

Intermodal Transportation Systems Risk Analysis and Resilience in New Madrid Seismic Zone: the Impact to Mississippi

Investigators:

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Start date:

July 01, 2012

Completion date:

December 31, 2013

NCITEC funds:

\$96,809.69

Matching funds:

\$87,056.00 Expected from Mississippi Department of Transportation
About \$20,000 will be MSU in-kind match

Project description:

Being one of the nation's top intermodal hubs, the Memphis area is vulnerable to large scale disasters, especially a large earthquake. The objective of this project is to develop a framework that evaluates intermodal transportation system resilience and risk profiles and accordingly determines effective preparedness, response and recovery strategies, with a particular focus on earthquakes, given available resources (e.g. funding and human resource). Four key modules will be developed as a part of the framework: Bayesian Network Module, Dynamic Intermodal Transportation Assignment Module, Resilience Evaluation Module, and Multi-Objective Decisions Module. Each of these modules will perform one of the following: estimate risk profiles and forecast intermodal transportation network statuses, produce system performance data and generate optimized emergency response routes, propose a set of appropriate resilience indicators, and consider retrofitting and protection options. As a whole the framework will identify the most effective preparedness, response and recovery strategies.