

Selected *UMR* Methodology Improvement Projects and Collaborations

Last Updated: March 2013

Title: Improvements to the *Urban Mobility Report* Methodology

Sponsor: Southwest Region University Transportation Center

Project completion: April 2013

Description: TTI researchers are working collaboratively with transit experts University of South Florida (USF) at the Center for Urban Transportation Research (CUTR) to review and update the public transportation methodology used to estimate the delay reduction benefit of public transportation systems. The second aspect of this project is investigating the daily truck volume distribution assumptions in the *Urban Mobility Report*. TTI researchers have received truck classification data from a number of state DOTs to investigate daily volume distribution assumptions for trucks. For the truck data analyses, researchers have received data and insights from researchers at the Region 10 University Transportation Center (UTC) at the University of Washington.

Title: Estimating and Incorporating CO₂ emissions and associated fuel consumption into the *Urban Mobility Report*

Sponsor: National Center for Freight and Infrastructure Research and Education (CFIRE)

Project completion: March 2013

Description: TTI researchers worked collaboratively with researchers at the University of Wisconsin Energy Institute and a Project Advisory Committee of experts to develop a five-step methodology using data from three primary data sources, 1) the Federal Highway Administration's (FHWA's) Highway Performance Monitoring System (HPMS), 2) INRIX traffic speed data, and 3) the Environmental Protection Agency's (EPA's) Motor Vehicle Emission Simulator (MOVES) model. The research successfully developed and applied the methodology and emission results were validated in selected cities. Researchers incorporated the new methodology for all urban areas into the *2012 Urban Mobility Report*.

Title: Development of an Areawide Estimate of Truck Freight Value in the *Urban Mobility Report*

Sponsor: National Center for Freight and Infrastructure Research and Education

Project completion: June 2012

Description: TTI researchers worked collaboratively with CFIRE researchers and a Project Advisory Committee of experts to develop a three-part methodology to estimate truck freight value using FHWA Highway Performance Monitoring System (HPMS) and FHWA Freight Analysis Framework (FAF) datasets. Researchers first implemented the methodology into the *2010 Urban Mobility Report*, and it has been included in subsequent editions of the *Urban Mobility Report*.

Link: http://www.wistrans.org/cfire/documents/CFIRE_04-16_Final_Report.pdf

Title: Improvements to Public Transportation Benefits Methodology

Sponsor: American Public Transportation Association (APTA)

Project completion: October 2008

Description: TTI worked with APTA to investigate the methodology used to estimate the effects of public transportation services on the peak period traveler and traffic congestion including time and fuel savings. Key tasks included: 1) review of the methodology used to generate estimates to determine possible improvements; 2) review of the percentage of travel on public transportation during peak periods to determine if this value should vary by population in the methodology; 3) determine if the current method of applying the public transportation patrons back into the current freeway and arterial traffic mix is the best alternative or if a more detailed option is possible; 4) incorporate the methodology and results into the *2008 Urban Mobility Report*; and 5) document the results.

Link: <http://mobility.tamu.edu/ums/methodology/>

Title: Communicating Urban Congestion Information

Sponsor: National Cooperative Highway Research Program (NCHRP)

Project completion: November 2006

Description: As more and better information is generated each year in the transportation industry, the need arises almost annually to make adjustments to the *Urban Mobility Report* calculation procedures. Historically, one of the key calculations in the *Urban Mobility Report* was the speed estimation procedure. This process assigned peak period operating speeds to varying traffic densities on freeways and principal arterial streets. More is learned each day about the relationship between traffic levels and speed with the influx of real-time traffic data that is collected in our many transportation management centers across the United States. These data made it possible to revisit the methodology of the mid-2000s and determine if adjustments were needed to several parts of the methodology including the speed estimation process. TTI researchers worked with the NCHRP panel to complete these key work tasks: 1) analyzed the speed estimation and accompanying measure calculation procedures in the *Urban Mobility Report* to determine modified needs based on real-time data or more current models; 2) determined if an areawide reliability performance measure can be calculated for inclusion in the *Urban Mobility Report*; 3) reviewed the methodology that quantifies the benefits of operational treatment programs and strategies; and 4) constructed a spreadsheet that individuals or groups that can use to gain further insight from the data.

Link: <http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=541>