NPS Form 10-900-a
(8-86)

OMB Approval No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number _____ Page _____

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 89002179 Date Listed: 1/4/90

Carey's Ford Bridge — Property Name
Miami — County
KS — State

Metal Truss Bridges in Kansas 1861--1939 MPS — Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Beth Boland — Signature of the Keeper
1/4/90 — Date of Action

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Amended Items in Nomination:

Item #7, Description: Materials include 1) Metal: steel; and 2) Wood.

Item #8, Significance: Applicable National Register criteria are A and C.

DISTRIBUTION:
National Register property file
Nominating Authority (without nomination attachment)

NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

NOV 2 8 1989

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Carey's Ford Bridge
other names/site number Carey's Ford Bridge

2. Location

4 miles west, 1.5 miles north, .3 miles west of intersection E.A.S. 259 and E.A.S. 456

street & number Unmarked county road ☐ not for publication
city, town Osawatomie ☒ vicinity
state Kansas code KS county Miami code 121 zip code 66064

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☐ private	☐ building(s)		buildings
☒ public-local	☐ district		sites
☐ public-State	☐ site		structures
☐ public-Federal	☒ structure	1	objects
	☐ object		Total
		1	

Name of related multiple property listing:
Metal Truss Bridges of Kansas

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ 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 ☒ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official — Date: Nov. 16, 1989

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☑ entered in the National Register. ☑ See continuation sheet. — Beth Boland — 1/4/90
☐ determined eligible for the National Register. ☐ See continuation sheet.
☐ determined not eligible for the National Register.
☐ removed from the National Register.
☐ other, (explain:) _____

Signature of the Keeper — Date of Action

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Transportation: Road Related (vehicular): Bridge	Transportation: Road Related (Vehicular): Bridge

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
Other: Camelback through truss	foundation walls roof other Metal: steel

Describe present and historic physical appearance.

Carey's Ford bridge, built in 1909, consists of a main camelback span which is 159 feet long and 15.5 feet wide. The two Warren pony spans are 37 feet above the water level.

The members of a truss bridge are designated either as chord members or web members. Chord members are those mainly defining the outlines of the structure and they are termed lower or upper chord members depending on whether they are found at the bottom or the top of the structure. Members between the chords are web members. They are called posts or ties if they sustain compression or tension respectively. In the instance of the Carey's Ford bridge, as with all camelback trusses, the web members are alternately vertical and inclined. The inclined members are in tension and the verticals in compression. In the case of the two pony trusses, the diagonals carry both compressive as well as tensile forces.

In the case of the camelback truss the inclined endposts and top chord consist of exactly five slopes. In the Carey's Ford bridge they are built up of sections consisting of two steel channels, a top plate and tied together with single bar lacing. The hip verticals, posts and main diagonals are all fabricated from angle stock with horizontal flat lacing bars. The portal bracing is fabricated from angle stock and flat bars. The main connections are pinned. The riveted pony spans are Warren trusses with verticals. It features single bar "ladder" type bracing on diagonals and verticals. It is of all riveted construction.

The hip verticals of the pony truss at the east approach have been reinforced but the bridge retains a high degree of its structural integrity.

☐ See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☒ statewide ☐ locally

Applicable National Register Criteria ☐ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Engineering	1909	1909
Transportation	1909	1909

Cultural Affiliation n/a

Significant Person ~~n/a~~

Architect/Builder Kansas City Bridge Company

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The great evolution of truss bridge construction began in the United States soon after the publication of Squire Whipple's historic work on stresses in 1840. Prior to this the design work was essentially that of trial and error, experience and judgement. The Warren and Pratt trusses were rational designs and lent themselves readily to the system of analysis postulated by Whipple. They were, therefore, readily and rapidly accepted and formed the foundation for a greater part of American truss design. The camelback, with its five slope-polygonal top chord is a variant of the Pratt truss. This arched top chord made for a stronger bridge while using the same amount of material. The five slopes allowed for both greater standardization of its members and better stress distribution than other Pratt variants such as the Parker. It was also a more economical design in many situations.

The greater strength of steel over wrought iron allowed the use of fewer, though more massive, members. Steel bridges make a definite first impression on the viewer. As Davie Weitzman reports in his Traces of the Past, the steel bridge appears "more massive, ponderous, more earthbound," than its wrought iron relative. Although the Carey's Ford bridge is fabricated from steel, it still retains the popular 19th century practice of pinning the main connections. In this respect it represents a transitional phase in bridge construction. Pin connections were vestigal in Kansas bridges by 1909.

The camelback truss featured in this nomination is the oldest and one of the three remaining camelback through trusses left in Kansas. It retains a high degree of its integrity. It was also constructed by a prolific out-of-state builder, Kansas City Bridge Company of Kansas City, Missouri.

Bridges were a high priority item for Miami county in 1908. It was becoming increasing apparent that access to centers of trade had to be

☒ See continuation sheet

improved. Consequently the county commissioner, W. M. Krumsick, proposed the erection of four bridges. The largest of the four was to cross Carey's Ford over the Marais des Cygnes river and is the subject of the nomination. It would greatly improve access to and open up markets in Osawatomie.

Krumsick and Chairman Archie Lee voted in favor of the bridges while Commissioenr R. Hampson voted against. Although the measure passed, the controversy had just begun. The need for river crossings was never contested bu the exact locations were. The two major sites for the bridge of interest in this nomination were Henry Carey's Ford between sections 36 T17 R21 and S1 T18 R21, and on a site just south of a Mr. Croan's house on the range line.

Newspapers advised against the choice of Carey's Ford even though a majority of the commission favored it. Any bridge, they argued, would genefit the county. Opponents should instead lobby for the erection of additional bridges.

Bids were opened for a structure on the Carey's Ford site on December 7, 1908. Six companies submitted bids, the Illinois Steel Bridge Company ($7,300); the Midland Bridge Company ($7,250); the Missouri Valley Bridge and Iron Company ($7,150); Canton Bridge Company ($7,500); Standard Bridge Company ($7,640); and Kansas City Bridge Company ($7,750 or $6,885).

Opposition again surfaced and the decision was postponed until the morning of December 8. At this time Commissioner Hampson offered a motion to reject building the bridge because of the location dispute and the great expense. The motion was rejected and the contract was given to the Kansas City Bridge Company for $6,885.

When several citizens proposed going to court to stop construction the Western Spirit advised caution. If such tack became common, few bridges would ever be built. A few dissatisfied individuals could halt such construction in every locality. The newspaper again advised that Miami county people should organize to have a dozen more bridges built.

The advice was evidently taken as no further vocal opposition appeared and the project was pursued until completion in 1909.

The Kansas Department of Transportation (KDOT) carried out a statewide inventory of historic bridges between 1980 and 1983. The bridges to be included were identified through computer printouts developed by KDOT, from information supplied by the counties (since almost all of the historic

bridges were located on secondary rather than primary road system), and by direct observation by field personnel. All bridges were inspected by KDOT personnel to verify the data on file. That information was jointly evaluated by representatives of KDOT, Kansas State Historical Society, and the State Historic Preservation Officer.

Each structure was evaluated using a points rating system adapted from the points evaluation rating developed by the Ohio Department of Transportation and Ohio Historic Preservation Office. Consideration was given to areas such as age, builder, number of spans, length, special features, history, integrity, surviving numbers, and preservation potential.

In many instances there is little information about individual structures. Often bridge plaques which may have contained information have been removed, or the county's records are not complete or have been destroyed. Due to the large numbers of similar structures there is often little to choose from in differentiating among individual bridges other than condition and the likelihood of preservation.

The purpose of the KDOT study and subsequent evaluation was to identify a representative selection of bridges of each class. Through this approach KDOT and KSHS hope to preserve for posterity some examples of each type.

Victor C. Darnell, American Bridge Building Companies, Washington, DC: Society for Industrial Archeology Occasional Publication 4, 1984.
David Weitzman, Traces of the Past: A Field Guide to Industrial Archeology, New York: Charles Scribner's Sons, 1980.
James L. Cooper, Iron Monuments to Distant Posterity, DePauw University, F.H.W.A., Indiana Dept. of Highways, Indiana Dept. Natural Resources, N.P.S., 1987.
Dan G. Deibler, A Survey and Photographic Inventory of Metal Truss Bridges in Virginia, Charlottesville: Virginia Highway & Transportation Research Council, 1975.
"Don't Fight Bridges," (Paola) Western Spirit, December 25, 1908, p. 4.

☒ See continuation sheet

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:
- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☐ Other

Specify repository: Kansas State Historical Society

10. Geographical Data

Acreage of property: less than one acre

UTM References

	Zone	Easting	Northing
A	15	322720	4265340
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

The nominated property is located on the SE 1/4, SE 1/4, SW 1/4, SE 1/4, section 36, township 17S, range 21E, on a tract measuring 252' x 15.5' whose northeast corner is represented by the northeast corner of the bridge. Beginning at the northeast corner the boundary proceeds 252 feet soutwest, 15.5 feet northwest, 252 feet northeast, and 15.5 feet southeast to the point of beginning.

☐ See continuation sheet

Boundary Justification

The boundary includes only that area that is historically associated with the nominated property.

☐ See continuation sheet

11. Form Prepared By

name/title: Larry Jochims
organization: Kansas State Historical Society
date: September 20, 1989
street & number: 120 W. 10th
telephone: (913) 296-3251
city or town: Topeka
state: KS
zip code: 66612

"Commissioners Proceedings," (Paola) Western Spirit, December 11, 1908, p. 6.

"Kick on a Bridge," (Paola) Miami Republican, November 27, 1908, p. 1.

"County Business," (Paola) Western Spirit, November 13, 1908, p. 5.

"Rural Route No. 3," (Paola) Miami Republican, November 30, 1908, p. 6.