

## I-93 Fast 14 Bridge Replacement

Medford, MA

**BRIDGE # M12025, M12027, M12028, M12029, M12030, M12036, M12039 (NB & SB)**

### DESIGN-BUILD

Accelerated Bridge Construction -Heavy Lift  
Modular Panel Construction

### KEY GILL STAFF

Joseph Gill, Lead Engineer  
Paul Moyer, QC Administrator  
Preston Huckabee, Proj Eng  
Dave Comerford, Sr. Engineer  
Sami Kassis, Sr Engineer  
Patrick Chiu, Engineer  
Nathan Rosencranz, Engineer  
Amy Musgrave, Asst Engineer  
John Phelps, Asst Engineer  
Sam Mason, Asst Engineer

### DESIGN-BUILD PARTNER

White-Kiewit JV

### CLIENT/OWNER

Mass Dept of Transportation

### REFERENCE

Shoukry Elnahal, MassDOT  
Director of Accelerate Bridge Program  
617-973-7995

Thomas Donald, MassDOT  
Director of Bridge Project Development  
617-973-7494

### CONSTRUCTION COST

\$79M

### CONSTRUCTION SCHEDULE

June-2011-August 2011



As Lead Bridge Engineer Gill Engineering Associates was in responsible charge of the structural design of fourteen (14) bridge superstructures and related substructure repairs on a major commuter artery into the City of Boston. This fast track design/build project, funded by the MassDOT Accelerated Bridge Program required the design be completed in four months and demolition and replacement of the superstructures to be completed over 10 summer weekends in 2011.

Around-the-clock weekend superstructure demolition and replacement was completed by implementing the full closure of one four-lane barrel of I-93 from Friday at 10:00 pm until the following Sunday at 5:00 am. Two lanes of the closed barrel were redirected into the other barrel. Bi-directional traffic was maintained using a "zipper lane". The interstate was restored to a full eight-lane configuration in advance of the start of the Monday commute.

Implementation of Accelerated Bridge Construction Technology dramatically reduced the duration of construction and traffic impacts. The foundation of this approach is the off-site prefabrication of modular deck panels consisting of two superstructure girders and a reinforced concrete deck. During weekend road closure, after the existing superstructure was demolished, the panels were delivered to the site and erected using heavy lift equipment. Closure pours of extremely fast curing concrete formed a structural connection between the panels.

The DB team succeeded in completing a project that would typically take over five years in only seven months – on time and within budget.



### **2012 AWARD WINNER**

- ACEC MA Grand Conceptor
- ACEC National Honor
- America's Transportation Competition "Best Use of Innovation" (Medium Projects)
- CMAA NE Project of the Year (Projects < \$100M)
- ENR NY Best Project Transportation
- ENR NY Best Overall Project
- NSBA Accelerated Bridge Construction Commendation
- NSBA Reconstructed Prize Bridge