Mineta Research: How underground urban rail systems can manage pedestrian traffic in increasingly crowded stations

Free report offers four recommendations

San Jose, CA – May 26, 2015 – How can urban rail systems manage pedestrian traffic in increasingly crowded stations? This is especially problematic in subway systems, where spaces are confined. This congestion can result in passenger inconvenience, delays, and at times danger. A new Mineta Transportation Institute report, *Passenger Flows in Underground Railway Stations and Platforms*, addresses that challenge and offers several recommendations. Authored by Anastasia Loukaitou-Sideris, PhD, Brian D. Taylor, PhD, and Carole Turley Voulgaris, the peer-reviewed report is available for free download from http://transweb.sjsu.edu/project/1230.html

"An important goal of this report is to explain how transit system managers, planners, and designers can provide optimal passenger flow," said Dr. Loukaitou-Sideris. "Many subway and elevated transit stations have been in service for decades, so they often must accommodate in the same physical space more passengers than they originally were designed to handle. Thus, transit station designers and transit operators not only must devise strategies to provide safe and comfortable passenger movement through the stations, they also must implement these strategies within physical and financial constraints."

The study had three objectives: 1) Understand the particular infrastructural, operational, behavioral, and spatial factors that affect and may constrain passenger queuing and flows in different types of rail transit stations; 2) Identify, compare, and evaluate practices for efficient, expedient, and safe passenger flows in different types of station environments and during typical (rush hour) and atypical (evacuations, station maintenance/refurbishment) situations; and 3) Compile short-, medium-, and long-term recommendations for optimizing passenger flows in different station environments.

The researchers conducted a review of relevant literature, interviews with experts in transit rail station design, and an online survey of 18 transit professionals representing all 16 transit agencies in the United States and Canada with heavy rail transit stations. They then made observations and developed recommendations in each of four topic areas: (1) agency planning for passenger flows; (2) data collection and forecasting; (3) analysis; and (4) design.

Recommendations included:

- Encourage coordination and knowledge sharing among various specialists responsible for aspects of the passenger experience, including construction and emergency evacuations.
- Routinely assess assumptions used to estimate pedestrian volumes and pedestrian characteristics.
- Select analysis tools and methodologies based on each particular question requiring a solution.
- Consider the impact that each design strategy implemented in one station area will have in other areas of the station and on the adjacent street environment.

The 110-page report includes lists of those who were interviewed or surveyed, an explanation of methodology, and 11 figures and 26 tables to illustrate. Copies of the interview and survey

instruments are also included.

For a free, no-registration download, go to http://transweb.sjsu.edu/project/1230.html

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ABOUT THE RESEARCH TEAM

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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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