PCI NORTHEAST
A Chapter of the Precast/Prestressed Concrete Institute

SOUTH MAPLE STREET BRIDGE REPLACEMENT

over Scantic River
Enfield , Connecticut

PCI
Precast/Prestressed Concrete Institute

ENGINEER OF RECORD
Tectonic Engineering & Surveying,
Rocky Hill, CT

PRECAST ENGINEER
Hoyle Tanner & Associates, Inc.,
Burlington, VT

CONTRACTOR
Arborio Corporation,
Cromwell, CT

PRECASTER
Dailey Precast, LLC
Shaftsbury, VT

SUSTAINABLE CONSIDERATIONS

LEED CREDIT 4.1
Recycled content was used in the mix.

LEED CREDIT 5.1
Locally harvested materials.

PROJECT FACTS

- LENGTH: BRIDGE 82 FT
- 71 PRECAST BRIDGE UNITS
- 2-1/2 WKS–ASSEMBLE BRIDGE FULLY
- UTILIZING 100% PRECAST ELEMENTS SHORTENED CONSTRUCTION FROM 1-1/2 YEARS TO 4 MONTHS
- CT'S FIRST FULLY PRECAST BRIDGE

PRECAST CONCRETE & BRIDGES

The new 82 foot single span replacement bridge would have to blend in with the natural beauty of the forest and scenic historic river area. Tectonic Engineering & Surveying Consultants P.C., the engineers of record, preformed a study to determine the type of bridge that would best suit the area. A prestressed adjacent box beam superstructure was recommended and designed for the bridge with a cast-in-place concrete substructure.

According to Jeffery A. Scala, P.E. with Tectonic Engineering, they performed a construction time analysis that lead them to propose that the "design be revised to utilize 100% precast elements to shorten the construction duration to one season," 4 months instead of the original 1-1/2 year proposal. This would reduce the traffic detour time as well as eliminating winter construction and the river's flood issues that occur in the spring. Building with precast concrete also reduces the amount of disturbance to the surrounding forest and river because much of the work is done off site making it less intrusive and easier to protect the area. It would become Connecticut's first fully precast bridge.

Dailey Precast, LLC manufactured the 71 pieces needed for this project in an indoor controlled environment. Special forms were designed to make the exposed wing walls look like a masonry stone wall, which makes the bridge blend with the historic feel of the surrounding area. Scala applauds the speed of which a precast bridge can be constructed saying that "once the elements were cast and the site preparation was ready, it only took 2-1/2 weeks to fully assemble the bridge."