



UTC Spotlight

University Transportation Centers Program

This month: University of Maryland | November 2014

Collaborative Research on Transportation and Economic Competitiveness: Making Real-World Impact at NTC@Maryland

The theme of the National Transportation Center at the University of Maryland, College Park (NTC@Maryland), is “Strategic Transportation Policies, Investments and Decisions for Economic Competitiveness.” The Center conducts research and provides education and technology transfer related to this theme and directly supports the U.S. Department of Transportation’s (DOT’s) strategic goal of economic competitiveness. The University of Maryland, officially recognized as an Asian-Pacific Islander Minority Serving Institution, leads the consortium that includes six partner universities:

- Arizona State University (ASU, with a high percentage of Hispanic students);
- Louisiana State University (LSU);
- Morgan State University (MSU, one of the Historically Black Colleges and Universities);
- North Carolina State University (NCSU);
- Old Dominion University (ODU); and
- the University of New Orleans (UNO).

The primary research areas related to the theme of Economic Competitiveness are freight efficiency and reliability, congestion mitigation with multimodal strategies, and national-level multimodal transportation investment analysis and decision-support.

Many research products from NTC@Maryland have already made or are making their way into real-world applications at Federal, State, and local transportation agencies, including the following:

- tools for the analysis of the broader economic impact of transportation investments;
- multimodal and sustainable corridor planning software;
- improved *Highway Capacity Manual* analysis modules;

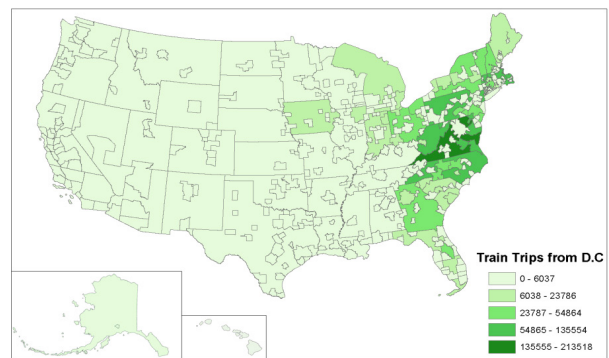
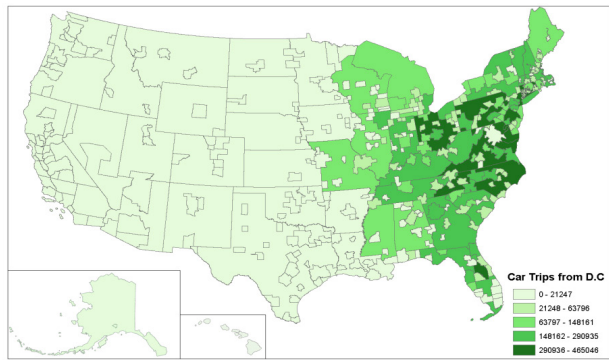
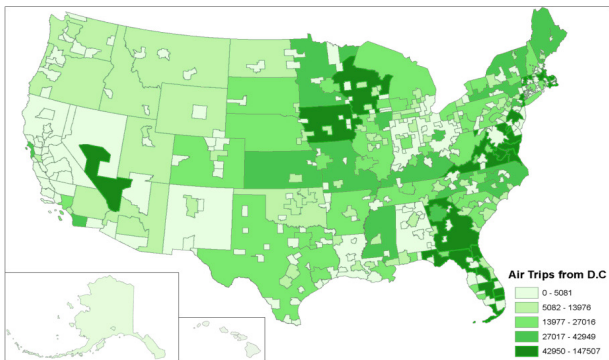
- travel time prediction and traveler information systems;
- advanced travel analysis models;
- comprehensive methods for estimating and mitigating development impact; and
- green freight transportation infrastructure.

NTC@Maryland Supports National-Level Travel and Transportation Investment Analysis

Collaborative research at UMD and ASU is investigating intercity passenger travel demand at the national level and the economic impacts of high speed rail. UMD researchers, led by NTC@Maryland Director, Lei Zhang, Ph.D., have developed quantitative models for inter-regional and national passenger travel demand analysis. These models are implemented in a microsimulation platform to provide decision-makers with information to strategically invest in nationally significant corridors, the national highway system, passenger rail, and airports. Mikhail Chester, Ph.D., at ASU leads an NTC@Maryland research project focused on the impact of high speed rail service on economic growth. In addition, Dr. Chester’s research project aims to develop a framework for investing in a robust high speed rail system that is less vulnerable to natural disasters and other extreme events. At UMD, Cinzia Cirillo’s, Ph.D., research team has developed application-ready methods for revenue management in a high speed rail system. In her study, Dr. Cirillo considers the dynamic nature of passenger travel demand and the effect on optimal rail transport operations and pricing.

NTC@Maryland Promotes Freight Efficiency and Reliability Through Research and Technology Transfer

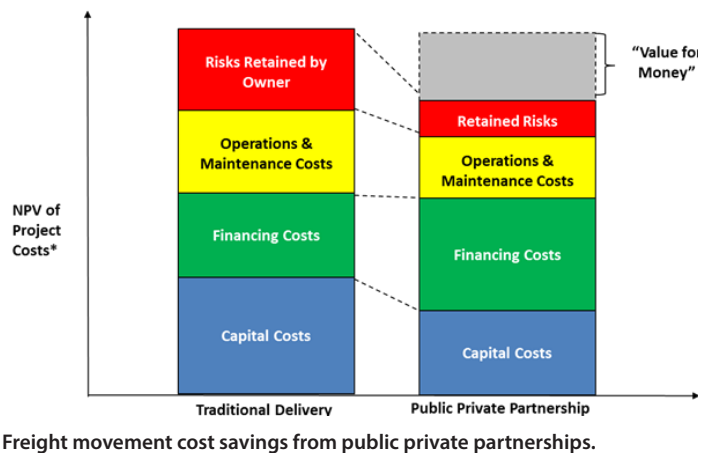
Several universities within the NTC@Maryland consortium are studying the economic impacts of



National Travel Demand Analysis Tool: estimated 2010 Trips originating from Washington, DC, by mode.

freight movement in the United States and developing innovative strategies for enhancing the efficiency and reliability of our freight transportation system. Paul Schonfeld, Ph.D. (UMD), George List, Ph.D. (NCSSU), and Hyeon-Shic Shin, Ph.D. (MSU), are collaborating on the development of a general modeling framework for freight system optimization. The focus of this multiuniversity

collaborative project is to increase the efficiency and reliability of freight operations at intermodal transfer terminals. In addition, Hyeon-Shic Shin, Ph.D. (MSU), analyzes freight stakeholders' preferences for various policy alternatives on managing the last mile of goods delivery in congested urban areas. Qingbin Cui, Ph.D. (UMD), and Shane Underwood, Ph.D. (ASU), are both analyzing critical issues with regard to the provision and maintenance of the freight transportation infrastructure. Dr. Cui has created an analysis framework for delivering freight transportation infrastructure through Public Private Partnerships (P3), and compared the P3 approach to traditional project delivery methods. Results from his analysis will provide direct policy recommendations on the use of P3 investment for all modes of transportation, including freight. Dr. Underwood evaluates the impacts of freight travel trends, demand, loads, and composition on pavement infrastructure. This NTC@Maryland research project will identify for decision-makers the critical corridors where freight movement is negatively affecting the Nation's transportation infrastructure. In addition, NTC@Maryland researchers have also engaged in technology transfer activities to freight transportation professionals including collaboration with the I-95 Corridor Coalition's Freight Academy and sponsorship of first annual Port of New Orleans Maritime Workforce Summit.



About This Project

Building on the success of an earlier Tier 1 University Transportation Center, the National Transportation Center at the University of Maryland (NTC@Maryland) was established in October of 2013 and is directed by Lei Zhang, Ph.D. Associate Directors at the other six consortium universities include Kamil Kaloush, Ph.D. (ASU), Brian Wolshon, Ph.D. (LSU), Hyeon-Shic Shin, Ph.D. (MSU), Nagui Roupail, Ph.D. (NCSU), Mecit Cetin, Ph.D. (ODU), and Bethany Stich, Ph.D. (UNO). After just one year of collaborative effort, the NTC@Maryland has made significant impacts in the realms of transportation and economic competitiveness research, technology transfer, and education. More information is available at <http://ntc.umd.edu>.

This newsletter highlights some recent accomplishments and products from one University Transportation Center (UTC). The views presented are those of the authors and not necessarily the views of the Office of the Assistant Secretary for Research and Technology or the U.S. Department of Transportation, which administers the UTC program.

