KANSAS DOT RESEARCH PROJECTS
QUARTERLY PROGRESS REPORT

Lead Agency (University or Contractor): Kansas 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.

KDOT Project Number RE-0738-01	**Transportation Pooled Fund Program - Report Period:** XQuarter 1 (January 1 – March 31, 2020) ☐Quarter 2 (April 1- June 30,2020) ☐Quarter 3 (July 1 – Sept 30, 2020) ☐Quarter 4 (October – December 31, 2020)	
Project Title: Utilization of Laser Induced Breakdown Spectroscopy for Real-Time Quality Control Monitoring and Characterization of Aggregate Materials Used in Highway Construction using		
Project Manager: Kate Andrzejewski, KS DOT **Phone:** 785-291-3037 **E-mail:** kate.andrzejewski@ksdot.org		
Project Investigator: **Phone:** 516-431-4031 **E-mail:** wchesner@chesnerengineering.com Warren Chesner		
Lead Agency Project ID: RE-0738-01	**Other Project ID (i.e., contract**	**Project Start Date:** July 1, 2017
Original Project End Date: **June 30, 2020**	**Current Project End Date:** **June 30, 2020**	**Number of Extensions:** 0

Project schedule status:

☐ On schedule ☐On revised schedule ☐ Ahead of schedule X Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Total Percentage of Work Completed
$870,000.	$683424	78.5 %

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Complete This Quarter
$870,000.	$43000.00 .	4.9%

Project Description:

The primary objectives of this research effort is to develop a near-real-time laser-scanning system to rapidly classify aggregates used in highway construction. The intent is to employ this classification process to

- Quantify specific engineering properties (e.g., acid insoluble residue, soundness, LA Loss, etc.)
- Assess whether an aggregate will pass or fail a defined engineering property test
- Identify and/or quantify the presence of deleterious materials (e.g., ASR, chert, shale, reactive aggregate)
- Determine the composition of blends in stockpiled aggregate
- Determine the source of an unknown aggregate

Six states are part of this TPF program. They include: KS, MD, OK, OH, NY and NM.
Each State is supplying aggregates that will be tested and evaluated to determine the efficacy of the technology

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):
During this period, 50 new unknown samples were received from NYSDOT for scanning analysis (to validate the Acid Insoluble Residue models previously developed). New spectral line modeling suggests that this procedure will provide improved model resolution, MD modeling studies continued. OH counting models studies are continuing..Software modifications are continuing to improve data processing. Meeting scheduled during this period with NY, KS and MD were all cancelled due to Covid-19. Scanning and laser lab activities after early March were all cancelled.

Anticipated work next quarter:
Activities during this coming quarter are uncertain.

Significant Results:
Modeling of New York and Maryland friction properties were successful using carbonate samples. Kansas D cracking Models were developed for samples of a given formation. Chert counting models for Ohio are proving positive

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, with recommended solutions to those problems).
Due to Covid-19 the project budget and schedule has been impacted. All travel and laser scanning activities are shut down. There are no immediate plans to restart activities. The project was scheduled for completion in ~3 months-time. The schedule and budget are now uncertain.