



Hamilton Form Company, Ltd, Fort Worth, TX 76118, USA

# New life for aging bridges ... The NEXT Best Thing Realized

According to the American Society of Civil Engineers (ASCE), in the three years between 2000 and 2003, roughly 27 percent of the country's 590,750 bridges were rated "structurally deficient or functionally obsolete," representing one out of every three bridges in urban centers, and one of every four bridges located in rural areas. This fact became frightfully obvious with the collapse of the I-35 Bridge over the Mississippi River in Minnesota in 2007. Since then, engineers have been working toward developing innovative and cost effective methods for accelerated bridge replacement. One of those innovations is the NEXT Beam developed by the Northeast Precast/Prestressed Concrete Institute (PCINE).

The Northeast Extreme Tee (NEXT) Beam concept was first proposed in 2006 by Rita Seraderian, Professional Engineer and executive director of the Northeast Precast/Prestressed Institute (PCINE). The concept was developed to be used on medium span bridges (45 to 90 feet), which are predominant in the area. Working in collaboration with the Bridge Technical Committee – a public private partnership of New England and New York State highway departments, area precast concrete producers and private consultants – development of the precast concrete double-tee NEXT Beam took several years.

The result is an efficient and cost-effective alternative to traditional bridge construction. The NEXT Beam was designed with production, shipping and installation considerations in mind. The cross section has the appearance of a double tee beam with stems located 5'-0" apart. This configuration will easily accommodate utility chases. The width of the beam can vary from 8'-0" to 12'-0" and the depth of the stems from 24" to 36". The section was developed so that one form could be purchased and adapted for different sections by using stem fillers and moveable side rails. A weight limit was set at approximately 120,000

pounds and was designed so that less pieces are used to construct a typical medium span bridge.

The first project to use the new beam is the New Bridge on Route 103 over the York River in York, Maine. The original 17-span steel girder bridge will be the first bridge in the country to be completely reconstructed with a seven span precast/prestressed concrete bridge utilizing the NEXT Beam. W.E. Dailey in Shaftsbury, Vermont was awarded the contract to produce the precast/prestressed products for the project. Noble Levesque, general manager at Dailey



*The NEXT Beam was designed with production, shipping and installation considerations in mind.*

notes, "This solution is a welcomed compliment to other components presently utilized in medium span accelerated bridge construction."

Dailey chose Texas-based Hamilton Form Company to build the formwork for the NEXT Beam. The form has the appearance of a typical double-tee with a significant number of strand used in each leg in addition to deck strand. After much discussion relative to self-stressing vs. non self-stressing forms, Dailey opted for the non-self-stressing option to utilize existing abutments in their plant. Hamilton Form fabricated 200 bed feet of form and 400 lineal feet of magnetic side rail. The form was installed at W.E. Dailey and the first beam cast for DOT approval in January 2010. The 510-foot prestressed concrete bridge requires only

28 NEXT beams produced in varying lengths. Installation of the beams will begin in May, with the bridge scheduled to be completed in July or August of 2010.

The innovative and fabricator-friendly NEXT Beam has been met with enthusiasm by DOT engineers in New England and New York. Several other states are also reviewing the NEXT Beam standard and how it might benefit their own infrastructure improvements. And, with the number of aging bridges in need of replacement from coast to coast, bridge engineers are watching closely as the "old" New Bridge is transformed into the newest benchmark for precast/prestressed bridge elements and systems that accelerate construction, minimize traffic impacts, increase durability and ultimately, lower costs.

**FURTHER INFORMATION**

Precast/Prestressed Concrete Institute Northeast (PCINE)  
 116 Radcliffe Road  
 Belmont, MA 02478, USA  
 T +1 888 7005670  
 F +1 617 4895810  
[contact@pcine.org](mailto:contact@pcine.org)  
[www.pcine.org](http://www.pcine.org)

William E. Dailey Precast, LLC  
 295 Airport Road  
 Shaftsbury, VT 05262, USA  
 T +1 802 4424418  
 F +1 802 4420738  
[nleve@daileyprecast.com](mailto:nleve@daileyprecast.com)  
[www.daileyprecast.com](http://www.daileyprecast.com)



Hamilton Form Company, Ltd  
 7009 Midway, Fort Worth, TX 76118, USA  
 T +1 817 5902111, F +1 817 5951110  
[sales@hamiltonform.com](mailto:sales@hamiltonform.com), [www.hamiltonform.com](http://www.hamiltonform.com)

**HAMILTON FORM CREATES FUNCTION**

**8 CASE STUDY**

**MIAMI INTERNATIONAL AIRPORT PEOPLE MOVER**



"Since taking delivery of the formwork and beginning production of the guide way components, casting has gone well. The formwork was designed with several features that help improve productivity. Set-up, stripping and changeovers are efficient and trouble free."

*Larry Paul  
 Executive Vice President  
 Standard Concrete Products*

Standard Concrete Products in Tampa is providing precast beams for an elevated rail system at the Miami International Airport. Hamilton Form provided the formwork, including 78-inch sloped sideforms and U-beam voids with adjustable end voids that allow the internal diaphragm to be easily modified. A combination top tie/void hold down reduces labor and simplifies set-up. A custom designed vertical lifting apparatus aids stripping.

When your next project calls for innovative formwork and custom equipment solutions, call on Hamilton Form: 817 590-2111 [www.hamiltonform.com](http://www.hamiltonform.com)



**Hamilton Form Company, Ltd.**

7009 Midway Road • Fort Worth, Texas 76118

*Custom forms. Custom equipment. Practical solutions.*