

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Colorado Department of Transportation

INSTRUCTIONS:

Lead Agency contacts 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(541)		Transportation Pooled Fund Program - Report Period: ☐ Quarter 1 (January 1 – March 31) ☐ Quarter 2 (April 1 – June 30) ☒ Quarter 3 (July 1 – September 30) ☐ Quarter 4 (October 1 – December 31)	
TPF Study Number and Title: 5(541) Post-Wildfire Debris Flow			
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Lead Agency Project ID: TPF 5(541)	Other Project ID (i.e., contract #): Click or tap here to enter text.	Project Start Date: N/A	
Original Project Start Date: Click or tap to enter a date.	Original Project End Date: Click or tap to enter a date.	If Extension has been requested, updated project End Date: Click or tap to enter a date.	

Project schedule status:

☒ On schedule	☐ On revised schedule	☐ Ahead of schedule	☐ Behind schedule
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Overall Project Statistics:

Total Project Budget	Total Funds Expended This Quarter	Percentage of Work Completed to Date
\$400,000.00	\$0.00	1%

Project Description:

Wildfires have been posing significant problems for many states in the US in recent years. In addition to the immediate damage and destruction to the natural environment, insurable properties, and public infrastructure, other longer-term risks persist in the post-wildfire condition. The natural diversity of the watersheds and channels can be compromised due to loss of woody material and vegetation, and soil nutrients and cohesion are diminished in areas of particularly high burn intensity, sometimes resulting in hydrophobic soils. The post-wildfire condition susceptibility to debris flows and increased erosional patterns can pose significant risks to transportation infrastructure and lead to increased disruption and cost due to road closures and repair/replacement of pavement, subgrade, culverts, and embankment fill.

Although much research has been conducted, and continues to be conducted, on estimating the risks and degree of damage posed by post-wildfire debris flows, the applicability of results is often limited geographically. Results must often be extrapolated to other areas which may not have sufficiently similar characteristics. For example, data collected and calibrated to the foot of a temperate grasslands environment may be extrapolated to a canyon environment with a flashy, desert hydrologic pattern, resulting in a poor prediction. With the increased frequency of these fires, as well as increased risk to life and property in the paths of these types of events, additional effort is warranted to remediate areas prone to post-wildfire debris flows and to reduce damage from future wildfires.

Objectives

The primary objective of this proposed pooled-fund project is to address post-wildfire debris-flow issues. Outcomes will be:

- Tailoring and building upon the existing dynamic GIS-based burned-index map of burned areas correlated with transportation infrastructure that would be impacted by debris flow to meet the needs of pooled-fund member states
- Surveying past observed post-wildfire debris activity which affected transportation infrastructure in diverse parts of Western United States. These surveys will take particular note of the type(s) of precipitation patterns that triggered debris flows – variables such as rainfall intensity and duration, monsoonal vs. steady seasonal rain; and the topography of the watershed (described with standard variables such as valley slope, channel slope, area, min/max elevations)
- Developing a compendium of the tools that are used to predict the potential of debris flow.
- Developing a compendium of remediation approaches that can be applied to burned areas, depending on the situation.
- Providing guidelines on the use of the tools and approaches compiled in the above-mentioned compendiums.
- Addressing some of the existing data gaps in current research on this issue.

Progress this Quarter

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

- The Principal Investigator (PI) was selected.
- Procurement is in the process to draft up the contract with the PI

Anticipated work next quarter:

- Continue to work with the PI through CDOT's procurement to finalize the contract.

Significant Results:

None at this time.

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:

It is anticipated that the outcomes will be implemented and used by all member states. Upon the completion of this project other states may also adopt the outcomes.