

**REAL-TIME ADVANCED WARNING AND TRAFFIC CONTROL SYSTEMS
FOR WORK ZONES: EXAMINATION OF REQUIREMENTS AND ISSUES**

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(ABSTRACT)

The I-81 Corridor in Virginia traverses the western part of the state, connecting Bristol in the south to Winchester in the north. A study carried out at the Virginia Tech Center for Transportation Research identified traffic safety, work zone safety and traffic control, trucking issues, and intercity traveler information needs as important issues that deserve attention on the I-81 Corridor in Virginia. Analysis of work zone accident statistics showed a need for real-time systems to enhance work zone safety. Real-time advanced warning and traffic control systems provide a means of dynamic information dissemination and advanced warning, thereby enhancing work zone safety and facilitating traffic control.

The focus of this research was on the development of functional and system requirements for a real-time advanced warning and traffic control system for work zones. This task was based on the examination of work zone accidents and their causes. The functional requirements include advanced warning, surveillance, advisory, and control functions. Each of these functions consists of several sub-functions. The needs with respect to each of these functions have also been identified. System requirements such as real-time operation, credibility, portability, ease of installation, and adaptability were also identified. Evaluation criteria and potential Measures Of Effectiveness (MOEs) for the evaluation of the system were also identified. Additionally, issues related to the evaluation of the system, such as time duration for evaluation and data collection techniques were identified and examined.