

MINNESOTA HISTORIC PROPERTY RECORD

PART I. PROPERTY IDENTIFICATION AND GENERAL INFORMATION

Common Name: Sorlie Memorial Bridge

Bridge Number: 4700

Identification Number: PL-EGC-007

Location:

Feature Carried: US 2B (Business)
Feature Crossed: Red River
Descriptive Location: at North Dakota State Line
Town, Range, Section: 151N-50W-2
Town or City: East Grand Forks
County: Polk

UTM:

Zone: 15
Easting: 198980
Northing: 5316014

Quad:

Grand Forks
7.5 Minute Series
1927

Present Owner:

State

Present Use:

Mainline

Significance Statement:

The Sorlie Memorial Bridge is located at the eastern end of Demers Avenue in the City of Grand Forks, North Dakota. The bridge crosses the Red River, which acts as the North Dakota-Minnesota state line in this area; consequently, the eastern half of the bridge is located in Polk County, Minnesota. The area surrounding the bridge is heavily urbanized, with the central business district of Grand Forks immediately west of the bridge's west abutment. On its east side, the bridge touches the historic commercial district of East Grand Forks, Minnesota. The immediate riverbank area on both sides of the river has been developed into landscaped parkland, with footpaths and non-native grasses and trees. Historic railroad bridges are visible both north and south of the bridge; to the south the former Great Northern Railway bridge remains in active use, while the former Northern Pacific Bridge to the north has been converted into a pedestrian crossing. The Sorlie Memorial Bridge carries a busy urban street connecting the two cities. When built, the bridge had additional importance as the only vehicular river crossing in the immediate area, and as the route of transcontinental U.S. Highway 2.

The bridge itself is a rigid-connected (riveted) Parker truss, with a steel superstructure. The Parker design which saw widespread use nationally during the early and mid-twentieth centuries, is characterized by the presence of relatively heavy vertical members designed to handle the compressive stress of the bridge load. These members are beneath a polygonal upper chord. The bridge contains two truss spans, each nine panels in length; there are no approach spans. Overall, the bridge is approximately 605 feet long, with a vertical deck 60 feet wide.

Metal plaques mounted on both ends of the bridge identify the structure as the "Sorlie Memorial Bridge" in honor of Arthur Gustav Sorlie (1874-1928). The plaque includes a brief biography of Sorlie, and describes him as "a true friend of better roads and bridges."

The bridge retains a very high level of integrity; it remains in its original location, and all major structural components appear to retain their as-built appearance.

The North Dakota portion of the Sorlie Memorial Bridge is owned and maintained by the North Dakota Department of Transportation. It carries the state numerical designation 2-911.409.

In accordance with the guidelines established in the Multiple Property Documentation form for "Historic Roadway Bridges in North Dakota," the Sorlie Memorial Bridge is eligible for listing in the National Register of Historic Places with a statewide significance under criteria "A" and "C." The bridge is significant under Criterion A as an early, important crossing of the Red River at a major urban center, as well as serving as an important river crossing on a major transcontinental highway route. The bridge is significant under Criterion C as a structure of exceptional engineering design built to meet unusual site conditions. Additionally, it is the oldest documented riveted Parker through bridge in North Dakota. Finally, the Sorlie Memorial Bridge spans, each 283 ft. long, are the longest spans of riveted Parker through trusses in the state.

Historical Information: This bridge was built in 1929 as a joint project between the North Dakota Highway Department and the Minnesota Department of Highways. North Dakota initiated the project under the leadership of Governor Arthur G. Sorlie, ex-officio Chairman of the State Highway Commission. The North Dakota department designed the project, and the Minneapolis Bridge Co. built the structure. The Sorlie Bridge project, built in part with federal aid (Bureau of Public Roads) funds, was among the first interurban projects in the country which used money from that source. The Sorlie bridge replaced an earlier swing bridge which had been constructed on the site in 1889.

The most noteworthy feature of the Sorlie Memorial Bridge is the use of trucks on pairs of track castings for the expansion bearings. The bearings were designed by North Dakota Highway Department bridge engineer Clifford Johnson to compensate for abutment movement due to unstable ground. At this location on the Red River, the riverbanks were unsuitable for what was then standard abutment design because of their clay composition. Because it was cost prohibitive to build a foundation of rock at the banks, the innovative expansion bearings were designed.

The bridge was repaired in 1986, with the superstructure and expansion bearings remaining unaltered.

PART II. HISTORICAL INFORMATION

Date of Construction:

1929

Contractor and/or Designer (if known):

Contractor: Minneapolis Bridge Company

Designer: North Dakota Highway Department

Historic Context:

Historic Iron and Steel Bridges in Minnesota; Historic Roadway Bridges in North Dakota

National Register Criterion:

A, C

PART III. DESCRIPTIVE INFORMATION

Descriptive Information:

Superstructure:

upper chords: two built-up channel girders with continuous cover plate along the upper flanges and lattice bars along the lower flanges

lower chords: two built-up channel girders with batten plates along the upper and lower flanges

verticals: two built-up channel girders with lacing bars along the upper and lower flanges

diagonals: two channel sections with batten plates along the upper and lower flanges bracing

(portal): lacing pattern across the portal, with knee braces

bracing (sway): lattice bars across the top of the portal, with lacing bars elsewhere; angle sections

below laterals (bottom): angle sections

moveable ends: located at the abutment end of each span; each corner has 4 flanged wheels (2 axels) on rails

floor system: I-beam stringers riveted to floor beams of I-beams and built-up girders, which are riveted to the superstructure decking: concrete, with concrete curbs

railing: a repeating pattern of rectangular-within diamond-within-rectangle with diagonals

steelmaker's marks: Inland Steel Company. East Chicago, Ind.

Substructure: concrete abutments and solid concrete piers

concrete deck with concrete curbs

Railings: metal with a repeating pattern of rectangular-within diamond-within-rectangle with diagonals

PART IV. SOURCES OF INFORMATION

References:

"End Bearings of Bridge Allow for Shifting Abutments," Engineering News-Record 104 (29 May 1930): 898-900; Johnson, Lon, et. Al. "Historic Bridges in North Dakota." Bismark: North Dakota Department of Transportation, 1992; North Dakota Highway Department, "Design of the Sorlie Memorial Bridge," North Dakota Highway Bulletin 6, No. 8 (September 1929): 12-14; The Sorlie Memorial Bridge 1929 Souvenir Historical Programs, (Grand Forks: The Page Printing Company, 1929).

PART V. PROJECT INFORMATION

Historians:

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Form Preparer:

Mead & Hunt, 2006

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