

## TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Date: June 30, 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.*

<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> 1/1/2019
<b>Original Project End Date:</b> 12/31/2022	<b>Current Project End Date:</b> 12/31/2022	<b>Number of Extensions:</b> None

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>\$487,944</b>	<b>86%</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>\$47,966</b>	<b>7.1%</b>	<b>95%</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.):**

- Hosted two UAS pilots who performed Beta testing of the UAS Evaluation Chamber for Bridge Inspection. The results are very promising and the research teams has received very good feedback. One more team is schedule to visit in August.
- A standardized “cold weather” evaluation test is completed. This test will be used to provide a relative indication of the effect of cold weather (in the range of 20F to 30F) as compared to “warm” weather (<60F) operation times of a UAV. A scoring rubric for UAS has also been developed.
- The development of a standardized “turbulence test” is completed and the testing chamber has been constructed. Beta testing of this chamber will begin next quarter. This test will be used to evaluate the performance of the UAS in turbulent wind conditions to determine the effect of turbulence on the quality of the data collected.
- Schedule a project meeting with the partner states for August, 2022.

**Anticipated work next quarter:**

- 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.
- Finalize the turbulence tests along with the pilot check list and scoring rubrics.
- Host project meeting on site with partners in August, 2022. The meeting will also be available virtually for those who cannot attend in person.

**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).**

1. The COVID-19 restrictions resulted in Purdue University shutting down entirely in Mid-march 2020 through spring of 2021 and the challenges with losing students at the beginning of the project. While the project is making excellent progress and is very good financial shape, the research team will be asking for a 12-18 month no-cost time extension. This will be discussed at the upcoming project meeting. The objective of the extension is to further implement the proposed performance tests into practice at selected partner states.

**Potential Implementation:**

None to date