

BLACKSTONE RIVER RAILROAD BRIDGE
New Haven Railroad over Blackstone River
and Branch Street
Pawtucket
Providence County
Rhode Island

HAER No. RI-52

HAER
RI,
4-PAWT,
8-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATE

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

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Location: New Haven Railroad over Blackstone River and Branch Street
Pawtucket
Providence County, Rhode Island

USGS Quadrangle: Providence, RI UTM: 19.302355.4640390

Engineer/Architect: New York, New Haven & Hartford Railroad

Fabricator: Edge Moor Bridge Company, Wilmington, Delaware

Data of Construction: 1897

Present Owner: National Railroad Passenger Corporation
60 Massachusetts Avenue N.E.
Washington, D.C. 20002

Present Use: active railroad bridge

Significance: Erected in 1897, the five-span, 376-foot Blackstone River Railroad Bridge carries both main line tracks of the Amtrak Northeast Corridor over the Blackstone River and Branch Street. This riveted steel-plate girder deck bridge is a significant engineering structure as it is a large and relatively early example of this type of bridge and is also the longest railroad bridge of this type in Rhode Island.

Project Information: The National Railroad Passenger Corporation (Amtrak), in association with the Federal Railroad Administration (FRA), is proposing a number of infrastructure projects to upgrade the Northeast Corridor Railroad right-of-way in Connecticut, Rhode Island, and Massachusetts. In consultation with the State Historic Preservation Officers (SHPOs), Amtrak and FRA have determined that the proposed "Northeast Corridor Improvement Project—Electrification: New Haven, Connecticut to Boston, Massachusetts" project will have adverse impacts on significant historic properties. Three memoranda of agreement outlining stipulations to eliminate, minimize, or mitigate adverse project impacts have been drafted by Amtrak, the FRA, and the respective SHPOs, and have been accepted by the Advisory Council on Historic Preservation. The stipulations include the recordation of the Blackstone River Railroad Bridge to Historic American Engineering Record standards.

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PART I DESCRIPTIVE INFORMATION

The Blackstone River Railroad Bridge is located northeast of Providence, Rhode Island, in the City of Pawtucket. The bridge spans the Blackstone River and Branch Street at Amtrak Northeast Corridor Milepost 190.55. The immediate area is densely developed with mixed nineteenth- and twentieth-century commercial, industrial, and residential buildings.

The Blackstone River Railroad Bridge is actually two parallel, five-section, riveted steel deck girder bridges with random ashlar granite piers and abutments. The structure is 380 feet long overall, 22 feet wide at the outer edges of the main girders, and 30 feet WIDE overall at the ends of the catwalk brackets. From west to east, the structure is divided into five girder sections. Section one is 63 feet 11 inches long, sections two and three are each 94 feet 11 inches long, and sections four and five are each 59 feet 6 inches long. Each section consists of two parallel, deep, riveted steel beams built up using steel plates and angles. These structures are stiffened with gusseted top and bottom lateral braces and interior vertical X-brace cross frames. The girders rest on cast-iron shoes with pinned expansion bearings that are mounted on massive square granite pads on top of the piers. Triangular catwalk brackets extend from the south side of the bridge.

The bridge rests on six stone supports, which include an abutment at each extreme and four intermediate piers, the western two rising from the Blackstone River and the eastern two on the east river bank. Branch Street passes between the east abutment and the first piers. From bottom to top, the stone piers consist of a flat base built on bedrock that rises to the low water line, eleven battered courses with an upstream ice breaker, and a narrower, protruding string course. This course marks the level of the original bridge, 8 feet 6 inches lower than the present span. Above this course are two regular courses and a capstone course. The east (Branch Street) abutment is of the same random ashlar construction as the river piers, however, the retaining wall to the south of the abutment is constructed of massive cobblestones and is likely associated with the landscaping of the adjacent 1907 Pawtucket Water Works.

Significant visual alterations include removal of the original track-level walkways and the installation of a fenced-in, steel-grate pedestrian walkway on the upstream side of the bridge and three track-level refuge bays on either side of the bridge deck. Two steel railroad signal cable conduits have been mounted along the length of each side of the bridge, and pass through holes that have been burned in the original steel walkway brackets. These alterations are associated with reconfiguration of the bridge rail ties and timbers circa 1980.

PART II HISTORICAL INFORMATION

The Blackstone River Railroad Bridge is a component of the National Railroad Passenger Corporation (Amtrak) Northeast Corridor, a high-speed passenger rail line that connects Boston to New York City, Baltimore, and Washington, D.C. This route originally consisted of several passenger and freight railroads with end-to-end connections, which were consolidated into the Amtrak system in 1971. The segment of the Northeast Corridor that includes the Blackstone River Bridge was originally chartered in 1831 as the Boston and Providence, and with the Boston and Maine and the Boston and Worcester was one of the first three major railroads in New England. Construction began in 1832, and in 1833 the railroad merged with several new Connecticut railroads to form the New York, Providence and Boston, or the "Stonington Road". The Boston-to-Providence segment that includes the Central Street Pedestrian Footbridge was surveyed by Captain William Gibbs McNeill, noted railroad surveyor and uncle of the painter James McNeill Whistler. In 1892 the Boston to New York line was included in the

growing New York, New Haven and Hartford Railroad (New Haven) system. Through rail connection to New York City was not realized until the Thames River at Groton, Connecticut, was finally bridged in 1889 (Karr 1995:124-126, 147-148).

The Blackstone River Railroad Bridge is nicknamed "The Tin Bridge" by railroaders. This somewhat misleading term is actually a perpetuation of the name given to the previous railroad bridge at this location, which was a multiple-span, pin-connected truss bridge built in 1876. The 1876 bridge was replaced by the present span to accommodate the heavier locomotives and trains being operated at the turn of the century (Commissioners 1896:38, 1897:31). The track curvature was modified circa 1980, resulting in alterations to the bridge. At this time the track-level walkways were dismantled and replaced by the fence-in pedestrian walkway on the upstream side of the bridge. Six track-level refuge bays were installed, three on each side of the bridge. The girders and ties were modified to increase the banking of the curvature, and other maintenance such as replacement of deteriorated bracing and laterals, rivets, and expansion bearings was performed. The Blackstone Valley Bridge is the longest plate girder deck bridge in the state of Rhode Island and is a relatively early example of this type of design in a period when variations on the Pratt- and Warren-type trusses were emerging as the dominant railroad bridge engineering solutions.

PART III SOURCES OF INFORMATION

A. Plans and Drawings

National Railroad Passenger Corporation Design Department, 30th Street Station, Philadelphia, Pennsylvania.

B. Historic Views

None located

C. Bibliography

Karr, Ronald Dale. The Rail Lines of Southern New England: A Handbook of Railroad History. Pepperell, Massachusetts: Branch Line Press, 1995.

State Railroad Commission of Rhode Island. Annual Report of Railroad Commissioners of Rhode Island. Providence, Rhode Island: E.L. Frauman & Son, 1896, 1897.

D. Interviews

None conducted



Source: USGS Quad: Providence, RI