

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Virginia Department of Transportation

INSTRUCTIONS:

Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project # <i>(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i> TPF(5)-226	Transportation Pooled Fund Program - Report Period: <input checked="" type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 4 – December 31)	
Project Title: Instrumentation to Aid in Steel Bridge Fabrication		
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Lead Agency Project ID:	Other Project ID (i.e., contract #): 100-CMW	Project Start Date: 7/20/10
Original Project End Date: 7/19/11	Current Project End Date: 7/19/11	Number of Extensions: 0

Project schedule status:

On schedule On revised schedule Ahead of schedule Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Total Percentage of Work Completed
\$150,000	\$87,601	75%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$27,348 (project items, consultants, travel)	\$36,079	20%

Project Description:

Transportation Pooled Fund Project TPF(5)-226 "Instrumentation to Aid in Steel Bridge Fabrication" will deliver a laser based bridge measurement system that will greatly improve the quality and reduce the cost of complex bridge fabrication. This system will reduce or eliminate the need for shop fit-up and assembly by providing a virtual assembly capability using specialized solid modelling and analysis software specifically targeted at large-scale complex structures. This laser system will be specifically designed for steel bridge fabrication and will accurately and precisely measure all aspects of a bridge component, including splice hole locations, camber, sweep, and end-kick in a nearly full-automated manner. The completed system can also be used as a quality control tool to document as-built conditions of girders and as a virtual fit-up tool to eliminate shop assembly.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):

This period commercial CAD and modeling tool were selected for the project. Significant work has been completed on steps to create 3D CAD models of girders from existing 2D shop drawings. Procedures are being developed for this conversion process. Work was completed on the process of automating data collection and steps in the measurement process. Software tools are being developed to setup and collect data. Laboratory tests have been conducted with the laser system to test software and automation.

A project status meeting was held with Hirschfeld Industries in Greensboro, NC. The National Steel Bridge Alliance (NSBA) was present at the meeting. Test results of prior measurements and planning for future testing were discussed.

Presentation and outreach efforts were conducted, including a presentation at the Mid-Atlantic Quality Assurance Workshop, Hershey, PA. Meetings were held with state DOT pooled-fund participants Virginia DOT and Iowa DOT. A presentation and meeting was held to discuss this project with Maryland State Highway Administration (MD SHA).

Anticipated work next quarter:

Work will continue the following tasks.

- Development of 3D CAD modeling tools and with laser system automation
- Design of the over-all measurement system
- Plan the next set of tests
- Out-reach efforts to discuss the project with State Departments of Transportation, bridge fabricators, and other interested parties

Significant Results:

Tennessee DOT (TN DOT) has agreed to allow laser measurements and virtual assembly procedures from this project in place of a conventional lay-down process for a schedule bridge job with Hirschfeld Industries. Several girders will be fabricated without lay-down and subsequently measured with the laser system. Virtual fit-up and splice plate design will then be completed. The details of this testing are now being planned. Fabrication is scheduled for this summer.

The status of this project will be presented to the AASHTO T-14 Committee (Structural Steel Design) in April 2011.

Circumstance affecting project or budget (Describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope, and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

None