

Dynamic ridesharing services can make a big environmental impact

Mineta's free report says benefits could significantly improve VMT and GHG reductions from regional land use and transportation plans under California SB 375

San Jose, CA – October 20, 2015 – Can greenhouse gases be reduced by promoting ridesharing services and battery electric vehicles? Could they sufficiently reduce vehicle miles traveled (VMT) to make a significant environmental impact? That's what researchers at the Mineta Transportation Institute (MTI) wanted to know. Their peer-reviewed report, [*Synergistic Integration of Transportation Demand Management Strategies \(Land Use, Transit, and Auto Pricing\) with New Technologies and Services \(Battery Electric Vehicles and Dynamic Ridesharing\) to Enhance Reductions in VMT and GHG*](#), provides insight about the many possibilities. Principal investigator was Caroline Rodier, PhD, working with Farzad Alemi and Dylan Smith. The report, which is especially relevant for transportation and environmental planners, can be downloaded free at <http://transweb.sjsu.edu/project/1207.html>

Dr. Rodier said, "Our findings suggest that dynamic ridesharing, such as Uber and Lyft, could significantly reduce VMT and related greenhouse gas emissions if travelers are willing to pay with their time and money to use the dynamic ridesharing system."

She noted that the combination of dynamic ridesharing, along with the transit-oriented development (TOD) and VMT Fee scenarios, suggests some policy combinations that may be more effective than dynamic ridesharing alone but perhaps more politically palatable.

"For example," said Dr. Rodier, "a moderately used regional dynamic ridesharing with 10 percent increase in VMT fees may produce reductions in VMT on the order of 11 percent compared with a business-as-usual scenario in one horizon year."

Changes could be greatest in faster growing areas

The authors used the San Francisco Bay Area Metropolitan Transportation Commission's activity-based microsimulation travel demand model for 2010. A business-as-usual (Base Case), transit-oriented development, and auto pricing (VMT Fee) scenarios are simulated with and without high, medium, and low dynamic ridesharing participation levels and battery electric vehicles (BEV) driving ranges.

Results of the BEV simulations suggest that TODs may increase the market for BEVs by less than one percent in the San Francisco Bay Area. In addition, auto pricing policies may increase the market by as much as seven percent. However, it is possible that larger changes are feasible over time in faster growing regions where development is currently at low density levels (for example, the Central Valley in California). The VMT Fee scenarios show larger increases in the potential market for BEV by as much as seven percent.

The report includes 14 figures and tables illustrating the findings. The report is available for free download from <http://transweb.sjsu.edu/project/1207.html>

Tweet this: Can ridesharing and battery electric vehicles make a significant enviro impact? Mineta study says yes. <http://ow.ly/TmJMS>

ABOUT THE AUTHORS

Caroline Rodier, PhD, is a research associate at the Mineta Transportation Institute. She is also

the associate director of the Urban Land Use and Transportation Center, and a research scientist at the Institute of Transportation Studies, University of California, Davis. Her major areas of research include transport, land use, and environmental planning and policy analysis. She is chair of the Transportation Research Board's Emerging and Innovative Public Transport and Technologies Committee. She holds a BA in US history from Barnard College at Columbia University, and an MS in community development and a PhD in ecology from the University of California, Davis.

Farzad Alemi is a third-year PhD student at the University of California, Davis, Institute of Transportation Studies (ITS). He is interested in various transportation and land-use related topics, particularly travel demand modeling, land-use modeling, travel behavior, traffic engineering, and sustainable transportation. Prior to UC Davis, he completed his MSc in urban and regional planning (University of Greenwich, 2009-2010). Before that, he received his BSc in civil and environmental engineering from Iran University of Science and Technology in 2009

Dylan Smith is a software developer in the San Francisco Bay Area. He earned a bachelor's degree in computer science from the University of California, Davis, and is primarily interested in computer science and its applications in transportation engineering. During his undergraduate career he developed software to help explore the feasibility of ride-sharing in the Bay Area and the interactions between dynamically-routed vehicles and traffic lights. He is helping to found a transportation-focused startup in the Bay Area.

ABOUT THE MINETA TRANSPORTATION INSTITUTE

The Mineta Transportation Institute (MTI) conducts research, education, and information transfer programs regarding surface transportation policy and management issues, especially related to transit. Congress established MTI in 1991 as part of the Intermodal Surface Transportation Efficiency Act. MTI won national re-designation competitions in 2002, 2006 and 2012. The Institute is funded through the US Department of Transportation, the US Department of Homeland Security, the California Department of Transportation, and public and private grants. The internationally respected members of the MTI Board of Trustees represent all major surface transportation modes. MTI, the lead institute for the nine-university Mineta National Transit Research Consortium, is affiliated with San Jose (CA) State University's College of Business. Visit transweb.sjsu.edu

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