

# TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Kansas DOT

## 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.*

<b>Transportation Pooled Fund Program Project #</b> TPF-5(318)	<b>Transportation Pooled Fund Program - Report Period:</b> <input 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 checked="" type="checkbox"/> Quarter 4 (October 1 – December 31)	
<b>Project Title:</b> <b>Practical Design Guidelines for Replacement of Deficient Bridges with Low Water Crossings in the Rural Midwest</b>		
<b>Project Manager:</b> Susan Barker, P.E. <b>Phone:</b> (785) 291-3847 <b>E-mail:</b> SusanB@ksdot.org		
<b>Project Investigator:</b> Bruce McEnroe <b>Phone:</b> (785) 864-2925 <b>E-mail:</b> mcenroe@ku.edu		
<b>Lead Agency Project ID:</b>  RE-0684-01	<b>Other Project ID (i.e., contract #):</b>  KAN0074384	<b>Project Start Date:</b>  5/2015
<b>Original Project End Date:</b> 08/2016 Multi-year project	<b>Current Project End Date:</b> 08/2016	<b>Number of Extensions:</b> N.A.

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
\$165,086	\$78,983	60%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$30,762	\$30,762	25%

**Project Description:**

This project examines the possible replacement of deficient bridges with low-water stream crossings (LWSCs) on low-volume rural roads. The project report will provide practical guidance to county officials and engineering consultants who wish to consider a low-water crossing as an alternative to road closure where bridge replacement is not economically feasible. Topics to be addressed include site assessment, evaluation of alternatives, environmental regulations and permits, and engineering design. We will provide design guidance and case studies for unvented fords, vented fords, low-profile culverts, low-profile bottomless culverts, and low-profile open-span bridges. The site assessment will address traffic and safety issues, geometric constraints, economics, stream hydrology and morphology, and environmental issues.

As a separate work item funded entirely by KDOT, we will update KDOT's flood-frequency regression equations for Kansas. Developed by the University of Kansas in 2006, these equations require precipitation frequency estimates as inputs. In 2013 NOAA published new precipitation frequency estimates for Kansas and ten other states. KDOT has funded additional work to recalibrate KDOT's flood-frequency regression equations using for the new NOAA precipitation frequency estimates. At the same time, these equations will be improved through analysis of an expanded dataset using more advanced statistical methods.

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

1. We continued to gather information on a dozen potential case studies of recent LWSC projects. This information includes photographs, project plans, site characteristics, regulatory requirements, construction costs and methods, and project performance to date.
2. We developed guidance for evaluating the suitability of a site for a LWSC and for determining the most appropriate type of LWSC.
3. We inspected a low-profile open-span bridge in Geary County on 10/11/15.
4. We developed a detailed outline for the project report.
5. We met with our KDOT project monitors at KDOT's headquarters office in Topeka on 11/25/15.
6. We obtained useful information from Kansas Department of Health and Environment staff regarding water-quality permit requirements for LWSC projects.
7. We obtained useful information from the Kansas State Historical Preservation Office staff regarding classification of old bridges as historically significant.
8. We completed the separate work item to update KDOT's flood-frequency regression equations for Kansas. We sent the final report to our KDOT project monitor to KDOT project monitor Kelly Farlow for review on 10/06/15. Ms. Farlow returned KDOT staff's review comments on 12/01/15. We revised the project report to address those comments and submitted the final version of the project report to KDOT on 12/21/15.

**Anticipated work next quarter:**

1. We will focus our efforts on preparation of the project report. We have hired a new team member to assist in this task.
2. We will gather additional information on the selected case studies as needed.
2. We will solicit further information on regulatory requirements for LWSCs in Illinois and Ohio.
3. We will meet with our KDOT project monitor and advisory group to review progress and solicit feedback.

**Significant Results:**

We completed the separate work item to update KDOT's flood-frequency regression equations for Kansas. We submitted the final version of the project report to KDOT on 12/21/16.

**Circumstance affecting project or budget. (Please 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

