

Project title:

Integrated Intermodal Transportation Corridors for Economically Viable and Safe Global Supply Chain

Investigators:

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Project description:

We live in the time of the “global economy”, in which the global supply chain interconnects each country’s transportation hubs through import/export demand of agriculture commodities, manufacturing goods, and fossil fuels. Ships, air cargo, and land transport are used as freight carriers for most goods. Ships and supertankers are used to transport most of the fossil fuel supplies, which include coal, crude oil, and liquefied petroleum gas (LPG). The global supply chain can be seriously disrupted by natural disasters. For example the earthquake and tsunami disaster that struck Japan in March 2011 even had an effect on car manufacturing facilities in the U.S. that lasted for several months. This problem of disruption in the supply chain can seriously hurt local economies which depend on distribution through surface transportation modes. As recently reported at National Press club on July 17, 2009 and discussed in a report of the National Academies that U.S. companies collectively spend a trillion dollars a year on freight logistics. This is nearly 10% of the nation’s gross domestic product (GDP). A recent Commodity Flow Survey (CFS) indicates that, on average, 42 tons of freight worth \$39,000 was delivered per person in the U.S. in 2007. These statistics are indicative of the importance of the lifeline supply chain to support our society and everyday life. The four transportation modes (shipping port, aviation, rail, and highway) are owned and operated by different entities in the U.S. Unlike federal and state funded highway infrastructure freight railroads are privately owned. It is estimated that America’s freight railroads move 43 percent of intercity freight traffic and freight rail moves 1/3 of U.S. exports to ports. All these modal networks operate within their own policy frameworks and profit motivations with little or no real operational integration. Financing for preserving and upgrading intermodal infrastructure for both freight and rail is being handled very differently. Transport infrastructure funding crisis is evident on all levels.

The overall objective of this tri-university applied research project is to identify major transportation corridors involving shipping ports (marine and inland river system) highway network and rail infrastructure and to evaluate the economic viability, safety, disaster resiliency, and revenue/funding aspects of integrating selected segments of the candidate corridors. The intermodal freight corridor case studies will be used to develop a “best practice guide” and intermodal infrastructure bank proposal for consideration by government transportation agencies, private transport operators, and all other stakeholders. The economic competitiveness, safety, security and disaster resilience of freight transport can be significantly enhanced if owners, operators, and users of all transportation modes understand the importance of operational integration of these modes. Similarly, integration of passenger services can reduce wastage of millions of hours of travel time of single occupancy vehicle commuters that will result in cost avoidance of billions of gallons of fuel wastage on congested highway corridors and reduce transportation related emissions of carbon dioxide and other harmful pollutants.