

Project title

Development of Performance Measurement for Freight Transportation

Principal Investigator

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Project description

The new Moving Ahead for Progress in the 21st Century Act (MAP-21) passed by the U.S Senate and pending at the U.S. House requests the national freight network to “incorporate concepts of performance and accountability into the operation and maintenance of the national freight network” and requires the U.S. Department of Transportation (USDOT) and all States to “establish performance measures for freight movement”. Currently, the major freight modes have different metrics that can be used to neither measure a freight network with multiple modes nor select freight improvement projects from an intermodal perspective.

The objective of this research are to build a set of performance measures that are unified, user-oriented, scalable, systematic, effective and calculable for intermodal freight management and to develop methodologies to calculate and use the measures. To demonstrate practical applications of the proposed performance measures, a case study will be conducted to evaluate the freight network of the State of Louisiana and the benefits of potential freight improvement efforts.

The project objective will be achieved by completing these four tasks:

Task 1: Summarization of existing intermodal freight transportation measures

Task 2: Identification of performance measures using systems engineering approaches

Task 3: Procedure development for calculation, data collection, and application

Task 4: Case Study, demonstration, and technology transfer

This research mainly targets State DOTs, who need the developed metrics for selecting freight network improvement projects and demonstrating the benefits of investment on freight management. The results could also benefit the USDOT for transportation planning and promotion of intermodal solutions and the DHS for transportation resilience and protection. The private sector, such as Class-I and short line railroads, may use the metrics to guide their investment and seek government supports.