Can Land Use Plans and Transportation Policies Help Improve Health?

Mineta Transportation Institute's free research report predicts specific positive outcomes.

San Jose, Calif., April 15, 2014 – Could land use plans and transportation policies help to improve people's health? Recent studies are predicting that they can, especially if those plans and policies promote walking, biking, and reduced vehicle use. In its newest peer-reviewed study, *Active Travel Co-Benefits of Travel Demand Management Policies that Reduce Greenhouse Gas Emissions*, the Mineta Transportation Institute predicts specific outcomes based on its forecasting models for California's five major regions. The authors are Caroline J. Rodier, PhD, Richard Lee, PhD, ACIP, Brandon Haydu, and Nicholas J. Linesch. The free report can be downloaded without registration from http://transweb.sjsu.edu/project/1109.html

According to Dr. Rodier, "Increasing evidence indicates that improved health may be a significant benefit when land use plans and transportation policies help increase active transport and reduce greenhouse gas emissions (GHGs) from vehicle miles traveled (VMT). Active transport is defined as physical activity to travel or run errands, such as walking or using a bike, rather than using a gas vehicle."

In this study, California's activity-based travel demand model (ABM) is applied to demonstrate how this new generation of travel models can produce the active travel data (age and sex distributions) required by comparative risk assessment models to estimate health outcomes for alternative land use and transport plans. This application can also identify the magnitude of change in active travel that may be possible from land use, transit, and vehicle pricing policies for California and its five major regions by 2035. Those five regions include San Francisco, Sacramento, San Joaquin Valley, Los Angeles, and San Diego.

The results of this study suggest that distance-based vehicle pricing may increase walking by about 10 percent and biking by about 17 percent. Concurrently, GHG from VMT may be reduced by about 16 percent. Transit expansion and supportive development patterns may increase active travel by about 2-3 percent for both walk and bike modes while also reducing VMT by about 4 percent on average. The combination of all three policies may increase time spent walking by about 13 percent and biking by about 19 percent while reducing VMT by about 19 percent.

"While there has been an explosion in the health literature of studies documenting and in some cases quantifying the health benefits of these modes," said Dr Lee, "evaluating the active transport and health effects of new transportation projects and land use plans is relatively new."

In fact, the increased physical activity associated with active transport resulting from these plans was responsible for almost all the health benefits. Further, health benefits were far greater from walking and biking than from GHG reductions alone. Health guidelines suggest that children and adolescents should exercise one hour a day, and adults should exercise about 20 minutes a day.

Major California metropolitan planning organizations (MPOs) are beginning to adopt the methods developed by this study to create heath performance measures that may be included in regional transportation plans. Future applications of ABMs will no doubt improve the representation of spatial, travel time, and travel cost variables and thus improve the accuracy and precision of health- and active transport-related performance measures.

The 38-page report includes six figures and tables. Download at no cost and no registration from http://transweb.sjsu.edu/project/1109.html

ABOUT THE INVESTIGATORS

Caroline Rodier, PhD, is a research associate at the Mineta Transportation Institute and the associate director of the Urban Land Use and Transportation Center at the University of California, Davis. She holds a PhD in ecology and an MS in community development from the University of California, Davis, and a B. in US history from Barnard College, Columbia University.

Richard Lee, PhD, AICP, is a lecturer in the Urban and Regional Planning Department at San José State University and has been a research associate with the Mineta Transportation Institute for over 15 years. He earned his master's degrees in civil engineering (1984) and city and regional planning (1985) and his PhD in city and regional planning (1995), all from the University of California, Berkeley.

Brandon Haydu is a transportation planner for Fehr and Peers, working on travel demand modeling projects. He earned his Masters' degree in city and regional planning and Master of Science in engineering, both specializing in transportation planning, from California Polytechnic State University, San Luis Obispo. He earned his BA in political science from UC Davis.

Nicholas J. Linesch is a researcher at Institute of Transportation Studies at the University of California, Davis. He earned his Master's degree in civil and environmental engineering from the University of California, Davis.

ABOUT THE MINETA TRANSPORTATION INSTITUTE (MTI):

MTI conducts research, education, and information transfer programs focusing on surface transportation policy and management issues, especially related to transit. MTI was established by Congress in 1991 as part of the Intermodal Surface Transportation Efficiency Act and won national re-designation competitions in 2002, 2006 and 2011. The Institute is funded by Congress through the US DOT Research and Innovative Technology Administration, by the California Legislature through Caltrans, and public and private grants. In 2006 the US Department of Homeland Security selected MTI as a National Transportation Security Center of Excellence. The internationally respected members of the MTI Board of Trustees represent all major surface transportation modes. MTI is the lead institute for the Mineta National Transit Research Consortium, an affiliation of nine university transportation research centers. MTI is affiliated with San Jose (CA) State University's College of Business. Visit transweb.sjsu.edu

Contact: Donna Maurillo
MTI Communications Director
831-234-4009 (mobile)
donna.maurillo (at) sjsu.edu

###