3rd Quarterly Report

PUBLIC REPORT

Date of Report: June 30, 2025

Contract Number: 693JK32410003POTA

Prepared for: US DOT/PHMSA

Project Title: Evaluation of GeoLocation & Pipe Damage Assessment Applications

Prepared by: NYSEARCH/NGA

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For quarterly period ending: June 30, 2025

1. **Items Completed During this Quarterly Report:**

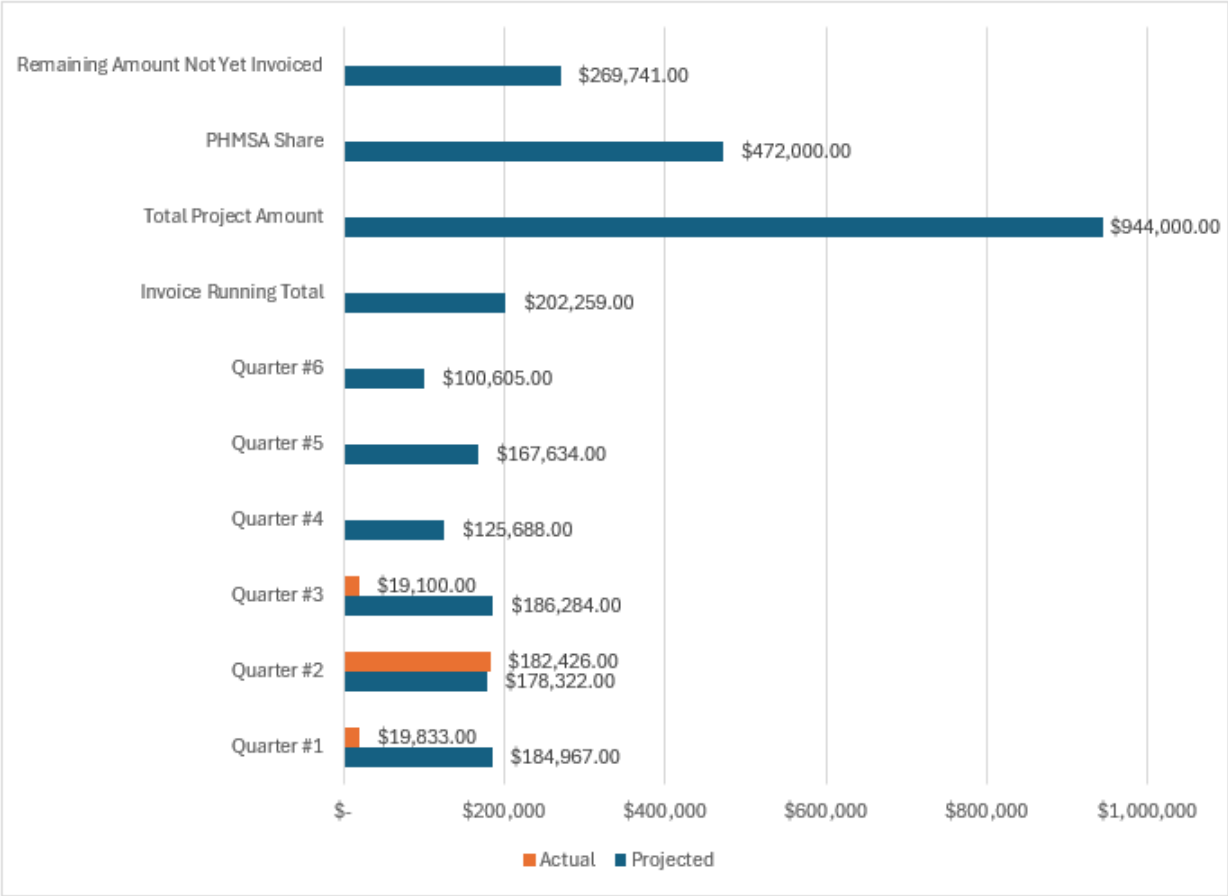
Item #	***Task #***	***Activity/Deliverable***	***Title***	***Federal Cost***	***Cost Share***
8	3	NYSEARCH Project	Technical management of project	$10,750	$0
9	6	2nd Quarterly Status Report	Submit 3rd quarterly report	$8,350	$0

2. **Items Not-Completed During this Quarterly Period:**

Item #	***Task #***	***Activity/Deliverable***	***Title***	***Federal Cost***	***Cost Share***
4	2	Advance the prototype into a field worthy system	Advance the system developed in the pervious Phase to work in the field and validate on the test bench before field testing	$68,224	$92,806
7	3	Standoff distance testing	Conduct a measurement campaign to determine the detection of corrosion vs depth of cover	$86,784	$80,400

3. **Project Financial Tracking During this Quarterly Period:**

Quarterly Payable Milestone/Invoices – Agreement #693JK32410003POTA



4. **Project Technical Status:**

During the third quarter of the project, the team made substantial progress in developing a magnetic field-based approach to detect corrosion in buried pipelines. Work advanced on multiple fronts, including laboratory testing, simulation modeling, and signal processing improvements, with parallel efforts helping to address technical challenges and accelerate development.

A newly installed current-injection system was configured to support both alternating and direct current at varying amplitudes. The team tested multiple loop geometries to better understand how size and placement influence signal clarity and field distortion. Special attention was given to precise installation and calibration, which are essential for aligning experimental data with simulation models and ensuring accurate interpretation.

Controlled scans were conducted to capture both natural background magnetic fields and those generated by injected current. These tests allowed the team to refine techniques for separating different types of signals and isolating those most relevant to corrosion detection. Calibration procedures were improved to correct for sensor drift and

misalignment, while signal processing methods—including Fourier-based and phase-correction techniques—were used to extract cleaner, more meaningful data.

One of the major goals this quarter was to evaluate the system's ability to detect corrosion from increasing standoff distances. Testing extended beyond 2 feet and showed promising results, with early signs that corrosion signatures could be identified at greater distances than previously achieved. These findings were supported by continued improvements in data reprocessing and algorithm development aimed at detecting pipeline features and potential defects.

Despite facing challenges such as interference from environmental factors and sensor alignment issues, the team responded with iterative refinements that significantly enhanced system performance. The work completed this quarter represents an important step toward transforming the prototype into a reliable field-ready tool for pipeline inspection and long-term asset management.

Project Schedule:

Despite the delay in completing the two system verification tests, and the challenges we are currently facing with the signal to noise ratio, we expect to be able to complete the project on time and on budget per the project's schedule and budget.