

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: June 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.*

<b>Transportation Pooled Fund Program Project #</b> <i>(i.e., SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX))</i>  <u><b>TPF 5-387</b></u>		<b>Transportation Pooled Fund Program - Report Period:</b> <input type="checkbox"/> Quarter 1 (January 1 – March 31) <input checked="" type="checkbox"/> Quarter 2 (April 1 – June 30) <input type="checkbox"/> Quarter 3 (July 1 – September 30) <input type="checkbox"/> Quarter 4 (October 1 – December 31)	
<b>Project Title:</b> <b>Development of an Integrated Unmanned Aerial Systems (UAS) Validation Center</b>			
<b>Name of Project Manager(s):</b> Tommy E. Nantung		<b>Phone Number:</b> (765) 463-1521 ext. 248	<b>E-Mail</b> <a href="mailto:tnantung@indot.in.gov">tnantung@indot.in.gov</a>
<b>Lead Agency Project ID:</b>		<b>Other Project ID (i.e., contract #):</b>	<b>Project Start Date:</b> 9/1/2018
<b>Original Project End Date:</b> 8/31/2022		<b>Current Project End Date:</b> 2/29/2024	<b>Number of Extensions:</b> 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**
<b>\$675,000</b>	<b>\$600,711</b>	<b>95%</b>

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date**
<b>\$23,887</b>	<b>3.5%</b>	<b>68%</b>

\*\*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 two examples for the standardized “practical” test for the UAS certification process is completed. The practical test examples complement the “practical” test procedure by providing an illustrative application for two assessment levels in the test. 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.
- Finalized the production of audio narration to the video animations for the evaluation chamber and wind turbulence evaluation chamber. The video animations illustrate the general guidelines of each test. Closed captioning has been included in the videos.
- Hosted UAV pilots from Project partner 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.
- Updated rubric methodology for evaluation chamber and practical test procedure based on beta-testing from Project partner during beta testing.
- Implemented procedures to cover the entrance of the wind turbulence evaluation chamber to allow repeatability of the test in terms of lighting. The decision was a result of feedback provided during beta testing.
- The Research Team has contacted Project partners to schedule a virtual panel meeting to provide additional background and information regarding the current version of the tests. The invite contained the current drafts for the tests, examples, rubrics, and Dropbox and Youtube links for the videos developed for the evaluation chamber and wind turbulence chamber.
- Review of reference materials provided by Project partners related to projects their departments are conducting or have conducted in the past.

**Anticipated work next quarter:**

- Host a virtual panel meeting with the Project partners on August 1<sup>st</sup> at 3:30 pm to provide additional background and explanation of the tests, obtain initial feedback on the current version of the tests, and discuss the potential for an initial implementation study.
- Work with a Project partner to schedule a visit in the next quarter to beta-test the two chambers and practical test. The Project partner plans to provide feedback on the beta testing and review the final drafts of the tests part of the validation center.
- Grade the report the visiting Project partner will provide following the current version of the scoring rubric. The results will complement the feedback provided by other visitors and give a better idea of the test duration, time spent during post-processing, and refinement of grading parameters in the rubric.
- 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.
- 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