

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: Dec 31, 2022

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 type="checkbox"/> Quarter 3 (July 1 – September 30) <input checked="" 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**
\$675,000	\$538,834	92%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date**
\$26,391	3.9%	62%

**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.):

- Hosted UAV pilots to evaluate and receive feedback on the modifications to the evaluation chamber executed after being beta tested by them in the previous quarter.
- Hosted UAV bridge inspectors from Project partner to beta test evaluation chamber and wind turbulence evaluation chamber. The inspectors provided written and oral feedback on both chambers, the pilot's checklist, and suggestions for a "practical" test.
- Updated drawings and specifications for the evaluation chamber according to feedback provided by pilots and bridge inspectors.
- Graded the report provided by the Project partner following the initial scoring rubric draft. The results provided a better idea of the duration of the test, time spent during post-processing, and refinement of grading parameters in the rubric.
- Revised inventory of images used inside the evaluation chamber and the scoring rubric developed to grade the reports to provide clear delimitation of the certification levels inside the chamber.
- Began the development of two video animations for the evaluation chamber and wind turbulence evaluation chamber. The final videos will illustrate the objectives and methodology of the chambers to the pilot, inspector, and stakeholders.

Anticipated work next quarter:

- Development of the "practical" testing portion of the UAS certification process. The practical test complements the chambers in the validation center. It will be developed considering the needs shared during the project update meeting and the feedback from bridge inspectors who visited the S-BRITE center.
- Finalize the "practical" test methodology to include steps to follow by Project partners to select a bridge from their inventory, apply the test, and develop a rubric following the bridge chosen. Examples will illustrate the application of the "practical" test.
- Finalize the two video animations for the evaluation chamber and wind turbulence evaluation chamber. The final videos will contain 3D representations of the elements inside both chambers and narration to follow the methodology proposed.
- Continue to bring various bridge inspectors to the S-BRITE center to get real-world feedback on the test. These data will be used to finalize the scoring and test procedures for evaluating the performance of UAS within the UAS Evaluation Chamber.
- 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.
- Follow up with Project partners on reference material from related projects their department is conducting and regarding future visits for beta-testing.

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