



Accelerated Construction Technology Transfer (ACTT)

July and October 2003, Trenton, New Jersey

IMPROVED
CONSTRUCTION
SYSTEM
AND
PRESERVATION
TECHNOLOGIES
performance of highway systems

new strategies to enhance the quality

Accelerated Construction Technology Transfer (ACTT) is a strategic process that uses various techniques and technologies to reduce construction time on major highway projects while enhancing safety and improving quality. The process is implemented by conducting 2-day workshops for State DOTs. AASHTO and FHWA jointly fund ACTT workshops. While the ACTT process is typically applied to large projects, all highway projects could benefit from the accelerated construction concept, regardless of size. Additionally, ACTT workshops vary in size, based on project needs and scope of work.

In an attempt to minimize construction time while ensuring the most cost effective alternative for its Rt-46 bridge structure spanning the Overpeck Creek, the New Jersey Department of Transportation (NJDOT) decided to explore the ACTT concept by hosting a limited workshop. The purpose of the workshop was to help the NJDOT evaluate and pick from several alternatives ranging from partial replacement of the westbound deck to full replacement of the structure (which was deemed cost effective at \$10 million, but would impose an 18-month construction time) while facing challenges like:

- The bridge is located next to the New Jersey Turnpike and is only 8 km (5 mi) west of the George Washington Bridge that leads into New York City.
- Impact on the traveling public is to be minimized, if not avoidable.
- Minimize construction time.
- Stay within the programmed budget.

The workshop was coordinated and conducted in a different format than other ACTT workshops. The process of project evaluation and solution recommendation was conducted over two meetings. During the first meeting on July 26, 2003, the ACTT team toured the project site and received an overview of the project. The ACTT team then spent some time analyzing the options. On October 27, 2003, the team presented its findings to NJDOT.

The team presented numerous ideas and recommendations, many of which were deemed viable and will be pursued, according to NJDOT. Among the ideas and recommendations presented were:

- Close the westbound structure completely during construction.
- Make use of precast elements such as double I-girders, deck bulb tee, precast box beam, adjacent bulb tee, inset modular bridge deck units, and concrete/steel beams with a full-depth precast deck.
- Utilize lightweight high-performance concrete (HPC) to reduce deadload.

- Employ polymer concrete for joint closures.
- Use fiber-reinforced polymer composites for the deck.

NJDOT decided not to replace the entire superstructure or use road closures, but to use prestressed, precast HPC (EFFIDECK) for a new bridge deck to expedite construction. NJDOT will also replace some of the bridge's secondary steel beams, while maintaining the bascule span steel girders. Work to replace the bridge deck is expected to begin this year and last 3 months, at an estimated cost of \$3 million. The improvements will be carried out while maintaining two



Route 46 bridge spanning Overpeck Creek

lanes in the westbound direction at all times. As a result of ACTT's assistance, NJDOT has decided to host a full-scale ACTT workshop, scheduled for November 16-18, 2004, to evaluate its \$300 million I-295/I-76/Rt-42 interchange reconstruction project.

To find out more about the project and the implementation of recommendations, contact:

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