

## Research Investigates How to Reduce Greenhouse Gas Emissions from Transportation

*Mineta NTRC's free report recommends aggressive technology policies and increases in travel costs*

**San Jose, Calif., March 25, 2014** – Greenhouse gas (GHG) emissions must be reduced by 50-80 percent by 2050 to limit a global temperature increase of 2 degrees Celsius (or 3.6 degrees Fahrenheit). With vehicles as one of the prime producers, how can the transportation sector address that hurdle? The [Mineta National Transit Research Consortium](#) (MNTRC) has just published the peer-reviewed [Transportation Futures: Policy Scenarios for Achieving Greenhouse Gas Reduction Targets](#), which analyzes three possible scenarios. Authored by Andrew I. Kay, MCRP; Robert B. Noland, PhD; and Caroline J. Rodier, PhD, the report is available at no charge and no registration from <http://transweb.sjsu.edu/project/1149.html>

“It’s generally accepted that these temperature changes can negatively affect global food supplies, biological health, water quality, and other necessities of life,” said Mr. Kay. “Achieving GHG reductions of this magnitude in the transportation sector is a challenge and requires a multitude of policies and technology options. In particular, medium- and heavy-duty vehicles require additional fuel or technology-based GHG reductions. While existing and upcoming regulations deliver certain benefits, it is unlikely that they will be sufficient to meet the GHG reduction goals.”

The research presented in the report analyzes three policy scenarios: changes in the perceived price of travel, land-use intensification, and increases in transit. To forecast the changes from these scenarios, the California activity-based travel demand model was used. This is a statewide model that covers all the regions of California, but they also reasonably represent the US. From this model a variety of travel-demand elasticity estimates were derived for each policy option. These were then applied to forecasts of future vehicle miles of travel from the VISION model while also accounting for potential error bands inherent in the modeling process.

The research results provide useful information for understanding the effectiveness of alternative policies and any additional regulatory policies that might be necessary to close the gap. Of the three travel demand management policies analyzed, only the pricing policy comes close to achieving the 50 percent emission reduction target over the period from 2000-2040, and this assumes a two-fold increase in the price of driving and the highest range of elasticity estimates from the model. Transit and land-use policies provide only minor reductions in emissions. Overall, this analysis suggests that reductions of about 20-40 percent – in addition to those provided through demand management strategies – may be necessary to meet aggressive mitigation goals.

Medium- and heavy-duty vehicles, primarily freight traffic, achieve only small reductions in emissions even with the pricing scenarios. Transit and land-use policies would have little effect on freight emissions. This suggests that further technological improvements far beyond current regulations will be required to reduce emissions from these vehicles.

“These results are consistent with other gap analyses that have been conducted,” said Dr. Rodier. “Most studies conclude that aggressive technology policies and reductions in travel demand are necessary to achieve large reductions in transportation GHG emissions. This study reveals a potential gap, particularly in emissions from medium- and heavy-duty trucks, without further regulatory action. The need to increase the price of travel to reduce demand is also critical if the transportation sector is to contribute to global efforts to help stabilize temperatures.”

The 56-page report includes six figures and seven tables. Download at no cost and no registration from <http://transweb.sjsu.edu/project/1149.html>

**ABOUT THE INVESTIGATORS** (alphabetical order)

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**ABOUT THE MINETA NATIONAL TRANSIT RESEARCH CONSORTIUM**

The Mineta National Transit Research Consortium (MNTRC) is composed of nine university transportation centers led by the Mineta Transportation Institute at San Jose State University. The Consortium was organized in January 2012 after winning a competition sponsored by the US Department of Transportation (DOT) to create consortia tasked with “Delivering Solutions that Improve Public Transportation.” Member universities include Bowling Green State University, Grand Valley State University, Howard University, Penn State University, Rutgers University, San Jose State University, University of Detroit Mercy, University of Nevada Las Vegas, and University of Toledo. Visit [transweb.sjsu.edu/mntrc](http://transweb.sjsu.edu/mntrc)

**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](http://transweb.sjsu.edu)

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