

106 SUCCESS STORY

Project Preserves Character of Industrial Revolution Model Mill Village

North Smithfield, Rhode Island



THE STORY

In 1803, Samuel Slater sent his brother John from England to America to site a new textile mill. The Slaters had built the first successful water-powered cotton spinning mill in the country at Pawtucket in 1793. Following a regionwide search, John selected Buffum's Mills—a quiet hamlet in North Smithfield, Rhode Island, on the Branch River. In 1807, the Slaters opened a large textile mill that was unlike others of its day because of its rural setting, where worker housing was not readily available. The Slaters solved this problem by building a village to house their workers. The result, Slatersville, gained fame as the “Rhode Island system” model for mill village development throughout New England. Slatersville retains its historic character today due to a long history of stewardship, including the 1973 listing of the Slatersville Historic District in the National Register of Historic Places. The Slatersville Stone Arch Bridge, built across the Branch River in 1856, was recognized as a contributing element to this district in 1989, and stands as one of the oldest documented masonry bridges in Rhode Island.

THE PROJECT

In the early 1980s, the Rhode Island Department of Transportation (RIDOT) found the bridge structurally deficient and initially proposed a full replacement, consisting of a flyover bridge that would bypass the historic district and compromise its historic character. This idea was abandoned after the Rhode Island Historical Preservation & Heritage Commission and the Rhode Island State Historic Preservation Officer (SHPO) advocated for the rehabilitation of the original bridge. Discussions regarding the bridge were suspended for decades, while the nearby Slatersville Mill building was adaptively transformed into housing with the assistance of federal and state historic rehabilitation tax credits. In 2013, the Slatersville Stone Arch Bridge rehabilitation project was finally initiated through Section 106 consultation between the Federal Highway Administration (FHWA), RIDOT, SHPO, town of North Smithfield, and John H. Chafee Blackstone River Valley National Heritage Corridor. RIDOT was responsible for conducting Section 106 on behalf of FHWA. Section 106 requires federal agencies to identify historic properties and assess the effects on those properties of the projects they carry out, fund, or permit. Federal agencies also are required to consult with parties that have an interest in the historic properties when adverse effects may occur.

“The rehabilitation and repair of the Slatersville Bridge provides a great example of the 106 process at its best. An important—though structurally deficient—historic masonry arch bridge remains in its historical context, still presenting to the viewer a powerful visual presence in a National Register mill village. And, importantly, it can now carry modern traffic loads and provide accessibility to all.”

—NED CONNORS
Historic Preservation Consultant

Photos: Above, a numbered spandrel stone going back into place; Right, Slatersville Stone Arch Bridge before restoration, 2017 (photos courtesy RI SHPO)

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Photos: Left, detail of degraded spandrel wall masonry before restoration; Right, stone arch exposed after road bed stripping and systematic deconstruction of spandrel masonry; almost complete in summer 2017 (photos courtesy RI SHPO)



THE 106 PROCESS

As consultation began, several bridge rehabilitation approaches were debated until mechanical stitching was considered. This involves taking laser measurements of the bridge's structure to determine the best locations for boring a series of holes. A rod encased in a mesh sock would be fed into each hole and filled with concrete, hardening the bridge's individual stones into a monolithic mass that resists stresses that could otherwise cause shifting and failure. Though this would adversely affect the bridge, the consulting parties agreed it was the best option for preserving its historic appearance while ensuring its continued functionality. At RIDOT's insistence, this engineering feat also needed to accommodate bridge widening and the addition of a second sidewalk for foot traffic. The parapet and roadbed were stripped down to the stone arch, which, in turn, required closure of the bridge and a section of the bustling Providence Pike. The proposed bridge widening also triggered archaeological survey work of flanking historic ruins and the rehabilitation of a historic retaining wall from a demolished mill building.

Because closing this section of road would interfere with local transportation and commerce, North Smithfield advocated expediting the bridge rehabilitation project without compromising the historic character of the bridge or greater Slatersville Village. Special care was required for demolition and reconstruction operations. The bridge rehabilitation work commenced in 2017 after the ratification of a detailed Memorandum of Agreement. The most remarkable operation was carried out by the masonry team, who methodically deconstructed the bridge's spandrel walls, labeling each one so they could be replaced later in the same arrangement.



Consulting Parties:

Federal Highway Administration
 Rhode Island State Historic Preservation Officer
 Rhode Island Department of Transportation
 John H. Chafee Blackstone River Valley National Heritage Corridor
 Rhode Island Historical Preservation & Heritage Commission
 Town of North Smithfield

THE SUCCESS

Reconstruction was complete in summer 2018. It registered the first use of mechanical stitching to rehabilitate a historic bridge in Rhode Island, and renewed a longstanding dedication to preserving the character of an important historic village of the American Industrial Revolution. The bridge continues to facilitate travel between this rural area and the urban core of Providence and now accommodates the increased vehicular and pedestrian traffic drawn by the greater Blackstone River Valley National Historical Park (www.nps.gov/blrv). Signed into law by President Barack Obama in 2014, this was created to tell the story of "the Birthplace of the American Industrial Revolution."

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 Section 106 and
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