OFFERING PACKAGE

For Smalling Road, Bridge over Watauga River, LM 1.99 Carter County

Offered by

Tennessee Department of Transportation
and the Federal Highway Administration

October 2020

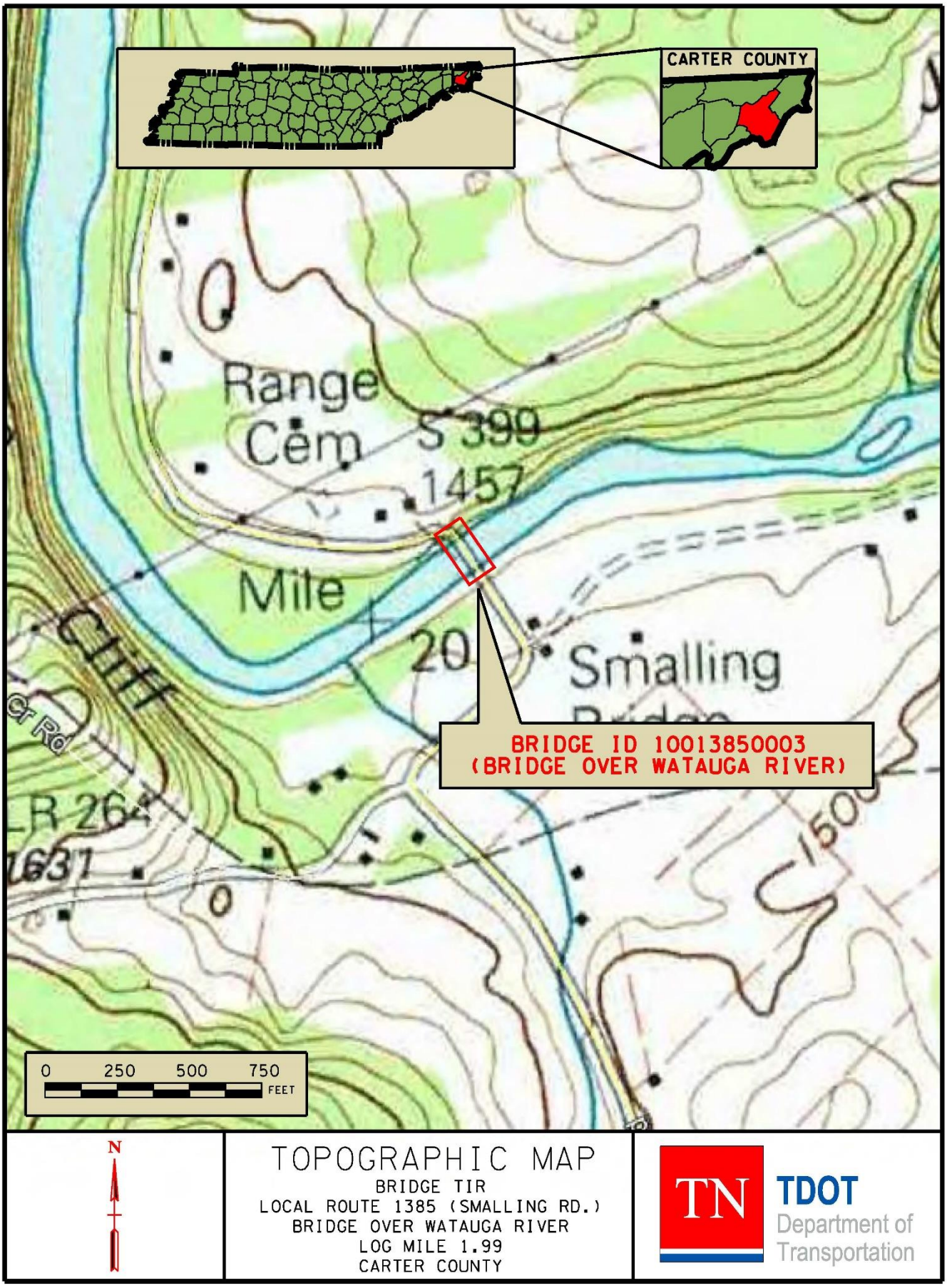
I. Introduction

The Tennessee Department of Transportation is proposing to replace the existing bridge on Smalling Road over the Watauga River at Log Mile 1.99 in Carter County. It is being offered for reuse at its existing location only. Based on the size of the truss, the current remote location and the general structural condition, it is unlikely that it could be moved to another location and be repurposed. TDOT has a Historic Bridge Marketing Program and through this program, a number of the state's historic bridges that were originally scheduled for demolition due to replacement have been preserved in place. The Smalling Road Bridge is a 223-feet long, two-span, Pratt thru truss bridge and is being offered for reuse.

Through this program, bridges have been preserved on-site either as a pedestrian bridge or a historic ruin. Bridges have also been moved to new locations. Additionally, several bridges have been abandoned, closed permanently to vehicular traffic, and preserved by local governments or preservation organizations. For example, the Tennessee Department of Environment and Conservation (TDEC) has assumed responsibility for two historic bridges at Rock Island State Park and at Port Royal State Park and has incorporated them into pedestrian trails.

One preservation option would leave the historic bridge as a ruin in its existing location. An example of this occurred in Lincoln County where the historic bridge had its approach spans and flooring removed and was left standing adjacent to the new bridge as an engineering landmark. This Baltimore Petit type truss bridge is the only one remaining in Tennessee.

TDOT hopes you are interested in reusing the historic Smalling Road Bridge at its existing location thus preserving this historic truss bridge. The following information has been provided to you by TDOT in order to prepare a proposal for the reuse of the bridge.



TOPOGRAPHIC MAP
BRIDGE TIR
LOCAL ROUTE 1385 (SMALLING RD.)
BRIDGE OVER WATAUGA RIVER
LOG MILE 1.99
CARTER COUNTY

TDOT Department of Transportation

II. History of the Smalling Road Bridge

The following information was taken from: *Historic Architecture Survey/Section 106 Assessment for the Smalling Road Bridge over Watauga River Project, Carter County, Tennessee, TDOT PIN 124161.00*, *by New South Associates:*

> James Hervey Smalling (1854-1929) is credited with building the first iron bridge over the Watauga River at this location. James Smalling moved from Sullivan County to the Watauga area of Carter County around 1861, at the age of seven. He worked for the Cranberry Railroad, later called the East Tennessee & Western North Carolina (ET&WNC), also known as the "Tweetsie" Railroad, as a bridge carpenter and trestle foreman. He also constructed dams and a boom for the Watauga Valley Lumber Company. After Smalling retired from the railroad, he operated his farm, peach orchard, sand yard, and tile factory at this location (Carter County History Book Committee 1993:523).
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> The 1904 USGS topo map shows a bridge located approximately 600 feet southeast of the current bridge. The original Smalling Road Bridge was damaged by a major flood in August 1940 and replaced with the current structure in 1941 (Betty Smalling McInturff 2019). The current double-span iron truss bridge was manufactured by the Tennessee Bridge and Steel Company Division of the Johnson City Foundry and Machine Company and erected at this site in 1941. The Johnson City Foundry and Machine Company was founded in 1883 and was located at 920 West Walnut Street, along the tracks of the Southern Railway. The company was primarily a jobbing plant, meaning most of its products were orders made to customer specifications.
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> Structural steel was sold though the Tennessee Bridge and Steel Company. In addition, the Johnson City Foundry became one of the leading military equipment and hardware manufacturers during World War II, earning the "Distinguished Army-Navy E Award" in 1943. The company faced foreclosure and was sold in 1987 (Carver 2011; Cox n.d.). The Tennessee Bridge and Steel Company appears to be one of the earliest adopters using welding to build up bridge members. Welding for minor repairs in the field was common for bridges throughout the 1930s, but it was not a common technique for fabricating large beams and girders in the shop until after 1945. The Smalling Road Bridge appears to be one of the earliest welded bridges in the state (Carver 2011).

According to the Tennessee Department of Transportation Bridge Preservation Report for Bridge Number 10013850003, the Smalling Road Bridge is:

[A] 2-span, 223'-long Pratt thru truss bridge with a 17'-wide deck is supported on concrete abutments and a pier. The abutment on the north end is set on the rock bluff. One truss is 120' long, and the other is 103' long.

The truss members are built up using welding rather than rivets. The box section of the upper chords and end posts are channels with plate on the top and battens on the bottom, and the other members are large-dimension angles with battens. The field connections are bolts. The floorbeams are rolled. Two rail high angle railings are set inside the truss lines. The deck is concrete with an asphalt overlay. The vertical clearance is posted as 14'-1". The portal brace is straightforwardly designed with back-to-back angles (Carver 2011). The southern abutment and central bent are concrete construction and form the bridge substructure. The southern abutment has deeply angled wingwalls. The concrete bent is located in the center of the deck and is comprised of a single pier with diamond-shaped endcaps that sits on a rectangular concrete footer. The double-span truss superstructure and the concrete substructure feature only original elements, however cracks in the concrete and aging truss components are threats to the structural integrity of the bridge. The concrete deck has been re-paved since it was constructed. Metal guardrails and signage specifying weight limits and the bridge name are extant at both approaches. A plaque on the northern portal post reads “JOHNSON CITY FOUNDARY/AND/MACHINE CO./TENNESSEE BRIDGE/AND/STEEL CO. DIVISION/JOHNSON CITY TENN./ERECTED 1941.”

NATIONAL REGISTER OF HISTORIC PLACES (NRHP) EVALUATION

Erected in 1941, the Smalling Road Bridge is an excellent extant example of a two-span Pratt thru truss. In a comprehensive statewide survey, TDOT historian Martha Carver documented 95 Pratt thru trusses in Tennessee, 10 of which had two spans. TDOT records indicate that there are only nine Pratt thru truss bridges in use throughout the state. Additionally, this structure is a very early example of a bridge with members that were fabricated using welding while the field connections are bolts. This resource is recommended eligible for listing on the NRHP under Criterion C as an excellent example of a Pratt thru truss and as an early example of its construction method.

Therefore, the Smalling Road Bridge is recommended eligible for listing in the NRHP under Criterion C at the local level with a period of significance of 1941, the year it was constructed. The character defining feature of the bridge is its truss superstructure. The deck and concrete substructure do not exhibit any unique engineering or architectural details. The recommended NRHP boundary is a 0.27-acre parcel that includes the bridge and its supporting abutments.

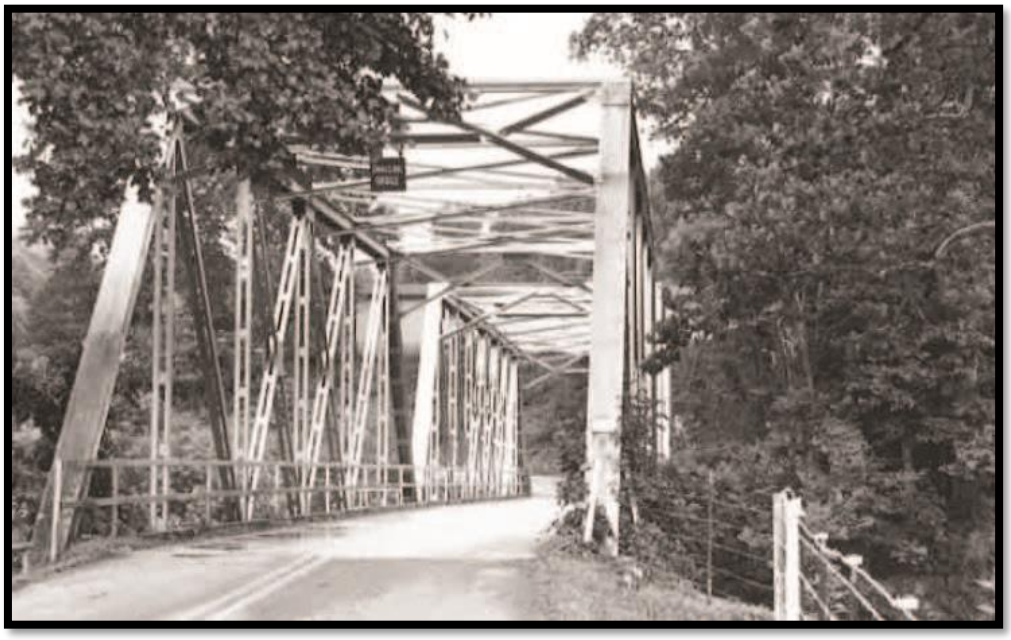
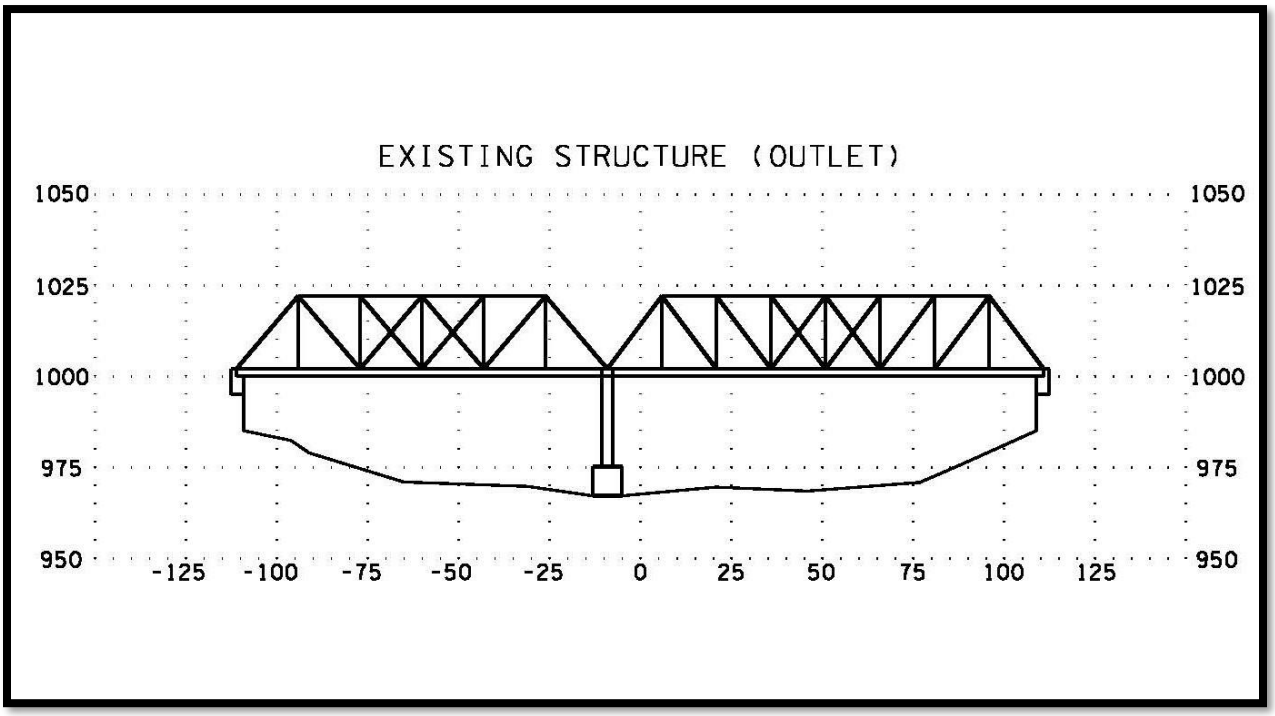


Figure Two: Photographs of the bridge courtesy of the Tennessee State Historic Preservation Office



Drawing of the Smalling Road Bridge

III. Historic Two-span, Pratt Thru Truss Bridge Offered for Reuse

A. The National Register Eligible Bridge Proposed for Replacement

TDOT is proposing to replace the historic bridge with a new bridge on new alignment to the south of the historic bridge. The historic bridge is rated in poor condition and is substandard in both horizontal and vertical clearance. Since it is not possible to modify the existing structure to meet clearance requirements an estimate for replacement of the structure, a cost estimate for repairs was not completed. Appendices B and C contain, respectively, a historic bridge assessment prepared by TDOT Structures Office and excerpts from TDOT bridge inspection reports.

Because of substandard condition of the bridge, TDOT proposes to replace it with a safe, modern structure that meets current standards. Typically, a bridge replacement project results in the demolition of the existing bridge. However, because the demolition of the bridge would adversely affect this National Register eligible structure, federal law mandates that alternatives to the action be considered.

Two alternatives are currently being proposed for the historic structure. One option would leave the historic bridge in its existing location, correct for deficiencies, and open it to the public for pedestrian traffic. Another option would be to leave it in its current location as a historic ruin. According to TDOT Structures, based on the size of the truss, the current remote location, and the general structural condition, it is unlikely that it could be moved to another location and be repurposed, therefore, an option that would allow a qualified recipient to remove the bridge from its existing location and move it to a new location is not being proposed.

B. Reuse at Existing Location

The Smalling Road Bridge is available to interested groups or individuals for reuse at its existing location. TDOT is currently proposing to build a new standard bridge adjacent to the historic bridge which will allow for the preservation of the historic structure in place. A party or individual must present TDOT with a feasible plan for reuse and that party must agree to maintain and accept responsibility for the historic bridge.

One option for reuse at the existing location would include rehabilitating the historic bridge for use a pedestrian facility. TDOT has gathered cost figures and some requirements for changing the historic structure from a vehicular bridge to a pedestrian bridge. Some costs associated with it include replacing the deck with a new concrete deck may be in the range of $125,000 and a timber deck may be closer to $75,000. The cost of spot painting and a full overcoat might be justified. The cost could range from $50,000 to $400,000. These repairs would be needed for the structure to meet safety standards for pedestrians. More detailed rehabilitation needs can be found in Appendix B.

A second option for the historic structure would be to leave it in its existing location as a historic ruin. A qualified recipient that submits an acceptable feasibility proposal could keep the historic structure as a ruin. Under this option, spot painting, removing access to the bridge, and removing the deck in order to lessen the load on the truss would be needed to keep the bridge in place as a historic ruin.

If a feasibility proposal is submitted to TDOT and is subsequently accepted for the preservation of the bridge in place, the bridge will be donated to the approved recipient. The recipient will then be asked to sign a contract agreeing to preserve the

historic bridge (Appendix A contains sample contracts). Any work that TDOT agrees to do up to but not exceeding the cost of the bridge's demolition, estimated demolition cost is $230,000, would then be written into the construction contact for execution by the project's contractor.

Federal regulations pertaining to the funding of this project stipulate that if the bridge is abandoned it cannot remain in service as a facility for public vehicular traffic after the replacement structure is built.

IV. Proposal Submission

Interested parties should submit a reuse proposal to TDOT by January 31, 2021. A feasible plan should protect the historic integrity of the bridge and should provide for future maintenance.

The plan should also discuss the following:

- Proposed use of the bridge (for example, pedestrian use or fishing pier)
- Proposed funding sources
- Cost estimates by a contractor or engineer for proposed work (items should include, but are not limited to, a new deck, sandblasting and painting the truss, any structural repairs to the truss, any needed site improvements, and a schedule for the recipients work on the bridge).

A detailed list of needed repairs and their estimated costs are included in Appendix B,. Private or public recipients who have the capabilities and facilities to do portions of the repairs themselves may have substantially lower costs.

Proposals will be reviewed by the Tennessee State Historic Preservation Officer (TN-SHPO), the Federal Highway Administration (FHWA), and TDOT. If these groups approve a proposal for the preservation of the bridge in place, the historic bridge will be donated to the approved recipient. Any work that TDOT agrees to do up to but not exceeding the cost of the bridge's demolition would then be written into the construction contract for execution by the project's contractor.

V. Conclusion

Proposals are due to TDOT by January 31, 2021. After that date, if no qualified recipient has been identified, TDOT will continue with the proposed project. If you need additional information, please contact Katherine Looney, Historic Preservation Supervisor.

Proposals can be submitted to Katherine Looney at the following address.

Katherine Looney, Historic Preservation Supervisor
Tennessee Department of Transportation
Environmental Division
505 Deaderick Street
Suite 900 James K. Polk Building
Nashville, TN 37243
or katherine.looney@tn.gov

APPENDICES

A. Recipient Contracts: Private Entity and Government Entity
B. Historic Bridge Assessment and Estimated Cost Figures
C. Excerpts from TDOT Bridge Inspection Reports