TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): __Iowa 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(445)	**Transportation Pooled Fund Program - Report Period:** ☐ Quarter 1 (January 1 – March 31) X Quarter 2 (April 1 – June 30) ☐Quarter 3 (July 1 – September 30) ☐Quarter 4 (October 1 – December 31)

Project Title: Design Guidelines and Mitigation Strategies for Reducing Sedimentation of Multi-barrel Culverts		
Name of Project Manager(s): Marian Muste	**Phone Number:** 319-384-0624	**E-Mail** Marian-muste@uiowa.edu
Lead Agency Project ID:	**Other Project ID (i.e., contract #):**	**Project Start Date:** February 1, 2020
Original Project End Date: January 31, 2023	**Current Project End Date:** January 31, 2023	**Number of Extensions:** 0

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	Percentage of Work Completed to Date
$300,000	$1058	5%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
$1058 (1%)	$1058	2%

Project Description:

The overall goal of the TPF-5(445) project is to leverage the extensive research conducted in Iowa though a multi-state research effort leading to design guidelines and specifications for mitigation measures for reducing sedimentation at existing and proposed multi-barrel culvert locations. The guiding principles and best practices for mitigating sedimentation will complement the existing hydraulic design guidelines. The project will entail laboratory, numerical, and field monitoring and analysis to determine the overall effect of the sedimentation-reduction designs on the hydrology and transport of sediment at culverts. The project outcomes will be assembled in a web-based platform with interactive parameters that can uniquely support the routine activities related to culverts.

The TPF-5(445) project objectives are:

1. Assemblage of data and knowledge on sedimentation at culverts and mitigation measures
2. Synthesis of the practical knowledge in guidelines for design and operations for reducing or eliminating sedimentation at culverts
3. Development of a web-based platform that will embed the formulated guidelines in easy to use interactive interfaces that will facilitate to retrieve design and operation information and to guide in the selection of a self-cleaning culvert design fit for the local flow and sediment transport conditions.

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

For the reference period (April 1 to June 30, 2020), the work was focused on the following tasks:

T#1. Evaluation of self-cleaning solutions developed through previous research and investigation of other local solutions for culvert configurations that mitigate sedimentation at culverts.

T#2. Survey of partnering State DOT's on the types, extent and degree of sedimentation at multi-box culverts to account for regional issues related to culvert sedimentation. The survey will include inventory of regional practices for mitigating sedimentation. Assemblage of the survey information and development of the study road map.

Tasks #1 was accomplished through a presentation provided to the Project team by the project PI.
Task #2 was accomplished through a survey developed and distributed by the Project PI. The synthesis and discussion of the survey outcomes was discussed with all partnering states on March 11, 2020 via a web conference. Following the meeting, the original research plan for the TPF project was re-aligned to account for the partnering state input. Discussions about organization of the first Technical Advisory Committee (TAC) face-to-face meeting closed the March 11, 2020 meeting.

Anticipated work next quarter:

- Organization of the first TPF-5(445) face-to-face meeting (integral part of Task 2). This meeting is critical for bringing all the relevant information on the nature and degree of sedimentation available in the partnering states
- Design of the experimental facilities and development of the testing protocols.

Significant Results:

Activities conducted through the survey lead to a comprehensive (but yet not complete) assessment of the sedimentation at culverts at partnering states and established priorities for the experimental program to be tackled subsequent stages of the project.

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).

The COVID-19 pandemic adversely affected the project developments in multiple ways:

- We could not decide on a date for the 1st face-to-face meeting. Besides the more effective nature of the direct communication, it is important that the 1st meeting (planned to be held in Iowa City, IA) be a direct meeting as it includes a visit of the four demonstration culverts investigated by the Iowa research team during 2017-2020. Three of the four culverts are fit with mitigation designs that were under parallel monitoring.
- The IIHR-Hydroscience & Engineering is in physical lockdown since March 14, 2020 because of COVID-19 pandemic. Working pace has slowed down or totally stopped in some areas of the institute.
- The dialogue with the TPF partners has been diminished as the agencies adopted various work styles and made the communication more difficult.

Potential Implementation: