NPS Form 10-900
OMB No. 1024-0018
(Rev. 10/90)

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

1. **Name of Property**

Historic name: N/A

Other name/site number: Stranger Creek Warren Truss Bridge (preferred); 03-LT-29

2. **Location** On Haskell Road, 0.8 miles south of the intersection with 262 Road; 0.5 miles south of the town of Farmington.

city or town Farmington X vicinity

state code KS county Atchison county code 005 zip code 66041

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this XX nomination ___request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property XX meets ___does not meet the National Register criteria. I recommend that this property be considered significant nationally ___statewide XX locally. (___ See continuation sheet for additional comments.)

Richard D. Pankratz DSHPO August 27, 2004
Signature of certifying official Date

Kansas State Historical Society
State or Federal agency and bureau

In my opinion, the property ___meets ___does not meet the National Register criteria.
(___ See continuation sheet for additional comments.)

Signature of commenting or other official Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby, certify that this property is:

✓ entered in the National Register. Edson H. Beall
___ See continuation sheet
___ determined eligible for the National Register.
___ See continuation sheet
___ determined not eligible for the National Register.
___ removed from the National Register.
___ other, (explain:)

for
Signature of Keeper Date of Action 10/12/04

5. Classification

Ownership of Property	Category of Property	No. of Resources within Property	
		contributing	noncontributing
___ private	___ building(s)		
_X_ public-local	___ district	____	____ buildings
___ public-State	___ site	____	____ sites
___ public-Federal	_X_ structure	1	____ structures
	___ object	____	____ objects
		1	0 Total

Name of related multiple property listing:
(Enter "N/A" if property is not part of a multiple property listing.):

Metal Truss Bridges in Kansas

No. of contributing resources previously listed in the National Register

0

6. Functions or Use

Historic Functions
(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)

Current Functions
(Enter categories from instructions.)

TRANSPORTATION: Road-related (vehicular)

7. Description

Architectural Classification
(Enter categories from instructions.)

OTHER: Warren Truss, Polygonal Top Chord

Materials
(Enter categories from instructions.)

Foundation Concrete

Walls

Roof

Other Metal: Steel

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

USDI/NPS NRHP Registration Form

Property Name Stranger Creek Warren Truss Bridge

County and State Atchison, Kansas

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

____ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

____ B Property is associated with the lives of persons significant in our past.

_X_ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

____ D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations (Mark "x" in all the boxes that apply.)

____ A owned by a religious institution or used for religious purposes.

____ B removed from its original location.

____ C a birthplace or a grave.

____ D a cemetery.

____ E a reconstructed building, object, or structure.

____ F a commemorative property.

____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions.)	Period of Significance	Significant Dates
ENGINEERING	1925	1925
TRANSPORTATION		

Cultural Affiliation: N/A

Significant Person	Architect/Builder
N/A	unknown

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

USDI/NPS NRHP Registration Form

Property Name Stranger Creek Warren Truss Bridge

County and State Atchison, Kansas

9. Major Bibliographical References

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested

____ previously listed in the National Register

____ previously determined eligible by the National Register

____ designated a National Historic Landmark

____ recorded by Historic American Buildings Survey # _____

____ recorded by Historic American Engineering Record #_____

Primary location of additional data:

_X_ State Historic Preservation Office

____ Other State agency

____ Federal agency

_X_ Local government

____ University

____ Other

Specify repository:

10. Geographical Data

Acreage of property <1 acre

UTM References

	Zone	Easting	Northing		Zone	Easting	Northing
1	15	302414	4375860	3	/	/ / / / /	/ / / / / /
2	/	/ / / / /	/ / / / / /	4	/	/ / / / /	/ / / / / /

___ See continuation sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Kerry Davis, Architectural Historian & Elizabeth Rosin, Partner

Organization Historic Preservation Services date August 5, 2002

street & number 323 West Eighth Street, Suite 112 telephone (816) 221-5133

city or town Kansas City state Missouri zip code 64105

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black-and-white photographs of the property.

Additional items (Check with the SHPO or FPO for any additional items.)

Property Owners (Complete this item at the request of the SHPO or FPO.)

Name County of Atchison

street & number 423 N. 5th Street telephone 913-367-1372

city or town Atchison state KS zip code 66002-1861

DESCRIPTION

LOCATION AND SETTING

The Stranger Creek Warren Truss Bridge is located 0.5 miles south of the town of Farmington in northeast Kansas, on the north-south section line between the SE ¼ of Section 20 and the SW ¼ of Section 21, Township 6S, Range 19E. The region is defined by rounded hills and broad, tree-lined valleys. The Stranger Creek Warren Truss Bridge carries Haskell Road across Stranger Creek, a narrow, swift tributary of the Kansas River. The gravel roadway, flanked by cultivated fields, aligns directly with the Stranger Creek Warren Truss Bridge.

TRUSS TYPE

The Stranger Creek Warren Truss Bridge is a single span riveted pony truss[1] that measures 72 feet in length and 21 feet in width.[2] Historic, standard, box-form poured concrete abutments support the bearings of the truss, which rest directly on the abutment seat. The side walls of the abutments extend approximately 10 feet along the approach grade.

Seven slopes form the polygonal top chord, creating an arched shape.[3] The top chords and inclined end posts consist of two channels, a cover plate, lacing bars, and stay plates; the bottom chords consist of two channels with stay plates.

The web members include vertical posts that form six equivalent panels and diagonal members that form the system of alternating equilateral triangles distinctive to the Warren Truss. The vertical posts are composed of channel stock; the diagonal members are alternately composed of angle stock with stay plates and riveted channel stock.

The historic poured concrete deck is 21 feet wide between curbs and downspouts. It rises approximately 20 feet above the creek bed on steel I-beam stringers. Floor beams, located at the base of each vertical post, are structurally integrated with the stringers.

The paired historic parallel angle bar guardrails are intact along the length of the bridge. Letters in relief read "INLAND" on several structural components.

INTEGRITY

The Stranger Creek Warren Truss Bridge is an excellent example of this bridge type, which was historically very popular in Kansas.[4] With no apparent alterations made to the historic design or materials, the Stranger Creek Warren Truss Bridge retains a high degree of integrity. The original workmanship, materials, design, setting, and feeling of the property are readily apparent. Furthermore, the potential for preservation of the bridge is high. Located on a secondary road, it is unlikely that traffic requirements will necessitate alteration or replacement.

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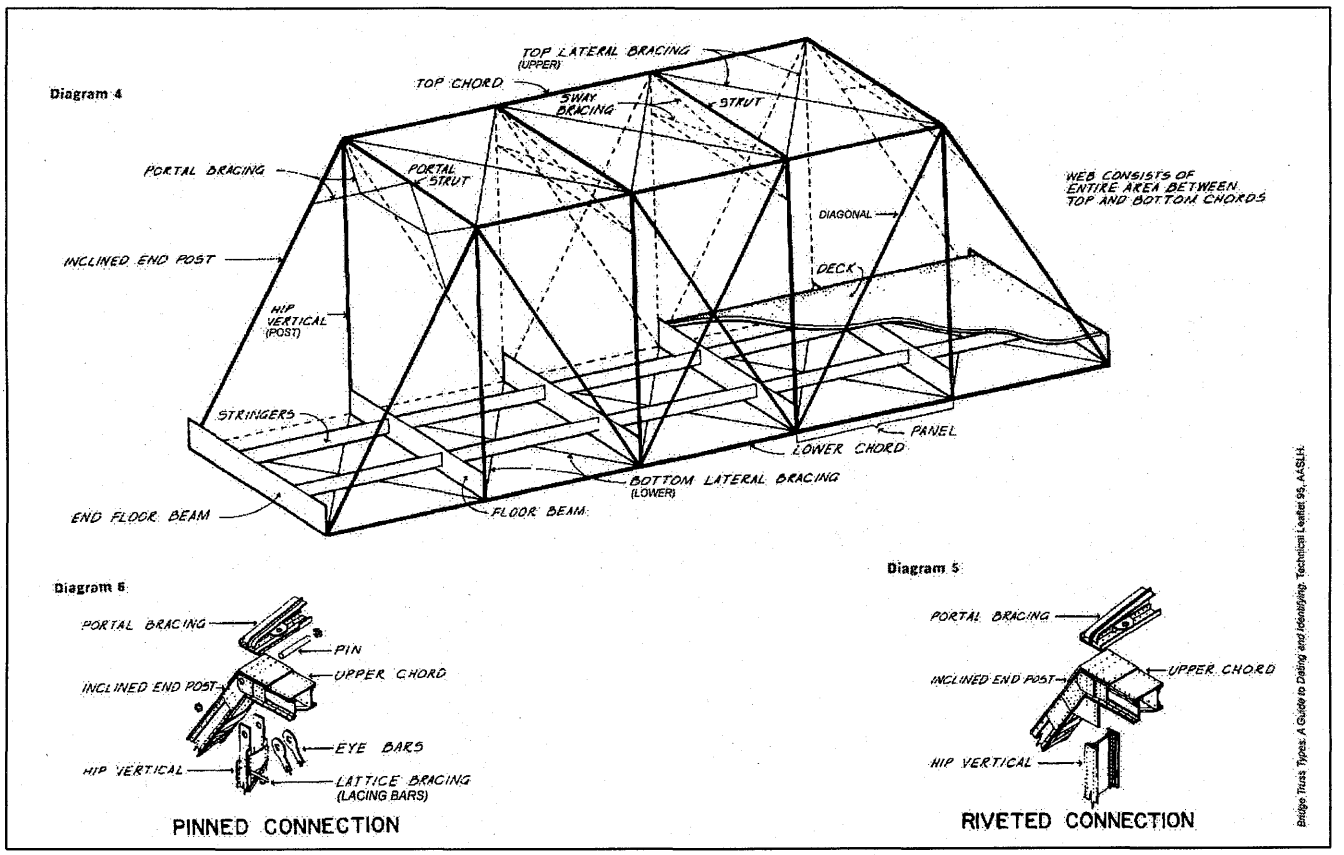
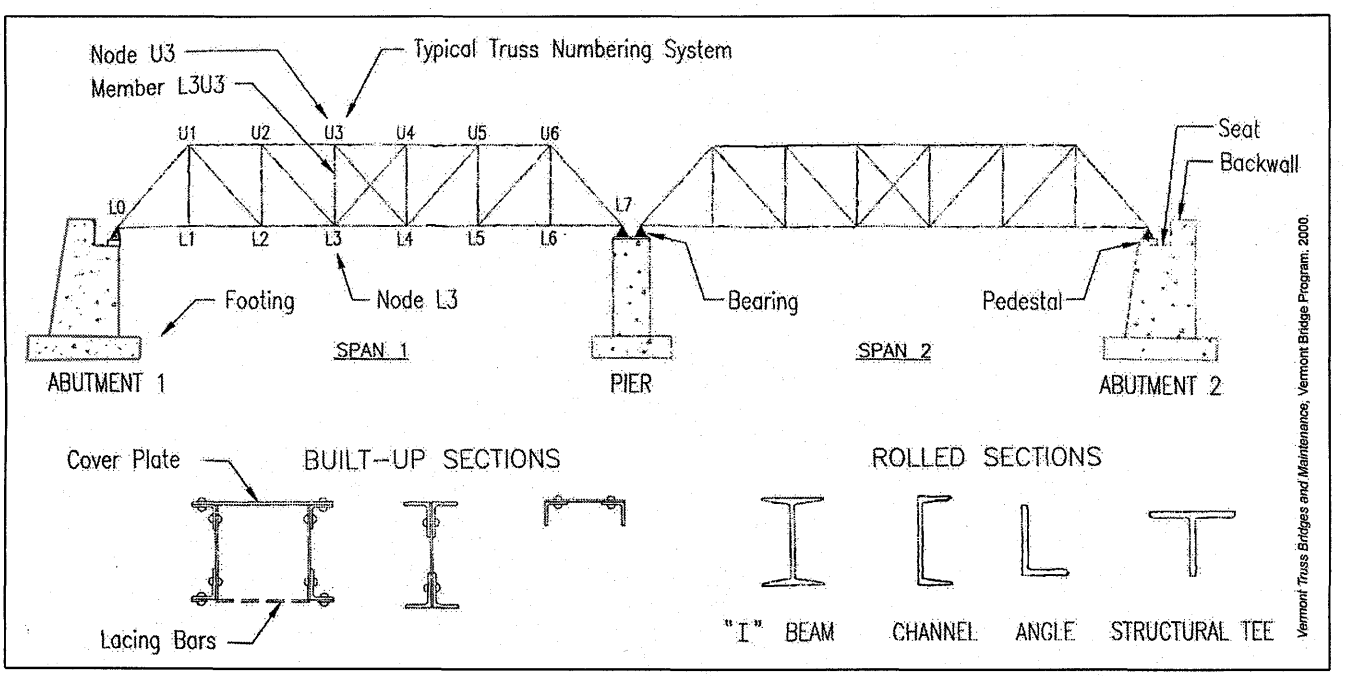
[1] A pony truss is also referred to as a low truss.
[2] The length equals the distance between the abutments; the width equals the distance between trusses.
[3] A Warren Truss with a polygonal top chord is also referred to as a Modified Warren Truss.
[4] Dale Nimz, *Activity III Review Initial Assessment Metal Truss Bridges.* (Topeka: Kansas State Historical Society, 1998), 6. He identifies approximately 400 extant Warren trusses in Kansas.

TRUSS TERMINOLOGY





STATEMENT OF SIGNIFICANCE

The Stranger Creek Warren Truss Bridge is significant under National Register Criterion C in the areas of Engineering and Transportation. As defined in the *Multiple Property Documentation Form for Metal Truss Bridges in Kansas,* it is an excellent example of the Warren truss bridge type. Built in 1925,[1] the Stranger Creek Warren Truss Bridge is an example of a common, economical bridge solution applied to a relatively short span. Its riveted structure and concrete abutments illustrate the standardization of these construction techniques and materials during the period of significance. As no historic name identifies this bridge, the preferred name "Stranger Creek Warren Truss Bridge" has been assigned. This describes the location, design, and function of the structure.

ELABORATION

The need for all-weather crossings of rivers and streams corresponded to the growth of the market economy across Kansas during the late nineteenth and early twentieth centuries. Bridges provided farmers easy access to markets and could make the difference between growth and stagnation for the many small, young communities across the state.[2] Proximity to a bridge often secured a town's economic stability, and contributed to a local sense of modernity.

Prior to the 1930s, the railroad was the primary means of long-distance travel, and there was little need for roads to extend more than a few dozen miles. With little stimulus for improved roads that would cross multiple jurisdictions, road construction and maintenance remained local concerns. County commissioners often carried the burden of selecting bridge locations, over which much contention was common. Although the Good Roads Movement began in the late 1800s, it was not until the meteoric rise in popularity and availability of the automobile during the mid-to-late 1920s that this initiative truly manifested itself in rural Kansas.

The field of choices for bridge designs and companies was vast. Many of the larger bridge companies sold metal truss bridges through mail order catalogues. County commissioners could simply specify the span, clearance needs, and truss type (if there was a preference), then choose the lowest bidder from the numerous competing companies who had salesmen in the field.

By the late nineteenth century, fabrication of iron and steel was widespread. The speed of construction and the relatively low cost of metal truss bridge parts ensured their popularity over labor-intensive masonry bridges and short-lived timber bridges. Toward the end of the nineteenth century, the quality, quantity, and cost of steel improved to such a degree that it virtually replaced wrought iron for bridge construction by 1910.[3]

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[1] Atchison County Road and Bridge records, Atchison, Kansas.
[2] Larry Jochims, *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form,* (Topeka: Kansas State Historical Society, 1989), E.
[3] Ibid, F.

Most metal trusses were constructed of built-up members composed of mass-produced, standard-shaped channel, plate, and angle stock purchased from one or more of the numerous steel companies nationwide. The bridge companies preassembled trusses in their factories then simply shipped them to the bridge site for installation. Installation involved grading approaches, constructing abutments and piers, erecting preassembled floor and truss members, and placing deck material.

Before 1900, generally all panel point connections – the locations at which structural bridge elements intersect – were made with the use of a pin. This technique was so widespread that it became one of the distinctive features of American bridge construction in the nineteenth century.[4] However, subsequent advancements in pneumatic riveting techniques greatly improved rivet installation quality, enabling more reliable panel point connections. With the increased portability of this construction technology, the more rigid riveting technique rapidly surpassed pin-connected bridge construction during the first years of the twentieth century. The riveted construction of the Stranger Creek Warren Truss Bridge illustrates the standardization of this technique.

In addition, the contemporary development of economic cement production promoted the widespread combination of steel and concrete in bridge construction. It was not uncommon for older metal truss bridges to receive new reinforced concrete decks or poured concrete reinforcements for older stone abutments. By the 1920s, reinforced concrete was the standard material for abutments, piers, and decks of steel truss bridges. The poured concrete deck and abutments of the Stranger Creek Warren Truss Bridge are typical of bridges built during this period.

The Stranger Creek Warren Truss Bridge is a classic example of this truss design. Patented in 1848, the Warren Truss has diagonal members alternately placed in either tension or compression, resulting in a visually distinctive system of alternating equilateral triangles. Vertical members are often incorporated to further strengthen the truss, and many, such as the Stranger Creek Warren Truss Bridge, also include a polygonal top chord for additional structural stability.[5]

While the straightforward design of the Warren Truss was desirable, the lack of counters and sometimes verticals subjected the center pins to extensive wear, making it less durable and therefore less popular than the Pratt truss during the nineteenth century. The later standardization of riveted construction techniques eliminated these issues and the Warren Truss gained popularity.[6] In Kansas, Warren trusses were constructed well into the middle of the twentieth century, suggesting the appeal of the design's strength, simplicity, and economical construction costs. In 1998, approximately 400 Warren truss bridges, including the Stranger Creek Warren Truss Bridge, existed throughout the state of Kansas.[7]

STRUCTURE HISTORY

[4] Ibid, F.
[5] T. Allan Comp and Donald Jackson, *Bridge Truss Types: A guide to dating and identifying.* (Nashville, Tennessee: American Association for State and Local History, Technical Leaflet 95), 8.
[6] Jochims, E2.
[7] Nimz, 6.

Founded in 1872, the nearby unincorporated town of Farmington was named for the numerous farmers who settled in the area along Stranger Creek. The Union Pacific Railroad established a small station in town to serve its Central Branch line, and Farmington was soon known as a thriving rural town in one of the best agricultural areas in Atchison County.[8] Typical of small towns throughout Kansas, it served as a trading and shipping point for the surrounding rural community. As a result, fords and bridges that provided area farmers with access to local markets were critical to the survival of the regional economy. Illustrating the significance of these crossings, the Stranger Creek Warren Truss Bridge is one of three metal truss bridges constructed between c.1915 and 1925 that cross Stranger Creek within a 0.5-mile radius.

According to Atchison County Road and Bridge records, the Stranger Creek Warren Truss Bridge was constructed in 1925. No further construction history has presently been located.[9] While the builder of this bridge is unknown, markings on the structural members indicate that Inland Steel Company of Chicago, Illinois produced the stock metal.

[8] *Atchison Globe*, 26 May 1944. Kansas State Historical Society, Atchison County clippings. Farmington featured a grain elevator until 1944.

[9] Inquiry into the Atchison County Road and Bridge records, Kansas Department of Transportation records, Kansas State Historical Society archives, Atchison County Historical Society archives, and *Western Contractor* revealed no further construction history specific to the Stranger Creek Warren Truss Bridge.

BIBLIOGRAPHY

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Cutler, William G. *History of the State of Kansas*. Chicago: A.T. Andreas, 1883.

Delaware Historic Bridges, Survey and Evaluation. Historic Architecture and Engineering Series, No. 89. Dover: Delaware Department of Transportation, Division of Highways, 1991.

Historic Highway Bridges in Pennsylvania. Harrisburg: Pennsylvania Department of Transportation and Pennsylvania Historical and Museum Commission, 1986.

"Industrial Images from the Library of Congress," *Illustrated Pittsburgh Retrospective* [article on-line]; available from **http://www.andrew.cmu.edu/user/vck/pghretro.htm**; Internet; accessed 18 March 2002.

Jochims, Larry. *Metal Truss Bridges in Kansas 1861-1939, National Register of Historic Places Multiple Property Documentation Form.* Topeka: Kansas State Historical Society, 1989.

Jochims, Larry. *Riley Creek Bridge, National Register of Historic Places Registration Form.* Topeka: Kansas State Historical Society, 1989.

Kansas Historic Bridge Rating System, Kansas Department of Transportation, 1980-1983.

Nimz, Dale E. *Activity III Review Initial Assessment Metal Truss Bridges.* Topeka: Kansas State Historical Society, 1998.

Second Ohio Historic Bridge Inventory, The: Evaluation and Preservation Plan. Columbus: Ohio Department of Transportation, 1990.

Vermont Truss Bridges and Maintenance. Vermont Bridge Program, 2000.

"Wealthy Community," *Atchison Globe*, 26 May 1944.

Whittemore, Margaret. "Historic Bridges of Kansas," *The Kansas Teacher,* March 1929.

WPA Guide to 1930s Kansas. Lawrence: University of Kansas Press, 1984.

GEOGRAPHICAL DATA

Verbal Boundary Description:
Located on the section line between the SE ¼ of Section 20 and the SW ¼ of Section 21, Township 6S, Range 19E, the Stranger Creek Warren Truss Bridge encompasses an area measuring approximately 72 feet by 21 feet. The northwest corner of this area corresponds to the northwest corner of the bridge.

Boundary Justification:
The boundary includes the truss, deck, abutments, and associated approaches that represent the significant features associated with the bridge structure.