

Rebuilding Webster's Bridges After the 1930s Floods

How federal flood relief and the State Highway Department's standardized concrete and steel designs shaped the bridges Webster built after the floods of 1936 and 1938.

The Town of Webster, like many communities in northern New England, was significantly impacted by the devastating floods of 1936 and 1938. The town history *Webster 1933-1983*, published in 1984, reports that the March 1936 flood destroyed five covered bridges and one steel bridge in Webster. The flooding in 1938 compounded the devastation. The town and the New Hampshire State Highway Department, with financial support from federal flood relief funds, replaced the lost structures with bridges built from modern standardized materials, specifically reinforced concrete and structural steel. The bridges constructed in Webster during this period are a record of that rebuilding effort and of the construction methods the State Highway Department had standardized in the years leading up to the floods.

THE FLOODS OF 1936 AND 1938

The Great Flood of 1936 produced record flows on waterways throughout the region, with New Hampshire suffering flood damage in 87 cities, towns, and villages. Heavy rainfall combined with rapid snowmelt on frozen ground produced runoff that overwhelmed the Blackwater River, broke ice free, and pressed it against bridges, most of which were constructed of wood. At the Blackwater River gauging station in Webster, the United States Geological Survey (USGS) recorded a peak discharge figure on March 19, 1936, the station's record to date. In Webster, mail service, electrical power, and telephone service were disrupted, and rowboats were used to cross the river until temporary replacement bridges were built.

The New England Hurricane of September 1938 brought a second significant flood event before the replacement bridge program, started in 1936, was fully complete. The Blackwater River near Webster peaked at 6,880 cubic feet per second on September 22, 1938, reinforcing the need for durable replacement structures and flood control infrastructure.



Burbank's Bridge on the Blackwater River in Webster amid the raging waters of the 1936 flood.
WHS. Photo by Lloyd Stone, Sr.



The abutments are all that remain of this bridge across the Blackwater River after the Great Flood of 1936. WHS.



A covered bridge lies in ruins in the Blackwater River following the catastrophic floods of 1936. WHS.

FEDERAL RELIEF AND THE ADOPTION OF NEW DESIGNS

Congress passed the Flood Control Act of 1936 about three months after the flooding, shifting flood management to the federal government. Congress authorized \$310 million for flood control infrastructure nationwide. Emergency funds were channeled to state highway departments for the rapid repair of roads and bridges damaged by the flooding.

The New Hampshire State Highway Department was well positioned to deploy those funds. Through the late 1920s and 1930s, the State's Bridge Design Division standardized reinforced concrete as its primary material for small and medium-sized bridges. By 1933, New Hampshire was one of only fifteen states to have formally adopted the concrete rigid-frame as a standard bridge design. The Highway Department built at least eighty such bridges between 1929 and 1940. Concrete slab and concrete T-beam bridges were similarly standardized for shorter spans, while steel I-beam stringer bridges offered a practical alternative solution where site conditions called for them. These designs were economical and adaptable, and the flood relief program gave the Highway Department the opportunity to apply them across dozens of affected communities, including Webster.

In Webster, four bridges were built between 1937 and 1941 under the flood relief program. Two were reinforced concrete structures; two were steel I-beam stringer bridges.

DEER MEADOW ROAD BRIDGE (1937)

The Deer Meadow Road Bridge (No. 140/070), carrying Deer Meadow Road over Deer Meadow Brook near the south end of Pillsbury Lake, was funded through the federal flood relief appropriation and completed in 1937. It replaced a log stringer bridge on stone abutments that had been damaged in the 1936 flood. The Deer Meadow Road Bridge is a single-span reinforced concrete slab bridge, 30 feet in length and 27.6 feet wide, supported on concrete abutments. The design includes concrete balustrades with arched balusters and vertically scored end posts. This was a standard decorative treatment of the Art Moderne style used by the State Highway Department on a number of its bridges in the 1930s. The design was prepared by State Highway Department engineers Harold E. Langley and Henry C. Newell.



View east toward the Deer Meadow Road Bridge over Deer Meadow Brook. *NHDOT.*



View northeast toward the NH Route 127 Bridge. *NHDOT.*

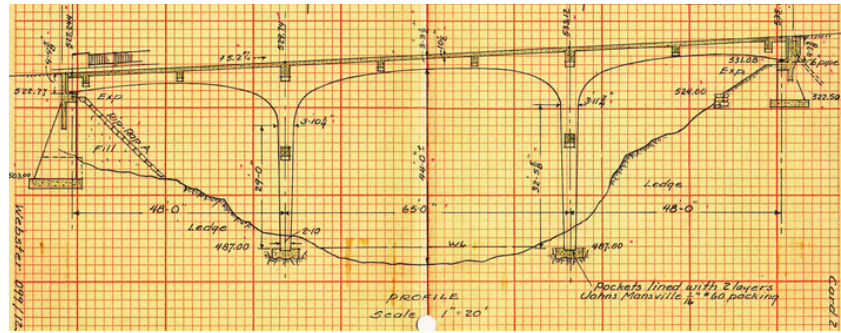


NH State Highway Department Bridge Card photo showing the completed NH Route 127 Bridge in 1942. *NHDOT.*

NH ROUTE 127 BRIDGE (1941)

The NH Route 127 Bridge (No. 099/123), completed in 1941, carries NH Route 127 (Battle Street) over the Blackwater River north of White Plains Road. Through the Flood Control Act of 1936, Congress assigned new responsibilities to the U.S. Army Corps of Engineers for carrying out a national policy of preventative flood control works, including the Blackwater Dam flood-control initiative in Webster. The NH Route 127 Bridge sits approximately 700 feet downstream (east) of the new Blackwater Dam, completed the same year. This bridge was built to compensate for the loss of several bridges that crossed the seven miles of the Blackwater River upstream of the dam.

The NH Route 127 Bridge was designed between November 1940 and January 1941 by Clifford Broker, a structural engineer with the State Highway Department's Bridge Design Division. Throughout his career with the Highway Department, circa 1933 to 1945, Broker designed at least



State Bridge Card (May 25, 1942) showing the NH Route 127 Bridge profile and dimensions. NHDOT.

twenty-five bridges. The NH Route 127 Bridge is an arch-ribbed, three-span-continuous, concrete T-beam rigid-frame structure with an overall length of approximately 166 feet. The T-beam form, in which the deck slab and longitudinal beams are cast as a single monolithic unit, was a standard and economical concrete type well suited to this span range. The site's high embankments required unusually tall abutments. For this, Broker used counterfort skeleton abutments, which are abutments with perpendicular ribs braced into the fill behind them, requiring less concrete than a solid wall while maintaining equivalent stability.

CLOTHESPIN BRIDGE ROAD BRIDGE (1939) AND TYLER ROAD BRIDGE (1937)

Additional bridges constructed over the Blackwater River in Webster as part of the post-flood rebuilding effort include the Clothespin Bridge Road Bridge (No. 121/103) and the Tyler Road Bridge (No. 124/031). Both bridges were built as single-span steel I-beam stringer bridges to replace covered bridges lost in the 1936 floods. The Clothespin Bridge Road Bridge, built in 1939, was 73 feet long and constructed on historic stone abutments. The bridge's original wood plank deck was replaced with a composite concrete deck in 1954, the only significant alteration during its service life. Over time, the bridge deteriorated and was replaced in 2025. The Tyler Road Bridge was built in 1937 under the federal flood relief appropriation. Like the Deer Meadow Road Bridge, it was originally constructed with concrete balustrades. A 1990 rehabilitation project removed the original concrete deck and decorative concrete balustrades, widened the structure by adding a deeper cantilevered deck section, and replaced the original railings with metal guiderails, substantially altering the bridge's historic character.



View north to the Clothespin Bridge Road Bridge over the Blackwater River, built in 1939 and removed in 2025. VHB.



NH State Highway Department Bridge Card photo showing the completed Tyler Road Bridge in 1942. NHDOT.



The Tyler Road Bridge over the Blackwater River in 2018. The original concrete balustrades were removed in 1990 during a major rehabilitation project. NHDOT.

CONCLUSION

The bridges built in Webster under the federal flood relief program are physical evidence of a pivotal period in American infrastructure policy, when the federal government took on a direct role in rebuilding communities after natural disaster. The New Hampshire State Highway Department's approach to that effort included standardized designs and use of modern materials. Webster's bridges represent a tangible legacy of the bridge engineers who rose to the challenge after the devastating floods of 1936 and 1938.

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