



Automated Transit Networks (ATN): A Review of the State of the Industry and Prospects for the Future

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MTI Project 1227

September 2014

More research, development, and validation are necessary for ATN before complex, wide-area network implementations will occur.

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The concept of Automated Transit Networks (ATN) – in which fully automated vehicles on exclusive, grade-separated guideways provide

on-demand, primarily non-stop, origin-to-destination service over an area network – has been around since the 1950s. However, only a few systems are in current operation around the world. ATN does not appear “on the radar” of urban planners, transit professionals, or policy makers when it comes to designing solutions for current transit problems in urban areas for a variety of technological, financial, and political reasons.

This study explains ATN technology, setting it in the larger context of Automated Guideway Transit (AGT); looks at the current status of ATN suppliers, the status of the ATN industry, and the prospects of a U.S.-based ATN industry; summarizes and organizes proceedings from the seven Podcar City conferences that have been held since 2006; documents the U.S./Sweden Memorandum of Understanding on Sustainable Transport; discusses how ATN could expand the coverage of existing transit systems; explains the opportunities and challenges in planning and funding ATN systems and approaches for procuring ATN systems; and concludes with a summary of the existing challenges and opportunities for ATN technology. The study is intended to be an informative tool for planners, urban designers, and those involved in public policy, especially for urban transit, to provide a reference for history and background on ATN, and to use for policy development and research.

Study Methods

Primary source documents, surveys, and interviews with ATN suppliers, privileged access to files and databases from Trans.21 (a clearinghouse for data and information on automated transit), and web research were used to generate the findings of the report.

Findings

The research found that:

- The ATN industry is in an early, tentative stage of commercialization. No market for ATN presently exists.
- ATN has been implemented thus far essentially as line shuttles, which have not reached beyond approximately five stations each.
- ATN appears to have potential as a new mode of sustainable urban transit, with excellent levels of service and environmental sustainability if its infrastructure is integrated with solar power collection.
- Only a few credible suppliers are likely able to deliver an ATN project consisting of 5-15 stations within two or three years from start of construction.
- More research, development, and validation are necessary for ATN before complex,

wide-area network implementations will occur and before planners, developers, and transit professionals will take ATN seriously.

Policy Recommendations

The research suggests that a number of steps should be taken to advance a broad quantitative and qualitative appreciation of the significant societal benefits possible with ATN:

1. Develop a program digest of the U.S. Department of Transportation Automated Guideway (AGT) programs of the 1970s to inform metropolitan planning organization (MPO) planners and transportation policy makers about AGT.
2. Synthesize Swedish research on ATN from the 1970s to the present.
3. Sponsor research into the costs and risks of below- and above-grade implementations of APM and ATN systems.
4. Sponsor research into how elevated ATN infrastructure can be conceived and used as attractive urban furniture.
5. Perform a generic alternatives analysis for an MPO region or on a national scale to determine how urban mobility would be improved with investment in open (dual-mode) and closed (captive vehicle) ATN in comparison with other modes.
6. Continue research and development of solar photovoltaic integration with ATN.
7. Investigate feasibility, costs, and benefits of ground-level ATN stations and/or of integrating stations into buildings.
8. Investigate the economic impacts of small-scale ATN stations on land values compared with those of conventional rail.
9. Investigate how ATN might impact demand forecasting and transit mode split models.
10. Incentivize MPOs to develop concepts using ATN to further sustainable transportation by issuing a request for proposals (RFP) for ideas.
11. Fund research into the urban economics of mobility, including simulations that allow “what-if” testing of ATNs in the full modal context of U.S. cities, towns, and districts.
12. Encourage and fund ATN demonstration programs.



Source: Beamways AB, <http://beamways.se/>

Visualization of ATN guideways in an urban setting.

About the Authors

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1227.html

MTI is a University Transportation Center sponsored by the U.S. Department of Transportation's Research and Innovative Technology Administration and by Caltrans. The Institute is located within San José State University's Lucas Graduate School of Business. [WEBSITE transweb.sjsu.edu](https://transweb.sjsu.edu)