ATN: Game-Changer?

A study of the State-of-the Industry for Automated Transit Networks

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The study is an informative tool for planners, urban designers, and policy makers

Plan Bay Area is an integrated long-range transportation and land-use/housing plan for the San Francisco Bay Area
The study is an informative tool for planners, urban designers, and policy makers

- Background, classification, characteristics, history

http://www.boston.com/business/technology/innoeco/cronkite.jpg

http://www.vectorusprt.com/EN/vehicles/
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- Background, classification, characteristics, history
- Status of current ATN suppliers

http://www.vectusprt.com/EN/tech-test-info/

http://www.2getthere.eu/
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• Status of current ATN industry
• Prospects of U.S. ATN industry
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September 30, 2010
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- ATN linkages to existing transit systems

[Image: http://wwwsocketsitecom/Transbay%20Transit%20Center%20Cross%20Section.jpg]
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- Planning and funding ATN systems

http://www.t4america.org/docs/081809_stranded_at_thestation.PDF
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- Planning and funding ATN systems
- Procurement of ATN systems
- Challenges and opportunities

Courtesy of T. Paige, Aerospace Corp. 2013
State-of-the-Industry – Lawrence Fabian
We are assessing the state-of-the-ATN-industry and its prospects

Demand ➔

Market

← Industry

Not an assessment of ATN technology
The context flows from ongoing U.S. – Swedish collaboration

• Engendered by U.S. - Swedish MOC

• Fostered by PCC conference series

• Focusing on procurement options and international industry prospects
There is no regular ATN market

A *market*:

- exists when buyers and sellers meet and transact on a regularly basis
- generates professional and trade associations and conferences
- has a dynamic of its own, with news media

*This conference may be the closest there is to an ATN market*
A small number of limited ATNs are in service

- Morgantown + upgrades
- Handful of small, new projects
  - Masdar (UAE) -- 2getthere
  - Heathrow (London) - Ultra
  - Suncheon (S. Korea) -- Vectus
There are many next-tier suppliers with serious technology developments

Easy enter/Easy exit
MPOs and consultants are not knowledgeable about ATN parameters and features

• FTA corridor approach blocks network thinking
• TRB 165 capacity manual lacks ATN
• No ATN in MPO pipelines
  – Ithaca and Albany exceptions
Self-driving cars are being tested

- Google, Tesla, Volvo, Toyota, etc.
- When and what level?
- Public sector response?
- Dual-mode policies?
- Liability – uncharted waters
The market for ATN depends primarily on public priorities

- GHG reductions – how serious?
- Transit reform and ATN reinforcement
- Mobility for seniors and special districts
- ATN as exports, jobs?
Planning and Procurement – Peter Muller
ATN planning is different and requires new knowledge

• Corridor vs. network
ATN planning is different and requires new knowledge

- Corridor vs. network
- On demand vs. scheduled
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- Headway defines capacity
ATN must be advanced within the existing planning framework

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The Transportation Planning Process - Key Issues, FTA
Think service areas, not corridors
Interconnected loops can limit capacity (merge/diverge)
Grade separation increases capacity and reduces circuitousness (diverge/merge)
Corner-connected loops can be a good compromise (merge/diverge)
Procurement requires expert consultants and much supplier input due to complexity and uniqueness.

- Rubber tires, battery power

Steel rail, wayside power

Requires side walls

No side walls

Design/bid/build will not work!
ATN dramatically increases transit ride share
ATN could be a game changer:

• Dramatically increases transit ride share
• Can often cover its own operating costs
• Can sometimes also cover its capital costs
Government, Energy, and Technology – Ron Swenson
All levels of government are important and will be impacted

- USDOT and other Federal agencies
  - EPA, HHS, HUD, DOI, etc.
- STATE DOTS + other state agencies
  - Cal PUC and EQA
- MPOs
- Counties, cities, towns and other local units
US-Swedish cooperation is synergistic, interdisciplinary and multi-level

- USDOT and Swedish Ministry of Enterprise, and Communications
- KOMPASS and U.S. counterparts
- Two logs to make a fire
- Three to make it roar!
Use of solar power is blocked by hype about fracked oil and gas

- Fracking is just ‘scraping the bottom of the barrel’
- The reality is depletion
Solar power is sustainable

- Collection near use is a great advantage
- Collection on roofs is problematic
- Solar is ‘Made in America’
We can get a megawatt per mile with PV solar mounted ATN

• A desert is not required
• If it works in Uppsala, Sweden then it will work anywhere
Recommendations – Lawrence Fabian
Airports generate landside traffic and GHG that can be reduced by ATN

- Statistics on airport district circulation are needed
- Planning guidance is needed to envision, configure, fund and implement
- A process for stakeholder cooperation is needed
MPOs need objective, land-use-oriented planning guidance

• ATN deployments are much more than debugging the system

• Urban residents need to be informed about ATN

• TRB manual on Transit Capacity and Quality of Service lacks future orientation

• Research and modeling is needed for ATN on ridership and last mile deployment
EPA officials need tools to assess the potential of ATN

- Modeling software and training to estimate GHG reductions
- Analysis and data to predict reductions in accidents
- Measures of benefits of noise reduction
- Role of ATN in shifts to car-free lifestyles and health benefits of walking and biking
Programs are needed to:

- Demonstrate capacity and scalability
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- Demonstrate capacity and scalability
- Calibrate mode-split models
- Elicit local creativity
- Extend MPO modeling capabilities
The game is changing

Thank you!
Questions?
ATN/PRT has great potential

If system development continues as expected, PRT could theoretically become an effective tool to improve urban congestion, sustainability and livability. PRT offers a mode of service that could be more competitive with the private automobile than conventional public transportation systems and potentially attract more drivers from their cars. Further, PRT offers the potential to reduce the energy use, land use, and environmental impact of transportation allowing the implementation of more sustainable transportation solutions in today’s congested infrastructure.

(Viability of Personal Rapid Transit In New Jersey Final Report 2007, 15)