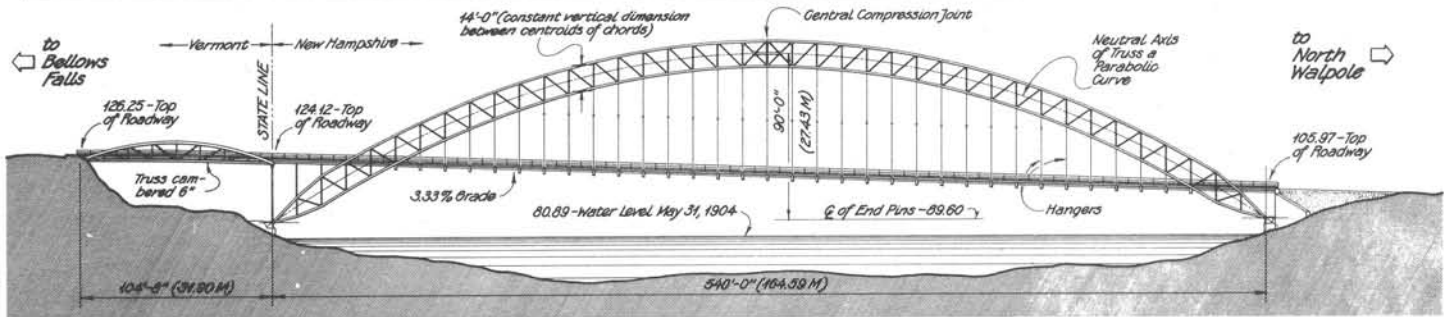


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East Elevation (1905)

NOTE: Elevation figures given for roadway, and pins, and water level are taken from J.R. Worcester's drawings and do not have the same datum line as U.S. Geological Survey topographic maps.

Historic American Engineering Record drawing, 1982, delineated by Richard K. Anderson Jr.

THE FAILURE TO PRESERVE THE BELLOWS FALLS ARCH BRIDGE

By Christopher W. Closs

Editor's Note: The Bellows Falls Arch Bridge was supposed to drop into the Connecticut River between Walpole, N.H., and Bellows Falls, Vt., after explosive charges were set off last Dec. 3. Instead, the bridge won cheers from thousands of onlookers who saw it withstand four attempts to blow it up. The spectacle drew the attention of the national news media for several days. The Arch Bridge, declared unsafe 11 years ago, finally succumbed to cutting torches on Dec. 6, ending a bitter preservation battle that had begun more than five years earlier. Ironically, three days of futile efforts to demolish the bridge with explosives only confirmed the findings of a 1978 engineering study undertaken at the SIA's request: the bridge was still sound.

The story of the failure to preserve the Bellows Falls Arch Bridge holds some important lessons. The complex series of events that led, ultimately, to its demolition raise some broad planning, engineering, and preservation issues that deserve close examination if we are to learn from this loss.

The campaign to rehabilitate the Bellows Falls Arch Bridge for medium-load traffic was initiated in 1978 by the National Trust for Historic Preservation and sponsored by the SIA. It was conceived shortly after passage of the Surface Transportation Assistance Act of 1978, which for the first time authorized federal highway monies to be used for bridge rehabilitation as well as replacement, for structures both on and off of the federal-aid system. Although innovative, the new legislation did not provide for any ongoing maintenance assistance, a responsibility still to be borne by the states.

Built in 1904-05, the Arch Bridge had a suspended deck carried by a three-hinged, steel arch. The span, originally 540 ft. in length, was shortened to 486 ft. in 1937 by removal of the end panels, which had been damaged by ice floes. The bridge was rated at 12 tons and had a 32-ft.-wide timber deck. Over the years the N.H. Dept. of Public Works & Highways (NHDPWH) had replaced the wooden deck with a concrete and, later, an asphalt surface, greatly increasing the dead load and contributing to the bridge's low rating. The last repair work on the structure was done in 1961. Following a study by the NHDPWH's engineering consultants, the bridge was closed to all but pedestrian traffic in 1971. By this time, the deck was badly

deteriorated from inadequate drainage, its floor beams heavily corroded by salt, and the arch trusses rusting from lack of paint. Without considering the possibility of rehabilitation, NHDPWH hired the same consulting firm to design a replacement.

The Arch Bridge was declared eligible for listing in the National Register of Historic Places in 1976. But, during the long period of its closure, public opinion already had begun to solidify, reinforced by NHDPWH's repeated assertions that replacement was the only option.

Ownership of the bridge was shared by the states of N.H. (83 percent) and Vt. (17 percent). (The state boundary line is on the west bank of the river.) NHDPWH, in cooperation with the Federal Highway Administration, proposed to pay for demolition of the bridge and construction of a new span at either the existing or an alternate location, but the agency consistently asserted that federal funds could not be used for rehabilitation. NHDPWH also maintained that its policies prohibited the use of state funds for either rehabilitation or maintenance of any bridge that could not meet AASHTO standards or that was not a part of the state-aid maintenance system. NHDPWH would agree to rehabilitation of the Arch Bridge only if the two municipalities would take full responsibility both for its rehabilitation and future maintenance, an untenable alternative considering the decades of deferred maintenance and already-stretched local resources.

If the intransigence of state and federal highway officials was the primary obstacle, conveying to the press and public the real dimensions of the issue and the alternatives available was certainly the second. Rehabilitation of the Arch Bridge emerged as not simply a landmark preservation battle but as a case involving the larger issues of regional transportation planning and commercial and neighborhood revitalization.

When the bridge preservation effort was launched in late 1978, the National Trust recognized that the continued viability of the commercial and neighborhood centers bisected by Vt. Rte. 5 and N.H. Rte. 12 was heavily dependent upon rehabilitation of the Arch Bridge for medium and light-duty traffic. Eliminating heavy truck traffic from the square in Bellows Falls already was an established objective of local planners. In essence, then, what was needed was a solution to an