

WORK ZONE PERFORMANCE MONITORING APPLICATION DEVELOPMENT

PROBLEM

In 2004, the Federal Highway Administration (FHWA) updated the work zone regulations to encourage the collection and use of work zone safety and mobility data (23 CFR 630 Subpart J). The new rule essentially requires agencies to use data to generate performance measures at the project and process levels in order to improve mobility and safety of work zones. Currently, many agencies are not meeting the aforementioned FHWA requirements.

OBJECTIVE

The objective of this project was to develop a Work Zone Performance Measure Application (WZPMA) that uses third party probe data for real-time monitoring and evaluation of work zones. The WZPMA is intended to help agencies meet FHWA regulations regarding collection and use of work zone safety and mobility data.

METHODOLOGY

The WZPMA was built upon research on the use of third party probe data for measuring work zone performance which resulted in:

- Verification that third party probe data can be used to monitor real-time work zone performance and provide basis for analyzing historical work zone performance;
- Development of methodologies for calculating work zone performance measures and triggering real-time queue warning "Alerts", as well as example output of performance measures based on existing work zones;
- Development of a prototype work zone performance measure graphical user interface "dashboard" (Figure 1).

Based on research and prototype development, the WZPMA was created using a spiral software development model which allowed for iterative application development and multiple opportunities for design revisions based on customer feedback and usability demonstrations. This approach enabled the University of Maryland to improve the WZPMA based on comments from SHA personnel, as well as feedback from other users who were not associated with development of the tool.

RESEARCH SUMMARY

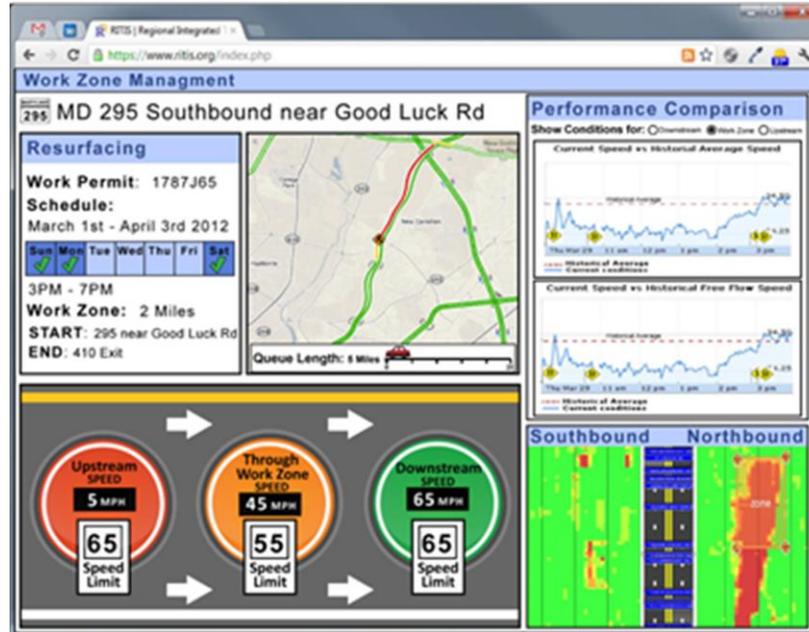


Figure 1. Prototype work zone performance monitoring dashboard graphical user interface

RESULTS

The WZPMA enables real-time performance monitoring for work zones as well as analysis of archived data, and provides a cost-effective method of work zone data collection over fixed-sensor data collection at individual work zones statewide. The tool has been integrated as a tool into the Regional Integrated Transportation Information System (RITIS), and can be accessed by going to www.ritis.org.

REPORT INFORMATION

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LINK TO FINAL REPORT: http://www.roads.maryland.gov/OPR_Research/MD-16-SP309B4C_Work-Zone-Performance-Monitoring_Report.pdf