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NPS Form 10-900
(Rev. Aug. 2002)

OMB No. 1024-0018
(Expires Jan. 2005)

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name: Gould's Mill Bridge

other names/site number: Springfield Bridge No. 81

2. Location

street & number: Town Highway 66 (Paddock Road) over the Black River not for publication N/A

city or town: Springfield vicinity: N/A

state: Vermont code: VT county: Windsor code: 27 zip code: 05156

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant ___ nationally X statewide X locally. (See continuation sheet for additional comments.)

Suzanne C. Jamele, National Register Specialist 12-20-05
Signature of certifying official Date

Vermont State Historic Preservation Office
State or Federal Agency or Tribal government

In my opinion, the property ____ meets ____ does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of commenting official or other official and title Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:
__X__ entered in the National Register
____ See continuation sheet.
_____ 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 the Keeper	Date of Action
Edson H. Beall	2/1/06

5. Classification

Ownership of Property: (Check as many boxes as apply)
_____ private
__x__ public-local
_____ public-state
_____ public-Federal

Category of Property: (Check only one box)
_____ building(s)
_____ district
_____ site(s)
__x__ structure(s)
_____ object(s)

Number of Resources Within Property:

	Contributing	Noncontributing
buildings:	_____	_____
districts:	_____	_____
sites:	_____	_____
structures:	1	_____
objects:	_____	_____
total:	1	_____

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
(Enter "N/A" if property is not part of a multiple property listing.)

6. Function or Use

Historic Functions: (Enter categories and subcategories from instructions)

Category:	Subcategory:
Transportation	Road-Related
Transportation	Rail-Related

Current Functions: (Enter categories and subcategories from instructions)

Category:	Subcategory:
Transportation	Road-Related

7. Description

Architectural Classification: (Enter categories from instructions)

other: Baltimore through truss

Materials: (Enter categories from instructions)

foundation: concrete abutments
roof:
walls:
other: structural steel

Narrative Description: (Describe the historic and current condition of the property on one or more continuation sheets.)
See continuation sheet.

8. Statement of Significance

Applicable National Register Criteria:
(Mark "X" in one or more boxes for the criteria qualifying the property for National Register listing)

__x__ A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
_____ B. Property is associated with the lives of persons significant in our past.
__x__ C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
_____ D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations:
(Mark "X" in all the boxes that apply.)

_____ A. Owned by a religious institution or used for religious purposes.
_____ B. Removed from its original location.
_____ C. A birthplace or a grave.
_____ D. A cemetery.
_____ E. A reconstructed building, object, or structure.
_____ F. A commemorative property.
_____ G. Less than 50 years of age or achieved significance with the past 50 years.

Areas of Significance: (Enter categories from instructions)	**Period of Significance:**
Transportation	1929-1955
Engineering	

Significant Person: (Complete if Criterion B is marked above)	**Significant Dates:**
N/A	1929

Cultural Affiliation:
N/A

Architect / Builder:
Boston Bridge Works

Narrative Statement of Significance:
(Explain the significance of the property on one or more continuation sheets.) See continuation sheet.

9. Major Bibliographical References

Bibliography:
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.) 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 for the National Register.
_____ Designated a National Historic Landmark.
_____ Recorded by Historic American Buildings Survey No. _____
_____ Recorded by Historic American Engineering Record No. _____

Primary Location of Additional Data:
__x__ State Historic Preservation Office.
__x__ Other state agency: Vermont Agency of Transportation
_____ Federal agency.
__x__ Local government.
_____ University.
_____ Other. Name of repository: _____

10. Geographical Data

Acreage of Property: Less than one

UTM References (Place additional UTM references on a continuation sheet). ____ See continuation sheet

	Zone	Easting	Northing		Zone	Easting	Northing
1.	18	706573	4794037	2.			
3.				4.			

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.) See continuation sheet.

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.) See continuation sheet

11. Form Prepared By

Name / Title: William J. Thrane, Intern, and Robert L. McCullough

Organization: Vermont Agency of Transportation, Historic Bridge Program Date: August, 2000; revised 2005

Street & Number: National Life Building, Drawer 33 Telephone: 802-828-3615

City or Town: Montpelier State: VT Zip Code: 05633-5001

12. Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps
A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs
Representative black and white photographs of the property.

Additional Items (Check with the SHPO or FPO for any additional items)

13. Property Owner

(Complete this item at the request of the SHPO or FPO.)

Name / Title: Town of Springfield

Organization: _____ Date: _____

Street & Number: 96 Main Street Telephone: 802-885-2104

City or Town: Springfield State: VT Zip Code: 05156

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.). A federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number.

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to Keeper, National Register of Historic Places, 1849 "C" Street NW, Washington, DC 20240.

Narrative Description

Gould's Mill Bridge (Bridge No. 81) is a steel Baltimore through truss carrying Town Highway 66 (Paddock Road) in a single span across the Black River in Springfield. The ten-panel trusses, each panel 16 feet, span 160 feet (center to center of the bearings). The bridge width is 26 feet 6 inches (center to center of trusses), providing a clear roadway width of 23 feet 1 inch, curb to curb. The portal clearance is 18 feet 6 inches, and truss depth is 34 feet (center to center of chords). Although currently closed to vehicular traffic, the crossing will be rehabilitated for continued highway use, its originally intended purpose, and for a bicycle path. The structure retains a high degree of integrity in terms of location, design, setting, materials, workmanship, feeling and association. A builder's plate confirms that the bridge was fabricated by the Boston Bridge Works and constructed in 1929.

The truss top chords are riveted box girders, built-up sections made up of two web plates with flange angles top and bottom, a continuous top cover plate, and latticework underside. Lower chords are riveted, built-up channel sections formed by flange angles joined by a lattice underside. Hip verticals are rolled I-beams, and center-span verticals are box girders with lattice on two sides. Subsidiary vertical struts that divide panels, defining features for both Baltimore and Pennsylvania trusses, are I-section girders with flange angles joined by lattice. Cross braces joining the upper chords are lattice girders with flange angles joined by lattice bars. Each portal is braced by a built-up channel girder strut consisting of flange angles joined by alternating panels of lattice and cover plates; similar struts brace the two sets of center-span verticals. I-section girders with flange angles joined by lattice extend longitudinally from the center of each portal cross-brace and each portal strut to the first cross girder and to the struts reinforcing the center-span verticals. Cross bracing consisting of angle beams in lattice pattern connect portal struts with portal cross braces at the upper chords. The portal struts are also supported by angle knee braces.

The floor system employs rolled I-section floor beams, with three I-beam stringers under the roadway and two much heavier I-beam stringers under the railroad tracks. Angle beams provide cross bracing between floor beams. The deck is a reinforced concrete slab. A pipe and channel-beam guardrail is bolted to the trusses. Two reinforced concrete abutments support the entire superstructure.

Although the vertical and diagonal members for each of the trusses are similar in design, they vary in size. The components of the downstream (easterly) truss are constructed of heavier sections than the corresponding components of the upstream truss. This design provided additional structural capacity for bridge's easterly half, used by the Springfield Terminal Railway Company. The bridge was designed to carry a continuous train of 200,000 pound railroad cars and a standard, one-lane H-15 highway loading, and the bridge's dual function is also revealed in the overall depth (34 feet) of the trusses. The rails remain, albeit concealed by pavement. The bridge was also designed on a skewed alignment to accommodate the railroad, which runs parallel with the Black River.

Statement of Significance

The Gould's Mill Bridge in Springfield is being nominated pursuant to the existing multiple property submission titled "Metal Truss, Masonry, and Concrete Bridges in Vermont," under the property type, "metal truss bridges," and the crossing clearly meets the registration requirements for this property type. The crossing is significant for its period of construction following the 1927 flood; for its design as one of only a small number of Baltimore trusses in the state; for its association with the Springfield Terminal Railway, constructed as an electrified urban railroad important to the city's industrial history; and for its fabricator, the Boston Bridge Works, Inc.

The bridge was erected in 1929 during the aftermath of the 1927 flood, an event that destroyed more than 1200 bridges of all types throughout the state. This devastation resulted in a dramatic public rebuilding campaign, marking one of Vermont's most important periods of bridge and highway construction, and metal truss bridges played a key role in that rebuilding drive. Bonds authorized by the state legislature generated funding for this enormous undertaking, but federal assistance had also become available by then. The state's bridge department expanded in size, and engineers emphasized standard building methods for different types of bridges to reduce costs and speed the process. Efforts to develop standard designs had begun in Vermont after World War I, part of a broader, national trend that emerged as state highway departments sought federal funding, contingent on approval of plans or written specifications. Although a process for developing standard plans had already begun to take shape in Vermont, the flood nevertheless furnished a powerful, added incentive to produce standard designs, and the practice became a principal component of all bridge-building programs in Vermont soon after the flood. This reliance on standard designs also forced increasing dependence on review by state and federal engineers, once a matter left to the complete discretion of towns.

During the flood reconstruction, engineers assigned specific types of bridges uniformly according to each crossing's length. Steel truss bridges became available in increments of 10 feet for spans shorter than 100 feet; 20 feet for longer bridges. Most structures were 21 feet wide, and only a few bridges were individually designed for specific sites. The appearance of truss bridges also changed, becoming more stout. Rolled I-beams requiring no assembly often were used as verticals and diagonals in truss webs, and the size of these steel components distinguished bridges erected after 1927 from earlier, lightly-built spans. Improvements in rolling mills and steel alloys made production of these larger, stronger I-beams economical.

The Gould's Mill Bridge illustrates many of these innovations and characteristics but also remains distinctive in several respects. Baltimore trusses, rare in Vermont, employ subdivided truss panels, achieved by adding ties and struts to the webs. This system adds rigidity and decreases the risk of buckling under compression stresses. Floor beams can also be placed more closely together, reducing the length, weight, and cost of deck stringers in the process. A small number of Baltimore trusses continue to serve

Vermont's rail systems, but only two remain on the state's network of highways and the Gould's Mill Bridge is one of these; the other is in Montpelier.

In addition, rather than using rolled I-beams, which had become increasingly common by the late 1920s, designers of the Gould's Mill Bridge relied on older practices of fabricating girders from plates, angles, and lattice bars. Innovations in steel manufacturing and in rolling mill technology, advanced by the country's largest firm, United States Steel Corporation, had led to greater reliance on rolled steel by this time and, in turn, influenced the manufacturing techniques by that corporation's subsidiary, American Bridge Company. However, the Gould's Mill Bridge was fabricated by Boston Bridge Works, whose owners had remained successfully independent during the early years of the 20th century when many companies were purchased by the conglomerate American Bridge Company. The Boston firm was founded in 1879 by D. H. Andrews and became one of the region's largest bridge manufacturers, surpassed in size only by the Berlin Iron Bridge Company of East Berlin, Connecticut. Boston Bridge Works specialized in substantial railroad structures, including movable spans and turntables, and retained a sizable share of the market for bridges during the first decades of the 20th century, efforts of U.S. Steel and American Bridge notwithstanding. Selection of the Boston company to fabricate the Gould's Mill Bridge represented a logical choice for a crossing used extensively by the Springfield Terminal Railway.

Moreover, designers of the Gould's Mill Bridge probably utilized this specific truss design to accommodate an increasing volume of heavy freight being transported by the railway during the 1920s. That company's predecessor, the Springfield Electric Railway Company, was chartered in 1894 and began service in 1897, linking Springfield's many factories, particularly its precision tool industry, to the region's principal north-south route, the Boston and Maine Railroad on the New Hampshire side of the Connecticut River at Charlestown. The company's hydroelectric power plant was located near Gould's Mill, and after 1915 it housed a 400 horsepower generator. A passing switch for the trolleys that used the railroad, providing passenger service between the two towns, also operated near Gould's Mill. Never especially profitable, the firm was reorganized as the Springfield Terminal Railway Corporation in 1921. Heavier steel rails were installed a year later, and the company also purchased a new Baldwin-Westinghouse locomotive in 1924. Eventually, freight service by diesel-powered locomotives replaced the electrically powered systems. Service continued during World War II but steadily declined after the end of that conflict. Although the company ceased operations decades ago, and many of the buildings once associated with that railroad have been demolished, the rail corridor survives in the form of a bikepath that crosses the existing bridge.

Section 9: Major Bibliographic References

Bibliography:

Barney, Keith R. The History of Springfield, Vermont. 1885-1961. Springfield, Vermont: William L. Bryant Foundation, 1972.

Broehl, Wayne G., Precision Valley. The Machine Tool Companies of Springfield, Vermont. Englewood Cliffs, New Jersey: Prentice Hall, 1959.

_____, "The Saga of Springfield's Iron Horse," Vermont History 26 (July, 1958), 187-197.

Darnell, Victor C. A Directory of American Bridge-Building Companies. Washington, D.C.: Society for Industrial Archeology, Occasional Publication Number 4, 1984.

Garvin, James L. "Builders of Bridges in New Hampshire." Unpublished draft, 1999, available at the New Hampshire Division of Historical Resources.

Richardson, Frederick W. Nineteenth Century Springfield. From an Agricultural to Industrial Community. Springfield, Vermont: Springfield Printing Company, 2000

Vermont Agency of Transportaion, plans titled "Springfield Terminal Railway Co. and Town of Springfield, Vermont: Gould's Mill Bridge over Black River, Springfield, Vermont," dated June, 1929. Vermont Agency of Transportation, Project Development Division.

Section 10: Geographical Data

Verbal Boundary Description:

The boundary of the property is the bridge and its abutments. The bridge carries Town Highway 66 (Paddock Road) across the Black River in Springfield

Boundary Justification.

The boundary includes all the land historically associated with the bridge.

Section 12: Photograph Labels

The following information is the same for all photographs:

Name of Property:	Gould's Mill Bridge
Location:	Springfield, Windsor County, Vermont
Credit:	Robert McCullough
Date:	July, 2005
Negatives:	Filed at the Vermont Division for Historic Preservation

Photograph No. 1: View from Town Highway 66 (Paddock Road), south of the Black River, looking northeasterly.

Photograph No. 2: View from Town Highway 66 (Paddock Road), north of the Black River, looking southwesterly.