



U.S. Department of Transportation
Federal Highway Administration

Accelerated Construction Technology Transfer (ACTT)



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IMPROVED
CONSTRUCTION
AND
PRESERVATION
SYSTEM
TECHNOLOGIES
performance of highway systems

new strategies to enhance the quality

Accelerated Construction Technology Transfer (ACTT) is a strategic process that uses innovative 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 Departments of Transportation (DOTs). The American Association of State Highway Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA) jointly fund ACTT workshops.

In April 2004, the Tennessee Department of Transportation (TDOT) hosted a workshop that brought together 82 transportation experts from 19 states. The primary objective of the workshop was to draw on the expertise of participants to help TDOT achieve its goal of minimizing construction time for its I-40 project between I-275 and Cherry Street in downtown Knoxville. The existing facility was built in the early 1960s, and includes substandard features like short weaving sections, left-hand entrance ramps with short acceleration lanes, and inadequate shoulders. While I-40 has a minimum of six through lanes east and west of downtown Knoxville, the section proposed for reconstruction is a “bottle neck” that has only four through lanes. The \$160 million project involves widening and reconstructing the existing facility. Also, as part of this project, James White Parkway (SR-158) will undergo some improvements. A combination of additional lanes and geometric improvements at the I-40/SR-158 interchange is expected to help address the capacity issue of the project. The primary project challenge is to reduce construction time while minimizing right-of-way requirements and adverse environmental and socio-economic impacts to the community, which includes several historical districts adjacent to the highway.

Winston Gaffron, TDOT Assistant Chief Engineer, and Bobby Blackmon, FHWA Division Administrator, expressed support for the workshop as they welcomed the participants during the opening session. Dr. Donn Hancher, Assistant Dean of the College of Engineering, of the University of Kentucky gave the keynote address on “Why ACTT? Why Now?” which included an overview of several projects accelerated across the nation and their successes. Following the opening remarks and a project tour, the participants spent a day and a half brainstorming, looking for methods and measures that would help achieve project goals.

The workshop Skill Sets selected by TDOT prior to the start of the workshop were: Structures, Construction/Materials/Accelerated Testing/Constructability, Geotechnical, Innovative Contracting/Worker Health/Warranties, Traffic/Safety/ITS, and Environment/PR/Aesthetics. Each Skill Set team focused on how the ACTT process applied to the specific concerns in their area of expertise, while



TDOT Workshop

collectively the teams searched for methods and measures to help TDOT achieve its goals—maximize the flow of traffic on detour routes while minimizing the disruption to area residents and businesses; simplify the construction process and increase motorist safety during and after the project; and remain open to change throughout the process so that new opportunities for streamlining and safety can be realized as they arise.

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

- Adjust span lengths to avoid existing foundations, and install spread footings and/or pin pile foundation under the James White Parkway before demolition of the existing bridge.
- Complete and open Hall of Fame Drive to traffic prior to the closure of I-40.
- Brand the project ASAP, determine/select dedicated PIO, develop a chart of communication flow, develop/establish credibility. Deploy an aggressive media campaign to educate the community about the project and identify alternate routes and transportation modes and encourage their use.
- Pre-procure materials that are on the critical path, such as bridge girders, manholes, retaining wall panels, and noise walls.
- Consider full span prefabrication and erection.
- Use Self Consolidating Concrete (SCC).
- Authorize utility relocation in advance of construction.
- Provide a contractual mechanism to expedite changes due to unanticipated subsurface or other conditions.
- Provide training on inspection of MSE walls and Drilled Shafts for field staff prior to construction.
- Provide corridor lighting rather than area lighting, which would flood neighborhoods.

With the workshop now completed, it remains for TDOT to sift through the reports produced by the Skill Set teams and decide which ideas should be implemented in future planning, design, and construction phases of the project.

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