TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): ____IOWA 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.

Transportation Pooled Fund Program Project # *TPF-5(483)*	**Transportation Pooled Fund Program - Report Period:** x Quarter 1 (January 1 – March 31) Quarter 2 (April 1 – June 30) Quarter 3 (July 1 – September 30) Quarter 4 (October 4 – December 31)
Project Title: Implementation of New Traffic Signal Actuation Concepts using Enhanced Detector	

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Lead Agency Project ID:	**Other Project ID (i.e., contract #):**	**Project Start Date:**
	Addendum 791	02/01/2022
Original Project End Date:	**Project End Date:**	**Number of Extensions:**
02/28/2026	12/31/2026	

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

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Total Percentage of Work Completed
$645,000	$512,747	85%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
$71,913		5%

Project Description: The objective of this research is to develop field-tested methods of integrating vehicle trajectory data into actuated signal control that can be directly implemented in traffic signal controllers. This research will identify the practical requirements and limitations of establishing trajectory-assisted actuated signal control, including requirements for acquisition, storage, and communication of vehicle trajectory data. The findings will be developed into a resource toolkit that will permit implementation and further development of the methods conceived during the course of the research.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):
In the first quarter of 2026, the team completed the following work: The team continued to work on testing to evaluate the transferability of methods developed previously under this project. Some results from the previous work were presented at the TRB annual meeting in January. The team conducted a meeting with the project panel on February 11, 2026 to share work that had been done since the previous meeting, including summary results from recent tests on additional road networks and a control method implemented using custom logic in an existing controller.

Anticipated work next quarter:
The team will work on documenting the test results for inclusion in the project final report, and packaging the software developed during this research for an open-source release. In the previous panel meeting, options for conducting field testing of the developed methods was discussed, with one option being for that work to continue in an effort for Virginia DOT, one of the pooled fund states. At the time of writing it appears likely that this effort will proceed, providing a means of accomplishing real-world testing of methods developed during this study.

Significant Results: Overall, the results of the study as documented in the interim report indicate that there is a potential for improvement of signal control with the integration of vehicle trajectory data into actuated control processes. Total delay reductions up to 20% compared with fully-actuated control and up to 35% compared with actuated-coordinated control were observed. In addition, reductions in split failures and dilemma zone vehicles were observed, along with an increase in percent on green and decrease in corridor travel times. Similar results have been obtained in additional studies for different road networks with differing characteristics. We believe that this package of control methods can offer a new option for signal control that achieves a certain degree of signal coordination without requiring a fixed cycle length and associated cycle-offset-split pattern. In addition to enhancing fully-actuated control, it is likely that these methods can also be integrated with both coordinated and real-time adaptive control as a last-second adjustment to scheduled timings that coordinators and real-time adaptive schedulers set for the next cycle length or planning horizon. Challenges in implementing this type of control include identifying the environment for implementing it, confirming the accuracy of real-world streaming trajectory data from detection systems that provide it, and integration of multimodal demands alongside enhanced vehicle actuation.