

## Free university report: State of the automated transit networks industry

Mineta Transportation Institute research has relevance for US planners.

**San José, Calif., September 16, 2014** – What are automated transit networks (ATN), and can they ever become a realistic addition to public transportation nationwide? These are just two of the questions addressed in the [Mineta Transportation Institute](#)'s latest peer-reviewed study, *Automated Transit Networks: State of the Industry in 2013*. The report provides an informative tool for planners, urban designers, and those involved in public policy, especially for urban transit, about ATN – where they fit within the larger category of automated guideway transit (AGT), what unique challenges they pose for planning and funding, what is the state of the ATN industry, and what are its prospects for the future. The principal investigator was Burford Furman, PhD, along with section authors Lawrence Fabian, Sam Ellis, Peter Muller, and Ron Swenson. The free report can be downloaded from <http://transweb.sjsu.edu/project/1227.html>

Dr. Furman said, “The need for this report arose because most urban transportation planners are generally unaware of ATN and its potential benefits, tradeoffs, and implications. Nor are they aware of the current state of potential suppliers, whether there is a market for ATN, and what is entailed in planning, procuring, and funding ATN systems. This report should find multiple uses nationally as the U.S. contemplates the future of highway infrastructure, plans out a sustainable energy future, and accommodates historic demographic shifts back to growth in urban cores.”

ATN is composed of small automated (driverless) vehicles that run on dedicated guideways carrying passengers directly to their desired destinations. ATN is unique in that stations are off-line, and vehicles travel from origin to destination without intermediate stops or transfers. Furthermore, with ATN, service is typically non-scheduled, like a taxi, and travelers can choose to travel alone or with companions. This is unlike buses, for example, which operate on fixed schedules with frequent intermediate stops and large numbers of riders.

“ATN poses unique challenges and opportunities compared with conventional transit,” said Dr. Furman. “This report presents basic factors that must be considered for planning and designing ATN systems. Conceptually, the network nature of ATN and its use of offline stations suggest that it could provide relatively high service levels because it uses flexible station placements within a wide area compared with more conventional transit that aggregates demand in corridors.”

The report provides several examples of guideway designs, possible system expansions, observations regarding ATN suppliers and their products, the industry status and market potential, planning parameters and principles, station configurations and placements, capacity and load factors, funding and procurement, and other facets of planning and implementing an ATN system.

However, the challenges are also addressed. These include the aesthetic and environmental impacts of elevated guideways and stations; the complexity of large networks, including power outages, fallen trees, passenger safety, and system security; and ways to make the financial numbers work, given that no clear business model exists.

The report is rich with figures and tables, along with summaries from seven international Podcar City Conferences, plus system specifications gleaned from ten ATN suppliers. It also includes the Memorandum of Cooperation (MoC) between Sweden and the U.S. The report gives background and history on this important document of cooperation that provides political support and cooperation especially for ATN. For a free PDF of the research report, go to

<http://transweb.sjsu.edu/project/1227.html>

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#### **ABOUT THE PRINCIPAL INVESTIGATOR**

Dr. Burford “Buff” Furman is a professor in the Mechanical Engineering Department at San José State University. He is also a registered professional mechanical engineer in California. Prior to arriving at SJSU, he worked at IBM in San José developing disk drive actuators and spindle motors. He has also been a consultant in the optomechanical and laboratory automation industries. His areas of teaching and research are focused primarily in automated transit networks, mechatronics, precision machine design, and engineering measurements.

#### **OTHER INVESTIGATORS**

**Sam Ellis** is a project manager for the International Institute of Sustainable Transportation. He co-authored the Solar Skyways Challenge, which spurred ATN focused projects at Uppsala and San José State Universities. He holds degrees in physics and mathematics, and he educates young people.

**Lawrence Fabian** is a city and regional planner with international and cross-cultural experience. Since the 1980s, he has monitored world developments in automated transit and publishes two newsletters on this topic. He graduated *summa cum laude* from Dartmouth and holds a master’s degree from the University of Pennsylvania.

**Peter Muller** is a registered professional engineer with degrees in civil and environmental engineering from the universities of Cape Town and Colorado. He is president of PRT Consulting, providing professional planning and engineering services for advanced transit networks.

**Ron Swenson** is co-founder and president of the International Institute of Sustainable Transportation (INIST) and CEO of Encitra™ (Energy, Cities, Transportation). Since rebuilding an electric car in 1979, Mr. Swenson has focused on solar-powered transportation.

#### **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 Secretary of Transportation’s Research and Technology Office, US Department of Homeland Security’s Transportation Security Administration, the California Department of Transportation’s Division of Research, Innovation and Systems Development, 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, 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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