnesota. As a bridge fabricated by Soulerlin, James and Company of Milwaukee, Wisconsin, it also meets Registration Requirement 4, as a bridge “Built by an Important Bridge Fabricator.” Although the truss has been moved from its original location, it is located in a setting comparable to its original, thus it retains sufficient integrity of setting. Moreover, while some members were replaced with steel members to repair damage from a crash in 1960, the bridge retains sufficient integrity of design, materials, workmanship, feeling and association to convey its significance under Criterion C. As such, Bridge 4846 retains sufficient integrity to convey its historic significance. Therefore, Bridge 4846 is recommended as eligible for the NRHP under Criterion C, in the area of Engineering, as an important type, within the historic context “Iron and Steel Bridges in Minnesota, 1873-1945.” The recommended period of significance is 1875, which corresponds with the year in which the Pratt truss was built.

Sources

Arias, Laurie and Bill Krause
1984 Historic Truss Bridge Spans Park Creek. Dot Scene 7.

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Le Sueur County

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1985 County Asks Permission to Move Bridge to Lake Washington County Park. 10 August. Le Center, Minnesota.

Minnesota Department of Transportation [MnDOT]

2013 Bridge 4846 File. Available at the Minnesota Department of Transportation, St. Paul, Minnesota.

Minnesota Historical Society
MINNESOTA ARCHITECTURE - HISTORY INVENTORY FORM

Project: Local Historic Bridge Study - Phase II
Kasota, Le Sueur County, Minnesota

Minnesota State Historic Preservation Office (SHPO)

Murray, Rob

Quivik, Fredric L. and Dale L. Martin

The Free Press

Consultant's Recommendation of Eligibility
Eligible - Individual

Prepared By
The 106 Group Ltd.

Date Surveyed
10/14/2013
MINNESOTA ARCHITECTURE - HISTORY INVENTORY FORM

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Facing N

Facing S
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Facing E

Facing N
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Portal Brace, Facing NW