

I-93 FAST 14 BOSTON, MA

MOVEABLE BARRIER FOR CONSTRUCTION
ACCELERATED BRIDGE CONSTRUCTION



CONFIGURATION PRIOR TO ACCELERATED BRIDGE CONSTRUCTION



ACCELERATED BRIDGE CONSTRUCTION CONFIGURATION

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THE ROAD ZIPPER MOVES TRAFFIC DURING ACCELERATED BRIDGE CONSTRUCTION

In August of 2010, several giant potholes opened up on an I-93 bridge deck in Medford, MA near Boston. This commuter thoroughfare carries over 200,000 vehicles per day, and an immediate traffic nightmare was unleashed as the bridge was closed for days to conduct emergency repairs. A review of the elevated structures along I-93 found that 14 bridges were deficient and required major rehabilitation. Using traditional construction methods, this project would have taken four years to complete and resulted in unacceptable user delays. To avoid the gridlock and community outrage, MassDOT proposed a strategic Accelerated Bridge Construction (ABC) program that would complete reconstruction of all 14 bridges during 10 weekends in the summer of 2011.

The first step in reducing the massive user delay that could be created by the project was to prefabricate the bridge superstructure units off-site. This saved years of road closures compared to on-site construction. When the prefab bridge elements were ready, the road closure schedule was implemented. At each bridge, the local road traveling underneath was closed for construction-only access at 6:00 pm on Friday night and the bridge elements were moved to the site.

To gain access to the bridge deck, all traffic was moved over to the other side of I-93. A moveable barrier system called the Road Zipper® was used to create the crossovers and to separate opposing lanes of traffic. At 8:00 pm, Barrier Transfer Machines moved the barrier out two lanes, creating a 2/2 traffic pattern that provided positive barrier protection between the traffic directions. The barrier also created a clear channel to help motorists through the construction zone. With the traffic control in place, the demolition of the bridge deck was carried out through the night. Cranes then lifted the prefab bridge deck replacement sections into place and a new quick-drying concrete was used to ensure that the road would be ready for Monday traffic. The moveable barrier was returned to the side of the road and all lanes were opened in both directions by 5:00 am on Monday morning.

This project was showcased by the FHWA in July of 2011, with officials from 26 states attending to learn about the accelerated program. The Fast 14 project won nine major awards, including two AASHTO America's Transportation Awards in the "Ahead of Schedule" and "Best Use of Innovation" categories.

Project Highlights:

- Managing Agency: MassDOT
- Design-Build Team: White-Kiewit
- Design Engineers: Tetra Tech, CME
- 14 deficient bridges replaced in 10 weekends
- Total project time cut from 4 years to 10 months
- Each bridge completed during a 55 hour closure
- Project was showcased by FHWA and received 9 major awards

