

# Research in Progress

## Multisource Data Fusion for Real-Time and Accurate Traffic Incident Detection via Predictive Analytics

### Research Need

Traffic incidents are a leading contributor to non-recurring congestion and secondary crashes. Each year congestion and crashes together cost the US over 1 trillion dollars. In 2017, the annual congestion cost in the Greater Boston area exceeded 3.8 billion dollars, and over 74 million gallons of fuel were wasted, with Boston ranking 11<sup>th</sup> in the nation for congestion.

Once traffic queues are formed, it is difficult to dissipate them and return traffic to normal operations. Real-time and accurate incident detection plays a critical role in Traffic Incident Management (TIM) and congestion mitigation. The sooner incidents are detected, the sooner safety personnel can respond to the incidents and clear them from the roads thereby allowing the system to recover as well as less reducing the risk for secondary incidents.

### Goals/Objectives

The proposed research aims to (1) identify data sets owned by MassDOT as well as from other sources that can be harvested to support real-time incident detection; (2) investigate how data from multiple sources can be integrated to add confidence to incident detection and improve travel time reliability; (3) develop guidance for the setting of “trigger points” to alert HOC operators about incidents on the roads; and (4) perform a field test of the “trigger points” on the platform that MassDOT is using for data acquisition.

### Project Information

This project is being conducted as part of the Massachusetts Department of Transportation (MassDOT) Research Program with funding from Federal Highway Administration (FHWA) State Planning and Research (SPR) funds.

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#### Performing Organizations:

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#### Project Champion:

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#### Project Start Date:

April 1, 2021

#### Expected Project Completion Date:

December 31, 2022

### Methodology

1. Review of literature, current practices and available data, including identifying popular algorithms used for incident detection
2. Identify a corridor to be used as a test bed for evaluating and enhancing the incident detection algorithms available in the MassDOT platform
3. Evaluate the MassDOT incident detection algorithms off-line using historical data and propose strategies to set the “trigger points”
4. Field test the proposed strategies and finalize guidelines for setting “trigger points”



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