STEPPS FORD PRATT THROUGH TRUSS BRIDGE
Spanning Neosho River
Commerce vicinity
Ottawa County
Oklahoma
JP Number 25092(04)
Structure Number 58E0062N4510004
NBI Number 00017

PHOTOGRAPHS

AND

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Final

HISTORIC AMERICAN ENGINEERING RECORD
Submitted to:
Oklahoma State Historic Preservation Office
Oklahoma Historical Society
Oklahoma History Center, 800 Nazih Zuhdi Dr.
Oklahoma City, Oklahoma 73105
June 2015
SHPO File No. 1623-12/MOA #354

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Anna Eddings, Photographer, July 2012

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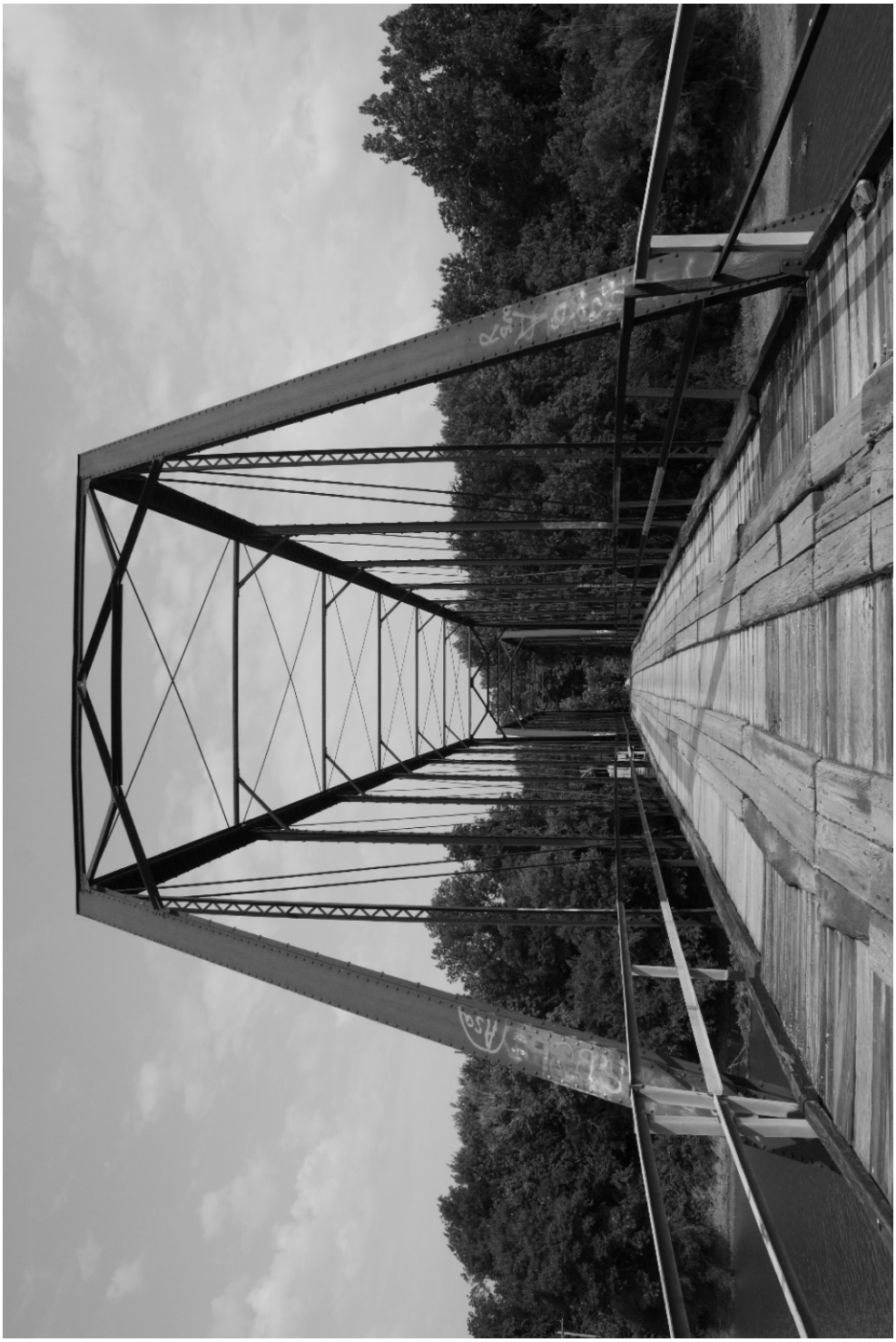

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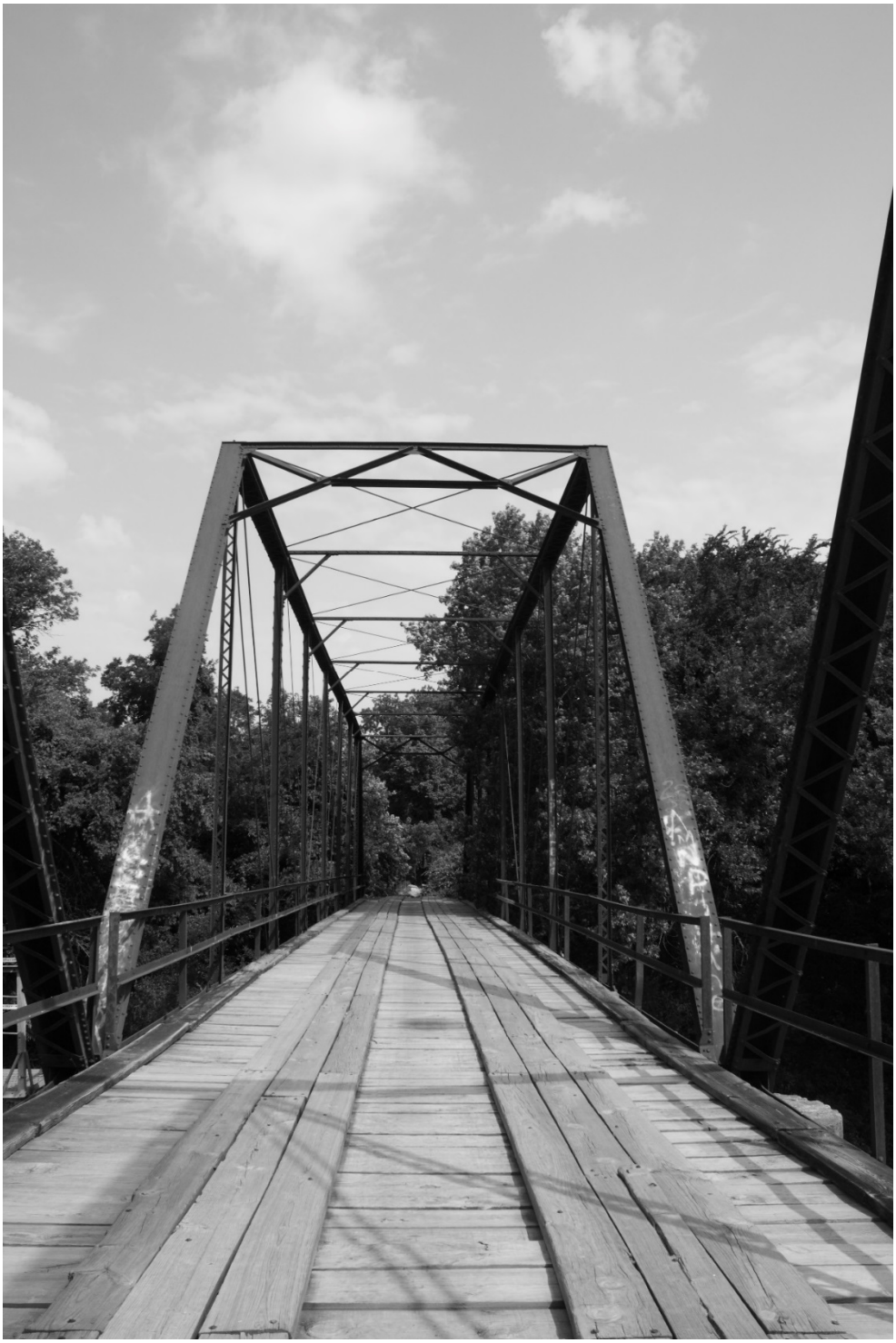

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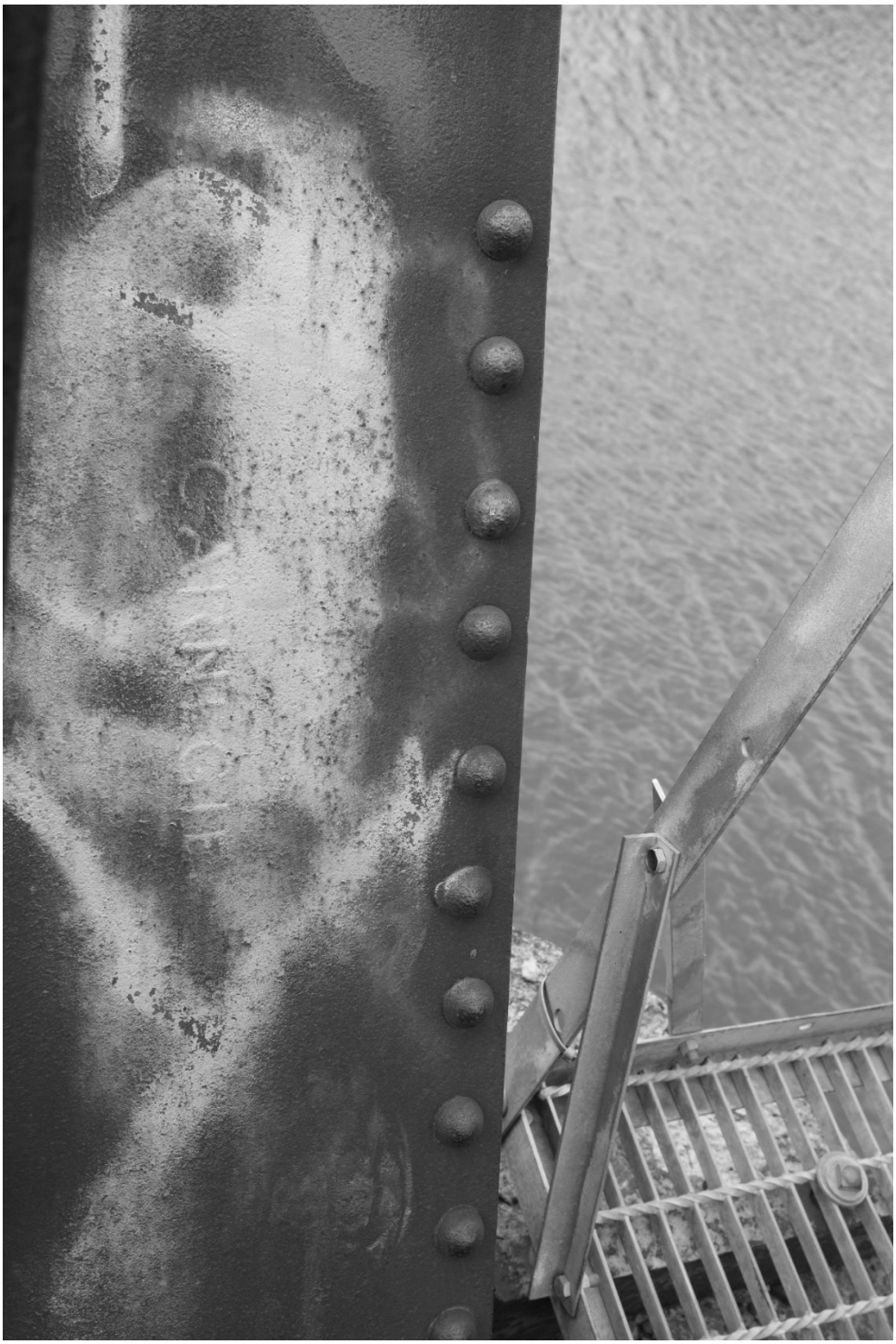

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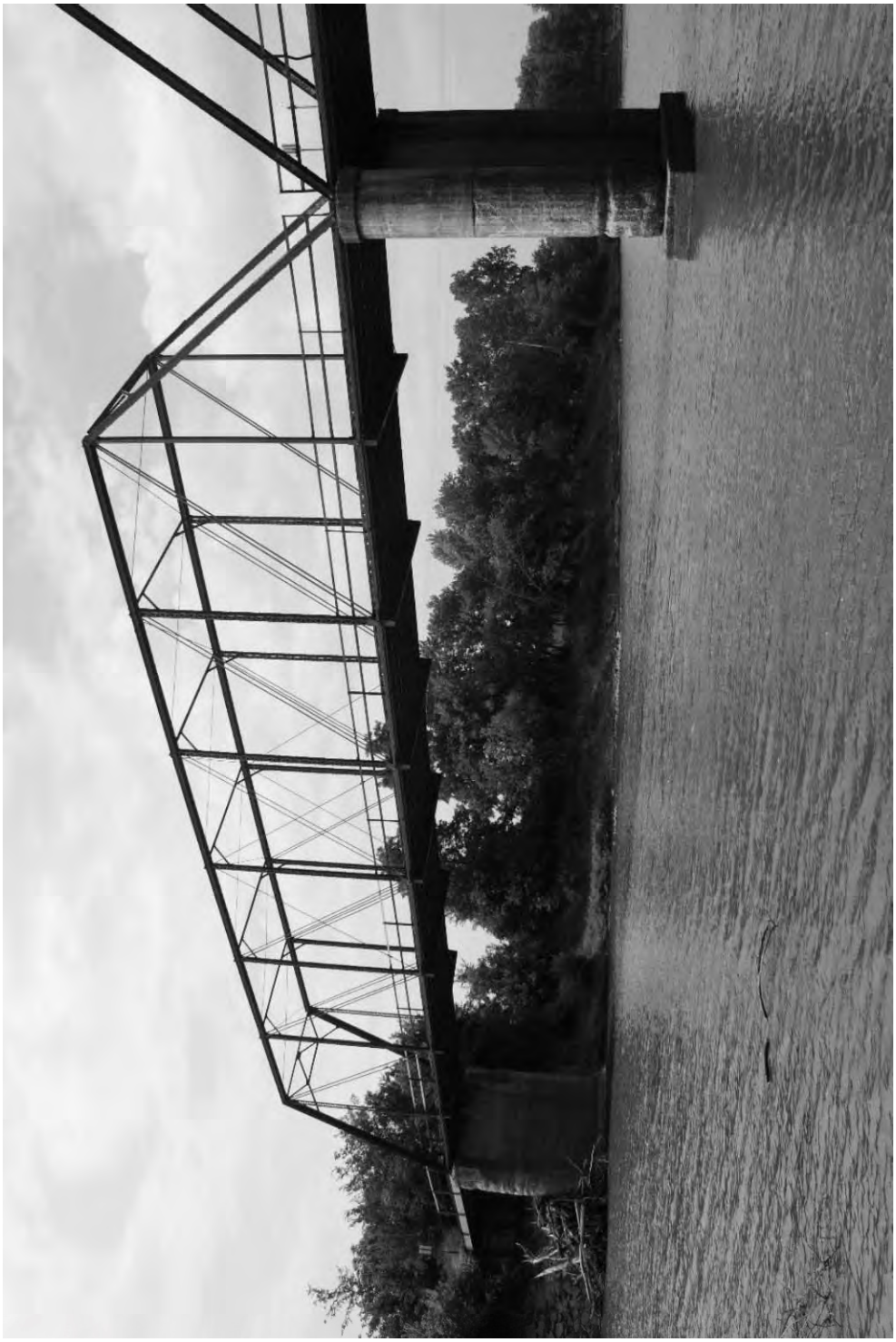

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HISTORIC AMERICAN ENGINEERING RECORD

STEPPS FORD PRATT THROUGH TRUSS BRIDGE

Location: Spans the Neosho River approximately 2.5 miles west of Commerce and 4 miles north and 5 miles west of Miami in western Ottawa County. UTM: Zone 15S, 325661E, 4088781N

Legal Location: Section 5, T28N, R22E.

Map Reference: U.S.G.S. 7.5' series, MIAMI NW, OKLA (1978)

Present Owner: Ottawa County
Oklahoma Department of Transportation (ODOT) Structure Number 58E0062N4510004

Present Use: Not applicable. Vehicular bridge was abandoned due to structural deficiencies.

Significance: The Stepps Ford Bridge is the oldest example of a Pratt Through Truss Bridge in the State of Oklahoma. Originally constructed as a toll crossing over the Neosho River near downtown Miami, the bridge was removed to its current location over the river in the 1920s after being purchased by Ottawa County.

Project Information: Historic American Engineering Record (HAER) Level II equivalent documentation was performed in July 2012 and April through July 2014. Kelli Gaston, Architectural Historian, conducted an onsite visit and compiled the historical information; Anna Eddings with ODOT took the photographs in July 2012. These photographs have been digitally reproduced following National Park Service (NPS) standards for digital images. This HAER recordation serves as mitigation for the removal of the structure from vehicular traffic.

List of Preparers:

Historian/ Architectural Historian:	Kelli E. Gaston Consultant to Geo-Marine, Inc. Plano, Texas
Principal Investigator:	Marsha Prior, Ph.D. Geo-Marine, Inc. Plano, Texas
Report Production:	Anna Banda Geo-Marine, Inc. Plano, Texas
Photographer:	Anna Eddings ODOT Cultural Resources Program Norman, Oklahoma

PART I: HISTORICAL INFORMATION

A. Physical History:

1. **Date of Construction:** 1901

2. **Architect/Engineer:** Not Known

3. **Builder/Contractor/Supplier:** Midland Bridge Company

4. **Original Plans:** Not Available

5. **Alterations and Additions:** The bridge has been moved and repaired after a significant fire in 1987.

B. Historical Context:

1. **Introduction**

In outlying rural communities across Oklahoma, bridges frequently stand as the most notable examples of expert engineering. These functional structures are artifacts representative of a community's development as well as changes in engineering practices over time. The bridge along E60 over the Neosho River west of Commerce and northwest of Miami in western Ottawa County was a crucial crossing for farmers, ranchers, and other residents of the area. But prior to that, it was an important toll crossing for county residents traveling into the city of Miami, Oklahoma, across the Neosho River. For over 100 years, the Stepps Ford Bridge over the Neosho River provided stable and flood-proof transportation to residents of Ottawa County, in both its original and final location. As such, the Stepps Ford Bridge is a monument to the early efforts of local businessmen who invested in the toll bridge and later to Ottawa County Commissioners who purchased the bridge and recycled it for additional use in their efforts to improve infrastructure in this flood-prone county.

The area that would become Ottawa County is located in far northeastern Oklahoma. Geographically, the eastern portion of the county is part of the Ozark Plateau, and the western portion lies within the Osage Plains. The principal rivers in the county are the Neosho River (also known as the Grand) and Spring River, both of which now drain into the manmade Lake of the Cherokees or Grand Lake (the lake was completed in 1940) southeast of Miami.

Archeological evidence indicates that Ottawa County was home to a number of Native American tribes across the millennia, but historically, the land that became Ottawa County was part of lands set aside by the federal government for the resettlement of the Osage Tribe. In 1828, the Western Cherokees were also granted lands in the area, and in 1831, the federal government set aside part of those tribal lands for use by smaller tribes also being relocated to the area. These tribes included several groups of Seneca as well as Shawnee from Ohio. Later, they were joined by members of the Quapaw tribe, and others, including the Peoria, Kaskaskias, Weas, Piankeshaw, Miami, Ottawa, Wyandotte, and Modoc. The Neosho Agency oversaw intergovernmental affairs for all the tribes in the

area. Several Indian Schools operated in the area, including the Seneca Indian School, St. Mary's of the Quapaw, and other schools serving various tribes (Oklahoma Encyclopedia 2014a).

The area now associated with Ottawa County possessed fertile farmland and good grazing land with plenty of access to fresh water (Nieberding 1983). The area became an important stop on regional transportation routes, including the Texas Road and the Shawnee Trail. Rail transportation began with the arrival of the Atlantic and Pacific Railroad in 1871 (later the St. Louis and San Francisco). The city of Miami, where the Stepps Ford Bridge was originally located, was founded in 1891 by the Miami Town Company, a business owned by several locally prominent tribesmen. The town site included approximately 600 acres of land selected for its proximity to the Neosho River and nearby grazing lands. City lots were auctioned off by the Miami Town Company (Miami Weekly Herald 1901a; Nieberding 1983:5, 26A; Oklahoma Encyclopedia 2014b).

Natural resources dramatically impacted the development of Ottawa County and the city of Miami. Zinc and lead were first successfully mined near Peoria in 1891. This first successful mine resulted in an influx of people to Miami and led to the creation of new communities as mining camps opened at Picher, Lincolnville, Commerce, Century, and Cardin. By 1926, Ottawa County was the largest source of lead and zinc in the world. Other important natural resources included limestone, timber, and the abrasive, tripoli[1] (Oklahoma Encyclopedia 2014a).

When Oklahoma gained statehood in 1907, the county was named in honor of one of the local tribes, and the city of Miami won a contest to host the county seat. The first county offices were located in a dance hall in Miami. After statehood, the area grew so quickly that lumber had to be floated in from Kansas or other parts of the Cherokee Nation to meet demand in Miami. Population growth also resulted in the opening of a stone quarry along the Neosho River (Nieberding 1983:3, 4, and 26A; Oklahoma Encyclopedia 2014b).

Miami's proximity to two significant bodies of water has been both a blessing and a curse. While providing a source for drinking water, as well as water for agricultural purposes, the rivers are large, difficult to cross and also prone to flooding. The Neosho River in particular has been notorious for flooding the city, with significant floods in 1943, 1951, 1986, 1994, and 2007. Flooding was a problem even earlier, as flood control was one of the justifications given for the creation of the Pensacola Dam and the Grand Lake (of the Cherokees) in the late 1930s. Flood control continues to be an issue in the area, as local, state, and federal government agencies attempt to maintain a water level at Grand Lake that eases the threat of flooding along the Neosho and Spring Rivers (NOAA 2014a and 2014b; Stotts n.d.).

[1] Mines in the area closed by the 1960s, leaving an environmental disaster. Eventually, the federal government became involved with cleanup efforts, creating a Superfund site at Tar Creek in 2000 (Oklahoma Encyclopedia 2014a).

2. Development of the Ottawa County, Stepps Ford Pratt Through Truss Bridge

The Stepps Ford Pratt Through Truss Bridge, constructed in 1901 by the Midland Bridge Company, is located on E60 Road, approximately 2.5 miles west of Commerce and 4 miles north and 5 miles west of Miami, Oklahoma, just west of S520 Road. E60 is a two-lane dirt road, surrounded by grazing land and a significant number of trees. There are a few scattered homes in the vicinity.

Ottawa County is traversed by numerous streams as well as larger rivers and bodies of water. Prior to the arrival of the railroad, these waterways served as important transportation routes. In particular, Ottawa County is drained by the Neosho and Spring Rivers. The abundance of this resource has helped bring prosperity to the state, but bridging these bodies of water has long posed a challenge to citizens, municipalities, and the state at large. The earliest attempts at bridge building were largely private, utilizing locally available materials. Such bridges, though, were unreliable, often dangerous, and required constant maintenance. After statehood, road and bridge building maintenance became a county issue and managing miles of roads and countless bridges posed a significant problem for county commissioners.

The Stepps Ford Pratt Through Truss Bridge was constructed prior to statehood, and thus, was already in existence when county commissioners began oversight of bridges. The Stepps Ford Bridge was initiated when a group of Miami businessmen solicited the United States Court of Indian Territory, Northern District at Vinita for permission to open a toll bridge across the Neosho River at Miami (Nieberding 1983:111). On April 12th of that year, the local newspaper, the *Miami Weekly Herald*, announced that "the contract for the bridge over the Neosho is to be let next Tuesday" (1901b). On April 26th, the paper elaborated that:

> . . . it begins to look like the beautiful Neosho will soon be spanned here by two bridges. The highway bridge, in which all of us have so deep an interest, and a railroad bridge. The highway bridge people have been listening to the several bridge building contractors the greater part of the week [Miami Weekly Herald 1901c]

The July 26th edition stated that:

> . . . the contract for a highway bridge over the Neosho at the foot of Main Street was let last Monday. The Midland Bridge Company of Kansas City was the successful bidder. The structure will be a steel truss bridge with stone supports. There will be two spans of 156 ½ feet each, supported by a stone abutment on each bank and a stone pier in mid-stream; each to rest on bedrock and stand 30 feet high. The floor will be 16 feet wide and including the approaches about 500 feet long. Work is to begin at once and the bridge completed ready for use by August 15th barring highwater and other causes of delay not to be foreseen or controlled by the contractor [1901d].

The editor announced that the paper did not know the exact cost of the bridge but estimated that the bridge and supports "will cost about $6,000." The local newspaper discussed the bridge being a toll crossing, saying "If it were a free bridge nothing more could be desired in this particular. But as the Herald has several times stated, a toll bridge is very much better than no bridge at all." (1901d). On October 11, 1901, the Miami newspaper printed

that, "Work on both the wagon bridge and the railway bridge over the Neosho is well advanced." The article estimated that the "entire superstructure will probably be in place by the time this is printed" (1901e). Later that month, it was believed that "at this writing the steel work of the highway bridge is virtually completed; but the approaches are unfinished" (1901f). The bridge was open to traffic by the end of the year.

The Stepps Ford Bridge is considered the first toll bridge in Oklahoma. The original toll was 15 cents for a wagon or buggy, 10 cents for those crossing on horseback, and 5 cents for pedestrians. In 1910, the fare changed to 50 cents for a round trip. It remained a toll bridge until 1916 when Ottawa County purchased the structure for $10,000 (Nieberding 1983:111-112). According to ODOT records, sometime during the 1920s, the bridge was removed from its original location near downtown Miami and installed on E60 northwest of town.

In addition to being the oldest toll bridge, the Stepps Ford Bridge is also the oldest extant example of a Pratt Through Truss in Oklahoma. The Pratt Through Truss was the most common type of through truss bridge in the state, with through trusses comprising approximately 20 percent of all bridges built. Commissioners and engineers perceived the through truss as being stronger than the pony truss, resulting in its popularity. The design is characterized by its inclined end posts and its use of diagonals and verticals—diagonals that angle to the center of the bridge. In *Spans of Time*, King describes the through truss as "attaining a degree of majesty in the way it commands a place over a waterway." Further adding to its significance, the Stepps Ford Bridge was the first large scale bridge building project for the Midland Bridge Company, a company that "went on to become a prolific builder in Oklahoma until 1920" (King 1993).

The Stepps Ford Bridge was inventoried as part of the ODOT Planning and Research Division Cultural Resources Program 1993 assessment of Oklahoma highway bridges (King). This study examined metal truss bridges and concrete and stone arch bridges longer than 20 feet in length built prior to 1955. The study determined the Stepps Ford Bridge to be eligible for the National Register of Historic Places as the oldest extant example of a Pratt Through Truss bridge in the state. The bridge was also included in the 2007 re-evaluation and determined to remain eligible for listing in the National Register of Historic Places (Eddings).

PART II. STRUCTURAL/DESIGN INFORMATION

A. General Description: The Stepps Ford Pratt Through Truss Bridge carries one lane of traffic diagonally over the Neosho River along E60 (also referred to as 5834C) approximately 2.5 miles west of Commerce and 4 miles north and 5 miles west of Miami. The 423-foot bridge features two Pratt Through Truss spans, each measuring 156 feet with one steel stringer approach span on the east and four steel stringer approach spans on the west.[2] The bridge is 15.8 feet wide curb to curb, with a total width of 18 feet. The bridge has pinned connections and inclined end posts. The top chord of the main span features channel with lace. The bottom chord has an eye bar. The vertical members are angle with lace. The diagonals have an eye bar as well as square rods with turnbuckles. The bridge deck is wood. The substructure of the

[2] Descriptions of the stringer approach spans for the bridge vary from year to year. Some identify the bridge has having only two approach spans, while other reports identify and illustrate five. The east approach is approximately thirty-six feet in length, with the west measuring a total of approximately seventy-three feet.

bridge features concrete abutments and piers but the approaches have timber pilings. The bridge was significantly damaged by fire in 1987, resulting in major reconstruction at that time.[3]

1. **Character:** The Pratt Through Truss design of the Stepps Ford Bridge is indicative of its period of construction. The structure demonstrates the efforts made during early statehood to improve roads and encourage development.

2. **Condition of Fabric:** The Stepps Ford Pratt Through Truss Bridge shows evidence of normal deterioration due to age and exposure to the elements. Much of the bridge, however, has undergone reconstruction due to damage caused by a fire in 1987.

B. Site Information: The Stepps Ford Pratt Through Truss Bridge is located on a secondary road in a rural area. In each direction, there is pastureland, dotted with trees and other heavy vegetation particularly along fence rows and creek beds. This is the second location for the bridge, which was moved from its original location near Miami to Commerce.

PART III. CURRENT STATUS

The Stepps Ford Bridge was closed June 2011 due to structural deficiencies and is slated for replacement. Under a Memorandum of Agreement with the Oklahoma State Historic Preservation Office (OK/SHPO), the bridge was photographed and documented per NPS HAER Level II equivalency standards.

PART IV. SOURCES OF INFORMATION

A. Primary Sources

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1901a "Miami". April 5.
1901b "The contract for the bridge . . ." April 12.
1901c "It begins to look like . . ." April 26.
1901d "The Bridge." July 26.
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1901f "The Bridges." October 25.

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2014a "Advanced Hydrologic Prediction Service, Neosho River Near Commerce." http://water.weather.gov/ahps2/hydrograph.php?wfo=tsa&gage=COMO2. Accessed July 14, 2014.

2014b "The 1941 Kansas – Missouri Floods . . . Have We Forgotten?" http://www.Crh.noaa.gov/mbrfc/flood51.pdf. Accessed July 14, 2014.

ODOT, Division 8, Tulsa, Oklahoma [ODOT Division 8]
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[3] See "Stepps Ford Bridge Repair Study, November 22, 1991" for additional details and photographs.

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1993 *Spans of Time*. Center for Historic Preservation and Technology, Texas Tech University. Sponsored by the Planning Division, Oklahoma Department of Transportation, State of Oklahoma; and the Federal Highway Administration.

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2014a "Ottawa," Vertical File, Research Division, Oklahoma Historical Society, Oklahoma City. http://digital.library.okstate.edu/encyclopedia/entries/ O/PT003.html. Accessed April 24, 2014.

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LOCATION MAP

STEPPS FORD PRATT THROUGH TRUSS BRIDGE
OTTAWA COUNTY, OKLAHOMA
LOCATION MAP