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 # *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(445)*	**Transportation Pooled Fund Program - Report Period:** Quarter 1 (January 1 – March 31) Quarter 2 (April 1 – June 30) X Quarter 3 (July 1 – September 30) Quarter 4 (October 1 – December 31), 2022
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:** **May 1, 2020**
Original Project End Date: **April 30, 2023**	**Current Project End Date:** **December 31, 2023**	**Number of Extensions:** 1

Project schedule status:

☐ On schedule X☐ On revised schedule ☐ Ahead of schedule X Behind schedule (see comments)

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date
$360,000* *including the $60,000 funding from Missouri DOT	$294,919	82%** ** after 2021 and 2022 work plan revisions

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
	$50,039	%

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 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 (July 1-September 30, 2023), the research was focused on the following tasks:

- Following the second in-person meeting of the project TAC held on November 30-December 1, in Albuquerque, New Mexico the research team have tackled the additional tests suggested during the meeting. Specificallly, the following new scenario alternatives were included in the testing program:
  - The flume settings were reconfigured to the next hillslope-to-culvert angle (i.e., 2 degrees) in preparation of the tests suggested by the outcomes of Survey #7.
  - The tests for the 2-degree hillslope-to-culvert angle in the succession established by the TPF team members have been executed
  - The lidar scanning are currently processed for all the tests in New-Mexico Utah culvert
  - Summary report for the 3rd annual project meeting are on-going

Anticipated work next quarter:

- Preparation of the 3rd annual project meeting report
- Project report writing

Significant Results:
Considerable progress was made to illustrate the process of formation and development of the sediment deposits at New Mexico and Utah hydro-morphological conditions. The importance of the results stems in the fact that there is very scarce documentation and field observations on the mechanics of sedimentation in the semi-arid areas such as in New Mexico and Utah landscapes.

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).

- A no-cost-extension was requested and approved to accomplish all the tasks of the project as originally planned and successively changed in the first and second annual meetings of the TPF TAC. The new deadline for closing the research for this project is December 31, 2023

Potential Implementation:
The developed self-cleaning solutions are recommended for in-situ implementation following cost-benefit analyses conducted by specialized DOT offices.