



Mississippi State University



Disruptions to Rail: Impacts Analysis and Decision

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Prevent, Protect, Respond, Recover

Homeland Security Challenge:

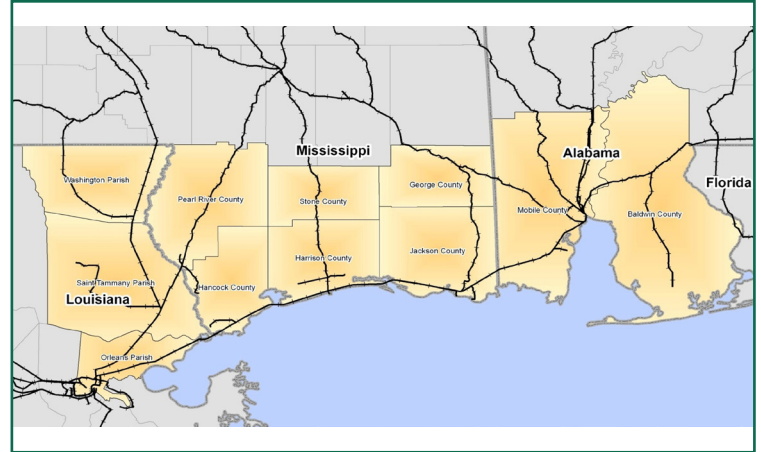
The possible impacts of an infrastructure interdiction in the rail system are numerous. There is not only the cost of replacement or reconstruction of the infrastructure component, but also the cost of systemic delays due to the inability to use the component. Such impacts may then have cascading, or spill-over, impacts on other transport modes and systems, creating additional congestion and capacity constraints.

Research Project Solution:

The objective of this research study is to determine alternative network flows in case of a disaster. A multimodal analysis framework and modeling capability will provide the ability to consider, model, and visualize existing regional multimodal transportation capacity and congestion as well as the impacts of new planned or potential transportation infrastructure projects. The combined system could evaluate potential impacts, model reallocation, evaluate the inclusion of new potential projects and rank alternatives in terms of viability, capacity and infrastructure constraints, and estimate economic cost and benefit. The system could also provide invaluable guidance to transportation infrastructure project decision making so that new services deliver the most value for current needs while also addressing vital security considerations.

National Implications:

Between New Orleans, LA and St. Louis, MO there are three critical points that are relevant to the objectives of this research: i) the CSX rail bridge in Hancock County, MS; ii) the rail bridge at Vicksburg, MS; and iii) the rail bridges at Memphis, TN. The economic impact of disasters that cause either the disruption or destruction in the network flow at any of the above critical points will be devastating to the southeastern region's economy. Furthermore, the development of the Meridian Speedway, Crescent City Corridor, and I-69 NAFTA Corridor, which are infused into the southeastern region, are critical traffic and freight flow corridors that will be vitally dependent upon the rail bridges across the Mississippi River at Memphis, Vicksburg, and south MS.



Gulf Coast CSX Coastal Rail Corridor – Heavily traveled CSX line between New Orleans, LA and Mobile, AL – Vulnerable to natural disasters (e.g., hurricanes and storm surge).



Flows of furniture shipments on rail.

www.serri.org

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SERRI is managed by the Department of Energy's Oak Ridge National Laboratory for the U.S. Department of Homeland Security