

Project Title: City Logistics: Predictive Analytics for Real-Time Freight Management

Principal Investigators:

Hani Mahmassani, William A. Patterson Distinguished Chair of Transportation

Center Project Number: Y6-03

Award Amount: \$ 90,001

Start Date: March 1, 2013

End Date: July 31, 2013

The challenges of contemporary freight management are moving beyond cost efficiency towards superior customer service, agility, and responsiveness to requirements that vary over time and space. By its nature, freight distribution entails a stochastic and dynamic optimization problem. It deals with future events in an environment with significant sources of uncertainty. Ignoring the possible occurrence of uncertain events during operation may lead to delays, higher costs and inferior customer service. To handle the inherent dynamism, real-time information obtained from recent innovative technologies provides promising improvements in freight management systems. The integration of available real-time information and the utilization of dynamic network traffic assignment (DTA) models to obtain prevailing and anticipated traffic conditions on the network remains to be accomplished in practical applications. The principal focus of this research is to find good and computationally efficient approaches that would allow a commercial vehicle fleet operation manager, or dispatcher, to take advantage of real-time information to dynamically manage available resources to serve time-sensitive customer requests while recognizing the prevailing and anticipated traffic conditions on the road network.