NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

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1. Name of Property

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historic name: Middlesex-Winooski River Bridge

other name/site number: Vermont Agency of Transportation Bridge Number 02840050

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2. Location

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street & number: US Route 2

not for publication: N/A

city/town: Middlesex vicinity: N/A

state: VT county: Washington code: 023 zip code: 05602

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3. Classification

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Ownership of Property: Public-State

Category of Property: Structure

Number of Resources within Property:

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1	0	Total

Number of contributing resources previously listed in the National Register: 0

Name of related multiple property listing: Metal Truss, Masonry, and Concrete Bridges in Vermont

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this _X__ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property __X__ meets ____ does not meet the National Register Criteria. ___ See continuation sheet.

Signature of certifying official — Date 4/20/91

Vermont State Historic Preservation Officer

State or Federal agency and bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria. ___ See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby certify that this property is:

✓ entered in the National Register ___ See continuation sheet.	Beth A. Savage	11-14-91
____ determined eligible for the National Register ___ See continuation sheet.		
____ determined not eligible for the National Register		
____ removed from the National Register		
____ other (explain): _____		

Signature of Keeper — Date of Action

6. Function or Use

Historic: TRANSPORTATION/road-related_ Sub: N/A

Current : TRANSPORTATION/road-related_ Sub: N/A

7. Description

Architectural Classification:

_____
_____
_____

Other Description: Pratt Through Truss Bridge

Materials: foundation Concrete__ roof N/A_____
walls N/A_____ other Steel_____
_____

Describe present and historic physical appearance. _X_ See continuation sheet.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties: Statewide_____.

Applicable National Register Criteria: A, C

Criteria Considerations (Exceptions) : N/A____

Areas of Significance: Engineering_____
Transportation_____
_____
_____
_____
_____

Period(s) of Significance: 1928_____ _____

Significant Dates : 1928 ____ ____

Significant Person(s): N/A_____
_____

Cultural Affiliation: N/A_____

Architect/Builder: American Bridge Company_____
_ _____
_ _____

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.
_X_ See continuation sheet.

9. Major Bibliographical References

_X_ See continuation sheet.

Previous documentation on file (NPS):

_ preliminary determination of individual listing (36 CFR 67) has been requested.
_ previously listed in the National Register
_ previously determined eligible by the National Register
_ designated a National Historic Landmark
_ recorded by Historic American Buildings Survey # _____
_ recorded by Historic American Engineering Record # _____

Primary Location of Additional Data:

X State historic preservation office
X Other state agency (VT Agency of Transportation)
_ Federal agency
_ Local government
_ University
_ Other -- Specify Repository: _____

10. Geographical Data

Acreage of Property: Less than one acre

UTM References:	Zone	Easting	Northing		Zone	Easting	Northing
A	18	683720	4908250	B	__	_____	_____
C	__	_____	_____	D	__	_____	_____

___ See continuation sheet.

Verbal Boundary Description: ___ See continuation sheet.
The boundaries of this property consist of the structure of the bridge itself, including its piers and abutments. The bridge carries US Route 2 across the Winooski River in Middlesex, VT at the UTM reference point: 18/683720/4908250. It is 297' in length and 21'5" in width.

Boundary Justification: ___ See continuation sheet.
This boundary includes the bridge structure itself and that land historically associated with the bridge.

11. Form Prepared By

Name/Title: Gene F. Barfield_____

Organization: UVM Historic Preservation Program Date: May 6, 1991_____

Street & Number: Wheeler House, 442 Main St. Telephone: 802-656-3180____

City or Town: Burlington_____ State: VT ZIP: 05405_____

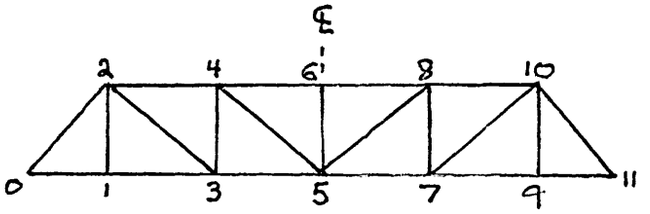
This structure, a skewed three-span steel, Pratt through-truss bridge supported by poured abutments and two concrete piers, carries US Route 2 across the Winooski River in the town of Middlesex, (Washington County) Vermont (VT AOT Bridge #02840050). The most prominent structure in its immediate locale, it serves as a visual landmark in its setting. The bridge spans the river in a general SW-NE line. Its northern abutment is approximately one full width-of-bridge out of perpendicular (in the downstream direction) to the riverbed. Its surroundings are open land, with scattered buildings. The overall bridge length is 297' (spans one and two are 120' and span three is 57'). Width is uniform at 21'5", and the bridge-to-river mean clearance is 23'. Portal clearances are 14'8". The bridge retains its integrity of location, setting, design, materials, workmanship, feeling and association.

Fabricated by the American Bridge Company in 1928, it has riveted metal trusses, metal guard railings along the entire length on both sides, a builders' plate (bearing the simple legend "AMERICAN BRIDGE COMPANY USA 1928") and inclined end panels(points 0-2 and 10-11 -- see drawing). Its guard railings have been replaced periodically.

Spans one and two are identical six-panel, approximately 24'-deep Pratt through-trusses. Span three (the approach span from the south) is a concrete deck carried on five 11"x28" steel I-beams.

The top chord of spans one and two (0-2-4-6-8-10-11) is a box girder with latticed underside, 12"x16"; the bottom chord (0-1-3-5-7-9-11) is comprised of two channel girders with stay plates approximately 40" apart. Vertical members are steel I-beams. Sway braces are T-section diagonal knee-braces; portal braces are a lattice of angles between the lattice girders, with a channel-girder central upright. The bridge floor and deck are supported by I-beams with four I-beam stringers and angle-bottom cross-bracing. The floor surface is concrete slab. There are two end posts and one diagonal reinforced with bolted-on plates.

Bridge mid-stream piers and abutments are of poured concrete. The downstream edge of the upright is vertical, and the upstream edge slanted outward (wider at the bottom than at top) to break the flow of the river. The upstream edge of the upright is also lined with steel angle-iron to protect the concrete from damage by floating debris.



Drawing of identical trusses one and two

(Top chord - 0-2-4-6-8-10-11)
(Bottom chord - 0-1-3-5-7-9-11)
(Inclined end panels - 0-2 and 10-11)

The Middlesex-Winooski River Bridge has carried US Route 2 across the Winooski River at Middlesex since its construction by the American Bridge Company in 1928. A skewed, three-span steel Pratt through-truss bridge, it is significant as an excellent example of the remarkable efforts required to rebuild or replace bridges lost or badly damaged in the flood of November, 1927, the worst natural disaster in Vermont's recorded history. Qualifying under nomination criteria A and C, it has statewide significance. Under criterion A the bridge is an excellent example of the resulting reconstruction effort undertaken due to the flood, which necessitated the reconstruction or replacement of almost all transportation infrastructure in the valleys of the White and Winooski Rivers and their tributaries. Under criterion C, the bridge exemplifies the engineering developments and bridge design advances necessitated by the immediate need to replace approximately 1200 damaged bridges with new structures, within confining limits of construction time and budget. Part of a multiple property submission, this bridge is being nominated as a metal truss bridge under the historic context "Metal Truss, Masonry, and Concrete Bridges in Vermont." This bridge clearly meets the registration requirements for this property type. It is intact, with an identifiable Pratt through-truss system of original members. The truss system is functioning and the structure retains all qualities of historic integrity.

This crossing historically served as a portion of the primary route of travel between the Capital city, Montpelier, and Vermont's largest city, Burlington, prior to the construction of Interstate-89. Other than the tracks of the Central Vermont Railroad, parallelling Route 2 through the Winooski Valley, there was no other direct route between Burlington and Montpelier. As a consequence of the flood, all bridges in the immediate vicinity of Middlesex were destroyed or heavily damaged, and the right-of-way of the railroad suffered damage equally severe. Middlesex village, a short distance up-river from this bridge, was more of a commercial and agricultural center prior to the flood than in recent times, and suffered very heavy damage both to its buildings and farms, and to the infrastructure leading to, and supporting the life of the village. Middlesex was isolated by the ravages of the flood, and rapid replacement of all means of through-transport was vital. Roads and bridges were of particular importance because some doubt had been expressed that the railroad, which provided passenger and freight services through Middlesex, could recover from the almost-complete destruction of its right-of-way in the valley of the Winooski.

The Middlesex-Winooski River Bridge was constructed with funds primarily provided by the State, which found it neces-

sary to create a wholly new approach to infrastructure needs due to the state-wide nature of the flood devastation. Never before had Vermont faced the need to rebuild so much from scratch, and the State began from this time, to develop its first comprehensive approach to statewide infrastructure planning, maintenance systems and funding, including the floating of an 8.5 million dollar bond issue, Vermont's first incurrence of public debt, which contributed to the construction of this bridge. Shortly thereafter, the state was the recipient of 2.5 million dollars in federal aid for disaster relief, the first significant instance of fiercely-independent Vermont's willingness to accept the largesse of the national government on a large scale. This overall effort engendered new thought in bridge design and materials selection on the part of engineers and planners, dictated by the urgency of providing so many new or replacement facilities under such immediate needs and within a budget that had to allow for all contingencies statewide. Localized efforts at reconstructing or repairing flood damage necessarily focused more on the urgency of providing shelter, restoring commercial and civic buildings and returning the life of the various towns to a semblance of normalcy following the unprecedented devastation. Therefore, the demand for and the opportunity to approach transportation facilities development on a comprehensive basis was, likewise, unprecedented in Vermont.

The Pratt through-truss bridge, patented in 1844 and enhanced by the development of Henry Bessemer's steel processing system in 1855, has become a common standard for through-truss bridge designs on roads and railroads. The ability to fabricate bridge parts elsewhere, for assembly on-site, combined with the ability to join smaller lattice-work sections to create support members equal to or greater in strength than larger, cast pieces, makes the Pratt design particularly useful for the construction or replacement of bridges in areas where fabrication of materials on-site may be cumbersome or time-consuming.

The American Bridge Company was created in 1900 by financier J. P. Morgan, who used the company as a means to dominate the nation's steel fabricating capability by absorbing competition. The firm absorbed 24 companies during its first year, representing half the national fabrication capacity. It continued to 'eat' competing firms for two years, then itself was absorbed by U. S. Steel, concentrating primary and secondary steel production/fabrication within one entity. Berlin Iron Bridge Company and Groton Bridge and Manufacturing Company, previously the two largest builders of bridges in Vermont, were among those absorbed by American Bridge in its first year of operation. As the firm's internal corporate structure

evolved from 1900 to 1914, it dominated bridge construction in the state, often through joint contractual jobs with United Construction of Albany, New York, which provided sales efforts and actual bridge assembly. While other, smaller bridge fabricating firms occasionally succeeded in supplying bridges for Vermont, the only serious competition to American Bridge was from Berlin Construction Company, and only then because of the great number of bridge projects resulting from the disastrous 1927 flood.

This bridge is the principal feature of its general vicinity, and has been so since the immediate aftermath of the 1927 flood. Records show there may have been some small farming-related buildings in the immediate area, but contemporary descriptions of the flood and its effect on that local portion of the Winooski Valley testify to the practically-clean sweep the flood waters made through the area. As the river approaches Middlesex village from upstream, its course makes a sharp westward turn and then leads through a narrow, confining gorge. When the floodwater approached the village in November, 1927, the river cut right across the village center, and burst through a power dam sited across the gorge. The resultant wave is said to have scoured the downstream course of the river, particularly where it approaches the site of the present bridge, clean of most construction. While a very few buildings within view of the bridge site withstood the onslaught of the floodwater, the general absence of any other outstanding built features in the immediate landscape of the bridge dates from that event.

The apparent remains of the previous bridge at this site, type unknown, are visible on both sides of the river, approximately twenty feet downstream of the present bridge. As US Route 2 approaches the bridge from the south, it curves around a sharp bend to cross the bridge. Immediately to the downstream side of the highway pavement as it enters the bridge (northbound), remains of previous pavement are visible leading to the site of the former bridge. On the opposite bank, a piled rubble stone abutment is visible, and the embankment of the former roadway, as it curves toward the present pavement, is plainly apparent. The 1928 bridge itself is in good condition, having undergone a recent overhaul including repair of several joints and a sandblasting and repainting, none of which have materially affected the historic appearance or materials-content of the structure.

Johnson, Luther B. *Floodtide of 1927: A Gathering of Reports and Pictures Which Tell Their Story Graphically of the Great November Flood in Vermont State.* Randolph, VT: Roy L. Johnson Company, 1927.

-----. *Vermont in Floodtime.* Randolph, VT: Roy L. Johnson Company, 1928.

Jones, Robert C. *The Central Vermont Railway: A Yankee Tradition (Volume IV 1927-1940).* Silverton, CO: Sundance Publications Limited, 1981.

Middlesex, Vermont. Vermont Historic Sites and Structures Survey, Survey #1210-42. Vermont Division for Historic Preservation, Montpelier, VT.

Meeks, Harold A. *Vermont's Land and Resources.* Shelburne, VT: New England Press, 1986.