



The *TranLIVE Spotlight* is a bi-weekly update from the University Transportation Center research collaboration led by the University of Idaho

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## **STUDYING THE IMPACT OF UNCERTAINTY ON EMISSION-BASED RANKING OF TRANSPORTATION PROJECTS**

MOSCOW, Idaho – With increasing concerns over air-quality levels and livability in urban areas, TranLIVE researchers at Old Dominion University, Umama Ahmed and ManWo Ng, have conducted research examining the impact of vehicle emission considerations in the ranking of transportation projects. The results of Ahmed and Ng’s work have been published in a recent TranLIVE report.

Previous studies on the topic have assumed that parameters in network assignment methods of project ranking are typically assumed to be known with complete certainty. Though due to the lack of consistency attributed to the nature of traffic, research results have been ambiguous. Ahmed and Ng relax the assumption of determinism in their research and instead examine the impact of trip table, demand uncertainty and road capacity uncertainty.

To more accurately estimate emissions the researchers used an EPA developed software program called MOVES (MOTOR Vehicle Emission Simulator), which estimates the emissions of vehicles by covering a broad range of pollutants and allowing for a multi-scale analysis.

To investigate the impact of uncertainty on the selection of road capacity expansion projects, the researchers evaluate the projects using two different approaches: sampling and mean values. Ahmed and Ng tested a series of four real-world Virginia Beach, Virginia transportation road networks. Based on extensive simulations they find that the impact of uncertainty is limited.

The complete report is available at: [bit.ly/tranlive120114](http://bit.ly/tranlive120114)

### **ABOUT TRANLIVE UNIVERSITY TRANSPORTATION CENTER**

TranLIVE is the Transportation for Livability by Integrating Vehicles and the Environment a research collaboration lead by the University of Idaho in partnership with Old Dominion University, Syracuse University, Texas Southern University, and Virginia Polytechnic Institute and State University. TranLIVE works to find solutions to transportation challenges that minimize environmental impacts while educating students to enter the transportation workforce and creating and transferring tools and knowledge to practicing transportation professionals. TranLIVE is sponsored by the United States Department of Transportation (USDOT) University Transportation Centers Program. For more information visit: [www.tranliveutc.org](http://www.tranliveutc.org)