

BOUNDARY AVENUE BRIDGE

HAER No. MN-78

~~Boundary Avenue over Kingsbury Creek~~

Proctor ~~SPANNING KINGSBURY CREEK AT BOUNDARY AVE~~

St. Louis County

Minnesota

HAER  
MINN  
69-PROC,  
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Department of the Interior  
Denver, Colorado 80225-0287

## BOUNDARY AVENUE BRIDGE

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## I. INTRODUCTION

Location: Spanning the Kingsbury Creek on Boundary Avenue which defines the border separating the cities of Proctor and Duluth, Minnesota.

USGS Quadrangle: Sec. 11, Twp. 49, Range 15W  
West Duluth, Minn. - Wis.  
NW/4 Superior 15' Quadrangle  
N4637.5 - W9207.5/7/5  
1954, Photorevised 1983

Construction Dates: June - November, 1920

Contractor: A. T. Nelson  
5 East Superior Street  
Duluth, Minnesota

Engineer: O. A. Roed  
St. Louis County Bridge Engineer

Surveyor: R. MacDonald  
St. Louis County Engineering Department

Present Owner: St. Louis County, Minnesota

Present Use: Vehicular use. Demolition and replacement scheduled in 1995.

Minnesota Department  
of Transportation  
Number (Mn DOT): 7658

Significance: Built in 1920, the Boundary Avenue Bridge is a single span, reinforced concrete, filled spandrel, barrel-arch bridge. The bridge carries Boundary Avenue over the Kingsbury Creek on a 21+' roadway. Overall length is 110', out-out width is 24'. The railings are filled panel balustrades with ornamental design in each panel. The bridge was designed by John Quinn, Engineer, and is an abridgement of the specifications of the Minnesota State Highway Department.

Historian: Debra J. Kelly  
July, 1994

On March 2, 1920, the St. Louis County Board of Commissioners approved a request by the County Auditor calling for bids to be received for the furnishing of all labor, equipment, materials and erection of bridge #A-5-11-1, commonly known as the Boundary Avenue Bridge.<sup>1</sup>

The bid was to be submitted on a standard form supplied by the Engineer of Roads Office, St. Louis County, Minnesota. Bridge and culvert specifications were prepared by O.A. Roed, Bridge Engineer for St. Louis County. The plans, approved July 1, 1919 by R.W. Acton, Engineer of Roads, St. Louis County, Minnesota contained standard guidelines which included general provisions, material and work specifications, and instructions outlining the delivery and opening of proposals. The St. Louis County Commissioners were required to award the contract to the lowest bidder but also had the right to reject any proposal as they deem best for the interests of the County.<sup>2</sup>

A.T. Nelson & Company of Duluth, Minnesota, submitted a proposal for the amount of \$11,627.00 which was received in the office of the auditor on March 19, 1920. A 10% guarantee of proposal was also submitted with the proposal, as required by the County. A.T. Nelson and Co. was awarded the contract on March 20, 1920 with the agreement that work

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<sup>1</sup>Duluth News Tribune, "Adjourned Session of Annual Meeting of February 9, 1920, Official Proceedings of the County Board of St. Louis County", March 2, 1920, pages 11-13.

<sup>2</sup>Boundary Avenue Bridge File, A-5-11-1, Acct No. 109/C-SAH 14. St. Louis County Engineering Department. Bridge and Culvert Specifications, proposal, and copy of the awarded contract (labeled "office copy") to Mr. A.T. Nelson & Company. St. Louis County, Minnesota.

would begin on or before April 15, 1920, and would have been completed by September 1, 1920.<sup>3</sup> According to construction records, work on the bridge began on June 26, 1920. Excavation was completed on July 31, 1920, and placement of concrete started on July 30, 1920.<sup>4</sup> Details of the design specify a single arch, filled spandrel, reinforced concrete, barrel-arch bridge with an overall length of 110', span length of 40', out-out width of 24', carrying a 21+' roadway, to be erected on a bedrock foundation.<sup>5</sup>

This design exemplifies the evolution of bridge building practices in Minnesota. Prior to the use of reinforced concrete, wood and iron construction practices were favored. Wood bridge construction, although inexpensive to construct, were burdensome to maintain and iron bridge construction proved to be an expensive venture to undertake. The use of reinforced concrete produced a strong and relatively inexpensive structure to erect and to maintain. By 1910, concrete became the bridge building material of choice.<sup>6</sup> The Boundary Avenue bridge is a typical example of a reinforced concrete bridge built in the 1920s.

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<sup>3</sup>Ibid. Proposal and contract.

<sup>4</sup>Ibid. Payment vouchers and work records for the Boundary Avenue Bridge.

<sup>5</sup>Ibid. Blueprints and drawings; Bridge File, Minnesota Historical Society, Containing: Bridge Sheet - Planning Research Section, Minnesota Highway Department, U.S. Bureau of Public Roads, 9/13/62; Bridge Inspection Report - Minnesota Department of Highways, 10/20/72, inspected by N. Evans; Minnesota Highway Department, Planning Research Section, ROAD INVENTORY SHEET, 9/13/62. The 1972 inspection indicates the bridge is in overall good condition. A need for minor repair was noted because of spalling on abutments, structural slab, drains, and from washouts adversely affecting the slope.

<sup>6</sup>Hess, Jeffrey, "Final Report of the Minnesota Historic Bridge Survey: Part 1", Minnesota Historical Society, August 1988, page 15.

Before 1905, the construction of a bridge was largely left to the counties, with bridge builders basing bids on their own designs. In 1905 the Minnesota Highway Commission (MHC) was established. The role and mission of the MHC was to provide state aid for the construction and repair of highways and bridges by extending funding to individual counties to assist the county boards in building the best kind of bridges. The MHC provided standard plans and made them available to the counties. Not all bridges were supervised by the MHC, however, many of the bridges built in the years 1915-1916 utilized design plans furnished by the MHC. By 1921 the state of Minnesota was central in the design and construction process of bridge construction in the state.<sup>7</sup> The design of the Boundary Avenue Bridge is an abridgement of the specifications of the Minnesota State Highway Department and is of the type commissioned by the MHC.<sup>8</sup>

The railings and foundation are two indicators of a state standard design. The railings were often a filled panel slab in the Classical Revival mode.<sup>9</sup> The Boundary Avenue Bridge, neoclassical in design, has filled concrete railings with a repeating geometric pattern of a circle inside of a rectangle. Uniformly spaced pilasters extend from the railing to the foundation. The foundation of the Boundary Avenue Bridge is bedrock; by 1920, arch bridges were recommended by the

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<sup>7</sup>Hess, pages 22-27.

<sup>8</sup>"Statewide Bridge Survey Form", Survey conducted by Robert Frame, Minnesota Historical Society files and; Boundary Avenue Bridge File, St. Louis County Engineering Department, Bridge and Culvert Specifications (proposal and contract).

<sup>9</sup>Frame, Robert M. III, "Historic Bridge Report", prepared for the State Historic Preservation Office of the Minnesota Historical Society, and the Minnesota Department of Transportation, March 31, 1985, pages F5, F3.

MHC only for locations with very sound foundations for the abutments.<sup>10</sup>

A bridge with this type of architectural style or ornamentation may be eligible for local nomination. Such bridges are found in significant settings such as city approaches, either urban or rural.<sup>11</sup> The Boundary Avenue Bridge, approaching the City of Proctor from the south, is considered to be eligible for local nomination and has been categorized as National Register Status 3, Eligibility Category B.<sup>12</sup> It is included in this category primarily because of the aesthetic detail in the rail design and its close association with the designs specified by the MHC. Of additional significance, concrete arch structures generally involve more complex engineering and display greater aesthetic qualities than other types of concrete bridges. The reinforced concrete arch bridge is the most complex span sub-type in engineering terms, and is considered to be the most interesting visually.<sup>13</sup>

The Boundary Avenue Bridge does not appear to be the original bridge spanning Kingsbury Creek at its present location. Evidence of another bridge is indicated on notes included on

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<sup>10</sup>Frame, page E6

<sup>11</sup>Ibid., page F5.

<sup>12</sup>Hess, page 44, 115. Status 3: Minnesota bridges that are potentially eligible to the National Register. Category B: Includes bridges that are representative examples of recognized bridge types and subgroups of these types.

<sup>13</sup>Frame, page F1.

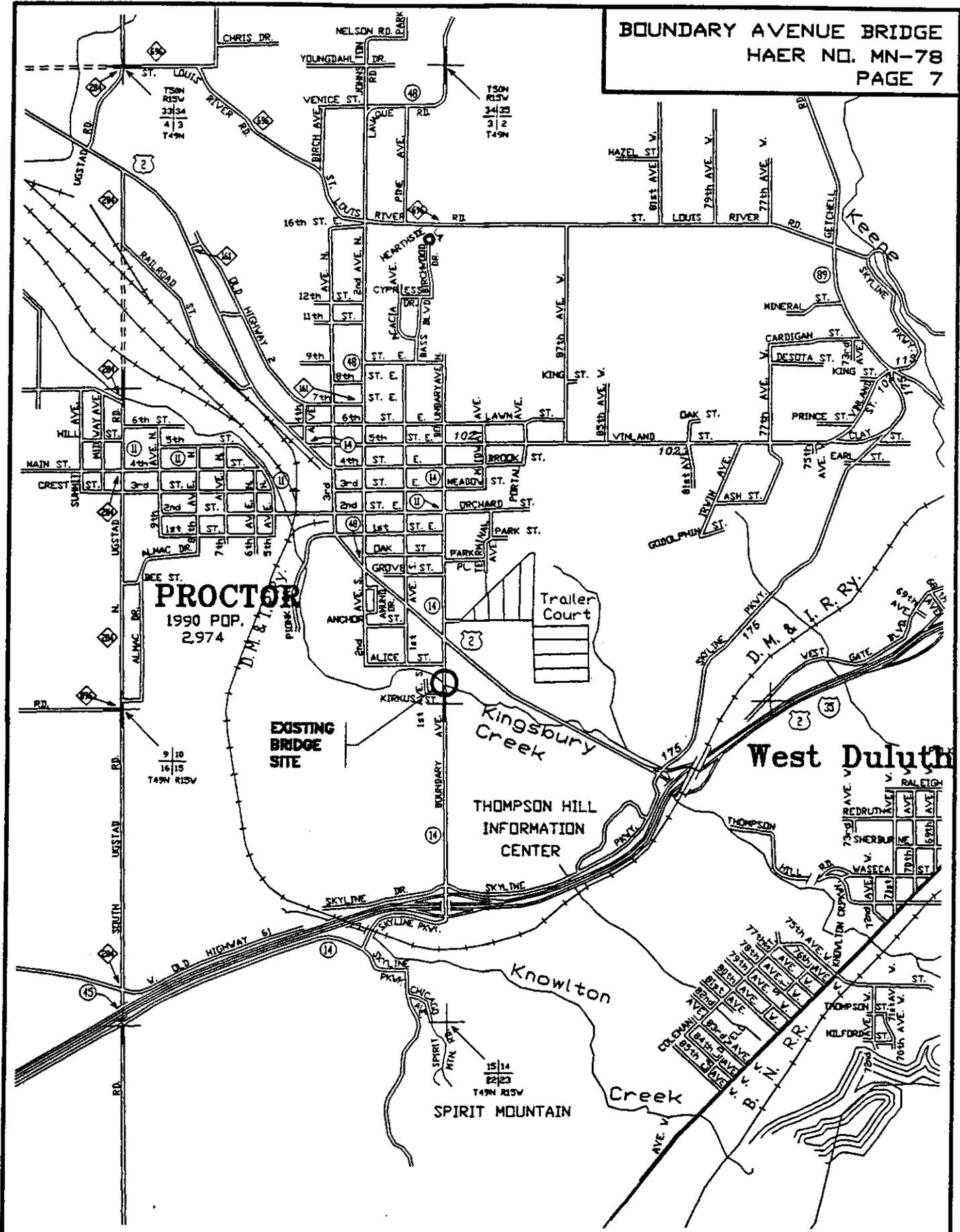
original blue prints stating a bridge has "not stood at this location for years".<sup>14</sup> Documentation confirming the existence of another bridge has not been uncovered but notes of this nature are considered to be reliable. In the 1940s, St. Louis county adopted a policy of destroying records of structures which were no longer extant.

The boundary Avenue Bridge was erected on the LaVaque Rd. (Cty. Rd. 48) which is also referred to as Boundary Avenue on the portion of the road containing the bridge. Boundary Avenue was originally developed to serve as an approach from the south linking the City of Proctor with State Highway 61. The original roadway was planked and primarily served pedestrian traffic.<sup>15</sup>

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<sup>14</sup>Boundary Avenue Bridge File, St. Louis County Engineers Office. Blueprints approved by John Quinn. Survey conducted by R. MacDonald. Blueprints include 1) contracted profile which details the present and proposed grades of roadway, water levels, present and proposed grades of bridge floor, fill material, elevation of bottom of footings, elevation of water levels at the proposed location and at 100 and 200 foot intervals; 2) Data: general recommendations; special features; changes (reference is made indicating a "... bridge has not stood at this location for several years"); other bridges over same stream; right of way; 3) large profile detail drawings; 4) material; 5) Notice to Contractors; 6) show on plat; and 7) report of bridge survey.

<sup>15</sup>Area resident, resides less than one mile south of the bridge (1932-present).



Early traffic patterns which developed in Proctor indicate an association between the development of a roadway carrying vehicular traffic and the creation of the Duluth Missabe and Northern Railway established in 1892.<sup>16</sup> Highway 2 (historically referred to as Proctor Road) is a concrete roadway which originally intersected with State Highway 61 southeast of Proctor. Highway 2 travels to the northwest in a parallel fashion with the Duluth Missabe and Northern Railroad (DM & N RR). Further north, it is referred to as Mesaba Trunk Highway and continues on to the Iron Range in Northern Minnesota, the origin of the DM & N RR.

The DM & N RR, established by the Merritt Brothers of Duluth was developed to fulfill a perceived need for transshipment of iron ore from the iron range to the ore docks in Duluth.<sup>17</sup> This railway passed through Proctor (originally named Proctorknott), Minnesota in the early 1890s. Soon after the village of Proctorknott (Proctor) was established and a petition was presented to the city board for the incorporation of the Village of Proctorknott.<sup>18</sup> An election was scheduled by the city commissioners to take place on November 6, 1894 to vote on this proposal.

The railroad played a significant role in the development of Proctor. In addition to the new homes built by the railroad, homes were moved across Boundary Avenue into Proctor from the

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<sup>16</sup>1936 Minnesota Department of Transportation Highway Map. Located in the Engineering Office, St. Louis County, Minnesota and; Duluth-Superior Harbor Cultural Resources Study, August 1976, pages 76-77.

<sup>17</sup>Duluth-Superior Cultural Resources Study, pages 77-78.

<sup>18</sup>Fiftieth Anniversary Edition of the Proctor Journal 1906-1956, "Proctor Was Proud", June 28, 1956, Vol 51, No. 1 (unpaginated).

Bayview Heights area located at the eastern border of Duluth. This growth and development allowed closer proximity to jobs for railroad employees.<sup>19</sup>

Historically, Proctor and Duluth have always been rivals. The city of Duluth made a concentrated effort to annex Proctor and was rebuffed in 1897.<sup>20</sup> City elders tired to persuade employees in railroad shops to move to Proctor, however, many employees preferred to live in Duluth. Most would commute to work via a bus or as pedestrian travel. The Boundary Avenue Bridge which spans the Kingsbury Creek appears to have served as a conduit between Proctor and Duluth, Minnesota and served the purposes of many railroad shop employees residing in both Duluth and Proctor.

The Boundary Avenue Bridge continues to serve the community in the same way as was historically intended. The bridge remains in fair condition and maintains its architectural integrity. Spalling is evident on the abutments and elevations and rebar is visible in some areas. St. Louis County intends to widen Boundary Avenue and in the process erect a new, wider bridge at the present location of the existing structure. As part of the construction plan, the County proposed to document the bridge according to guidelines established by the Historic American Engineering Record of the National Park Service. This report intends to fulfill the requirements set forth by the National Park Service.

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<sup>19</sup>Ibid.

<sup>20</sup>Proctor Journal, "Live in Proctor", Vol. XIV, No. 39, Feb. 1, 1921, page 2.

### PUBLISHED SOURCES

Duluth News Tribune, "Adjourned Session of Annual Meeting of Feb.9, 1920; Official Proceedings of the county Board of St. Louis County" Tuesday, March 2, 1920, pages 11-13.

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"Old Beltline Railway Missed by Proctor"  
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"Proctor's History before the DM&IR Came"  
"Proctor Was Proud"  
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### UNPUBLISHED SOURCES

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Records of the Proceedings of the St. Louis County Commissioners, March 7, 1921, page 105; March 19, 1921, page 95; July 11, 1921, page 295, Northeast Minnesota Historical Center, University of Minnesota-Duluth, Duluth, Minnesota.

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MAPS

USGS Quadrangle, West Duluth, Minn. - Wis., NW/4 Superior 15' Quadrangle, M4637.5 - W9207.5/7.5, 1954 Photorevised 1983.

1932 Map, Compiled from Official Survey and Drawn by: St. Louis County Highway Department, Duluth, Minnesota (located in the Office of Public Works, St. Louis County, Minnesota)

1925 Map, Compiled from Official Survey and Drawn by: St. Louis County Highway Department, Duluth, Minnesota (located in the Office of Public Works, St. Louis County, Minnesota)

Map 1921, Map of Highways, Prepared by: John J. Harrison, St. Louis County Highway Department, Duluth, Minnesota (located in the Office of Public Works, St. Louis County, Minnesota)

Map 1932, St. Louis County Club Map

Map 1936, State of Minnesota Department of Highways, St. Louis County, copyright 1936

1909 Map, C. P. Frank's Atlas of the City of Duluth, Minnesota (located in the Minnesota Room of the Duluth Public Library)

1936 Map, General Highway Map of Minnesota Counties

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Plat photostats - Section 11, T49, R15, St. Louis County Engineering Department

Map of Proctor, Municipalities of St. Louis County, prepared by the Minnesota Dept. of Transportation, Bureau of Policy and Planning in cooperation with the US Dept. of Transportation Federal Highway Administration