Avenue A over the Connecticut River

Gill-Montague, MA

BRIDGE #G04010=M28031

BRIDGE REHABILITATION

3D Truss Analysis
Jacking of Truss
Bearing Replacement
Gusset Plate Replacement
Staged Deck Reconstruction

KEY GILL STAFF

Joseph Gill, Proj Mgr
Preston Huckabee, Proj Eng
Paul Moyer, Sr Engineer
Sami Kassis, Sr Engineer
Keith Nelson, Sr Engineer
Nathan Rosencranz, Engineer
Patrick Chiu, Engineer
Amy Musgrave, Asst Engineer
John Phelps, Asst Engineer

CLIENT

SPS New England

OWNER

Mass Dept of Transportation

REFERENCE

Tom Browne
SPS New England
978-462-6543

CONSTRUCTION COST

$40.7M

CONSTRUCTION SCHEDULE

2009-2013

Built in 1937, the bridge consists of a 1250-foot long three-span continuous main steel truss structure, two simple span steel truss approach spans and one short steel stringer approach span. Contract documents for a major rehabilitation were prepared by the Massachusetts Department of Transportation. During bidding, Gill Engineering was retained by SPS New England, Inc. to help the contractor engineer some complicated construction operations required for the rehabilitation project.

One of the most challenging pieces of work was the jacking of the superstructure to allow for the replacement of the bearings. Gill developed jacking procedures and details for replacement of bearings, including the design of a jacking frame to support the 2800-kip reaction from the existing truss bridge at each bearing under full dead and live loading.

Another was the development of details and methodology to maintain the structural integrity of the structure during the various stages of reconstruction that included the staged demolition and replacement of the existing deck; the removal, replacement and repair of main truss members; and the replacement of horizontal and vertical gusset plates - all while maintaining two lanes of traffic on the bridge. A three dimensional structural analysis of the truss was performed to determine member forces during the stages of construction and ensure that stresses remained within allowable levels.

Gill's innovative design and detailing resulted in cost effective solutions that helped SPS produce the winning bid. Gill continues to support SPS during construction, now underway.