Infrastructure Inspection During and After Unexpected Events

Executive Summary
The objective of this work is to develop a physical-computer model for the structural health monitoring of highway bridges during extreme natural events such as earthquakes and flooding. The physical model, representing a highway bridge in Iowa, will provide the adequate measurements, and a computer finite element model will update and predict the changes in the loading capacity of the bridge during and after the event.

Findings & Outputs
A new methodology will be developed that quantifies bridge loading capacity during and after extreme events such as river flooding and ground movements.

Impacts & Benefits
1. Ensure drivers and goods transport safety during and after extreme natural events
2. Assist emergency responders in their decision-making regarding movement and management of traffic, especially of hazardous material
3. Assist emergency responders in their maintenance and repair plans

Funding Source(s) & Amount
USDOT: $158,507
UI Department of Civil and Environmental Engineering: $158,449
Total: $316,956

For More Information:
Phase I project info on MATC website: http://matc.unl.edu/research/research_project.php?researchID=533
Phase II project info on MATC website: http://matc.unl.edu/research/research_project.php?researchID=556
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About MATC
Since 2006, the Mid-America Transportation Center has been designated as the US DOT Region VII University Transportation Center composed of Iowa, Kansas, Missouri, and Nebraska.
Research priority: Increase safety with an emphasis on reducing the number of incidents involving hazardous material transport and improving emergency response.
Education priority: Increase the number of students from underrepresented groups in STEM education and transportation-related careers

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