

STEPHENVILLE CROSSING BRIDGE
Texas Historic Bridges Recording Project
Spanning Leon River at County Route 176
(Moved to private road south of State Route 71,
Briarcliff Vicinity, Travis County)
Hamilton Vicinity
Hamilton County
Texas

HAER No. TX-57

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BLACK AND WHITE PHOTOGRAPHY
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HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
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Washington, DC 20240

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STEPHENVILLE CROSSING BRIDGE

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Location: Spanning Leon River at County Route 176, Hamilton vicinity, Hamilton County, Texas.
(Moved to private road south of State Route 71, Briarcliff vicinity, Travis County, Texas.)
UTM: 14/580600/3515820
USGS: Gentrys Mill, Texas, quadrangle (1956).

Date of Construction: 1897.

Designer: King Bridge Company, Cleveland, Ohio.

Builder: King Bridge Company, Cleveland, Ohio.

Present Owner: Privately owned.

Present Use: Vehicular bridge.

Significance: This pin-connected Pratt through truss is a surviving example of a standard roadway bridge used in the late nineteenth and early twentieth century. The Stephenville Crossing Bridge features ornate decoration on the portal struts and it is one of the better examples of pin-connected Pratt through truss construction in Texas. Fabricated by a national bridge building company, this bridge was probably once common to the American built environment. Before relocation in 1996, it was one of four remaining bridges employing a pin-connected Pratt through truss in Hamilton County.

Historian: Estella M. Chung, August 1996. Revised by Barbara Stocklin, September 1998.

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Introduction

On November 25, 1897, King Bridge Company was awarded a \$2,323.00 contract to build a steel bridge across the Leon River at Stephenville Crossing.¹ Zenas King's company, incorporated in 1871, was national in scope. King established his bridge-building career in the late 1860s by focusing on the bowstring arch. To build the bowstring, King brought bridge building closer to mass production.² King's focus on the bowstring lowered production costs. By buying in large quantities, the company could obtain building materials cheaper. In addition, King could keep prefabricated parts in stock. He specifically designed his factory to suit the needs of a bridge building company. The plant was situated on a railroad so that raw materials could easily be brought in and finished trusses could be quickly shipped out. Parts could be fabricated and the structure sent within two days. The time savings and lower production costs made the bowstring an economical choice. The combination of streamlined business practices and advertising allowed King to service a national market "stretching from Texas to California."³

Description

The Stephenville Crossing Bridge is a five-panel Pratt through truss with inclined end posts. The endmost panels measure 15'-0", and the others 20'-0", for a total length of 90'-0". The truss provides a clear roadway width of 12'-0" and measures 15'-3" from top chord to bottom chord. The top chord members are built up from a pair of 5"-deep channels connected by 1/2"-diameter rivets to a continuous 3/16" x 10" top plate and tie plates underneath. The portal bracing at each end of the truss consists of a single channel crossing from end post to end post with diagonal angles filling the corners. Elaborate metal portal cresting is connected to a continuous angle riveted to the main channel member. Lateral bracing in the plane of upper and lower chords is comprised of crossed metal rods.

On each side of the truss, the lower chord is a pair of 2" x 5/8" rectangular eye-bars. The tension verticals adjacent to the inclined end posts are a pair of 7/8" square bars, the ends of which are forged into eye-bar loops. The two compression verticals on each side of the truss are

¹ Hamilton County, *Commissioners' Court Minutes*, vol. 5 (Hamilton County Courthouse, Hamilton, Texas), p. 192 (November 25, 1897). S. A. Oliver may have been the bidding agent for King Iron Bridge Company. See bridge manufacturers file (Texas Department of Transportation, Austin, Texas).

² David A. Simmons, "Bridge Building on a National Scale: The King Iron and Manufacturing Company," *Iron Age* 14, no. 2 (1989): 23-32. Victor C. Darnell, *A Directory of American Bridge Building Companies 1840-1900*, Occasional Publication No. 4 (Washington, D.C.: Society for Industrial Archeology, 1984), p. 50.

³ Simmons, p. 27.

built up from a pair of 5" deep and 3/16" thick channels, connected by 1 1/4" x 3/16" x 10" single lacing and 1/2"-diameter rivets into a rectangular section. Diagonals in the second and fourth panels on each side of the truss are a pair of 1 1/2" x 5/8" rectangular eye-bars. Pairs of 3/4"-diameter rods with turnbuckles form the crossed diagonals of each center panel. Vertical, diagonal, and horizontal members are connected by pins that extend through the eye-bar loops and are secured by hex nuts.

Ends of the 4 1/2" wide, 10" deep I-section deck beams are riveted to gusset plates hanging from the pin connections along the bottom chord. The deck beams support longitudinal I-beam stringers (2 1/8" wide and 7" deep) and a floor of transverse timber planks. Including timber approach spans in its original location, the structure's total length was 137'-0". It rested upon four 30"-diameter concrete-filled metal caisson piers. At each end of the truss, lateral I-beams and cross bracing connected each pair of piers.

Hamilton County

The bridge was built when Hamilton County was approaching an economic transition. Farmers in Hamilton County had not been introduced to farm machinery and most families were self-sufficient. They bought few groceries and ate their own crops and beef. The county experienced a forty-seven percent population increase between 1880 and 1890. Most of the newcomers were farmers.⁴ By 1900, the City of Hamilton had a local hotel, a bank, and a series of saloons called "Rat Row". In less than ten years, the agricultural economy of Hamilton County changed. Farmers produced more crops with the aid of farm machinery, and became more dependent on the bridge to take their crops to market.⁵

Located on a regional route, the bridge connected the Hamilton County seat with Stephenville, the seat of Erath County, approximately sixty miles to the north. Both communities are located in the center of their respective counties, and served as important farm and ranching centers for a widely dispersed rural population. The route was the primary connection between the two towns until 1907, when the Stephenville, North and South Texas Railroad linked the two communities. The truss bridge spanned the Leon River approximately six miles north of Hamilton and served as the major river crossing on this route. The bridge also accommodated travel between Hamilton and Hico, a small community in far northeast Hamilton County that obtained railroad connections in 1880 via the Texas Central Railroad. Given that

⁴ The population of Hamilton County was 6,365 in 1880 and grew to 13,520 by 1890. See Oran Jo Pool, "A History of Hamilton County" (M.A. thesis, University of Texas, 1954), pp. 107-108.

⁵ For a profile of a bridge built in Hamilton County in 1911 and Hamilton County's economic transition, see U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-58, "Sycamore Creek Bridge," 1996, Prints and Photographs Division, Library of Congress, Washington, D.C.

Hico was the only town in the region to have railroad connections prior to 1907, heavy travel between the Hamilton vicinity and the railroad depot in Hico passed over the bridge during its first decade.

The Pratt Truss

The Pratt truss was inconspicuous in the turn-of-the-century landscape. It was a familiar design that did not call attention to itself and probably did not capture the attention of late nineteenth and early twentieth century eyes. The Pratt truss was a standard truss used in the early twentieth century. The design's practicality and simplicity made it an economical choice for rural communities. Pratt trusses carry loads with diagonals in tension and verticals in compression. The form was created by Thomas Pratt, probably around 1842; he and his father Caleb patented it in 1844.⁶ The Pratt truss' commonness, however, makes it significant. Crossing such a bridge was probably a common experience for rural Texans, and in the case of the Stephenville Crossing Bridge constructed by a national bridge building company, an experience shared with many others nationwide.

Conclusion

The Stephenville Crossing Bridge remained in service until 1996, when structural deficiencies necessitated its replacement with a new structure at that location. In late 1996, the truss was moved to southwestern Travis County, about ninety miles south of its original location. It is currently located on a private road south of State Route 71, 1.2 miles west of where State Route 71 crosses the Pedernales River. The Stephenville Crossing Bridge remains one of the better examples of a pin-connected Pratt through truss in Texas. The standard truss, fabricated by a national bridge building company, makes the bridge not only part of the history of Texas, but also part of the history of the American built environment. It was one of four bridges employing a Pratt through truss in Hamilton County, Texas, and one of approximately eighty-two bridges employing a pin-connected Pratt through truss in the state.

⁶ Carl W. Condit, *American Building Art: The Nineteenth Century* (New York: Oxford University Press, 1961), p. 110.

SOURCES CONSULTED

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U.S. Department of the Interior, Historic American Engineering Record (HAER) No. TX-58, "Sycamore Creek Bridge," 1996. Prints and Photographs Division, Library of Congress, Washington, D.C.

APPENDIX: Sketch Plan and Elevation