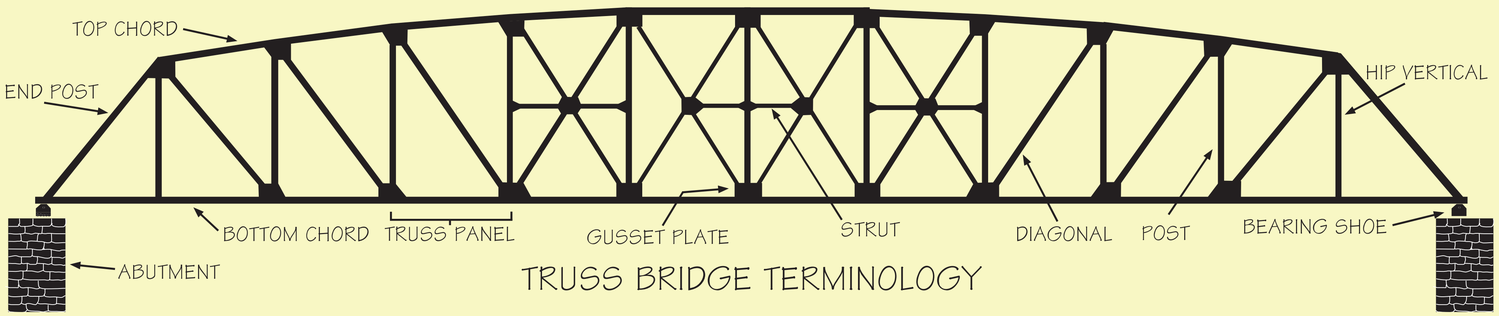
CENTRAL STREET BRIDGE

Central Street Bridge
was the longest Parker Truss bridge built by the New Hampshire State Highway Department to replace bridges destroyed by the Great Flood of 1927.

Harold E. Langley, one of New Hampshire's most accomplished bridge engineers, won awards and national recognition for the technical and the aesthetic attributes of his designs. As State Bridge Engineer from 1942 to 1961, Langley supervised the design of roughly 800 bridges.

The outstanding design, materials and construction of the Central Street Bridge provided eighty years of service. It was deemed eligible for the National Register of Historic Places on December 16, 1987.

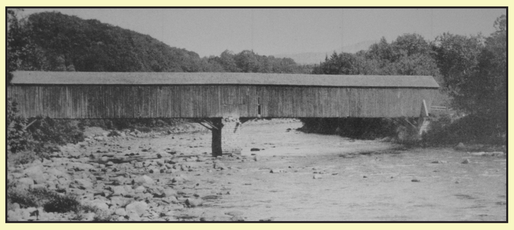
Built: 1928 **Type:** Riveted Steel Parker Truss **Span:** 240 ft. **Width:** 21 ft. **Height:** 32 ft.
Engineer: Harold E. Langley **Builder:** New Hampshire State Highway Department
Fabricator: Berlin Construction Co., Berlin, CT **Contractor:** Kittredge Bridge Co., Concord, NH



TRUSS BRIDGE TERMINOLOGY

The First Bridge
at this site was a private toll bridge built in 1823 by "the Proprietors of Central Bridge." It was a simple wood beam bridge with three spans supported by two piers in the river. Such primitive bridges required constant repair and were often swept away.

The Second Bridge,
built in 1836, was of "modern" wood truss design covered with a wood roof. Heavy timber arches were built into the trusses for added strength. Two spans rested on a stone pier in the middle of the river.



The bridge gained importance in 1848 when the Franklin and Bristol Railroad was built to connect with the Northern Railroad at Franklin. The line terminated at the Bristol Depot at the mouth of Newfound River just south of the bridge. Granite walls and foundations remain along the riverbank.

The "Old Toll Bridge," as it was known, survived nearly a century of floods and tough New England winters until 1927, when it finally met its match.

The Great Flood of 1927,
on the 3rd and 4th of November, broke records in New Hampshire and caused $2.5 million in damage to the state's roads and bridges. Ten inches of rain fell in 24 hours. The Connecticut River rose over 30 feet at Hanover. Plymouth's Main Street was under the Pemigewasset River, isolating the village from outside contact.

At Bristol, the waters were somewhat tempered by the hydroelectric dam upstream, but the Old Toll Bridge still took a beating. "The pier at this bridge was under great strain. Trees, planks and a lot of heavy debris accumulated on its upper side, pounded for many hours by the rush of waters, which rose to the floor of the structure."

The pier foundation had been undermined, but it was not apparent until the following March when the river swelled with spring runoff and the pier began shifting.

The situation worsened over several days until the pier "leaned heavily to the east…like a veritable Tower of Pisa." On March 30, 1928 "the pier toppled into the water, the wooden structure trembled for a few seconds, and crumbled."

Within days of the collapse the State Highway Department engineers were surveying the site and designing a replacement.

The Third Bridge.
Harold Langley chose a long one-span Parker truss with a polygonal top chord. The vulnerable pier that doomed the covered bridge was eliminated. Invented in 1844 by Thomas Pratt and improved by Charles H. Parker in the 1870s, the truss design allows efficient use of steel and long spans by using truss panels that increase in height toward the center of the bridge where the stresses are greatest.

Kittredge Bridge Company began construction June 25, 1928 under the supervision of C. Morton Plankey of Bristol. The bridge was completed November 22, 1928, at a cost of $34,610.87, equal to about $1.6 million dollars in 2008.

The 21st Century found the truss rusted and weakened with age. Studies determined the practical solution to be replacement. Demolition began in January 2008 when the truss was dropped in the river, cut up and recycled. Read more about the bridge at Bristol or New Hampton Library.

The Fourth Bridge
is a one-span steel plate girder with a composite concrete deck. The girders are 8' deep and span 240' making it the longest bridge of its type in New Hampshire.

The new bridge has been designed with many improvements. It is 10' higher over the river and specially reinforced to resist flood waters. Safety has been greatly increased with realigned approaches, wide travel lanes and a wide sidewalk.

Owners: Town of New Hampton
Town of Bristol

Engineer: S E A Consultants, Inc.
Manchester, NH

Contractor: Winterset, Inc.
Lyndonville, VT

Completion Date: October, 2009

Cost: $4.75 million

Funding provided in part by New Hampshire Department of Transportation's Municipally-Managed State Aid Bridge Program.

Conceived with shared vision, built by joint effort, from design to dedication, by the Towns of Bristol and New Hampton.


Truss bridge sitting in river and being demolished, Winter 2008


Erecting new bridge, July 2009. Preparing plate girder lift.


Lifting and setting the plate girder with two cranes.

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