

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: March 31, 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.

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

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	\$571,867	93%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date**
\$33,033	4.9%	65%

**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 development of a standardized “practical” test for the UAS certification process is completed. The practical test complements the chambers in the validation center by providing an assessment under field inspection conditions. The test was developed following the suggestions provided in the project update meeting and the feedback from bridge inspectors who tested the chambers. The test is ready to move to the next phase: beta testing.
- Finalized the video animations for the evaluation chamber and wind turbulence evaluation chamber. The videos contain 3D representations of the elements inside both chambers, a description of the tasks to be performed, and guidelines to follow during the test. In addition, the videos will contain captions and audio narration.
- Updated rubric methodology for the UAS Evaluation Chamber for bridge inspection and specifications for the evaluation chamber according to feedback provided by pilots and bridge inspectors.
- Revised images and dimensions used inside the UAS Evaluation Chamber to cover feedback from beta-testing and grading using the rubric developed for the test.
- The Research Team has scheduled two UAV pilots from Project partners to perform beta testing of the chambers and tests developed for the validation center. The pilots will visit the S-BRITE center in the next quarter.
- Developed a budget for building additional chambers from the UAS validation center at the Project Partners’ location.
- The Research Team has contacted Project partners to coordinate future visits for beta-testing during the next quarter and the potential to build additional chambers at the Project partners’ location. More pilots will be scheduled in the next quarter.
- The Project partners have provided reference material from related projects their departments are conducting or have conducted in the past for consideration in the validation center and beta-testing.

Anticipated work next quarter:

- Development of an example for the “practical” test for the UAS certification process. The example will 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.
- Add audio narration to the two video animations for the evaluation chamber and wind turbulence evaluation chamber following the captions developed. The video animations will illustrate the general guidelines of each test.
- 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.
- Revise test methodology and procedures according to the feedback provided during 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