

# TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): FHWA

## 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>  TPF-5(131)	<b>Transportation Pooled Fund Program - Report Period:</b> <input type="checkbox"/> Quarter 1 (January 1 – March 31) 2012 <input checked="" type="checkbox"/> Quarter 2 (April 1 – June 30) 2012 <input type="checkbox"/> Quarter 3 (July 1 – September 30) 2012 <input type="checkbox"/> Quarter 4 (October 1 – December 31) 2012	
<b>Project Title:</b> Underwater Inspection of Bridge Substructures Using Underwater Imaging Technology		
<b>Name of Project Manager(s):</b> Kornel Kerenyi	<b>Phone Number:</b> (202) 493-3142	<b>E-Mail</b> kornel.kerenyi@fhwa.dot.gov
<b>Lead Agency Project ID:</b>	<b>Other Project ID (i.e., contract #):</b>	<b>Project Start Date:</b>
<b>Original Project End Date:</b>	<b>Current Project End Date:</b>	<b>Number of Extensions:</b>

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

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date

**Project Description:**

The contractor works with funding states and federal personnel from the Hazard Mitigation team at the Turner Fairbank Highway Research Center (TFHRC) to research the application of acoustic imaging technology to satisfy the inspection requirements of Federal Highway Administration (FHWA) 23CFR650 and the Bridge Inspection Reference Manual (BIRM) for Level I Underwater Inspections. This project has the potential to improve methods to assess the underwater condition of existing transportation structures and increase the safety of the nation's bridges. In addition, the proposed technology has the potential to reduce exposure of staff to hazards encountered while performing underwater inspections.

The following underwater applications are recognized to have significant potential benefits to the current practice in bridge inspection of underwater components:

- Rapid condition assessment (i.e. post seismic events and boat impacts)
- Active and passive scour evaluation
- Construction inspection
- Security threat assessment
- Enhancing diver safety and efficiency
- Visual representation of the entire underwater structure

This research project will evaluate the feasibility of using underwater acoustic imaging technology to produce underwater inspection results that are equal or better than current practice for Level I underwater inspection requirements. The project will conduct an objective comparative evaluation of the inspection quality, cost, time and employee safety aspects of conducting the underwater inspection using in water divers versus acoustic imaging technology.

**Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):**

In this reporting period the Support Services contractor for the FHWA Hydraulics Laboratory worked with the sub-contractors to develop a draft field testing plan. Three to four teams were to be assembled to cover a reasonable range of various acoustic imaging technology and conventional diving. Objectives of the field test included the documentation of:

- Safety of Operations (Document any accidents or near misses)
- Quality Assessment
- Cost Evaluation
  - Field Inspection Efficiency (Man-hours + Equipment Costs)
  - Office/Post Processing Efficiency (Number of days for final product to be delivered, estimated man-hours, software needs)
  - Equipment Inventory – The purchase price will be recorded for all field and office equipment for information only. However, standard equipment rental rates (when available) will be utilized for all equipment in determining daily project costs.
  - Pre-planning Office Activities - Permits, coordination, and background data gathering will be considered the same for each inspection team.
  - Per Diem/Lodging Costs – Will be calculated based on crew size and will utilize standard GSA rates.

Time consumption will be recorded in different stages of the inspection:

- All team crew sizes will be documented. Only the team members on the vessel will be recorded (Including the vessel operator but excluding the Independent observer).
- Inspection Time will start at the launch site when the inspection team begins setting up equipment. Setup and calibration time will be differentiated from actual inspection time. Time spent to moor at the structure or deploy equipment will be counted as inspection time. Any system failures/repairs will not be considered inspection time, but will be recorded and may affect the ability to complete all four bridges within the allotted time frame.
- Office time will include the number of days for the final product delivery and an estimation by the Sonar Manufacturer/Dive Team Leader of man-hours spent in the office for post processing.

**Anticipated work next quarter:**

The primary tasks in the next quarter include:

- TAC Coordination on Field Test Sites and Permissions
- Manufacturer Coordination
- Equipment Procurement
- Field Test
- Data Processing and Analysis
- Reporting of Preliminary Findings

**Significant Results:**

See Draft Field Test Plan

**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).**

No significant issue was identified during this quarter.

**Potential Implementation:**

None during this quarter.