

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: September 30, 2023

Lead Agency (FHWA or State DOT): Indiana 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>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i> <u>TPF 5-387</u>	Transportation Pooled Fund Program - Report Period: <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input type="checkbox"/> Quarter 2 (April 1 – June 30) <input checked="" type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 1 – December 31)	
Project Title: Development of an Integrated Unmanned Aerial Systems (UAS) Validation Center		
Name of Project Manager(s): Tommy E. Nantung	Phone Number: (765) 463-1521 ext. 248	E-Mail tnantung@indot.in.gov
Lead Agency Project ID:	Other Project ID (i.e., contract #):	Project Start Date: 9/1/2018
Original Project End Date: 8/31/2022	Current Project End Date: 2/29/2024	Number of Extensions: ONE

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**
\$700,000	\$617,218	97%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date**
\$18,069	2.3%	78%

**Since end date has been extended, project percentages have been updated (estimates)

Project Description:

This study proposes to develop the basic standards, protocols, and testing requirements that a given UAS must meet and demonstrate for a particular application.

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

- The standardized “practical” test examples have been revised and updated based on feedback received from beta testing. The examples illustrate the steps Project Partners can follow to select a bridge from their inventory, apply the test, and develop a rubric following the bridge chosen.
- The audio narration for the video animations for the evaluation chamber and wind turbulence evaluation chamber have been finalized. The video animations illustrate the general guidelines of each test. Closed captioning has been included in the videos.
- Hosted UAV pilot and inspector from external DOT to beta test evaluation chamber, wind turbulence evaluation chamber, and practical test. The inspectors provided written and oral feedback on both chambers, the pilot’s checklist, and suggestions for the “practical” test. The inspectors also provided feedback on the video animations, narration, and closed captioning.
- The wind turbulence evaluation chamber was tested by adding a cover to its entrance to allow repeatability in terms of lighting. The results have been analyzed and implemented in the guidelines.
- Hosted a project virtual panel meeting with the Project partners on August 1st at 3:30 pm. The meeting provided additional background and explanation of the tests, obtained feedback on the current version of the tests, and discussed the potential for an initial implementation study.
- Revised the rubric methodology for the evaluation chamber and practical test procedure based on beta-testing from the Project partner. The results complemented the feedback provided by other visitors and gave a better idea of the test duration, time spent during post-processing, and refinement of grading parameters in the rubric.

Anticipated work next quarter:

- The Research Team will contact Project partners to schedule a follow-up virtual panel meeting to discuss possible implementation strategies of the study.
- Continue to bring various bridge inspectors to the S-BRITE center to get real-world feedback on the tests. These data will be used to finalize the scoring and test procedures for evaluating the performance of UAS within the validation center.
- Work with Project partners to coordinate future visits for beta-testing at the S-BRITE center and the potential to build additional chambers at the Project partners’ location.
- Project partners encouraged the Research Team to start disseminating the project's early results in national platforms and to other DOTs. The Research Team will present results and desire for implementation at the IHEEP conference, where 28 DOTs will be present. Also at the AASHTO Safety & Evaluation Committee (former T-18) and the Western Bridge Preservation Partnership. Other opportunities will be arranged for later in the quarter.
- Revise test methodology and procedures according to the feedback provided during beta testing.
- Start the preparation of the final report for the pooled fund project. The report will contain feedback and validation from partners and visitors.

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:

None to date