



Project Number

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Evaluation of Incident Response Improvements for Statewide Application: Learning from the New Regional Traffic Management Center in Jacksonville, FL

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Current Situation

Sensors distributed throughout Florida's roadways collect information which are relayed to a transportation management center (TMC). Among many other uses, this information can be interpreted in real time to detect possible road incidents. That possibility begins a cascade of activities, including verifying the incident and dispatching the necessary personnel to clear the roadway and respond to any injuries. A new regional TMC was opened in Jacksonville, FL, in November 2015. In addition to the TMC staff, the new facility houses agencies involved in incident response. Bringing these functions together was intended to increase the timeliness of their response.

Research Objectives

University of North Florida researchers evaluated the performance of the new regional TMC in Jacksonville and quantified the impact of incidents on the operational and safety performance of the freeway network.

Project Activities

The first objective of the project was to compare the performance of the new regional TMC with the old one to demonstrate the effect of bringing the various agencies together under one roof. This objective was achieved by comparing the incident verification and response durations before and after the opening of the new TMC. Hazard-based models were used to investigate factors affecting the incident verification and response durations. These models predict how much longer an incident is likely to continue, based on how long it has already lasted. In general, the new TMC was found to improve the incident verification and incident response durations.

The second objective of the project was to estimate the delays caused by incidents on freeways and to determine the factors affecting these delays. This objective was addressed by estimating incident impact durations and incident-related delays and by identifying and analyzing secondary crashes (SCs). Data-driven methodologies using real-time traffic data were developed to estimate the incident impact duration and the incident-related delays. Hazard-based models were developed to investigate factors affecting these performance measures.

The third project objective was to develop a reliable method of identifying SCs and to determine the risk factors associated with SCs, which can occur in the traffic backed up behind the primary incident (PI) or in traffic in the opposite lanes. Traditionally, SCs have been estimated using parameters based on the duration of, and distance from, the PI. For this project, the researchers developed a dynamic method of predicting SCs that incorporated traffic conditions, roadway geometry, and certain incident characteristics. The dynamic approach successfully identified more SCs than the traditional method.

Project Benefits

Results from this project show the effectiveness of housing the TMC and responding agencies together and provide improved means of understanding the impact of incidents on traffic flow.

For more information, please see www.fdot.gov/research/.



Rapid response to a crash is important for saving lives and restoring safe traffic flow.