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Free Report Addresses Model-based Transportation Performance, Develops Common Framework

Mineta Transportation Institute's study enables development of high-quality performance measures.

San Jose, Calif., April 5, 2012 – The [Mineta Transportation Institute](http://transweb.sjsu.edu) (transweb.sjsu.edu) has published [*Model-based Transportation Performance: A Comparative Framework and Literature Synthesis*](#), a peer-reviewed research report. This study links transportation performance measures with data from simulation tools, develops a common framework by which to compare many of the various measures, and synthesizes the types and the results of these measures as implemented to date. Principal investigator was Caroline Rodier, PhD, with Margot Spiller. The 103-page report is available for free PDF download from transweb.sjsu.edu/project/2805.html

“In a time of serious fiscal and environmental constraints,” said Dr. Rodier, “there has been a renewed call to identify transportation investments and related policy decisions that will optimize transportation, environmental, economic, and equity outcomes. Several influential reports have articulated how such outcomes may be measured – commonly known as performance measures – in the context of Global Warming legislation in California and the Federal Transportation Reauthorization Bill.”

The study found that a variety of performance measures have been used to quantify impacts of various transportation policies. However, it is often unclear how those various measures relate and how they can be measured with existing modeling tools. This study links these performance measures to data available from simulation tools and develops a common framework by which to compare many of the various measures.

Soon a new generation of activity-based travel and land use models will be implemented statewide and regionally in California. This study will enable high quality performance measures to be developed, which are necessary to explore the critical dimensions of livable communities.

The results from synthesizing performance measures in implemented policy studies show that land use effects, travel time, and costs for all modes of travel can significantly affect the determination of total benefits for policy scenarios. Further, external costs related to accidents, noise, air pollutants, and climate change also have significant effects.

Among the findings:

- The survey of performance measures suggests that most of the recommended measures have not been implemented in transportation and land-use planning studies in the United States. More of the measures have been implemented in European studies.
- The survey showed little commonality in the equity measures implemented in studies to date. This is an area in which regional stakeholders can come together to clearly articulate concerns and evaluate the ability of available tools to measure the impact of policies on those concerns.
- Few economic performance measures have been implemented in the United States. Regional governments and community groups have evaluated the financial cost of transportation plans but rarely their cost-effectiveness.

- Environmental performance measures related to energy, air quality, and climate change have been frequently evaluated.

The report is divided into sections that include Models and Data for Performance Measures; Comparative Framework for Performance Measures; Implementation of Performance Measures; and Evidence for Performance Measures.

The complete 103-page report includes 17 figures and 12 tables that illustrate key issues and findings. It is available for free PDF download at transweb.sjsu.edu/project/2805.html

ABOUT THE RESEARCH TEAM

Caroline Rodier, PhD, is associate director of the Urban Land Use and Transportation Center (ULTRANS) at the University of California, Davis. Her major areas of research include transportation and environmental planning and policy analysis. She has extensive experience applying land-use and transportation-demand models to evaluate the performance of a wide range of transportation and land-use policies. Recently, she has overseen the development of the California Travel Demand Model, which is the first activity-based travel-demand model developed on a statewide scale. Dr. Rodier also provided extensive research support to the California Air Resources Board in its development of the scoping plan for Assembly Bill 32, the Global Warming Solutions Act, including an international review of the modeling evidence on the effectiveness of land-use and transportation strategies.

Margot Spiller is a junior specialist at ULTRANS. She received her BSc from Massachusetts Institute of Technology and MSc in transportation engineering and city planning from the University of California, Berkeley. She is also a transportation engineer and planner. Her research interests include the land-use and transportation connection, and emissions reductions from the transportation sector. This is her second co-authored report.

ABOUT THE MINETA TRANSPORTATION INSTITUTE

The Mineta Transportation Institute (MTI) conducts research, education, and information and technology transfer, focusing on multimodal surface transportation policy and management issues, especially as they relate to transit. MTI was established by Congress in 1991 as part of the Intermodal Surface Transportation Efficiency Act (ISTEA) and was reauthorized under TEA-21 and again under SAFETEA-LU. The Institute has been funded by Congress through the US Department of Transportation's (DOT) Research and Innovative Technology Administration, by the California Legislature through the Department of Transportation (Caltrans), and by other public and private grants and donations, including grants from the US Department of Homeland Security. DOT selected MTI as a National Center of Excellence following competitions in 2002 and 2006. The internationally respected members of the MTI Board of Trustees represent all major surface transportation modes. MTI's focus on policy and management resulted from the Board's assessment of the transportation industry's unmet needs. That led directly to choosing the San José State University College of Business as the Institute's home. Visit transweb.sjsu.edu

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