SHETUCKET RIVER DECK-TRUSS BRIDGE
(Bridge No. 1415)
Spanning the Shetucket River at Route 169
Norwich
New London County
Connecticut

HAER No. CT-184

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BLACK AND WHITE PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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(Bridge No. 1415) HAER No. CT- 184

Location:	Route 169, spanning Shetucket River between Norwich and Lisbon New London County Connecticut USGS Norwich Quadrangle, Universal Transverse Mercator Coordinates: 18.746380.4605610
Date of Construction:	1938
Engineer: Fabricator: Contractor:	Connecticut State Highway Department Harris Structural Steel Company M. A. Gammino Construction Company
Present Owner:	State of Connecticut Department of Transportation Wethersfield, Connecticut 06109
Present Use:	Vehicular bridge
Significance:	The bridge is significant as a representative example of standard 20th-century truss construction. Typical features of the period include the Pratt-truss design, concrete-slab deck, and the use of rolled I-beams. The railing design suggests an Art Deco stylistic influence. The bridge also has historical significance: it was one of a group of Connecticut bridges financed by federal public-works funds following natural disasters in 1936 and 1938.
Project Information:	This documentation results from a Memorandum of Agreement among the Advisory Council on Historic Preservation, the Connecticut State Historic Preservation Officer, and the Federal Highway Administration. The bridge's deck and railings are scheduled for replacement.

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Description of Bridge and Setting

Bridge No. 1415 is a two-span steel deck-truss spanning the Shetucket River between the towns of Norwich and Lisbon, Connecticut. Although the immediate surroundings of the bridge are wooded, nearby are a residential neighborhood on the east or Lisbon side and an industrial area on the west or Norwich side. This part of Norwich, called Taftville, is listed on the National Register of Historic Places as the Taftville-Ponemah Mill District. The spans are identical 13-panel Pratt trusses, 130' long, giving the bridge an overall length of 269'. The bridge carries a two-lane roadway, 30' in width. A sidewalk runs along the north side.

The top chord and inclined end post are formed from box girders 18" x 16" in section. The verticals and diagonals all consist of large rolled I-beams. There are no counter diagonals, but because of the odd number of panels, the diagonals cross at the center of the bridge. The lower chord is a box section formed from a pair of rolled channels joined by stay plates. The concrete-slab floor is carried on 28"-deep floor beams, with no intermediate supports. Because of the deck-truss configuration, the floor beams connect the upper joints of the trusses; the bottoms of the trusses are braced with relatively light struts and cross-bracing formed of angles. In addition to the lattice-girder top bracing, the trusses are stiffened with full sway-bracing at every panel point. The overall depth of the trusses is 19 1/2' and the width is 22'; additional width on either side is achieved by triangular plate-girder outriggers measuring 3' by 6 1/2'. All connections are riveted, using large gusset plates.

Along both sides of the bridge are railings consisting of horizontal 3 1/2" pipe rails and vertical twisted bars. The railings are divided into 10' lengths by concrete piers of three different sizes. The piers at the ends of the bridge on the north side and the center pier on the south side are the largest and serve as lamp bases. The present streetlight-type lamps are modern; the original design called for fluted standards and large urn-shaped globes. The north-side end piers bear the bridge's date of construction, 1938. The piers all have recessed panels with a rough finish produced by bush-hammering. The railings extend a short distance beyond the bridge in both directions.

The reinforced-concrete abutments have a deep shelf upon which the bridge's rocker bearings rest. The upstream end of the center pier is pointed.

Overall, the appearance of the bridge is relatively unchanged from its original construction. However, the concrete curbs, deck, and railing base are extremely deteriorated.

Engineering and Historical Significance

Bridge No. 1415 is a well-preserved, representative example of truss construction in its last phase of development. The width of the roadway and the relatively large size of the members show that it was designed for the increasingly heavy automobile and truck traffic of the 1930s. Its design also is typical: it employs the Pratt truss pattern which, along with the Warren truss, had become almost universal in bridge design after 1900. By the late 1930s, when this bridge was built, most bridges were fabricated predominantly from rolled members, such as I-beams and one-piece channels, rather than the built-up, riveted forms that had been common earlier. Although not quite as rigid, rolled pieces had become widely available and inexpensive, so bridge engineers simply specified I-beams a little larger than might have been needed with built-up girders. The stringer-less floor system reflects a similar simplification made possible by reinforced concrete decks.

Such expediency was especially important in the late 1930s. In March 1936 torrential rains combined with an early snow melt to swell Connecticut rivers far above their normal springtime levels, sweeping away several large bridges, including the predecessor to this one. Then, in September 1938, a great hurricane struck the state, destroying another 50 bridges. To help repair the damage the state turned to the federal government; this bridge was one of eleven large replacement spans partly paid for with Public Works Administration (P.W.A) funds. It cost more than $111,000. The state hired as the general contractor M. A. Gammino, a Connecticut firm that did a great deal of work for the state in this period. However, the bridge itself was fabricated in New Market, New Jersey, by Harris Structural Steel. Perhaps because of the need to complete so many bridges in a short time, the state employed suppliers from other parts of the country, whereas previously it had relied mostly on New England fabricators.

Given the relatively high river terrace on both sides, a deck truss was the logical choice for this crossing. A deck truss allowed the abutments and center pier to be lower, saving some construction costs, and also offered unlimited vertical clearance. The new bridge carried the roadway at a much higher level than the one destroyed by the Flood of 1936, a decision validated during the hurricane, when the rising river stayed below the underside of the trusses.

The twisted-bar railing was a standard design that appears on several state-built bridges from the late 1930s. Unlike the earlier standard, which was Neo-Classical in inspiration, this railing reflected in a very simple way the influence of Moderne or Art Deco design. The piers' use of receding planes and their overall shape, resembling small towers, relate them to other 1930s designs. At the time the bridge was built, the state was completing the Merritt Parkway, a project with outstanding Art Deco bridges.

The road carried by the bridge (numbered as Route 169 today but designated Route 93 at the time the bridge was built) was an important state highway linking Norwich with the small towns of Canterbury, Brooklyn, and Woodstock to the north, as well as the towns of south-central Massachusetts. The route had its origins in colonial times and the turnpike era, when it was one of a series of north-south roads connecting the port of Norwich, at one time the largest city in Connecticut, with its agricultural hinterland.

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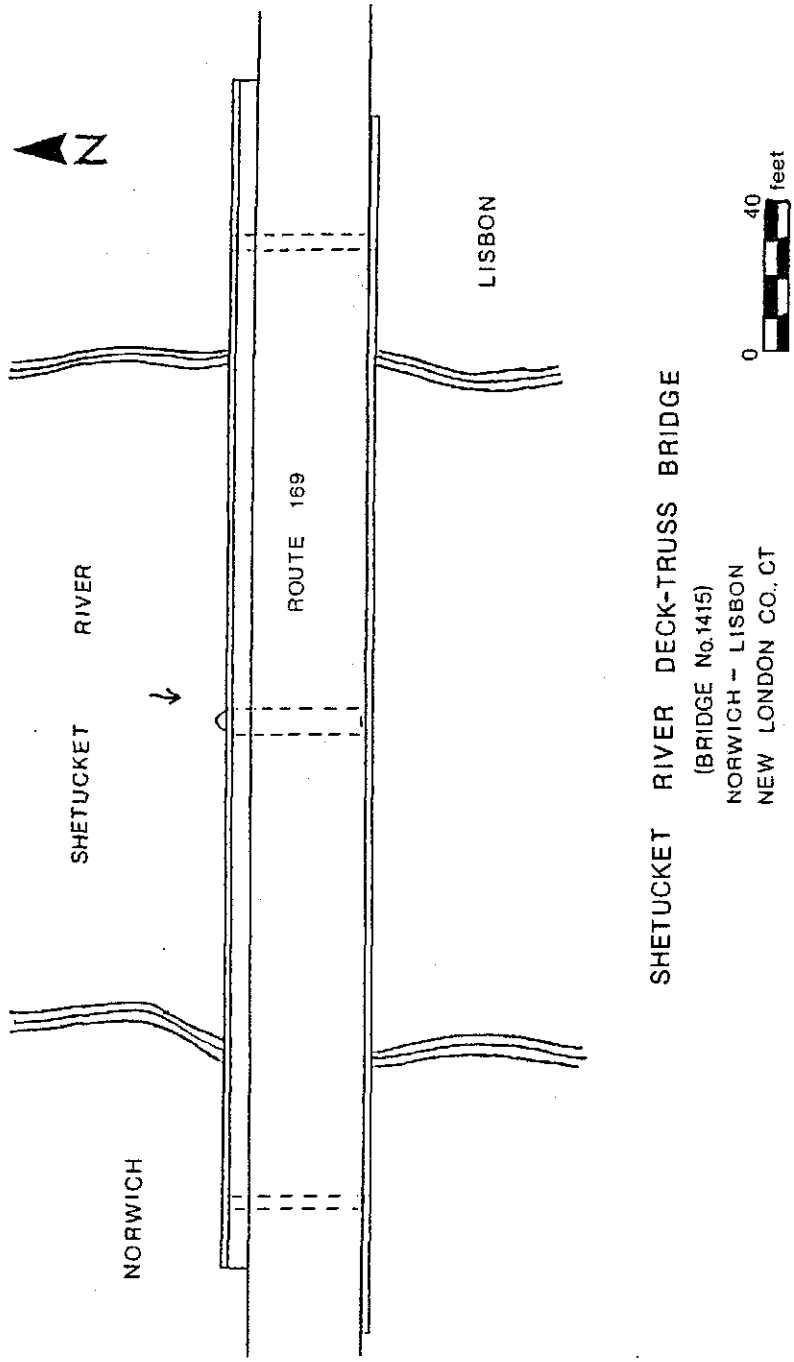
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NORWICH
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