

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.

Transportation Pooled Fund Program Project # TPF-5(318)	Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input checked="" 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)	
Project Title: Practical Design Guidelines for Replacement of Deficient Bridges with Low Water Crossings in the Rural Midwest		
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Project Investigator: Bruce McEnroe Phone: 785-864-2925 E-mail: mcenroe@ku.edu		
Lead Agency Project ID: RE-0684-01	Other Project ID (i.e., contract #): KAN0074384	Project Start Date: 5/2015
Original Project End Date: 8/2016 Multi-year project	Current Project End Date: 8/2016	Number of Extensions: N.A.

Project schedule status:

X 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	\$4,331	10%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$4,331	\$4,331	10%

Project Description:

This project examines the possible replacement of deficient bridges with low-water stream crossings 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 for unvented fords, vented fords and low-water bridges. The site assessment will address traffic and safety issues, geometric constraints, economics, stream hydrology and morphology, and environmental issues. The report will include in-depth case studies of case studies of recent projects.

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. The project team met with KDOT project monitor and other KDOT staff on 3/17/15.
2. We met with Norm Bowers, Local Road Engineers, Kansas Association of Counties, on 5/04/15.
3. We reviewed previous reports on low-water crossings by U.S. Forest Service, U.S. Army Corps of Engineers, FHWA, Iowa State University and others.
4. We inspected three low-water crossings in Douglas County on 5/20/15.
5. We inspected eleven low-water crossings in Anderson County on 6/04/15.
6. We talked with and gathered useful information from county engineers and/or road supervisors in 21 Kansas counties. The team also made contact with county engineers in Missouri, Ohio and Illinois.
7. We talked with and gathered useful information from engineers with eight consulting firms in Kansas that have done low-water crossing projects.
8. We talked with and gathered information from staff members from the following regulatory and commenting agencies: U.S. Army Corps of Engineers, Kansas Department of Agriculture's Division of Water Resources, Kansas Department of Wildlife, Parks and Tourism, U.S. Fish and Wildlife Service, Kansas Biological Survey, Kansas Forest Service, and Kansas Corporation Commission.
9. We gathered information on potential case studies of recent low-water crossings installations in Kansas. We identified several promising sites, including an unvented ford in Washington Count, a vented ford in Kiowa County, and low-water bridges in Johnson County. Project owners and engineers provided project plans, cost information, required permits and related correspondence.
10. We made significant progress on the separate work item to update KDOT's flood-frequency regression equations for Kansas. We identified all USGS gaging stations that meet the study's requirements, performed frequency analyses on the records of annual peak flows, determined the required physical characteristics of the watersheds, and obtained the required precipitation frequency data for the watersheds from NOAA Atlas 14.

Anticipated work next quarter:

1. We will continue to pursue leads and gather information on possible case studies.
2. We will share useful information with our project contacts in Illinois and Ohio.
3. We will develop draft guidelines for classification of the various types of low-water crossings.
4. We will develop draft guidelines for assessing the suitability of sites for low-water crossings.
5. We will develop draft guidelines for selecting the most appropriate type of low-water crossing at a suitable site.
6. We will develop draft guidelines for hydrologic and hydraulic design of the common types of low-water crossings.
7. We will develop a draft table of contents for the project report.
8. We will submit the various draft documents to our KDOT project monitors and our contacts at Illinois and Ohio DOTs for their review and comments.
9. We will hold a progress meeting with our KDOT project monitors
10. We will complete the separate work item to update KDOT's flood-frequency regression equations for Kansas. We will develop the new regression equations, prepare the project report and submit it to KDOT for review.

Significant Results:

No final results were produced in this initial quarter.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might 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