

Final report of ITS Center project: Transportation infrastructure security monitoring.

A Research Project Report

For the Center for ITS Implementation Research

A U.S. DOT University Transportation Center

**INCIDENT ANALYSIS, INFORMATION ASSURANCE, AND DATA
VISUALIZATION FOR CAPWIN: A Real Time Terrorist Vulnerability
Assessment**

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**Incident Analysis, Information Assurance, and Data Visualization
for CapWIN: *A Real Time Terrorist Vulnerability Assessment***

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**A Research Project Report for the Intelligent Transportation Systems
Implementation Center (ITS)
A U.S. DOT University Transportation Center**

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16. Abstract <p>The attacks of September 11th drastically changed the priorities of U.S. national security. America must be more proactive and adopt a strategy that identifies potential terrorist targets an attack occurs. This project fuses disparate sources of data that have been recorded for various reasons other than counterterrorism. With sources including traffic flow data, economic and census information and weather conditions, the task at hand is to combine data that has never been combined before. The goal in combining these disparate sources of data is to identify specific areas within a geographic area of interest that meet the target selection criterion of terrorist organizations. The area of study was Fairfax County. The system evaluates the attractiveness of sub-regions based on its current state, according to the available data, and terrorist objectives. It can narrow down, from the entire region to specific regions a few city blocks in diameter, areas that are at an increased risk for terrorist attack due to the fact that they meet the goals of a specific terrorist organization. In this case, the focus was on Al Qaeda's objectives.</p> <p>Using weighted objectives and a set of system state variables derived from the data as inputs, corresponding threat levels were found using an adapted Input-Output (I-O) model. Previous methods have used economic sector interdependency data along with sector output to model the demand reduction due to terrorism. This long term model focuses on economic loss with degraded output in specific industries. The model created here focuses on short-term economic loss and casualties caused in the event a terror attack.</p>			
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ABSTRACT

The attacks of September 11th drastically changed the priorities of U.S. national security. America must be more proactive and adopt a strategy that identifies potential terrorist targets before an attack occurs. This project fuses disparate sources of data that have been recorded for various reasons other than counterterrorism. With sources including traffic flow data, economic and census information and weather conditions, the task at hand is to combine data that has never been combined before. The goal in combining these disparate sources of data is to identify specific areas within a geographic area of interest that meet the target selection criterion of terrorist organizations. The area of study was Fairfax County. The system evaluates the attractiveness of sub-regions based on its current state, according to the available data, and terrorist objectives. It can narrow down, from the entire region to specific regions a few city blocks in diameter, areas that are at an increased risk for terrorist attack due to the fact that they meet the goals of a specific terrorist organization. In this case, the focus was on Al Qaeda's objectives.

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Due to the sensitive material contained in this report, the National ITS Research Implementation Center will not publish the complete report on the web site. For more information, contact the author of the study, Dr. William T. Scherer, University of Virginia, 804-982-2069, wts@virginia.edu