TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): __FHWA_____

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 #	Transportation Pooled Fund Program - Report Period:
TPF-5(211)	☐ Quarter 1 (January 1 – March 31) 2015 ☐ Quarter 2 (April 1 – June 30) 2015 √ Quarter 3 (July 1 – September 30) 2015 ☐ Quarter 4 (October 1 – December 31) 2015

Project Title:		
Bridge Pier Scour Research		
Name of Project Manager(s): *Kornel Kerenyi*	**Phone Number:** *(202) 493-3142*	**E-Mail** *kornel.kerenyi@fhwa.dot.gov*
Lead Agency Project ID:	**Other Project ID (i.e., contract #):**	**Project Start Date:**
Original Project End Date:	**Current Project End Date:**	**Number of Extensions:**

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	Percentage of Work Completed to Date

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date

Project Description:
The present evaluation shows that, while the individual scour influences of the many bridge waterway variables are now well understood for simple or standard pier designs, and that recently developed scour estimation methods attempt to encompass these influences, there are several sources of substantial complexity that complicate the development of reliable comprehensive design relationship for estimating scour depth at piers:
- Complexity of flow field
- The fundamental problem of simultaneously scaling three scales (flow depth, bed material size and, structure size)
- Variations in channel boundary materials
- Differences in pier structure
- The complicating interaction of pier scour and other boundary erosion processes , such as accumulation of woody debris, ice bridge over-topping, abutment proximity, channel morphology, bedforms
- The large number of parameters involved

The TFHRC Hydraulics Laboratory will collaborate on this proposed research and will provide Lab capabilities and technical assistance.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):
- Continued the formulation of erosion power/force decay at different level of scour.
- Continued the investigation of erosion resistance of streambed materials and potential load/resistance design approach.
- Possible approaches of utilizing 2-D modeling in scour evaluation were discussed.
- Consistency with AASHTO specifications and potential needs of clarification were studied.
- Possibility of accommodating various levels of design effort was considered.

Anticipated work next quarter:

- Continue the investigation of erosion power/force under various conditions.
- Continue investigation of the erodibility of streambed material and contributing factors.
- Continue developing a potential framework for a comprehensive design approach.
- Further explore the proper use of 2-D modeling in new scour evaluation framework.

Significant Results:

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 to report.

Potential Implementation:

None from this period.