Bridge 3459 is a five-span Baltimore deck truss bridge constructed in 1923-1924 by the Minnesota Department of Highways (MHD). It carries the Tettegouche State Park entrance road over the Baptism River in eastern Lake County, Minnesota. The bridge, aligned in a northeast-southwest direction, was originally constructed to carry Trunk Highway (TH) 1 (later designated as United States Highway [US] and eventually TH 61) over the Baptism River as part of the North Shore Drive along Lake Superior. It was bypassed in the late 1960s and non-historic Bridge 38007 now carries TH 61 about 100 feet northwest of Bridge 3459. At this location, the Baptism River channel is very deep and rocky, with the Lake Superior shoreline about 500 feet southeast of the bridge. Surrounding areas are heavily wooded. A roadside rest area is located about 700 feet northeast of the bridge’s north end, where the Tettegouche State Park entrance drive intersects with TH 61.

Bridge 3459’s main span is a 140-foot-long, Baltimore, steel deck truss span. The Baltimore truss is a variant of the more-common Pratt truss in which half-length diagonal and/or vertical struts divide each truss panel into subpanels. The additional bracing increases the rigidity and load capacity of the truss. The truss span itself is 14 feet, 3 inches wide; however, the bridge’s deck cantilevers outward beyond the truss width, providing a total deck width of 28 feet. Each truss is composed of eight panels, each 17 feet, 5 inches long and 22 feet deep. The truss members are arranged in the Baltimore configuration, with hip vertical members added at either end of the truss span to complete a box-truss appearance. The truss’s primary members are built-up with steel angles, channels, plates, and lacing bars with all-riveted connections. Truss members are joined at gusset plates with riveted connections, except for a large pin connection at the endpost/end vertical connection at the truss bearing shoes. Bridge 3459 has four steel deck plate girder approach spans, two on either end of the main span. The north approach spans and the inside south approach span are 60 feet long with a girder depth of 3 feet. The southernmost
approach span, originally 60 feet long, was shortened in a 1985-1986 reconstruction project and is now approximately 30 feet in length. Each girder is stiffened with vertical angles placed at 5-foot intervals. The approach spans have cross-frame diaphragms located at span ends and mid-span, and also have bottom lateral bracing aligned horizontally and transversely. The bridge has a total structure length of 383 feet.

The bridge has a total deck width of 28 feet, with a 20-foot, 4-inch roadway width, a barrier-separated 5-foot sidewalk on the bridge’s south side, and railings. The bridge has a timber deck. The roadway portion of the deck is topped with a thin layer of asphalt surfacing, while the sidewalk retains the timber walking surface. The bridge’s original metal pipe railings and concrete endposts have been removed. Current vehicular railings are thick treated timber posts, rails, and curbs located on either side of the roadway. The south vehicular railing separates vehicular and pedestrian traffic. A timber pedestrian railing extends along the south edge of the bridge deck.

Intermediate piers supporting the truss span are made up of two square concrete columns joined by a webwall to form a solid pier. Intermediate piers supporting plate girder spans have trapezoidal-shaped steel cross frames with built-up members bearing on two square concrete columns. The bridge has concrete abutments with flared wingwalls. The west abutment was reconstructed and realigned in 1985-1986 to accommodate a change in road alignment to pass under Bridge 38007 and into the state park entrance.

EVALUATION AND ANALYSIS

Historical Context

Historic Iron and Steel Bridges in Minnesota, 1873-1945

Historical Narrative

Bridge 3459 was built in 1923-1924, a period of activity for the relatively new MHD. The State Highway Commission had been reorganized in 1917 as the MHD under the leadership of Charles M. Babcock. In 1920 the Minnesota Legislature and voters authorized the MHD to establish and maintain a network of Trunk Highways, representing important through routes across the state. The MHD began to designate and administer this new system in 1921. TH 1 formed a backbone of the Trunk Highway System, stretching from southeastern Minnesota to the Canadian border. In Lake County TH 1 followed a zig-zag pattern of former county roads. The highway crossed the Baptism River at the village of Finland, several miles inland from Lake Superior. In the early 1920s the MHD began to develop a new TH 1 alignment, later known as the North Shore Drive, hugging the Lake Superior shoreline.

In conjunction with the new TH 1 construction, the MHD planned for a bridge to cross the deep Baptism River channel, just a few hundred feet inland from the Lake Superior shoreline. The bridge was designed by MHD engineers as a Baltimore deck truss with deck plate girder approaches. The Baltimore truss design was typically used for railroad bridges, as it offered greater stability and strength for heavy freight loads. Its use for a vehicular bridge in far northern Minnesota is not clear. The deck truss design was well-suited for the deep river channel, reducing the amount of substructure required for construction. The bridge plans were approved in August 1922, and the bridge was constructed in 1923-1924 by A. Guthrie & Company of St. Paul for a cost of $28,460.89. A. Guthrie & Company was contractor for numerous railroad and highway bridges in the north central and northwest U.S. during the late nineteenth and early twentieth century. In 1926 TH 1 was also designated as US 61.

LA-BBT-022
For more than four decades after its initial construction, work on Bridge 3459 was limited to occasional painting and minor repairs to the bridge railing. In 1967 Bridge 3459’s original metal pipe railings and decorative concrete endposts were removed and replaced with a more utilitarian metal pipe railing. By the late 1960s the MHD made plans to realign US 61 at the Baptism River, widening the roadway and improving the overall road alignment and grade for vehicles using the scenic North Shore Drive.

While initial plans called for the removal of Bridge 3459 and placement of a scenic overlook in its place, the bridge was retained for use as part of a realigned entrance into Baptism River State Park. The park, established in 1945, consisted of about 700 acres of land with frontage on Lake Superior and along the Baptism River in the bridge’s vicinity. In 1968-1969 deteriorated portions of Bridge 3459 received “underpinning” according to MHD maintenance logs, presumably to add support to the structure. At the same time US 61 was realigned and Bridge 38007 was constructed about 100 feet northwest of Bridge 3459. The old bridge was converted to pedestrian and snowmobile use and was transferred to Minnesota Department of Natural Resources (DNR) ownership in 1974.

In 1979 the DNR purchased the Tettegouche property, totaling more than 3,300 acres, adjacent to the existing Baptism River State Park. The two properties were merged and renamed as Tettegouche State Park. As part of overall park development, the park entrance road was realigned to use Bridge 3459 and a rest area/park welcome center was constructed on US 61, where it intersected with the old roadway alignment.

The DNR reconstructed portions of Bridge 3459 to accommodate the new entrance road alignment. The concrete deck was removed and replaced with a wider bridge deck to handle two lanes of vehicular traffic and a pedestrian walk cantilevered from the bridge’s south side. New timber railings, designed to blend with the wooded surroundings, were added to the bridge deck. A portion of the south approach span was removed and the southwest abutment was partially reconstructed and lengthened to allow the roadway at the bridge’s southwest end to curve under Bridge 38007 and into the state park. The reconstruction work was undertaken in 1985-1986 by Duluth Superior Erection, Inc. under contract to the Minnesota DNR. The project included bridge painting but little, if any, structural work. Bridge inspections from the late 1980s noted continuing structural deterioration of Bridge 3459. The bridge was again rehabilitated in 2004, with steel member repair and repainting.
Significance

Bridge 3459 was evaluated for Criteria A and C significance under the Historic Iron and Steel Bridges in Minnesota, 1873-1945 Multiple Property Document (Historic Iron and Steel Bridges MPDF) historic context. To be significant under Criterion A for historical associations, a bridge must have “contributed in a meaningful way to settlement and development,” “facilitated major passage to or through a region,” or have been “integral to the development of an effective transportation system.” This area of Lake County, while sparsely developed, had been opened for settlement prior to the construction of Bridge 3459. While the bridge was part of the MHD’s initial Trunk Highway System, rail and roadway transportation systems for trade and travel were already in place by the early 1920s. Therefore, Bridge 3459 is not significant for Criterion A under the Historic Iron and Steel Bridges MPDF.

Under Criterion C, Registration Requirement 9 of the Historic Iron and Steel Bridges MPDF states that deck truss bridges can be significant as examples of a rare type that often represent a design solution to an unusual site condition. Bridge 3459’s deck truss design is well suited to the deep and rocky Baptism River channel near its outlet to Lake Superior. Bridge 3459 is therefore significant under Criterion C. The bridge has a period of significance of 1923-1924, representing its date of construction.

Research did not yield any evidence of individual significance under Criterion B.

Integrity

Bridge 3459 remains in its original location and has been rehabilitated to again carry vehicular traffic along the old TH 1/US 61 road alignment. It therefore retains integrity of location and association. While adjacent Bridge 38007 is visually intrusive, Bridge 3459 continues to span the Baptism River in a wooded area near the Lake Superior shoreline, retaining its integrity of feeling and setting. The bridge has undergone some alterations in recent decades, with replacement of the original railings and deck, reconstruction of the southwest abutment, and removal of a portion of the south approach span. However, the bridge retains its character-defining Baltimore deck truss main span and the vast majority of its deck plate girder approach spans. It therefore retains integrity of design, materials, and workmanship. On balance, Bridge 3459 retains a high degree of integrity.

Recommendation

Bridge 3459 is significant under National Register Criterion C in the area of Engineering. It meets Registration Requirement 9 of the Historic Iron and Steel Bridges MPDF as a deck truss bridge. Within the historic context of the Historic Iron and Steel Bridges MPDF, Bridge 3459 does not have significance for its historical associations under Criterion A. While the bridge exhibits some alterations, its primary engineering features remain intact and functional. The bridge therefore retains all aspects of integrity. Bridge 3459 is recommended individually eligible for the National Register under Criterion C. The period of significance is 1923-1924, which corresponds with the year the bridge was built.

Sources

Ernster, John D., Administrator, Department of Natural Resources to Dennis Adams, Project Landscape Architect, MnDOT. “Baptism/Tettegouche Class#1 Rest Area,” May 30, 1984.

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Beaver Bay Township, Lake County, Minnesota


Minnesota Department of Transportation.  *Bridge Inspection Report, Tettegouche #1, Bridge No. 3459.*  Minnesota Department of Transportation, Division of Bridges and Str, October 26, 1988.  Minnesota Department of Transportation.


**Consultant’s Recommendation of Eligibility**

Eligible – Individual

**Prepared By**

Mead & Hunt, Inc.

**Date Surveyed**

11/17/15
MINNESOTA ARCHITECTURE - HISTORY INVENTORY FORM

Project: Historic Bridge Study - Phase III
Beaver Bay Township, Lake County, Minnesota

Property Photograph

View facing east

Property Photograph

View facing west
MINNESOTA ARCHITECTURE - HISTORY INVENTORY FORM

Project: Historic Bridge Study - Phase III
Beaver Bay Township, Lake County, Minnesota

Property Photograph

View facing north

Property Photograph

View facing northwest
MINNESOTA ARCHITECTURE - HISTORY INVENTORY FORM

Project: Historic Bridge Study - Phase III
Beaver Bay Township, Lake County, Minnesota

Property Photograph

View facing west

Property Photograph

View facing east
Project: Historic Bridge Study - Phase III
Beaver Bay Township, Lake County, Minnesota

Property Photograph

View of bridge from 1932-1933, showing original railings and endposts.
(Image courtesy of Tettegouche State Park, Minnesota Department of Natural Resources.)
Project: Historic Bridge Study - Phase III
Beaver Bay Township, Lake County, Minnesota

Bridge 3459 – STATE PARK ENTR OVER BAPTISM RIVER

PROJECT LOCATION
LAKE COUNTY
SEC. 15 (SE 1/4 of NE 1/4), TO 056NN, R 07W
USGS QUAD NAME: ILLGEN CITY
UTM ZONE: 15  NAD: 83
EASTING: 636055 m
NORTHING: 5244186 m