

## 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 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 1 – December 31)	
<b>Project Title:</b> Practical Design Guidelines for Replacement of Deficient Bridges with Low Water Crossings in the Rural Midwest		
<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	\$81,397	70%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$2,414	\$2,414	10%

**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.

1. We collected additional information for case studies of 12 recent LWSC projects in Kansas. This information includes photographs, project plans, site characteristics, permitting documents, construction costs and methods, and project performance to date.
2. We obtained useful information from KDWPT and USACE regarding the preliminary review of proposed LWSC projects for issues relating to threatened and endangered species and historically significant structures and sites.
3. We investigated the impacts of FEMA floodplain regulations on LWSC projects.
4. We greatly improved the report chapter on regulatory and permitting issues.
5. We created detailed location maps in ArcGIS for the 12 case studies.
6. We developed estimates for a variety of streamflow characteristics for the 12 case studies.
7. KDOT provided helpful information on costs for rural bridge projects.
8. We obtained helpful information on inspection requirements and costs for fracture-critical bridges.
9. The Kansas State Historical Preservation Office staff provided helpful information on the classification of old bridges as historically significant.
10. We investigated possible sources of state and federal funding for LWSC projects.
11. We made contact with our project partners in Ohio and Illinois on 1/22/2016, 2/1/2016 and 2/29/2016.
12. We continued work on the project report.

**Significant Results:**

No deliverables were completed this quarter,

**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