

## How to Develop Bus-Stop Time Models in Dense Urban Areas

*Mineta's free report is valuable for transit operators, planners*

**San Jose, CA – August 18, 2015** – A new model for bus transit reliability can help operators improve planning and scheduling in urban areas. This study defines a new reliability variable, Total Bus Stop Time (TBST), which includes “dwell time” (DT) and the time it takes a bus to safely maneuver into a bus stop and then re-enter the main traffic stream. The newly released study, [\*Development of Bus-Stop Time Models in Dense Urban Areas: A Case Study in Washington DC\*](#), is published by the Mineta National Transit Research Consortium (MNTRC). The authors are Stephen Arhin, PhD, and Errol Noel, PhD. The report is available for free download at <http://transweb.sjsu.edu/project/1239.html>

“The report’s proposed regression models have a high explanatory power over the observed data,” said Dr. Arhin. “The models can therefore be used to adequately predict DTs and TBSTs at various bus stops and by time of the day with 95% confidence.”

The report recommends that:

- For bus stops near intersections, buses should spend no more than 43, 47, and 67 seconds TBST (from exiting the stream of traffic to successfully reintegrating with it) during the morning, midday, and evening peak periods, respectively.
- Similarly, buses at midblock bus stops should spend no more than 36, 33, and 31 seconds TBST for the morning, midday and evening periods, respectively.

Dr. Noel noted, “Thirty bus stops located at intersections and thirty midblock bus stops were used for this study. All were in heavily traveled routes within Washington DC. Due to potential changes in traffic patterns and land uses near bus stops, these models should be updated and validated on a 3- to 5-year cycle.”

The bus stop selection was based on the Stop Usage Report released by the Washington Metropolitan Area Transportation Authority (WMATA) in January 2014. This report ranked the bus stops based on the number of passengers boarding and alighting at each stop. The top-ranked bus stops in WMATA’s report were selected to ensure the occurrence of bus-stopping events during data collection. It should be noted that the resulting models are based on data collected at a specific transit jurisdiction and, as such, may not accurately predict TBST or DT for other jurisdictions.

The report includes 71 figures and 35 tables detailing the collected data. The report is available for free download from <http://transweb.sjsu.edu/project/1239.html>

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### ABOUT THE AUTHORS

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**Errol C. Noel, PhD, PE, FASCE**, is a tenured full professor of the Department of Civil and Environmental Engineering of Howard University. He chaired the Department from 2000-2010 and has served as executive director of the Howard University Traffic Safety and Transportation Data Center and as director for transit research conducted by Howard University under the Mineta National Transit Research Consortium. He teaches graduate and undergraduate courses in traffic and highway engineering, project management, and engineering systems analysis. His research has focused on applied research for solving urban transportation problems. In parallel with his responsibilities at Howard University, he has more than forty years of professional engineering experience.

#### **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**

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

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