

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency: Washington State Department of Transportation (WSDOT)

Transportation Pooled Fund Program Project # TPF-5(386)	Transportation Pooled Fund Program - Report Period: <input checked="" type="checkbox"/> Quarter 1 (January 1 – March 31), 2026 <input type="checkbox"/> Quarter 2 (April 1 – June 30), 2026 <input type="checkbox"/> Quarter 3 (July 1 – September 30), 2026 <input type="checkbox"/> Quarter 4 (October 1 – December 31), 2026	
TPF Study Number and Title: TPF-5(386), Gravel-Bed River Assessment Tool for Improved Resiliency of Engineering Design		
Lead Agency Contact: Cygnia Rapp – Technical Monitor Shervin Jahangirnejad – Research Manager	Lead Agency Phone Number: (360) 705-7415 (360) 705-7962	Lead Agency E-Mail: cygnia.rapp@wsdot.wa.gov shervin.jahangirnejad@wsdot.wa.gov
Lead Agency Project ID:	Other Project ID (i.e., contract):	Project Start Date: September 2018
Original Project Start Date: September 2018	Original Project End Date: September 20, 2024	If Extension has been requested, updated project End Date: December 31, 2026

Project schedule status:

<input checked="" type="checkbox"/> On schedule	<input type="checkbox"/> On revised schedule	<input type="checkbox"/> Ahead of schedule	<input type="checkbox"/> Behind schedule
---	--	--	--

Overall Project Statistics:

Total Project Budget	Total Funds Expended This Quarter	Total Funds Expended by the End of This Quarter	Percentage of Work Completed to Date
\$559,933	\$9,795	\$536,801	96%

<p>Project Description:</p> <p>Background: The world’s rivers and streams are adjusting to changes in climate. In Washington State, stream channels are becoming more dynamic – especially in the vicinity of gravel-bed rivers. Federal, state, tribal and private roads are increasingly compromised or destroyed due to progressively more dynamic channel processes. A river’s bedload (sediment transported along the channel bed) drives how rivers move into – or away from – road infrastructure. In order to design durable roads and bridges, we need high quality information on how the natural material in the river system will move and deposit in the vicinity of road infrastructure. Widely available methods for assessing channel dynamics and hazards are based on sand-bed rivers, like the Mississippi River, that do not apply to gravel-bed rivers found throughout the United States. We need a gravel-bed river assessment tool that accounts for changes in gravel-bed rivers from glacial melt and extreme flooding associated with projected future climate change. In this pilot, WSDOT proposes to develop practical guidance and methods for assessing bedload transport in gravel-bed</p>
--

rivers for more resilient road infrastructure. This guide will inform engineering design, hazard assessment, and maintenance strategies of roads along or near gravel-bed rivers. Other federal and state agencies support the pilot, and are willing to assist in the development and review process. WSDOT anticipates that US Forest Service, US Fish and Wildlife Service, Oregon DOT, Caltrans and other public works agencies will use the gravel-bed assessment tool developed by this pilot project.

Objectives:

This pilot will consist of three parts:

1. A technical workshop to define the framework, goals, and criteria for developing the guidance and case studies.
2. Data collection and case study development.
3. The guidance write-up and finalization

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

Cygnia is working on the Geomorphic Assessment chapter and estimates she is approximately 50% complete with the first draft. She has met with Joanna Curran and Tim Abbe to coordinate updates on their respective chapters. Once the Geomorphic Assessment chapter is in complete draft form, the sediment budget chapter will be revised to align with it. Following integration of these two chapters, the Methow River case study will be developed.

Joanna has limited capacity to work on the Best Practices in Sediment Transport Modeling chapter and her portion of the Methow River case study due to federal funding and time constraints. We will work with Joanna to accommodate these limitations.

Anticipated work next quarter:

Cygnia plans to complete the first draft of the Geomorphic Assessment chapter by the end of May. Revisions to the sediment budget chapter are anticipated to be completed by the end of June. We expect to have a complete first draft of the Guidance Document, including the Methow River case study, by July or August.

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).

Potential Implementation:

The final product of the pilot study will be the publication of WSDOT's guidance and methods. These will be applicable to state DOTs and other highway asset managers across the nation wherever gravel-bed rivers are found.