

**Research Problem Statement**

<b>Date:</b> 10/19/2021	<b>Project Area:</b> Special Projects
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**Title:** Addressing Container Traffic Impacts on Highway Infrastructure

**Problem Statement:**

This project will develop an estimate and model the impacts of the Panama Canal Expansion on heavy truck travel patterns, resulting highway pavement and bridge structure designs, and port investment prioritization. New ship designs will allow the biggest ships yet to navigate the Mississippi River and deliver up to 2,375 heavy-duty highway truck equivalents to inland waterway ports. With the expansion of the Canal, private shipping companies and investors plan to load cargo ships leaving the Canal at new terminals along the Gulf of Mexico. These ships would carry containerized cargo to and from ports in Memphis, Little Rock, and other river cities. New ships present an opportunity to shift freight flows of containerized cargo from coastal sea ports to inland waterways terminals. This is a tremendous economic opportunity for Arkansas' intermodal companies, agencies, and port owners/operators. Yet, potentially significant increases in heavy-duty truck traffic resulting from new port activity may lead to negative externalities (pavement damage, safety issues, congestion, and air and noise pollution). There may be a need to reinforce and/or redesign highway infrastructure standards for pavement and bridges to prevent damage from heavy vehicles and higher volumes of trucks. This project will ultimately ensure that Arkansas benefits from economic opportunity presented by larger container volumes without experiencing detrimental effects to existing highway infrastructure.

**Potential Solution to Problem:**

The purpose of this research is to (1) quantify the potential impacts of increased container volumes (transported by heavy trucks) at inland waterway ports in Arkansas resulting from larger cargo ships and the Panama Canal expansion, (2) model "what if" scenarios of varied future realities of container volumes and locations on highway truck traffic, and (3) identify potential impacts to highway and bridge infrastructure designs resulting from the scenario analysis. This will be accomplished, in part, through data collected from the Arkansas Statewide Travel Demand Model's freight component which will be supplemented with robust depictions of inland port terminal operations gathered from advanced optimization approaches. This project is anticipated to identify maintenance, design, policy, and operational solutions that may mitigate negative impacts of increased container traffic on highway infrastructure including but not limited to pavements and bridges.

**Estimated Project Duration:** 24 Months

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Standing  
Subcommittee Ranking

4/4

Advisory  
Council Ranking

13/14

Statement Combined with  
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